

## **RESULTS OF AMERICAN CRYSTAL SUGAR COMPANY'S 2017 CODED OFFICIAL VARIETY TRIALS**

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American Crystal Sugar Company's (ACSC) coded Official Variety Trials (OVT) are designed to provide an unbiased evaluation of the genetic potential of sugarbeet variety entries under several different environments. The two-year average of these evaluations then are used to establish a list of approved varieties which ensures the use of high quality, productive varieties to maximize returns for growers and the cooperative as a whole.

This report presents data from the 2017 American Crystal OVTs and describes the procedures and cultural practices involved in the trials.

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### **Procedures and Cultural Practices**

Sugarbeet official variety testing was conducted the ACSC growing region areas of the Red River Valley by ACSC personnel at the Technical Services Center.

All entries were assigned a code number by KayJay Ag Services. The seed then was sent to ACSC Technical Services Center at Moorhead for official testing.

Thirteen official yield trial sites were planted in the ACSC area with eleven harvested. Plant-to-stand trials (4.5 inch spacing) were used to evaluate the commercial, experimental and conventional varieties. Seed companies had the option of treating seed with Tachigaren, insecticide and a Rhizoctonia seed treatment fungicide. The treatments used on the seed planted in the official variety yield trials can be found in table 7.

Ten ACSC sites were used for variety approval calculations (Felton, Georgetown, Hendrum, Hillsboro, Climax, Grand Forks, Scandia, St. Thomas, Stephen and Bathgate). One site was abandoned due to erratic emergence (Casselton) and two were abandoned due to soil compaction (Humboldt and Argyle). Rhizoctonia was less prevalent in 2017 yet showed an increase from 2016 in yield trials. Based upon susceptible plot observations, root aphids had only a slight effect on varieties in 2017.

Plots were planted crosswise (90°) to the cooperators' normal farming operations, where possible. Plot row lengths for all official trials were maintained at 44 feet with about 39 feet harvested. All trials had two or four-row plots planted in four or six replications. Planting was performed with a 12-row SRES vacuum planter. The GPS controlled planter gave good single seed spacing which facilitated emergence counting. Emergence counts were taken on 24 feet of each plot. Multiple seedlings were counted as a single plant if they emerged less than one inch apart. The stands in all yield trials were refined by removing doubles (multiple seedlings less than 1.5 inch apart) by hand but were not further reduced.

Roundup Powermax with Event and full rates of fungicides were applied using a pickup sprayer driven down the alleys. Hand weeding was used where necessary. The micro rate program was used on conventional trials. All yield trials were treated with Quadris in a band during the 2 leaf (9 oz) and 6-10 leaf stage (14 oz) for Rhizoctonia control. Treatments used for Cercospora control in 2017 included Inspire XT/Penncozeb, Agritin/Incognito, Penncozeb, and Headline/Agritin. Ground spraying was conducted by ACSC technical staff.

Roundup Ready (RR) varieties with commercial seed were planted in four-row, six replication trials. The RR experimental entries were planted in smaller two-row, four replication trials. Two applications of Roundup were made in the 4-6 (32 oz) and 8-12 (22 oz) leaf stages.

ACSC Conventional OVT's were reinstated in 2016 and repeated again in 2017. Approval was based on one year of data with eighteen varieties approved for 2018 sales. Three conventional varieties were previously approved and have data from the 2012 Sugarbeet Research and Extension Report.

All plot rows were measured for total length after approximately 2.5 feet at each end were removed at the end of August, with skips greater than 60 inches being measured for adjustment purposes. Harvest was performed with two modified four-row harvesters (4310 and 4310A John Deere). All harvested beets of each plot were used for yield determination while one sample (approx 25 lbs) for sugar and impurity analysis was obtained from each plot. Quality analysis was performed at the ACSC Technical Services quality lab in Moorhead.

Varieties were planted in disease nurseries in North Dakota, Minnesota and Michigan to evaluate varieties for disease tolerance.

The ACSC official variety trial program attempts to utilize multiple disease nurseries adjusting the Cercospora, Aphanomyces, Rhizoctonia and Fusarium nursery data each year to provide consistency to the disease ratings. In 2017, the disease ratings for Aphanomyces (Shakopee) and Rhizoctonia (Michigan) were limited to a single location due to lack of disease pressure in the RRV. Consider reviewing all available disease ratings when evaluating variety performance.

#### Acknowledgements

Thanks to the beet seed companies for their participation in the official variety testing program and to all grower-cooperators, agricultural, and beet seed staff for their assistance. Special thanks are extended to Dr. Mohamed Khan for Cercospora nursery infection, Dr. Albert Sims for hosting a Rhizoctonia nursery, Randy Nelson for RRV disease ratings, USDA staff in Michigan for Cercospora and Rhizoctonia nursery ratings. The Betaseed staff for Aphanomyces and Cercospora ratings in the Shakopee area, and Kay Jay Ag Services for sampling and coding all variety entries.

Table 1. Varieties Meeting ACSC Approval Criteria for the 2018 Sugarbeet Crop ++

| <b>Roundup Ready ®</b>  | Full Market | Aph Spec | Rhc Spec | High Rzm | <b>Conventional</b>     | Full Market | High Rzm |
|-------------------------|-------------|----------|----------|----------|-------------------------|-------------|----------|
| BTS 80RR52              | Yes         | Aph      |          | Hi Rzm   | BETA EXP 687            | Yes         | Hi Rzm   |
| BTS 8337                | Yes         | Aph      |          | Hi Rzm   | BETA EXP 698            | Yes         | Hi Rzm   |
| BTS 8363                | Yes         |          |          | Hi Rzm   | BETA EXP 747            | New         | Hi Rzm   |
| BTS 8500                | Yes         | Aph      |          | Hi Rzm   | BETA EXP 758            | New         | Hi Rzm   |
| BTS 8512                | Yes         | Aph      |          | Hi Rzm   | Crystal R761            | Yes         | Hi Rzm   |
| BTS 8524                | Yes         | Aph      |          | Hi Rzm   | Crystal 620             | Yes         | Hi Rzm   |
| BTS 8572                | Yes         | Aph      |          | Hi Rzm   | Crystal 622             | Yes         | Hi Rzm   |
| BTS 8606                | New         |          |          | Hi Rzm   | Crystal 735             | New         | Hi Rzm   |
| BTS 8629                | New         |          |          | Hi Rzm   | Crystal 737             | New         | Hi Rzm   |
| Crystal 093RR           | Yes         | Aph      |          | Hi Rzm   | Hilleshög 3035Rz        | Yes         | Rzm      |
| Crystal 101RR           | Yes         | Aph      |          | Hi Rzm   | Hilleshög 9891Rz        | Yes         | Rzm      |
| Crystal 246RR           | Yes         |          |          | Hi Rzm   | Maribo MA615Rz          | Yes         | Rzm      |
| Crystal 247RR           | Yes         |          |          | Hi Rzm   | Maribo MA720Rz          | New         | Hi Rzm   |
| Crystal 355RR           | Yes         | Aph      | Rhc      | Hi Rzm   | Seedex Deuce (SX0873TT) | Yes         | Hi Rzm   |
| Crystal 467RR           | Yes         | Aph      |          | Hi Rzm   | Seedex 8869             | Yes         | Hi Rzm   |
| Crystal 572RR           | Yes         |          |          | Hi Rzm   | SESVdh 48611            | Yes         | Hi Rzm   |
| Crystal 573RR           | Yes         | Aph      |          | Hi Rzm   | SESVdh 48777            | New         | Hi Rzm   |
| Crystal 574RR           | Yes         | Aph      |          | Hi Rzm   | Strube 13722            | New         | Rzm      |
| Crystal 578RR           | Yes         |          |          | Hi Rzm   |                         |             |          |
| Crystal 684RR           | New         | Aph      |          | Hi Rzm   |                         |             |          |
| Crystal 986RR           | Yes         | Aph      |          | Rzm      |                         |             |          |
| Hilleshög 4302RR        | Yes         | Aph+     | Rhc      | Rzm      |                         |             |          |
| Hilleshög 4448RR        | Yes         |          |          | Rzm      |                         |             |          |
| Hilleshög 9528RR        | Yes         | Aph      |          | Hi Rzm   |                         |             |          |
| Hilleshög 9707          | No          | Aph      |          | Hi Rzm   |                         |             |          |
| Hilleshög 9708          | Yes         |          |          | Hi Rzm   |                         |             |          |
| Hilleshög 9895          | No          | Aph      |          | Hi Rzm   |                         |             |          |
| Maribo 109              | Yes         | Aph      | Rhc      | Hi Rzm   |                         |             |          |
| Maribo 305              | Yes         |          |          | Rzm      |                         |             |          |
| Maribo 502              | No          | Aph      |          | Hi Rzm   |                         |             |          |
| Maribo 504              | Yes         |          |          | Hi Rzm   |                         |             |          |
| Maribo 611              | No          | Aph      |          | Hi Rzm   |                         |             |          |
| Seedex Avalanche (858)  | Yes         | Aph      |          | Hi Rzm   |                         |             |          |
| Seedex Canyon RR(844TT) | Yes         | Aph      |          | Hi Rzm   |                         |             |          |
| Seedex Cruze RR(846)    | Yes         | Aph      |          | Rzm      |                         |             |          |
| Seedex Marathon (856)   | Yes         |          |          | Hi Rzm   |                         |             |          |
| Seedex Winchester RR    | Yes         | Aph      |          | Rzm      |                         |             |          |
| Seedex RR1861           | New         |          |          | Hi Rzm   |                         |             |          |
| Seedex RR1863           | New         | Aph      |          | Hi Rzm   |                         |             |          |
| SESVdh RR244TT          | Yes         |          |          | Hi Rzm   |                         |             |          |
| SESVdh RR265            | New         |          |          | Hi Rzm   |                         |             |          |
| SESVdh RR266            | New         |          |          | Hi Rzm   |                         |             |          |
| SESVdh RR268            | New         | Aph      |          | Hi Rzm   |                         |             |          |
| SESVdh RR333            | Yes         | Aph      |          | Hi Rzm   |                         |             |          |
| SESVdh RR351            | Yes         | Aph      |          | Hi Rzm   |                         |             |          |

++Roundup Ready sugarbeets are subject to the ACSC RRSB Bolter Destruction Policy

+ Previously approved varieties not meeting current approval standards may be sold in 2018.

Roundup Ready ® is a registered trademark of Monsanto Company.

Aph Spec = variety meets Aphanomyces specialty requirements

Rhc Spec = variety meets Rhizoctonia specialty requirements

Hi Rzm = may perform better under severe Rzm.

New = newly approved

Created 10/31/2017

Table 2. Performance Data of RR Varieties During 2015, 2016, 2017 Growing Seasons (All Locations Combined) +++

| Variety @                | Yrs<br>Com | Rev/Ton ++ |       |     |       |     |      | Rev/Acre ++ |      |      |     |     |     | Rec/Ton |       | Rec/Acre |       | Sugar |      | Yield |      | Molasses |      | Emerg |      | Bolter / Ac |      | CR + |      | Aph Root+ |      | Rhizoc+ |      | Fusarium+ Rzm+ |   |
|--------------------------|------------|------------|-------|-----|-------|-----|------|-------------|------|------|-----|-----|-----|---------|-------|----------|-------|-------|------|-------|------|----------|------|-------|------|-------------|------|------|------|-----------|------|---------|------|----------------|---|
|                          |            | 17         | 2 Yr  | 2Y% | 3Y#   | 3Y% |      | 17          | 2 Yr | 2Y%  | 3Y# | 3Y% |     | 17      | 2 Yr  | 17       | 2 Yr  | 17    | 2 Yr | 17    | 2 Yr | 17       | 2 Yr | 17    | 2 Yr | 17          | 2 Yr | 17   | 2 Yr | 17        | 2 Yr | 17      | 2 Yr |                |   |
| # locations              |            | 10         | 19    |     | 29    |     |      | 10          | 19   |      | 29  |     |     | 10      | 19    | 10       | 19    | 10    | 19   | 10    | 19   | 10       | 19   | 10    | 19   | 10          | 19   | 3    | 6    | 1         | 3    | 1       | 5    | 2              | 4 |
| <b>Previous Approved</b> |            |            |       |     |       |     |      |             |      |      |     |     |     |         |       |          |       |       |      |       |      |          |      |       |      |             |      |      |      |           |      |         |      |                |   |
| BTS 80RR52               | 6          | 52.79      | 52.12 | 100 | 52.82 | 100 | 1699 | 1830        | 102  | 1787 | 103 | 334 | 326 | 10789   | 11432 | 17.94    | 17.45 | 32.4  | 35.3 | 1.22  | 1.17 | 78       | 75   | 5     | 2    | 4.37        | 4.33 | 4.4  | 4.2  | 4.1       | 4.3  | 2.7     | 2.7  | Hi             |   |
| BTS 8337                 | 3          | 57.43      | 55.76 | 107 | 56.99 | 108 | 1842 | 1860        | 104  | 1825 | 105 | 350 | 337 | 11209   | 11247 | 18.55    | 17.96 | 32.1  | 33.4 | 1.08  | 1.10 | 76       | 72   | 5     | 2    | 4.36        | 4.49 | 3.8  | 3.5  | 4.3       | 4.2  | 3.8     | 3.9  | Hi             |   |
| BTS 8363                 | 3          | 51.14      | 50.20 | 97  | 50.68 | 96  | 1770 | 1854        | 104  | 1813 | 104 | 329 | 319 | 11391   | 11777 | 17.53    | 17.03 | 34.7  | 37.0 | 1.09  | 1.06 | 78       | 76   | 0     | 0    | 4.10        | 4.21 | 4.6  | 4.8  | 4.9       | 4.6  | 3.5     | 3.3  | Hi             |   |
| BTS 8500                 | 1          | 53.24      | 51.10 | 98  | 51.62 | 98  | 1862 | 1914        | 107  | 1855 | 107 | 336 | 322 | 11741   | 12068 | 17.90    | 17.22 | 35.0  | 37.6 | 1.11  | 1.10 | 76       | 76   | 0     | 0    | 4.29        | 4.41 | 4.5  | 4.4  | 4.6       | 4.5  | 2.1     | 2.0  | Hi             |   |
| BTS 8512                 | 1          | 54.51      | 52.80 | 102 | 53.37 | 101 | 1749 | 1833        | 103  | 1793 | 103 | 340 | 328 | 10921   | 11380 | 18.08    | 17.48 | 32.2  | 34.8 | 1.08  | 1.08 | 79       | 77   | 14    | 7    | 3.69        | 3.86 | 3.8  | 4.0  | 4.3       | 4.4  | 3.0     | 2.8  | Hi             |   |
| BTS 8524                 | 1          | 51.51      | 49.79 | 96  | 50.15 | 95  | 1796 | 1875        | 105  | 1831 | 105 | 330 | 318 | 11506   | 11961 | 17.64    | 17.03 | 34.9  | 37.7 | 1.14  | 1.14 | 79       | 79   | 5     | 2    | 4.38        | 4.56 | 4.5  | 4.2  | 4.4       | 4.3  | 3.2     | 3.3  | Hi             |   |
| BTS 8572                 | 1          | 56.57      | 54.96 | 106 | 55.68 | 106 | 1817 | 1865        | 104  | 1816 | 105 | 347 | 335 | 11147   | 11365 | 18.41    | 17.81 | 32.2  | 34.0 | 1.07  | 1.05 | 78       | 77   | 0     | 0    | 4.14        | 4.27 | 3.8  | 4.1  | 4.3       | 4.4  | 2.5     | 2.4  | Hi             |   |
| Crystal 093RR            | 6          | 57.65      | 54.91 | 106 | 55.51 | 105 | 1866 | 1904        | 107  | 1850 | 106 | 350 | 335 | 11339   | 11603 | 18.60    | 17.84 | 32.4  | 34.8 | 1.08  | 1.10 | 76       | 74   | 0     | 0    | 4.49        | 4.72 | 4.4  | 4.4  | 4.5       | 4.4  | 3.5     | 3.4  | Hi             |   |
| Crystal 101RR            | 6          | 51.29      | 49.71 | 96  | 50.79 | 96  | 1718 | 1784        | 100  | 1728 | 99  | 329 | 318 | 11040   | 11400 | 17.66    | 17.10 | 33.6  | 36.0 | 1.20  | 1.22 | 77       | 73   | 0     | 0    | 4.57        | 4.58 | 3.9  | 3.7  | 4.8       | 4.8  | 2.7     | 2.6  | Hi             |   |
| Crystal 246RR            | 4          | 52.05      | 49.94 | 96  | 50.68 | 96  | 1775 | 1810        | 101  | 1774 | 102 | 332 | 319 | 11322   | 11534 | 17.67    | 17.01 | 34.2  | 36.3 | 1.09  | 1.09 | 74       | 75   | 0     | 0    | 4.63        | 4.72 | 5.1  | 5.0  | 4.2       | 4.3  | 3.2     | 3.2  | Hi             |   |
| Crystal 247RR            | 4          | 53.09      | 51.91 | 100 | 52.76 | 100 | 1832 | 1923        | 108  | 1886 | 109 | 335 | 325 | 11575   | 12031 | 17.79    | 17.28 | 34.6  | 37.1 | 1.03  | 1.04 | 76       | 72   | 18    | 9    | 4.55        | 4.60 | 5.4  | 5.1  | 4.5       | 4.4  | 3.0     | 2.9  | Hi             |   |
| Crystal 355RR            | 2          | 54.56      | 53.87 | 104 | 54.20 | 103 | 1711 | 1829        | 102  | 1761 | 101 | 340 | 331 | 10689   | 11243 | 18.16    | 17.70 | 31.5  | 34.0 | 1.15  | 1.14 | 75       | 76   | 0     | 0    | 4.36        | 4.48 | 4.8  | 4.7  | 4.1       | 4.0  | 2.8     | 2.7  | Hi             |   |
| Crystal 467RR            | 1          | 51.56      | 49.09 | 94  | 50.11 | 95  | 1804 | 1825        | 102  | 1805 | 104 | 330 | 316 | 11588   | 11754 | 17.63    | 16.91 | 35.2  | 37.4 | 1.12  | 1.14 | 80       | 75   | 0     | 0    | 4.46        | 4.57 | 4.0  | 4.0  | 4.5       | 4.4  | 2.0     | 1.9  | Hi             |   |
| Crystal 572RR            | 1          | 58.99      | 56.37 | 108 | 56.67 | 108 | 1891 | 1937        | 108  | 1866 | 107 | 355 | 340 | 11379   | 11673 | 18.74    | 18.01 | 32.1  | 34.5 | 1.01  | 1.02 | 81       | 79   | 0     | 0    | 4.27        | 4.42 | 4.7  | 4.7  | 4.5       | 4.3  | 2.6     | 2.2  | Hi             |   |
| Crystal 573RR            | NC         | 55.66      | 54.22 | 104 | 54.82 | 104 | 1785 | 1877        | 105  | 1837 | 106 | 344 | 333 | 11039   | 11512 | 18.28    | 17.71 | 32.1  | 34.7 | 1.08  | 1.07 | 75       | 74   | 0     | 0    | 4.15        | 4.25 | 3.8  | 4.0  | 4.6       | 4.6  | 3.1     | 3.3  | Hi             |   |
| Crystal 574RR            | 1          | 52.84      | 50.76 | 98  | 51.24 | 97  | 1875 | 1973        | 110  | 1915 | 110 | 334 | 321 | 11851   | 12453 | 17.79    | 17.14 | 35.4  | 38.8 | 1.08  | 1.09 | 79       | 79   | 0     | 0    | 4.35        | 4.43 | 4.7  | 4.2  | 4.2       | 4.2  | 2.2     | 2.0  | Hi             |   |
| Crystal 578RR            | NC         | 54.05      | 52.68 | 101 | 53.46 | 101 | 1899 | 1958        | 110  | 1904 | 110 | 338 | 328 | 11908   | 12160 | 18.00    | 17.43 | 35.3  | 37.2 | 1.07  | 1.05 | 80       | 78   | 0     | 0    | 4.91        | 4.89 | 4.6  | 4.5  | 4.4       | 4.4  | 2.4     | 2.2  | Hi             |   |
| Crystal 986RR            | 6          | 54.89      | 53.48 | 103 | 54.13 | 103 | 1776 | 1836        | 103  | 1772 | 102 | 341 | 330 | 11008   | 11298 | 18.09    | 17.51 | 32.2  | 34.2 | 1.03  | 1.01 | 78       | 77   | 0     | 0    | 4.77        | 4.76 | 4.1  | 4.2  | 4.4       | 4.4  | 4.7     | 4.8  | Rzm            |   |
| Hilleshög HIL9707        | 1          | 49.79      | 48.85 | 94  | 50.46 | 96  | 1692 | 1716        | 96   | 1661 | 96  | 324 | 315 | 11020   | 11042 | 17.35    | 16.86 | 34.0  | 35.1 | 1.14  | 1.13 | 72       | 66   | 5     | 2    | 4.96        | 4.74 | 4.7  | 4.3  | 4.4       | 4.4  | 4.1     | 4.5  | Hi             |   |
| Hilleshög HIL9708        | NC         | 54.11      | 52.09 | 100 | 53.34 | 101 | 1640 | 1749        | 98   | 1730 | 100 | 339 | 326 | 10290   | 10933 | 18.02    | 17.34 | 30.4  | 33.7 | 1.07  | 1.06 | 74       | 76   | 9     | 5    | 4.61        | 4.68 | 5.9  | 5.4  | 4.2       | 4.2  | 4.6     | 4.4  | Hi             |   |
| Hilleshög 4302RR         | 4          | 52.73      | 52.18 | 100 | 53.06 | 101 | 1597 | 1699        | 95   | 1674 | 96  | 334 | 326 | 10093   | 10582 | 17.75    | 17.33 | 30.1  | 32.5 | 1.05  | 1.04 | 65       | 65   | 0     | 0    | 3.93        | 4.03 | 6.7  | 5.6  | 3.6       | 3.6  | 5.1     | 5.1  | Rzm            |   |
| Hilleshög 4448RR         | 4          | 53.93      | 51.47 | 99  | 53.10 | 101 | 1829 | 1851        | 104  | 1840 | 106 | 338 | 324 | 11456   | 11617 | 17.97    | 17.24 | 33.9  | 35.9 | 1.06  | 1.06 | 70       | 67   | 5     | 2    | 5.28        | 5.24 | 6.3  | 5.1  | 4.6       | 4.6  | 5.3     | 5.3  | Rzm            |   |
| Hilleshög 9528RR         | 3          | 54.35      | 53.26 | 102 | 54.10 | 103 | 1785 | 1884        | 106  | 1843 | 106 | 339 | 329 | 11154   | 11637 | 18.02    | 17.51 | 32.9  | 35.4 | 1.05  | 1.05 | 74       | 71   | 5     | 2    | 4.99        | 4.86 | 5.6  | 4.7  | 4.2       | 4.2  | 4.2     | 4.4  | Hi             |   |
| Maribo 109               | 2          | 56.86      | 56.60 | 109 | 57.45 | 109 | 1569 | 1729        | 97   | 1675 | 96  | 348 | 340 | 9579    | 10365 | 18.43    | 18.03 | 27.5  | 30.5 | 1.06  | 1.04 | 67       | 68   | 0     | 0    | 4.14        | 4.14 | 5.1  | 4.7  | 3.6       | 3.7  | 4.2     | 4.4  | Hi             |   |
| Maribo 305               | 2          | 52.03      | 50.29 | 97  | 50.67 | 96  | 1731 | 1752        | 98   | 1713 | 99  | 332 | 320 | 11018   | 11121 | 17.60    | 17.00 | 33.2  | 34.8 | 1.02  | 1.02 | 67       | 65   | 0     | 0    | 4.98        | 4.85 | 5.7  | 5.0  | 4.6       | 4.5  | 5.9     | 5.9  | Rzm            |   |
| Maribo MA502             | 1          | 51.46      | 49.31 | 95  | 50.47 | 96  | 1642 | 1733        | 97   | 1716 | 99  | 330 | 316 | 10539   | 11124 | 17.66    | 17.00 | 32.0  | 35.4 | 1.17  | 1.20 | 74       | 72   | 68    | 34   | 5.01        | 4.90 | 3.5  | 3.3  | 4.8       | 4.8  | 3.0     | 2.5  | Hi             |   |
| Maribo MA504             | NC         | 52.70      | 50.34 | 97  | 51.66 | 98  | 1830 | 1879        | 105  | 1875 | 108 | 334 | 320 | 11632   | 11946 | 17.77    | 17.07 | 34.9  | 37.5 | 1.07  | 1.08 | 77       | 75   | 0     | 0    | 5.50        | 5.27 | 6.2  | 5.4  | 4.4       | 4.5  | 4.5     | 4.6  | Hi             |   |
| SV RR244TT               | 2          | 52.93      | 52.31 | 101 | 52.78 | 100 | 1796 | 1837        | 103  | 1877 | 103 | 337 | 325 | 11339   | 11427 | 17.79    | 17.36 | 33.8  | 35.0 | 1.05  | 1.05 | 72       | 69   | 5     | 2    | 4.85        | 4.65 | 4.9  | 4.9  | 4.5       | 4.5  | 3.7     | 3.9  | Hi             |   |
| SV RR333                 | 2          | 54.21      | 53.06 | 102 | 53.63 | 102 | 1823 | 1887        | 106  | 1849 | 106 | 339 | 329 | 11399   | 11670 | 17.98    | 17.46 | 33.7  | 35.6 | 1.04  | 1.03 | 72       | 71   | 0     | 0    | 4.84        | 4.84 | 5.0  | 4.8  | 4.4       | 4.4  | 5.3     | 5.1  | Hi             |   |
| SV RR351                 | 1          | 53.73      | 52.02 | 100 | 53.06 | 101 | 1783 | 1877        | 105  | 1792 | 103 | 337 | 325 | 11196   | 11723 | 17.91    | 17.30 | 33.2  | 36.1 | 1.05  | 1.04 | 74       | 73   | 0     | 0    | 4.41        | 4.46 | 4.2  | 4.3  | 4.2       | 4.2  | 5.0     | 4.9  | Hi             |   |
| SX Avalanche RR(858)     | 1          | 55.22      | 53.89 | 104 | 54.90 | 104 | 1690 | 1803        | 101  | 1761 | 101 | 342 | 331 | 10472   | 11077 | 18.13    | 17.58 | 30.6  | 33.5 | 1.02  | 1.02 | 72       | 72   | 9     | 5    | 4.64        | 4.69 | 4.0  | 4.2  | 4.3       | 4.4  | 5.8     | 5.6  | Hi             |   |
| SX Canyon RR             | 2          | 55.26      | 53.44 | 103 | 53.37 | 101 | 1829 | 1878        | 105  | 1812 | 104 | 342 | 330 | 11330   | 11574 | 18.15    | 17.51 | 33.1  | 35.1 | 1.03  | 1.02 | 71       | 71   | 0     | 0    | 4.92        | 4.84 | 4.3  | 4.3  | 4.5       | 4.5  | 5.1     | 5.2  | Hi             |   |
| SX Cruze RR              |            |            |       |     |       |     |      |             |      |      |     |     |     |         |       |          |       |       |      |       |      |          |      |       |      |             |      |      |      |           |      |         |      |                |   |

Table 3. Performance Data of RR Aphanomyces Specialty Varieties - Under Aphanomyces Conditions (Relative to Susceptible Checks) approved for 2018 Growing Season +++

| Variety                         | Years<br>Comm | Rev/Ton |       |      | Rev/Acre |      |      | Rec/Ton |       | Rec/Acre |      | Sugar |       | Yield |      | CR Rating + |      |     | Aph Root + |      |     | Rhizoctonia + |     | Fusarium + |    |    |
|---------------------------------|---------------|---------|-------|------|----------|------|------|---------|-------|----------|------|-------|-------|-------|------|-------------|------|-----|------------|------|-----|---------------|-----|------------|----|----|
|                                 |               | 2017    | 2016  | %Sus | 2017     | 2016 | %Sus | 2017    | 2016  | 2017     | 2016 | 2017  | 2016  | 2017  | 2016 | 17          | 16   | 17  | 16         | 2 Yr | 17  | 16            | 17  | 16         | 17 | 16 |
| # of locations                  |               | 0       | 2     | 2    | 0        | 2    | 2    | 0       | 2     | 0        | 2    | 0     | 2     | 0     | 2    | 3           | 3    | 1   | 2          | 3    | 1   | 4             | 2   | 2          | 2  | 2  |
| <b>Previously Approved</b>      |               |         |       |      |          |      |      |         |       |          |      |       |       |       |      |             |      |     |            |      |     |               |     |            |    |    |
| BTS 80RR52                      | 6             | --      | 47.73 | 99   | --       | 1406 | 137  | --      | 305.0 | --       | 8994 | --    | 16.32 | --    | 29.5 | 4.37        | 4.28 | 4.4 | 4.1        | 4.2  | 4.1 | 4.4           | 2.7 | 2.8        |    |    |
| BTS 8337                        | 3             | --      | 49.32 | 102  | --       | 1372 | 134  | --      | 310.0 | --       | 8626 | --    | 16.59 | --    | 27.9 | 4.36        | 4.62 | 3.8 | 3.3        | 3.5  | 4.3 | 4.1           | 3.8 | 4.0        |    |    |
| BTS 8500                        | 1             | --      | 44.32 | 92   | --       | 1328 | 130  | --      | 293.9 | --       | 8817 | --    | 15.79 | --    | 30.1 | 4.29        | 4.54 | 4.5 | 4.2        | 4.4  | 4.6 | 4.4           | 2.1 | 1.9        |    |    |
| BTS 8512                        | 1             | --      | 45.42 | 94   | --       | 1291 | 126  | --      | 297.6 | --       | 8488 | --    | 15.97 | --    | 28.6 | 3.69        | 4.04 | 3.8 | 4.2        | 4.0  | 4.3 | 4.4           | 3.0 | 2.7        |    |    |
| BTS 8524                        | 1             | --      | 44.53 | 92   | --       | 1417 | 138  | --      | 294.6 | --       | 9385 | --    | 15.85 | --    | 31.9 | 4.38        | 4.74 | 4.5 | 3.9        | 4.2  | 4.4 | 4.2           | 3.2 | 3.4        |    |    |
| BTS 8572                        | 1             | --      | 49.62 | 103  | --       | 1285 | 125  | --      | 311.6 | --       | 8094 | --    | 16.59 | --    | 26.1 | 4.14        | 4.41 | 3.8 | 4.5        | 4.1  | 4.3 | 4.5           | 2.5 | 2.2        |    |    |
| Crystal 093RR                   | 6             | --      | 49.26 | 102  | --       | 1380 | 135  | --      | 309.9 | --       | 8685 | --    | 16.61 | --    | 28.1 | 4.49        | 4.95 | 4.4 | 4.3        | 4.4  | 4.5 | 4.4           | 3.5 | 3.4        |    |    |
| Crystal 101RR                   | 6             | --      | 42.78 | 89   | --       | 1332 | 130  | --      | 289.2 | --       | 9012 | --    | 15.70 | --    | 31.2 | 4.57        | 4.59 | 3.9 | 3.4        | 3.7  | 4.8 | 4.8           | 2.7 | 2.4        |    |    |
| Crystal 355RR                   | 2             | --      | 49.37 | 102  | --       | 1278 | 125  | --      | 310.2 | --       | 8071 | --    | 16.58 | --    | 26.1 | 4.36        | 4.60 | 4.8 | 4.5        | 4.7  | 4.1 | 4.0           | 2.8 | 2.7        |    |    |
| Crystal 467RR                   | 1             | --      | 42.00 | 87   | --       | 1244 | 121  | --      | 286.1 | --       | 8510 | --    | 15.48 | --    | 29.9 | 4.46        | 4.69 | 4.0 | 4.0        | 4.0  | 4.5 | 4.3           | 2.0 | 1.8        |    |    |
| Crystal 573RR                   | NC            | --      | 48.78 | 101  | --       | 1303 | 127  | --      | 308.8 | --       | 8294 | --    | 16.51 | --    | 27.0 | 4.15        | 4.35 | 3.8 | 4.1        | 4.0  | 4.6 | 4.5           | 3.1 | 3.5        |    |    |
| Crystal 574RR                   | 1             | --      | 44.17 | 92   | --       | 1361 | 133  | --      | 293.4 | --       | 9003 | --    | 15.76 | --    | 30.5 | 4.35        | 4.51 | 4.7 | 3.7        | 4.2  | 4.2 | 4.5           | 2.2 | 1.8        |    |    |
| Crystal 986RR                   | 6             | --      | 49.30 | 102  | --       | 1428 | 139  | --      | 310.0 | --       | 8981 | --    | 16.53 | --    | 29.0 | 4.77        | 4.75 | 4.1 | 4.4        | 4.2  | 4.4 | 4.4           | 4.7 | 4.9        |    |    |
| Hilleshög HIL9707               | 1             | --      | 44.36 | 92   | --       | 1256 | 123  | --      | 294.0 | --       | 8345 | --    | 15.78 | --    | 28.4 | 4.96        | 4.53 | 4.7 | 4.0        | 4.3  | 4.4 | 4.4           | 4.1 | 4.9        |    |    |
| Hilleshög 4302RR                | 4             | --      | 47.43 | 98   | --       | 1096 | 107  | --      | 304.0 | --       | 6975 | --    | 16.25 | --    | 22.9 | 3.93        | 4.13 | 6.7 | 4.6        | 5.6  | 3.6 | 3.7           | 5.1 | 5.1        |    |    |
| Hilleshög 9528RR                | 3             | --      | 48.08 | 100  | --       | 1379 | 134  | --      | 306.1 | --       | 8772 | --    | 16.38 | --    | 28.6 | 4.99        | 4.73 | 5.6 | 3.8        | 4.7  | 4.2 | 4.2           | 4.2 | 4.5        |    |    |
| Maribo 109                      | 2             | --      | 51.46 | 107  | --       | 1180 | 115  | --      | 316.9 | --       | 7271 | --    | 16.91 | --    | 23.0 | 4.14        | 4.14 | 5.1 | 4.3        | 4.7  | 3.6 | 3.7           | 4.2 | 4.5        |    |    |
| Maribo MA502                    | 1             | --      | 44.36 | 92   | --       | 1350 | 132  | --      | 294.0 | --       | 8945 | --    | 15.88 | --    | 30.4 | 5.01        | 4.79 | 3.5 | 3.1        | 3.3  | 4.8 | 4.7           | 3.0 | 1.9        |    |    |
| SV RR333                        | 2             | --      | 46.56 | 97   | --       | 1241 | 121  | --      | 301.2 | --       | 8010 | --    | 16.08 | --    | 26.5 | 4.84        | 4.85 | 5.0 | 4.7        | 4.8  | 4.4 | 4.4           | 5.3 | 4.8        |    |    |
| SV RR351                        | 1             | --      | 46.82 | 97   | --       | 1386 | 135  | --      | 302.2 | --       | 8971 | --    | 16.16 | --    | 29.7 | 4.41        | 4.50 | 4.2 | 4.4        | 4.3  | 4.2 | 4.2           | 5.0 | 4.8        |    |    |
| SX Avalanche RR(858)            | 1             | --      | 48.30 | 100  | --       | 1330 | 130  | --      | 307.2 | --       | 8473 | --    | 16.37 | --    | 27.6 | 4.64        | 4.74 | 4.0 | 4.4        | 4.2  | 4.3 | 4.5           | 5.8 | 5.4        |    |    |
| SX Canyon RR                    | 2             | --      | 44.98 | 93   | --       | 1201 | 117  | --      | 296.2 | --       | 7852 | --    | 15.86 | --    | 26.3 | 4.92        | 4.76 | 4.3 | 4.3        | 4.3  | 4.5 | 4.4           | 5.1 | 5.3        |    |    |
| SX Cruze RR                     | 2             | --      | 42.40 | 88   | --       | 1321 | 129  | --      | 288.0 | --       | 8957 | --    | 15.51 | --    | 31.0 | 5.37        | 4.65 | 4.8 | 3.4        | 4.1  | 4.4 | 4.7           | 4.0 | 2.8        |    |    |
| SX Winchester RR                | 3             | --      | 47.53 | 99   | --       | 1311 | 128  | --      | 304.3 | --       | 8395 | --    | 16.23 | --    | 27.6 | 4.07        | 3.97 | 4.4 | 3.9        | 4.1  | 4.5 | 4.6           | 4.6 | 4.1        |    |    |
| <b>Newly Approved</b>           |               |         |       |      |          |      |      |         |       |          |      |       |       |       |      |             |      |     |            |      |     |               |     |            |    |    |
| Crystal 684RR                   | NC            | --      | 44.83 | 93   | --       | 1517 | 148  | --      | 295.6 | --       | 9986 | --    | 15.89 | --    | 33.7 | 4.34        | 4.57 | 4.3 | 3.7        | 4.0  | 4.6 | 4.4           | 2.0 | 1.8        |    |    |
| Hilleshög HIL9895               | NC            | --      | 46.60 | 97   | --       | 1344 | 131  | --      | 301.5 | --       | 8726 | --    | 16.20 | --    | 29.0 | 4.84        | 4.49 | 4.4 | 3.6        | 4.0  | 4.3 | 4.6           | 4.1 | 2.4        |    |    |
| Maribo MA611                    | NC            | --      | 48.38 | 100  | --       | 1278 | 125  | --      | 307.5 | --       | 8119 | --    | 16.50 | --    | 26.4 | 5.03        | 4.47 | 4.0 | 3.9        | 4.0  | 4.4 | 4.6           | 3.8 | 2.0        |    |    |
| SX RR1863                       | NC            | --      | 50.16 | 104  | --       | 1349 | 132  | --      | 313.4 | --       | 8434 | --    | 16.62 | --    | 26.9 | 4.08        | 4.35 | 4.9 | 3.6        | 4.2  | 4.2 | 4.5           | 6.0 | 5.8        |    |    |
| SV RR268                        | NC            | --      | 48.64 | 101  | --       | 1306 | 127  | --      | 308.4 | --       | 8262 | --    | 16.40 | --    | 26.7 | 5.06        | 5.13 | 4.7 | 4.0        | 4.4  | 4.6 | 4.7           | 5.0 | 5.2        |    |    |
| Aph Susc Checks                 | --            | 48.17   |       |      | --       | 1025 |      |         | 306.8 | --       | 6529 | --    | 16.49 | --    | 21.3 |             |      |     |            |      |     |               |     |            |    |    |
| Mean of Aph Specialty Varieties | --            | 46.81   |       |      | --       | 1320 |      |         | 302.1 | --       | 8533 | --    | 16.18 | --    | 28.3 |             |      |     |            |      |     |               |     |            |    |    |

%Susc = % of susceptible varieties.

+ Aph ratings from RRV & Shakopee (res.<4.4, susc>5.5). CR from Randolph MN, Foxhome MN & Michigan (res.<4.4, susc>5.5). Fusarium from RRV (res.<3.0, susc>5.0). Rhizoc. from Mhd, NWROC & Mich (res.<3.8, susc>5). Hi may perform better under severe Rzm.

++ 2016 Revenue estimates based on a \$52.44 beet payment at 17.5% sugar and 1.5% loss to molasses. Revenue does not consider hauling or production costs.

+++ 2016 Data from Perley and Cavalier.

++++Lack of Aphanomyces pressure at any of the OVT sites prevented collection of Aphanomyces Yield Data for 2017.

Table 4. Performance Data of Conventional Varieties During 2016 and 2017 Growing Seasons (All Locations Combined)+++

| Variety                  | Yrs<br>Com | Rev/Ton ++ |       |     | Rev/Acre ++ |      |     | Rec/Ton |      | Rec/Acre |       | Sugar |       | Yield |      | Molasses |      | Emerg |      | Bolter / Ac |      | CR + |      | Aph Root+ |      | Rhizoc + |      | Fus+ |      | Rzm+ |  |
|--------------------------|------------|------------|-------|-----|-------------|------|-----|---------|------|----------|-------|-------|-------|-------|------|----------|------|-------|------|-------------|------|------|------|-----------|------|----------|------|------|------|------|--|
|                          |            | 17         | 2 Yr  | 2Y% | 17          | 2 Yr | 2Y% | 17      | 2 Yr | 17       | 2 Yr  | 17    | 2 Yr  | 17    | 2 Yr | 17       | 2 Yr | 17    | 2 Yr | 17          | 2 Yr | 17   | 2 Yr | 17        | 2 Yr | 17       | 2 Yr | 17   | 2 Yr |      |  |
| # locations              |            | 6          | 11    |     | 6           | 11   |     | 6       | 11   | 6        | 11    | 6     | 11    | 6     | 11   | 6        | 11   | 6     | 11   | 3           | 6    | 1    | 3    | 4         | 6    | 2        | 4    |      |      |      |  |
| <b>Previous Approved</b> |            |            |       |     |             |      |     |         |      |          |       |       |       |       |      |          |      |       |      |             |      |      |      |           |      |          |      |      |      |      |  |
| BETA EXP 687             | NC         | 56.11      | 54.82 | 121 | 1633        | 1781 | 116 | 345     | 334  | 10123    | 10894 | 18.47 | 17.94 | 29.6  | 32.8 | 1.22     | 1.22 | 72    | 73   | 0           | 0    | 3.99 | 4.07 | 4.3       | 4.6  | 4.2      | 4.2  | 3.5  | 3.5  | Hi   |  |
| BETA EXP 698             | NC         | 53.21      | 52.37 | 116 | 1615        | 1786 | 116 | 336     | 326  | 10304    | 11185 | 17.92 | 17.45 | 31.1  | 34.6 | 1.14     | 1.14 | 76    | 73   | 0           | 0    | 4.18 | 4.23 | 3.6       | 3.7  | 4.5      | 4.4  | 3.1  | 2.9  | Hi   |  |
| Crystal 620              | NC         | 53.96      | 53.05 | 117 | 1706        | 1825 | 119 | 338     | 329  | 10783    | 11322 | 18.05 | 17.56 | 32.2  | 34.6 | 1.15     | 1.13 | 69    | 70   | 0           | 0    | 4.14 | 4.17 | 4.1       | 4.2  | 4.4      | 4.5  | 2.8  | 2.8  | Hi   |  |
| Crystal 622              | NC         | 54.64      | 54.57 | 120 | 1532        | 1665 | 108 | 340     | 333  | 9650     | 10228 | 18.26 | 17.89 | 28.7  | 30.9 | 1.25     | 1.23 | 66    | 66   | 0           | 0    | 3.72 | 3.84 | 4.0       | 4.2  | 4.5      | 4.3  | 3.5  | 3.6  | Hi   |  |
| Crystal R761             | 8          | 51.12      | 50.18 | 111 | 1691        | 1749 | 114 | 329     | 319  | 10896    | 11128 | 17.72 | 17.25 | 33.2  | 35.0 | 1.28     | 1.28 | 74    | 72   | 0           | 0    | 4.93 | 4.96 | 4.0       | 3.8  | 4.5      | 4.6  | 3.2  | 3.2  | Hi   |  |
| Hilleshög 3035Rz         | 11         | 54.33      | 54.57 | 120 | 1457        | 1617 | 105 | 339     | 333  | 9182     | 9906  | 18.17 | 17.84 | 27.3  | 29.9 | 1.21     | 1.18 | 80    | 79   | 18          | 77   | 4.42 | 4.47 | 5.2       | 4.8  | 4.1      | 4.0  | 3.7  | 3.7  | Rzm  |  |
| Hilleshög 9891Rz         | NC         | 54.95      | 53.90 | 119 | 1481        | 1585 | 103 | 341     | 331  | 9268     | 9781  | 18.26 | 17.77 | 27.4  | 29.7 | 1.19     | 1.20 | 77    | 77   | 0           | 0    | 4.13 | 4.27 | 4.9       | 4.7  | 4.5      | 4.3  | 3.7  | 3.7  | Rzm  |  |
| Maribo MA615Rz           | NC         | 51.71      | 51.79 | 114 | 1586        | 1778 | 116 | 331     | 324  | 10191    | 11127 | 17.80 | 17.42 | 31.0  | 34.5 | 1.27     | 1.20 | 80    | 76   | 0           | 0    | 4.81 | 4.92 | 5.3       | 5.0  | 4.7      | 4.6  | 4.7  | 4.9  | Rzm  |  |
| Seedex 8869              | NC         | 54.07      | 53.32 | 118 | 1741        | 1874 | 122 | 338     | 329  | 10942    | 11585 | 18.02 | 17.53 | 32.5  | 35.3 | 1.09     | 1.06 | 75    | 77   | 0           | 0    | 5.21 | 4.99 | 5.0       | 4.8  | 4.4      | 4.5  | 3.5  | 3.2  | Hi   |  |
| Seedex Deuce             | NC         | 53.90      | 53.65 | 118 | 1790        | 1882 | 122 | 338     | 330  | 11246    | 11584 | 18.00 | 17.58 | 33.4  | 35.1 | 1.10     | 1.05 | 75    | 75   | 18          | 18   | 4.76 | 4.72 | 6.0       | 5.9  | 4.4      | 4.5  | 4.5  | 4.6  | Hi   |  |
| SV 48611                 | NC         | 55.52      | 54.71 | 121 | 1669        | 1793 | 117 | 343     | 334  | 10325    | 10925 | 18.30 | 17.83 | 30.1  | 32.8 | 1.13     | 1.13 | 69    | 68   | 0           | 0    | 5.28 | 5.06 | 4.2       | 4.4  | 4.3      | 4.5  | 5.7  | 5.5  | Hi   |  |
| <b>Newly Approved</b>    |            |            |       |     |             |      |     |         |      |          |       |       |       |       |      |          |      |       |      |             |      |      |      |           |      |          |      |      |      |      |  |
| BETA EXP 747             | NC         | 52.59      | --    | --  | 1652        | --   | --  | 334     | --   | 10556    | --    | 17.83 | --    | 31.9  | --   | 1.15     | --   | 75    | --   | 0           | 0    | 4.40 | --   | 3.6       | --   | 3.9      | --   | 4.6  | --   | Hi   |  |
| BETA EXP 758             | NC         | 53.88      | --    | --  | 1638        | --   | --  | 338     | --   | 10331    | --    | 18.02 | --    | 30.8  | --   | 1.13     | --   | 78    | --   | 0           | 0    | 4.52 | --   | 3.3       | --   | 4.3      | --   | 3.9  | --   | Hi   |  |
| Crystal 735              | NC         | 58.13      | --    | --  | 1616        | --   | --  | 352     | --   | 9832     | --    | 18.69 | --    | 28.1  | --   | 1.09     | --   | 68    | --   | 0           | 0    | 4.44 | --   | 3.9       | --   | 4.6      | --   | 3.6  | --   | Hi   |  |
| Crystal 737              | NC         | 53.57      | --    | --  | 1555        | --   | --  | 337     | --   | 9878     | --    | 18.09 | --    | 29.7  | --   | 1.25     | --   | 69    | --   | 0           | 0    | 3.92 | --   | 2.2       | --   | 4.2      | --   | 3.5  | --   | Rzm  |  |
| Maribo MA720Rz           | NC         | 55.19      | --    | --  | 1586        | --   | --  | 342     | --   | 9919     | --    | 18.23 | --    | 29.3  | --   | 1.13     | --   | 84    | --   | 0           | 0    | 4.54 | --   | 5.2       | --   | 4.5      | --   | 3.3  | --   | Hi   |  |
| SV 48777                 | NC         | 57.39      | --    | --  | 1701        | --   | --  | 349     | --   | 10409    | --    | 18.49 | --    | 30.0  | --   | 1.02     | --   | 72    | --   | 0           | 0    | 4.76 | --   | 4.2       | --   | 4.6      | --   | 4.0  | --   | Hi   |  |
| Strube 13722             | NC         | 50.40      | --    | --  | 1696        | --   | --  | 326     | --   | 11043    | --    | 17.46 | --    | 34.0  | --   | 1.15     | --   | 79    | --   | 0           | 0    | 4.06 | --   | 7.5       | --   | 4.7      | --   | 6.6  | --   | Rzm  |  |
| Benchmark var. mean      |            | 52.84      | 51.50 |     | 1681        | 1760 |     | 334     | 324  | 10653    | 11056 | 17.88 | 17.32 | 31.9  | 34.3 | 1.16     | 1.14 | 74    | 71   |             |      |      |      |           |      |          |      |      |      |      |  |

Emergence is % of planted seeds producing a four leaf beet.

+ Aph ratings from Shakopee (res<4.4, susc>5.5). CR from Randolph MN, Foxhome MN & Michigan (res<4.5, susc>5.2). Fusarium from RRV (res<3.0, susc>5.0). Rhizoc. from Mhd, NWROC & Mich (res<3.8, susc>5). Hi may perform better under severe Rzm.

++ 2017 Revenue estimate based on a \$48.49 beet payment (5-yr ave) at 17.5% sugar and 1.5% loss to molasses. 2016 Revenue estimate based on a \$52.44 beet payment. Revenue does not consider hauling or production costs.

+++ Sites include Casselton, Ada, Crookston, Grand Forks, St. Thomas in 2016.

++ Sites include Casselton, Hendrum, Grand Forks, Scandia, St. Thomas, Humbolt in 2017.

Bolters/Ac are based upon a plant stand of 45,000.

- data not available.

Created 10/31/2017

Table 5. Official Trial Disease Nurseries 2015 - 2017 (Varieties tested in 2017)  
Cercospora, Aphanomyces, Rhizoctonia, Fusarium & Rhizomania

| Code                   | Variety              | < 4.5 CR > 5.2 |            |            |              |              | < 4.4 Aph > 5.5 |            |            |              |              | < 3.82 Rhizoctonia > 5.0 |            |            |              |              | < 3.0 Fusarium > 5.0 |            |            |              |              | High Rzm |
|------------------------|----------------------|----------------|------------|------------|--------------|--------------|-----------------|------------|------------|--------------|--------------|--------------------------|------------|------------|--------------|--------------|----------------------|------------|------------|--------------|--------------|----------|
|                        |                      | 17<br>Mean     | 16<br>Mean | 15<br>Mean | 2 Yr<br>Mean | 3 Yr<br>Mean | 17<br>Mean      | 16<br>Mean | 15<br>Mean | 2 Yr<br>Mean | 3 Yr<br>Mean | 17<br>Mean               | 16<br>Mean | 15<br>Mean | 2 Yr<br>Mean | 3 Yr<br>Mean | 17<br>Mean           | 16<br>Mean | 15<br>Mean | 2 Yr<br>Mean | 3 Yr<br>Mean |          |
| <b>ACSC Commercial</b> |                      |                |            |            |              |              |                 |            |            |              |              |                          |            |            |              |              |                      |            |            |              |              |          |
| 529                    | BTS 80RR52           | 4.37           | 4.28       | 4.11       | 4.33         | 4.26         | 4.36            | 4.11       | 3.24       | 4.23         | 3.90         | 4.14                     | 4.41       | 3.95       | 4.27         | 4.17         | 2.69                 | 2.81       | 2.83       | 2.75         | 2.77         | Hi Rzm   |
| 545                    | BTS 8337             | 4.36           | 4.62       | 4.49       | 4.49         | 4.49         | 3.78            | 3.26       | 2.55       | 3.52         | 3.19         | 4.30                     | 4.08       | 3.87       | 4.19         | 4.08         | 3.83                 | 4.01       | 3.72       | 3.92         | 3.85         | Hi Rzm   |
| 562                    | BTS 8363             | 4.10           | 4.33       | 3.83       | 4.21         | 4.09         | 4.60            | 4.93       | 4.77       | 4.76         | 4.76         | 4.85                     | 4.34       | 4.12       | 4.59         | 4.44         | 3.49                 | 3.11       | 2.85       | 3.30         | 3.15         | Hi Rzm   |
| 513                    | BTS 8500             | 4.29           | 4.54       | 4.45       | 4.41         | 4.43         | 4.52            | 4.22       | 3.54       | 4.37         | 4.09         | 4.57                     | 4.43       | 4.19       | 4.50         | 4.40         | 2.14                 | 1.90       | 2.41       | 2.02         | 2.15         | Hi Rzm   |
| 533                    | BTS 8512             | 3.69           | 4.04       | 4.12       | 3.86         | 3.95         | 3.78            | 4.17       | 3.91       | 3.97         | 3.95         | 4.28                     | 4.44       | 4.28       | 4.36         | 4.33         | 2.96                 | 2.71       | 2.70       | 2.83         | 2.79         | Hi Rzm   |
| 550                    | BTS 8524             | 4.38           | 4.74       | 4.40       | 4.56         | 4.51         | 4.49            | 3.89       | 3.33       | 4.19         | 3.90         | 4.41                     | 4.20       | 4.14       | 4.31         | 4.25         | 3.24                 | 3.38       | 2.88       | 3.31         | 3.17         | Hi Rzm   |
| 570                    | BTS 8572             | 4.14           | 4.41       | 4.60       | 4.27         | 4.38         | 3.76            | 4.46       | 4.05       | 4.11         | 4.09         | 4.32                     | 4.54       | 3.85       | 4.43         | 4.24         | 2.54                 | 2.23       | 2.54       | 2.39         | 2.44         | Hi Rzm   |
| 549                    | Crystal 093RR        | 4.49           | 4.95       | 4.76       | 4.72         | 4.73         | 4.43            | 4.32       | 3.86       | 4.38         | 4.21         | 4.50                     | 4.37       | 3.96       | 4.44         | 4.28         | 3.48                 | 3.35       | 3.22       | 3.42         | 3.35         | Hi Rzm   |
| 551                    | Crystal 101RR        | 4.57           | 4.59       | 4.65       | 4.58         | 4.60         | 3.92            | 3.42       | 3.31       | 3.67         | 3.55         | 4.78                     | 4.78       | 4.64       | 4.78         | 4.73         | 2.72                 | 2.40       | 2.64       | 2.56         | 2.59         | Hi Rzm   |
| 507                    | Crystal 246RR        | 4.63           | 4.81       | 4.49       | 4.72         | 4.64         | 5.13            | 4.85       | 4.99       | 4.99         | 4.99         | 4.23                     | 4.32       | 4.19       | 4.28         | 4.25         | 3.24                 | 3.10       | 3.00       | 3.17         | 3.11         | Hi Rzm   |
| 560                    | Crystal 247RR        | 4.55           | 4.65       | 4.19       | 4.60         | 4.47         | 5.35            | 4.77       | 4.94       | 5.06         | 5.02         | 4.49                     | 4.32       | 4.33       | 4.40         | 4.38         | 3.00                 | 2.80       | 2.51       | 2.90         | 2.77         | Hi Rzm   |
| 565                    | Crystal 355RR        | 4.36           | 4.60       | 4.43       | 4.48         | 4.46         | 4.84            | 4.46       | 3.26       | 4.65         | 4.19         | 4.09                     | 3.96       | NE         | 4.02         | NE           | 2.76                 | 2.65       | NE         | 2.71         | NE           | Hi Rzm   |
| 523                    | Crystal 467RR        | 4.46           | 4.69       | 4.34       | 4.57         | 4.49         | 3.96            | 4.04       | 3.55       | 4.00         | 3.85         | 4.47                     | 4.26       | 3.97       | 4.37         | 4.23         | 1.98                 | 1.84       | 2.46       | 1.91         | 2.09         | Hi Rzm   |
| 503                    | Crystal 572RR        | 4.27           | 4.57       | 4.65       | 4.42         | 4.50         | 4.69            | 4.74       | 4.33       | 4.71         | 4.59         | 4.47                     | 4.21       | 3.89       | 4.34         | 4.19         | 2.64                 | 1.82       | 2.36       | 2.23         | 2.27         | Hi Rzm   |
| 544                    | Crystal 574RR        | 4.35           | 4.51       | 4.30       | 4.43         | 4.39         | 4.72            | 3.69       | 2.93       | 4.21         | 3.78         | 4.16                     | 4.47       | 4.16       | 4.31         | 4.26         | 2.23                 | 1.82       | 2.00       | 2.02         | 2.02         | Hi Rzm   |
| 532                    | Crystal 986RR        | 4.77           | 4.75       | 4.97       | 4.76         | 4.83         | 4.09            | 4.41       | 3.87       | 4.25         | 4.12         | 4.39                     | 4.38       | 4.06       | 4.38         | 4.28         | 4.73                 | 4.86       | 3.89       | 4.79         | 4.49         | Hi Rzm   |
| 505                    | Hilleshög 4302RR     | 3.93           | 4.13       | 4.13       | 4.03         | 4.06         | 6.66            | 4.63       | 4.02       | 5.65         | 5.10         | 3.60                     | 3.65       | 3.70       | 3.63         | 3.65         | 5.09                 | 5.09       | 4.05       | 5.09         | 4.74         | Rzm      |
| 542                    | Hilleshög 4448RR     | 5.28           | 5.21       | 5.29       | 5.24         | 5.26         | 6.29            | 3.90       | 2.80       | 5.09         | 4.33         | 4.63                     | 4.51       | 3.92       | 4.57         | 4.35         | 5.35                 | 5.26       | NE         | 5.30         | NE           | Rzm      |
| 531                    | Hilleshög 9528RR     | 4.99           | 4.73       | 5.16       | 4.86         | 4.96         | 5.63            | 3.77       | 2.97       | 4.70         | 4.12         | 4.21                     | 4.21       | 4.10       | 4.21         | 4.18         | 4.25                 | 4.52       | 4.00       | 4.39         | 4.26         | Hi Rzm   |
| 559                    | Hilleshög HIL9707    | 4.96           | 4.53       | 4.60       | 4.74         | 4.70         | 4.70            | 3.99       | 3.52       | 4.34         | 4.07         | 4.43                     | 4.40       | 4.21       | 4.41         | 4.35         | 4.09                 | 4.88       | 3.68       | 4.49         | 4.22         | Hi Rzm   |
| 556                    | Maribo 109           | 4.14           | 4.14       | 4.56       | 4.14         | 4.28         | 5.06            | 4.27       | 3.54       | 4.66         | 4.29         | 3.63                     | 3.69       | 3.67       | 3.66         | 3.66         | 4.23                 | 4.50       | 3.58       | 4.37         | 4.11         | Hi Rzm   |
| 539                    | Maribo 305           | 4.98           | 4.72       | 4.76       | 4.85         | 4.82         | 5.67            | 4.42       | 4.76       | 5.05         | 4.95         | 4.60                     | 4.40       | 3.83       | 4.50         | 4.28         | 5.89                 | 5.89       | 5.02       | 5.89         | 5.60         | Rzm      |
| 526                    | Maribo MA502         | 5.01           | 4.79       | 5.04       | 4.90         | 4.95         | 3.53            | 3.06       | 2.93       | 3.29         | 3.17         | 4.78                     | 4.73       | 4.14       | 4.76         | 4.55         | 3.02                 | 1.92       | 2.33       | 2.47         | 2.42         | Hi Rzm   |
| 537                    | SX Avalanche RR(858) | 4.64           | 4.74       | 4.15       | 4.69         | 4.51         | 4.00            | 4.44       | 3.40       | 4.22         | 3.95         | 4.29                     | 4.52       | 4.21       | 4.40         | 4.34         | 5.75                 | 5.38       | 5.12       | 5.57         | 5.42         | Rzm      |
| 548                    | SX Canyon RR         | 4.92           | 4.76       | 4.02       | 4.84         | 4.56         | 4.33            | 4.28       | 3.59       | 4.31         | 4.07         | 4.51                     | 4.40       | 4.22       | 4.45         | 4.38         | 5.12                 | 5.26       | 3.85       | 5.19         | 4.74         | Rzm      |
| 535                    | SX Cruze RR          | 5.37           | 4.65       | 4.57       | 5.01         | 4.87         | 4.79            | 3.41       | 4.14       | 4.10         | 4.11         | 4.39                     | 4.69       | 4.18       | 4.54         | 4.42         | 3.98                 | 2.80       | NE         | 3.39         | NE           | Rzm      |
| 519                    | SX Marathon RR(856)  | 4.54           | 4.44       | 5.37       | 4.49         | 4.78         | 4.52            | 4.38       | 4.53       | 4.45         | 4.48         | 4.40                     | 4.47       | 4.16       | 4.43         | 4.34         | 4.84                 | 4.90       | 4.87       | 4.87         | 4.87         | Rzm      |
| 575                    | SX Winchester RR     | 4.07           | 3.97       | 3.67       | 4.02         | 3.90         | 4.36            | 3.85       | 3.07       | 4.11         | 3.76         | 4.47                     | 4.63       | 4.28       | 4.55         | 4.46         | 4.64                 | 4.11       | 3.95       | 4.38         | 4.23         | Rzm      |
| 564                    | SV RR244TT           | 4.85           | 4.46       | 4.17       | 4.65         | 4.49         | 4.91            | 4.97       | 4.23       | 4.94         | 4.70         | 4.50                     | 4.45       | 4.18       | 4.48         | 4.38         | 3.74                 | 4.14       | 3.86       | 3.94         | 3.91         | Hi Rzm   |
| 541                    | SV RR333             | 4.84           | 4.85       | 4.54       | 4.84         | 4.74         | 4.99            | 4.71       | 3.46       | 4.85         | 4.39         | 4.44                     | 4.44       | 4.11       | 4.44         | 4.33         | 5.35                 | 4.84       | NE         | 5.09         | NE           | Hi Rzm   |
| 573                    | SV RR351             | 4.41           | 4.50       | 4.62       | 4.46         | 4.51         | 4.18            | 4.38       | 3.53       | 4.28         | 4.03         | 4.25                     | 4.17       | NE         | 4.21         | NE           | 4.96                 | 4.75       | NE         | 4.86         | NE           | Hi Rzm   |
| 509                    | BTS 8606             | 4.73           | 5.12       | --         | 4.92         | --           | 4.91            | 4.60       | --         | 4.75         | --           | 5.00                     | 4.48       | --         | 4.74         | --           | 2.81                 | 2.69       | --         | 2.75         | --           | Hi Rzm   |
| 525                    | BTS 8629             | 4.29           | 4.59       | --         | 4.44         | --           | 4.68            | 4.14       | --         | 4.41         | --           | 4.21                     | 3.73       | --         | 3.97         | --           | 4.20                 | 4.04       | --         | 4.12         | --           | Hi Rzm   |
| 577                    | BTS 8735             | 4.22           | --         | --         | --           | --           | 4.74            | --         | --         | --           | --           | 4.38                     | --         | --         | --           | --           | 3.93                 | --         | --         | --           | --           | Hi Rzm   |
| 506                    | BTS 8742             | 4.36           | --         | --         | --           | --           | 5.02            | --         | --         | --           | --           | 4.23                     | --         | --         | --           | --           | 2.59                 | --         | --         | --           | --           | Hi Rzm   |
| 536                    | BTS 8749             | 4.05           | --         | --         | --           | --           | 3.53            | --         | --         | --           | --           | 3.95                     | --         | --         | --           | --           | 3.28                 | --         | --         | --           | --           | Hi Rzm   |
| 540                    | BTS 8756             | 4.01           | --         | --         | --           | --           | 5.23            | --         | --         | --           | --           | 4.34                     | --         | --         | --           | --           | 2.67                 | --         | --         | --           | --           | Hi Rzm   |
| 521                    | BTS 8767             | 4.16           | --         | --         | --           | --           | 4.80            | --         | --         | --           | --           | 4.75                     | --         | --         | --           | --           | 2.71                 | --         | --         | --           | --           | Hi Rzm   |
| 518                    | BTS 8770             | 4.30           | --         | --         | --           | --           | 4.97            | --         | --         | --           | --           | 4.57                     | --         | --         | --           | --           | 2.82                 | --         | --         | --           | --           | Hi Rzm   |
| 567                    | BTS 8784             | 3.65           | --         | --         | --           | --           | 4.59            | --         | --         | --           | --           | 4.64                     | --         | --         | --           | --           | 2.63                 | --         | --         | --           | --           | Hi Rzm   |
| 502                    | BTS 8787             | 4.03           | --         | --         | --           | --           | 4.71            | --         | --         | --           | --           | 4.31                     | --         | --         | --           | --           | 2.50                 | --         | --         | --           | --           | Hi Rzm   |
| 512                    | BTS 8798             | 4.30           | --         | --         | --           | --           | 4.92            | --         | --         | --           | --           | 4.52                     | --         | --         | --           | --           | 3.37                 | --         | --         | --           | --           | Hi Rzm   |
| 554                    | Crystal 573RR        | 4.15           | 4.35       | 4.15       | 4.25         | 4.22         | 3.84            | 4.06       | 3.69       | 3.95         | 3.86         | 4.57                     | 4.55       | 4.25       | 4.56         | 4.45         | 3.10                 | 3.49       | 3.02       | 3.29         | 3.20         | Hi Rzm   |
| 571                    | Crystal 578RR        | 4.91           | 4.87       | 4.93       | 4.89         | 4.91         | 4.56            | 4.44       | 4.52       | 4.50         | 4.51         | 4.40                     | 4.32       | 4.03       | 4.36         | 4.25         | 2.41                 | 1.99       | 2.42       | 2.20         | 2.27         | Hi Rzm   |
| 510                    | Crystal 684RR        | 4.34           | 4.57       | --         | 4.45         | --           | 4.31            | 3.74       | --         | 4.02         | --           | 4.57                     | 4.41       | --         | 4.49         | --           | 2.01                 | 1.76       | --         | 1.89         | --           | Hi Rzm   |
| 547                    | Crystal 792RR        | 3.94           | --         | --         | --           | --           | 4.73            | --         | --         | --           | --           | 3.88                     | --         | --         | --           | --           | 2.81                 | --         | --         | --           | --           | Hi Rzm   |
| 557                    | Crystal 793RR        | 3.93           | --         | --         | --           | --           | 3.02            | --         | --         | --           | --           | 4.26                     | --         | --         | --           | --           | 2.95                 | --         | --         | --           | --           | Hi Rzm   |
| 534                    | Crystal 794RR        | 4.92           | --         | --         | --           | --           | 4.65            | --         | --         | --           | --           | 4.15                     | --         | --         | --           | --           | 2.45                 | --         | --         | --           | --           | Hi Rzm   |
| 522                    | Crystal 795RR        | 4.39           | --         | --         | --           | --           | 4.40            | --         | --         | --           | --           | 3.94                     | --         | --         | --           | --           | 2.66                 | --         | --         | --           | --           | Hi Rzm   |
| 553                    | Crystal 796RR        | 4.85           | --         | --         | --           | --           | 3.11            | --         | --         | --           | --           | 4.23                     | --         | --         | --           | --           | 2.34                 | --         | --         | --           | --           | Hi Rzm   |
| 528                    | Crystal 797RR        | 4.17           | --         | --         | --           | --           | 5.21            | --         | --         | --           | --           | 4.26                     | --         | --         | --           | --           | 3.18                 | --         | --         | --           | --           | Hi Rzm   |
| 576                    | Hilleshög HIL9708    | 4.61           | 4.74       | 5.04       | 4.68         | 4.80         | 5.94            | 4.82       | 4.69       | 5.38         | 5.15         | 4.21                     | 4.28       | 4.04       | 4.25         | 4.18         | 4.61                 | 4.29       | 3.69       | 4.45         | 4.20         | Hi Rzm   |
| 561                    | Hilleshög HIL9895    | 4.84           | 4.49       | --         | 4.67         | --           | 4.39            | 3.65       | --         | 4.02         | --           | 4.34                     | 4.56       | --         | 4.           |              |                      |            |            |              |              |          |

Table 5. Official Trial Disease Nurseries 2015 - 2017 (Varieties tested in 2017)  
Cercospora, Aphanomyces, Rhizoctonia, Fusarium & Rhizomania

| Code                     | Variety         | < 4.5 CR > 5.2 |            |            |              |              | < 4.4 Aph > 5.5 |            |            |              |              | < 3.82 Rhizoctonia > 5.0 |            |            |              |              | < 3.0 Fusarium > 5.0 |            |            |              |              | High Rzm |
|--------------------------|-----------------|----------------|------------|------------|--------------|--------------|-----------------|------------|------------|--------------|--------------|--------------------------|------------|------------|--------------|--------------|----------------------|------------|------------|--------------|--------------|----------|
|                          |                 | 17<br>Mean     | 16<br>Mean | 15<br>Mean | 2 Yr<br>Mean | 3 Yr<br>Mean | 17<br>Mean      | 16<br>Mean | 15<br>Mean | 2 Yr<br>Mean | 3 Yr<br>Mean | 17<br>Mean               | 16<br>Mean | 15<br>Mean | 2 Yr<br>Mean | 3 Yr<br>Mean | 17<br>Mean           | 16<br>Mean | 15<br>Mean | 2 Yr<br>Mean | 3 Yr<br>Mean |          |
| 558                      | SX RR1861       | 4.74           | 4.52       | --         | 4.63         | --           | 5.71            | 4.40       | --         | 5.05         | --           | 4.50                     | 4.59       | --         | 4.55         | --           | 5.05                 | 4.75       | --         | 4.90         | --           | Hi Rzm   |
| 527                      | SX RR1863       | 4.08           | 4.35       | --         | 4.21         | --           | 4.88            | 3.55       | --         | 4.21         | --           | 4.23                     | 4.54       | --         | 4.39         | --           | 6.04                 | 5.80       | --         | 5.92         | --           | Hi Rzm   |
| 516                      | SX RR1875       | 4.06           | --         | --         | --           | --           | 4.13            | --         | --         | --           | --           | 4.34                     | --         | --         | --           | --           | 3.57                 | --         | --         | --           | --           | Hi Rzm   |
| 520                      | SX RR1876       | 4.31           | --         | --         | --           | --           | 4.73            | --         | --         | --           | --           | 4.42                     | --         | --         | --           | --           | 3.85                 | --         | --         | --           | --           | Hi Rzm   |
| 569                      | SX RR1877       | 4.62           | --         | --         | --           | --           | 3.84            | --         | --         | --           | --           | 4.42                     | --         | --         | --           | --           | 4.21                 | --         | --         | --           | --           | Hi Rzm   |
| 552                      | SX RR1878       | 4.71           | --         | --         | --           | --           | 5.54            | --         | --         | --           | --           | 4.31                     | --         | --         | --           | --           | 5.03                 | --         | --         | --           | --           | Hi Rzm   |
| 524                      | SX RR1879       | 4.88           | --         | --         | --           | --           | 4.18            | --         | --         | --           | --           | 4.36                     | --         | --         | --           | --           | 4.64                 | --         | --         | --           | --           | Hi Rzm   |
| 511                      | SV RR265        | 5.19           | 5.00       | --         | 5.09         | --           | 5.35            | 4.54       | --         | 4.95         | --           | 4.42                     | 4.44       | --         | 4.43         | --           | 5.32                 | 5.26       | --         | 5.29         | --           | Hi Rzm   |
| 555                      | SV RR266        | 4.61           | 4.74       | --         | 4.67         | --           | 5.64            | 4.62       | --         | 5.13         | --           | 4.39                     | 4.20       | --         | 4.30         | --           | 5.64                 | 5.18       | --         | 5.41         | --           | Hi Rzm   |
| 572                      | SV RR268        | 5.06           | 5.13       | --         | 5.10         | --           | 4.71            | 4.00       | --         | 4.36         | --           | 4.57                     | 4.70       | --         | 4.63         | --           | 5.01                 | 5.20       | --         | 5.11         | --           | Hi Rzm   |
| 515                      | SV RR371        | 4.59           | --         | --         | --           | --           | 4.55            | --         | --         | --           | --           | 4.31                     | --         | --         | --           | --           | 4.91                 | --         | --         | --           | --           | Hi Rzm   |
| 501                      | SV RR372        | 4.23           | --         | --         | --           | --           | 4.42            | --         | --         | --           | --           | 4.47                     | --         | --         | --           | --           | 4.19                 | --         | --         | --           | --           | Hi Rzm   |
| 508                      | SV RR373        | 4.31           | --         | --         | --           | --           | 4.93            | --         | --         | --           | --           | 4.38                     | --         | --         | --           | --           | 5.17                 | --         | --         | --           | --           | Hi Rzm   |
| 578                      | SV RR374        | 4.71           | --         | --         | --           | --           | 5.20            | --         | --         | --           | --           | 4.30                     | --         | --         | --           | --           | 4.44                 | --         | --         | --           | --           | Hi Rzm   |
| 546                      | SV RR375        | 5.08           | --         | --         | --           | --           | 4.54            | --         | --         | --           | --           | 4.25                     | --         | --         | --           | --           | 5.44                 | --         | --         | --           | --           | Hi Rzm   |
| <b>ACSC Conventional</b> |                 |                |            |            |              |              |                 |            |            |              |              |                          |            |            |              |              |                      |            |            |              |              |          |
| 807                      | BETA EXP 687    | 3.99           | 4.14       | --         | 4.07         | --           | 4.30            | 4.88       | --         | 4.59         | --           | 4.20                     | 4.16       | --         | 4.18         | --           | 3.51                 | 3.41       | --         | 3.46         | --           | Hi Rzm   |
| 808                      | BETA EXP 698    | 4.18           | 4.27       | --         | 4.23         | --           | 3.62            | 3.69       | --         | 3.65         | --           | 4.45                     | 4.35       | --         | 4.40         | --           | 3.06                 | 2.74       | --         | 2.90         | --           | Hi Rzm   |
| 810                      | BETA EXP 747    | 4.40           | --         | --         | --           | --           | 3.60            | --         | --         | --           | --           | 3.93                     | --         | --         | --           | --           | 4.58                 | --         | --         | --           | --           | Hi Rzm   |
| 817                      | BETA EXP 758    | 4.52           | --         | --         | --           | --           | 3.29            | --         | --         | --           | --           | 4.31                     | --         | --         | --           | --           | 3.91                 | --         | --         | --           | --           | Hi Rzm   |
| 811                      | Crystal 620     | 4.14           | 4.19       | --         | 4.17         | --           | 4.09            | 4.28       | --         | 4.18         | --           | 4.37                     | 4.54       | --         | 4.45         | --           | 2.79                 | 2.73       | --         | 2.76         | --           | Hi Rzm   |
| 801                      | Crystal 622     | 3.72           | 3.96       | --         | 3.84         | --           | 4.05            | 4.36       | --         | 4.20         | --           | 4.49                     | 4.14       | --         | 4.31         | --           | 3.53                 | 3.57       | --         | 3.55         | --           | Hi Rzm   |
| 814                      | Crystal 735     | 4.44           | --         | --         | --           | --           | 3.93            | --         | --         | --           | --           | 4.61                     | --         | --         | --           | --           | 3.62                 | --         | --         | --           | --           | Hi Rzm   |
| 806                      | Crystal 737     | 3.92           | --         | --         | --           | --           | 2.25            | --         | --         | --           | --           | 4.25                     | --         | --         | --           | --           | 3.52                 | --         | --         | --           | --           | Hi Rzm   |
| 819                      | Crystal R761    | 4.93           | 4.99       | --         | 4.96         | --           | 4.01            | 3.57       | --         | 3.79         | --           | 4.54                     | 4.57       | --         | 4.55         | --           | 3.23                 | 3.25       | --         | 3.24         | --           | Hi Rzm   |
| 805                      | Hillesög 3035Rz | 4.42           | 4.53       | --         | 4.47         | --           | 5.18            | 4.40       | --         | 4.79         | --           | 4.07                     | 3.93       | --         | 4.00         | --           | 3.70                 | 3.65       | --         | 3.67         | --           | Rzm      |
| 812                      | Hillesög 9891Rz | 4.13           | 4.42       | --         | 4.27         | --           | 4.89            | 4.45       | --         | 4.67         | --           | 4.46                     | 4.22       | --         | 4.34         | --           | 3.66                 | 3.76       | --         | 3.71         | --           | Rzm      |
| 818                      | Maribo MA615Rz  | 4.81           | 5.04       | --         | 4.92         | --           | 5.30            | 4.80       | --         | 5.05         | --           | 4.73                     | 4.54       | --         | 4.63         | --           | 4.72                 | 5.11       | --         | 4.92         | --           | Rzm      |
| 816                      | Maribo MA720Rz  | 4.54           | --         | --         | --           | --           | 5.15            | --         | --         | --           | --           | 4.55                     | --         | --         | --           | --           | 3.31                 | --         | --         | --           | --           | Rzm      |
| 809                      | Seedex 8869     | 5.21           | 4.76       | --         | 4.99         | --           | 4.99            | 4.70       | --         | 4.85         | --           | 4.40                     | 4.67       | --         | 4.53         | --           | 3.53                 | 2.92       | --         | 3.23         | --           | Rzm      |
| 802                      | Seedex Deuce    | 4.76           | 4.68       | --         | 4.72         | --           | 6.04            | 5.70       | --         | 5.87         | --           | 4.39                     | 4.66       | --         | 4.52         | --           | 4.54                 | 4.68       | --         | 4.61         | --           | Rzm      |
| 815                      | SV 48611        | 5.28           | 4.85       | --         | 5.06         | --           | 4.25            | 4.47       | --         | 4.36         | --           | 4.35                     | 4.66       | --         | 4.50         | --           | 5.74                 | 5.24       | --         | 5.49         | --           | Hi Rzm   |
| 803                      | SV 48777        | 4.76           | --         | --         | --           | --           | 4.20            | --         | --         | --           | --           | 4.59                     | --         | --         | --           | --           | 3.96                 | --         | --         | --           | --           | Rzm      |
| 813                      | Strube 12720    | 5.65           | --         | --         | --           | --           | 8.11            | --         | --         | --           | --           | 4.59                     | --         | --         | --           | --           | 5.60                 | --         | --         | --           | --           | Rzm      |
| 804                      | Strube 13722    | 4.06           | --         | --         | --           | --           | 7.54            | --         | --         | --           | --           | 4.73                     | --         | --         | --           | --           | 6.63                 | --         | --         | --           | --           | Rzm      |

CR ratings on a scale of 1-9.  
Aph root ratings on a scale of 1-9.  
Rhizoctonia ratings on a scale of 1-7.  
Fusarium ratings on a scale of 1-9.

NE indicates variety was not entered into disease nursery.

Hi Rzm = may perform better under severe Rzm.

Created 11/8/2017

Table 6. Planting & Harvest Dates, Previous Crop and Disease Levels for 2017 ACSC Official Trial Sites \*

| Location       | District / Trial Type | Cooperator                | Planting Date | Harvest Date | Preceeding Crop | Soil Type    | Diseases Present @ |     |     |     |        | Comments |  |
|----------------|-----------------------|---------------------------|---------------|--------------|-----------------|--------------|--------------------|-----|-----|-----|--------|----------|--|
|                |                       |                           |               |              |                 |              | Aph                | Rhc | Rzm | Fus | Maggot | Rt Aphid |  |
| Casselton ND   | Mhd/Hlb               | Todd Weber                | 5/1           | 9/8          | Barley          | Medium/Light | N                  | N   | N   | N   | N      | N        | Late emergence, Conv Harvested Only        |
| Felton MN      | Mhd/Hlb               | Menholt Farms             | 4/22          | 10/19        | Wheat           | Medium/Light | N                  | N   | N   | N   | N      | N        | Uniform                                    |
| Georgetown MN  | Mhd/Hlb               | Hoff Farms                | 5/9           | 10/18        | Soybeans        | Medium       | L                  | L   | N   | N   | N      | N        | AP in NE                                   |
| Hendrum MN     | EGF/Crk               | Mark Maring               | 4/17          | 10/15        | Wheat           | Medium       | N                  | L-M | L-M | N   | N      | N        | Uniform Very little disease                |
| Hillsboro ND   | Mhd/Hlb               | Cotton Farms              | 4/22          | 10/16        | Wheat           | Medium       | N                  | L   | L-M | N   | N      | L        | Some Weak Stands                           |
| Climax MN      | EGF/Crk               | Curt Knutson              | 5/10          | 10/13        | Wheat           | Medium       | L                  | M   | L   | N   | L      | L        | Nursery Abandoned                          |
| Grand Forks ND | EGF/Crk               | Drees Farming Association | 5/5           | 10/10        | Wheat           | Medium/Light | L                  | M   | L   | N   | N      | N        | Slight water stunting. Some weaker stands. |
| Scandia MN     | EGF/Crk               | Dennis Deboer             | 5/2           | 9/13         | Wheat           | Medium       | L-M                | L   | M   | N   | N      | N        | Some Weak Stands                           |
| Stephen MN     | EGF/Crk               | Hvidsten Farms            | 5/4           | 10/6         | Wheat           | Medium/Light | N                  | L   | L   | N   | L      | N        | Uniform Canopy, Some Wilting in August     |
| Argyle MN      | EGF/Crk               | Brent Riopelle            | 5/3           | Abandon      | Wheat           | Medium/Heavy | L                  | M   | M   | NA  | NA     | L        | Abandoned                                  |
| St Thomas ND   | Dtn                   | Kennelly Farms            | 5/8           | 9/30         | Wheat           | Medium/Light | L                  | L   | L   | N   | N      | N        | Gappy due to Hail Damage                   |
| Humboldt MN    | Dtn                   | Weise Farms               | 5/6           | 10/5         | Wheat           | Medium/Heavy | L                  | L   | L   | N   | N      | N        | Conv Harvested Only                        |
| Bathgate ND    | Dtn                   | Shady Bend Farms          | 5/7           | 10/1         | Wheat           | Medium/Heavy | L-M                | M   | N   | L   | L      | L        | Shorter Yellow Canopy                      |
| Mhd Rhc-S      | Rhc Nurs              | Jon Hickel                | 5/11          | Abandon      | Soybeans        | Medium/Heavy | L                  | V   | N   | L   | N      | N        |  |
| Mhd Rhc-E      | Rhc Nurs              | Jon Hickel                | 5/11          | Abandon      | Soybeans        | Medium/Heavy | L                  | L-M | N   | L   | N      | N        |  |
| Mhd Rhc-W      | Rhc Nurs              | Jon Hickel                | 5/11          | Abandon      | Soybeans        | Medium/Heavy | L                  | L-M | N   | L-M | N      | N        |  |
| NWROC Rhc      | Rhc Nurs              | Albert Sims               | 5/10          | 8/30         | Soybeans        | Medium       | N                  | L-M | N   | N   | N      | N        |  |
| BSDF Rhc       | Rhc Nurs              | Mitch McGrath             | 5/11          | 8/16         | NA              | NA           | NA                 | NA  | NA  | NA  | NA     | NA       |  |
| Mhd SE Fus     | Fusarium              | Ernie Oberg               | 5/11          | 7/18         | Soybeans        | Medium       | NA                 | L   | N   | V   | NA     | NA       |  |
| Mhd Fus        | Fusarium              | Kevin Nelson              | 5/12          | 7/20         | Soybeans        | Medium       | NA                 | N   | N   | V   | NA     | NA       |  |
| Shakopee MN    | Aph Nurs              | Patrick O'Boyle           | 5/9           | 8/30         | NA              | NA           | NA                 | NA  | NA  | NA  | NA     | NA       |  |
| Longmont CO    | RA Nurs               | Eric Runkle               | 4/20          | 10/10        | NA              | NA           | NA                 | NA  | NA  | NA  | NA     | NA       |  |
| Foxhome CR     | Cercospora            | Kevin Etzler              | 5/9           | 8/29         | Wheat           | Medium       | NA                 | L-M | NA  | L   | NA     | NA       |  |
| BSDF CR        | CR Nurs               | Mitch McGrath             | 5/11          | 8/30         | NA              | NA           | NA                 | NA  | NA  | NA  | NA     | NA       |  |
| Randolph MN CR | Cercospora            | Patrick O'Boyle           | 5/5           | 8/9          | NA              | Medium/Light | NA                 | NA  | NA  | NA  | NA     | NA       |  |

\* Fertilizer applied in accordance to cooperative recommendations.

@ Disease notes for Aph., Rhizoc., Rhizomania, Fusarium, Root Maggot and Root Aphids were based upon visual evaluations (N=none, L=light, M=moderate, V=severe, NA=not observed)

Created 10-31-2017

Table 7. Seed Treatments Used on Varieties in ACSC Official Trials in 2017

| Variety                  | Years<br>in Trial | Years **<br>Comm. | Fungicide<br>(Rhizoctonia) | Insecticide<br>(Spring Tails & Maggots) | Tachigaren Rate<br>(Aphanomyces) | Priming<br>(Emergence) | Fungicide<br>(Damping Off) |
|--------------------------|-------------------|-------------------|----------------------------|---|----------------------------------|------------------------|----------------------------|
| <b>ACSC Commercial</b>   |                   |                   |                            |   |                                  |                        |                            |
| BTS 80RR52               | 8                 | 6                 | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8337                 | 5                 | 3                 | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8363                 | 5                 | 3                 | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8500                 | 3                 | 1                 | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8512                 | 3                 | 1                 | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8524                 | 3                 | 1                 | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8572                 | 3                 | 1                 | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| Crystal 093RR            | 8                 | 6                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 101RR            | 7                 | 6                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 246RR            | 6                 | 4                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 247RR            | 6                 | 4                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 355RR            | 5                 | 2                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 467RR            | 4                 | 1                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 572RR            | 3                 | 1                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 574RR            | 3                 | 1                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 986RR            | 9                 | 6                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Hilleshög 4302RR         | 7                 | 4                 | Vibrance                   | Cruiser Maxx                            | 0                                | XBEET                  | Apron XL Maxim             |
| Hilleshög 4448RR         | 6                 | 4                 | Vibrance                   | Cruiser Maxx                            | 0                                | XBEET                  | Apron XL Maxim             |
| Hilleshög 9528RR         | 5                 | 3                 | Vibrance                   | Cruiser Maxx                            | 0                                | XBEET                  | Apron XL Maxim             |
| Hilleshög HIL9707        | 3                 | 1                 | Vibrance                   | Cruiser Maxx                            | 45                               | XBEET                  | Apron XL Maxim             |
| Maribo 109               | 4                 | 2                 | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Maribo 305               | 5                 | 2                 | Vibrance                   | Cruiser Maxx                            | 20                               | XBEET                  | Apron XL Maxim             |
| Maribo MA502             | 3                 | 1                 | Vibrance                   | Cruiser Maxx                            | 20                               | XBEET                  | Apron XL Maxim             |
| SX Avalanche RR(858)     | 3                 | 1                 | Metlock/Rizolex/Kabina 7g  | Nipst                                   | 20                               | XBEET                  | Sebring Thiram             |
| SX Canyon RR             | 4                 | 2                 | Metlock/Rizolex/Kabina 7g  | Nipst                                   | 20                               | XBEET                  | Sebring Thiram             |
| SX Cruze RR              | 4                 | 2                 | Metlock/Rizolex/Kabina 7g  | Nipst                                   | 20                               | XBEET                  | Sebring Thiram             |
| SX Marathon RR(856)      | 3                 | 1                 | Metlock/Rizolex/Kabina 7g  | Nipst                                   | 20                               | XBEET                  | Sebring Thiram             |
| SX Winchester RR         | 5                 | 3                 | Metlock/Rizolex/Kabina 7g  | Nipst                                   | 20                               | XBEET                  | Sebring Thiram             |
| SV RR244TT               | 4                 | 2                 | Metlock/Rizolex/Kabina 7g  | Nipst                                   | 20                               | XBEET                  | Sebring Thiram             |
| SV RR333                 | 5                 | 2                 | Metlock/Rizolex/Kabina 7g  | Nipst                                   | 20                               | XBEET                  | Sebring Thiram             |
| SV RR351                 | 3                 | 1                 | Metlock/Rizolex/Kabina 7g  | Nipst                                   | 20                               | XBEET                  | Sebring Thiram             |
| <b>ACSC Experimental</b> |                   |                   |                            |   |                                  |                        |                            |
| BTS 8606                 | 2                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8629                 | 2                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8735                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8742                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8749                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8756                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8767                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8770                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8784                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8787                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BTS 8798                 | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| Crystal 573RR            | 3                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 578RR            | 3                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 684RR            | 2                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 792RR            | 1                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 793RR            | 1                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 794RR            | 1                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 795RR            | 1                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 796RR            | 1                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 797RR            | 1                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Hilleshög HIL9708        | 3                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Hilleshög HIL9895        | 2                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Hilleshög HIL9920        | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Hilleshög HIL9921        | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Hilleshög HIL9922        | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Hilleshög HIL9923        | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Hilleshög HIL9924        | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Maribo MA504             | 3                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Maribo MA611             | 2                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Maribo MA717             | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Maribo MA718             | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Maribo MA719             | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| SX RR1861                | 2                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SX RR1863                | 2                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SX RR1875                | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SX RR1876                | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SX RR1877                | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SX RR1878                | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SX RR1879                | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SV RR265                 | 2                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SV RR266                 | 2                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SV RR268                 | 2                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SV RR371                 | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SV RR372                 | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SV RR373                 | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SV RR374                 | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |
| SV RR375                 | 1                 | NC                | Kabina 14g                 | Nipst                                   | 20                               | NA                     | Sebring Thiram             |

Table 7. Seed Treatments Used on Varieties in ACSC Official Trials in 2017

| Variety             | Years<br>in Trial | Years **<br>Comm. | Fungicide<br>(Rhizoctonia) | Insecticide<br>(Spring Tails & Maggots) | Tachigaren Rate<br>(Aphanomyces) | Priming<br>(Emergence) | Fungicide<br>(Damping Off) |
|---------------------|-------------------|-------------------|----------------------------|---|----------------------------------|------------------------|----------------------------|
| <b>Conventional</b> |                   |                   |                            |   |                                  |                        |                            |
| BETA EXP 687        | 2                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BETA EXP 698        | 2                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BETA EXP 747        | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| BETA EXP 758        | 1                 | NC                | Systiva                    | Poncho Beta                             | 35                               | Ultipro                | Allegiance Thiram          |
| Crystal 620         | 2                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 622         | 2                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 735         | 1                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal 737         | 1                 | NC                | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Crystal R761        | 11                | 8                 | Kabina 14g                 | Poncho Beta                             | 45                               | XBEET                  | Allegiance Thiram          |
| Hilleshög 3035Rz    | 13                | 11                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Hilleshög 9891Rz    | 2                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Maribo MA615Rz      | 2                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Maribo MA720Rz      | 1                 | NC                | Vibrance                   | Cruiser Maxx                            | 20                               | NA                     | Apron XL Maxim             |
| Seedex 8869         | 2                 | NC                | Kabina 14g                 | Nipstl                                  | 20                               | NA                     | Sebring Thiram             |
| Seedex Deuce        | 10                | NC                | Kabina 14g                 | Nipstl                                  | 20                               | NA                     | Sebring Thiram             |
| SV 48611            | 2                 | NC                | Kabina 14g                 | Nipstl                                  | 20                               | NA                     | Sebring Thiram             |
| SV 48777            | 1                 | NC                | Kabina 14g                 | Nipstl                                  | 20                               | NA                     | Sebring Thiram             |
| Strube 12720        | 1                 | NC                | NA                         | Poncho Beta                             | 14                               | 3D Plus                | Thiram                     |
| Strube 13722        | 1                 | NC                | NA                         | Poncho Beta                             | 14                               | 3D Plus                | Thiram                     |

NA indicates no treatment applied in this category.

Created 11/9/2017

Table 8. 2017 Performance of All RR Varieties - ACSC Official Trial

10 sites

| Variety @                               | Code | Rec/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$ ++ | Rev/T<br>%Bnch | Rev/A<br>\$ ++ | Rev/A<br>%Bnch | Sugar<br>% | Yield<br>T/A | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% | Tare<br>% |
|---|------|---------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|------------|--------------|-----------|----------|------------|------------------|-------------|-----------|
| <b>Commercial Trial</b>                 |      |               |                |               |                |               |                |                |                |                |            |              |           |          |            |                  |             |           |
| BTS 80RR52                              | 103  | 334.2         | 100            | 10789         | 101            | 1.22          | 52.79          | 100            | 1699           | 101            | 17.94      | 32.39        | 206       | 1650     | 432        | 5                | 78.2        | 5.5       |
| BTS 8337                                | 116  | 349.5         | 105            | 11209         | 105            | 1.08          | 57.43          | 109            | 1842           | 110            | 18.55      | 32.08        | 174       | 1574     | 352        | 5                | 76.0        | 6.3       |
| BTS 8363                                | 130  | 328.7         | 98             | 11391         | 107            | 1.09          | 51.14          | 97             | 1770           | 105            | 17.53      | 34.70        | 214       | 1555     | 354        | 0                | 77.9        | 5.9       |
| BTS 8500                                | 119  | 335.7         | 100            | 11741         | 110            | 1.11          | 53.24          | 101            | 1862           | 111            | 17.90      | 34.98        | 192       | 1606     | 366        | 0                | 76.2        | 5.5       |
| BTS 8512                                | 109  | 339.9         | 102            | 10921         | 103            | 1.08          | 54.51          | 103            | 1749           | 104            | 18.08      | 32.19        | 182       | 1557     | 359        | 14               | 79.5        | 5.5       |
| BTS 8524                                | 101  | 330.0         | 99             | 11506         | 108            | 1.14          | 51.51          | 97             | 1796           | 107            | 17.64      | 34.88        | 197       | 1697     | 362        | 5                | 78.7        | 6.1       |
| BTS 8572                                | 111  | 346.7         | 104            | 11147         | 105            | 1.07          | 56.57          | 107            | 1817           | 108            | 18.41      | 32.19        | 159       | 1501     | 377        | 0                | 77.6        | 6.0       |
| Crystal 093RR                           | 115  | 350.3         | 105            | 11339         | 106            | 1.08          | 57.65          | 109            | 1866           | 111            | 18.60      | 32.40        | 153       | 1575     | 366        | 0                | 76.4        | 5.8       |
| Crystal 101RR                           | 107  | 329.3         | 98             | 11040         | 104            | 1.20          | 51.29          | 97             | 1718           | 102            | 17.66      | 33.57        | 238       | 1768     | 376        | 0                | 76.9        | 5.7       |
| Crystal 246RR                           | 108  | 331.7         | 99             | 11322         | 106            | 1.09          | 52.05          | 99             | 1775           | 106            | 17.67      | 34.16        | 226       | 1553     | 349        | 0                | 74.3        | 6.2       |
| Crystal 247RR                           | 131  | 335.2         | 100            | 11575         | 109            | 1.03          | 53.09          | 100            | 1832           | 109            | 17.79      | 34.57        | 202       | 1568     | 305        | 18               | 76.1        | 5.7       |
| Crystal 355RR                           | 104  | 340.0         | 102            | 10689         | 100            | 1.15          | 54.56          | 103            | 1711           | 102            | 18.16      | 31.53        | 195       | 1601     | 400        | 0                | 75.1        | 6.3       |
| Crystal 467RR                           | 129  | 330.1         | 99             | 11588         | 109            | 1.12          | 51.56          | 98             | 1804           | 107            | 17.63      | 35.22        | 256       | 1647     | 338        | 0                | 79.6        | 5.7       |
| Crystal 572RR                           | 126  | 354.7         | 106            | 11379         | 107            | 1.01          | 58.99          | 112            | 1891           | 112            | 18.74      | 32.12        | 148       | 1456     | 341        | 0                | 81.5        | 6.5       |
| Crystal 574RR                           | 110  | 334.4         | 100            | 11851         | 111            | 1.08          | 52.84          | 100            | 1875           | 112            | 17.79      | 35.41        | 175       | 1587     | 346        | 0                | 79.5        | 5.2       |
| Crystal 986RR                           | 128  | 341.1         | 102            | 11008         | 103            | 1.03          | 54.89          | 104            | 1776           | 106            | 18.09      | 32.18        | 210       | 1440     | 339        | 0                | 78.4        | 6.2       |
| Hilleshog 4302RR                        | 105  | 334.0         | 100            | 10933         | 95             | 1.05          | 52.73          | 100            | 1597           | 95             | 17.75      | 30.13        | 223       | 1584     | 310        | 0                | 65.2        | 6.2       |
| Hilleshog 4448RR                        | 112  | 338.0         | 101            | 11456         | 108            | 1.06          | 53.93          | 102            | 1829           | 109            | 17.97      | 33.89        | 191       | 1516     | 351        | 5                | 69.8        | 5.1       |
| Hilleshog 9528RR                        | 123  | 339.3         | 101            | 11154         | 105            | 1.05          | 54.35          | 103            | 1785           | 106            | 18.02      | 32.88        | 193       | 1512     | 343        | 5                | 74.1        | 5.4       |
| Hilleshog HIL9707                       | 114  | 324.3         | 97             | 11020         | 103            | 1.14          | 49.79          | 94             | 1692           | 101            | 17.35      | 33.98        | 226       | 1598     | 375        | 5                | 71.8        | 5.7       |
| Maribo 109                              | 122  | 347.6         | 104            | 9579          | 90             | 1.06          | 56.86          | 108            | 1569           | 93             | 18.43      | 27.50        | 184       | 1495     | 355        | 0                | 67.5        | 5.8       |
| Maribo 305                              | 106  | 331.7         | 99             | 11018         | 103            | 1.02          | 52.03          | 98             | 1731           | 103            | 17.60      | 33.15        | 194       | 1457     | 333        | 0                | 66.8        | 5.0       |
| Maribo M4502                            | 121  | 329.8         | 99             | 10539         | 99             | 1.17          | 51.46          | 97             | 1642           | 98             | 17.66      | 32.02        | 257       | 1672     | 370        | 68               | 73.6        | 5.7       |
| SX Avalanche RR(858)                    | 127  | 342.2         | 102            | 10472         | 98             | 1.02          | 55.22          | 104            | 1690           | 101            | 18.13      | 30.60        | 200       | 1526     | 310        | 9                | 71.6        | 6.3       |
| SX Canyon RR                            | 118  | 342.4         | 102            | 11330         | 106            | 1.03          | 55.26          | 105            | 1829           | 109            | 18.15      | 33.11        | 171       | 1534     | 331        | 0                | 71.4        | 5.8       |
| SX Cruze RR                             | 117  | 318.4         | 95             | 11272         | 106            | 1.13          | 48.01          | 91             | 1696           | 101            | 17.05      | 35.47        | 202       | 1564     | 388        | 5                | 76.8        | 5.7       |
| SX Marathon RR(856)                     | 102  | 340.4         | 102            | 11296         | 106            | 1.02          | 54.66          | 103            | 1812           | 108            | 18.04      | 33.22        | 170       | 1534     | 323        | 5                | 71.7        | 6.1       |
| SX Winchester RR                        | 125  | 331.1         | 99             | 10087         | 95             | 1.04          | 51.84          | 98             | 1580           | 94             | 17.59      | 30.46        | 195       | 1566     | 320        | 5                | 65.7        | 5.8       |
| SX RR244TT                              | 120  | 334.7         | 100            | 11339         | 106            | 1.05          | 52.93          | 100            | 1796           | 107            | 17.79      | 33.83        | 178       | 1577     | 331        | 5                | 71.9        | 5.7       |
| SV RR333                                | 124  | 338.9         | 101            | 11399         | 107            | 1.04          | 54.21          | 103            | 1823           | 108            | 17.98      | 33.65        | 178       | 1556     | 325        | 0                | 72.4        | 5.8       |
| SV RR351                                | 113  | 337.3         | 101            | 11196         | 105            | 1.05          | 53.73          | 102            | 1783           | 106            | 17.91      | 33.19        | 185       | 1549     | 332        | 0                | 73.9        | 5.8       |
| RR Filler #01s                          | 132  | 330.8         | 99             | 11182         | 105            | 1.19          | 51.76          | 98             | 1747           | 104            | 17.73      | 33.88        | 234       | 1738     | 375        | 0                | 78.6        | 6.0       |
| RR Filler #01v                          | 133  | 330.2         | 99             | 11242         | 106            | 1.20          | 51.58          | 98             | 1754           | 104            | 17.71      | 34.10        | 234       | 1753     | 376        | 0                | 78.0        | 5.6       |
| <b>Experimental Trial (Comm status)</b> |      |               |                |               |                |               |                |                |                |                |            |              |           |          |            |                  |             |           |
| BTS 8606                                | 242  | 340.5         | 102            | 11739         | 110            | 1.09          | 54.65          | 103            | 1882           | 112            | 18.13      | 34.57        | 207       | 1576     | 356        | 0                | 78.9        | 4.8       |
| BTS 8629                                | 224  | 332.8         | 100            | 11986         | 113            | 1.08          | 52.38          | 99             | 1884           | 112            | 17.72      | 36.12        | 215       | 1450     | 377        | 0                | 81.2        | 4.1       |
| BTS 8735                                | 234  | 335.7         | 100            | 11581         | 109            | 1.05          | 53.23          | 101            | 1836           | 109            | 17.84      | 34.49        | 199       | 1421     | 364        | 0                | 79.2        | 3.8       |
| BTS 8742                                | 207  | 333.4         | 100            | 10461         | 98             | 1.23          | 52.55          | 99             | 1646           | 98             | 17.89      | 31.40        | 210       | 1624     | 443        | 0                | 76.4        | 4.7       |
| BTS 8749                                | 202  | 337.7         | 101            | 10812         | 101            | 1.14          | 53.82          | 102            | 1719           | 102            | 18.04      | 32.11        | 203       | 1629     | 381        | 9                | 77.3        | 4.9       |
| BTS 8756                                | 241  | 338.4         | 101            | 10818         | 102            | 1.25          | 54.06          | 102            | 1724           | 103            | 18.16      | 32.02        | 202       | 1698     | 443        | 0                | 81.6        | 5.0       |
| BTS 8767                                | 235  | 339.2         | 101            | 11755         | 110            | 1.08          | 54.27          | 103            | 1878           | 112            | 18.05      | 34.75        | 203       | 1590     | 342        | 0                | 81.4        | 5.0       |
| BTS 8770                                | 247  | 337.4         | 101            | 11328         | 106            | 1.07          | 53.72          | 102            | 1801           | 107            | 17.95      | 33.62        | 211       | 1609     | 325        | 9                | 73.2        | 4.4       |
| BTS 8784                                | 236  | 351.4         | 105            | 10874         | 102            | 1.04          | 57.86          | 109            | 1787           | 106            | 18.62      | 31.00        | 160       | 1451     | 359        | 0                | 77.3        | 4.4       |
| BTS 8787                                | 219  | 331.5         | 99             | 11071         | 104            | 1.09          | 52.00          | 98             | 1733           | 103            | 17.68      | 33.45        | 198       | 1583     | 351        | 0                | 73.4        | 4.5       |
| BTS 8798                                | 223  | 338.8         | 101            | 10627         | 100            | 1.07          | 54.16          | 103            | 1695           | 101            | 18.03      | 31.42        | 166       | 1485     | 377        | 0                | 80.1        | 5.1       |
| Crystal 573RR                           | 225  | 343.9         | 103            | 11039         | 104            | 1.08          | 55.66          | 105            | 1785           | 106            | 18.28      | 32.14        | 176       | 1511     | 368        | 0                | 75.0        | 4.4       |
| Crystal 578RR                           | 220  | 338.4         | 101            | 11908         | 112            | 1.07          | 54.05          | 102            | 1899           | 113            | 18.00      | 35.28        | 206       | 1579     | 335        | 0                | 80.1        | 4.6       |
| Crystal 684RR                           | 239  | 333.7         | 100            | 12057         | 113            | 1.12          | 52.65          | 100            | 1899           | 113            | 17.81      | 36.22        | 216       | 1658     | 354        | 0                | 80.0        | 4.9       |
| Crystal 732RR                           | 218  | 344.0         | 103            | 11139         | 105            | 1.05          | 55.67          | 105            | 1799           | 107            | 18.26      | 34.25        | 161       | 1485     | 367        | 0                | 77.6        | 4.2       |
| Crystal 733RR                           | 246  | 347.5         | 104            | 11636         | 109            | 1.00          | 56.69          | 107            | 1896           | 113            | 18.39      | 33.52        | 172       | 1441     | 329        | 18               | 78.0        | 4.8       |
| Crystal 734RR                           | 208  | 333.8         | 100            | 11629         | 109            | 1.09          | 52.66          | 100            | 1835           | 109            | 17.79      | 34.82        | 206       | 1534     | 368        | 0                | 70.7        | 4.1       |
| Crystal 755RR                           | 215  | 340.1         | 102            | 10685         | 100            | 1.13          | 54.53          | 103            | 1708           | 102            | 18.14      | 31.53        | 191       | 1557     | 395        | 0                | 75.7        | 4.6       |
| Crystal 796RR                           | 238  | 337.0         | 101            | 12237         | 115            | 1.07          | 53.63          | 101            | 1950           | 116            | 17.93      | 36.27        | 190       | 1570     | 342        | 0                | 80.0        | 5.0       |
| Crystal 797RR                           | 201  | 330.1         | 99             | 11595         | 109            | 1.11          | 51.58          | 98             | 1809           | 108            | 17.63      | 35.22        | 233       | 1660     | 339        | 9                | 69.6        | 4.1       |
| Hilleshog HIL9708                       | 222  | 338.6         | 101            | 10290         | 97             | 1.07          | 54.11          | 102            | 1640           | 98             | 18.02      | 30.41        | 214       | 1493     | 364        | 9                | 74.3        | 3.7       |
| Hilleshog HIL9895                       | 209  | 326.3         | 98             | 10024         | 94             | 1.17          | 50.46          | 95             | 1547           | 92             | 17.48      | 30.84        | 223       | 1604     | 400        | 41               | 73.1        | 4.3       |
| Hilleshog HIL9920                       | 203  | 347.2         | 104            | 10968         | 103            | 1.02          | 56.61          | 107            | 1785           | 106            | 18.40      | 31.64        | 190       | 1574     | 304        | 9                | 74.1        | 4.4       |
| Hilleshog HIL9921                       | 204  | 345.2         | 103            | 9779          | 92             | 1.08          | 56.04          | 106            | 1585           | 94             | 18.35      | 28.35        | 206       | 1481     | 368        | 0                | 76.5        | 4.2       |
| Hilleshog HIL9922                       | 231  | 325.4         | 97             | 10144         | 95             | 1.18          | 50.19          | 95             | 1560           | 93             | 17.44      | 31.26        | 215       | 1627     | 403        | 68               | 78.0        | 4.8       |
| Hilleshog HIL9923                       | 243  | 337.5         | 101            | 9412          | 88             | 1.24          | 53.77          | 102            | 1497           | 89             | 18.11      | 27.92        | 248       | 1644     | 441        | 0                | 62.1        | 3.8       |
| Hilleshog HIL9924                       | 237  | 335.0         | 101            | 9186          | 86             | 1.27          | 53.00          | 100            | 1455           | 87             | 18.02      | 27.42        | 219       | 1622     | 482        | 0                | 57.5        | 4.6       |
| Maribo MA504                            | 229  | 333.9         | 100            | 11632         | 109            | 1.07          | 52.70          | 100            | 1830           | 109            | 17.77      | 34.93        | 210       | 15       |            |                  |             |           |

Table 9. 2017 Performance of All RR Varieties - ACSC Official Trial  
Felton MN

| Variety @                               | Code       | Rec/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$++ | Rev/T<br>%Bnch | Rev/A<br>\$++ | Rev/A<br>%Bnch | Sugar<br>%   | Yield<br>T/A<br>ppm | Na<br>ppm  | K<br>ppm    | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% |
|---|------------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|---------------|----------------|--------------|---------------------|------------|-------------|------------|------------------|-------------|
| <b>Commercial Trial</b>                 |            |               |                |               |                |               |               |                |               |                |              |                     |            |             |            |                  |             |
| BTS 80RR52                              | 103        | 298.0         | 98             | 11136         | 102            | 1.95          | 41.82         | 95             | 1578          | 100            | 16.83        | 37.05               | 552        | 1779        | 842        | 0                | 58.3        |
| BTS 8337                                | 116        | 340.1         | 111            | 12185         | 111            | 1.51          | 54.57         | 124            | 1953          | 123            | 18.55        | 35.96               | 305        | 1598        | 626        | 0                | 60.8        |
| <b>BTS 8363</b>                         | <b>130</b> | <b>306.9</b>  | <b>100</b>     | <b>2019</b>   | <b>110</b>     | <b>1.67</b>   | <b>44.51</b>  | <b>101</b>     | <b>1746</b>   | <b>110</b>     | <b>17.02</b> | <b>39.03</b>        | <b>483</b> | <b>1698</b> | <b>669</b> | <b>0</b>         | <b>64.6</b> |
| BTS 8500                                | 119        | 325.8         | 107            | 12953         | 118            | 1.58          | 50.23         | 114            | 1994          | 126            | 17.87        | 39.89               | 357        | 1618        | 658        | 0                | 65.3        |
| BTS 8512                                | 109        | 321.8         | 105            | 11792         | 108            | 1.49          | 49.03         | 111            | 1791          | 113            | 17.61        | 36.59               | 351        | 1565        | 602        | 32               | 60.4        |
| BTS 8524                                | 101        | 315.0         | 103            | 12812         | 117            | 1.58          | 46.98         | 107            | 1913          | 121            | 17.35        | 40.62               | 407        | 1728        | 614        | 0                | 63.8        |
| BTS 8572                                | 111        | 329.4         | 108            | 11975         | 109            | 1.55          | 51.35         | 116            | 1874          | 118            | 17.98        | 36.28               | 286        | 1557        | 685        | 0                | 62.2        |
| Crystal 093RR                           | 115        | 329.8         | 108            | 12237         | 112            | 1.49          | 51.46         | 117            | 1907          | 120            | 18.03        | 37.21               | 319        | 1625        | 597        | 0                | 57.8        |
| Crystal 101RR                           | 107        | 303.5         | 99             | 11549         | 106            | 1.69          | 43.51         | 99             | 1655          | 104            | 16.87        | 38.23               | 456        | 1816        | 659        | 0                | 64.0        |
| Crystal 246RR                           | 108        | 315.0         | 103            | 12362         | 113            | 1.65          | 46.99         | 107            | 1849          | 117            | 17.39        | 39.13               | 491        | 1629        | 664        | 0                | 57.9        |
| Crystal 247RR                           | 131        | 322.1         | 105            | 12591         | 115            | 1.44          | 49.12         | 111            | 1924          | 121            | 17.56        | 38.88               | 418        | 1661        | 524        | 32               | 65.9        |
| Crystal 355RR                           | 104        | 312.1         | 102            | 11247         | 103            | 1.70          | 46.10         | 105            | 1667          | 105            | 17.28        | 35.84               | 478        | 1650        | 708        | 0                | 59.9        |
| Crystal 467RR                           | 129        | 308.6         | 101            | 12418         | 113            | 1.60          | 45.04         | 102            | 1818          | 115            | 16.99        | 40.06               | 533        | 1677        | 607        | 0                | 68.9        |
| Crystal 572RR                           | 126        | 339.4         | 111            | 12424         | 114            | 1.39          | 54.37         | 123            | 1994          | 126            | 18.39        | 36.46               | 266        | 1439        | 595        | 0                | 72.8        |
| Crystal 574RR                           | 110        | 325.0         | 106            | 12873         | 118            | 1.53          | 50.00         | 113            | 1982          | 125            | 17.78        | 39.86               | 331        | 1612        | 626        | 0                | 68.6        |
| Crystal 986RR                           | 128        | 307.4         | 101            | 11073         | 101            | 1.54          | 44.67         | 101            | 1617          | 102            | 16.92        | 35.65               | 455        | 1446        | 644        | 0                | 61.8        |
| Hilleshog 4302RR                        | 105        | 308.5         | 101            | 9842          | 90             | 1.57          | 45.00         | 102            | 1442          | 91             | 16.99        | 31.73               | 492        | 1696        | 589        | 0                | 45.2        |
| Hilleshog 4448RR                        | 112        | 312.5         | 102            | 12012         | 110            | 1.38          | 46.22         | 105            | 1779          | 112            | 17.03        | 38.28               | 387        | 1531        | 530        | 0                | 50.3        |
| Hilleshog 9528RR                        | 123        | 314.9         | 103            | 12138         | 111            | 1.48          | 46.94         | 106            | 1813          | 114            | 17.20        | 38.59               | 397        | 1489        | 608        | 0                | 63.5        |
| Hilleshog HIL9707                       | 114        | 300.7         | 98             | 11587         | 106            | 1.65          | 42.66         | 97             | 1655          | 104            | 16.65        | 38.37               | 437        | 1650        | 687        | 0                | 58.9        |
| Maribor 109                             | 122        | 328.3         | 107            | 10166         | 93             | 1.50          | 51.01         | 116            | 1574          | 99             | 17.93        | 31.25               | 392        | 1455        | 627        | 0                | 49.6        |
| Maribor 305                             | 106        | 301.5         | 99             | 11335         | 104            | 1.45          | 42.89         | 97             | 1617          | 102            | 16.51        | 37.68               | 424        | 1449        | 581        | 0                | 51.7        |
| Maribor MA502                           | 121        | 303.5         | 99             | 11253         | 103            | 1.68          | 43.48         | 98             | 1617          | 102            | 16.81        | 37.07               | 552        | 1707        | 644        | 0                | 64.1        |
| SX Avalanche RR(858)                    | 127        | 324.2         | 106            | 11058         | 101            | 1.50          | 49.76         | 113            | 1699          | 107            | 17.71        | 34.03               | 410        | 1578        | 587        | 0                | 58.1        |
| SX Canyon RR                            | 118        | 311.3         | 102            | 11569         | 106            | 1.62          | 45.86         | 104            | 1707          | 108            | 17.24        | 37.06               | 373        | 1565        | 703        | 0                | 53.4        |
| SX Cruz RR                              | 117        | 293.3         | 96             | 11905         | 109            | 1.78          | 40.41         | 92             | 1651          | 104            | 16.43        | 40.28               | 444        | 1647        | 773        | 0                | 60.2        |
| SX Marathon RR(856)                     | 102        | 325.7         | 107            | 11876         | 109            | 1.39          | 50.22         | 114            | 1833          | 116            | 17.66        | 36.30               | 288        | 1610        | 551        | 0                | 59.4        |
| SX Winchester RR                        | 125        | 307.6         | 101            | 10074         | 92             | 1.59          | 44.73         | 101            | 1452          | 92             | 17.00        | 33.03               | 427        | 1656        | 624        | 0                | 51.1        |
| SV RR244TT                              | 120        | 319.4         | 105            | 11780         | 108            | 1.46          | 48.30         | 110            | 1776          | 112            | 17.44        | 37.01               | 336        | 1631        | 567        | 0                | 60.3        |
| SV RR333                                | 124        | 319.4         | 105            | 11868         | 108            | 1.53          | 48.32         | 110            | 1795          | 113            | 17.49        | 37.07               | 356        | 1633        | 619        | 0                | 58.2        |
| SV RR351                                | 113        | 319.0         | 104            | 11716         | 107            | 1.53          | 48.19         | 109            | 1778          | 112            | 17.44        | 36.61               | 350        | 1618        | 623        | 0                | 59.2        |
| RR Filler #01s                          | 132        | 307.3         | 101            | 12007         | 110            | 1.64          | 44.64         | 101            | 1749          | 110            | 17.01        | 38.95               | 441        | 1747        | 636        | 0                | 66.2        |
| RR Filler #01v                          | 133        | 302.8         | 99             | 11523         | 105            | 1.73          | 43.28         | 98             | 1653          | 104            | 16.88        | 37.92               | 494        | 1724        | 706        | 0                | 59.5        |
| <b>Experimental Trial (Comm status)</b> |            |               |                |               |                |               |               |                |               |                |              |                     |            |             |            |                  |             |
| BTS 8606                                | 242        | 308.6         | 101            | 11660         | 107            | 1.83          | 44.94         | 102            | 1701          | 107            | 17.20        | 37.91               | 562        | 1684        | 780        | 0                | 70.4        |
| BTS 8629                                | 224        | 306.8         | 100            | 12344         | 113            | 1.83          | 44.46         | 101            | 1799          | 113            | 17.12        | 40.15               | 575        | 1513        | 849        | 0                | 72.1        |
| BTS 8735                                | 234        | 311.4         | 102            | 11728         | 107            | 1.72          | 45.70         | 104            | 1729          | 109            | 17.28        | 37.42               | 499        | 1555        | 742        | 0                | 68.9        |
| BTS 8742                                | 207        | 303.7         | 99             | 11411         | 104            | 1.78          | 43.60         | 99             | 1641          | 103            | 16.93        | 37.63               | 529        | 1546        | 803        | 0                | 70.6        |
| BTS 8749                                | 202        | 307.7         | 101            | 11004         | 101            | 1.85          | 44.68         | 101            | 1609          | 101            | 17.20        | 35.36               | 536        | 1745        | 778        | 0                | 73.4        |
| BTS 8756                                | 241        | 302.8         | 98             | 10842         | 99             | 2.12          | 43.36         | 98             | 1549          | 98             | 17.11        | 35.90               | 523        | 1775        | 1013       | 0                | 72.5        |
| BTS 8767                                | 235        | 310.7         | 102            | 11603         | 106            | 1.78          | 45.50         | 103            | 1697          | 107            | 17.29        | 37.41               | 505        | 1711        | 753        | 0                | 68.6        |
| BTS 8770                                | 247        | 309.3         | 101            | 11770         | 108            | 1.64          | 45.12         | 102            | 1722          | 109            | 17.12        | 37.95               | 506        | 1642        | 641        | 0                | 69.8        |
| BTS 8784                                | 236        | 320.6         | 105            | 11359         | 104            | 1.54          | 48.22         | 109            | 1708          | 108            | 17.64        | 35.36               | 383        | 1537        | 639        | 0                | 66.8        |
| BTS 8787                                | 219        | 311.2         | 102            | 11853         | 108            | 1.54          | 45.66         | 104            | 1747          | 110            | 17.16        | 37.90               | 414        | 1640        | 587        | 0                | 67.3        |
| BTS 8798                                | 223        | 316.7         | 104            | 11294         | 103            | 1.62          | 47.15         | 107            | 1671          | 105            | 17.49        | 36.04               | 361        | 1565        | 699        | 0                | 75.0        |
| Crystal 573RR                           | 225        | 319.2         | 104            | 11375         | 104            | 1.53          | 47.85         | 108            | 1711          | 108            | 17.56        | 35.47               | 362        | 1512        | 642        | 0                | 68.5        |
| Crystal 578RR                           | 220        | 312.1         | 102            | 11446         | 104            | 1.64          | 45.90         | 104            | 1689          | 107            | 17.26        | 36.43               | 439        | 1665        | 652        | 0                | 69.1        |
| Crystal 684RR                           | 239        | 304.2         | 100            | 12620         | 115            | 1.57          | 43.74         | 99             | 1827          | 115            | 16.82        | 41.08               | 477        | 1663        | 583        | 0                | 80.8        |
| Crystal 792RR                           | 218        | 321.8         | 105            | 11307         | 104            | 1.43          | 48.56         | 110            | 1704          | 107            | 17.61        | 35.76               | 294        | 1472        | 606        | 0                | 72.1        |
| Crystal 793RR                           | 246        | 324.6         | 106            | 12103         | 111            | 1.42          | 49.31         | 112            | 1842          | 116            | 17.75        | 37.29               | 364        | 1374        | 603        | 0                | 72.3        |
| Crystal 794RR                           | 208        | 311.9         | 102            | 11980         | 109            | 1.58          | 45.86         | 104            | 1757          | 111            | 17.22        | 38.58               | 485        | 1614        | 604        | 0                | 54.5        |
| Crystal 795RR                           | 215        | 306.2         | 100            | 10998         | 100            | 1.83          | 44.28         | 100            | 1598          | 101            | 17.09        | 35.78               | 489        | 1594        | 846        | 0                | 66.5        |
| Crystal 796RR                           | 238        | 312.9         | 102            | 12477         | 114            | 1.64          | 46.11         | 105            | 1846          | 116            | 17.30        | 39.79               | 442        | 1602        | 678        | 0                | 67.8        |
| Crystal 797RR                           | 201        | 294.4         | 96             | 11842         | 108            | 1.87          | 41.06         | 93             | 1669          | 105            | 16.51        | 39.58               | 611        | 1761        | 761        | 0                | 57.1        |
| Hilleshog HIL9708                       | 222        | 307.1         | 101            | 10134         | 93             | 1.69          | 44.51         | 101            | 1468          | 93             | 17.06        | 32.92               | 490        | 1560        | 739        | 0                | 67.5        |
| Hilleshog HIL9895                       | 209        | 291.7         | 95             | 10106         | 92             | 1.87          | 40.35         | 91             | 1405          | 89             | 16.37        | 34.72               | 574        | 1650        | 831        | 0                | 64.4        |
| Hilleshog HIL9920                       | 203        | 319.0         | 104            | 11027         | 101            | 1.58          | 47.80         | 108            | 1648          | 104            | 17.48        | 34.95               | 449        | 1666        | 609        | 0                | 69.7        |
| Hilleshog HIL9921                       | 204        | 317.0         | 104            | 10546         | 96             | 1.56          | 47.23         | 107            | 1567          | 99             | 17.43        | 33.76               | 508        | 1516        | 618        | 0                | 73.6        |
| Hilleshog HIL9922                       | 231        | 290.4         | 95             | 10514         | 96             | 1.85          | 39.97         | 91             | 1449          | 91             | 16.29        | 36.12               | 471        | 1650        | 841        | 0                | 69.3        |
| Hilleshog HIL9923                       | 243        | 307.8         | 101            | 9722          | 89             | 2.00          | 44.72         | 101            | 1405          | 89             | 17.28        | 31.98               | 616        | 1766        | 894        | 0                | 41.4        |
| Hilleshog HIL9924                       | 237        | 306.6         | 100            | 10123         | 93             | 2.04          | 44.41         | 101            | 1471          | 93             | 17.25        | 32.84               | 543        | 1713        | 970        | 0                | 36.4        |
| Maribor MA504                           | 229        | 301.4         | 99             | 11828         | 108            | 1.66          | 42.98         | 97             | 1675          | 106            | 17.71        | 39.80               | 505        | 1535        | 715        | 0                | 63.0        |
| Maribor MA611                           | 245        | 291.3         | 95             | 9843          | 90             | 1.85          | 40.21         | 91             | 1362          | 86             | 16.34        | 33.64               | 613        | 1745        | 765        | 0                | 64.5        |
| Maribor MA717                           | 232        | 310.5         | 102            | 10832         | 99             | 1.76          | 45.46         | 103            | 1589          | 100            | 17.26        | 34.58               | 453        | 1562        | 798        | 0                | 67.8        |
| Maribor MA718                           | 221        | 292.2         | 96             | 9572          | 87             | 2.03          | 40.46         | 92             | 1328</td      |                |              |                     |            |             |            |                  |             |

Table 10. 2017 Performance of All RR Varieties - ACSC Official Trial  
Georgetown MN

| Variety @                               | Code | Rec/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$++ | Rev/T<br>%Bnch | Rev/A<br>\$++ | Rev/A<br>%Bnch | Sugar<br>% | Yield<br>T/A<br>ppm | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% |
|---|------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|---------------|----------------|------------|---------------------|-----------|----------|------------|------------------|-------------|
| <b>Commercial Trial</b>                 |      |               |                |               |                |               |               |                |               |                |            |                     |           |          |            |                  |             |
| BTS 80RR52                              | 103  | 349.4         | 100            | 11554         | 102            | 1.07          | 57.40         | 101            | 1903          | 103            | 18.55      | 33.00               | 121       | 1682     | 341        | 0                | 89.7        |
| BTS 8337                                | 116  | 356.5         | 102            | 11522         | 102            | 1.03          | 59.55         | 104            | 1916          | 104            | 18.86      | 32.45               | 128       | 1666     | 312        | 0                | 90.8        |
| BTS 8363                                | 130  | 343.2         | 99             | 12044         | 107            | 0.94          | 55.53         | 97             | 1941          | 105            | 18.10      | 35.23               | 130       | 1555     | 266        | 0                | 92.4        |
| BTS 8500                                | 119  | 347.5         | 100            | 12424         | 110            | 1.02          | 56.83         | 100            | 2038          | 110            | 18.40      | 35.86               | 132       | 1669     | 301        | 0                | 94.4        |
| BTS 8512                                | 109  | 352.6         | 101            | 11322         | 100            | 0.97          | 58.37         | 102            | 1869          | 101            | 18.59      | 32.14               | 116       | 1607     | 283        | 63               | 89.9        |
| BTS 8524                                | 101  | 344.8         | 99             | 12365         | 110            | 1.03          | 56.01         | 98             | 2013          | 109            | 18.28      | 35.92               | 156       | 1718     | 285        | 0                | 92.9        |
| BTS 8572                                | 111  | 354.7         | 102            | 11421         | 101            | 0.99          | 59.00         | 104            | 1893          | 102            | 18.71      | 32.20               | 122       | 1502     | 323        | 0                | 88.4        |
| Crystal 093RR                           | 115  | 362.2         | 104            | 11434         | 101            | 1.06          | 61.27         | 107            | 1943          | 105            | 19.18      | 31.51               | 122       | 1664     | 333        | 0                | 89.3        |
| Crystal 101RR                           | 107  | 347.9         | 100            | 11842         | 105            | 1.11          | 56.93         | 100            | 1941          | 105            | 18.50      | 34.07               | 168       | 1845     | 307        | 0                | 91.4        |
| Crystal 246RR                           | 108  | 344.5         | 99             | 12215         | 100            | 1.02          | 55.91         | 98             | 1987          | 108            | 18.25      | 35.22               | 162       | 1582     | 312        | 0                | 89.5        |
| Crystal 247RR                           | 131  | 347.7         | 100            | 12745         | 113            | 0.94          | 56.88         | 100            | 2083          | 113            | 18.33      | 36.61               | 120       | 1600     | 264        | 0                | 88.8        |
| Crystal 355RR                           | 104  | 347.9         | 100            | 11035         | 98             | 0.99          | 56.95         | 100            | 1800          | 97             | 18.48      | 31.85               | 128       | 1675     | 352        | 0                | 92.3        |
| Crystal 467RR                           | 129  | 346.3         | 99             | 12099         | 107            | 1.02          | 56.44         | 99             | 1971          | 107            | 18.32      | 34.94               | 140       | 1698     | 286        | 0                | 91.6        |
| Crystal 572RR                           | 126  | 364.3         | 105            | 11309         | 100            | 1.01          | 61.91         | 109            | 1918          | 104            | 19.24      | 31.23               | 128       | 1620     | 308        | 0                | 92.5        |
| Crystal 574RR                           | 110  | 345.9         | 99             | 12657         | 112            | 1.01          | 56.34         | 99             | 2063          | 112            | 18.30      | 36.55               | 138       | 1685     | 282        | 0                | 89.5        |
| Crystal 986RR                           | 128  | 353.9         | 102            | 11582         | 103            | 0.97          | 58.75         | 103            | 1924          | 104            | 18.66      | 32.82               | 162       | 1509     | 290        | 0                | 92.9        |
| Hilleshög 4302RR                        | 105  | 347.2         | 100            | 10693         | 95             | 0.94          | 56.71         | 99             | 1746          | 95             | 18.29      | 30.86               | 149       | 1643     | 242        | 0                | 83.4        |
| Hilleshög 4448RR                        | 112  | 356.2         | 102            | 12467         | 111            | 0.95          | 59.44         | 104            | 2085          | 113            | 18.76      | 34.89               | 132       | 1536     | 281        | 32               | 89.3        |
| Hilleshög 9528RR                        | 123  | 353.2         | 101            | 11768         | 104            | 0.94          | 58.55         | 103            | 1958          | 106            | 18.60      | 33.18               | 131       | 1541     | 270        | 0                | 84.2        |
| Hilleshög HIL7907                       | 114  | 340.6         | 98             | 12329         | 109            | 1.05          | 54.72         | 96             | 1986          | 107            | 18.08      | 36.11               | 165       | 1696     | 307        | 0                | 91.3        |
| Maribo 109                              | 122  | 360.8         | 104            | 10953         | 97             | 1.01          | 60.85         | 107            | 1850          | 100            | 19.06      | 30.14               | 128       | 1541     | 328        | 0                | 87.8        |
| Maribo 305                              | 106  | 347.2         | 100            | 12014         | 106            | 1.02          | 56.71         | 99             | 1953          | 106            | 18.38      | 34.77               | 168       | 1474     | 337        | 0                | 86.1        |
| Maribo MA502                            | 121  | 348.3         | 100            | 10953         | 97             | 1.10          | 57.05         | 100            | 1797          | 97             | 18.52      | 31.51               | 164       | 1732     | 333        | 0                | 87.4        |
| SX Avalanche RR(858)                    | 127  | 357.1         | 103            | 11035         | 98             | 0.98          | 59.72         | 105            | 1839          | 100            | 18.26      | 31.08               | 143       | 1621     | 275        | 63               | 86.6        |
| SX Canyon RR                            | 118  | 359.7         | 103            | 11895         | 105            | 0.98          | 60.51         | 106            | 1992          | 108            | 18.95      | 33.11               | 117       | 1649     | 278        | 0                | 87.8        |
| SX Cruze RR                             | 117  | 333.2         | 96             | 11542         | 102            | 1.05          | 52.48         | 92             | 1815          | 98             | 17.71      | 34.70               | 126       | 1620     | 338        | 0                | 90.8        |
| SX Marathon RR(856)                     | 102  | 361.1         | 104            | 11765         | 104            | 0.98          | 60.93         | 107            | 1983          | 107            | 19.03      | 32.57               | 126       | 1610     | 282        | 0                | 91.8        |
| SX Winchester RR                        | 125  | 347.2         | 100            | 11202         | 99             | 0.94          | 56.73         | 100            | 1823          | 99             | 18.30      | 32.37               | 121       | 1621     | 257        | 32               | 85.3        |
| SV RR244TT                              | 120  | 350.5         | 101            | 11955         | 100            | 1.04          | 57.73         | 101            | 1968          | 107            | 18.56      | 34.10               | 129       | 1649     | 321        | 0                | 88.4        |
| SV RR333                                | 124  | 355.9         | 102            | 11978         | 106            | 0.92          | 59.37         | 104            | 2001          | 108            | 18.72      | 33.51               | 111       | 1603     | 249        | 0                | 91.6        |
| SV RR351                                | 113  | 351.2         | 101            | 11472         | 102            | 1.03          | 57.95         | 102            | 1902          | 103            | 18.60      | 32.72               | 143       | 1603     | 318        | 0                | 89.2        |
| RR Filler #01s                          | 132  | 343.2         | 99             | 11211         | 99             | 1.14          | 55.53         | 97             | 1803          | 98             | 18.30      | 32.77               | 182       | 1810     | 338        | 0                | 93.8        |
| RR Filler #01v                          | 133  | 341.3         | 98             | 12048         | 107            | 1.13          | 54.94         | 96             | 1927          | 104            | 18.19      | 35.37               | 185       | 1801     | 330        | 0                | 92.2        |
| <b>Experimental Trial (Comm status)</b> |      |               |                |               |                |               |               |                |               |                |            |                     |           |          |            |                  |             |
| BTS 8606                                | 242  | 355.8         | 102            | 11822         | 105            | 0.96          | 59.31         | 104            | 1970          | 107            | 18.76      | 33.27               | 131       | 1601     | 279        | 0                | 89.2        |
| BTS 8629                                | 224  | 343.8         | 99             | 12811         | 114            | 0.99          | 55.68         | 98             | 2075          | 112            | 18.18      | 37.34               | 143       | 1441     | 337        | 0                | 96.6        |
| BTS 8735                                | 234  | 347.5         | 100            | 13070         | 116            | 0.92          | 56.81         | 100            | 2139          | 116            | 18.30      | 37.64               | 117       | 1453     | 294        | 0                | 95.6        |
| BTS 8742                                | 207  | 347.7         | 100            | 10853         | 96             | 1.10          | 56.84         | 100            | 1770          | 96             | 18.48      | 31.35               | 125       | 1676     | 360        | 0                | 91.8        |
| BTS 8749                                | 202  | 344.5         | 99             | 11186         | 99             | 1.03          | 55.91         | 98             | 1814          | 98             | 18.26      | 32.56               | 155       | 1635     | 315        | 0                | 88.5        |
| BTS 8756                                | 241  | 350.9         | 101            | 11264         | 100            | 1.14          | 57.83         | 101            | 1850          | 101            | 18.69      | 32.12               | 144       | 1812     | 358        | 0                | 95.5        |
| BTS 8767                                | 235  | 363.5         | 100            | 12271         | 109            | 0.91          | 61.64         | 108            | 2082          | 113            | 19.10      | 33.79               | 139       | 1526     | 254        | 0                | 88.0        |
| BTS 8770                                | 247  | 348.8         | 100            | 12565         | 111            | 0.95          | 57.22         | 100            | 2060          | 112            | 18.39      | 36.09               | 136       | 1567     | 274        | 0                | 88.1        |
| BTS 8784                                | 236  | 359.1         | 103            | 11309         | 100            | 0.99          | 60.30         | 106            | 1901          | 103            | 18.96      | 31.54               | 130       | 1599     | 312        | 0                | 94.1        |
| BTS 8787                                | 219  | 327.1         | 94             | 11591         | 103            | 0.91          | 50.68         | 89             | 1794          | 97             | 17.26      | 35.53               | 135       | 1551     | 247        | 0                | 87.7        |
| BTS 8798                                | 223  | 350.3         | 101            | 11050         | 98             | 0.96          | 57.66         | 101            | 1819          | 98             | 18.48      | 31.58               | 137       | 1562     | 283        | 0                | 95.3        |
| Crystal 573RR                           | 225  | 359.8         | 103            | 11935         | 106            | 1.00          | 60.51         | 106            | 2008          | 109            | 18.98      | 33.22               | 134       | 1575     | 304        | 0                | 93.9        |
| Crystal 578RR                           | 220  | 357.2         | 103            | 12635         | 112            | 0.90          | 59.72         | 105            | 2113          | 114            | 18.76      | 35.43               | 158       | 1527     | 239        | 0                | 92.7        |
| Crystal 684RR                           | 239  | 354.5         | 102            | 13245         | 117            | 0.99          | 58.91         | 103            | 2201          | 119            | 18.73      | 37.47               | 151       | 1737     | 270        | 0                | 93.6        |
| Crystal 792RR                           | 218  | 354.3         | 102            | 11743         | 104            | 1.00          | 58.87         | 103            | 1950          | 106            | 18.72      | 33.23               | 126       | 1505     | 331        | 0                | 89.6        |
| Crystal 793RR                           | 246  | 358.2         | 103            | 12495         | 111            | 0.97          | 60.03         | 105            | 2094          | 113            | 18.88      | 34.94               | 135       | 1444     | 320        | 0                | 91.7        |
| Crystal 794RR                           | 208  | 342.2         | 98             | 11941         | 106            | 1.02          | 55.22         | 97             | 1927          | 104            | 18.12      | 34.96               | 174       | 1493     | 333        | 0                | 93.4        |
| Crystal 795RR                           | 215  | 347.6         | 100            | 11885         | 99             | 1.05          | 56.82         | 100            | 1828          | 99             | 18.42      | 32.27               | 126       | 1592     | 347        | 0                | 93.7        |
| Crystal 796RR                           | 238  | 352.7         | 101            | 12775         | 113            | 0.94          | 58.38         | 102            | 2117          | 115            | 18.58      | 36.22               | 144       | 1563     | 265        | 0                | 95.0        |
| Crystal 797RR                           | 201  | 336.4         | 97             | 12051         | 107            | 1.01          | 53.48         | 94             | 1913          | 104            | 17.84      | 35.95               | 156       | 1736     | 276        | 0                | 81.1        |
| Hilleshög HIL9708                       | 222  | 352.0         | 101            | 11740         | 104            | 0.94          | 58.15         | 102            | 1940          | 105            | 18.55      | 33.40               | 160       | 1441     | 294        | 0                | 92.8        |
| Hilleshög HIL9895                       | 209  | 354.3         | 102            | 10964         | 97             | 1.07          | 58.85         | 103            | 1821          | 99             | 18.79      | 31.92               | 143       | 1560     | 367        | 0                | 89.3        |
| Hilleshög HIL9920                       | 203  | 360.5         | 102            | 11557         | 102            | 0.98          | 60.70         | 106            | 1945          | 105            | 19.01      | 32.16               | 142       | 1709     | 258        | 0                | 92.8        |
| Hilleshög HIL9921                       | 204  | 364.0         | 105            | 10942         | 97             | 0.96          | 61.78         | 108            | 1855          | 100            | 19.16      | 30.16               | 147       | 1560     | 283        | 0                | 91.3        |
| Hilleshög HIL9922                       | 231  | 341.0         | 98             | 10710         | 95             | 1.27          | 54.85         | 96             | 1724          | 93             | 18.32      | 31.45               | 188       | 1711     | 471        | 0                | 95.8        |
| Hilleshög HIL9923                       | 243  | 349.6         | 100            | 10935         | 97             | 1.16          | 57.44         | 101            | 1800          | 97             | 18.64      | 31.28               | 199       | 1702     | 379        | 0                | 85.4        |
| Hilleshög HIL9924                       | 237  | 348.4         | 100            | 9906          | 88             | 1.19          | 57.09         | 100            | 1623          | 88             | 18.62      | 28.48               | 161       | 1710     | 416        | 0                | 74.4        |
| Maribo MA504                            | 229  | 349.2         | 100            | 12500         | 111            | 1.02          | 57.35         | 101            | 2049          | 111            | 18.49      | 35.91               | 155       | 1545     | 333        | 0                | 96.0        |
| Maribo MA611                            | 245  | 347.4         | 100            | 10398         | 92             | 1.00          | 56.76         | 100            | 1701          | 92             | 18.37      | 29.96               | 123       | 1588     | 311        | 0                | 93.9        |
| Maribo MA719                            | 232  | 352.5         | 101            | 11890         | 105            | 1.08          | 58.31         | 102            | 1969          | 107            | 18.72      | 33.75               | 187       | 1554     | 369        | 0                | 84.6        |
| Maribo MA718                            | 221  | 351.3         | 101            | 10802         | 98             | 1.04          | 57.97         | 102            | 1781          | 96             | 18.61      | 30.81               | 162       | 1738     | 292        | 0                | 81.7        |
|   |      |               |                |               |                |               |               |                |               |                |            |                     |           |          |            |                  |             |

Table 11. 2017 Performance of All RR Varieties - ACSC Official Trial  
Hendrum MN

| Variety @                               | Code       | Rec/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$ ++ | Rev/T<br>%Bnch | Rev/A<br>\$ ++ | Rev/A<br>%Bnch | Sugar<br>%   | Yield<br>T/A<br>ppm | Na<br>ppm  | K<br>ppm    | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% |
|---|------------|---------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|--------------|---------------------|------------|-------------|------------|------------------|-------------|
| <b>Commercial Trial</b>                 |            |               |                |               |                |               |                |                |                |                |              |                     |            |             |            |                  |             |
| BTS 80RR52                              | 103        | 329.0         | 100            | 11362         | 102            | 1.24          | 51.23          | 100            | 1762           | 102            | 17.69        | 34.63               | 168        | 1540        | 487        | 0                | 72.9        |
| BTS 8337                                | 116        | 342.8         | 104            | 11353         | 102            | 1.02          | 55.39          | 108            | 1836           | 107            | 18.16        | 33.21               | 138        | 1422        | 363        | 32               | 67.7        |
| <b>BTS 8363</b>                         | <b>130</b> | <b>323.7</b>  | <b>98</b>      | <b>11969</b>  | <b>108</b>     | <b>1.04</b>   | <b>49.62</b>   | <b>97</b>      | <b>1832</b>    | <b>106</b>     | <b>17.23</b> | <b>36.97</b>        | <b>168</b> | <b>1403</b> | <b>374</b> | <b>0</b>         | <b>68.5</b> |
| BTS 8500                                | 119        | 334.0         | 102            | 12307         | 111            | 1.01          | 52.72          | 103            | 1939           | 113            | 17.70        | 36.79               | 140        | 1434        | 352        | 0                | 62.6        |
| BTS 8512                                | 109        | 337.6         | 103            | 11595         | 105            | 1.03          | 53.82          | 105            | 1846           | 107            | 17.90        | 34.39               | 144        | 1380        | 379        | 0                | 75.8        |
| BTS 8524                                | 101        | 323.2         | 98             | 12590         | 114            | 1.16          | 49.20          | 96             | 1919           | 111            | 17.26        | 39.11               | 153        | 1617        | 411        | 0                | 71.5        |
| BTS 8572                                | 111        | 339.5         | 103            | 11642         | 105            | 1.10          | 54.40          | 106            | 1864           | 108            | 18.08        | 34.29               | 144        | 1424        | 423        | 0                | 71.4        |
| Crystal 093RR                           | 115        | 343.2         | 104            | 11318         | 102            | 1.11          | 55.52          | 108            | 1833           | 106            | 18.28        | 33.00               | 123        | 1463        | 428        | 0                | 72.2        |
| Crystal 101RR                           | 107        | 325.1         | 99             | 11347         | 102            | 1.21          | 50.02          | 98             | 1747           | 101            | 17.47        | 34.94               | 201        | 1608        | 436        | 0                | 70.3        |
| Crystal 246RR                           | 108        | 327.6         | 101            | 12345         | 111            | 1.00          | 50.79          | 99             | 1913           | 111            | 17.38        | 37.71               | 171        | 1385        | 346        | 0                | 68.2        |
| Crystal 247RR                           | 131        | 326.4         | 99             | 12461         | 112            | 1.02          | 50.44          | 99             | 1923           | 112            | 17.33        | 38.18               | 166        | 1482        | 333        | 0                | 68.7        |
| Crystal 355RR                           | 104        | 330.9         | 101            | 11048         | 100            | 1.14          | 51.79          | 101            | 1725           | 100            | 17.68        | 33.42               | 145        | 1499        | 431        | 0                | 61.0        |
| Crystal 467RR                           | 129        | 321.6         | 98             | 11800         | 108            | 1.08          | 48.97          | 96             | 1794           | 104            | 17.16        | 36.74               | 198        | 1540        | 354        | 0                | 75.5        |
| Crystal 572RR                           | 126        | 343.4         | 104            | 11653         | 105            | 0.98          | 55.56          | 105            | 1885           | 109            | 18.14        | 33.94               | 129        | 1346        | 356        | 0                | 78.6        |
| Crystal 574RR                           | 110        | 326.7         | 99             | 12505         | 113            | 1.03          | 50.52          | 99             | 1930           | 112            | 17.36        | 38.31               | 135        | 1432        | 365        | 0                | 70.5        |
| Crystal 986RR                           | 128        | 344.5         | 105            | 11434         | 103            | 0.98          | 55.92          | 109            | 1854           | 108            | 18.22        | 33.18               | 155        | 1263        | 369        | 0                | 74.9        |
| Hilleshog 4302RR                        | 105        | 330.6         | 101            | 10607         | 96             | 0.96          | 51.69          | 101            | 1659           | 96             | 17.49        | 32.03               | 169        | 1421        | 309        | 0                | 55.2        |
| Hilleshog 4448RR                        | 112        | 341.2         | 104            | 12251         | 110            | 1.05          | 54.91          | 107            | 1973           | 114            | 18.11        | 36.00               | 152        | 1321        | 409        | 32               | 67.1        |
| Hilleshog 9528RR                        | 123        | 340.2         | 103            | 11559         | 104            | 1.01          | 54.59          | 107            | 1857           | 108            | 18.02        | 34.03               | 156        | 1332        | 368        | 0                | 65.6        |
| Hilleshog HIL9707                       | 114        | 326.0         | 98             | 11997         | 108            | 1.08          | 50.30          | 98             | 1846           | 107            | 17.38        | 36.87               | 159        | 1453        | 390        | 0                | 69.5        |
| Maribo 109                              | 122        | 348.1         | 106            | 10104         | 91             | 0.95          | 57.01          | 111            | 1658           | 96             | 18.36        | 29.00               | 134        | 1322        | 340        | 0                | 55.9        |
| Maribo 305                              | 106        | 329.9         | 100            | 11944         | 108            | 0.99          | 51.50          | 101            | 1866           | 108            | 17.47        | 36.20               | 144        | 1301        | 366        | 0                | 54.3        |
| Maribo MA502                            | 121        | 336.7         | 102            | 11257         | 101            | 1.09          | 53.55          | 105            | 1792           | 104            | 17.92        | 33.39               | 172        | 1510        | 383        | 32               | 62.3        |
| SX Avalanche RR(858)                    | 127        | 335.0         | 102            | 10300         | 93             | 0.96          | 53.03          | 104            | 1632           | 95             | 17.71        | 30.74               | 183        | 1432        | 300        | 0                | 56.9        |
| SX Canyon RR                            | 118        | 339.5         | 103            | 11764         | 106            | 0.98          | 54.41          | 106            | 1888           | 110            | 17.95        | 34.60               | 131        | 1413        | 337        | 0                | 61.0        |
| SX Cruz RR                              | 117        | 317.2         | 96             | 11559         | 104            | 1.05          | 47.64          | 93             | 1735           | 101            | 16.91        | 36.42               | 121        | 1388        | 396        | 0                | 64.8        |
| SX Marathon RR(856)                     | 102        | 336.4         | 102            | 11556         | 104            | 0.96          | 53.45          | 104            | 1837           | 107            | 17.79        | 34.39               | 143        | 1393        | 324        | 0                | 67.1        |
| SX Winchester RR                        | 125        | 322.4         | 98             | 10091         | 91             | 0.94          | 49.22          | 96             | 1541           | 89             | 17.07        | 31.30               | 154        | 1363        | 315        | 0                | 51.8        |
| SV RR244TT                              | 120        | 331.7         | 101            | 11906         | 107            | 0.94          | 52.05          | 102            | 1870           | 109            | 17.53        | 35.82               | 115        | 1405        | 316        | 32               | 68.8        |
| SV RR333                                | 124        | 336.9         | 102            | 11520         | 104            | 1.05          | 53.60          | 105            | 1829           | 106            | 17.90        | 34.26               | 160        | 1430        | 372        | 0                | 63.7        |
| SV RR351                                | 113        | 340.7         | 104            | 11589         | 104            | 0.93          | 54.76          | 107            | 1866           | 108            | 17.97        | 33.93               | 119        | 1400        | 310        | 0                | 63.6        |
| RR Filler #01s                          | 132        | 319.8         | 97             | 11455         | 103            | 1.23          | 48.44          | 95             | 1734           | 101            | 17.22        | 35.83               | 202        | 1637        | 444        | 0                | 71.0        |
| RR Filler #01v                          | 133        | 325.6         | 99             | 11333         | 102            | 1.14          | 50.20          | 98             | 1746           | 101            | 17.43        | 34.86               | 173        | 1604        | 392        | 0                | 71.0        |
| <b>Experimental Trial (Comm status)</b> |            |               |                |               |                |               |                |                |                |                |              |                     |            |             |            |                  |             |
| BTS 8606                                | 242        | 336.0         | 102            | 12185         | 110            | 1.06          | 53.26          | 104            | 1927           | 112            | 17.86        | 36.33               | 185        | 1401        | 369        | 0                | 70.4        |
| BTS 8629                                | 224        | 327.5         | 100            | 12596         | 114            | 1.07          | 50.79          | 99             | 1947           | 113            | 17.46        | 38.71               | 184        | 1310        | 411        | 0                | 80.6        |
| BTS 8735                                | 234        | 331.0         | 101            | 13054         | 118            | 1.01          | 51.82          | 101            | 2038           | 118            | 17.57        | 39.62               | 164        | 1258        | 363        | 0                | 71.7        |
| BTS 8742                                | 207        | 325.0         | 99             | 10608         | 96             | 1.24          | 50.06          | 98             | 1626           | 94             | 17.49        | 32.67               | 179        | 1565        | 477        | 0                | 62.9        |
| BTS 8749                                | 202        | 326.2         | 99             | 10949         | 99             | 1.15          | 50.37          | 98             | 1697           | 98             | 17.49        | 33.51               | 163        | 1506        | 431        | 0                | 71.2        |
| BTS 8756                                | 241        | 331.7         | 101            | 10836         | 98             | 1.22          | 51.99          | 102            | 1692           | 98             | 17.80        | 32.75               | 147        | 1543        | 473        | 0                | 75.1        |
| BTS 8767                                | 235        | 335.2         | 102            | 12746         | 115            | 0.98          | 53.02          | 104            | 2013           | 117            | 17.77        | 38.14               | 158        | 1378        | 340        | 0                | 80.5        |
| BTS 8770                                | 247        | 328.4         | 100            | 12133         | 109            | 1.03          | 51.03          | 100            | 1886           | 109            | 17.48        | 36.97               | 183        | 1428        | 348        | 95               | 63.5        |
| BTS 8784                                | 236        | 342.1         | 104            | 11235         | 101            | 1.07          | 55.04          | 108            | 1806           | 105            | 18.19        | 32.83               | 140        | 1289        | 442        | 0                | 75.0        |
| BTS 8787                                | 219        | 331.3         | 101            | 11837         | 107            | 1.03          | 51.91          | 101            | 1845           | 107            | 17.60        | 35.97               | 158        | 1420        | 359        | 0                | 54.9        |
| BTS 8798                                | 223        | 327.7         | 100            | 11059         | 100            | 1.08          | 50.85          | 99             | 1708           | 99             | 17.46        | 33.71               | 180        | 1385        | 397        | 0                | 66.9        |
| Crystal 573RR                           | 225        | 335.0         | 102            | 11119         | 100            | 1.14          | 52.99          | 104            | 1759           | 102            | 17.90        | 33.21               | 179        | 1401        | 443        | 0                | 71.5        |
| Crystal 578RR                           | 220        | 329.8         | 100            | 13060         | 118            | 1.05          | 51.44          | 100            | 2035           | 118            | 17.55        | 39.59               | 161        | 1466        | 358        | 0                | 72.2        |
| Crystal 684RR                           | 239        | 330.0         | 100            | 12435         | 112            | 1.13          | 51.49          | 101            | 1938           | 112            | 17.63        | 37.88               | 179        | 1514        | 406        | 0                | 79.1        |
| Crystal 792RR                           | 218        | 336.8         | 102            | 11717         | 106            | 1.05          | 53.52          | 105            | 1863           | 108            | 17.91        | 34.85               | 136        | 1413        | 390        | 0                | 68.4        |
| Crystal 793RR                           | 246        | 342.5         | 104            | 12135         | 109            | 0.89          | 55.17          | 108            | 1944           | 113            | 18.02        | 35.52               | 137        | 1272        | 306        | 0                | 76.8        |
| Crystal 794RR                           | 208        | 328.2         | 100            | 12186         | 110            | 1.10          | 50.98          | 100            | 1884           | 109            | 17.50        | 37.33               | 207        | 1430        | 401        | 0                | 57.8        |
| Crystal 795RR                           | 215        | 328.3         | 100            | 10968         | 99             | 1.22          | 51.02          | 100            | 1702           | 99             | 17.64        | 33.53               | 179        | 1469        | 484        | 0                | 68.1        |
| Crystal 796RR                           | 238        | 325.8         | 99             | 12767         | 115            | 1.07          | 50.26          | 98             | 1980           | 105            | 17.40        | 39.15               | 166        | 1421        | 394        | 0                | 65.7        |
| Crystal 797RR                           | 201        | 325.4         | 99             | 11968         | 108            | 1.02          | 50.16          | 98             | 1837           | 107            | 17.30        | 36.99               | 197        | 1428        | 328        | 95               | 58.7        |
| Hilleshog HIL9708                       | 222        | 331.4         | 101            | 10529         | 95             | 1.04          | 51.93          | 101            | 1641           | 95             | 17.60        | 31.81               | 182        | 1369        | 369        | 0                | 68.4        |
| Hilleshog HIL9895                       | 209        | 321.3         | 98             | 10165         | 92             | 1.10          | 48.94          | 96             | 1547           | 90             | 17.16        | 31.73               | 155        | 1407        | 415        | 0                | 69.2        |
| Hilleshog HIL9920                       | 203        | 340.7         | 101            | 10765         | 97             | 1.04          | 54.65          | 107            | 1725           | 100            | 18.09        | 31.74               | 156        | 1455        | 351        | 0                | 64.8        |
| Hilleshog HIL9922                       | 204        | 339.3         | 103            | 10113         | 91             | 1.10          | 54.23          | 106            | 1615           | 94             | 18.09        | 29.99               | 178        | 1316        | 438        | 0                | 75.2        |
| Hilleshog HIL9923                       | 231        | 323.2         | 98             | 10516         | 95             | 1.12          | 49.49          | 97             | 1604           | 93             | 17.28        | 32.61               | 150        | 1478        | 424        | 0                | 64.1        |
| Hilleshog HIL9923                       | 243        | 334.3         | 102            | 10349         | 93             | 1.20          | 52.77          | 103            | 1633           | 95             | 17.91        | 30.88               | 183        | 1537        | 451        | 0                | 55.8        |
| Hilleshog HIL9924                       | 237        | 336.4         | 102            | 9299          | 84             | 1.27          | 53.38          | 104            | 1473           | 85             | 18.08        | 27.51               | 173        | 1516        | 516        | 0                | 44.1        |
| Maribo MA504                            | 229        | 329.3         | 100            | 12433         | 112            | 1.05          | 51.30          | 100            | 1924           | 112            | 17.51        | 37.99               | 178        | 1334        | 385        | 0                | 70.6        |
| Maribo MA611                            | 245        | 324.4         | 99             | 10535         | 95             | 1.16          | 49.86          | 97             | 1611           | 93             | 17.38        | 32.68               | 186        | 1494        | 436        | 95               | 61.3        |
| Maribo MA717                            | 232        | 333.4         | 101            | 11605         | 105            | 1.09          | 52.48          | 103            | 1823           | 106            | 17.77        | 34.96               | 179        | 1370        | 409        | 0                | 70.5        |
| Maribo MA718                            | 221        | 323.6         | 98             | 10404         | 94             | 1.11          | 49.62          | 97             | 1602           | 93             | 17.33</td    |                     |            |             |            |                  |             |

Table 12. 2017 Performance of All RR Varieties - ACSC Official Trial  
Hillsboro ND

| Variety @                               | Code    | Rec/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$++ | Rev/T<br>%Bnch | Rev/A<br>\$++ | Rev/A<br>%Bnch | Sugar<br>% | Yield<br>T/A<br>ppm | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% |
|---|---------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|---------------|----------------|------------|---------------------|-----------|----------|------------|------------------|-------------|
| <b>Commercial Trial</b>                 |         |               |                |               |                |               |               |                |               |                |            |                     |           |          |            |                  |             |
| BTS 80RR52                              | 103     | 356.4         | 99             | 13386         | 101            | 1.26          | 59.53         | 99             | 2234          | 101            | 19.09      | 37.68               | 131       | 1790     | 454        | 32               | 77.6        |
| BTS 8337                                | 116     | 368.6         | 103            | 13793         | 105            | 1.05          | 63.22         | 105            | 2371          | 107            | 19.51      | 37.45               | 114       | 1662     | 335        | 0                | 79.5        |
| BTS 8363                                | 130     | 359.5         | 100            | 14098         | 107            | 1.01          | 60.46         | 100            | 2352          | 106            | 18.98      | 39.64               | 108       | 1596     | 324        | 0                | 71.4        |
| BTS 8500                                | 119     | 355.0         | 99             | 14164         | 107            | 1.14          | 59.08         | 98             | 2361          | 107            | 18.88      | 39.74               | 140       | 1681     | 385        | 0                | 73.7        |
| BTS 8512                                | 109     | 355.7         | 99             | 12773         | 97             | 1.07          | 59.30         | 99             | 2136          | 96             | 18.85      | 35.66               | 103       | 1614     | 363        | 0                | 76.5        |
| BTS 8524                                | 101     | 349.0         | 97             | 13794         | 105            | 1.17          | 57.28         | 95             | 2260          | 102            | 18.62      | 39.65               | 129       | 1806     | 382        | 0                | 75.2        |
| BTS 8572                                | 111     | 367.9         | 103            | 13654         | 104            | 1.07          | 62.99         | 105            | 2334          | 105            | 19.47      | 37.25               | 108       | 1638     | 360        | 0                | 75.2        |
| Crystal 093RR                           | 115     | 372.7         | 104            | 13505         | 102            | 1.16          | 64.45         | 107            | 2337          | 106            | 19.80      | 36.14               | 128       | 1707     | 400        | 0                | 80.8        |
| Crystal 101RR                           | 107     | 349.0         | 97             | 13275         | 101            | 1.26          | 57.29         | 95             | 2172          | 98             | 18.71      | 38.12               | 138       | 1986     | 398        | 0                | 78.2        |
| Crystal 246RR                           | 108     | 354.9         | 99             | 13525         | 103            | 1.02          | 59.07         | 98             | 2252          | 102            | 18.77      | 38.15               | 135       | 1626     | 310        | 0                | 74.8        |
| Crystal 247RR                           | 131     | 369.0         | 103            | 13898         | 105            | 1.02          | 63.32         | 105            | 2385          | 108            | 19.47      | 37.70               | 144       | 1674     | 291        | 126              | 74.5        |
| Crystal 355RR                           | 104     | 367.9         | 103            | 13561         | 103            | 1.16          | 63.01         | 105            | 2330          | 105            | 19.57      | 36.67               | 114       | 1741     | 400        | 0                | 77.5        |
| Crystal 467RR                           | 129     | 353.6         | 99             | 14147         | 107            | 1.12          | 58.66         | 97             | 2330          | 106            | 18.80      | 40.16               | 141       | 1815     | 334        | 0                | 78.1        |
| Crystal 572RR                           | 126     | 375.6         | 105            | 13453         | 102            | 1.06          | 65.32         | 103            | 2338          | 106            | 19.84      | 35.94               | 95        | 1625     | 356        | 0                | 79.2        |
| Crystal 574RR                           | 110     | 357.7         | 100            | 14353         | 109            | 1.08          | 59.90         | 100            | 2403          | 109            | 18.96      | 40.17               | 114       | 1672     | 350        | 0                | 75.8        |
| Crystal 986RR                           | 128     | 379.2         | 106            | 13843         | 105            | 1.02          | 66.43         | 110            | 2416          | 109            | 19.97      | 36.64               | 118       | 1540     | 340        | 0                | 75.3        |
| Hilleshog 4302RR                        | 105     | 361.1         | 101            | 12542         | 95             | 1.08          | 60.93         | 101            | 2122          | 96             | 19.14      | 34.57               | 143       | 1786     | 312        | 0                | 53.2        |
| Hilleshog 4448RR                        | 112     | 360.0         | 100            | 13334         | 101            | 1.17          | 60.61         | 101            | 2252          | 102            | 19.17      | 36.81               | 120       | 1635     | 429        | 0                | 64.2        |
| Hilleshog 9528RR                        | 123     | 362.7         | 101            | 13311         | 101            | 1.10          | 61.42         | 102            | 2262          | 102            | 19.22      | 36.39               | 126       | 1710     | 351        | 0                | 69.1        |
| Hilleshog HIL9707                       | 114     | 343.1         | 96             | 11863         | 90             | 1.26          | 55.48         | 92             | 1913          | 86             | 18.42      | 34.95               | 185       | 1795     | 432        | 0                | 52.1        |
| Maribo 109                              | 122     | 365.1         | 102            | 11059         | 84             | 1.19          | 62.13         | 103            | 1889          | 85             | 19.44      | 30.17               | 129       | 1659     | 435        | 0                | 56.4        |
| Maribo 305                              | 106     | 353.9         | 99             | 12738         | 97             | 1.05          | 58.75         | 98             | 2116          | 96             | 18.73      | 35.91               | 124       | 1559     | 356        | 0                | 59.8        |
| Maribo MA502                            | 121     | 348.4         | 97             | 12558         | 95             | 1.29          | 57.08         | 98             | 2061          | 93             | 18.72      | 36.02               | 156       | 1914     | 437        | 639              | 64.6        |
| SX Avalanche RR(858)                    | 127     | 366.4         | 102            | 12841         | 97             | 0.96          | 62.53         | 104            | 2200          | 99             | 19.29      | 34.90               | 112       | 1597     | 282        | 0                | 66.5        |
| SX Canyon RR                            | 118     | 362.6         | 101            | 13235         | 101            | 1.06          | 61.38         | 102            | 2254          | 102            | 19.19      | 36.79               | 118       | 1684     | 331        | 0                | 68.6        |
| SX Cruz RR                              | 117     | 333.2         | 93             | 13302         | 101            | 1.15          | 52.48         | 87             | 2094          | 95             | 17.81      | 40.00               | 130       | 1693     | 392        | 0                | 71.2        |
| SX Marathon RR(856)                     | 102     | 364.8         | 102            | 13317         | 101            | 1.03          | 62.05         | 103            | 2269          | 102            | 19.28      | 36.51               | 110       | 1633     | 325        | 0                | 65.8        |
| SX Winchester RR                        | 125     | 356.4         | 99             | 12170         | 92             | 1.05          | 59.52         | 99             | 2027          | 92             | 18.86      | 34.22               | 128       | 1686     | 316        | 0                | 59.9        |
| SV RR244TT                              | 120     | 361.0         | 101            | 13564         | 103            | 1.07          | 60.89         | 101            | 2292          | 103            | 19.13      | 37.32               | 97        | 1719     | 341        | 0                | 67.2        |
| SV RR333                                | 124     | 361.3         | 101            | 13712         | 101            | 1.05          | 61.00         | 101            | 2306          | 104            | 19.12      | 38.06               | 109       | 1650     | 339        | 0                | 66.7        |
| SV RR351                                | 113     | 358.3         | 100            | 13727         | 104            | 1.13          | 60.09         | 100            | 2301          | 104            | 19.03      | 38.28               | 133       | 1735     | 364        | 0                | 66.5        |
| RR Filler #01s                          | 132     | 359.8         | 100            | 13954         | 106            | 1.21          | 60.54         | 101            | 2344          | 106            | 19.19      | 38.93               | 132       | 1892     | 385        | 0                | 77.5        |
| RR Filler #01v                          | 133     | 346.9         | 97             | 13284         | 101            | 1.26          | 56.64         | 94             | 2166          | 98             | 18.61      | 38.35               | 179       | 1957     | 394        | 0                | 79.3        |
| <b>Experimental Trial (Comm status)</b> |         |               |                |               |                |               |               |                |               |                |            |                     |           |          |            |                  |             |
| BTS 8606                                | 242     | 370.7         | 103            | 15760         | 119            | 1.04          | 63.81         | 106            | 2710          | 122            | 19.58      | 42.49               | 101       | 1663     | 323        | 0                | 75.3        |
| BTS 8629                                | 224     | 362.0         | 101            | 15145         | 115            | 1.06          | 61.20         | 102            | 2559          | 116            | 19.16      | 41.84               | 131       | 1522     | 364        | 0                | 74.2        |
| BTS 8735                                | 234     | 368.0         | 103            | 15603         | 118            | 1.01          | 62.97         | 105            | 2666          | 120            | 19.42      | 42.49               | 107       | 1495     | 341        | 0                | 79.1        |
| BTS 8742                                | 207     | 351.9         | 98             | 13067         | 99             | 1.37          | 58.19         | 97             | 2148          | 97             | 18.98      | 37.35               | 116       | 1873     | 524        | 0                | 74.7        |
| BTS 8749                                | 202     | 363.4         | 101            | 13685         | 104            | 1.14          | 61.60         | 102            | 2306          | 104            | 19.33      | 37.91               | 103       | 1761     | 383        | 0                | 70.3        |
| BTS 8756                                | 241     | 362.8         | 101            | 13509         | 102            | 1.22          | 61.45         | 102            | 2275          | 103            | 19.38      | 37.53               | 100       | 1838     | 426        | 0                | 76.2        |
| BTS 8767                                | 235     | 373.5         | 104            | 15618         | 118            | 1.05          | 64.64         | 107            | 2699          | 122            | 19.74      | 41.76               | 102       | 1709     | 324        | 0                | 80.5        |
| BTS 8770                                | 247     | 367.5         | 102            | 15537         | 118            | 1.01          | 62.84         | 104            | 2650          | 120            | 19.41      | 42.38               | 104       | 1719     | 291        | 0                | 69.7        |
| BTS 8784                                | 236     | 373.8         | 104            | 14296         | 108            | 1.04          | 64.72         | 108            | 2470          | 112            | 19.74      | 38.39               | 89        | 1529     | 367        | 0                | 73.8        |
| BTS 8787                                | 219     | 361.0         | 101            | 14727         | 112            | 1.13          | 60.92         | 101            | 2478          | 112            | 19.20      | 40.87               | 112       | 1784     | 365        | 0                | 71.7        |
| BTS 8798                                | 223     | 366.2         | 102            | 14194         | 108            | 1.06          | 62.46         | 104            | 2411          | 109            | 19.39      | 38.92               | 81        | 1587     | 368        | 0                | 76.7        |
| Crystal 573RR                           | 225     | 368.3         | 103            | 14881         | 113            | 1.15          | 63.06         | 105            | 2542          | 115            | 19.57      | 40.48               | 102       | 1721     | 396        | 0                | 75.1        |
| Crystal 578RR                           | 220     | 368.4         | 103            | 15986         | 121            | 1.03          | 63.09         | 105            | 2728          | 123            | 19.48      | 43.52               | 114       | 1685     | 310        | 0                | 79.1        |
| Crystal 684RR                           | 239     | 359.1         | 100            | 15049         | 114            | 1.08          | 60.35         | 100            | 2532          | 114            | 19.04      | 41.92               | 115       | 1728     | 340        | 0                | 71.3        |
| Crystal 792RR                           | 218     | 368.0         | 103            | 14213         | 108            | 1.06          | 62.99         | 105            | 2426          | 110            | 19.47      | 38.84               | 88        | 1607     | 359        | 0                | 80.5        |
| Crystal 793RR                           | 246     | 365.5         | 102            | 15055         | 114            | 1.08          | 62.25         | 103            | 2555          | 115            | 19.38      | 41.31               | 120       | 1598     | 368        | 95               | 75.1        |
| Crystal 794RR                           | 208     | 355.4         | 99             | 14750         | 112            | 1.18          | 59.26         | 98             | 2457          | 111            | 18.97      | 41.50               | 130       | 1713     | 418        | 0                | 65.7        |
| Crystal 795RR                           | 215     | 362.5         | 101            | 14247         | 108            | 1.12          | 61.35         | 102            | 2408          | 109            | 19.24      | 39.40               | 102       | 1702     | 379        | 0                | 79.3        |
| Crystal 796RR                           | 238     | 367.6         | 103            | 15358         | 116            | 1.03          | 62.84         | 104            | 2618          | 118            | 19.43      | 41.91               | 98        | 1730     | 302        | 0                | 81.6        |
| Crystal 797RR                           | 201     | 360.0         | 100            | 15579         | 118            | 1.06          | 60.63         | 101            | 2612          | 118            | 19.09      | 43.40               | 108       | 1779     | 309        | 0                | 66.5        |
| Hilleshog HIL9708                       | 222     | 362.6         | 101            | 13181         | 100            | 1.10          | 61.37         | 102            | 2220          | 100            | 19.24      | 36.65               | 126       | 1627     | 373        | 0                | 68.8        |
| Hilleshog HIL9895                       | 209     | 349.2         | 97             | 12490         | 95             | 1.30          | 57.41         | 95             | 2052          | 93             | 18.75      | 35.83               | 132       | 1799     | 477        | 0                | 59.7        |
| Hilleshog HIL9920                       | 203     | 377.6         | 105            | 14614         | 111            | 1.03          | 65.65         | 105            | 2539          | 115            | 19.94      | 36.90               | 102       | 1727     | 302        | 0                | 68.8        |
| Hilleshog HIL9921                       | 204     | 370.0         | 103            | 12201         | 92             | 1.14          | 63.58         | 106            | 2090          | 94             | 19.66      | 33.15               | 112       | 1628     | 408        | 0                | 71.4        |
| Hilleshog HIL9922                       | 231     | 352.4         | 98             | 12529         | 95             | 1.18          | 58.36         | 97             | 2061          | 93             | 18.82      | 35.79               | 118       | 1765     | 403        | 675              | 67.9        |
| Hilleshog HIL9923                       | 243     | 365.8         | 102            | 12255         | 93             | 1.30          | 62.34         | 104            | 2081          | 94             | 19.59      | 33.71               | 137       | 1731     | 491        | 0                | 62.7        |
| Hilleshog HIL9924                       | 237     | 367.2         | 102            | 12317         | 93             | 1.23          | 62.74         | 104            | 2100          | 95             | 18.60      | 33.64               | 111       | 1745     | 450        | 0                | 60.2        |
| Maribo MA504                            | 229     | 363.2         | 101            | 15013         | 114            | 1.10          | 61.57         | 102            | 2534          | 114            | 19.27      | 41.66               | 117       | 1643     | 373        | 0                | 72.3        |
| Maribo MA611                            | 245     | 348.2         | 97             | 12546         | 95             | 1.24          | 57.11         | 95             | 2063          | 93             | 18.65      | 35.85               | 140       | 1829     | 426        | 0                | 68.3        |
| Maribo MA717                            | 232     | 363.4         | 101            | 13081         | 99             | 1.16          | 61.60         | 102            | 2211          | 100            | 19.33      | 36.25               | 112       | 1643     | 424        | 0                | 65.4        |
| Maribo MA718                            | 221     | 358.7         | 101            | 11964         | 91             | 1.14          | 60.22         | 100            | 2007          | 91             | 19.08      | 33.43               | 146       | 1812     | 346        | 0                | 54.5        |
| Maribo MA719                            | 213</td |               |                |               |                |               |               |                |               |                |            |                     |           |          |            |                  |             |

Table 13. 2017 Performance of All RR Varieties - ACSC Official Trial  
Climax MN

| Variety @                               | Code | Rec/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$++ | Rev/T<br>%Bnch | Rev/A<br>\$++ | Rev/A<br>%Bnch | Sugar<br>% | Yield<br>T/A<br>ppm | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% |
|---|------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|---------------|----------------|------------|---------------------|-----------|----------|------------|------------------|-------------|
| <b>Commercial Trial</b>                 |      |               |                |               |                |               |               |                |               |                |            |                     |           |          |            |                  |             |
| BTS 80RR52                              | 103  | 335.5         | 102            | 9304          | 100            | 1.01          | 53.17         | 104            | 1473          | 102            | 17.78      | 27.80               | 109       | 1437     | 363        | 0                | 90.6        |
| BTS 8337                                | 116  | 350.5         | 107            | 10245         | 110            | 1.04          | 57.73         | 113            | 1688          | 117            | 18.56      | 29.19               | 114       | 1407     | 389        | 0                | 85.7        |
| BTS 8363                                | 130  | 330.7         | 101            | 9615          | 103            | 0.95          | 51.73         | 101            | 1507          | 105            | 17.49      | 29.05               | 118       | 1351     | 334        | 0                | 84.9        |
| BTS 8500                                | 119  | 330.9         | 101            | 10891         | 117            | 1.02          | 51.79         | 102            | 1705          | 118            | 17.56      | 32.90               | 118       | 1484     | 349        | 0                | 89.4        |
| BTS 8512                                | 109  | 336.8         | 103            | 9910          | 107            | 0.97          | 53.57         | 105            | 1578          | 109            | 17.82      | 29.42               | 122       | 1362     | 348        | 32               | 88.3        |
| BTS 8524                                | 101  | 320.6         | 98             | 9790          | 105            | 1.12          | 48.68         | 95             | 1480          | 103            | 17.14      | 30.64               | 131       | 1552     | 407        | 32               | 87.9        |
| BTS 8572                                | 111  | 347.7         | 106            | 10141         | 109            | 0.96          | 56.87         | 112            | 1657          | 115            | 18.33      | 29.22               | 104       | 1364     | 341        | 0                | 86.9        |
| Crystal 093RR                           | 115  | 337.8         | 103            | 10270         | 111            | 0.96          | 53.87         | 106            | 1637          | 114            | 17.85      | 30.47               | 110       | 1404     | 331        | 0                | 83.2        |
| Crystal 101RR                           | 107  | 322.8         | 98             | 9965          | 107            | 1.08          | 49.34         | 97             | 1524          | 106            | 17.23      | 30.87               | 143       | 1573     | 367        | 0                | 86.3        |
| Crystal 246RR                           | 108  | 332.8         | 101            | 8974          | 97             | 0.98          | 52.35         | 103            | 1413          | 98             | 17.62      | 26.96               | 135       | 1387     | 341        | 0                | 83.0        |
| Crystal 247RR                           | 131  | 329.8         | 100            | 10090         | 109            | 0.94          | 51.45         | 101            | 1573          | 109            | 17.43      | 30.60               | 131       | 1368     | 318        | 0                | 85.2        |
| Crystal 355RR                           | 104  | 337.5         | 103            | 9765          | 105            | 1.07          | 53.79         | 106            | 1550          | 108            | 17.94      | 29.10               | 118       | 1479     | 393        | 0                | 88.4        |
| Crystal 467RR                           | 129  | 326.7         | 100            | 9973          | 107            | 1.01          | 50.52         | 98             | 1540          | 107            | 17.33      | 30.57               | 147       | 1457     | 342        | 0                | 92.5        |
| Crystal 572RR                           | 126  | 348.4         | 106            | 10547         | 114            | 0.92          | 57.09         | 112            | 1726          | 120            | 18.35      | 30.35               | 98        | 1280     | 340        | 0                | 90.2        |
| Crystal 574RR                           | 110  | 325.1         | 99             | 10850         | 117            | 1.00          | 50.04         | 98             | 1665          | 116            | 17.24      | 33.42               | 111       | 1436     | 352        | 0                | 89.3        |
| Crystal 986RR                           | 128  | 307.1         | 94             | 7275          | 78             | 0.90          | 44.60         | 87             | 1060          | 74             | 16.26      | 23.61               | 172       | 1324     | 283        | 0                | 86.8        |
| Hilleshog 4302RR                        | 105  | 317.2         | 97             | 8134          | 88             | 0.94          | 47.64         | 93             | 1218          | 85             | 16.79      | 25.71               | 166       | 1396     | 297        | 0                | 77.2        |
| Hilleshog 4448RR                        | 112  | 320.6         | 98             | 8699          | 94             | 0.90          | 48.69         | 95             | 1324          | 92             | 16.94      | 27.08               | 123       | 1356     | 297        | 0                | 77.2        |
| Hilleshog 9528RR                        | 123  | 326.2         | 99             | 9517          | 102            | 0.87          | 50.36         | 99             | 1465          | 102            | 17.17      | 29.23               | 120       | 1320     | 279        | 0                | 81.6        |
| Hilleshog HIL9707                       | 114  | 310.6         | 95             | 8371          | 90             | 0.94          | 45.65         | 96             | 1228          | 85             | 16.47      | 27.01               | 161       | 1378     | 303        | 0                | 86.4        |
| Mariboo 109                             | 122  | 335.9         | 102            | 7871          | 85             | 0.87          | 53.32         | 105            | 1249          | 87             | 17.67      | 23.43               | 119       | 1320     | 283        | 0                | 80.4        |
| Mariboo 305                             | 106  | 312.7         | 95             | 8361          | 98             | 0.89          | 46.27         | 91             | 1237          | 86             | 16.52      | 26.69               | 127       | 1309     | 294        | 0                | 80.8        |
| Mariboo MA502                           | 121  | 318.2         | 97             | 8196          | 88             | 0.95          | 47.96         | 94             | 1236          | 86             | 16.88      | 25.75               | 145       | 1471     | 295        | 0                | 82.4        |
| SX Avalanche RR(858)                    | 127  | 333.8         | 102            | 8715          | 94             | 0.94          | 52.67         | 103            | 1376          | 95             | 17.63      | 26.09               | 120       | 1393     | 316        | 32               | 83.7        |
| SX Canyon RR                            | 118  | 336.5         | 103            | 10135         | 109            | 0.91          | 53.48         | 105            | 1612          | 112            | 17.74      | 30.07               | 110       | 1357     | 305        | 0                | 84.0        |
| SX Cruz RR                              | 117  | 318.3         | 97             | 9981          | 107            | 1.03          | 47.97         | 94             | 1502          | 104            | 16.94      | 31.43               | 128       | 1432     | 373        | 0                | 86.0        |
| SX Marathon RR(856)                     | 102  | 337.0         | 103            | 10467         | 113            | 0.92          | 53.63         | 105            | 1662          | 115            | 17.76      | 31.12               | 114       | 1334     | 316        | 0                | 82.5        |
| SX Winchester RR                        | 125  | 317.1         | 97             | 8110          | 87             | 0.89          | 47.63         | 93             | 1218          | 85             | 16.75      | 25.55               | 118       | 1400     | 277        | 0                | 79.4        |
| SX RR244TT                              | 120  | 330.8         | 101            | 10167         | 109            | 0.97          | 51.75         | 102            | 1588          | 110            | 17.51      | 30.81               | 124       | 1389     | 337        | 0                | 84.3        |
| SX RR333                                | 124  | 341.5         | 104            | 10049         | 108            | 0.86          | 54.99         | 106            | 1619          | 112            | 17.94      | 29.39               | 99        | 1330     | 277        | 0                | 86.3        |
| SV RR351                                | 113  | 325.8         | 99             | 10007         | 108            | 0.89          | 50.24         | 99             | 1542          | 107            | 17.18      | 30.76               | 120       | 1316     | 296        | 0                | 86.3        |
| RR Filler #01s                          | 132  | 324.4         | 99             | 9896          | 107            | 1.10          | 49.84         | 98             | 1524          | 106            | 17.33      | 30.47               | 141       | 1551     | 385        | 0                | 89.7        |
| RR Filler #01v                          | 133  | 322.0         | 98             | 10126         | 109            | 1.10          | 49.09         | 96             | 1545          | 107            | 17.20      | 31.44               | 140       | 1570     | 382        | 0                | 89.5        |
| <b>Experimental Trial (Comm status)</b> |      |               |                |               |                |               |               |                |               |                |            |                     |           |          |            |                  |             |
| BTS 8606                                | 242  | 337.0         | 103            | 9393          | 101            | 0.90          | 53.62         | 105            | 1491          | 103            | 17.76      | 27.91               | 118       | 1348     | 299        | 0                | 87.6        |
| BTS 8629                                | 224  | 337.7         | 103            | 11158         | 120            | 0.94          | 53.84         | 106            | 1779          | 123            | 17.84      | 33.13               | 116       | 1306     | 346        | 0                | 93.0        |
| BTS 8735                                | 234  | 337.7         | 103            | 9268          | 100            | 0.92          | 53.83         | 106            | 1469          | 102            | 17.80      | 27.68               | 128       | 1285     | 326        | 0                | 91.6        |
| BTS 8742                                | 207  | 334.4         | 102            | 8983          | 97             | 1.02          | 52.82         | 104            | 1412          | 98             | 17.73      | 26.84               | 129       | 1447     | 359        | 0                | 90.5        |
| BTS 8749                                | 202  | 338.0         | 103            | 9798          | 105            | 1.04          | 53.91         | 106            | 1560          | 108            | 17.94      | 29.02               | 133       | 1426     | 378        | 0                | 86.4        |
| BTS 8756                                | 241  | 343.3         | 105            | 9656          | 104            | 1.01          | 55.49         | 109            | 1563          | 108            | 18.18      | 28.15               | 106       | 1515     | 347        | 0                | 91.5        |
| BTS 8767                                | 235  | 335.7         | 102            | 10123         | 109            | 0.89          | 53.20         | 104            | 1601          | 111            | 17.67      | 30.33               | 125       | 1376     | 286        | 0                | 86.9        |
| BTS 8770                                | 247  | 339.0         | 103            | 9744          | 105            | 0.91          | 54.21         | 106            | 1557          | 108            | 17.87      | 28.80               | 116       | 1401     | 295        | 0                | 88.5        |
| BTS 8784                                | 236  | 348.5         | 106            | 9535          | 103            | 0.95          | 57.06         | 112            | 1561          | 108            | 18.40      | 27.22               | 101       | 1353     | 345        | 0                | 87.9        |
| BTS 8787                                | 219  | 335.2         | 102            | 9528          | 103            | 0.99          | 53.07         | 104            | 1500          | 104            | 17.73      | 26.64               | 120       | 1450     | 333        | 0                | 83.5        |
| BTS 8798                                | 223  | 330.4         | 101            | 9249          | 100            | 1.06          | 51.64         | 101            | 1448          | 100            | 17.59      | 27.90               | 134       | 1406     | 403        | 0                | 92.1        |
| Crystal 573RR                           | 225  | 340.8         | 104            | 9962          | 107            | 0.92          | 54.73         | 107            | 1599          | 111            | 17.97      | 29.31               | 112       | 1344     | 318        | 0                | 84.9        |
| Crystal 578RR                           | 220  | 335.3         | 102            | 9576          | 103            | 0.99          | 53.11         | 104            | 1507          | 105            | 17.74      | 28.73               | 124       | 1403     | 346        | 0                | 86.3        |
| Crystal 684RR                           | 239  | 336.2         | 102            | 10959         | 118            | 1.00          | 53.35         | 105            | 1724          | 120            | 17.78      | 32.88               | 121       | 1443     | 339        | 0                | 87.4        |
| Crystal 792RR                           | 218  | 336.0         | 102            | 10093         | 109            | 0.95          | 53.29         | 105            | 1603          | 111            | 17.84      | 29.83               | 120       | 1475     | 377        | 0                | 87.9        |
| Crystal 793RR                           | 246  | 350.3         | 107            | 9961          | 107            | 0.87          | 57.57         | 113            | 1632          | 113            | 18.39      | 28.49               | 99        | 1304     | 292        | 0                | 84.4        |
| Crystal 794RR                           | 208  | 328.5         | 100            | 9815          | 106            | 1.05          | 51.05         | 100            | 1520          | 106            | 17.48      | 29.84               | 138       | 1474     | 376        | 0                | 86.0        |
| Crystal 795RR                           | 215  | 339.7         | 103            | 9458          | 102            | 0.99          | 54.41         | 107            | 1506          | 105            | 17.96      | 28.13               | 120       | 1399     | 350        | 0                | 88.2        |
| Crystal 796RR                           | 238  | 330.2         | 101            | 10691         | 115            | 0.94          | 51.59         | 101            | 1668          | 116            | 17.47      | 32.51               | 115       | 1344     | 335        | 0                | 88.8        |
| Crystal 797RR                           | 201  | 334.1         | 102            | 10330         | 111            | 0.93          | 52.74         | 103            | 1609          | 112            | 17.70      | 31.47               | 151       | 1462     | 350        | 0                | 84.2        |
| Hilleshog HIL9708                       | 222  | 327.6         | 100            | 7828          | 84             | 0.85          | 50.81         | 100            | 1213          | 84             | 17.24      | 24.01               | 124       | 1256     | 282        | 0                | 86.9        |
| Hilleshog HIL9895                       | 209  | 324.8         | 99             | 7886          | 85             | 0.91          | 49.95         | 98             | 1213          | 84             | 17.15      | 24.35               | 128       | 1450     | 276        | 0                | 83.7        |
| Hilleshog HIL9920                       | 203  | 337.8         | 103            | 8533          | 92             | 0.84          | 53.86         | 106            | 1357          | 94             | 17.73      | 25.20               | 126       | 1348     | 251        | 0                | 83.7        |
| Hilleshog HIL9921                       | 204  | 333.8         | 102            | 7833          | 84             | 0.93          | 52.64         | 103            | 1229          | 85             | 17.63      | 23.26               | 131       | 1350     | 325        | 0                | 75.5        |
| Hilleshog HIL9922                       | 231  | 320.4         | 98             | 7931          | 85             | 0.90          | 48.66         | 95             | 1206          | 84             | 16.93      | 24.75               | 115       | 1378     | 292        | 0                | 90.9        |
| Hilleshog HIL9923                       | 243  | 329.2         | 101            | 6900          | 74             | 1.06          | 52.40         | 103            | 1085          | 75             | 17.70      | 20.84               | 161       | 1531     | 358        | 0                | 76.0        |
| Hilleshog HIL9924                       | 237  | 319.4         | 97             | 7058          | 76             | 1.11          | 48.37         | 95             | 1063          | 74             | 17.07      | 22.25               | 146       | 1481     | 413        | 0                | 75.0        |
| Mariboo MA504                           | 229  | 322.5         | 98             | 8073          | 87             | 0.88          | 49.27         | 97             | 1234          | 86             | 17.01      | 24.87               | 133       | 1344     | 279        | 0                | 87.8        |
| Mariboo MA611                           | 245  | 311.8         | 95             | 7337          | 79             | 0.98          | 46.08         | 90             | 1081          | 75             | 16.56      | 23.65               | 139       | 1481     | 310        | 0                | 83.8        |
| Mariboo MA719                           | 232  | 333.8         | 102            | 8168          | 88             | 0.88          | 52.64         | 103            | 1284          | 89             | 17.57      | 24.64               | 111       | 1354     | 278        | 0                | 84.7        |
| Mariboo MA718                           | 221  | 322.6         | 98             | 7464          | 80             | 1.07          | 49.28         | 97             | 1128          | 78             | 17.17      | 23.30               | 185       | 1488     | 363        | 0                | 72.6        |
| Mariboo MA719                           | 213  | 326.8         | 100            | 7028          | 76             | 1.08          | 50.56         |                |               |                |            |                     |           |          |            |                  |             |

Table 14. 2017 Performance of All RR Varieties - ACSC Official Trial  
Grand Forks ND

| Variety @                               | Code       | Rec/T lbs.   | Rec/T %Bnch | Rec/A lbs.   | Rec/A %Bnch | Loss Mol %  | Rev/T \$++   | Rev/T %Bnch | Rev/A \$++  | Rev/A %Bnch | Sugar %      | Yield T/A    | Na ppm     | K ppm       | AmN ppm    | Bolter per Ac | Emerg. %    |
|---|------------|--------------|-------------|--------------|-------------|-------------|--------------|-------------|-------------|-------------|--------------|--------------|------------|-------------|------------|---------------|-------------|
| <b>Commercial Trial</b>                 |            |              |             |              |             |             |              |             |             |             |              |              |            |             |            |               |             |
| BTS 80RR52                              | 103        | 352.4        | 99          | 11374        | 97          | 0.90        | 58.29        | 98          | 1882        | 97          | 18.52        | 32.31        | 129        | 1547        | 239        | 0             | 76.6        |
| BTS 8337                                | 116        | 357.2        | 100         | 11258        | 96          | 0.87        | 59.77        | 100         | 1881        | 96          | 18.73        | 31.54        | 130        | 1523        | 219        | 0             | 77.4        |
| <b>BTS 8363</b>                         | <b>130</b> | <b>348.0</b> | <b>98</b>   | <b>12320</b> | <b>106</b>  | <b>0.80</b> | <b>56.98</b> | <b>96</b>   | <b>2017</b> | <b>103</b>  | <b>18.20</b> | <b>35.39</b> | <b>122</b> | <b>1449</b> | <b>191</b> | <b>0</b>      | <b>78.9</b> |
| BTS 8500                                | 119        | 351.0        | 98          | 12258        | 105         | 0.87        | 57.88        | 97          | 2020        | 104         | 18.41        | 34.87        | 128        | 1531        | 218        | 0             | 76.6        |
| BTS 8512                                | 109        | 359.7        | 101         | 11280        | 97          | 0.86        | 60.50        | 102         | 1900        | 97          | 18.85        | 31.31        | 122        | 1529        | 220        | 0             | 78.7        |
| BTS 8524                                | 101        | 352.2        | 99          | 12255        | 107         | 0.85        | 58.23        | 98          | 2073        | 106         | 18.46        | 35.62        | 139        | 1570        | 196        | 0             | 74.7        |
| BTS 8572                                | 111        | 363.7        | 102         | 11765        | 101         | 0.82        | 61.72        | 104         | 1996        | 102         | 19.01        | 32.44        | 117        | 1467        | 205        | 0             | 82.3        |
| Crystal 093RR                           | 115        | 373.2        | 105         | 11780        | 101         | 0.87        | 64.61        | 108         | 2039        | 105         | 19.53        | 31.56        | 110        | 1516        | 234        | 0             | 78.4        |
| Crystal 101RR                           | 107        | 359.5        | 101         | 12368        | 106         | 0.86        | 60.46        | 101         | 2079        | 107         | 18.84        | 34.46        | 139        | 1613        | 186        | 0             | 78.4        |
| Crystal 246RR                           | 108        | 355.0        | 100         | 12385        | 106         | 0.79        | 59.09        | 99          | 2060        | 106         | 18.54        | 34.96        | 137        | 1451        | 175        | 0             | 70.3        |
| Crystal 247RR                           | 131        | 357.4        | 100         | 12135        | 104         | 0.71        | 59.82        | 100         | 2031        | 104         | 18.58        | 34.04        | 115        | 1343        | 153        | 0             | 75.0        |
| Crystal 355RR                           | 104        | 360.8        | 101         | 11601        | 99          | 0.85        | 60.85        | 102         | 1955        | 100         | 18.90        | 32.19        | 121        | 1490        | 223        | 0             | 75.0        |
| Crystal 467RR                           | 129        | 346.5        | 97          | 12144        | 104         | 0.83        | 56.51        | 95          | 1986        | 102         | 18.16        | 35.06        | 139        | 1541        | 186        | 0             | 80.2        |
| Crystal 572RR                           | 126        | 370.3        | 104         | 12471        | 107         | 0.80        | 63.73        | 107         | 2147        | 110         | 19.31        | 33.57        | 114        | 1429        | 198        | 0             | 81.8        |
| Crystal 574RR                           | 110        | 351.3        | 98          | 12300        | 105         | 0.85        | 57.96        | 97          | 2029        | 104         | 18.42        | 35.04        | 125        | 1560        | 203        | 0             | 80.0        |
| Crystal 986RR                           | 128        | 355.5        | 100         | 12439        | 107         | 0.80        | 59.24        | 99          | 2074        | 106         | 18.58        | 34.94        | 139        | 1390        | 205        | 0             | 79.2        |
| Hilleshög 4302RR                        | 105        | 353.9        | 99          | 11353        | 97          | 0.82        | 58.77        | 99          | 1884        | 97          | 18.52        | 32.03        | 138        | 1462        | 198        | 0             | 69.0        |
| Hilleshög 4448RR                        | 112        | 361.3        | 101         | 12812        | 110         | 0.82        | 61.00        | 102         | 2157        | 111         | 18.89        | 35.56        | 118        | 1487        | 202        | 0             | 70.8        |
| Hilleshög 9528RR                        | 123        | 346.9        | 97          | 11762        | 101         | 0.84        | 56.65        | 95          | 1922        | 99          | 18.19        | 33.88        | 139        | 1491        | 207        | 0             | 78.4        |
| Hilleshög HIL9707                       | 114        | 341.6        | 96          | 12190        | 104         | 0.82        | 55.03        | 92          | 1956        | 100         | 17.89        | 35.79        | 138        | 1469        | 192        | 32            | 79.2        |
| Maribo 109                              | 122        | 371.8        | 104         | 10296        | 88          | 0.83        | 64.16        | 108         | 1770        | 91          | 19.41        | 27.82        | 129        | 1480        | 200        | 0             | 72.9        |
| Maribo 305                              | 106        | 352.8        | 99          | 12254        | 108         | 0.81        | 58.42        | 98          | 2074        | 106         | 18.44        | 35.65        | 128        | 1417        | 201        | 0             | 64.3        |
| Maribo MA502                            | 121        | 346.9        | 97          | 11785        | 101         | 0.91        | 56.64        | 95          | 1924        | 99          | 18.26        | 33.93        | 173        | 1608        | 218        | 0             | 77.3        |
| SX Avalanche RR(858)                    | 127        | 352.7        | 99          | 11753        | 101         | 0.84        | 58.40        | 98          | 1943        | 100         | 18.47        | 33.34        | 155        | 1407        | 222        | 0             | 72.4        |
| SX Canyon RR                            | 118        | 362.8        | 102         | 12704        | 109         | 0.75        | 61.45        | 103         | 2157        | 111         | 18.89        | 34.98        | 106        | 1396        | 170        | 0             | 73.2        |
| SX Cruz RR                              | 117        | 331.3        | 93          | 12154        | 104         | 0.86        | 51.91        | 87          | 1907        | 98          | 17.42        | 36.66        | 129        | 1550        | 207        | 0             | 77.9        |
| SX Marathon RR(856)                     | 102        | 349.7        | 98          | 12295        | 105         | 0.79        | 57.48        | 96          | 2021        | 104         | 18.28        | 35.14        | 113        | 1467        | 186        | 0             | 69.0        |
| SX Winchester RR                        | 125        | 350.2        | 98          | 11362        | 97          | 0.83        | 57.63        | 97          | 1868        | 96          | 18.34        | 32.50        | 127        | 1565        | 187        | 0             | 66.7        |
| SV RR244TT                              | 120        | 352.1        | 99          | 12859        | 110         | 0.78        | 58.21        | 98          | 2128        | 109         | 18.38        | 36.48        | 115        | 1453        | 176        | 0             | 70.8        |
| SV RR333                                | 124        | 354.5        | 99          | 12282        | 105         | 0.79        | 58.92        | 99          | 2042        | 105         | 18.51        | 34.64        | 122        | 1485        | 174        | 0             | 74.5        |
| SV RR351                                | 113        | 355.6        | 100         | 12283        | 105         | 0.80        | 59.28        | 99          | 2049        | 105         | 18.58        | 34.44        | 113        | 1488        | 183        | 0             | 74.5        |
| RR Filler #01s                          | 132        | 354.7        | 99          | 12122        | 104         | 0.85        | 59.00        | 99          | 2013        | 103         | 18.59        | 34.20        | 144        | 1616        | 179        | 0             | 77.1        |
| RR Filler #01v                          | 133        | 351.2        | 98          | 12082        | 103         | 0.87        | 57.93        | 97          | 1991        | 102         | 18.43        | 34.46        | 149        | 1610        | 191        | 0             | 77.9        |
| <b>Experimental Trial (Comm status)</b> |            |              |             |              |             |             |              |             |             |             |              |              |            |             |            |               |             |
| BTS 8606                                | 242        | 365.6        | 103         | 12597        | 108         | 0.78        | 62.28        | 105         | 2139        | 110         | 19.07        | 34.62        | 118        | 1450        | 176        | 0             | 74.6        |
| BTS 8629                                | 224        | 353.0        | 99          | 12078        | 103         | 0.77        | 58.47        | 98          | 1993        | 102         | 18.42        | 34.39        | 144        | 1333        | 193        | 0             | 80.2        |
| BTS 8735                                | 234        | 356.3        | 100         | 12238        | 105         | 0.72        | 60.08        | 101         | 2054        | 105         | 18.65        | 34.19        | 119        | 1231        | 190        | 0             | 74.4        |
| BTS 8742                                | 207        | 353.6        | 99          | 11489        | 98          | 0.92        | 58.66        | 98          | 1915        | 98          | 18.60        | 32.33        | 142        | 1503        | 261        | 0             | 76.9        |
| BTS 8749                                | 202        | 362.5        | 102         | 11449        | 98          | 0.84        | 61.35        | 103         | 1937        | 99          | 18.97        | 31.57        | 120        | 1493        | 215        | 0             | 80.1        |
| BTS 8756                                | 241        | 360.9        | 101         | 11965        | 102         | 0.95        | 60.84        | 102         | 2016        | 103         | 18.98        | 33.09        | 139        | 1593        | 264        | 0             | 78.9        |
| BTS 8767                                | 235        | 346.0        | 97          | 11987        | 103         | 0.88        | 56.39        | 95          | 1958        | 100         | 18.18        | 34.61        | 152        | 1545        | 212        | 0             | 82.8        |
| BTS 8770                                | 247        | 356.3        | 100         | 12474        | 107         | 0.80        | 59.50        | 100         | 2084        | 107         | 18.62        | 34.86        | 125        | 1473        | 184        | 0             | 71.4        |
| BTS 8784                                | 236        | 377.9        | 106         | 11675        | 100         | 0.75        | 65.94        | 111         | 2041        | 105         | 19.65        | 30.83        | 99         | 1319        | 196        | 0             | 77.6        |
| BTS 8787                                | 219        | 359.1        | 101         | 11492        | 98          | 0.80        | 60.33        | 101         | 1936        | 99          | 18.77        | 31.95        | 123        | 1436        | 199        | 0             | 76.5        |
| BTS 8798                                | 223        | 363.6        | 102         | 11275        | 100         | 0.78        | 61.68        | 103         | 1977        | 101         | 18.95        | 32.43        | 108        | 1320        | 217        | 0             | 81.6        |
| Crystal 573RR                           | 225        | 364.6        | 102         | 12361        | 106         | 0.78        | 61.96        | 104         | 2101        | 108         | 19.01        | 33.92        | 113        | 1341        | 213        | 0             | 75.4        |
| Crystal 578RR                           | 220        | 357.5        | 100         | 12755        | 109         | 0.82        | 59.85        | 100         | 2128        | 109         | 18.71        | 35.81        | 132        | 1494        | 192        | 0             | 78.1        |
| Crystal 684RR                           | 239        | 352.9        | 99          | 13397        | 115         | 0.87        | 58.45        | 98          | 2211        | 113         | 18.51        | 38.12        | 146        | 1528        | 215        | 0             | 76.3        |
| Crystal 792RR                           | 218        | 357.0        | 100         | 11890        | 102         | 0.81        | 59.71        | 100         | 1986        | 102         | 18.67        | 33.40        | 127        | 1361        | 228        | 0             | 82.5        |
| Crystal 793RR                           | 246        | 365.5        | 102         | 12885        | 110         | 0.75        | 62.25        | 104         | 2191        | 112         | 19.03        | 35.26        | 122        | 1310        | 194        | 0             | 79.9        |
| Crystal 794RR                           | 208        | 355.6        | 100         | 13006        | 111         | 0.79        | 59.29        | 99          | 2167        | 111         | 18.59        | 36.63        | 135        | 1389        | 200        | 0             | 72.0        |
| Crystal 795RR                           | 215        | 362.5        | 102         | 12556        | 96          | 0.88        | 61.35        | 103         | 1901        | 97          | 19.00        | 31.17        | 115        | 1456        | 252        | 0             | 74.3        |
| Crystal 796RR                           | 238        | 364.4        | 102         | 13710        | 117         | 0.80        | 61.91        | 104         | 2307        | 118         | 19.02        | 38.04        | 123        | 1454        | 194        | 0             | 81.6        |
| Crystal 797RR                           | 201        | 354.2        | 99          | 12478        | 107         | 0.82        | 58.83        | 99          | 2075        | 106         | 18.54        | 35.32        | 135        | 1567        | 170        | 0             | 68.3        |
| Hilleshög HIL9708                       | 222        | 355.8        | 100         | 11704        | 100         | 0.84        | 59.36        | 100         | 1952        | 100         | 18.64        | 32.84        | 140        | 1524        | 200        | 95            | 78.1        |
| Hilleshög HIL9895                       | 209        | 348.6        | 98          | 11809        | 101         | 0.84        | 57.19        | 96          | 1930        | 99          | 18.27        | 33.99        | 135        | 1521        | 200        | 0             | 80.0        |
| Hilleshög HIL9920                       | 203        | 368.3        | 103         | 12185        | 97          | 0.80        | 63.09        | 106         | 1926        | 99          | 19.23        | 30.81        | 155        | 1417        | 190        | 0             | 68.5        |
| Hilleshög HIL9921                       | 204        | 367.8        | 103         | 10989        | 93          | 0.85        | 62.90        | 106         | 1858        | 95          | 19.24        | 29.62        | 138        | 1411        | 240        | 0             | 78.2        |
| Hilleshög HIL9922                       | 231        | 350.3        | 98          | 11344        | 97          | 0.83        | 57.68        | 97          | 1874        | 96          | 18.36        | 32.16        | 132        | 1518        | 197        | 0             | 80.4        |
| Hilleshög HIL9923                       | 243        | 353.5        | 99          | 10108        | 87          | 0.93        | 58.63        | 98          | 1674        | 86          | 18.60        | 28.75        | 174        | 1483        | 264        | 0             | 60.8        |
| Hilleshög HIL9924                       | 237        | 358.1        | 100         | 10064        | 86          | 0.91        | 60.02        | 101         | 1683        | 86          | 18.81        | 28.18        | 124        | 1473        | 266        | 0             | 54.4        |
| Maribo MA504                            | 229        | 345.5        | 97          | 13333        | 114         | 0.81        | 56.25        | 94          | 2165        | 111         | 18.09        | 38.74        | 133        | 1422        | 209        | 0             | 85.5        |
| Maribo MA611                            | 245        | 347.7        | 97          | 11597        | 99          | 0.82        | 56.92        | 96          | 1896        | 97          | 18.21        | 33.30        | 126        | 1514        | 194        | 0             | 81.0        |
| Maribo MA717                            | 232        | 366.0        | 103         | 12128        | 104         | 0.87        | 62.38        | 105         | 2062        | 106         | 19.16        | 33.14        | 127        | 1492        | 224        | 0             | 75.9        |
| Maribo MA718                            | 221        | 361.3        | 101         | 10594        | 91          | 0.83        | 60.98        | 102         | 1783        | 91          | 18.90        | 29.35        | 127        | 1563        | 186        | 0             | 67.4        |
| Maribo MA719                            | 213        | 353.1        | 99          | 117          |             |             |              |             |             |             |              |              |            |             |            |               |             |

Table 15. 2017 Performance of All RR Varieties - ACSC Official Trial  
Scandia MN

| Variety @                               | Code       | Rec/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$++ | Rev/T<br>%Bnch | Rev/A<br>\$++ | Rev/A<br>%Bnch | Sugar<br>%   | Yield<br>T/A<br>ppm | Na<br>ppm  | K<br>ppm    | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% |
|---|------------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|---------------|----------------|--------------|---------------------|------------|-------------|------------|------------------|-------------|
| <b>Commercial Trial</b>                 |            |               |                |               |                |               |               |                |               |                |              |                     |            |             |            |                  |             |
| BTS 80RR52                              | 103        | 344.9         | 102            | 9843          | 110            | 1.35          | 56.03         | 104            | 1597          | 112            | 18.59        | 28.66               | 191        | 1657        | 535        | 0                | 70.2        |
| BTS 8337                                | 116        | 351.7         | 104            | 10028         | 112            | 1.31          | 58.08         | 108            | 1652          | 116            | 18.90        | 28.68               | 231        | 1626        | 503        | 0                | 58.2        |
| <b>BTS 8363</b>                         | <b>130</b> | <b>323.8</b>  | <b>96</b>      | <b>9612</b>   | <b>107</b>     | <b>1.38</b>   | <b>49.65</b>  | <b>92</b>      | <b>1478</b>   | <b>103</b>     | <b>17.58</b> | <b>29.62</b>        | <b>293</b> | <b>1711</b> | <b>512</b> | <b>0</b>         | <b>67.1</b> |
| BTS 8500                                | 119        | 332.7         | 99             | 10247         | 114            | 1.30          | 52.33         | 97             | 1614          | 113            | 17.92        | 30.76               | 237        | 1642        | 478        | 0                | 63.3        |
| BTS 8512                                | 109        | 336.9         | 100            | 9737          | 109            | 1.30          | 53.60         | 100            | 1553          | 109            | 18.14        | 29.91               | 240        | 1597        | 493        | 0                | 74.2        |
| BTS 8524                                | 101        | 322.3         | 96             | 9334          | 104            | 1.41          | 49.20         | 92             | 1429          | 100            | 17.53        | 28.85               | 256        | 1747        | 536        | 32               | 69.6        |
| BTS 8572                                | 111        | 349.0         | 103            | 9485          | 106            | 1.26          | 57.28         | 107            | 1558          | 109            | 18.72        | 27.15               | 183        | 1569        | 494        | 0                | 70.4        |
| Crystal 093RR                           | 115        | 348.2         | 103            | 9779          | 109            | 1.21          | 57.03         | 106            | 1601          | 112            | 18.63        | 28.13               | 156        | 1605        | 460        | 0                | 61.8        |
| Crystal 101RR                           | 107        | 323.8         | 96             | 8243          | 92             | 1.48          | 49.65         | 92             | 1262          | 88             | 17.66        | 25.40               | 330        | 1818        | 541        | 0                | 59.2        |
| Crystal 246RR                           | 108        | 326.8         | 97             | 9909          | 110            | 1.32          | 50.56         | 94             | 1519          | 106            | 17.66        | 30.56               | 282        | 1644        | 481        | 0                | 63.8        |
| Crystal 247RR                           | 131        | 335.4         | 99             | 9686          | 108            | 1.27          | 53.16         | 99             | 1534          | 107            | 18.04        | 28.97               | 256        | 1693        | 440        | 0                | 61.8        |
| Crystal 355RR                           | 104        | 344.4         | 102            | 9890          | 110            | 1.36          | 55.88         | 104            | 1600          | 112            | 18.58        | 28.80               | 259        | 1684        | 514        | 0                | 69.3        |
| Crystal 467RR                           | 129        | 333.9         | 99             | 10310         | 115            | 1.40          | 52.70         | 98             | 1633          | 114            | 18.09        | 30.91               | 328        | 1756        | 493        | 0                | 64.3        |
| Crystal 572RR                           | 126        | 355.1         | 105            | 9702          | 108            | 1.15          | 59.12         | 110            | 1606          | 112            | 18.91        | 27.41               | 178        | 1533        | 421        | 0                | 69.1        |
| Crystal 574RR                           | 110        | 323.5         | 96             | 9744          | 109            | 1.31          | 49.56         | 92             | 1496          | 105            | 17.48        | 30.07               | 250        | 1683        | 469        | 0                | 68.8        |
| Crystal 986RR                           | 128        | 345.6         | 102            | 9852          | 110            | 1.19          | 56.24         | 105            | 1595          | 112            | 18.47        | 28.64               | 248        | 1483        | 438        | 0                | 68.6        |
| Hilleshög 4302RR                        | 105        | 336.2         | 100            | 9720          | 88             | 1.25          | 53.41         | 99             | 1262          | 88             | 18.07        | 23.32               | 277        | 1659        | 433        | 0                | 46.3        |
| Hilleshög 4448RR                        | 112        | 337.4         | 100            | 9718          | 108            | 1.28          | 53.77         | 100            | 1541          | 108            | 18.15        | 29.00               | 245        | 1587        | 483        | 0                | 56.4        |
| Hilleshög 9528RR                        | 123        | 343.2         | 102            | 9796          | 109            | 1.33          | 55.53         | 103            | 1580          | 110            | 18.49        | 28.53               | 243        | 1603        | 517        | 0                | 60.0        |
| Hilleshög HIL9707                       | 114        | 311.5         | 92             | 8228          | 92             | 1.58          | 45.91         | 85             | 1216          | 85             | 17.16        | 26.37               | 336        | 1809        | 618        | 0                | 36.1        |
| Maribo 109                              | 122        | 339.8         | 101            | 7682          | 86             | 1.34          | 54.48         | 101            | 1232          | 86             | 18.33        | 22.48               | 253        | 1598        | 524        | 0                | 42.4        |
| Maribo 305                              | 106        | 337.2         | 100            | 9494          | 106            | 1.19          | 53.71         | 100            | 1515          | 106            | 18.05        | 28.12               | 230        | 1518        | 431        | 0                | 55.3        |
| Maribo MA502                            | 121        | 334.4         | 99             | 9176          | 102            | 1.45          | 52.86         | 98             | 1452          | 102            | 18.17        | 27.49               | 331        | 1739        | 537        | 0                | 63.7        |
| SX Avalanche RR(858)                    | 127        | 346.3         | 103            | 8593          | 96             | 1.23          | 56.45         | 105            | 1405          | 98             | 18.54        | 24.62               | 273        | 1626        | 417        | 0                | 62.6        |
| SX Canyon RR                            | 118        | 346.1         | 103            | 9169          | 102            | 1.26          | 56.40         | 105            | 1493          | 104            | 18.57        | 26.65               | 220        | 1677        | 455        | 0                | 58.6        |
| SX Cruz RR                              | 117        | 318.3         | 94             | 9867          | 110            | 1.40          | 47.97         | 89             | 1487          | 104            | 17.31        | 31.13               | 287        | 1594        | 551        | 0                | 64.8        |
| SX Marathon RR(856)                     | 102        | 336.5         | 100            | 8900          | 99             | 1.27          | 53.48         | 100            | 1414          | 99             | 18.09        | 26.47               | 231        | 1613        | 467        | 32               | 54.1        |
| SX Winchester RR                        | 125        | 324.2         | 96             | 8547          | 95             | 1.29          | 49.76         | 93             | 1309          | 92             | 17.50        | 26.36               | 271        | 1594        | 476        | 0                | 48.9        |
| SV RR244TT                              | 120        | 324.5         | 96             | 8971          | 100            | 1.38          | 49.84         | 93             | 1381          | 97             | 17.60        | 27.52               | 244        | 1705        | 528        | 0                | 52.1        |
| SV RR333                                | 124        | 331.6         | 98             | 9258          | 103            | 1.25          | 52.01         | 97             | 1448          | 101            | 17.83        | 27.97               | 222        | 1634        | 453        | 0                | 57.7        |
| SV RR351                                | 113        | 343.9         | 102            | 9324          | 104            | 1.18          | 55.73         | 104            | 1508          | 105            | 18.37        | 27.14               | 206        | 1604        | 409        | 0                | 57.8        |
| RR Filler #01s                          | 132        | 330.4         | 98             | 9087          | 101            | 1.45          | 51.65         | 96             | 1419          | 99             | 17.96        | 27.51               | 285        | 1838        | 526        | 0                | 67.2        |
| RR Filler #01v                          | 133        | 330.4         | 98             | 9113          | 102            | 1.50          | 51.65         | 96             | 1423          | 99             | 18.03        | 27.67               | 288        | 1894        | 555        | 0                | 66.0        |
| <b>Experimental Trial (Comm status)</b> |            |               |                |               |                |               |               |                |               |                |              |                     |            |             |            |                  |             |
| BTS 8606                                | 242        | 334.9         | 99             | 10428         | 116            | 1.34          | 53.06         | 99             | 1628          | 114            | 18.10        | 31.68               | 294        | 1653        | 516        | 0                | 69.9        |
| BTS 8629                                | 224        | 325.4         | 96             | 10310         | 115            | 1.28          | 50.30         | 94             | 1578          | 110            | 17.55        | 31.45               | 256        | 1541        | 500        | 0                | 72.3        |
| <b>BTS 8735</b>                         | <b>234</b> | <b>322.7</b>  | <b>96</b>      | <b>9967</b>   | <b>111</b>     | <b>1.21</b>   | <b>49.50</b>  | <b>92</b>      | <b>1536</b>   | <b>107</b>     | <b>17.35</b> | <b>30.59</b>        | <b>228</b> | <b>1442</b> | <b>477</b> | <b>0</b>         | <b>62.1</b> |
| BTS 8742                                | 207        | 328.7         | 97             | 9558          | 107            | 1.47          | 51.23         | 95             | 1501          | 105            | 17.90        | 28.66               | 263        | 1732        | 588        | 0                | 74.2        |
| BTS 8749                                | 202        | 346.2         | 103            | 9542          | 106            | 1.28          | 56.29         | 105            | 1569          | 110            | 18.61        | 27.02               | 200        | 1598        | 506        | 0                | 72.3        |
| BTS 8756                                | 241        | 334.6         | 99             | 9635          | 107            | 1.47          | 52.94         | 99             | 1515          | 106            | 18.18        | 28.87               | 265        | 1754        | 577        | 0                | 74.6        |
| BTS 8767                                | 235        | 334.4         | 99             | 10126         | 113            | 1.33          | 52.88         | 98             | 1610          | 113            | 18.05        | 29.86               | 283        | 1707        | 474        | 0                | 66.8        |
| BTS 8770                                | 247        | 340.7         | 101            | 8716          | 97             | 1.25          | 54.73         | 102            | 1382          | 97             | 18.29        | 25.75               | 263        | 1732        | 426        | 0                | 51.6        |
| BTS 8784                                | 236        | 348.1         | 103            | 9355          | 104            | 1.19          | 56.86         | 106            | 1530          | 107            | 18.61        | 26.93               | 218        | 1499        | 452        | 0                | 62.9        |
| BTS 8787                                | 219        | 315.6         | 94             | 9455          | 105            | 1.30          | 47.44         | 88             | 1437          | 100            | 17.09        | 29.28               | 249        | 1624        | 483        | 0                | 60.2        |
| BTS 8798                                | 223        | 339.5         | 101            | 8856          | 99             | 1.28          | 54.39         | 101            | 1404          | 98             | 18.25        | 26.07               | 193        | 1503        | 529        | 0                | 68.0        |
| Crystal 573RR                           | 225        | 341.5         | 101            | 8956          | 100            | 1.32          | 54.95         | 102            | 1453          | 102            | 18.41        | 26.15               | 218        | 1603        | 523        | 0                | 59.0        |
| Crystal 578RR                           | 220        | 341.4         | 101            | 10035         | 112            | 1.23          | 54.94         | 102            | 1607          | 112            | 18.32        | 29.65               | 254        | 1656        | 434        | 0                | 71.1        |
| Crystal 684RR                           | 239        | 317.7         | 94             | 9871          | 110            | 1.38          | 48.04         | 89             | 1522          | 106            | 17.27        | 30.62               | 295        | 1756        | 492        | 0                | 61.7        |
| Crystal 792RR                           | 218        | 341.8         | 101            | 9187          | 102            | 1.20          | 55.03         | 102            | 1481          | 104            | 18.30        | 26.76               | 202        | 1500        | 457        | 0                | 62.5        |
| Crystal 793RR                           | 246        | 339.6         | 101            | 9330          | 104            | 1.25          | 54.39         | 101            | 1517          | 106            | 18.24        | 26.76               | 248        | 1549        | 463        | 0                | 66.8        |
| Crystal 794RR                           | 208        | 320.6         | 95             | 9588          | 107            | 1.22          | 48.90         | 91             | 1467          | 103            | 17.26        | 29.53               | 225        | 1533        | 464        | 0                | 53.9        |
| Crystal 795RR                           | 215        | 345.3         | 102            | 8858          | 99             | 1.29          | 56.06         | 104            | 1449          | 104            | 18.58        | 25.49               | 225        | 1647        | 485        | 0                | 67.2        |
| Crystal 796RR                           | 238        | 319.4         | 95             | 9667          | 108            | 1.28          | 48.52         | 90             | 1480          | 104            | 17.26        | 29.90               | 243        | 1650        | 473        | 0                | 67.2        |
| Crystal 797RR                           | 201        | 330.2         | 98             | 9731          | 108            | 1.29          | 51.67         | 96             | 1505          | 105            | 17.79        | 29.40               | 267        | 1703        | 454        | 0                | 55.5        |
| Hilleshög HIL9708                       | 222        | 346.5         | 103            | 7915          | 88             | 1.21          | 56.40         | 105            | 1285          | 90             | 18.55        | 22.76               | 235        | 1559        | 459        | 0                | 61.3        |
| Hilleshög HIL9895                       | 209        | 327.3         | 97             | 8339          | 93             | 1.35          | 50.83         | 95             | 1287          | 90             | 17.72        | 25.59               | 296        | 1652        | 506        | 95               | 61.7        |
| Hilleshög HIL9920                       | 203        | 343.6         | 102            | 9498          | 106            | 1.13          | 55.55         | 103            | 1533          | 107            | 18.32        | 27.41               | 222        | 1528        | 394        | 95               | 63.3        |
| Hilleshög HIL9921                       | 204        | 332.2         | 98             | 8711          | 97             | 1.28          | 52.26         | 97             | 1361          | 95             | 17.90        | 26.43               | 293        | 1504        | 496        | 0                | 69.5        |
| Hilleshög HIL9922                       | 231        | 317.9         | 94             | 8533          | 93             | 1.44          | 48.13         | 90             | 1274          | 89             | 17.34        | 26.06               | 296        | 1697        | 555        | 0                | 65.8        |
| Hilleshög HIL9923                       | 243        | 333.2         | 99             | 7036          | 78             | 1.59          | 52.55         | 98             | 1120          | 78             | 18.23        | 20.55               | 325        | 1765        | 635        | 0                | 48.4        |
| Hilleshög HIL9924                       | 237        | 334.1         | 99             | 8175          | 91             | 1.47          | 52.80         | 98             | 1293          | 90             | 18.17        | 24.31               | 248        | 1651        | 616        | 0                | 55.9        |
| Maribo MA504                            | 229        | 335.3         | 99             | 9661          | 108            | 1.24          | 53.17         | 99             | 1529          | 107            | 18.01        | 28.56               | 247        | 1610        | 452        | 0                | 65.6        |
| Maribo MA611                            | 245        | 323.6         | 96             | 8964          | 100            | 1.35          | 49.77         | 93             | 1389          | 97             | 17.54        | 27.27               | 257        | 1620        | 529        | 0                | 64.1        |
| Maribo MA717                            | 232        | 338.9         | 100            | 9300          | 104            | 1.23          | 54.22         | 101            | 1477          | 103            | 18.17        | 27.15               | 206        | 1529        | 479        | 0                | 62.9        |
| Maribo MA718                            | 221        | 333.9         | 99             | 7570          | 84             | 1.33          | 52.76         | 98             | 1192          | 83             | 18.03        | 22.40</             |            |             |            |                  |             |

Table 16. 2017 Performance of All RR Varieties - ACSC Official Trial  
Stephen MN

| Variety @                               | Code       | Rec/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$++ | Rev/T<br>%Bnch | Rev/A<br>\$++ | Rev/A<br>%Bnch | Sugar<br>%   | Yield<br>T/A<br>ppm | Na<br>ppm  | K<br>ppm    | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% |
|---|------------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|---------------|----------------|--------------|---------------------|------------|-------------|------------|------------------|-------------|
| <b>Commercial Trial</b>                 |            |               |                |               |                |               |               |                |               |                |              |                     |            |             |            |                  |             |
| BTS 80RR52                              | 103        | 317.1         | 100            | 11965         | 104            | 1.28          | 47.62         | 99             | 1799          | 104            | 17.14        | 37.68               | 270        | 1677        | 446        | 0                | 74.0        |
| BTS 8337                                | 116        | 335.0         | 105            | 11955         | 104            | 1.13          | 53.02         | 110            | 1898          | 109            | 17.87        | 35.56               | 273        | 1608        | 349        | 0                | 69.8        |
| <b>BTS 8363</b>                         | <b>130</b> | <b>308.6</b>  | <b>97</b>      | <b>12386</b>  | <b>107</b>     | <b>1.13</b>   | <b>45.05</b>  | <b>94</b>      | <b>1808</b>   | <b>104</b>     | <b>16.56</b> | <b>39.98</b>        | <b>294</b> | <b>1585</b> | <b>350</b> | <b>0</b>         | <b>74.5</b> |
| BTS 8500                                | 119        | 315.1         | 99             | 11956         | 104            | 1.27          | 47.02         | 98             | 1793          | 103            | 17.00        | 37.91               | 292        | 1690        | 421        | 0                | 66.4        |
| BTS 8512                                | 109        | 322.2         | 101            | 11539         | 100            | 1.28          | 49.17         | 102            | 1759          | 101            | 17.39        | 35.88               | 290        | 1686        | 433        | 0                | 74.0        |
| BTS 8524                                | 101        | 316.3         | 99             | 11814         | 102            | 1.14          | 47.39         | 99             | 1769          | 102            | 16.96        | 37.43               | 244        | 1695        | 346        | 0                | 74.0        |
| BTS 8572                                | 111        | 337.0         | 106            | 11989         | 104            | 1.14          | 53.65         | 112            | 1903          | 110            | 18.03        | 35.72               | 190        | 1483        | 439        | 0                | 71.9        |
| Crystal 093RR                           | 115        | 342.2         | 107            | 11992         | 104            | 1.10          | 55.21         | 115            | 1929          | 111            | 18.22        | 35.26               | 171        | 1555        | 381        | 0                | 72.1        |
| Crystal 101RR                           | 107        | 309.1         | 97             | 11554         | 100            | 1.25          | 45.19         | 94             | 1678          | 97             | 16.71        | 37.63               | 338        | 1797        | 366        | 0                | 69.5        |
| Crystal 246RR                           | 108        | 312.8         | 98             | 12029         | 104            | 1.22          | 46.33         | 96             | 1784          | 103            | 16.84        | 38.45               | 338        | 1638        | 387        | 0                | 67.2        |
| Crystal 247RR                           | 131        | 319.2         | 100            | 12945         | 112            | 1.05          | 48.24         | 100            | 1945          | 112            | 17.03        | 40.66               | 248        | 1598        | 302        | 0                | 72.9        |
| Crystal 355RR                           | 104        | 330.5         | 104            | 11825         | 102            | 1.14          | 51.66         | 108            | 1846          | 106            | 17.66        | 35.92               | 218        | 1540        | 392        | 0                | 63.3        |
| Crystal 467RR                           | 129        | 313.1         | 98             | 12786         | 111            | 1.22          | 46.41         | 97             | 1887          | 109            | 16.88        | 40.95               | 370        | 1653        | 371        | 0                | 70.1        |
| Crystal 572RR                           | 126        | 340.3         | 107            | 12457         | 108            | 1.08          | 54.63         | 114            | 2002          | 115            | 18.09        | 36.53               | 188        | 1387        | 401        | 0                | 73.4        |
| Crystal 574RR                           | 110        | 328.6         | 103            | 12633         | 109            | 1.10          | 51.09         | 106            | 1963          | 113            | 17.54        | 38.40               | 204        | 1574        | 365        | 0                | 74.7        |
| Crystal 986RR                           | 128        | 335.7         | 105            | 12149         | 105            | 1.03          | 53.25         | 111            | 1926          | 111            | 17.82        | 36.17               | 221        | 1401        | 346        | 0                | 73.2        |
| Hilleshog 4302RR                        | 105        | 317.3         | 100            | 10814         | 94             | 1.10          | 47.67         | 99             | 1624          | 94             | 16.97        | 33.99               | 311        | 1623        | 308        | 0                | 64.6        |
| Hilleshog 4448RR                        | 112        | 326.4         | 102            | 11548         | 100            | 1.20          | 50.42         | 105            | 1780          | 102            | 17.51        | 35.66               | 282        | 1544        | 411        | 0                | 63.0        |
| Hilleshog 9528RR                        | 123        | 326.9         | 103            | 10890         | 94             | 1.17          | 50.58         | 105            | 1682          | 97             | 17.51        | 33.37               | 267        | 1559        | 396        | 0                | 70.8        |
| Hilleshog HIL9707                       | 114        | 317.9         | 100            | 12537         | 109            | 1.03          | 47.87         | 100            | 1879          | 108            | 16.93        | 39.56               | 235        | 1509        | 316        | 0                | 71.1        |
| Maribo 109                              | 122        | 337.0         | 106            | 9997          | 87             | 1.08          | 53.65         | 112            | 1592          | 92             | 17.93        | 29.58               | 220        | 1505        | 353        | 0                | 65.6        |
| Maribo 305                              | 106        | 323.5         | 102            | 10678         | 93             | 1.01          | 49.56         | 103            | 1631          | 94             | 17.19        | 33.07               | 230        | 1483        | 304        | 0                | 59.1        |
| Maribo MA502                            | 121        | 311.2         | 98             | 10595         | 92             | 1.19          | 45.82         | 98             | 1553          | 89             | 16.75        | 34.16               | 333        | 1690        | 353        | 0                | 67.2        |
| SX Avalanche RR(858)                    | 127        | 323.9         | 102            | 11350         | 98             | 1.07          | 49.67         | 103            | 1737          | 100            | 17.27        | 35.13               | 280        | 1554        | 318        | 0                | 65.6        |
| SX Canyon RR                            | 118        | 339.0         | 106            | 12206         | 106            | 1.01          | 54.24         | 113            | 1949          | 112            | 17.95        | 36.23               | 177        | 1484        | 324        | 0                | 64.8        |
| SX Cruz RR                              | 117        | 304.0         | 95             | 11855         | 103            | 1.09          | 43.64         | 91             | 1694          | 98             | 16.30        | 39.09               | 244        | 1571        | 341        | 0                | 77.4        |
| SX Marathon RR(856)                     | 102        | 325.0         | 102            | 11969         | 104            | 1.12          | 49.99         | 104            | 1834          | 106            | 17.37        | 37.06               | 218        | 1565        | 367        | 0                | 67.7        |
| SX Winchester RR                        | 125        | 321.5         | 101            | 10882         | 94             | 1.07          | 48.95         | 102            | 1657          | 95             | 17.14        | 33.74               | 218        | 1608        | 320        | 0                | 55.7        |
| SX RR244TT                              | 120        | 316.7         | 99             | 11773         | 102            | 1.14          | 47.49         | 99             | 1769          | 102            | 16.97        | 37.19               | 253        | 1626        | 356        | 0                | 64.6        |
| SX RR333                                | 124        | 315.9         | 98             | 12112         | 105            | 1.16          | 47.24         | 98             | 1812          | 104            | 16.94        | 38.37               | 265        | 1646        | 363        | 0                | 63.8        |
| SV RR351                                | 113        | 318.4         | 100            | 11851         | 103            | 1.17          | 48.02         | 100            | 1788          | 103            | 17.08        | 37.17               | 264        | 1630        | 375        | 0                | 70.8        |
| RR Filler #01s                          | 132        | 305.5         | 96             | 11657         | 101            | 1.30          | 44.09         | 92             | 1679          | 97             | 16.58        | 38.14               | 372        | 1762        | 400        | 0                | 72.4        |
| RR Filler #01v                          | 133        | 320.2         | 101            | 11889         | 103            | 1.19          | 48.56         | 101            | 1800          | 104            | 17.20        | 37.19               | 281        | 1792        | 342        | 0                | 72.1        |
| <b>Experimental Trial (Comm status)</b> |            |               |                |               |                |               |               |                |               |                |              |                     |            |             |            |                  |             |
| BTS 8606                                | 242        | 335.7         | 105            | 13015         | 113            | 1.08          | 53.13         | 111            | 2051          | 118            | 17.94        | 38.86               | 208        | 1597        | 351        | 0                | 78.5        |
| BTS 8629                                | 224        | 321.2         | 101            | 13070         | 113            | 1.10          | 48.84         | 102            | 1976          | 114            | 17.19        | 41.03               | 267        | 1468        | 371        | 0                | 75.0        |
| BTS 8735                                | 234        | 321.5         | 101            | 12463         | 108            | 1.15          | 48.90         | 102            | 1883          | 108            | 17.25        | 39.15               | 282        | 1475        | 397        | 0                | 81.3        |
| BTS 8742                                | 207        | 325.6         | 102            | 10991         | 95             | 1.20          | 50.14         | 104            | 1681          | 97             | 17.54        | 34.02               | 232        | 1582        | 418        | 0                | 71.1        |
| BTS 8749                                | 202        | 328.9         | 103            | 11428         | 99             | 1.19          | 51.11         | 106            | 1773          | 102            | 17.64        | 34.73               | 254        | 1698        | 381        | 95               | 73.0        |
| BTS 8756                                | 241        | 327.5         | 103            | 11933         | 103            | 1.19          | 50.71         | 106            | 1836          | 106            | 17.61        | 36.74               | 225        | 1705        | 388        | 0                | 79.7        |
| BTS 8767                                | 235        | 331.0         | 104            | 12768         | 111            | 1.14          | 51.74         | 108            | 1978          | 114            | 17.67        | 38.90               | 246        | 1623        | 356        | 0                | 82.8        |
| BTS 8770                                | 247        | 326.9         | 103            | 11935         | 103            | 1.12          | 50.52         | 105            | 1832          | 106            | 17.48        | 36.85               | 274        | 1674        | 333        | 0                | 68.0        |
| BTS 8784                                | 236        | 344.4         | 108            | 11467         | 99             | 1.04          | 55.72         | 116            | 1845          | 106            | 18.29        | 33.72               | 185        | 1415        | 364        | 0                | 78.5        |
| BTS 8787                                | 219        | 318.9         | 100            | 11402         | 99             | 1.16          | 48.17         | 100            | 1717          | 99             | 17.11        | 35.88               | 248        | 1625        | 370        | 0                | 73.8        |
| BTS 8798                                | 223        | 327.0         | 103            | 10814         | 94             | 1.08          | 50.56         | 105            | 1651          | 95             | 17.48        | 33.52               | 198        | 1495        | 367        | 0                | 77.0        |
| Crystal 573RR                           | 225        | 327.6         | 103            | 11619         | 101            | 1.11          | 50.73         | 106            | 1788          | 103            | 17.48        | 35.64               | 233        | 1513        | 370        | 0                | 69.6        |
| Crystal 578RR                           | 220        | 325.1         | 102            | 13422         | 116            | 1.14          | 49.99         | 104            | 2052          | 118            | 17.37        | 41.58               | 256        | 1634        | 351        | 0                | 77.0        |
| Crystal 684RR                           | 239        | 326.1         | 102            | 12696         | 110            | 1.22          | 50.27         | 105            | 1947          | 112            | 17.55        | 39.25               | 253        | 1743        | 395        | 0                | 77.4        |
| Crystal 792RR                           | 218        | 336.1         | 106            | 12143         | 105            | 1.05          | 53.23         | 111            | 1911          | 110            | 17.87        | 36.46               | 179        | 1426        | 369        | 0                | 72.3        |
| Crystal 793RR                           | 246        | 336.9         | 106            | 12357         | 107            | 0.98          | 53.50         | 111            | 1959          | 113            | 17.83        | 36.85               | 185        | 1491        | 296        | 0                | 69.5        |
| Crystal 794RR                           | 208        | 334.7         | 105            | 12475         | 108            | 1.07          | 52.84         | 110            | 1960          | 113            | 17.86        | 37.39               | 205        | 1523        | 348        | 0                | 68.4        |
| Crystal 795RR                           | 215        | 328.3         | 103            | 11423         | 99             | 1.12          | 50.95         | 106            | 1772          | 102            | 17.56        | 34.89               | 245        | 1479        | 381        | 0                | 62.1        |
| Crystal 796RR                           | 238        | 329.7         | 104            | 13349         | 116            | 1.09          | 51.35         | 107            | 2068          | 119            | 17.62        | 40.69               | 204        | 1618        | 344        | 0                | 77.7        |
| Crystal 797RR                           | 201        | 314.9         | 99             | 12664         | 109            | 1.14          | 46.98         | 98             | 1858          | 107            | 16.96        | 40.20               | 322        | 1693        | 325        | 0                | 66.4        |
| Hilleshog HIL9708                       | 222        | 323.0         | 101            | 10732         | 93             | 1.27          | 49.39         | 103            | 1639          | 94             | 17.42        | 33.41               | 323        | 1583        | 440        | 0                | 65.6        |
| Hilleshog HIL9895                       | 209        | 307.0         | 96             | 10408         | 90             | 1.37          | 44.63         | 93             | 1509          | 87             | 16.68        | 33.90               | 313        | 1642        | 500        | 95               | 66.0        |
| Hilleshog HIL9920                       | 203        | 334.3         | 105            | 12466         | 108            | 1.03          | 52.73         | 110            | 1960          | 113            | 17.73        | 37.58               | 209        | 1523        | 319        | 0                | 71.1        |
| Hilleshog HIL9921                       | 204        | 340.6         | 107            | 9500          | 82             | 1.03          | 54.58         | 114            | 1517          | 87             | 18.03        | 28.14               | 226        | 1427        | 331        | 0                | 68.4        |
| Hilleshog HIL9922                       | 231        | 311.1         | 98             | 11103         | 96             | 1.20          | 45.84         | 95             | 1632          | 94             | 16.78        | 35.76               | 272        | 1703        | 378        | 0                | 75.0        |
| Hilleshog HIL9923                       | 243        | 328.8         | 103            | 9493          | 82             | 1.12          | 51.10         | 106            | 1458          | 84             | 17.62        | 29.28               | 263        | 1564        | 364        | 0                | 58.2        |
| Hilleshog HIL9924                       | 237        | 313.2         | 98             | 9689          | 84             | 1.39          | 46.46         | 97             | 1429          | 82             | 17.05        | 31.10               | 276        | 1636        | 531        | 0                | 47.7        |
| Maribo MA504                            | 229        | 329.3         | 103            | 12510         | 108            | 1.20          | 51.22         | 107            | 1936          | 111            | 17.66        | 38.32               | 275        | 1554        | 408        | 0                | 66.8        |
| Maribo MA611                            | 245        | 317.1         | 100            | 11138         | 97             | 1.21          | 47.62         | 99             | 1658          | 95             | 17.07        | 35.46               | 284        | 1663        | 390        | 0                | 67.2        |
| Maribo MA717                            | 232        | 332.6         | 104            | 11139         | 97             | 1.04          | 52.23         | 109            | 1743          | 100            | 17.69        | 33.89               | 203        | 1519        | 324        | 0                | 71.5        |
| Maribo MA718                            | 221        | 309.8         | 97             | 10019         | 87             | 1.13          | 45.47         | 98             | 1465          | 84             | 16.81        | 32.48               |            |             |            |                  |             |

Table 17. 2017 Performance of All RR Varieties - ACSC Official Trial  
St Thomas ND

| Variety @                               | Code | Reo/T<br>lbs. | Rec/T<br>%Bnch | Rec/A<br>lbs. | Rec/A<br>%Bnch | Loss<br>Mol % | Rev/T<br>\$++ | Rev/T<br>%Bnch | Rev/A<br>\$++ | Rev/A<br>%Bnch | Sugar<br>% | Yield<br>T/A | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>per Ac | Emerg.<br>% |
|---|------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|---------------|----------------|------------|--------------|-----------|----------|------------|------------------|-------------|
| <b>Commercial Trial</b>                 |      |               |                |               |                |               |               |                |               |                |            |              |           |          |            |                  |             |
| BTS 80RR52                              | 103  | 306.3         | 100            | 9516          | 103            | 1.16          | 44.35         | 99             | 1378          | 103            | 16.47      | 31.05        | 245       | 1656     | 369        | 0                | 77.3        |
| BTS 8337                                | 116  | 326.6         | 106            | 9537          | 103            | 0.97          | 50.50         | 113            | 1474          | 110            | 17.30      | 29.23        | 185       | 1602     | 259        | 0                | 72.0        |
| BTS 8363                                | 130  | 296.9         | 97             | 9682          | 105            | 1.04          | 41.49         | 93             | 1350          | 101            | 15.88      | 32.66        | 272       | 1546     | 294        | 0                | 78.8        |
| BTS 8500                                | 119  | 306.1         | 100            | 9832          | 107            | 1.03          | 44.28         | 99             | 1424          | 106            | 16.34      | 32.12        | 238       | 1654     | 274        | 0                | 74.7        |
| BTS 8512                                | 109  | 311.0         | 101            | 9640          | 105            | 0.98          | 45.76         | 103            | 1419          | 106            | 16.53      | 31.00        | 215       | 1563     | 266        | 0                | 79.0        |
| BTS 8524                                | 101  | 305.2         | 99             | 9637          | 105            | 0.96          | 44.00         | 99             | 1389          | 104            | 16.22      | 31.59        | 200       | 1720     | 215        | 0                | 79.6        |
| BTS 8572                                | 111  | 319.0         | 104            | 9937          | 108            | 1.00          | 48.20         | 108            | 1498          | 112            | 16.95      | 31.22        | 191       | 1475     | 317        | 0                | 73.3        |
| Crystal 093RR                           | 115  | 326.0         | 106            | 10368         | 112            | 1.01          | 50.32         | 113            | 1598          | 119            | 17.30      | 31.84        | 162       | 1653     | 281        | 0                | 72.3        |
| Crystal 101RR                           | 107  | 301.9         | 98             | 9498          | 103            | 1.08          | 43.01         | 96             | 1353          | 101            | 16.18      | 31.46        | 276       | 1805     | 256        | 0                | 75.4        |
| Crystal 246RR                           | 108  | 299.2         | 97             | 9393          | 102            | 1.01          | 42.18         | 95             | 1324          | 99             | 15.96      | 31.38        | 265       | 1610     | 258        | 0                | 72.6        |
| Crystal 247RR                           | 131  | 298.4         | 97             | 9627          | 104            | 0.98          | 41.96         | 94             | 1352          | 101            | 15.90      | 32.31        | 276       | 1578     | 239        | 0                | 71.7        |
| Crystal 355RR                           | 104  | 307.9         | 100            | 9176          | 100            | 1.11          | 44.83         | 101            | 1334          | 100            | 16.51      | 29.84        | 237       | 1598     | 352        | 0                | 68.4        |
| Crystal 467RR                           | 129  | 303.0         | 99             | 10560         | 115            | 1.02          | 43.34         | 97             | 1509          | 113            | 16.17      | 34.89        | 350       | 1599     | 239        | 0                | 77.9        |
| Crystal 572RR                           | 126  | 336.5         | 110            | 9867          | 107            | 0.88          | 53.49         | 120            | 1568          | 117            | 17.71      | 29.32        | 159       | 1414     | 252        | 0                | 79.9        |
| Crystal 574RR                           | 110  | 303.2         | 99             | 9988          | 108            | 0.98          | 43.41         | 97             | 1429          | 107            | 16.14      | 32.96        | 205       | 1603     | 257        | 0                | 79.1        |
| Crystal 986RR                           | 128  | 314.0         | 102            | 9841          | 107            | 1.00          | 46.68         | 105            | 1464          | 108            | 16.70      | 31.34        | 270       | 1490     | 280        | 0                | 72.0        |
| Hilleshög 4302RR                        | 105  | 312.3         | 102            | 8678          | 94             | 0.94          | 46.17         | 104            | 1285          | 96             | 16.56      | 27.75        | 257       | 1499     | 239        | 0                | 65.8        |
| Hilleshög 4448RR                        | 112  | 314.0         | 102            | 10202         | 111            | 0.96          | 46.67         | 105            | 1515          | 113            | 16.67      | 32.54        | 203       | 1545     | 259        | 0                | 66.4        |
| Hilleshög 9528RR                        | 123  | 320.4         | 104            | 9585          | 104            | 0.94          | 48.60         | 109            | 1449          | 108            | 16.97      | 30.01        | 207       | 1484     | 270        | 0                | 71.5        |
| Hilleshög HIL9707                       | 114  | 306.8         | 100            | 10029         | 109            | 1.02          | 44.51         | 100            | 1453          | 109            | 16.37      | 32.73        | 277       | 1483     | 295        | 0                | 75.8        |
| Maribø 109                              | 122  | 322.5         | 105            | 8074          | 88             | 0.92          | 49.24         | 110            | 1235          | 92             | 17.04      | 25.00        | 190       | 1478     | 254        | 0                | 69.2        |
| Maribø 305                              | 106  | 303.4         | 99             | 9282          | 101            | 0.99          | 43.45         | 97             | 1332          | 100            | 16.16      | 30.56        | 209       | 1597     | 270        | 0                | 60.6        |
| Maribø MA502                            | 121  | 301.6         | 98             | 9820          | 107            | 1.04          | 42.93         | 96             | 1397          | 104            | 16.13      | 32.58        | 320       | 1613     | 265        | 0                | 71.5        |
| SX Avalanche RR(858)                    | 127  | 319.5         | 104            | 9279          | 101            | 0.98          | 48.35         | 108            | 1403          | 105            | 16.87      | 29.08        | 195       | 1502     | 217        | 0                | 70.7        |
| SX Canyon RR                            | 118  | 307.4         | 100            | 9589          | 104            | 0.96          | 44.67         | 100            | 1391          | 104            | 16.33      | 31.24        | 224       | 1558     | 251        | 0                | 66.0        |
| SX Cruze RR                             | 117  | 292.2         | 95             | 9975          | 108            | 1.04          | 40.07         | 90             | 1364          | 102            | 15.64      | 34.20        | 264       | 1564     | 291        | 0                | 81.9        |
| SX Marathon RR(856)                     | 102  | 308.3         | 100            | 10066         | 109            | 0.94          | 44.96         | 101            | 1470          | 110            | 16.36      | 32.60        | 218       | 1541     | 242        | 0                | 67.9        |
| SX Winchester RR                        | 125  | 304.4         | 99             | 8570          | 93             | 0.97          | 43.77         | 98             | 1231          | 92             | 16.19      | 28.17        | 249       | 1574     | 242        | 0                | 61.5        |
| SV RR244TT                              | 120  | 307.9         | 100            | 9396          | 102            | 0.98          | 44.83         | 101            | 1369          | 102            | 16.37      | 30.50        | 218       | 1618     | 245        | 0                | 66.9        |
| SV RR333                                | 124  | 310.4         | 101            | 9882          | 107            | 0.97          | 45.57         | 102            | 1452          | 109            | 16.48      | 31.78        | 204       | 1575     | 257        | 0                | 67.3        |
| SV RR351                                | 113  | 307.5         | 100            | 9590          | 104            | 0.97          | 44.72         | 100            | 1393          | 104            | 16.34      | 31.19        | 230       | 1552     | 256        | 0                | 72.6        |
| RR Filler #01s                          | 132  | 305.3         | 99             | 9754          | 106            | 1.08          | 44.05         | 99             | 1404          | 105            | 16.35      | 32.00        | 279       | 1744     | 274        | 0                | 73.1        |
| RR Filler #01v                          | 133  | 302.9         | 99             | 9836          | 107            | 1.13          | 43.31         | 97             | 1404          | 105            | 16.28      | 32.52        | 294       | 1811     | 291        | 0                | 73.7        |
| <b>Experimental Trial (Comm status)</b> |      |               |                |               |                |               |               |                |               |                |            |              |           |          |            |                  |             |
| BTS 8606                                | 242  | 301.0         | 98             | 10022         | 109            | 1.11          | 42.77         | 96             | 1425          | 107            | 16.16      | 33.25        | 281       | 1678     | 310        | 0                | 80.3        |
| BTS 8629                                | 224  | 304.4         | 99             | 10108         | 110            | 1.01          | 43.80         | 98             | 1459          | 109            | 16.24      | 33.08        | 262       | 1503     | 281        | 0                | 80.8        |
| BTS 8735                                | 234  | 307.1         | 100            | 9017          | 98             | 1.02          | 44.62         | 100            | 1302          | 97             | 16.40      | 29.41        | 233       | 1493     | 319        | 0                | 72.7        |
| BTS 8742                                | 207  | 310.5         | 101            | 8851          | 96             | 1.15          | 45.58         | 102            | 1297          | 97             | 16.66      | 28.45        | 268       | 1665     | 362        | 0                | 62.4        |
| BTS 8749                                | 202  | 305.3         | 99             | 10144         | 110            | 1.06          | 44.05         | 99             | 1463          | 109            | 16.34      | 33.22        | 260       | 1721     | 281        | 0                | 68.5        |
| BTS 8756                                | 241  | 313.8         | 102            | 8911          | 97             | 1.18          | 46.59         | 104            | 1314          | 98             | 16.87      | 28.57        | 254       | 1665     | 377        | 0                | 78.1        |
| BTS 8767                                | 235  | 310.6         | 101            | 11021         | 120            | 1.03          | 45.63         | 102            | 1623          | 121            | 16.58      | 35.34        | 229       | 1646     | 282        | 0                | 84.3        |
| BTS 8770                                | 247  | 304.2         | 99             | 9306          | 101            | 1.10          | 43.73         | 98             | 1330          | 99             | 16.31      | 30.68        | 290       | 1759     | 285        | 0                | 71.7        |
| BTS 8784                                | 236  | 329.5         | 107            | 9371          | 102            | 0.97          | 51.25         | 115            | 1457          | 109            | 17.46      | 28.47        | 155       | 1476     | 303        | 0                | 71.4        |
| BTS 8787                                | 219  | 304.8         | 99             | 9810          | 106            | 1.06          | 43.89         | 98             | 1413          | 106            | 16.31      | 32.20        | 260       | 1666     | 296        | 0                | 66.8        |
| BTS 8798                                | 223  | 313.4         | 102            | 9759          | 106            | 0.95          | 46.48         | 104            | 1445          | 108            | 16.63      | 31.16        | 165       | 1486     | 282        | 0                | 76.1        |
| Crystal 573RR                           | 225  | 315.6         | 103            | 9714          | 105            | 0.97          | 47.12         | 106            | 1446          | 108            | 16.76      | 30.73        | 194       | 1514     | 278        | 0                | 66.8        |
| Crystal 578RR                           | 220  | 302.2         | 98             | 10312         | 112            | 1.10          | 43.16         | 97             | 1477          | 110            | 16.22      | 34.00        | 276       | 1659     | 312        | 0                | 78.9        |
| Crystal 684RR                           | 239  | 302.8         | 99             | 10555         | 115            | 1.11          | 43.33         | 97             | 1506          | 113            | 16.25      | 34.97        | 281       | 1698     | 304        | 0                | 75.8        |
| Crystal 792RR                           | 218  | 322.7         | 105            | 9730          | 106            | 0.98          | 49.24         | 110            | 1481          | 111            | 17.14      | 30.22        | 168       | 1513     | 300        | 0                | 76.4        |
| Crystal 793RR                           | 246  | 329.0         | 107            | 10087         | 109            | 0.94          | 51.11         | 115            | 1565          | 117            | 17.41      | 30.77        | 181       | 1452     | 265        | 0                | 68.4        |
| Crystal 794RR                           | 208  | 310.0         | 101            | 10473         | 114            | 1.01          | 45.45         | 102            | 1539          | 115            | 16.53      | 33.65        | 253       | 1576     | 273        | 0                | 64.1        |
| Crystal 795RR                           | 215  | 316.0         | 103            | 9542          | 103            | 1.04          | 47.22         | 106            | 1422          | 106            | 16.85      | 30.13        | 220       | 1632     | 297        | 0                | 68.6        |
| Crystal 796RR                           | 238  | 311.2         | 101            | 10972         | 119            | 1.01          | 45.78         | 103            | 1625          | 121            | 16.59      | 34.94        | 238       | 1694     | 252        | 0                | 79.5        |
| Crystal 797RR                           | 201  | 303.9         | 99             | 9322          | 101            | 1.10          | 43.64         | 98             | 1339          | 100            | 16.29      | 30.72        | 296       | 1738     | 285        | 0                | 66.5        |
| Hilleshög HIL9708                       | 222  | 319.2         | 104            | 9195          | 100            | 0.97          | 48.18         | 108            | 1384          | 103            | 16.94      | 28.94        | 226       | 1461     | 288        | 0                | 62.0        |
| Hilleshög HIL9895                       | 209  | 302.1         | 98             | 9542          | 104            | 0.99          | 43.11         | 97             | 1360          | 102            | 16.11      | 31.54        | 233       | 1601     | 256        | 0                | 67.4        |
| Hilleshög HIL9920                       | 203  | 324.1         | 106            | 10065         | 109            | 1.00          | 49.64         | 111            | 1538          | 115            | 17.23      | 31.10        | 235       | 1767     | 230        | 0                | 66.0        |
| Hilleshög HIL9921                       | 204  | 319.2         | 104            | 8292          | 90             | 0.99          | 48.19         | 108            | 1244          | 93             | 16.97      | 26.05        | 222       | 1493     | 297        | 0                | 71.8        |
| Hilleshög HIL9922                       | 231  | 299.7         | 98             | 9848          | 107            | 1.09          | 42.38         | 95             | 1395          | 104            | 16.07      | 32.79        | 259       | 1693     | 295        | 0                | 78.4        |
| Hilleshög HIL9923                       | 243  | 310.1         | 101            | 8199          | 89             | 1.19          | 45.47         | 102            | 1202          | 90             | 16.69      | 26.49        | 294       | 1652     | 376        | 0                | 56.5        |
| Hilleshög HIL9924                       | 237  | 302.8         | 98             | 6541          | 71             | 1.22          | 43.14         | 97             | 921           | 69             | 16.34      | 21.72        | 281       | 1684     | 408        | 0                | 50.2        |
| Maribø MA504                            | 229  | 308.4         | 100            | 10501         | 114            | 1.07          | 44.99         | 101            | 1536          | 115            | 16.31      | 33.89        | 210       | 1474     | 215        | 0                | 68.6        |
| Maribø MA611                            | 245  | 299.7         | 98             | 9137          | 99             | 1.05          | 42.95         | 95             | 1288          | 96             | 16.04      | 30.68        | 273       | 1600     | 286        | 0                | 75.5        |
| Maribø MA717                            | 232  | 320.2         | 104            | 9161          | 99             | 0.99          | 48.48         | 109            | 1388          | 104            | 17.01      | 28.66        | 202       | 1452     | 310        | 0                | 71.4        |
| Maribø MA718                            | 221  | 295.7         | 96             | 8616          | 93             | 1.18          | 41.20         | 92             | 1201          | 90             | 15.95      | 29.16        | 347       | 1706     | 337        | 0                | 53.9        |
| Maribø MA719                            | 213  | 315.4         | 103            | 9579          | 104            | 1.17</td      |               |                |               |                |            |              |           |          |            |                  |             |

Table 18. 2017 Performance of All RR Varieties - ACSC Official Trial  
Bathgate ND

| Variety @                               | Code | Reo/T lbs. | Rec/T %Bnch | Rec/A lbs. | Rec/A %Bnch | Loss Mol % | Rev/T \$++ | Rev/T %Bnch | Rev/A \$++ | Rev/A %Bnch | Sugar % | Yield T/A | Na ppm | K ppm | AmN ppm | Bolter per Ac | Emerg. % |
|---|------|------------|-------------|------------|-------------|------------|------------|-------------|------------|-------------|---------|-----------|--------|-------|---------|---------------|----------|
| <b>Commercial Trial</b>                 |      |            |             |            |             |            |            |             |            |             |         |           |        |       |         |               |          |
| BTS 80RR52                              | 103  | 357.2      | 100         | 8690       | 92          | 0.96       | 59.77      | 100         | 1454       | 93          | 18.82   | 24.35     | 142    | 1725  | 233     | 0             | 95.4     |
| BTS 8337                                | 116  | 365.4      | 102         | 10117      | 107         | 0.87       | 62.22      | 104         | 1726       | 110         | 19.13   | 27.72     | 132    | 1657  | 186     | 0             | 97.5     |
| BTS 8363                                | 130  | 346.8      | 97          | 10163      | 108         | 0.89       | 56.62      | 95          | 1654       | 105         | 18.23   | 29.35     | 151    | 1666  | 198     | 0             | 97.7     |
| BTS 8500                                | 119  | 355.6      | 100         | 10477      | 111         | 0.90       | 59.26      | 99          | 1752       | 112         | 18.68   | 29.37     | 142    | 1664  | 207     | 0             | 97.0     |
| BTS 8512                                | 109  | 360.2      | 101         | 9697       | 103         | 0.91       | 60.65      | 102         | 1636       | 104         | 18.92   | 26.79     | 133    | 1660  | 213     | 0             | 97.8     |
| BTS 8524                                | 101  | 348.8      | 98          | 10381      | 110         | 0.94       | 57.21      | 96          | 1714       | 109         | 18.38   | 29.53     | 151    | 1806  | 196     | 0             | 98.8     |
| BTS 8572                                | 111  | 360.5      | 101         | 9419       | 100         | 0.86       | 60.77      | 102         | 1589       | 101         | 18.88   | 26.06     | 136    | 1542  | 203     | 0             | 94.5     |
| Crystal 093RR                           | 115  | 363.2      | 102         | 10585      | 112         | 0.89       | 61.56      | 103         | 1805       | 115         | 19.05   | 28.95     | 125    | 1572  | 226     | 0             | 96.2     |
| Crystal 101RR                           | 107  | 348.9      | 98          | 10592      | 113         | 0.98       | 57.23      | 96          | 1733       | 110         | 18.42   | 30.50     | 191    | 1829  | 204     | 0             | 96.4     |
| Crystal 246RR                           | 108  | 349.5      | 98          | 10093      | 107         | 0.87       | 57.41      | 96          | 1656       | 106         | 18.33   | 28.92     | 157    | 1574  | 190     | 0             | 95.8     |
| Crystal 247RR                           | 131  | 346.7      | 97          | 9605       | 102         | 0.86       | 56.58      | 95          | 1572       | 100         | 18.20   | 27.57     | 151    | 1677  | 171     | 32            | 95.2     |
| Crystal 355RR                           | 104  | 362.4      | 102         | 7872       | 84          | 0.94       | 61.34      | 103         | 1327       | 85          | 19.07   | 21.85     | 142    | 1665  | 235     | 0             | 95.9     |
| Crystal 467RR                           | 129  | 349.8      | 98          | 9703       | 103         | 0.91       | 57.51      | 96          | 1587       | 101         | 18.40   | 27.87     | 208    | 1719  | 177     | 0             | 95.7     |
| Crystal 572RR                           | 126  | 374.4      | 105         | 9922       | 105         | 0.81       | 64.96      | 109         | 1718       | 110         | 19.53   | 26.56     | 121    | 1488  | 190     | 0             | 98.3     |
| Crystal 574RR                           | 110  | 358.4      | 100         | 10388      | 110         | 0.90       | 60.12      | 101         | 1737       | 111         | 18.82   | 29.11     | 138    | 1630  | 212     | 0             | 96.1     |
| Crystal 986RR                           | 128  | 365.8      | 103         | 10692      | 114         | 0.84       | 62.36      | 105         | 1832       | 117         | 19.13   | 29.08     | 153    | 1521  | 197     | 0             | 98.1     |
| Hilleshög 4302RR                        | 105  | 358.5      | 100         | 10492      | 111         | 0.86       | 60.16      | 101         | 1760       | 112         | 18.78   | 29.31     | 137    | 1657  | 178     | 0             | 93.1     |
| Hilleshög 444RR                         | 112  | 350.4      | 98          | 11531      | 123         | 0.86       | 57.70      | 97          | 1898       | 121         | 18.38   | 32.86     | 148    | 1601  | 192     | 0             | 94.8     |
| Hilleshög 9528RR                        | 123  | 357.2      | 100         | 11312      | 120         | 0.86       | 59.75      | 100         | 1895       | 121         | 18.72   | 31.67     | 148    | 1584  | 186     | 32            | 96.3     |
| Hilleshög HIL9707                       | 114  | 347.1      | 97          | 11076      | 118         | 0.91       | 56.70      | 95          | 1809       | 115         | 18.27   | 31.91     | 156    | 1710  | 197     | 0             | 96.7     |
| Maribo 109                              | 122  | 366.0      | 103         | 9431       | 100         | 0.90       | 62.41      | 105         | 1607       | 102         | 19.20   | 25.81     | 148    | 1580  | 225     | 0             | 93.3     |
| Maribo 305                              | 106  | 355.0      | 100         | 11777      | 125         | 0.80       | 59.08      | 99          | 1957       | 125         | 18.55   | 33.22     | 143    | 1469  | 181     | 0             | 96.1     |
| Maribo MA502                            | 121  | 353.7      | 99          | 9869       | 105         | 0.93       | 58.70      | 98          | 1624       | 104         | 18.62   | 28.21     | 197    | 1735  | 193     | 0             | 94.9     |
| SX Avalanche RR(858)                    | 127  | 363.1      | 102         | 9740       | 103         | 0.83       | 61.55      | 103         | 1651       | 105         | 18.98   | 26.81     | 135    | 1564  | 177     | 0             | 93.4     |
| SX Canyon RR                            | 118  | 355.5      | 100         | 10787      | 115         | 0.81       | 59.23      | 99          | 1799       | 115         | 18.58   | 30.28     | 133    | 1535  | 169     | 0             | 95.5     |
| SX Cruze RR                             | 117  | 342.3      | 96          | 10614      | 113         | 0.89       | 55.25      | 93          | 1712       | 109         | 18.00   | 30.98     | 144    | 1580  | 216     | 32            | 93.2     |
| SX Marathon RR(856)                     | 102  | 361.6      | 101         | 10903      | 116         | 0.82       | 61.10      | 102         | 1844       | 118         | 18.90   | 30.13     | 142    | 1555  | 168     | 0             | 93.9     |
| SX Winchester RR                        | 125  | 357.5      | 100         | 9729       | 103         | 0.89       | 59.86      | 100         | 1624       | 104         | 18.77   | 27.26     | 136    | 1615  | 211     | 0             | 95.1     |
| SV RR244TT                              | 120  | 352.5      | 99          | 10968      | 117         | 0.84       | 58.34      | 98          | 1810       | 115         | 18.47   | 31.21     | 149    | 1603  | 170     | 0             | 95.7     |
| SV RR333                                | 124  | 362.1      | 101         | 11322      | 120         | 0.83       | 61.24      | 103         | 1909       | 122         | 18.93   | 31.37     | 130    | 1588  | 176     | 0             | 95.3     |
| SV RR351                                | 113  | 355.5      | 100         | 10591      | 113         | 0.86       | 59.24      | 99          | 1762       | 112         | 18.63   | 29.92     | 165    | 1562  | 189     | 0             | 97.6     |
| RR Filler #01s                          | 132  | 355.6      | 100         | 10528      | 112         | 0.91       | 59.27      | 99          | 1752       | 112         | 18.68   | 29.69     | 165    | 1773  | 175     | 0             | 97.7     |
| RR Filler #01v                          | 133  | 356.8      | 100         | 11083      | 118         | 0.91       | 59.62      | 100         | 1856       | 118         | 18.75   | 30.98     | 160    | 1759  | 181     | 0             | 98.3     |
| <b>Experimental Trial (Comm status)</b> |      |            |             |            |             |            |            |             |            |             |         |           |        |       |         |               |          |
| BTS 8606                                | 242  | 363.0      | 102         | 10652      | 113         | 0.87       | 61.49      | 103         | 1790       | 114         | 19.02   | 29.65     | 140    | 1684  | 168     | 0             | 85.9     |
| BTS 8629                                | 224  | 346.0      | 97          | 9958       | 106         | 0.82       | 56.42      | 95          | 1611       | 103         | 18.13   | 29.02     | 131    | 1566  | 171     | 0             | 91.2     |
| BTS 8735                                | 234  | 352.5      | 99          | 9481       | 101         | 0.85       | 58.37      | 98          | 1569       | 100         | 18.49   | 27.00     | 147    | 1560  | 193     | 0             | 94.4     |
| BTS 8742                                | 207  | 356.6      | 100         | 8502       | 90          | 0.95       | 59.56      | 100         | 1407       | 90          | 18.76   | 24.07     | 140    | 1716  | 225     | 0             | 98.1     |
| BTS 8749                                | 202  | 350.9      | 98          | 8916       | 95          | 0.92       | 57.89      | 97          | 1465       | 93          | 18.47   | 25.64     | 151    | 1776  | 183     | 0             | 93.7     |
| BTS 8756                                | 241  | 361.4      | 101         | 9315       | 99          | 1.00       | 61.03      | 102         | 1567       | 100         | 19.07   | 26.03     | 161    | 1800  | 233     | 0             | 93.9     |
| BTS 8767                                | 235  | 346.7      | 97          | 9241       | 98          | 0.87       | 56.63      | 95          | 1485       | 95          | 18.21   | 27.33     | 133    | 1732  | 166     | 0             | 94.9     |
| BTS 8770                                | 247  | 353.4      | 99          | 9071       | 96          | 0.88       | 58.64      | 98          | 1504       | 96          | 18.57   | 25.83     | 129    | 1758  | 165     | 0             | 90.6     |
| BTS 8784                                | 236  | 367.2      | 103         | 8910       | 95          | 0.86       | 62.72      | 105         | 1507       | 96          | 19.22   | 24.51     | 141    | 1565  | 196     | 0             | 90.8     |
| BTS 8787                                | 219  | 350.5      | 98          | 9278       | 99          | 0.97       | 57.76      | 97          | 1523       | 97          | 18.49   | 26.61     | 157    | 1698  | 248     | 0             | 88.5     |
| BTS 8798                                | 223  | 354.9      | 99          | 8040       | 85          | 0.85       | 59.06      | 99          | 1324       | 84          | 18.60   | 23.15     | 118    | 1588  | 191     | 0             | 94.2     |
| Crystal 573RR                           | 225  | 355.4      | 100         | 8501       | 90          | 0.85       | 59.22      | 99          | 1399       | 89          | 18.62   | 24.15     | 124    | 1583  | 188     | 0             | 89.6     |
| Crystal 578RR                           | 220  | 353.3      | 99          | 9700       | 103         | 0.84       | 58.61      | 98          | 1583       | 101         | 18.52   | 28.02     | 142    | 1652  | 160     | 0             | 90.8     |
| Crystal 684RR                           | 239  | 345.8      | 97          | 9622       | 102         | 0.97       | 56.36      | 95          | 1577       | 101         | 18.26   | 27.72     | 155    | 1797  | 215     | 0             | 90.1     |
| Crystal 792RR                           | 218  | 361.1      | 101         | 9161       | 97          | 0.93       | 60.90      | 102         | 1539       | 98          | 18.98   | 25.58     | 169    | 1616  | 228     | 0             | 89.6     |
| Crystal 793RR                           | 246  | 359.2      | 101         | 9689       | 103         | 0.86       | 60.36      | 101         | 1623       | 103         | 18.83   | 27.29     | 137    | 1638  | 183     | 126           | 94.1     |
| Crystal 794RR                           | 208  | 355.8      | 100         | 10392      | 110         | 0.89       | 59.34      | 100         | 1721       | 110         | 18.68   | 29.51     | 132    | 1645  | 202     | 0             | 91.6     |
| Crystal 795RR                           | 215  | 364.0      | 102         | 8773       | 93          | 0.89       | 61.78      | 104         | 1471       | 94          | 19.08   | 24.53     | 134    | 1610  | 209     | 0             | 91.8     |
| Crystal 796RR                           | 238  | 356.4      | 100         | 10312      | 110         | 0.86       | 59.51      | 100         | 1725       | 110         | 18.69   | 29.15     | 137    | 1661  | 173     | 0             | 93.8     |
| Crystal 797RR                           | 201  | 353.3      | 99          | 10600      | 107         | 0.87       | 58.62      | 98          | 1661       | 106         | 18.54   | 28.64     | 141    | 1772  | 147     | 0             | 84.2     |
| Hilleshög HIL9708                       | 222  | 364.8      | 102         | 9972       | 106         | 0.88       | 62.01      | 104         | 1689       | 108         | 19.12   | 27.39     | 149    | 1598  | 200     | 0             | 92.4     |
| Hilleshög HIL9895                       | 209  | 333.9      | 94          | 8429       | 90          | 0.96       | 52.82      | 89          | 1312       | 84          | 17.65   | 25.95     | 161    | 1796  | 205     | 126           | 93.6     |
| Hilleshög HIL9920                       | 203  | 368.4      | 103         | 10002      | 106         | 0.87       | 63.08      | 106         | 1695       | 108         | 19.27   | 27.46     | 137    | 1638  | 184     | 0             | 88.7     |
| Hilleshög HIL9921                       | 204  | 368.9      | 103         | 8655       | 92          | 0.93       | 63.24      | 106         | 1481       | 94          | 19.37   | 23.57     | 137    | 1667  | 223     | 0             | 92.2     |
| Hilleshög HIL9922                       | 231  | 349.3      | 98          | 8906       | 95          | 0.91       | 57.42      | 96          | 1449       | 92          | 18.38   | 25.78     | 164    | 1680  | 198     | 0             | 91.4     |
| Hilleshög HIL9923                       | 243  | 359.4      | 101         | 9019       | 96          | 0.94       | 60.41      | 101         | 1499       | 96          | 18.92   | 25.54     | 168    | 1721  | 214     | 0             | 81.7     |
| Hilleshög HIL9924                       | 237  | 363.9      | 102         | 8381       | 89          | 0.97       | 61.74      | 104         | 1404       | 90          | 19.16   | 23.48     | 183    | 1625  | 253     | 0             | 82.4     |
| Maribo MA504                            | 229  | 355.0      | 100         | 10574      | 112         | 0.89       | 59.12      | 99          | 1737       | 111         | 18.63   | 30.20     | 185    | 1598  | 192     | 0             | 95.9     |
| Maribo MA611                            | 245  | 349.9      | 98          | 8822       | 94          | 0.89       | 57.59      | 97          | 1443       | 92          | 18.40   | 25.57     | 153    | 1734  | 175     | 0             | 93.6     |
| Maribo MA717                            | 232  | 372.1      | 104         | 10611      | 113         | 0.86       | 64.20      | 108         | 1810       | 115         | 19.45   | 28.86     | 138    | 1603  | 181     | 0             | 89.1     |
| Maribo MA718                            | 221  | 347.5      | 97          | 8134       | 86          | 0.96       | 56.87      | 95          | 1328       | 85          | 18.34   | 23.50     | 182    | 1852  | 187     | 0             | 89.2     |
| Maribo MA719                            | 213  | 346.1      | 97          | 8862       | 94          | 0.97       | 56.46      | 95          | 1438       | 92          | 18.27   | 25.84     | 187    | 1724  | 23      |               |          |

Table 19. 2017 Performance of Conventional Varieties - ACSC Official Trials  
6 sites - All Characters

| *Unadjusted Variety @    | Code | Rec/T lbs. | Rec/T %Mean | Rec/A lbs. | Rec/A %Mean | Loss Mol % | Rev/T \$ ++ | Rev/T %Mean | Rev/A \$ ++ | Rev/A %Mean | Sugar % | Yield T/A | Na ppm | K ppm | AmN ppm | Bolter /Ac | Emerg. % |
|--------------------------|------|------------|-------------|------------|-------------|------------|-------------|-------------|-------------|-------------|---------|-----------|--------|-------|---------|------------|----------|
| BETA EXP 687             | 807  | 345.1      | 102         | 10123      | 100         | 1.22       | 56.11       | 104         | 1633        | 102         | 18.47   | 29.59     | 175    | 1690  | 431     | 0          | 72.4     |
| BETA EXP 698             | 808  | 335.6      | 99          | 10304      | 101         | 1.14       | 53.21       | 99          | 1615        | 101         | 17.92   | 31.10     | 213    | 1659  | 363     | 0          | 75.9     |
| BETA EXP 747             | 810  | 333.5      | 99          | 10556      | 104         | 1.15       | 52.59       | 98          | 1652        | 103         | 17.83   | 31.91     | 241    | 1510  | 405     | 0          | 74.8     |
| BETA EXP 758             | 817  | 337.8      | 100         | 10331      | 102         | 1.13       | 53.88       | 100         | 1638        | 102         | 18.02   | 30.79     | 206    | 1655  | 358     | 0          | 78.1     |
| Crystal 620              | 811  | 338.1      | 100         | 10783      | 106         | 1.15       | 53.96       | 100         | 1706        | 106         | 18.05   | 32.19     | 189    | 1600  | 401     | 0          | 69.4     |
| Crystal 622              | 801  | 340.3      | 101         | 9650       | 95          | 1.25       | 54.64       | 102         | 1532        | 95          | 18.26   | 28.72     | 201    | 1681  | 444     | 0          | 66.4     |
| Crystal 735              | 814  | 351.8      | 104         | 9832       | 97          | 1.09       | 58.13       | 108         | 1616        | 101         | 18.69   | 28.12     | 159    | 1535  | 382     | 0          | 67.8     |
| Crystal 737              | 806  | 336.8      | 100         | 9878       | 97          | 1.25       | 53.57       | 100         | 1555        | 97          | 18.09   | 29.65     | 240    | 1680  | 436     | 0          | 69.4     |
| Crystal R761             | 819  | 328.7      | 97          | 10896      | 107         | 1.28       | 51.12       | 95          | 1691        | 105         | 17.72   | 33.22     | 247    | 1813  | 422     | 0          | 74.1     |
| Hilleshög 3035Rz         | 805  | 339.3      | 101         | 9182       | 90          | 1.21       | 54.33       | 101         | 1457        | 91          | 18.17   | 27.34     | 202    | 1625  | 429     | 18         | 80.4     |
| Hilleshög 9891Rz         | 812  | 341.3      | 101         | 9268       | 91          | 1.19       | 54.95       | 102         | 1481        | 92          | 18.26   | 27.37     | 178    | 1637  | 425     | 0          | 76.6     |
| Maribo MA615Rz           | 818  | 330.6      | 98          | 10191      | 100         | 1.27       | 51.71       | 96          | 1586        | 99          | 17.80   | 30.98     | 271    | 1709  | 430     | 0          | 80.0     |
| Maribo MA720Rz           | 816  | 342.1      | 101         | 9919       | 98          | 1.13       | 55.19       | 103         | 1586        | 99          | 18.23   | 29.26     | 199    | 1558  | 390     | 0          | 83.6     |
| Seedex 8869              | 809  | 338.4      | 100         | 10942      | 108         | 1.09       | 54.07       | 101         | 1741        | 108         | 18.02   | 32.49     | 197    | 1669  | 333     | 0          | 74.7     |
| Seedex Deuce             | 802  | 337.9      | 100         | 11246      | 111         | 1.10       | 53.90       | 100         | 1790        | 111         | 18.00   | 33.36     | 207    | 1692  | 329     | 18         | 74.8     |
| Strube 12720             | 813  | 329.5      | 98          | 11314      | 111         | 1.11       | 51.36       | 96          | 1753        | 109         | 17.58   | 34.56     | 226    | 1687  | 328     | 0          | 75.0     |
| Strube 13722             | 804  | 326.3      | 97          | 11043      | 109         | 1.15       | 50.40       | 94          | 1696        | 106         | 17.46   | 34.04     | 230    | 1777  | 333     | 0          | 79.2     |
| SV 48611                 | 815  | 343.2      | 102         | 10325      | 102         | 1.13       | 55.52       | 103         | 1669        | 104         | 18.30   | 30.12     | 191    | 1598  | 383     | 0          | 68.9     |
| SV 48777                 | 803  | 349.4      | 104         | 10409      | 103         | 1.02       | 57.39       | 107         | 1701        | 106         | 18.49   | 29.98     | 171    | 1627  | 296     | 0          | 72.0     |
| Crystal 355RR(Check)     | 820  | 338.5      | 100         | 9880       | 97          | 1.24       | 54.10       | 101         | 1563        | 97          | 18.17   | 29.50     | 197    | 1680  | 444     | 0          | 75.5     |
| BTS 80RR52(Check)        | 821  | 334.1      | 99          | 10171      | 100         | 1.24       | 52.77       | 98          | 1590        | 99          | 17.95   | 30.77     | 194    | 1685  | 443     | 0          | 77.6     |
| Crystal 101RR (Check)    | 822  | 330.5      | 98          | 10855      | 107         | 1.28       | 51.68       | 96          | 1689        | 105         | 17.81   | 33.02     | 256    | 1780  | 426     | 0          | 73.1     |
| Hilleshög 4302RR (Check) | 823  | 336.3      | 100         | 9167       | 90          | 1.12       | 53.43       | 99          | 1446        | 90          | 17.94   | 27.45     | 233    | 1636  | 350     | 18         | 60.6     |
| Maribo Ultramono(Filler) | 824  | 330.6      | 98          | 7431       | 73          | 1.28       | 51.72       | 96          | 1152        | 72          | 17.81   | 22.69     | 293    | 1769  | 411     | 0          | 61.2     |
| Benchmark Mean           |      | 334.9      |             | 10018      |             | 1.22       | 53.00       |             | 1572        |             | 17.97   | 30.19     | 220    | 1695  | 416     |            | 71.7     |
| Trial Mean               |      | 337.3      |             | 10154      |             | 1.18       | 53.74       |             | 1606        |             | 18.04   | 30.34     | 213    | 1665  | 391     |            | 73.4     |
| Coeff. of Var. (%)       |      | 2.4        |             | 6.5        |             | 7.2        | 4.5         |             | 7.3         |             | 2.1     | 6.5       | 18.5   | 4.7   | 13.5    |            | 9.9      |
| Mean LSD (0.05)          |      | 7.2        |             | 718        |             | 0.08       | 2.18        |             | 128         |             | 0.34    | 2.06      | 35     | 59    | 50      |            | 5.7      |
| Mean LSD (0.01)          |      | 9.5        |             | 949        |             | 0.10       | 2.89        |             | 169         |             | 0.45    | 2.72      | 46     | 77    | 66      |            | 7.5      |
| Sig Lvl                  |      | **         |             | **         |             | **         | **          |             | **          |             | **      | **        | **     | **    | **      | **         | **       |

\*Actual data output without adjustment factor.

Created 11/01/2017

Trial # = 17ACSCnv

%Mean = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$48.49 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Table 20. 2017 Performance of Conventional Varieties - ACSC Official Trials  
Casselton ND - All Characters

| *Unadjusted<br>Variety @ | Code | Rec/T<br>lbs. | Rec/T<br>%Mean | Rec/A<br>lbs. | Rec/A<br>%Mean | Loss<br>Mol % | Rev/T<br>\$ ++ | Rev/T<br>%Mean | Rev/A<br>\$ ++ | Rev/A<br>%Mean | Sugar<br>% | Yield<br>T/A | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>/Ac | Emerg.<br>% |
|--------------------------|------|---------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|------------|--------------|-----------|----------|------------|---------------|-------------|
| BETA EXP 687             | 807  | 349.9         | 102            | 8737          | 108            | 1.54          | 57.53          | 103            | 1438           | 110            | 19.02      | 24.91        | 157       | 2105     | 576        | 0             | 73.3        |
| BETA EXP 698             | 808  | 351.0         | 102            | 7696          | 95             | 1.30          | 57.89          | 104            | 1273           | 97             | 18.84      | 21.83        | 175       | 2071     | 399        | 0             | 82.8        |
| BETA EXP 747             | 810  | 343.3         | 100            | 8004          | 99             | 1.33          | 55.53          | 99             | 1297           | 99             | 18.50      | 23.28        | 183       | 1999     | 435        | 0             | 75.9        |
| BETA EXP 758             | 817  | 344.2         | 100            | 7397          | 92             | 1.49          | 55.81          | 100            | 1198           | 92             | 18.71      | 21.50        | 199       | 2109     | 519        | 0             | 74.7        |
| Crystal 620              | 811  | 348.5         | 101            | 8412          | 104            | 1.42          | 57.13          | 102            | 1378           | 105            | 18.84      | 24.16        | 161       | 2018     | 506        | 0             | 64.6        |
| Crystal 622              | 801  | 355.8         | 103            | 8361          | 104            | 1.43          | 59.34          | 106            | 1396           | 107            | 19.23      | 23.49        | 145       | 2071     | 512        | 0             | 69.4        |
| Crystal 735              | 814  | 356.0         | 103            | 7362          | 91             | 1.32          | 59.40          | 106            | 1226           | 94             | 19.12      | 20.70        | 135       | 1910     | 468        | 0             | 67.5        |
| Crystal 737              | 806  | 348.9         | 101            | 8279          | 103            | 1.38          | 57.25          | 103            | 1358           | 104            | 18.83      | 23.76        | 196       | 2117     | 433        | 0             | 73.3        |
| Crystal R761             | 819  | 327.2         | 95             | 8294          | 103            | 1.53          | 50.66          | 91             | 1288           | 98             | 17.88      | 25.26        | 215       | 2242     | 514        | 0             | 74.5        |
| Hilleshög 3035Rz         | 805  | 345.6         | 100            | 7217          | 89             | 1.45          | 56.23          | 101            | 1177           | 90             | 18.72      | 20.88        | 166       | 2080     | 508        | 0             | 75.5        |
| Hilleshög 9891Rz         | 812  | 343.8         | 100            | 7857          | 97             | 1.39          | 55.71          | 100            | 1273           | 97             | 18.59      | 22.85        | 160       | 2043     | 479        | 0             | 73.3        |
| Maribo MA615Rz           | 818  | 328.9         | 96             | 7698          | 95             | 1.60          | 51.19          | 92             | 1200           | 92             | 18.04      | 23.35        | 240       | 2210     | 565        | 0             | 82.9        |
| Maribo MA720Rz           | 816  | 354.0         | 103            | 7915          | 98             | 1.32          | 58.79          | 105            | 1312           | 100            | 19.04      | 22.43        | 144       | 1996     | 445        | 0             | 81.2        |
| Seedex 8869              | 809  | 344.7         | 100            | 9405          | 116            | 1.44          | 55.96          | 100            | 1527           | 117            | 18.68      | 27.30        | 168       | 2184     | 477        | 0             | 78.7        |
| Seedex Deuce             | 802  | 341.3         | 99             | 8644          | 107            | 1.40          | 54.93          | 98             | 1392           | 106            | 18.47      | 25.31        | 159       | 2205     | 441        | 0             | 77.3        |
| Strube 12720             | 813  | 335.6         | 98             | 8936          | 111            | 1.44          | 53.20          | 95             | 1421           | 109            | 18.21      | 26.53        | 172       | 2152     | 475        | 0             | 72.8        |
| Strube 13722             | 804  | 340.4         | 99             | 10491         | 130            | 1.37          | 54.66          | 98             | 1685           | 129            | 18.38      | 30.81        | 170       | 2198     | 416        | 0             | 70.6        |
| SV 48611                 | 815  | 349.5         | 102            | 8355          | 103            | 1.36          | 57.43          | 103            | 1372           | 105            | 18.84      | 23.89        | 140       | 2047     | 462        | 0             | 71.8        |
| SV 48777                 | 803  | 352.1         | 102            | 8521          | 106            | 1.24          | 58.21          | 104            | 1407           | 107            | 18.83      | 24.20        | 154       | 2092     | 347        | 0             | 68.1        |
| Crystal 355RR(Check)     | 820  | 352.9         | 103            | 7070          | 88             | 1.37          | 58.46          | 105            | 1174           | 90             | 19.01      | 19.98        | 162       | 2076     | 456        | 0             | 72.2        |
| BTS 80RR52(Check)        | 821  | 343.2         | 100            | 7596          | 94             | 1.50          | 55.53          | 99             | 1228           | 94             | 18.67      | 22.15        | 159       | 2182     | 527        | 0             | 73.0        |
| Crystal 101RR (Check)    | 822  | 323.6         | 94             | 8275          | 102            | 1.62          | 49.58          | 89             | 1266           | 97             | 17.82      | 25.60        | 230       | 2270     | 570        | 0             | 72.3        |
| Hilleshög 4302RR (Check) | 823  | 341.0         | 99             | 6938          | 86             | 1.34          | 54.85          | 98             | 1112           | 85             | 18.41      | 20.48        | 177       | 2086     | 421        | 0             | 52.5        |
| Maribo Ultramono(Filler) | 824  | 340.3         | 99             | 6319          | 78             | 1.57          | 54.63          | 98             | 1013           | 77             | 18.58      | 18.62        | 260       | 2152     | 546        | 0             | 54.1        |
| Benchmark Mean           |      | 340.2         |                | 7470          |                | 1.46          | 54.61          |                | 1195           |                | 18.48      | 22.05        | 182       | 2154     | 494        |               | 67.5        |
| Trial Mean               |      | 344.2         |                | 8074          |                | 1.42          | 55.83          |                | 1309           |                | 18.64      | 23.47        | 176       | 2109     | 479        |               | 72.2        |
| Coeff. of Var. (%)       |      | 2.1           |                | 6.2           |                | 5.7           | 4.0            |                | 6.9            |                | 1.8        | 5.9          | 12.5      | 2.3      | 11.3       |               | 7.9         |
| Mean LSD (0.05)          |      | 11.2          |                | 795           |                | 0.12          | 3.40           |                | 144            |                | 0.51       | 2.20         | 31        | 75       | 82         |               | 8.3         |
| Mean LSD (0.01)          |      | 14.9          |                | 1059          |                | 0.16          | 4.52           |                | 192            |                | 0.68       | 2.93         | 41        | 99       | 110        |               | 11.0        |
| Sig Lvl                  |      | **            |                | **            |                | **            | **             |                | **             |                | **         | **           | **        | **       | **         |               | **          |

\*Actual data output without adjustment factor.

%Mean = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$48.49 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 10/31/2017

Trial # = 178201

Table 21. 2017 Performance of Conventional Varieties - ACSC Official Trials  
Hendrum MN - All Characters

| *Unadjusted<br>Variety @ | Code | Rec/T<br>lbs. | Rec/T<br>%Mean | Rec/A<br>lbs. | Rec/A<br>%Mean | Loss<br>Mol % | Rev/T<br>\$ ++ | Rev/T<br>%Mean | Rev/A<br>\$ ++ | Rev/A<br>%Mean | Sugar<br>% | Yield<br>T/A | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>/Ac | Emerg.<br>% |
|--------------------------|------|---------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|------------|--------------|-----------|----------|------------|---------------|-------------|
| BETA EXP 687             | 807  | 324.4         | 101            | 11587         | 102            | 1.31          | 49.82          | 101            | 1780           | 103            | 17.54      | 35.74        | 188       | 1414     | 573        | 0             | 62.2        |
| BETA EXP 698             | 808  | 317.6         | 99             | 11707         | 103            | 1.29          | 47.77          | 97             | 1757           | 102            | 17.17      | 36.96        | 274       | 1325     | 546        | 0             | 62.8        |
| BETA EXP 747             | 810  | 317.0         | 98             | 11787         | 104            | 1.34          | 47.59          | 97             | 1770           | 102            | 17.20      | 37.18        | 312       | 1202     | 602        | 0             | 57.9        |
| BETA EXP 758             | 817  | 320.9         | 100            | 11893         | 105            | 1.19          | 48.76          | 99             | 1816           | 105            | 17.24      | 36.89        | 195       | 1383     | 482        | 0             | 73.9        |
| Crystal 620              | 811  | 320.1         | 99             | 11628         | 102            | 1.30          | 48.52          | 99             | 1762           | 102            | 17.32      | 36.40        | 222       | 1335     | 577        | 0             | 56.6        |
| Crystal 622              | 801  | 319.7         | 99             | 10612         | 93             | 1.37          | 48.40          | 99             | 1599           | 92             | 17.34      | 33.34        | 209       | 1380     | 618        | 0             | 59.2        |
| Crystal 735              | 814  | 339.2         | 105            | 10440         | 92             | 1.27          | 54.31          | 111            | 1671           | 97             | 18.24      | 30.81        | 200       | 1328     | 560        | 0             | 56.7        |
| Crystal 737              | 806  | 312.4         | 97             | 10862         | 96             | 1.41          | 46.19          | 94             | 1598           | 92             | 17.03      | 34.95        | 340       | 1316     | 617        | 0             | 60.1        |
| Crystal R761             | 819  | 320.4         | 100            | 11495         | 101            | 1.36          | 48.61          | 99             | 1746           | 101            | 17.38      | 35.82        | 253       | 1496     | 567        | 0             | 64.6        |
| Hilleshög 3035Rz         | 805  | 323.1         | 100            | 10186         | 90             | 1.40          | 49.43          | 101            | 1562           | 90             | 17.56      | 31.49        | 229       | 1354     | 640        | 95            | 77.9        |
| Hilleshög 9891Rz         | 812  | 327.1         | 102            | 10120         | 89             | 1.32          | 50.65          | 103            | 1566           | 91             | 17.68      | 31.01        | 181       | 1346     | 599        | 0             | 74.6        |
| Maribo MA615Rz           | 818  | 316.0         | 98             | 11507         | 101            | 1.31          | 47.28          | 96             | 1718           | 99             | 17.11      | 36.44        | 319       | 1365     | 533        | 0             | 79.6        |
| Maribo MA720Rz           | 816  | 322.0         | 100            | 10803         | 95             | 1.20          | 49.09          | 100            | 1649           | 95             | 17.30      | 33.51        | 246       | 1178     | 527        | 0             | 87.8        |
| Seedex 8869              | 809  | 333.3         | 104            | 12467         | 110            | 1.11          | 52.51          | 107            | 1960           | 113            | 17.76      | 37.45        | 189       | 1306     | 440        | 0             | 74.4        |
| Seedex Deuce             | 802  | 332.9         | 103            | 12261         | 108            | 1.12          | 52.39          | 107            | 1933           | 112            | 17.77      | 36.78        | 180       | 1402     | 431        | 0             | 74.9        |
| Strube 12720             | 813  | 313.7         | 97             | 12729         | 112            | 1.20          | 46.59          | 95             | 1889           | 109            | 16.89      | 40.56        | 287       | 1461     | 440        | 0             | 75.1        |
| Strube 13722             | 804  | 312.8         | 97             | 12459         | 110            | 1.25          | 46.30          | 94             | 1842           | 107            | 16.88      | 39.84        | 261       | 1521     | 467        | 0             | 80.7        |
| SV 48611                 | 815  | 333.9         | 104            | 10676         | 94             | 1.24          | 52.69          | 107            | 1691           | 98             | 17.93      | 31.84        | 197       | 1315     | 537        | 0             | 67.8        |
| SV 48777                 | 803  | 335.6         | 104            | 11728         | 103            | 1.07          | 53.22          | 108            | 1860           | 108            | 17.85      | 34.92        | 180       | 1376     | 396        | 0             | 75.8        |
| Crystal 355RR(Check)     | 820  | 313.4         | 97             | 12059         | 106            | 1.44          | 46.50          | 95             | 1790           | 104            | 17.12      | 38.51        | 254       | 1406     | 651        | 0             | 72.6        |
| BTS 80RR52(Check)        | 821  | 309.3         | 96             | 11950         | 105            | 1.49          | 45.26          | 92             | 1747           | 101            | 16.96      | 38.61        | 258       | 1364     | 695        | 0             | 74.2        |
| Crystal 101RR (Check)    | 822  | 319.7         | 99             | 12145         | 107            | 1.41          | 48.40          | 99             | 1835           | 106            | 17.38      | 37.98        | 312       | 1497     | 581        | 0             | 73.4        |
| Hilleshög 4302RR (Check) | 823  | 320.6         | 100            | 10795         | 95             | 1.29          | 48.69          | 99             | 1636           | 95             | 17.32      | 33.69        | 274       | 1400     | 530        | 0             | 66.9        |
| Maribo Ultramono(Filler) | 824  | 322.1         | 100            | 8682          | 76             | 1.37          | 49.13          | 100            | 1327           | 77             | 17.48      | 26.95        | 321       | 1498     | 549        | 0             | 50.7        |
| Benchmark Mean           |      | 315.8         |                | 11737         |                | 1.41          | 47.21          |                | 1752           |                | 17.20      | 37.20        | 274       | 1417     | 614        |               | 71.8        |
| Trial Mean               |      | 322.0         |                | 11357         |                | 1.30          | 49.09          |                | 1729           |                | 17.39      | 35.32        | 245       | 1374     | 548        |               | 69.2        |
| Coeff. of Var. (%)       |      | 2.8           |                | 5.7           |                | 8.9           | 5.5            |                | 6.5            |                | 2.3        | 6.3          | 18.6      | 6.7      | 13.9       |               | 15.7        |
| Mean LSD (0.05)          |      | 13.2          |                | 966           |                | 0.17          | 3.99           |                | 169            |                | 0.60       | 3.24         | 65        | 138      | 115        |               | 16.2        |
| Mean LSD (0.01)          |      | 17.5          |                | 1284          |                | 0.23          | 5.31           |                | 225            |                | 0.79       | 4.30         | 86        | 183      | 152        |               | 21.6        |
| Sig Lvl                  |      | **            |                | **            |                | **            | **             |                | **             |                | **         | **           | **        | **       | **         | **            |             |

\*Actual data output without adjustment factor.

%Mean = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$48.49 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 11/01/2017

Trial # = 178204

Table 22. 2017 Performance of Conventional Varieties - ACSC Official Trials  
Grand Forks ND - All Characters

| *Unadjusted<br>Variety @ | Code | Rec/T<br>lbs. | Rec/T<br>%Mean | Rec/A<br>lbs. | Rec/A<br>%Mean | Loss<br>Mol % | Rev/T<br>\$ ++ | Rev/T<br>%Mean | Rev/A<br>\$ ++ | Rev/A<br>%Mean | Sugar<br>% | Yield<br>T/A | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>/Ac | Emerg.<br>% |
|--------------------------|------|---------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|------------|--------------|-----------|----------|------------|---------------|-------------|
| BETA EXP 687             | 807  | 375.4         | 105            | 12865         | 101            | 0.89          | 65.28          | 109            | 2238           | 105            | 19.67      | 34.48        | 115       | 1607     | 218        | 0             | 71.0        |
| BETA EXP 698             | 808  | 359.9         | 101            | 13661         | 107            | 0.86          | 60.59          | 101            | 2295           | 107            | 18.84      | 37.78        | 137       | 1657     | 175        | 0             | 75.9        |
| BETA EXP 747             | 810  | 355.6         | 99             | 13165         | 103            | 0.76          | 59.27          | 99             | 2210           | 103            | 18.54      | 36.72        | 136       | 1369     | 179        | 0             | 78.5        |
| BETA EXP 758             | 817  | 358.3         | 100            | 13535         | 106            | 0.83          | 60.08          | 100            | 2277           | 107            | 18.76      | 37.94        | 136       | 1541     | 185        | 0             | 75.7        |
| Crystal 620              | 811  | 365.2         | 102            | 13266         | 104            | 0.78          | 62.17          | 104            | 2255           | 105            | 19.04      | 36.52        | 121       | 1467     | 170        | 0             | 73.9        |
| Crystal 622              | 801  | 367.2         | 103            | 12194         | 95             | 0.88          | 62.77          | 105            | 2089           | 98             | 19.24      | 33.08        | 122       | 1530     | 234        | 0             | 69.2        |
| Crystal 735              | 814  | 372.0         | 104            | 12857         | 100            | 0.77          | 64.22          | 107            | 2208           | 103            | 19.37      | 34.58        | 117       | 1419     | 182        | 0             | 68.8        |
| Crystal 737              | 806  | 358.3         | 100            | 12181         | 95             | 0.92          | 60.10          | 100            | 2045           | 96             | 18.83      | 33.84        | 148       | 1641     | 226        | 0             | 70.1        |
| Crystal R761             | 819  | 346.4         | 97             | 14029         | 110            | 0.90          | 56.50          | 94             | 2281           | 107            | 18.22      | 40.60        | 163       | 1667     | 194        | 0             | 78.4        |
| Hilleshög 3035Rz         | 805  | 359.7         | 101            | 11074         | 87             | 0.82          | 60.52          | 101            | 1853           | 87             | 18.81      | 31.07        | 122       | 1544     | 180        | 0             | 85.9        |
| Hilleshög 9891Rz         | 812  | 361.6         | 101            | 11123         | 87             | 0.84          | 61.08          | 102            | 1872           | 88             | 18.92      | 30.69        | 132       | 1544     | 197        | 0             | 80.9        |
| Maribo MA615Rz           | 818  | 348.7         | 98             | 13330         | 104            | 0.92          | 57.20          | 96             | 2196           | 103            | 18.36      | 38.13        | 189       | 1615     | 216        | 0             | 78.2        |
| Maribo MA720Rz           | 816  | 354.9         | 99             | 12595         | 98             | 0.86          | 59.07          | 99             | 2101           | 98             | 18.60      | 35.23        | 142       | 1569     | 199        | 0             | 87.9        |
| Seedex 8869              | 809  | 351.7         | 98             | 14304         | 112            | 0.80          | 58.10          | 97             | 2342           | 110            | 18.39      | 41.12        | 124       | 1511     | 170        | 0             | 74.0        |
| Seedex Deuce             | 802  | 362.4         | 101            | 14788         | 116            | 0.80          | 61.33          | 102            | 2464           | 115            | 18.92      | 41.50        | 130       | 1530     | 163        | 0             | 79.5        |
| Strube 12720             | 813  | 344.6         | 96             | 13718         | 107            | 0.86          | 55.95          | 93             | 2227           | 104            | 18.09      | 39.91        | 167       | 1631     | 168        | 0             | 72.6        |
| Strube 13722             | 804  | 347.6         | 97             | 12814         | 100            | 0.87          | 56.86          | 95             | 2084           | 97             | 18.25      | 37.09        | 134       | 1706     | 172        | 0             | 77.4        |
| SV 48611                 | 815  | 360.2         | 101            | 13690         | 107            | 0.77          | 60.65          | 101            | 2312           | 108            | 18.79      | 38.09        | 114       | 1414     | 182        | 0             | 69.0        |
| SV 48777                 | 803  | 363.6         | 102            | 13258         | 104            | 0.81          | 61.68          | 103            | 2251           | 105            | 18.99      | 36.47        | 139       | 1434     | 196        | 0             | 70.8        |
| Crystal 355RR(Check)     | 820  | 358.8         | 100            | 12341         | 96             | 0.90          | 60.24          | 101            | 2072           | 97             | 18.83      | 34.17        | 126       | 1599     | 229        | 0             | 77.4        |
| BTS 80RR52(Check)        | 821  | 354.3         | 99             | 12491         | 98             | 0.89          | 58.88          | 98             | 2096           | 98             | 18.61      | 34.90        | 143       | 1547     | 232        | 0             | 71.0        |
| Crystal 101RR (Check)    | 822  | 342.2         | 96             | 12925         | 101            | 0.93          | 55.21          | 92             | 2067           | 97             | 18.03      | 38.03        | 197       | 1628     | 214        | 0             | 70.6        |
| Hilleshög 4302RR (Check) | 823  | 353.4         | 99             | 11559         | 90             | 0.83          | 58.61          | 98             | 1924           | 90             | 18.50      | 32.69        | 163       | 1522     | 179        | 0             | 67.6        |
| Maribo Ultramono(Filler) | 824  | 359.5         | 101            | 9283          | 73             | 0.96          | 60.44          | 101            | 1567           | 73             | 18.94      | 25.82        | 169       | 1745     | 223        | 0             | 67.1        |
| Benchmark Mean           |      | 352.2         |                | 12329         |                | 0.89          | 58.24          |                | 2040           |                | 18.49      | 34.95        | 157       | 1574     | 214        |               | 71.7        |
| Trial Mean               |      | 357.6         |                | 12794         |                | 0.85          | 59.87          |                | 2138           |                | 18.73      | 35.85        | 141       | 1560     | 195        |               | 74.6        |
| Coeff. of Var. (%)       |      | 2.3           |                | 6.3           |                | 5.5           | 4.1            |                | 7.0            |                | 2.1        | 5.9          | 15.5      | 4.6      | 11.1       |               | 8.9         |
| Mean LSD (0.05)          |      | 12.8          |                | 1230          |                | 0.07          | 3.87           |                | 222            |                | 0.60       | 3.36         | 33        | 111      | 34         |               | 9.6         |
| Mean LSD (0.01)          |      | 17.0          |                | 1636          |                | 0.10          | 5.15           |                | 294            |                | 0.80       | 4.48         | 44        | 148      | 45         |               | 12.8        |
| Sig Lvl                  |      | **            |                | **            |                | **            | **             |                | **             |                | **         | **           | **        | **       | **         | **            |             |

\*Actual data output without adjustment factor.

%Mean = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$48.49 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 11/01/2017  
Trial # = 178207

Table 23. 2017 Performance of Conventional Varieties - ACSC Official Trials  
Scandia MN - All Characters

| *Unadjusted<br>Variety @ | Code | Rec/T<br>lbs. | Rec/T<br>%Mean | Rec/A<br>lbs. | Rec/A<br>%Mean | Loss<br>Mol % | Rev/T<br>\$ ++ | Rev/T<br>%Mean | Rev/A<br>\$ ++ | Rev/A<br>%Mean | Sugar<br>% | Yield<br>T/A | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>/Ac | Emerg.<br>% |
|--------------------------|------|---------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|------------|--------------|-----------|----------|------------|---------------|-------------|
| BETA EXP 687             | 807  | 350.8         | 104            | 9906          | 103            | 1.34          | 57.81          | 107            | 1634           | 107            | 18.88      | 28.21        | 197       | 1727     | 504        | 0             | 64.2        |
| BETA EXP 698             | 808  | 321.0         | 95             | 9924          | 103            | 1.28          | 48.81          | 90             | 1530           | 100            | 17.35      | 30.71        | 245       | 1692     | 447        | 0             | 70.3        |
| BETA EXP 747             | 810  | 328.1         | 97             | 10398         | 108            | 1.29          | 50.94          | 94             | 1609           | 105            | 17.69      | 31.56        | 272       | 1510     | 501        | 0             | 70.0        |
| BETA EXP 758             | 817  | 345.3         | 102            | 9869          | 103            | 1.23          | 56.17          | 104            | 1599           | 104            | 18.50      | 28.81        | 224       | 1677     | 429        | 0             | 74.1        |
| Crystal 620              | 811  | 332.0         | 98             | 10323         | 108            | 1.23          | 52.14          | 96             | 1616           | 105            | 17.83      | 31.09        | 209       | 1625     | 444        | 0             | 63.6        |
| Crystal 622              | 801  | 345.1         | 102            | 9124          | 95             | 1.35          | 56.10          | 104            | 1490           | 97             | 18.62      | 26.38        | 219       | 1693     | 514        | 0             | 59.9        |
| Crystal 735              | 814  | 357.1         | 105            | 9498          | 99             | 1.20          | 59.71          | 110            | 1596           | 104            | 19.06      | 26.52        | 177       | 1579     | 450        | 0             | 61.8        |
| Crystal 737              | 806  | 347.4         | 103            | 9868          | 103            | 1.38          | 56.78          | 105            | 1593           | 104            | 18.73      | 28.66        | 244       | 1704     | 523        | 0             | 55.2        |
| Crystal R761             | 819  | 326.7         | 96             | 9976          | 104            | 1.54          | 50.51          | 93             | 1538           | 100            | 17.87      | 30.60        | 307       | 1894     | 571        | 0             | 62.1        |
| Hilleshög 3035Rz         | 805  | 340.1         | 100            | 8351          | 87             | 1.52          | 54.59          | 101            | 1339           | 87             | 18.53      | 24.67        | 294       | 1710     | 620        | 0             | 70.8        |
| Hilleshög 9891Rz         | 812  | 344.7         | 102            | 9163          | 95             | 1.48          | 55.96          | 103            | 1484           | 97             | 18.71      | 26.62        | 226       | 1726     | 606        | 0             | 60.8        |
| Maribo MA615Rz           | 818  | 326.5         | 96             | 9398          | 98             | 1.47          | 50.47          | 93             | 1453           | 95             | 17.80      | 28.74        | 327       | 1718     | 562        | 0             | 68.2        |
| Maribo MA720Rz           | 816  | 350.4         | 103            | 9400          | 98             | 1.31          | 57.71          | 107            | 1531           | 100            | 18.81      | 26.99        | 225       | 1575     | 518        | 0             | 70.5        |
| Seedex 8869              | 809  | 341.6         | 101            | 9668          | 101            | 1.20          | 55.02          | 102            | 1550           | 101            | 18.27      | 28.34        | 240       | 1707     | 388        | 0             | 55.5        |
| Seedex Deuce             | 802  | 337.5         | 100            | 10238         | 107            | 1.26          | 53.79          | 99             | 1617           | 106            | 18.12      | 30.63        | 276       | 1703     | 422        | 95            | 51.3        |
| Strube 12720             | 813  | 330.5         | 98             | 10852         | 113            | 1.24          | 51.67          | 95             | 1675           | 109            | 17.75      | 33.16        | 287       | 1702     | 408        | 0             | 66.4        |
| Strube 13722             | 804  | 319.2         | 94             | 10529         | 110            | 1.21          | 48.24          | 89             | 1611           | 105            | 17.19      | 32.82        | 250       | 1780     | 376        | 0             | 74.9        |
| SV 48611                 | 815  | 351.2         | 104            | 10650         | 111            | 1.30          | 57.93          | 107            | 1774           | 116            | 18.88      | 30.19        | 205       | 1698     | 473        | 0             | 54.3        |
| SV 48777                 | 803  | 345.3         | 102            | 9278          | 97             | 1.12          | 56.14          | 104            | 1509           | 98             | 18.39      | 26.87        | 209       | 1628     | 356        | 0             | 61.9        |
| Crystal 355RR(Check)     | 820  | 343.6         | 101            | 9538          | 99             | 1.35          | 55.64          | 103            | 1551           | 101            | 18.55      | 27.77        | 233       | 1716     | 506        | 0             | 66.4        |
| BTS 80RR52(Check)        | 821  | 341.0         | 101            | 9948          | 104            | 1.31          | 54.86          | 101            | 1598           | 104            | 18.37      | 29.29        | 210       | 1707     | 490        | 0             | 74.7        |
| Crystal 101RR (Check)    | 822  | 338.9         | 100            | 10585         | 110            | 1.52          | 54.22          | 100            | 1683           | 110            | 18.46      | 31.36        | 325       | 1895     | 558        | 0             | 65.9        |
| Hilleshög 4302RR (Check) | 823  | 346.5         | 102            | 7772          | 81             | 1.25          | 56.51          | 104            | 1258           | 82             | 18.57      | 22.50        | 286       | 1637     | 432        | 95            | 37.0        |
| Maribo Ultramono(Filler) | 824  | 319.6         | 94             | 6112          | 64             | 1.33          | 48.37          | 89             | 915            | 60             | 17.30      | 19.24        | 433       | 1716     | 419        | 0             | 58.2        |
| Benchmark Mean           |      | 342.5         |                | 9461          |                | 1.36          | 55.31          |                | 1523           |                | 18.49      | 27.73        | 263       | 1739     | 496        |               | 61.0        |
| Trial Mean               |      | 338.8         |                | 9599          |                | 1.32          | 54.17          |                | 1532           |                | 18.26      | 28.41        | 255       | 1697     | 480        |               | 63.3        |
| Coeff. of Var. (%)       |      | 2.7           |                | 7.3           |                | 7.5           | 5.0            |                | 7.9            |                | 2.3        | 7.6          | 19.1      | 4.2      | 12.3       |               | 12.2        |
| Mean LSD (0.05)          |      | 13.9          |                | 1011          |                | 0.15          | 4.21           |                | 171            |                | 0.65       | 3.20         | 69        | 108      | 90         |               | 11.3        |
| Mean LSD (0.01)          |      | 18.5          |                | 1343          |                | 0.20          | 5.60           |                | 228            |                | 0.86       | 4.25         | 91        | 144      | 120        |               | 15.0        |
| Sig Lvl                  |      | **            |                | **            |                | **            | **             |                | **             |                | **         | **           | **        | **       | **         | **            | **          |

\*Actual data output without adjustment factor.

%Mean = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$48.49 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 10/31/2017  
Trial # = 178208

Table 24. 2017 Performance of Conventional Varieties - ACSC Official Trials  
St Thomas ND - All Characters

| *Unadjusted<br>Variety @ | Code | Rec/T<br>lbs. | Rec/T<br>%Mean | Rec/A<br>lbs. | Rec/A<br>%Mean | Loss<br>Mol % | Rev/T<br>\$ ++ | Rev/T<br>%Mean | Rev/A<br>\$ ++ | Rev/A<br>%Mean | Sugar<br>% | Yield<br>T/A | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>/Ac | Emerg.<br>% |
|--------------------------|------|---------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|------------|--------------|-----------|----------|------------|---------------|-------------|
| BETA EXP 687             | 807  | 291.4         | 101            | 9706          | 98             | 1.24          | 39.84          | 102            | 1324           | 99             | 15.80      | 33.51        | 268       | 1582     | 456        | 0             | 71.2        |
| BETA EXP 698             | 808  | 294.5         | 102            | 11083         | 112            | 1.15          | 40.78          | 104            | 1536           | 115            | 15.87      | 37.67        | 346       | 1572     | 353        | 0             | 69.6        |
| BETA EXP 747             | 810  | 284.0         | 98             | 10363         | 105            | 1.26          | 37.60          | 96             | 1382           | 103            | 15.48      | 36.27        | 454       | 1439     | 433        | 0             | 72.9        |
| BETA EXP 758             | 817  | 293.3         | 101            | 10091         | 102            | 1.13          | 40.39          | 103            | 1383           | 103            | 15.78      | 34.60        | 374       | 1573     | 320        | 0             | 76.8        |
| Crystal 620              | 811  | 286.7         | 99             | 10876         | 110            | 1.25          | 38.40          | 98             | 1451           | 108            | 15.58      | 38.08        | 327       | 1541     | 440        | 0             | 64.1        |
| Crystal 622              | 801  | 280.7         | 97             | 9685          | 98             | 1.37          | 36.58          | 93             | 1256           | 94             | 15.39      | 34.69        | 390       | 1617     | 485        | 0             | 56.8        |
| Crystal 735              | 814  | 307.9         | 106            | 10330         | 104            | 1.12          | 44.83          | 114            | 1506           | 112            | 16.54      | 33.38        | 251       | 1430     | 400        | 0             | 64.2        |
| Crystal 737              | 806  | 287.5         | 99             | 9781          | 99             | 1.37          | 38.65          | 98             | 1310           | 98             | 15.73      | 34.17        | 387       | 1557     | 504        | 0             | 64.1        |
| Crystal R761             | 819  | 284.2         | 98             | 10483         | 106            | 1.31          | 37.64          | 96             | 1390           | 104            | 15.53      | 36.80        | 408       | 1709     | 408        | 0             | 73.2        |
| Hilleshog 3035Rz         | 805  | 295.3         | 102            | 10075         | 102            | 1.08          | 41.02          | 105            | 1402           | 105            | 15.84      | 34.21        | 296       | 1455     | 346        | 0             | 77.1        |
| Hilleshog 9891Rz         | 812  | 295.8         | 102            | 9414          | 95             | 1.18          | 41.16          | 105            | 1307           | 97             | 15.97      | 31.78        | 299       | 1489     | 407        | 0             | 74.9        |
| Maribo MA615Rz           | 818  | 288.6         | 100            | 9614          | 97             | 1.29          | 38.97          | 99             | 1287           | 96             | 15.72      | 33.54        | 403       | 1545     | 443        | 0             | 75.0        |
| Maribo MA720Rz           | 816  | 297.0         | 103            | 10242         | 103            | 1.09          | 41.54          | 106            | 1433           | 107            | 15.92      | 34.62        | 316       | 1437     | 344        | 0             | 76.4        |
| Seedex 8869              | 809  | 287.7         | 99             | 10208         | 103            | 1.15          | 38.71          | 99             | 1378           | 103            | 15.54      | 35.32        | 363       | 1575     | 335        | 0             | 72.9        |
| Seedex Deuce             | 802  | 282.5         | 98             | 10236         | 103            | 1.05          | 37.14          | 95             | 1350           | 101            | 15.17      | 36.22        | 386       | 1511     | 275        | 0             | 71.9        |
| Strube 12720             | 813  | 287.2         | 99             | 10825         | 109            | 0.99          | 38.57          | 98             | 1458           | 109            | 15.36      | 37.70        | 343       | 1449     | 265        | 0             | 68.4        |
| Strube 13722             | 804  | 274.4         | 95             | 9594          | 97             | 1.17          | 34.67          | 88             | 1211           | 90             | 14.90      | 34.93        | 445       | 1609     | 315        | 0             | 76.6        |
| SV 48611                 | 815  | 290.4         | 100            | 8803          | 89             | 1.18          | 39.54          | 101            | 1187           | 89             | 15.72      | 30.34        | 357       | 1431     | 397        | 0             | 64.9        |
| SV 48777                 | 803  | 314.0         | 109            | 10381         | 105            | 0.99          | 46.66          | 119            | 1540           | 115            | 16.68      | 33.06        | 249       | 1496     | 273        | 0             | 62.6        |
| Crystal 355RR(Check)     | 820  | 288.5         | 100            | 9487          | 96             | 1.28          | 38.96          | 99             | 1284           | 96             | 15.70      | 32.88        | 294       | 1585     | 460        | 0             | 69.5        |
| BTS 80RR52(Check)        | 821  | 289.5         | 100            | 9958          | 101            | 1.20          | 39.26          | 100            | 1343           | 100            | 15.67      | 34.53        | 297       | 1574     | 400        | 0             | 76.0        |
| Crystal 101RR (Check)    | 822  | 289.0         | 100            | 10419         | 105            | 1.17          | 39.11          | 100            | 1411           | 105            | 15.63      | 35.90        | 365       | 1634     | 335        | 0             | 63.9        |
| Hilleshog 4302RR (Check) | 823  | 280.6         | 97             | 8270          | 84             | 1.11          | 36.57          | 93             | 1077           | 80             | 15.14      | 29.54        | 408       | 1518     | 304        | 0             | 57.3        |
| Maribo Ultramono(Filler) | 824  | 275.9         | 95             | 7752          | 78             | 1.34          | 35.14          | 90             | 989            | 74             | 15.15      | 27.96        | 450       | 1618     | 433        | 0             | 59.0        |
| Benchmark Mean           |      | 286.9         |                | 9534          |                | 1.19          | 38.48          |                | 1279           |                | 15.54      | 33.21        | 341       | 1578     | 375        |               | 66.7        |
| Trial Mean               |      | 289.4         |                | 9903          |                | 1.19          | 39.24          |                | 1341           |                | 15.66      | 34.24        | 353       | 1539     | 380        |               | 69.1        |
| Coeff. of Var. (%)       |      | 2.5           |                | 5.6           |                | 6.6           | 5.6            |                | 6.8            |                | 2.1        | 5.7          | 16.2      | 6.3      | 11.6       |               | 8.7         |
| Mean LSD (0.05)          |      | 11.5          |                | 845           |                | 0.12          | 3.47           |                | 142            |                | 0.50       | 2.98         | 92        | 146      | 71         |               | 8.8         |
| Mean LSD (0.01)          |      | 15.3          |                | 1123          |                | 0.17          | 4.62           |                | 189            |                | 0.66       | 3.97         | 122       | 194      | 94         |               | 11.7        |
| Sig Lvl                  |      | **            |                | **            |                | **            | **             |                | **             |                | **         | **           | **        | **       | **         | **            |             |

\*Actual data output without adjustment factor.

Created 10/31/2017

Trial # = 178211

%Mean = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$48.49 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Table 25. 2017 Performance of Conventional Varieties - ACSC Official Trials  
Humboldt MN - All Characters

| *Unadjusted<br>Variety @ | Code | Rec/T<br>lbs. | Rec/T<br>%Mean | Rec/A<br>lbs. | Rec/A<br>%Mean | Loss<br>Mol % | Rev/T<br>\$ ++ | Rev/T<br>%Mean | Rev/A<br>\$ ++ | Rev/A<br>%Mean | Sugar<br>% | Yield<br>T/A | Na<br>ppm | K<br>ppm | AmN<br>ppm | Bolter<br>/Ac | Emerg.<br>% |
|--------------------------|------|---------------|----------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|------------|--------------|-----------|----------|------------|---------------|-------------|
| BETA EXP 687             | 807  | 377.8         | 102            | 7746          | 84             | 0.95          | 66.00          | 103            | 1367           | 86             | 19.84      | 20.22        | 100       | 1730     | 248        | 0             | 92.3        |
| BETA EXP 698             | 808  | 370.9         | 100            | 7566          | 82             | 0.93          | 63.91          | 99             | 1298           | 82             | 19.48      | 20.54        | 97        | 1644     | 251        | 0             | 93.6        |
| BETA EXP 747             | 810  | 372.2         | 100            | 9844          | 107            | 0.96          | 64.29          | 100            | 1710           | 108            | 19.56      | 26.22        | 104       | 1559     | 300        | 0             | 94.6        |
| BETA EXP 758             | 817  | 362.1         | 97             | 8780          | 96             | 0.87          | 61.23          | 95             | 1483           | 94             | 18.98      | 24.32        | 112       | 1646     | 202        | 0             | 92.9        |
| Crystal 620              | 811  | 374.6         | 101            | 10322         | 112            | 0.93          | 65.02          | 101            | 1792           | 113            | 19.66      | 27.54        | 99        | 1615     | 256        | 0             | 95.0        |
| Crystal 622              | 801  | 374.9         | 101            | 7968          | 87             | 1.02          | 65.12          | 101            | 1379           | 87             | 19.77      | 21.31        | 109       | 1795     | 272        | 0             | 84.3        |
| Crystal 735              | 814  | 376.6         | 101            | 8681          | 94             | 0.91          | 65.64          | 102            | 1515           | 96             | 19.74      | 22.99        | 101       | 1537     | 266        | 0             | 87.5        |
| Crystal 737              | 806  | 368.1         | 99             | 8327          | 91             | 1.04          | 63.07          | 98             | 1418           | 89             | 19.45      | 22.79        | 117       | 1722     | 297        | 0             | 94.9        |
| Crystal R761             | 819  | 368.1         | 99             | 11299         | 123            | 1.05          | 63.06          | 98             | 1932           | 122            | 19.46      | 30.78        | 115       | 1877     | 276        | 0             | 91.9        |
| Hilleshög 3035Rz         | 805  | 371.0         | 100            | 7994          | 87             | 0.94          | 63.93          | 99             | 1378           | 87             | 19.48      | 21.55        | 102       | 1618     | 262        | 0             | 94.7        |
| Hilleshög 9891Rz         | 812  | 375.1         | 101            | 8117          | 88             | 0.96          | 65.18          | 101            | 1398           | 88             | 19.72      | 21.89        | 100       | 1662     | 261        | 0             | 95.9        |
| Maribo MA615Rz           | 818  | 376.6         | 101            | 9464          | 103            | 1.00          | 65.63          | 102            | 1654           | 104            | 19.83      | 25.09        | 114       | 1819     | 253        | 0             | 94.8        |
| Maribo MA720Rz           | 816  | 376.2         | 101            | 8543          | 93             | 0.99          | 65.51          | 102            | 1482           | 94             | 19.80      | 22.80        | 134       | 1565     | 295        | 0             | 97.7        |
| Seedex 8869              | 809  | 372.6         | 100            | 9572          | 104            | 0.89          | 64.42          | 100            | 1655           | 104            | 19.52      | 25.71        | 97        | 1742     | 197        | 0             | 93.4        |
| Seedex Deuce             | 802  | 371.1         | 100            | 11330         | 123            | 0.99          | 63.96          | 99             | 1949           | 123            | 19.55      | 30.64        | 110       | 1803     | 253        | 0             | 94.1        |
| Strube 12720             | 813  | 366.1         | 98             | 10569         | 115            | 0.91          | 62.44          | 97             | 1801           | 114            | 19.21      | 28.92        | 104       | 1735     | 209        | 0             | 95.2        |
| Strube 13722             | 804  | 363.2         | 98             | 10150         | 110            | 1.00          | 61.58          | 96             | 1725           | 109            | 19.16      | 27.90        | 108       | 1850     | 247        | 0             | 94.5        |
| SV 48611                 | 815  | 372.9         | 100            | 9615          | 105            | 0.95          | 64.52          | 100            | 1662           | 105            | 19.60      | 25.88        | 103       | 1717     | 242        | 0             | 85.5        |
| SV 48777                 | 803  | 385.7         | 104            | 9470          | 103            | 0.93          | 68.40          | 106            | 1675           | 106            | 20.22      | 24.59        | 103       | 1733     | 222        | 0             | 94.3        |
| Crystal 355RR(Check)     | 820  | 375.4         | 101            | 9052          | 99             | 1.09          | 65.26          | 101            | 1565           | 99             | 19.86      | 24.24        | 101       | 1675     | 357        | 0             | 95.4        |
| BTS 80RR52(Check)        | 821  | 367.9         | 99             | 8703          | 95             | 1.04          | 62.98          | 98             | 1491           | 94             | 19.44      | 23.68        | 110       | 1730     | 308        | 0             | 97.1        |
| Crystal 101RR (Check)    | 822  | 372.1         | 100            | 11134         | 121            | 1.03          | 64.27          | 100            | 1917           | 121            | 19.63      | 30.01        | 107       | 1701     | 303        | 0             | 93.3        |
| Hilleshög 4302RR (Check) | 823  | 377.0         | 101            | 9890          | 108            | 0.88          | 65.75          | 102            | 1715           | 108            | 19.73      | 26.37        | 104       | 1643     | 214        | 0             | 84.4        |
| Maribo Ultramono(Filler) | 824  | 365.3         | 98             | 6395          | 70             | 1.09          | 62.22          | 97             | 1082           | 68             | 19.36      | 17.65        | 117       | 1900     | 297        | 0             | 77.9        |
| Benchmark Mean           |      | 373.1         |                | 9695          |                | 1.01          | 64.57          |                | 1672           |                | 19.67      | 26.08        | 106       | 1687     | 296        |               | 92.5        |
| Trial Mean               |      | 372.2         |                | 9189          |                | 0.97          | 64.31          |                | 1585           |                | 19.58      | 24.74        | 107       | 1709     | 262        |               | 92.3        |
| Coeff. of Var. (%)       |      | 1.8           |                | 6.6           |                | 7.0           | 3.1            |                | 7.3            |                | 1.6        | 6.0          | 12.0      | 4.7      | 18.4       |               | 3.3         |
| Mean LSD (0.05)          |      | 11.3          |                | 1143          |                | 0.12          | 3.43           |                | 217            |                | 0.53       | 2.84         | 22        | 132      | 79         |               | 5.4         |
| Mean LSD (0.01)          |      | 15.2          |                | 1534          |                | 0.16          | 4.59           |                | 291            |                | 0.70       | 3.81         | 29        | 176      | 106        |               | 7.2         |
| Sig Lvl                  |      | **            |                | **            |                | **            | **             |                | **             |                | **         | **           | **        | **       | **         | **            |             |

\*Actual data output without adjustment factor.

%Mean = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$48.49 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 11/01/2017  
Trial # = 178212

Table 26. Calculation for Approval of Sugarbeet Varieties for ACSC Market for 2018

| Variety                               | Approval Status | Rec/Ton |       |       |         | Rev/Acre |      |      |         | R/T + \$/A Bench | Cercospora Rating + |      |      |           |                  |
|---------------------------------------|-----------------|---------|-------|-------|---------|----------|------|------|---------|------------------|---------------------|------|------|-----------|------------------|
|                                       |                 | 2016    | 2017  | 2 Yr  | % Bench | 2016     | 2017 | 2 Yr | % Bench |                  | 2015                | 2016 | 2017 | 2 Yr Mean | 3 Yr Mean        |
| <b>Previously Approved (3 Yr)</b>     |                 |         |       |       |         |          |      |      |         |                  |                     |      |      |           | <b>&lt;=5.40</b> |
| BTS 80RR52                            | Approved        | 316.8   | 334.2 | 325.5 | 100.6   | 1960     | 1699 | 1830 | 103.2   | 203.8            | 4.11                | 4.28 | 4.37 | 4.26      |                  |
| BTS 8337                              | Approved        | 325.2   | 349.5 | 337.4 | 104.3   | 1877     | 1842 | 1860 | 104.9   | 209.2            | 4.49                | 4.62 | 4.36 | 4.49      |                  |
| BTS 8363                              | Approved        | 309.8   | 328.7 | 319.3 | 98.7    | 1937     | 1770 | 1854 | 104.6   | 203.2            | 3.83                | 4.33 | 4.10 | 4.09      |                  |
| BTS 8500                              | Approved        | 308.7   | 335.7 | 322.2 | 99.6    | 1966     | 1862 | 1914 | 108.0   | 207.6            | 4.45                | 4.54 | 4.29 | 4.43      |                  |
| BTS 8512                              | Approved        | 315.8   | 339.9 | 327.9 | 101.3   | 1917     | 1749 | 1833 | 103.4   | 204.8            | 4.12                | 4.04 | 3.69 | 3.95      |                  |
| BTS 8524                              | Approved        | 305.7   | 330.0 | 317.9 | 98.2    | 1954     | 1796 | 1875 | 105.8   | 204.0            | 4.40                | 4.74 | 4.38 | 4.51      |                  |
| BTS 8572                              | Approved        | 323.3   | 346.7 | 335.0 | 103.5   | 1913     | 1817 | 1865 | 105.2   | 208.8            | 4.60                | 4.41 | 4.14 | 4.38      |                  |
| Crystal 093RR                         | Approved        | 319.1   | 350.3 | 334.7 | 103.5   | 1942     | 1866 | 1904 | 107.4   | 210.9            | 4.76                | 4.95 | 4.49 | 4.73      |                  |
| Crystal 101RR                         | Approved        | 306.3   | 329.3 | 317.8 | 98.2    | 1849     | 1718 | 1784 | 100.6   | 198.9            | 4.65                | 4.59 | 4.57 | 4.60      |                  |
| Crystal 246RR                         | Approved        | 305.3   | 331.7 | 318.5 | 98.4    | 1845     | 1775 | 1810 | 102.1   | 200.6            | 4.49                | 4.81 | 4.63 | 4.64      |                  |
| Crystal 247RR                         | Approved        | 314.5   | 335.2 | 324.9 | 100.4   | 2014     | 1832 | 1923 | 108.5   | 208.9            | 4.19                | 4.65 | 4.55 | 4.47      |                  |
| Crystal 355RR                         | Approved        | 322.3   | 340.0 | 331.2 | 102.4   | 1947     | 1711 | 1829 | 103.2   | 205.5            | 4.43                | 4.60 | 4.36 | 4.46      |                  |
| Crystal 467RR                         | Approved        | 301.0   | 330.1 | 315.6 | 97.5    | 1845     | 1804 | 1825 | 102.9   | 200.5            | 4.34                | 4.69 | 4.46 | 4.49      |                  |
| Crystal 572RR                         | Approved        | 324.7   | 354.7 | 339.7 | 105.0   | 1982     | 1891 | 1937 | 109.3   | 214.3            | 4.65                | 4.57 | 4.27 | 4.50      |                  |
| Crystal 573RR                         | Approved        | 321.4   | 343.9 | 332.7 | 102.8   | 1970     | 1785 | 1878 | 105.9   | 208.7            | 4.15                | 4.35 | 4.15 | 4.22      |                  |
| Crystal 574RR                         | Approved        | 307.8   | 334.4 | 321.1 | 99.3    | 2070     | 1875 | 1973 | 111.3   | 210.5            | 4.30                | 4.51 | 4.35 | 4.39      |                  |
| Crystal 578RR                         | Approved        | 316.6   | 338.4 | 327.5 | 101.2   | 2017     | 1899 | 1956 | 110.5   | 211.7            | 4.93                | 4.87 | 4.91 | 4.91      |                  |
| Crystal 986RR                         | Approved        | 318.8   | 341.1 | 330.0 | 102.0   | 1895     | 1776 | 1836 | 103.6   | 205.5            | 4.97                | 4.75 | 4.77 | 4.83      |                  |
| Hilleshög HIL708                      | Approved        | 312.4   | 338.6 | 325.5 | 100.6   | 1857     | 1640 | 1749 | 98.6    | 199.3            | 5.04                | 4.74 | 4.61 | 4.80      |                  |
| Hilleshög 4302RR                      | Approved        | 317.4   | 334.0 | 325.7 | 100.7   | 1801     | 1597 | 1699 | 95.9    | 196.5            | 4.13                | 4.13 | 3.93 | 4.06      |                  |
| Hilleshög 4448RR                      | Approved        | 309.1   | 338.0 | 323.6 | 100.0   | 1873     | 1829 | 1851 | 104.4   | 204.4            | 5.29                | 5.21 | 5.28 | 5.26      |                  |
| Hilleshög 9528RR                      | Approved        | 319.1   | 339.3 | 329.2 | 101.8   | 1982     | 1785 | 1884 | 106.3   | 208.0            | 5.16                | 4.73 | 4.99 | 4.96      |                  |
| Maribo 109                            | Approved        | 332.4   | 347.6 | 340.0 | 105.1   | 1889     | 1569 | 1729 | 97.5    | 202.6            | 4.56                | 4.14 | 4.14 | 4.28      |                  |
| Maribo 305                            | Approved        | 307.5   | 331.7 | 319.6 | 98.8    | 1773     | 1731 | 1752 | 98.8    | 197.6            | 4.76                | 4.72 | 4.98 | 4.82      |                  |
| Maribo MA504                          | Approved        | 305.5   | 333.9 | 319.7 | 98.8    | 1929     | 1830 | 1880 | 106.0   | 204.9            | 5.25                | 5.04 | 5.50 | 5.26      |                  |
| SV RR244TT                            | Approved        | 317.6   | 334.7 | 326.2 | 100.8   | 1877     | 1796 | 1837 | 103.6   | 204.4            | 4.17                | 4.46 | 4.85 | 4.49      |                  |
| SV RR333                              | Approved        | 318.3   | 338.9 | 328.6 | 101.6   | 1950     | 1823 | 1887 | 106.4   | 208.0            | 4.54                | 4.85 | 4.84 | 4.74      |                  |
| SV RR351                              | Approved        | 313.2   | 337.3 | 325.3 | 100.5   | 1971     | 1783 | 1877 | 105.9   | 206.4            | 4.62                | 4.50 | 4.41 | 4.51      |                  |
| SX Avalanche RR(858)                  | Approved        | 320.7   | 342.2 | 331.5 | 102.4   | 1916     | 1690 | 1803 | 101.7   | 204.2            | 4.15                | 4.74 | 4.64 | 4.51      |                  |
| SX Canyon RR                          | Approved        | 317.4   | 342.4 | 329.9 | 102.0   | 1926     | 1829 | 1878 | 105.9   | 207.9            | 4.02                | 4.76 | 4.92 | 4.56      |                  |
| SX Cruze RR                           | Approved        | 299.6   | 318.4 | 309.0 | 95.5    | 1712     | 1696 | 1704 | 96.1    | 191.6            | 4.57                | 4.65 | 5.37 | 4.87      |                  |
| SX Marathon RR(856)                   | Approved        | 315.4   | 340.4 | 327.9 | 101.4   | 2039     | 1812 | 1926 | 108.6   | 210.0            | 5.37                | 4.44 | 4.54 | 4.78      |                  |
| SX Winchester RR                      | Approved        | 320.5   | 331.1 | 325.8 | 100.7   | 1831     | 1580 | 1706 | 96.2    | 196.9            | 3.67                | 3.97 | 4.07 | 3.90      |                  |
| <b>Candidates for Approval (2 Yr)</b> |                 |         |       |       |         |          |      |      |         |                  |                     |      |      |           | <b>&lt;=5.20</b> |
| BTS 8606                              | Approved        | 317.3   | 340.5 | 328.9 | 101.7   | 2000     | 1882 | 1941 | 109.5   | 211.2            | --                  | 5.12 | 4.73 | 4.92      | --               |
| BTS 8629                              | Approved        | 307.5   | 332.8 | 320.2 | 99.0    | 1955     | 1884 | 1920 | 108.3   | 207.3            | --                  | 4.59 | 4.29 | 4.44      | --               |
| Crystal 684RR                         | Approved        | 308.1   | 333.7 | 320.9 | 99.2    | 2111     | 1899 | 2005 | 113.1   | 212.3            | --                  | 4.57 | 4.34 | 4.45      | --               |
| Hilleshög HIL9707                     | Not Approved    | 305.2   | 324.3 | 314.8 | 97.3    | 1739     | 1692 | 1716 | 96.8    | 194.1            | 4.60                | 4.53 | 4.96 | 4.74      | 4.70             |
| Hilleshög HIL9895                     | Not Approved    | 313.7   | 326.3 | 320.0 | 98.9    | 1873     | 1547 | 1710 | 96.5    | 195.4            | --                  | 4.49 | 4.84 | 4.67      | --               |
| Maribo MA502                          | Not Approved    | 302.7   | 329.8 | 316.3 | 97.8    | 1825     | 1642 | 1734 | 97.8    | 195.6            | 5.04                | 4.79 | 5.01 | 4.90      | 4.95             |
| Maribo MA611                          | Not Approved    | 313.1   | 325.9 | 319.5 | 98.8    | 1765     | 1542 | 1654 | 93.3    | 192.0            | --                  | 4.47 | 5.03 | 4.75      | --               |
| SX RR1861                             | Approved        | 316.2   | 335.3 | 325.8 | 100.7   | 1966     | 1748 | 1857 | 104.8   | 205.5            | --                  | 4.52 | 4.74 | 4.63      | --               |
| SX RR1863                             | Approved        | 323.4   | 342.4 | 332.9 | 102.9   | 2006     | 1773 | 1890 | 106.6   | 209.5            | --                  | 4.35 | 4.08 | 4.21      | --               |
| SV RR265                              | Approved        | 315.1   | 336.8 | 326.0 | 100.7   | 1797     | 1836 | 1908 | 107.6   | 208.4            | --                  | 5.00 | 5.19 | 5.09      | --               |
| SV RR266                              | Approved        | 317.3   | 337.9 | 327.6 | 101.3   | 1971     | 1814 | 1893 | 106.8   | 208.0            | --                  | 4.74 | 4.61 | 4.67      | --               |
| SV RR268                              | Approved        | 319.0   | 341.1 | 330.1 | 102.0   | 1954     | 1802 | 1878 | 106.0   | 208.0            | --                  | 5.13 | 5.06 | 5.10      | --               |
| <b>Benchmark Varieties</b>            |                 | 2015    | 2016  | 2017  |         | 2015     | 2016 | 2017 |         |                  |                     |      |      |           |                  |
| Crystal 875RR                         | Benchmark       | 308.5   |       |       |         | 1490     |      |      |         |                  |                     |      |      |           |                  |
| BTS 81RR17(Check)                     | Benchmark       | 307.6   | 310.2 |       |         | 1574     | 1845 |      |         |                  |                     |      |      |           |                  |
| BTS 80RR52                            | Benchmark       | 317.7   | 316.8 | 334.2 |         | 1701     | 1960 | 1699 |         |                  |                     |      |      |           |                  |
| Hilleshög 4302RR                      | Benchmark       | 319.5   | 317.4 | 334.0 |         | 1624     | 1801 | 1597 |         |                  |                     |      |      |           |                  |
| Crystal 101RR                         | Benchmark       | 306.3   | 329.3 |       |         | 1849     | 1718 |      |         |                  |                     |      |      |           |                  |
| Crystal 355RR                         | Benchmark       |         | 340.0 |       |         |          |      | 1711 |         |                  |                     |      |      |           |                  |
| <b>Benchmark mean</b>                 |                 | 313.3   | 312.7 | 334.4 | 323.5   | 1597     | 1864 | 1681 | 1773    |                  |                     |      |      |           |                  |

+ All Cercospora ratings 2015-2017 were adjusted to 1982 basis.  
 Variety approval criteria include: 1) 2 years of official trial data, 2) Cercospora rating must not exceed 5.20 (1982 adjusted data), 3a) R/T >= 100% of Bench or  
 3b) R/T >= 97% and R/T + \$/A >= 202% of Bench. 3 yrs of data may be considered for initial approval.

Bench for 2017 added Crystal 355RR and dropped BTS 81RR17(Check).

To maintain approval, the 3-year Cercospora rating must not exceed 5.40 (1982 adjusted data).

Created 11-04-2017.

Table 27. Projected Calculation for Approval of Sugarbeet Varieties for ACSC Market

| Variety                                | Approval ^<br>Likely | Rec/Ton |            | Rev/Acre |            | R/T +<br>\$/A<br>Bench | CR Rating ^^<br>2017 |
|--|----------------------|---------|------------|----------|------------|------------------------|----------------------|
|  |                      | 2017    | %<br>Bench | 2017     | %<br>Bench |                        |                      |
| <b>Candidates for Retesting (1 Yr)</b> |                      |         |            |          |            |                        |                      |
| BTS 8735                               | On Track             | 335.7   | 100.4      | 1836     | 109.2      | 209.6                  | 4.22                 |
| BTS 8742                               | Not On Track         | 333.4   | 99.7       | 1646     | 97.9       | 197.6                  | 4.36                 |
| BTS 8749                               | On Track             | 337.7   | 101.0      | 1719     | 102.2      | 203.2                  | 4.05                 |
| BTS 8756                               | On Track             | 338.4   | 101.2      | 1724     | 102.5      | 203.7                  | 4.01                 |
| BTS 8767                               | On Track             | 339.2   | 101.4      | 1878     | 111.7      | 213.1                  | 4.16                 |
| BTS 8770                               | On Track             | 337.4   | 100.9      | 1801     | 107.1      | 208.0                  | 4.30                 |
| BTS 8784                               | On Track             | 351.4   | 105.1      | 1787     | 106.3      | 211.4                  | 3.65                 |
| BTS 8787                               | On Track             | 331.5   | 99.1       | 1733     | 103.1      | 202.2                  | 4.03                 |
| BTS 8798                               | On Track             | 338.8   | 101.3      | 1695     | 100.8      | 202.1                  | 4.30                 |
| Crystal 792RR                          | On Track             | 344.0   | 102.9      | 1799     | 107.0      | 209.9                  | 3.94                 |
| Crystal 793RR                          | On Track             | 347.5   | 103.9      | 1896     | 112.8      | 216.7                  | 3.93                 |
| Crystal 794RR                          | On Track             | 333.8   | 99.8       | 1835     | 109.1      | 209.0                  | 4.92                 |
| Crystal 795RR                          | On Track             | 340.1   | 101.7      | 1708     | 101.6      | 203.3                  | 4.39                 |
| Crystal 796RR                          | On Track             | 337.0   | 100.8      | 1950     | 116.0      | 216.8                  | 4.85                 |
| Crystal 797RR                          | On Track             | 330.1   | 98.7       | 1809     | 107.6      | 206.3                  | 4.17                 |
| Hilleshög HIL9920                      | On Track             | 347.2   | 103.8      | 1785     | 106.2      | 210.0                  | 4.89                 |
| Hilleshög HIL9921                      | On Track             | 345.2   | 103.2      | 1585     | 94.3       | 197.5                  | 4.47                 |
| Hilleshög HIL9922                      | Not On Track         | 325.4   | 97.3       | 1560     | 92.8       | 190.1                  | 4.02                 |
| Hilleshög HIL9923                      | On Track             | 337.5   | 100.9      | 1497     | 89.0       | 190.0                  | 4.81                 |
| Hilleshög HIL9924                      | On Track             | 335.0   | 100.2      | 1455     | 86.5       | 186.7                  | 4.09                 |
| Maribo MA717                           | On Track             | 342.0   | 102.3      | 1742     | 103.6      | 205.9                  | 4.85                 |
| Maribo MA718                           | Not On Track         | 330.0   | 98.7       | 1476     | 87.8       | 186.5                  | 4.39                 |
| Maribo MA719                           | On Track             | 337.1   | 100.8      | 1617     | 96.2       | 197.0                  | 4.41                 |
| SX RR1875                              | On Track             | 341.6   | 102.2      | 1605     | 95.5       | 197.6                  | 4.06                 |
| SX RR1876                              | Not On Track         | 332.6   | 99.5       | 1694     | 100.8      | 200.2                  | 4.31                 |
| SX RR1877                              | Not On Track         | 330.0   | 98.7       | 1626     | 96.7       | 195.4                  | 4.62                 |
| SX RR1878                              | On Track             | 335.6   | 100.4      | 1756     | 104.4      | 204.8                  | 4.71                 |
| SX RR1879                              | On Track             | 338.5   | 101.2      | 1770     | 105.3      | 206.5                  | 4.88                 |
| SV RR371                               | On Track             | 339.0   | 101.4      | 1833     | 109.0      | 210.4                  | 4.59                 |
| SV RR372                               | On Track             | 332.7   | 99.5       | 1723     | 102.5      | 202.0                  | 4.23                 |
| SV RR373                               | Not On Track         | 331.8   | 99.2       | 1613     | 95.9       | 195.2                  | 4.31                 |
| SV RR374                               | On Track             | 337.2   | 100.8      | 1776     | 105.6      | 206.5                  | 4.71                 |
| SV RR375                               | Not On Track         | 342.4   | 102.4      | 1802     | 107.2      | 209.6                  | 5.08                 |
| <b>Benchmark Varieties</b>             |                      |         |            |          |            |                        |                      |
| BTS 80RR52                             |                      | 334.2   | 99.9       | 1699     | 101.1      |                        |                      |
| Hilleshög 4302RR                       |                      | 334.0   | 99.9       | 1597     | 95.0       |                        |                      |
| Crystal 101RR                          |                      | 329.3   | 98.5       | 1718     | 102.2      |                        |                      |
| Crystal 355RR                          |                      | 340.0   | 101.7      | 1711     | 101.8      |                        |                      |
| Benchmark Mean                         |                      | 334.4   |            | 1681     |            |                        |                      |

^ = not on track for approval. On Track = data is tracking for potential approval.

^^ All Cercospora ratings 2017 were adjusted to 1982 basis.

Full market approval criteria include: 1) 2 years of official trial data, 2) Cercospora rating must not exceed 5.00 (1982 adjusted data),  
 3a) R/T >= 100% of Bench or 3b) R/T >= 97% and R/T + \$/A equal to 202 of Bench.

Bench for 2017 added Crystal 355RR and dropped BTS 81RR17(Check).

Created 11-04-2017.

Table 28. Calculation for Approval of Sugarbeet Varieties for ACSC Aphanomyces Specialty Market for 2018

| Trial Yrs                          | Variety              | Approval Status | Root Aph. Rating |      |      |      |      | Cercospora Rating + |      |        |      |      |
|------------------------------------|----------------------|-----------------|------------------|------|------|------|------|---------------------|------|--------|------|------|
|                                    |                      |                 | 2015             | 2016 | 2017 | 2 Yr | 3 Yr | 2015                | 2016 | 2017   | 2 Yr | 3 Yr |
| <b>Previously Approved (3 Yrs)</b> |                      |                 |                  |      |      |      |      |                     |      | <=4.70 |      |      |
| 8                                  | BTS 80RR52           | Approved        | 3.24             | 4.11 | 4.36 | 4.24 | 3.90 | 4.11                | 4.28 | 4.37   | 4.33 | 4.25 |
| 5                                  | BTS 8337             | Approved        | 2.55             | 3.26 | 3.78 | 3.52 | 3.20 | 4.49                | 4.62 | 4.36   | 4.49 | 4.49 |
| 3                                  | BTS 8500             | Approved        | 3.54             | 4.22 | 4.52 | 4.37 | 4.09 | 4.45                | 4.54 | 4.29   | 4.42 | 4.43 |
| 3                                  | BTS 8512             | Approved        | 3.91             | 4.17 | 3.78 | 3.98 | 3.95 | 4.12                | 4.04 | 3.69   | 3.87 | 3.95 |
| 3                                  | BTS 8524             | Approved        | 3.33             | 3.89 | 4.49 | 4.19 | 3.90 | 4.40                | 4.74 | 4.38   | 4.56 | 4.51 |
| 3                                  | BTS 8572             | Approved        | 4.05             | 4.46 | 3.76 | 4.11 | 4.09 | 4.60                | 4.41 | 4.14   | 4.28 | 4.38 |
| 8                                  | Crystal 093RR        | Approved        | 3.86             | 4.32 | 4.43 | 4.38 | 4.20 | 4.76                | 4.95 | 4.49   | 4.72 | 4.73 |
| 7                                  | Crystal 101RR        | Approved        | 3.31             | 3.42 | 3.92 | 3.67 | 3.55 | 4.65                | 4.59 | 4.57   | 4.58 | 4.60 |
| 5                                  | Crystal 355RR        | Approved        | 3.26             | 4.46 | 4.84 | 4.65 | 4.19 | 4.43                | 4.60 | 4.36   | 4.48 | 4.46 |
| 4                                  | Crystal 467RR        | Approved        | 3.55             | 4.04 | 3.96 | 4.00 | 3.85 | 4.34                | 4.69 | 4.46   | 4.58 | 4.50 |
| 3                                  | Crystal 573RR        | Approved        | 3.69             | 4.06 | 3.84 | 3.95 | 3.86 | 4.15                | 4.35 | 4.15   | 4.25 | 4.22 |
| 3                                  | Crystal 574RR        | Approved        | 2.93             | 3.69 | 4.72 | 4.21 | 3.78 | 4.30                | 4.51 | 4.35   | 4.43 | 4.39 |
| 9                                  | Crystal 986RR        | Approved        | 3.87             | 4.41 | 4.09 | 4.25 | 4.12 | 4.97                | 4.75 | 4.77   | 4.76 | 4.83 |
| 3                                  | Hilleshög HIL9707    | Approved        | 3.52             | 3.99 | 4.70 | 4.35 | 4.07 | 4.60                | 4.53 | 4.96   | 4.75 | 4.70 |
| 7                                  | Hilleshög 4302RR     | NO              | 4.02             | 4.63 | 6.66 | 5.65 | 5.10 | 4.13                | 4.13 | 3.93   | 4.03 | 4.06 |
| 5                                  | Hilleshög 9528RR     | Approved        | 2.97             | 3.77 | 5.63 | 4.70 | 4.12 | 5.16                | 4.73 | 4.99   | 4.86 | 4.96 |
| 4                                  | Maribo 109           | Approved        | 3.54             | 4.27 | 5.06 | 4.67 | 4.29 | 4.56                | 4.14 | 4.14   | 4.14 | 4.28 |
| 3                                  | Maribo MA502         | Approved        | 2.93             | 3.06 | 3.53 | 3.30 | 3.17 | 5.04                | 4.79 | 5.01   | 4.90 | 4.95 |
| 5                                  | SV RR333             | Approved        | 3.46             | 4.71 | 4.99 | 4.85 | 4.39 | 4.54                | 4.85 | 4.84   | 4.85 | 4.74 |
| 3                                  | SV RR351             | Approved        | 3.53             | 4.38 | 4.18 | 4.28 | 4.03 | 4.62                | 4.50 | 4.41   | 4.46 | 4.51 |
| 3                                  | SX Avalanche RR(858) | Approved        | 3.40             | 4.44 | 4.00 | 4.22 | 3.95 | 4.15                | 4.74 | 4.64   | 4.69 | 4.51 |
| 4                                  | SX Canyon RR         | Approved        | 3.59             | 4.28 | 4.33 | 4.31 | 4.07 | 4.02                | 4.76 | 4.92   | 4.84 | 4.57 |
| 4                                  | SX Cruze RR          | Approved        | 4.14             | 3.41 | 4.79 | 4.10 | 4.11 | 4.57                | 4.65 | 5.37   | 5.01 | 4.86 |
| 5                                  | SX Winchester RR     | Approved        | 3.07             | 3.85 | 4.36 | 4.11 | 3.76 | 3.67                | 3.97 | 4.07   | 4.02 | 3.90 |
| <b>Candidates for Approval</b>     |                      |                 |                  |      |      |      |      |                     |      | <=4.40 |      |      |
| 5                                  | BTS 8363             | NO              | 4.77             | 4.93 | 4.60 | 4.77 | 4.77 | 3.83                | 4.33 | 4.10   | 4.22 | 4.09 |
| 2                                  | BTS 8606             | NO              | --               | 4.60 | 4.91 | 4.76 | --   |                     | 5.12 | 4.73   | 4.93 |      |
| 2                                  | BTS 8629             | NO              | --               | 4.14 | 4.68 | 4.41 | --   |                     | 4.59 | 4.29   | 4.44 |      |
| 6                                  | Crystal 246RR        | NO              | 4.99             | 4.85 | 5.13 | 4.99 | 4.99 | 4.49                | 4.81 | 4.63   | 4.72 | 4.64 |
| 6                                  | Crystal 247RR        | NO              | 4.94             | 4.77 | 5.35 | 5.06 | 5.02 | 4.19                | 4.65 | 4.55   | 4.60 | 4.46 |
| 3                                  | Crystal 572RR        | NO              | 4.33             | 4.74 | 4.69 | 4.72 | 4.59 | 4.65                | 4.57 | 4.27   | 4.42 | 4.50 |
| 3                                  | Crystal 578RR        | NO              | 4.52             | 4.44 | 4.56 | 4.50 | 4.51 | 4.93                | 4.87 | 4.91   | 4.89 | 4.90 |
| 2                                  | Crystal 684RR        | Approved        | --               | 3.74 | 4.31 | 4.03 | --   | --                  | 4.57 | 4.34   | 4.46 | --   |
| 3                                  | Hilleshög HIL9708    | NO              | 4.69             | 4.82 | 5.94 | 5.38 | 5.15 | 5.04                | 4.74 | 4.61   | 4.68 | 4.80 |
| 2                                  | Hilleshög HIL9895    | Approved        | --               | 3.65 | 4.39 | 4.02 | --   | --                  | 4.49 | 4.84   | 4.67 | --   |
| 6                                  | Hilleshög 4448RR     | NO              | 2.80             | 3.90 | 6.29 | 5.10 | 4.33 | 5.29                | 5.21 | 5.28   | 5.25 | 5.26 |
| 5                                  | Maribo 305           | NO              | 4.76             | 4.42 | 5.67 | 5.05 | 4.95 | 4.76                | 4.72 | 4.98   | 4.85 | 4.82 |
| 3                                  | Maribo MA504         | NO              | 4.60             | 4.54 | 6.20 | 5.37 | 5.11 | 5.25                | 5.04 | 5.50   | 5.27 | 5.26 |
| 2                                  | Maribo MA611         | Approved        | --               | 3.94 | 4.00 | 3.97 | --   | --                  | 4.47 | 5.03   | 4.75 | --   |
| 4                                  | SV RR244TT           | NO              | 4.23             | 4.97 | 4.91 | 4.94 | 4.70 | 4.17                | 4.46 | 4.85   | 4.66 | 4.49 |
| 2                                  | SV RR265             | NO              | --               | 4.54 | 5.35 | 4.95 | --   | --                  | 5.00 | 5.19   | 5.10 | --   |
| 2                                  | SV RR266             | NO              | --               | 4.62 | 5.64 | 5.13 | --   | --                  | 4.74 | 4.61   | 4.68 | --   |
| 2                                  | SV RR268             | Approved        | --               | 4.00 | 4.71 | 4.36 | --   | --                  | 5.13 | 5.06   | 5.10 | --   |
| 3                                  | SX Marathon RR(856)  | NO              | 4.53             | 4.38 | 4.52 | 4.45 | 4.48 | 5.37                | 4.44 | 4.54   | 4.49 | 4.78 |
| 2                                  | SX RR1861            | NO              | --               | 4.40 | 5.71 | 5.06 | --   | --                  | 4.52 | 4.74   | 4.63 | --   |
| 2                                  | SX RR1863            | Approved        | --               | 3.55 | 4.88 | 4.22 | --   | --                  | 4.35 | 4.08   | 4.22 | --   |
| Approval Criteria new varieties    |                      |                 |                  |      |      |      |      |                     |      | 4.40   |      |      |
| Criteria to Maintain Approval      |                      |                 |                  |      |      |      |      |                     |      | 4.70   |      |      |

+ All Cercospora ratings 2015-2017 were adjusted to 1982 basis.

Aphanomyces approval criteria include: 1) Cercospora rating must not exceed 5.20 (1982 adjusted data), 2) Aph root rating <= 4.40 after 2 years.

3 yrs of data may be considered for initial approval.

To maintain Aphanomyces approval criteria include: 1) Cercospora 3 year mean must not exceed 5.40, 2) Aph root rating <= 4.70 after 3 years.

Previously approved varieties not meeting current approval standards may be sold in 2018.

Created 11/8/2017

Table 29. Calculation for Approval of Sugarbeet Varieties for ACSC Rhizoctonia Specialty Market for 2018

| Variety                               | Approval Status | Approval |      |      | Disease Index + |             |      | Cercospora Rating |             |             |         |
|---------------------------------------|-----------------|----------|------|------|-----------------|-------------|------|-------------------|-------------|-------------|---------|
|                                       |                 | 2015     | 2016 | 2017 | 2 Yr Mn         | 3 Yr Mn     | 2015 | 2016              | 2017        | 2 Yr Mn     | 3 Yr Mn |
| <b>Previously Approved (3 Yr)</b>     |                 |          |      |      |                 |             |      |                   |             |             |         |
| Crystal 355RR                         | Approved        | NE       | 3.96 | 4.09 | 4.03            | NE          | 4.43 | 4.60              | 4.36        | 4.48        | 4.46    |
| Hilleshög 4302RR                      | Approved        | 3.70     | 3.65 | 3.60 | 3.63            | 3.65        | 4.13 | 4.13              | 3.93        | 4.03        | 4.06    |
| Maribo 109                            | Approved        | 3.67     | 3.69 | 3.63 | 3.66            | 3.66        | 4.56 | 4.14              | 4.14        | 4.14        | 4.28    |
| <b>Candidates for Approval (2 Yr)</b> |                 |          |      |      |                 |             |      |                   |             |             |         |
| BTS 80RR52                            | Not Approved    | 3.95     | 4.41 | 4.14 | 4.28            | 4.17        | 4.11 | 4.28              | 4.37        | 4.33        | 4.25    |
| BTS 8337                              | Not Approved    | 3.87     | 4.08 | 4.30 | 4.19            | 4.08        | 4.49 | 4.62              | 4.36        | 4.49        | 4.49    |
| BTS 8363                              | Not Approved    | 4.12     | 4.34 | 4.85 | 4.60            | 4.44        | 3.83 | 4.33              | 4.10        | 4.22        | 4.09    |
| BTS 8500                              | Not Approved    | 4.19     | 4.43 | 4.57 | 4.50            | 4.40        | 4.45 | 4.54              | 4.29        | 4.42        | 4.43    |
| BTS 8512                              | Not Approved    | 4.28     | 4.44 | 4.28 | 4.36            | 4.33        | 4.12 | 4.04              | 3.69        | 3.87        | 3.95    |
| BTS 8524                              | Not Approved    | 4.14     | 4.20 | 4.41 | 4.31            | 4.25        | 4.40 | 4.74              | 4.38        | 4.56        | 4.51    |
| BTS 8572                              | Not Approved    | 3.85     | 4.54 | 4.32 | 4.43            | 4.24        | 4.60 | 4.41              | 4.14        | 4.28        | 4.38    |
| BTS 8606                              | Not Approved    | --       | 4.48 | 5.00 | 4.74            | --          | --   | 5.12              | 4.73        | 4.93        | --      |
| BTS 8629                              | Not Approved    | --       | 3.73 | 4.21 | 3.97            | --          | --   | 4.59              | 4.29        | 4.44        | --      |
| Crystal 093RR                         | Not Approved    | 3.96     | 4.37 | 4.50 | 4.44            | 4.28        | 4.76 | 4.95              | 4.49        | 4.72        | 4.73    |
| Crystal 101RR                         | Not Approved    | 4.64     | 4.78 | 4.78 | 4.78            | 4.73        | 4.65 | 4.59              | 4.57        | 4.58        | 4.60    |
| Crystal 246RR                         | Not Approved    | 4.19     | 4.32 | 4.23 | 4.28            | 4.25        | 4.49 | 4.81              | 4.63        | 4.72        | 4.64    |
| Crystal 247RR                         | Not Approved    | 4.33     | 4.32 | 4.49 | 4.41            | 4.38        | 4.19 | 4.65              | 4.55        | 4.60        | 4.46    |
| Crystal 467RR                         | Not Approved    | 3.97     | 4.26 | 4.47 | 4.37            | 4.23        | 4.34 | 4.69              | 4.46        | 4.58        | 4.50    |
| Crystal 572RR                         | Not Approved    | 3.89     | 4.21 | 4.47 | 4.34            | 4.19        | 4.65 | 4.57              | 4.27        | 4.42        | 4.50    |
| Crystal 573RR                         | Not Approved    | 4.25     | 4.55 | 4.57 | 4.56            | 4.46        | 4.15 | 4.35              | 4.15        | 4.25        | 4.22    |
| Crystal 574RR                         | Not Approved    | 4.16     | 4.47 | 4.16 | 4.32            | 4.26        | 4.30 | 4.51              | 4.35        | 4.43        | 4.39    |
| Crystal 578RR                         | Not Approved    | 4.03     | 4.32 | 4.40 | 4.36            | 4.25        | 4.93 | 4.87              | 4.91        | 4.89        | 4.90    |
| Crystal 684RR                         | Not Approved    | --       | 4.41 | 4.57 | 4.49            | --          | --   | 4.57              | 4.34        | 4.46        | --      |
| Crystal 986RR                         | Not Approved    | 4.06     | 4.38 | 4.39 | 4.39            | 4.28        | 4.97 | 4.75              | 4.77        | 4.76        | 4.83    |
| Hilleshög 4448RR                      | Not Approved    | 3.92     | 4.51 | 4.63 | 4.57            | 4.35        | 5.29 | 5.21              | 5.28        | 5.25        | 5.26    |
| Hilleshög 9528RR                      | Not Approved    | 4.10     | 4.21 | 4.21 | 4.21            | 4.17        | 5.16 | 4.73              | 4.99        | 4.86        | 4.96    |
| Hilleshög HIL9707                     | Not Approved    | 4.21     | 4.40 | 4.43 | 4.42            | 4.35        | 4.60 | 4.53              | 4.96        | 4.75        | 4.70    |
| Hilleshög HIL9708                     | Not Approved    | 4.04     | 4.28 | 4.21 | 4.25            | 4.18        | 5.04 | 4.74              | 4.61        | 4.68        | 4.80    |
| Hilleshög HIL9895                     | Not Approved    | --       | 4.56 | 4.34 | 4.45            | --          | --   | 4.49              | 4.84        | 4.67        | --      |
| Maribo 305                            | Not Approved    | 3.83     | 4.40 | 4.60 | 4.50            | 4.28        | 4.76 | 4.72              | 4.98        | 4.85        | 4.82    |
| Maribo MA502                          | Not Approved    | 4.14     | 4.73 | 4.78 | 4.76            | 4.55        | 5.04 | 4.79              | 5.01        | 4.90        | 4.95    |
| Maribo MA504                          | Not Approved    | 3.98     | 4.58 | 4.37 | 4.48            | 4.31        | 5.25 | 5.04              | 5.50        | 5.27        | 5.26    |
| Maribo MA611                          | Not Approved    | --       | 4.63 | 4.44 | 4.54            | --          | --   | 4.47              | 5.03        | 4.75        | --      |
| SX Avalanche RR(858)                  | Not Approved    | 4.21     | 4.52 | 4.29 | 4.41            | 4.34        | 4.15 | 4.74              | 4.64        | 4.69        | 4.51    |
| SX Canyon RR                          | Not Approved    | 4.22     | 4.40 | 4.51 | 4.46            | 4.38        | 4.02 | 4.76              | 4.92        | 4.84        | 4.57    |
| SX Cruze RR                           | Not Approved    | 4.18     | 4.69 | 4.39 | 4.54            | 4.42        | 4.57 | 4.65              | 5.37        | 5.01        | 4.86    |
| SX Marathon RR(856)                   | Not Approved    | 4.16     | 4.47 | 4.40 | 4.44            | 4.34        | 5.37 | 4.44              | 4.54        | 4.49        | 4.78    |
| SX RR1861                             | Not Approved    | --       | 4.59 | 4.50 | 4.55            | --          | --   | 4.52              | 4.74        | 4.63        | --      |
| SX RR1863                             | Not Approved    | --       | 4.54 | 4.23 | 4.39            | --          | --   | 4.35              | 4.08        | 4.22        | --      |
| SX Winchester RR                      | Not Approved    | 4.28     | 4.63 | 4.47 | 4.55            | 4.46        | 3.67 | 3.97              | 4.07        | 4.02        | 3.90    |
| SV RR244TT                            | Not Approved    | 4.18     | 4.45 | 4.50 | 4.48            | 4.38        | 4.17 | 4.46              | 4.85        | 4.66        | 4.49    |
| SV RR265                              | Not Approved    | --       | 4.44 | 4.42 | 4.43            | --          | --   | 5.00              | 5.19        | 5.10        | --      |
| SV RR266                              | Not Approved    | --       | 4.20 | 4.39 | 4.30            | --          | --   | 4.74              | 4.61        | 4.68        | --      |
| SV RR268                              | Not Approved    | --       | 4.70 | 4.57 | 4.64            | --          | --   | 5.13              | 5.06        | 5.10        | --      |
| SV RR333                              | Not Approved    | 4.11     | 4.44 | 4.44 | 4.44            | 4.33        | 4.54 | 4.85              | 4.84        | 4.85        | 4.74    |
| SV RR351                              | Not Approved    | --       | 4.17 | 4.25 | 4.21            | --          | 4.62 | 4.50              | 4.41        | 4.46        | 4.51    |
| <b>Susceptible Checks</b>             |                 |          |      |      |                 |             |      |                   |             |             |         |
| RH CK#08 CRYSS539RR                   |                 | 4.65     | 4.84 | 4.74 |                 |             |      |                   |             |             |         |
| RH CK#21 CRYST768RR                   |                 | --       | --   | 4.66 |                 |             |      |                   |             |             |         |
| RH CK#24 BETA86RR88                   |                 | 4.82     | --   | --   |                 |             |      |                   |             |             |         |
| RH CK#25 HILL4043RR                   |                 | 4.35     | 4.76 | 4.51 |                 |             |      |                   |             |             |         |
| RH CK#27 HILL4012RR                   |                 | 4.41     | --   | --   |                 |             |      |                   |             |             |         |
| RH CK#28 CRYSS658RR                   |                 | --       | 4.57 | --   |                 |             |      |                   |             |             |         |
| RH CK#29 BETA87RR58                   |                 | 4.77     | 4.67 | 4.79 |                 |             |      |                   |             |             |         |
| RH CK#30 SES36711RR                   |                 | 4.91     | --   | --   |                 |             |      |                   |             |             |         |
| RH CK#31 HILL4000RR                   |                 | 5.03     | 4.80 | 4.65 |                 |             |      |                   |             |             |         |
| RH CK#34 BETA86RR66                   |                 | 4.57     | --   | --   |                 |             |      |                   |             |             |         |
| RH CK#35 SES36812RR                   |                 | 4.37     | 4.55 | 4.71 |                 |             |      |                   |             |             |         |
| RH CK#36 BETA85RR02                   |                 | 4.71     | --   | --   |                 |             |      |                   |             |             |         |
| RH CK#37 SES36918RR                   |                 | 4.34     | 4.67 | --   |                 |             |      |                   |             |             |         |
| RH CK#40 CRYSS101RR                   |                 | 4.55     | 4.65 | 4.55 |                 |             |      |                   |             |             |         |
| RH CK#45 BTS82RR33                    |                 | --       | --   | 4.73 |                 |             |      |                   |             |             |         |
| RH CK#47 SES36272RR                   |                 | --       | 4.50 | 4.62 |                 |             |      |                   |             |             |         |
| RH CK#49 CRYSS247RR                   |                 | --       | 4.38 | 4.65 |                 |             |      |                   |             |             |         |
| Susceptible Hybrid Mean               |                 | 4.62     | 4.64 | 4.66 | 4.65            | 4.64        |      |                   | <b>5.20</b> | <b>5.40</b> |         |
| Approval Criteria ++                  |                 | 3.82     | 3.82 | 3.82 | <b>3.82</b>     | <b>3.82</b> |      |                   |             |             |         |
| Disapproval Criteria                  |                 |          |      |      |                 | <b>4.18</b> |      |                   |             |             |         |

Rhc and CR ratings were adjusted based upon check performance.

Created 11/8/2017

+ Disease Index is based on a scale of 0 (healthy) to 7 (dead).

++ Candidates must have better tolerance than susc. check mean \* 80%. To maintain approval, tolerance must be better than susc. check mean \* 90%.

Previously approved varieties not meeting current approval standards may be sold in 2018.

Table 30. 2017 Aphanomyces Ratings for Official Trial Entries  
 Betaseed Nursery - Shakopee, MN & ACSC - RRV

| Chk<br>@ | Code              | Variety | Adjusted @   |       |      |       |        |         | Trial<br>Yrs |
|----------|-------------------|---------|--------------|-------|------|-------|--------|---------|--------------|
|          |                   |         | Shak<br>8/30 | 2017  | 2 Yr | 3 Yr  | 2016^^ | 2015 ^^ |              |
|          |                   |         |              | 1 loc | 3loc | 5 loc | 2 loc  | 2 loc   |              |
| 529      | BTS 80RR52        |         | 4.36         | 4.36  | 4.23 | 3.90  | 4.11   | 3.24    | 8            |
| 545      | BTS 8337          |         | 3.78         | 3.78  | 3.52 | 3.19  | 3.26   | 2.55    | 5            |
| 562      | BTS 8363          |         | 4.60         | 4.60  | 4.76 | 4.76  | 4.93   | 4.77    | 5            |
| 513      | BTS 8500          |         | 4.52         | 4.52  | 4.37 | 4.09  | 4.22   | 3.54    | 3            |
| 533      | BTS 8512          |         | 3.78         | 3.78  | 3.97 | 3.95  | 4.17   | 3.91    | 3            |
| 550      | BTS 8524          |         | 4.49         | 4.49  | 4.19 | 3.90  | 3.89   | 3.33    | 3            |
| 570      | BTS 8572          |         | 3.76         | 3.76  | 4.11 | 4.09  | 4.46   | 4.05    | 3            |
| 509      | BTS 8606          |         | 4.91         | 4.91  | 4.75 | --    | 4.60   | --      | 2            |
| 525      | BTS 8629          |         | 4.68         | 4.68  | 4.41 | --    | 4.14   | --      | 2            |
| 577      | BTS 8735          |         | 4.74         | 4.74  | --   | --    | --     | --      | 1            |
| 506      | BTS 8742          |         | 5.02         | 5.02  | --   | --    | --     | --      | 1            |
| 536      | BTS 8749          |         | 3.53         | 3.53  | --   | --    | --     | --      | 1            |
| 540      | BTS 8756          |         | 5.23         | 5.23  | --   | --    | --     | --      | 1            |
| 521      | BTS 8767          |         | 4.80         | 4.80  | --   | --    | --     | --      | 1            |
| 518      | BTS 8770          |         | 4.97         | 4.97  | --   | --    | --     | --      | 1            |
| 567      | BTS 8784          |         | 4.59         | 4.59  | --   | --    | --     | --      | 1            |
| 502      | BTS 8787          |         | 4.71         | 4.71  | --   | --    | --     | --      | 1            |
| 512      | BTS 8798          |         | 4.92         | 4.92  | --   | --    | --     | --      | 1            |
| 549      | Crystal 093RR     |         | 4.43         | 4.43  | 4.38 | 4.21  | 4.32   | 3.86    | 8            |
| 551      | Crystal 101RR     |         | 3.92         | 3.92  | 3.67 | 3.55  | 3.42   | 3.31    | 7            |
| 507      | Crystal 246RR     |         | 5.13         | 5.13  | 4.99 | 4.99  | 4.85   | 4.99    | 6            |
| 560      | Crystal 247RR     |         | 5.35         | 5.35  | 5.06 | 5.02  | 4.77   | 4.94    | 6            |
| 565      | Crystal 355RR     |         | 4.84         | 4.84  | 4.65 | 4.19  | 4.46   | 3.26    | 5            |
| 523      | Crystal 467RR     |         | 3.96         | 3.96  | 4.00 | 3.85  | 4.04   | 3.55    | 4            |
| 503      | Crystal 572RR     |         | 4.69         | 4.69  | 4.71 | 4.59  | 4.74   | 4.33    | 3            |
| 554      | Crystal 573RR     |         | 3.84         | 3.84  | 3.95 | 3.86  | 4.06   | 3.69    | 3            |
| 544      | Crystal 574RR     |         | 4.72         | 4.72  | 4.21 | 3.78  | 3.69   | 2.93    | 3            |
| 571      | Crystal 578RR     |         | 4.56         | 4.56  | 4.50 | 4.51  | 4.44   | 4.52    | 3            |
| 510      | Crystal 684RR     |         | 4.31         | 4.31  | 4.02 | --    | 3.74   | --      | 2            |
| 547      | Crystal 792RR     |         | 4.73         | 4.73  | --   | --    | --     | --      | 1            |
| 557      | Crystal 793RR     |         | 3.02         | 3.02  | --   | --    | --     | --      | 1            |
| 534      | Crystal 794RR     |         | 4.65         | 4.65  | --   | --    | --     | --      | 1            |
| 522      | Crystal 795RR     |         | 4.40         | 4.40  | --   | --    | --     | --      | 1            |
| 553      | Crystal 796RR     |         | 3.11         | 3.11  | --   | --    | --     | --      | 1            |
| 528      | Crystal 797RR     |         | 5.21         | 5.21  | --   | --    | --     | --      | 1            |
| 532      | Crystal 986RR     |         | 4.09         | 4.09  | 4.25 | 4.12  | 4.41   | 3.87    | 9            |
| 559      | Hilleshög HIL9707 |         | 4.70         | 4.70  | 4.34 | 4.07  | 3.99   | 3.52    | 3            |
| 576      | Hilleshög HIL9708 |         | 5.94         | 5.94  | 5.38 | 5.15  | 4.82   | 4.69    | 3            |
| 561      | Hilleshög HIL9895 |         | 4.39         | 4.39  | 4.02 | --    | 3.65   | --      | 2            |
| 566      | Hilleshög HIL9920 |         | 4.94         | 4.94  | --   | --    | --     | --      | 1            |
| 563      | Hilleshög HIL9921 |         | 5.41         | 5.41  | --   | --    | --     | --      | 1            |
| 504      | Hilleshög HIL9922 |         | 5.79         | 5.79  | --   | --    | --     | --      | 1            |
| 543      | Hilleshög HIL9923 |         | 5.06         | 5.06  | --   | --    | --     | --      | 1            |
| 517      | Hilleshög HIL9924 |         | 5.37         | 5.37  | --   | --    | --     | --      | 1            |
| 505      | Hilleshög 4302RR  |         | 6.66         | 6.66  | 5.65 | 5.10  | 4.63   | 4.02    | 7            |
| 542      | Hilleshög 4448RR  |         | 6.29         | 6.29  | 5.09 | 4.33  | 3.90   | 2.80    | 6            |
| 531      | Hilleshög 9528RR  |         | 5.63         | 5.63  | 4.70 | 4.12  | 3.77   | 2.97    | 5            |
| 556      | Maribo 109        |         | 5.06         | 5.06  | 4.66 | 4.29  | 4.27   | 3.54    | 4            |
| 539      | Maribo 305        |         | 5.67         | 5.67  | 5.05 | 4.95  | 4.42   | 4.76    | 5            |
| 526      | Maribo MA502      |         | 3.53         | 3.53  | 3.29 | 3.17  | 3.06   | 2.93    | 3            |

Table 30. 2017 Aphanomyces Ratings for Official Trial Entries  
Betaseed Nursery - Shakopee, MN & ACSC - RRV

| Chk<br>@ | Code | Variety               | Adjusted @   |      |       |      |        |         | Trial<br>Yrs |   |
|----------|------|-----------------------|--------------|------|-------|------|--------|---------|--------------|---|
|          |      |                       | Shak<br>8/30 | 2017 | 2 Yr  | 3 Yr | 2016^^ | 2015 ^^ |              |   |
|          | 514  | Maribo MA504          | 6.20         | 6.20 | 1 loc | 5.37 | 5.11   | 4.54    | 4.60         | 3 |
|          | 568  | Maribo MA611          | 4.00         | 4.00 | 3.97  | --   | 3.94   | --      | 2            |   |
|          | 574  | Maribo MA717          | 5.31         | 5.31 | --    | --   | --     | --      | 1            |   |
|          | 530  | Maribo MA718          | 4.46         | 4.46 | --    | --   | --     | --      | 1            |   |
|          | 538  | Maribo MA719          | 4.75         | 4.75 | --    | --   | --     | --      | 1            |   |
|          | 564  | SV RR244TT            | 4.91         | 4.91 | 4.94  | 4.70 | 4.97   | 4.23    | 4            |   |
|          | 511  | SV RR265              | 5.35         | 5.35 | 4.95  | --   | 4.54   | --      | 2            |   |
|          | 555  | SV RR266              | 5.64         | 5.64 | 5.13  | --   | 4.62   | --      | 2            |   |
|          | 572  | SV RR268              | 4.71         | 4.71 | 4.36  | --   | 4.00   | --      | 2            |   |
|          | 541  | SV RR333              | 4.99         | 4.99 | 4.85  | 4.39 | 4.71   | 3.46    | 5            |   |
|          | 573  | SV RR351              | 4.18         | 4.18 | 4.28  | 4.03 | 4.38   | 3.53    | 3            |   |
|          | 515  | SV RR371              | 4.55         | 4.55 | --    | --   | --     | --      | 1            |   |
|          | 501  | SV RR372              | 4.42         | 4.42 | --    | --   | --     | --      | 1            |   |
|          | 508  | SV RR373              | 4.93         | 4.93 | --    | --   | --     | --      | 1            |   |
|          | 578  | SV RR374              | 5.20         | 5.20 | --    | --   | --     | --      | 1            |   |
|          | 546  | SV RR375              | 4.54         | 4.54 | --    | --   | --     | --      | 1            |   |
|          | 537  | SX Avalanche RR(858)  | 4.00         | 4.00 | 4.22  | 3.95 | 4.44   | 3.40    | 3            |   |
|          | 548  | SX Canyon RR          | 4.33         | 4.33 | 4.31  | 4.07 | 4.28   | 3.59    | 4            |   |
|          | 535  | SX Cruze RR           | 4.79         | 4.79 | 4.10  | 4.11 | 3.41   | 4.14    | 4            |   |
|          | 519  | SX Marathon RR(856)   | 4.52         | 4.52 | 4.45  | 4.48 | 4.38   | 4.53    | 3            |   |
|          | 558  | SX RR1861             | 5.71         | 5.71 | 5.05  | --   | 4.40   | --      | 2            |   |
|          | 527  | SX RR1863             | 4.88         | 4.88 | 4.21  | --   | 3.55   | --      | 2            |   |
|          | 516  | SX RR1875             | 4.13         | 4.13 | --    | --   | --     | --      | 1            |   |
|          | 520  | SX RR1876             | 4.73         | 4.73 | --    | --   | --     | --      | 1            |   |
|          | 569  | SX RR1877             | 3.84         | 3.84 | --    | --   | --     | --      | 1            |   |
|          | 552  | SX RR1878             | 5.54         | 5.54 | --    | --   | --     | --      | 1            |   |
|          | 524  | SX RR1879             | 4.18         | 4.18 | --    | --   | --     | --      | 1            |   |
|          | 575  | SX Winchester RR      | 4.36         | 4.36 | 4.11  | 3.76 | 3.85   | 3.07    | 5            |   |
| 1        | 1001 | AP Ck-32 CRYs981RR    | 3.19         | 3.19 | 3.45  | 3.38 | 3.71   | 3.25    | 9            |   |
| 1        | 1002 | AP CK-33 CRYs768RR    | 4.74         | 4.74 | 4.73  | 4.77 | 4.71   | 4.86    | 11           |   |
| 1        | 1003 | AP CK-34 HILL4000RR   | 6.76         | 6.76 | 6.13  | 6.00 | 5.49   | 5.73    | 11           |   |
| 1        | 1004 | AP CK-35 BETA87RR58   | 4.86         | 4.86 | 5.03  | 5.29 | 5.20   | 5.79    | 11           |   |
| 1        | 1005 | AP CK-41 CRYs765RR    | 6.01         | 6.01 | 5.91  | 6.19 | 5.81   | 6.73    | 7            |   |
| 1        | 1006 | AP CK-43 BTS80RR32    | 4.64         | 4.64 | 4.65  | 4.86 | 4.66   | 5.26    | 8            |   |
| 1        | 1007 | AP CK-44 SX VISION RR | 5.17         | 5.17 | 5.07  | 5.16 | 4.97   | 5.33    | 9            |   |
| 1        | 1008 | AP CK-45 CRYs986RR    | 4.22         | 4.22 | 4.41  | 4.32 | 4.60   | 4.14    | 9            |   |
| 1        | 1009 | AP CK-47 CRYs101RR    | 3.83         | 3.83 | 3.62  | 3.46 | 3.41   | 3.14    | 7            |   |
| 1        | 1010 | AP CK-49 BTS82RR33    | 6.29         | 6.29 | 5.96  | 6.00 | 5.63   | 6.09    | 6            |   |
| 1        | 1011 | AP CK-51 CRYs246RR    | 4.65         | 4.65 | 4.77  | 4.84 | 4.89   | 4.99    | 6            |   |
| 1        | 1012 | AP CK-52 HILL4094RR   | 4.58         | 4.58 | 4.74  | 4.69 | 4.90   | 4.60    | 10           |   |
| 1        | 1013 | AP CK-53 CRYs093RR    | 4.19         | 4.19 | 4.37  | 4.20 | 4.55   | 3.86    | 8            |   |
| 1        | 1014 | AP CK-54 SES36273RR   | 5.05         | 5.05 | 4.76  | 4.63 | 4.46   | 4.38    | 6            |   |
| 1        | 1015 | AP CK-55 CRYs247RR    | 4.00         | 4.00 | 4.59  | 4.71 | 5.19   | 4.94    | 6            |   |
|          | 1016 | AP CHK SUS HYB#3      | 4.99         | 4.99 | 5.34  | 5.90 | 5.70   | 7.03    | 11           |   |
|          | 1017 | AP CHK MOD RES RR     | 4.65         | 4.65 | 4.71  | 4.54 | 4.76   | 4.22    | 11           |   |
|          | 1018 | AP CHK RES RR         | 4.49         | 4.49 | 4.21  | 4.00 | 3.93   | 3.59    | 12           |   |
|          | 1019 | AP CHK SUS HYB#3      | 5.40         | 5.40 | 5.55  | 6.04 | 5.70   | 7.03    | 11           |   |
|          | 1020 | AP CHK SUS HYB#4      | 5.99         | 5.99 | 5.92  | 6.46 | 5.85   | 7.56    | 11           |   |
|          | 1021 | AP CHK MOD RES RR#2   | 4.78         | 4.78 | 4.76  | 4.68 | 4.74   | 4.51    | 11           |   |
|          | 1022 | AP CHK MOD RES RR#4   | 4.74         | 4.74 | 4.76  | 4.82 | 4.77   | 4.94    | 6            |   |

Table 30. 2017 Aphanomyces Ratings for Official Trial Entries  
 Betaseed Nursery - Shakopee, MN & ACSC - RRV

| Chk<br>@            | Code                | Variety | Adjusted @   |       |      |       |        |         | Trial<br>Yrs |
|---------------------|---------------------|---------|--------------|-------|------|-------|--------|---------|--------------|
|                     |                     |         | Shak<br>8/30 | 2017  | 2 Yr | 3 Yr  | 2016^^ | 2015 ^^ |              |
|                     |                     |         |              | 1 loc | 3loc | 5 loc | 2 loc  | 2 loc   |              |
| 1023                | AC CHK RES RR#3     |         | 3.23         | 3.23  | 3.13 | 2.88  | 3.02   | 2.38    | 10           |
| 1024                | AP CHK SUS HYB#4    |         | 6.20         | 6.20  | 6.02 | 6.53  | 5.85   | 7.56    | 11           |
| <b>Conventional</b> |                     |         |              |       |      |       |        |         |              |
| 919                 | BETA EXP 687        |         | 4.30         | 4.30  | 4.59 | --    | 4.88   | --      | 2            |
| 918                 | BETA EXP 698        |         | 3.62         | 3.62  | 3.65 | --    | 3.69   | --      | 2            |
| 905                 | BETA EXP 747        |         | 3.60         | 3.60  | --   | --    | --     | --      | 1            |
| 909                 | BETA EXP 758        |         | 3.29         | 3.29  | --   | --    | --     | --      | 1            |
| 901                 | Crystal 620         |         | 4.09         | 4.09  | 4.18 | --    | 4.28   | --      | 2            |
| 906                 | Crystal 622         |         | 4.05         | 4.05  | 4.20 | --    | 4.36   | --      | 2            |
| 913                 | Crystal 735         |         | 3.93         | 3.93  | --   | --    | --     | --      | 1            |
| 910                 | Crystal 737         |         | 2.25         | 2.25  | --   | --    | --     | --      | 1            |
| 902                 | Crystal R761        |         | 4.01         | 4.01  | 3.79 | --    | 3.57   | --      | 11           |
| 914                 | Hilleshög 3035Rz    |         | 5.18         | 5.18  | 4.79 | --    | 4.40   | --      | 13           |
| 917                 | Hilleshög 9891Rz    |         | 4.89         | 4.89  | 4.67 | --    | 4.45   | --      | 2            |
| 904                 | Maribo MA615Rz      |         | 5.30         | 5.30  | 5.05 | --    | 4.80   | --      | 2            |
| 916                 | Maribo MA720Rz      |         | 5.15         | 5.15  | --   | --    | --     | --      | 1            |
| 911                 | Seedex 8869         |         | 4.99         | 4.99  | 4.85 | --    | 4.70   | --      | 2            |
| 907                 | Seedex Deuce        |         | 6.04         | 6.04  | 5.87 | --    | 5.70   | --      | 10           |
| 912                 | Strube 12720        |         | 8.11         | 8.11  | --   | --    | --     | --      | 1            |
| 908                 | Strube 13722        |         | 7.54         | 7.54  | --   | --    | --     | --      | 1            |
| 903                 | SV 48611            |         | 4.25         | 4.25  | 4.36 | --    | 4.47   | --      | 2            |
| 915                 | SV 48777            |         | 4.20         | 4.20  | --   | --    | --     | --      | 1            |
| 1001                | AP Ck-32 CRY981RR   |         | 2.93         | 2.93  | 3.32 | 3.30  | 3.71   | 3.25    | 9            |
| 1003                | AP CK-34 HILL4000RR |         | 6.36         | 6.36  | 5.92 | 5.86  | 5.49   | 5.73    | 11           |
| 1006                | AP CK-43 BTS80RR32  |         | 5.57         | 5.57  | 5.11 | 5.16  | 4.66   | 5.26    | 8            |
| 1009                | AP CK-47 CRY101RR   |         | 3.01         | 3.01  | 3.21 | 3.19  | 3.41   | 3.14    | 7            |
| 1011                | AP CK-51 CRY246RR   |         | 5.20         | 5.20  | 5.05 | 5.03  | 4.89   | 4.99    | 6            |
| 15                  | Check Mean          |         | 4.81         | 4.81  |      |       |        |         |              |
|                     | Trial Mean          |         | 4.75         | 4.75  |      |       |        |         |              |
|                     | Coeff. of Var. (%)  |         | 24.9         |       |      |       |        |         |              |
|                     | Mean LSD (0.05)     |         | 1.44         |       |      |       |        |         |              |
|                     | Mean LSD (0.01)     |         | 1.90         |       |      |       |        |         |              |
|                     | Sig Lvl             |         | **           |       |      |       |        |         |              |
|                     | Adjustment Factor   |         | 1.11         |       |      |       |        |         |              |

@ 2017 Root Rating was taken in early fall (1=healthy, 9=severe damage).

Created 11/3/2017

Ratings adjusted to 2003 basis. (2000-2002 Aph nurseries). Adjustment based on variety checks.

**Table 31. 2017 Cercospora Ratings for ACSC Official Trial Entries**  
**Betaseed (Randolph MN), BSDF (Frankenmuth MI) & NDSU (Foxhome MN)**

| Chk<br>@ | Code              | Variety | Adjusted to 1982 Basis @ |          |          |       |       |       |       |       | Trial<br>Yrs |  |
|----------|-------------------|---------|--------------------------|----------|----------|-------|-------|-------|-------|-------|--------------|--|
|          |                   |         | Beta                     | BSDF     | Foxhome  | 2017  | 2 Yr  | 3 Yr  | 2016  | 2015  |              |  |
|          |                   |         | Avg                      | Avg      | Avg      |       |       |       |       |       |              |  |
|          |                   |         | 5 Dates+                 | 5 Dates+ | 8 Dates+ | 3 loc | 6 loc | 9 loc | 3 loc | 3 loc |              |  |
| 529      | BTS 80RR52        |         | 3.59                     | 5.40     | 4.13     | 4.37  | 4.33  | 4.26  | 4.28  | 4.11  | 8            |  |
| 545      | BTS 8337          |         | 4.25                     | 4.37     | 4.46     | 4.36  | 4.49  | 4.49  | 4.62  | 4.49  | 5            |  |
| 562      | BTS 8363          |         | 3.96                     | 4.48     | 3.87     | 4.10  | 4.21  | 4.09  | 4.33  | 3.83  | 5            |  |
| 513      | BTS 8500          |         | 4.44                     | 4.52     | 3.90     | 4.29  | 4.41  | 4.43  | 4.54  | 4.45  | 3            |  |
| 533      | BTS 8512          |         | 2.99                     | 4.29     | 3.79     | 3.69  | 3.86  | 3.95  | 4.04  | 4.12  | 3            |  |
| 550      | BTS 8524          |         | 4.61                     | 4.55     | 3.98     | 4.38  | 4.56  | 4.51  | 4.74  | 4.40  | 3            |  |
| 570      | BTS 8572          |         | 3.51                     | 4.46     | 4.45     | 4.14  | 4.27  | 4.38  | 4.41  | 4.60  | 3            |  |
| 509      | BTS 8606          |         | 4.76                     | 4.81     | 4.62     | 4.73  | 4.92  | --    | 5.12  | --    | 2            |  |
| 525      | BTS 8629          |         | 4.18                     | 4.46     | 4.22     | 4.29  | 4.44  | --    | 4.59  | --    | 2            |  |
| 577      | BTS 8735          |         | 3.92                     | 4.77     | 3.97     | 4.22  | --    | --    | --    | --    | 1            |  |
| 506      | BTS 8742          |         | 3.73                     | 4.65     | 4.71     | 4.36  | --    | --    | --    | --    | 1            |  |
| 536      | BTS 8749          |         | 3.42                     | 4.65     | 4.08     | 4.05  | --    | --    | --    | --    | 1            |  |
| 540      | BTS 8756          |         | 3.27                     | 4.65     | 4.12     | 4.01  | --    | --    | --    | --    | 1            |  |
| 521      | BTS 8767          |         | 4.07                     | 4.30     | 4.10     | 4.16  | --    | --    | --    | --    | 1            |  |
| 518      | BTS 8770          |         | 4.18                     | 4.96     | 3.77     | 4.30  | --    | --    | --    | --    | 1            |  |
| 567      | BTS 8784          |         | 2.93                     | 4.23     | 3.81     | 3.65  | --    | --    | --    | --    | 1            |  |
| 502      | BTS 8787          |         | 3.66                     | 4.60     | 3.84     | 4.03  | --    | --    | --    | --    | 1            |  |
| 512      | BTS 8798          |         | 3.92                     | 4.58     | 4.42     | 4.30  | --    | --    | --    | --    | 1            |  |
| 549      | Crystal 093RR     |         | 4.05                     | 4.60     | 4.81     | 4.49  | 4.72  | 4.73  | 4.95  | 4.76  | 8            |  |
| 551      | Crystal 101RR     |         | 4.84                     | 4.41     | 4.47     | 4.57  | 4.58  | 4.60  | 4.59  | 4.65  | 7            |  |
| 507      | Crystal 246RR     |         | 4.90                     | 4.69     | 4.30     | 4.63  | 4.72  | 4.64  | 4.81  | 4.49  | 6            |  |
| 560      | Crystal 247RR     |         | 4.95                     | 4.41     | 4.30     | 4.55  | 4.60  | 4.47  | 4.65  | 4.19  | 6            |  |
| 565      | Crystal 355RR     |         | 4.06                     | 4.65     | 4.38     | 4.36  | 4.48  | 4.46  | 4.60  | 4.43  | 5            |  |
| 523      | Crystal 467RR     |         | 4.49                     | 4.61     | 4.27     | 4.46  | 4.57  | 4.49  | 4.69  | 4.34  | 4            |  |
| 503      | Crystal 572RR     |         | 4.01                     | 4.30     | 4.51     | 4.27  | 4.42  | 4.50  | 4.57  | 4.65  | 3            |  |
| 554      | Crystal 573RR     |         | 3.84                     | 4.18     | 4.42     | 4.15  | 4.25  | 4.22  | 4.35  | 4.15  | 3            |  |
| 544      | Crystal 574RR     |         | 4.56                     | 4.54     | 3.96     | 4.35  | 4.43  | 4.39  | 4.51  | 4.30  | 3            |  |
| 571      | Crystal 578RR     |         | 5.46                     | 4.80     | 4.47     | 4.91  | 4.89  | 4.91  | 4.87  | 4.93  | 3            |  |
| 510      | Crystal 684RR     |         | 4.26                     | 4.65     | 4.10     | 4.34  | 4.45  | --    | 4.57  | --    | 2            |  |
| 547      | Crystal 792RR     |         | 3.04                     | 4.55     | 4.22     | 3.94  | --    | --    | --    | --    | 1            |  |
| 557      | Crystal 793RR     |         | 3.28                     | 4.31     | 4.20     | 3.93  | --    | --    | --    | --    | 1            |  |
| 534      | Crystal 794RR     |         | 5.30                     | 5.04     | 4.42     | 4.92  | --    | --    | --    | --    | 1            |  |
| 522      | Crystal 795RR     |         | 3.92                     | 4.88     | 4.38     | 4.39  | --    | --    | --    | --    | 1            |  |
| 553      | Crystal 796RR     |         | 4.84                     | 4.94     | 4.78     | 4.85  | --    | --    | --    | --    | 1            |  |
| 528      | Crystal 797RR     |         | 3.73                     | 4.49     | 4.29     | 4.17  | --    | --    | --    | --    | 1            |  |
| 532      | Crystal 986RR     |         | 4.25                     | 4.89     | 5.16     | 4.77  | 4.76  | 4.83  | 4.75  | 4.97  | 9            |  |
| 559      | Hilleshög HIL9707 |         | 4.76                     | 5.19     | 4.92     | 4.96  | 4.74  | 4.70  | 4.53  | 4.60  | 3            |  |
| 576      | Hilleshög HIL9708 |         | 4.71                     | 4.59     | 4.55     | 4.61  | 4.68  | 4.80  | 4.74  | 5.04  | 3            |  |
| 561      | Hilleshög HIL9895 |         | 4.77                     | 4.88     | 4.87     | 4.84  | 4.67  | --    | 4.49  | --    | 2            |  |
| 566      | Hilleshög HIL9920 |         | 4.31                     | 5.04     | 5.33     | 4.89  | --    | --    | --    | --    | 1            |  |
| 563      | Hilleshög HIL9921 |         | 4.31                     | 4.75     | 4.34     | 4.47  | --    | --    | --    | --    | 1            |  |
| 504      | Hilleshög HIL9922 |         | 3.76                     | 4.54     | 3.77     | 4.02  | --    | --    | --    | --    | 1            |  |
| 543      | Hilleshög HIL9923 |         | 5.09                     | 5.26     | 4.08     | 4.81  | --    | --    | --    | --    | 1            |  |
| 517      | Hilleshög HIL9924 |         | 3.78                     | 4.81     | 3.68     | 4.09  | --    | --    | --    | --    | 1            |  |
| 505      | Hilleshög 4302RR  |         | 3.63                     | 4.11     | 4.04     | 3.93  | 4.03  | 4.06  | 4.13  | 4.13  | 7            |  |
| 542      | Hilleshög 4448RR  |         | 5.46                     | 4.83     | 5.54     | 5.28  | 5.24  | 5.26  | 5.21  | 5.29  | 6            |  |
| 531      | Hilleshög 9528RR  |         | 5.13                     | 5.01     | 4.83     | 4.99  | 4.86  | 4.96  | 4.73  | 5.16  | 5            |  |
| 556      | Maribo 109        |         | 3.96                     | 4.49     | 3.96     | 4.14  | 4.14  | 4.28  | 4.14  | 4.56  | 4            |  |
| 539      | Maribo 305        |         | 4.77                     | 5.39     | 4.77     | 4.98  | 4.85  | 4.82  | 4.72  | 4.76  | 5            |  |

**Table 31. 2017 Cercospora Ratings for ACSC Official Trial Entries**  
**Betaseed (Randolph MN), BSDF (Frankenmuth MI) & NDSU (Foxhome MN)**

| Chk<br>@ | Code                 | Variety             | Adjusted to 1982 Basis @ |          |          |       |       |       |       |       | Trial<br>Yrs |  |
|----------|----------------------|---------------------|--------------------------|----------|----------|-------|-------|-------|-------|-------|--------------|--|
|          |                      |                     | Beta                     | BSDF     | Foxhome  | 2017  | 2 Yr  | 3 Yr  | 2016  | 2015  |              |  |
|          |                      |                     | Avg                      | Avg      | Avg      |       |       |       |       |       |              |  |
|          |                      |                     | 5 Dates+                 | 5 Dates+ | 8 Dates+ | 3 loc | 6 loc | 9 loc | 3 loc | 3 loc |              |  |
| 526      | Maribo MA502         |                     | 4.98                     | 5.30     | 4.76     | 5.01  | 4.90  | 4.95  | 4.79  | 5.04  | 3            |  |
| 514      | Maribo MA504         |                     | 5.07                     | 5.76     | 5.66     | 5.50  | 5.27  | 5.26  | 5.04  | 5.25  | 3            |  |
| 568      | Maribo MA611         |                     | 4.95                     | 5.45     | 4.69     | 5.03  | 4.75  | --    | 4.47  | --    | 2            |  |
| 574      | Maribo MA717         |                     | 4.65                     | 4.84     | 5.05     | 4.85  | --    | --    | --    | --    | 1            |  |
| 530      | Maribo MA718         |                     | 4.32                     | 4.53     | 4.30     | 4.39  | --    | --    | --    | --    | 1            |  |
| 538      | Maribo MA719         |                     | 4.13                     | 5.14     | 3.96     | 4.41  | --    | --    | --    | --    | 1            |  |
| 564      | SV RR244TT           |                     | 5.10                     | 4.48     | 4.95     | 4.85  | 4.65  | 4.49  | 4.46  | 4.17  | 4            |  |
| 511      | SV RR265             |                     | 5.26                     | 5.07     | 5.23     | 5.19  | 5.09  | --    | 5.00  | --    | 2            |  |
| 555      | SV RR266             |                     | 4.35                     | 5.01     | 4.48     | 4.61  | 4.67  | --    | 4.74  | --    | 2            |  |
| 572      | SV RR268             |                     | 5.27                     | 4.80     | 5.13     | 5.06  | 5.10  | --    | 5.13  | --    | 2            |  |
| 541      | SV RR333             |                     | 4.65                     | 5.07     | 4.79     | 4.84  | 4.84  | 4.74  | 4.85  | 4.54  | 5            |  |
| 573      | SV RR351             |                     | 4.16                     | 4.63     | 4.44     | 4.41  | 4.46  | 4.51  | 4.50  | 4.62  | 3            |  |
| 515      | SV RR371             |                     | 3.73                     | 5.25     | 4.79     | 4.59  | --    | --    | --    | --    | 1            |  |
| 501      | SV RR372             |                     | 3.94                     | 4.41     | 4.32     | 4.23  | --    | --    | --    | --    | 1            |  |
| 508      | SV RR373             |                     | 3.83                     | 4.65     | 4.45     | 4.31  | --    | --    | --    | --    | 1            |  |
| 578      | SV RR374             |                     | 4.59                     | 4.89     | 4.65     | 4.71  | --    | --    | --    | --    | 1            |  |
| 546      | SV RR375             |                     | 5.10                     | 5.21     | 4.91     | 5.08  | --    | --    | --    | --    | 1            |  |
| 537      | SX Avalanche RR(858) |                     | 4.58                     | 4.54     | 4.79     | 4.64  | 4.69  | 4.51  | 4.74  | 4.15  | 3            |  |
| 548      | SX Canyon RR         |                     | 4.22                     | 5.84     | 4.69     | 4.92  | 4.84  | 4.56  | 4.76  | 4.02  | 4            |  |
| 535      | SX Cruze RR          |                     | 5.82                     | 5.41     | 4.87     | 5.37  | 5.01  | 4.87  | 4.65  | 4.57  | 4            |  |
| 519      | SX Marathon RR(856)  |                     | 4.05                     | 4.90     | 4.67     | 4.54  | 4.49  | 4.78  | 4.44  | 5.37  | 3            |  |
| 558      | SX RR1861            |                     | 4.40                     | 4.88     | 4.95     | 4.74  | 4.63  | --    | 4.52  | --    | 2            |  |
| 527      | SX RR1863            |                     | 3.52                     | 4.25     | 4.47     | 4.08  | 4.21  | --    | 4.35  | --    | 2            |  |
| 516      | SX RR1875            |                     | 3.19                     | 4.96     | 4.04     | 4.06  | --    | --    | --    | --    | 1            |  |
| 520      | SX RR1876            |                     | 4.36                     | 4.41     | 4.15     | 4.31  | --    | --    | --    | --    | 1            |  |
| 569      | SX RR1877            |                     | 4.56                     | 5.21     | 4.08     | 4.62  | --    | --    | --    | --    | 1            |  |
| 552      | SX RR1878            |                     | 4.54                     | 4.97     | 4.61     | 4.71  | --    | --    | --    | --    | 1            |  |
| 524      | SX RR1879            |                     | 4.53                     | 5.23     | 4.87     | 4.88  | --    | --    | --    | --    | 1            |  |
| 575      | SX Winchester RR     |                     | 3.42                     | 4.75     | 4.03     | 4.07  | 4.02  | 3.90  | 3.97  | 3.67  | 5            |  |
| 1        | 1101                 | CR CK-19 CRY539RR   | 5.98                     | 4.89     | 5.59     | 5.49  | 5.39  | 5.37  | 5.30  | 5.31  | 13           |  |
| 1        | 1102                 | CR CK-24 HILL4012RR | 5.06                     | 4.87     | 5.47     | 5.13  | 5.22  | 5.23  | 5.31  | 5.24  | 12           |  |
| 1        | 1103                 | CR CK-28 HILL4010RR | 5.24                     | 6.15     | 4.94     | 5.44  | 5.44  | 5.36  | 5.43  | 5.20  | 12           |  |
| 1        | 1104                 | CR CK-33 HILL4043RR | 5.33                     | 5.18     | 5.13     | 5.21  | 4.97  | 5.01  | 4.73  | 5.09  | 11           |  |
| 1        | 1105                 | CR CK-34 HILL4000RR | 4.92                     | 5.12     | 4.95     | 5.00  | 4.88  | 4.80  | 4.77  | 4.64  | 11           |  |
| 1        | 1106                 | CR CK-41 CRY5981RR  | 5.30                     | 4.56     | 4.84     | 4.90  | 4.89  | 4.97  | 4.89  | 5.12  | 9            |  |
| 1        | 1107                 | CR CK-42 CRY5985RR  | 3.24                     | 4.44     | 4.06     | 3.91  | 4.07  | 4.20  | 4.23  | 4.45  | 9            |  |
| 1        | 1108                 | CR CK-43 CRY5246RR  | 4.70                     | 4.95     | 4.67     | 4.77  | 4.77  | 4.68  | 4.77  | 4.49  | 6            |  |
| 1        | 1109                 | CR CK-44 BETA80RR32 | 5.51                     | 4.42     | 4.88     | 4.94  | 4.99  | 4.97  | 5.04  | 4.92  | 8            |  |
| 1        | 1110                 | CR CK-45 HILL4448RR | 5.03                     | 5.34     | 5.34     | 5.24  | 5.12  | 5.18  | 5.00  | 5.29  | 6            |  |
| 1        | 1111                 | CR CK-46 HILL4062RR | 3.90                     | 4.25     | 4.18     | 4.11  | 4.24  | 4.29  | 4.37  | 4.39  | 10           |  |
| 1        | 1112                 | CR CK-47 HILL4094RR | 4.25                     | 4.29     | 4.40     | 4.31  | 4.30  | 4.30  | 4.28  | 4.30  | 10           |  |
|          | 1113                 | CR CK MOD SUS HYB#3 | 5.64                     | 4.80     | 5.53     | 5.32  | 5.33  | 5.24  | 5.33  | 5.05  | 13           |  |
|          | 1114                 | CR CK MOD SUS HYB#3 | 5.58                     | 5.26     | 5.61     | 5.49  | 5.41  | 5.29  | 5.33  | 5.05  | 13           |  |
|          | 1115                 | CR CK MOD RES HYB#4 | 3.23                     | 4.95     | 4.71     | 4.30  | 4.27  | 4.35  | 4.24  | 4.52  | 10           |  |
|          | 1116                 | CR CK MOD RES HYB#4 | 3.35                     | 4.54     | 4.51     | 4.13  | 4.19  | 4.30  | 4.24  | 4.52  | 10           |  |
|          | 1117                 | CR CK MOD SUS HYB#5 | 4.76                     | 5.13     | 5.45     | 5.11  | 5.04  | 5.10  | 4.97  | 5.21  | 11           |  |
|          |                      | Conventional        |                          |          |          |       |       |       |       |       |              |  |
| 919      | BETA EXP 687         |                     | 3.58                     | 4.05     | 4.35     | 3.99  | 4.07  | --    | 4.14  | --    | 2            |  |
| 918      | BETA EXP 698         |                     | 4.52                     | 3.87     | 4.14     | 4.18  | 4.23  | --    | 4.27  | --    | 2            |  |

**Table 31. 2017 Cercospora Ratings for ACSC Official Trial Entries**  
**Betaseed (Randolph MN), BSDF (Frankenmuth MI) & NDSU (Foxhome MN)**

| Chk<br>@ | Code | Variety             | Adjusted to 1982 Basis @ |             |                |       |       |       |       |       | Trial<br>Yrs |
|----------|------|---------------------|--------------------------|-------------|----------------|-------|-------|-------|-------|-------|--------------|
|          |      |                     | Beta<br>Avg              | BSDF<br>Avg | Foxhome<br>Avg | 2017  | 2 Yr  | 3 Yr  | 2016  | 2015  |              |
|          |      |                     | 5 Dates+                 | 5 Dates+    | 8 Dates+       | 3 loc | 6 loc | 9 loc | 3 loc | 3 loc |              |
|          | 905  | BETA EXP 747        | 3.96                     | 4.36        | 4.88           | 4.40  | --    | --    | --    | --    | 1            |
|          | 909  | BETA EXP 758        | 4.39                     | 4.44        | 4.74           | 4.52  | --    | --    | --    | --    | 1            |
|          | 901  | Crystal 620         | 4.20                     | 3.87        | 4.34           | 4.14  | 4.17  | --    | 4.19  | --    | 2            |
|          | 906  | Crystal 622         | 2.88                     | 3.93        | 4.34           | 3.72  | 3.84  | --    | 3.96  | --    | 2            |
|          | 913  | Crystal 735         | 4.52                     | 4.04        | 4.76           | 4.44  | --    | --    | --    | --    | 1            |
|          | 910  | Crystal 737         | 3.46                     | 3.77        | 4.55           | 3.92  | --    | --    | --    | --    | 1            |
|          | 902  | Crystal R761        | 5.23                     | 4.40        | 5.16           | 4.93  | 4.96  | --    | 4.99  | --    | 11           |
|          | 914  | Hilleshög 3035Rz    | 4.12                     | 4.23        | 4.93           | 4.42  | 4.47  | --    | 4.53  | --    | 13           |
|          | 917  | Hilleshög 9891Rz    | 3.76                     | 3.90        | 4.73           | 4.13  | 4.27  | --    | 4.42  | --    | 2            |
|          | 904  | Maribo MA615Rz      | 4.92                     | 4.71        | 4.80           | 4.81  | 4.92  | --    | 5.04  | --    | 2            |
|          | 916  | Maribo MA720Rz      | 5.03                     | 3.80        | 4.80           | 4.54  | --    | --    | --    | --    | 1            |
|          | 911  | Seedex 8869         | 5.63                     | 4.33        | 5.67           | 5.21  | 4.99  | --    | 4.76  | --    | 2            |
|          | 907  | Seedex Deuce        | 4.60                     | 4.48        | 5.20           | 4.76  | 4.72  | --    | 4.68  | --    | 10           |
|          | 912  | Strube 12720        | 5.58                     | 5.11        | 6.26           | 5.65  | --    | --    | --    | --    | 1            |
|          | 908  | Strube 13722        | 3.79                     | 3.57        | 4.80           | 4.06  | --    | --    | --    | --    | 1            |
|          | 903  | SV 48611            | 5.95                     | 4.30        | 5.59           | 5.28  | 5.06  | --    | 4.85  | --    | 2            |
|          | 915  | SV 48777            | 4.32                     | 4.43        | 5.54           | 4.76  | --    | --    | --    | --    | 1            |
|          | 1101 | CR CK-19 CRY539RR   | 5.98                     | 5.32        | 5.53           | 5.61  | 5.45  | 5.41  | 5.30  | 5.31  | 13           |
|          | 1106 | CR CK-41 CRY5981RR  | 5.30                     | 4.72        | 5.39           | 5.14  | 5.01  | 5.05  | 4.89  | 5.12  | 9            |
|          | 1107 | CR CK-42 CRY5985RR  | 3.24                     | 3.98        | 5.11           | 4.11  | 4.17  | 4.27  | 4.23  | 4.45  | 9            |
|          | 1109 | CR CK-44 BETA80RR32 | 5.51                     | 4.26        | 4.92           | 4.90  | 4.97  | 4.95  | 5.04  | 4.92  | 8            |
|          | 1110 | CR CK-45 HILL4448RR | 5.03                     | 5.38        | 5.39           | 5.27  | 5.13  | 5.19  | 5.00  | 5.29  | 6            |
| 12       |      | Check Mean          | 4.77                     | 4.89        | 4.96           | 4.87  |       |       |       |       |              |
|          |      | Trial Mean          | 4.38                     | 4.80        | 4.54           | 4.57  |       |       |       |       |              |
|          |      | Coeff. of Var. (%)  | 10.15                    | 9.25        | 5.97           |       |       |       |       |       |              |
|          |      | Mean LSD (0.05)     | 0.55                     | 0.59        | 0.32           |       |       |       |       |       |              |
|          |      | Mean LSD (0.01)     | 0.73                     | 0.79        | 0.43           |       |       |       |       |       |              |
|          |      | Sig Mrk             | **                       | **          | **             |       |       |       |       |       |              |
|          |      | Adj Factor          | 1.20                     | 1.16        | 1.01           |       |       |       |       |       |              |

Lower numbers indicate better Cercospora resistance (1=Ex, 9=Poor).

@ Ratings adjusted to 1982 basis (5.5 equivalent in 1978-81 CR nurseries). Adjustment based on check varieties.

Chk = varieties used to adjust CR readings to 1982 basis. Ratings \* (Adj. factor) = Adj Rating.

+ Average rating based upon multiple rating dates.

Created 11/3/2017

**Tabel 32. 2017 Rhizoctonia Ratings for ACSC Official Trial Entries**  
**Rhizoctonia Nursery - BSDF, NWROC & Two ACSC Sites**

| Sus | Chk       | Chk     | Code | Variety | Adjusted @   |       |       |       |       |       | Trial<br>Yrs |
|-----|-----------|---------|------|---------|--------------|-------|-------|-------|-------|-------|--------------|
|     |           |         |      |         | BSDF<br>8/24 | 2017  | 2 Yr  | 3 Yr  | 2016  | 2015  |              |
|     |           |         |      |         |              | 1 loc | 5 loc | 9 loc | 4 loc | 4 loc |              |
| 529 | BTS       | 80RR52  |      |         | 4.14         | 4.14  | 4.27  | 4.17  | 4.41  | 3.95  | 8            |
| 545 | BTS       | 8337    |      |         | 4.30         | 4.30  | 4.19  | 4.08  | 4.08  | 3.87  | 5            |
| 562 | BTS       | 8363    |      |         | 4.85         | 4.85  | 4.59  | 4.44  | 4.34  | 4.12  | 5            |
| 513 | BTS       | 8500    |      |         | 4.57         | 4.57  | 4.50  | 4.40  | 4.43  | 4.19  | 3            |
| 533 | BTS       | 8512    |      |         | 4.28         | 4.28  | 4.36  | 4.33  | 4.44  | 4.28  | 3            |
| 550 | BTS       | 8524    |      |         | 4.41         | 4.41  | 4.31  | 4.25  | 4.20  | 4.14  | 3            |
| 570 | BTS       | 8572    |      |         | 4.32         | 4.32  | 4.43  | 4.24  | 4.54  | 3.85  | 3            |
| 509 | BTS       | 8606    |      |         | 5.00         | 5.00  | 4.74  | --    | 4.48  | --    | 2            |
| 525 | BTS       | 8629    |      |         | 4.21         | 4.21  | 3.97  | --    | 3.73  | --    | 2            |
| 577 | BTS       | 8735    |      |         | 4.38         | 4.38  | --    | --    | --    | --    | 1            |
| 506 | BTS       | 8742    |      |         | 4.23         | 4.23  | --    | --    | --    | --    | 1            |
| 536 | BTS       | 8749    |      |         | 3.95         | 3.95  | --    | --    | --    | --    | 1            |
| 540 | BTS       | 8756    |      |         | 4.34         | 4.34  | --    | --    | --    | --    | 1            |
| 521 | BTS       | 8767    |      |         | 4.75         | 4.75  | --    | --    | --    | --    | 1            |
| 518 | BTS       | 8770    |      |         | 4.57         | 4.57  | --    | --    | --    | --    | 1            |
| 567 | BTS       | 8784    |      |         | 4.64         | 4.64  | --    | --    | --    | --    | 1            |
| 502 | BTS       | 8787    |      |         | 4.31         | 4.31  | --    | --    | --    | --    | 1            |
| 512 | BTS       | 8798    |      |         | 4.52         | 4.52  | --    | --    | --    | --    | 1            |
| 549 | Crystal   | 093RR   |      |         | 4.50         | 4.50  | 4.44  | 4.28  | 4.37  | 3.96  | 8            |
| 551 | Crystal   | 101RR   |      |         | 4.78         | 4.78  | 4.78  | 4.73  | 4.78  | 4.64  | 7            |
| 507 | Crystal   | 246RR   |      |         | 4.23         | 4.23  | 4.28  | 4.25  | 4.32  | 4.19  | 6            |
| 560 | Crystal   | 247RR   |      |         | 4.49         | 4.49  | 4.40  | 4.38  | 4.32  | 4.33  | 6            |
| 565 | Crystal   | 355RR   |      |         | 4.09         | 4.09  | 4.02  | --    | 3.96  | --    | 5            |
| 523 | Crystal   | 467RR   |      |         | 4.47         | 4.47  | 4.37  | 4.23  | 4.26  | 3.97  | 4            |
| 503 | Crystal   | 572RR   |      |         | 4.47         | 4.47  | 4.34  | 4.19  | 4.21  | 3.89  | 3            |
| 554 | Crystal   | 573RR   |      |         | 4.57         | 4.57  | 4.56  | 4.45  | 4.55  | 4.25  | 3            |
| 544 | Crystal   | 574RR   |      |         | 4.16         | 4.16  | 4.31  | 4.26  | 4.47  | 4.16  | 3            |
| 571 | Crystal   | 578RR   |      |         | 4.40         | 4.40  | 4.36  | 4.25  | 4.32  | 4.03  | 3            |
| 510 | Crystal   | 684RR   |      |         | 4.57         | 4.57  | 4.49  | --    | 4.41  | --    | 2            |
| 547 | Crystal   | 792RR   |      |         | 3.88         | 3.88  | --    | --    | --    | --    | 1            |
| 557 | Crystal   | 793RR   |      |         | 4.26         | 4.26  | --    | --    | --    | --    | 1            |
| 534 | Crystal   | 794RR   |      |         | 4.15         | 4.15  | --    | --    | --    | --    | 1            |
| 522 | Crystal   | 795RR   |      |         | 3.94         | 3.94  | --    | --    | --    | --    | 1            |
| 553 | Crystal   | 796RR   |      |         | 4.23         | 4.23  | --    | --    | --    | --    | 1            |
| 528 | Crystal   | 797RR   |      |         | 4.26         | 4.26  | --    | --    | --    | --    | 1            |
| 532 | Crystal   | 986RR   |      |         | 4.39         | 4.39  | 4.38  | 4.28  | 4.38  | 4.06  | 9            |
| 559 | Hilleshög | HIL9707 |      |         | 4.43         | 4.43  | 4.41  | 4.35  | 4.40  | 4.21  | 3            |
| 576 | Hilleshög | HIL9708 |      |         | 4.21         | 4.21  | 4.25  | 4.18  | 4.28  | 4.04  | 3            |
| 561 | Hilleshög | HIL9895 |      |         | 4.34         | 4.34  | 4.45  | --    | 4.56  | --    | 2            |
| 566 | Hilleshög | HIL9920 |      |         | 4.48         | 4.48  | --    | --    | --    | --    | 1            |
| 563 | Hilleshög | HIL9921 |      |         | 3.85         | 3.85  | --    | --    | --    | --    | 1            |
| 504 | Hilleshög | HIL9922 |      |         | 4.39         | 4.39  | --    | --    | --    | --    | 1            |
| 543 | Hilleshög | HIL9923 |      |         | 4.58         | 4.58  | --    | --    | --    | --    | 1            |
| 517 | Hilleshög | HIL9924 |      |         | 4.62         | 4.62  | --    | --    | --    | --    | 1            |
| 505 | Hilleshög | 4302RR  |      |         | 3.60         | 3.60  | 3.63  | 3.65  | 3.65  | 3.70  | 7            |
| 542 | Hilleshög | 4448RR  |      |         | 4.63         | 4.63  | 4.57  | 4.35  | 4.51  | 3.92  | 6            |
| 531 | Hilleshög | 9528RR  |      |         | 4.21         | 4.21  | 4.21  | 4.18  | 4.21  | 4.10  | 5            |
| 556 | Maribo    | 109     |      |         | 3.63         | 3.63  | 3.66  | 3.66  | 3.69  | 3.67  | 4            |
| 539 | Maribo    | 305     |      |         | 4.60         | 4.60  | 4.50  | 4.28  | 4.40  | 3.83  | 5            |
| 526 | Maribo    | MA502   |      |         | 4.78         | 4.78  | 4.76  | 4.55  | 4.73  | 4.14  | 3            |

**Tabel 32. 2017 Rhizoctonia Ratings for ACSC Official Trial Entries**  
**Rhizoctonia Nursery - BSDF, NWROC & Two ACSC Sites**

| Sus | Chk | Chk | Code | Variety              | Adjusted @   |      |       |       |       |       | Trial<br>Yrs |   |
|-----|-----|-----|------|----------------------|--------------|------|-------|-------|-------|-------|--------------|---|
|     |     |     |      |                      | BSDF<br>8/24 | 2017 | 2 Yr  | 3 Yr  | 2016  | 2015  |              |   |
|     |     |     | 514  | Maribo MA504         | 4.37         | 4.37 | 1 loc | 5 loc | 9 loc | 4 loc | 4 loc        | 3 |
|     |     |     | 568  | Maribo MA611         | 4.44         | 4.44 | 4.53  | --    | 4.63  | --    | --           | 2 |
|     |     |     | 574  | Maribo MA717         | 4.28         | 4.28 | --    | --    | --    | --    | --           | 1 |
|     |     |     | 530  | Maribo MA718         | 4.13         | 4.13 | --    | --    | --    | --    | --           | 1 |
|     |     |     | 538  | Maribo MA719         | 4.28         | 4.28 | --    | --    | --    | --    | --           | 1 |
|     |     |     | 564  | SV RR244TT           | 4.50         | 4.50 | 4.48  | 4.38  | 4.45  | 4.18  | 4            |   |
|     |     |     | 511  | SV RR265             | 4.42         | 4.42 | 4.43  | --    | 4.44  | --    | 2            |   |
|     |     |     | 555  | SV RR266             | 4.39         | 4.39 | 4.30  | --    | 4.20  | --    | 2            |   |
|     |     |     | 572  | SV RR268             | 4.57         | 4.57 | 4.63  | --    | 4.70  | --    | 2            |   |
|     |     |     | 541  | SV RR333             | 4.44         | 4.44 | 4.44  | 4.33  | 4.44  | 4.11  | 5            |   |
|     |     |     | 573  | SV RR351             | 4.25         | 4.25 | 4.21  | --    | 4.17  | --    | 3            |   |
|     |     |     | 515  | SV RR371             | 4.31         | 4.31 | --    | --    | --    | --    | 1            |   |
|     |     |     | 501  | SV RR372             | 4.47         | 4.47 | --    | --    | --    | --    | 1            |   |
|     |     |     | 508  | SV RR373             | 4.38         | 4.38 | --    | --    | --    | --    | 1            |   |
|     |     |     | 578  | SV RR374             | 4.30         | 4.30 | --    | --    | --    | --    | 1            |   |
|     |     |     | 546  | SV RR375             | 4.25         | 4.25 | --    | --    | --    | --    | 1            |   |
|     |     |     | 537  | SX Avalanche RR(858) | 4.29         | 4.29 | 4.40  | 4.34  | 4.52  | 4.21  | 3            |   |
|     |     |     | 548  | SX Canyon RR         | 4.51         | 4.51 | 4.45  | 4.38  | 4.40  | 4.22  | 4            |   |
|     |     |     | 535  | SX Cruze RR          | 4.39         | 4.39 | 4.54  | 4.42  | 4.69  | 4.18  | 4            |   |
|     |     |     | 519  | SX Marathon RR(856)  | 4.40         | 4.40 | 4.43  | 4.34  | 4.47  | 4.16  | 3            |   |
|     |     |     | 558  | SX RR1861            | 4.50         | 4.50 | 4.55  | --    | 4.59  | --    | 2            |   |
|     |     |     | 527  | SX RR1863            | 4.23         | 4.23 | 4.39  | --    | 4.54  | --    | 2            |   |
|     |     |     | 516  | SX RR1875            | 4.34         | 4.34 | --    | --    | --    | --    | 1            |   |
|     |     |     | 520  | SX RR1876            | 4.42         | 4.42 | --    | --    | --    | --    | 1            |   |
|     |     |     | 569  | SX RR1877            | 4.42         | 4.42 | --    | --    | --    | --    | 1            |   |
|     |     |     | 552  | SX RR1878            | 4.31         | 4.31 | --    | --    | --    | --    | 1            |   |
|     |     |     | 524  | SX RR1879            | 4.36         | 4.36 | --    | --    | --    | --    | 1            |   |
|     |     |     | 575  | SX Winchester RR     | 4.47         | 4.47 | 4.55  | 4.46  | 4.63  | 4.28  | 5            |   |
| 1   | 1   | 1   | 1301 | RH CK#08 CRY533RR    | 4.74         | 4.74 | 4.79  | 4.74  | 4.84  | 4.65  | 9            |   |
| 1   | 1   | 1   | 1302 | RH CK#20 CRY5765RR   | 4.31         | 4.31 | 4.33  | 4.29  | 4.35  | 4.22  | 9            |   |
| 1   | 1   | 1   | 1303 | RH CK#21 CRY5768RR   | 4.66         | 4.66 | 4.49  | 4.41  | 4.32  | 4.25  | 9            |   |
| 1   | 1   | 1   | 1304 | RH CK#25 HILL4043RR  | 4.51         | 4.51 | 4.63  | 4.54  | 4.76  | 4.35  | 9            |   |
| 1   | 1   | 1   | 1305 | RH CK#28 CRY5658RR   | 4.36         | 4.36 | 4.46  | 4.34  | 4.57  | 4.09  | 12           |   |
| 1   | 1   | 1   | 1306 | RH CK#29 BETA87RR58  | 4.79         | 4.79 | 4.73  | 4.75  | 4.67  | 4.77  | 11           |   |
| 1   | 1   | 1   | 1307 | RH CK#31 HILL4000RR  | 4.65         | 4.65 | 4.72  | 4.83  | 4.80  | 5.03  | 11           |   |
| 1   | 1   | 1   | 1308 | RH CK#35 SES36812RR  | 4.71         | 4.71 | 4.63  | 4.54  | 4.55  | 4.37  | 10           |   |
| 1   | 1   | 1   | 1309 | RH CK#36 BETA85RR02  | 4.10         | 4.10 | 4.28  | 4.42  | 4.45  | 4.71  | 13           |   |
| 1   | 1   | 1   | 1310 | RH CK#37 SES36918RR  | 4.43         | 4.43 | 4.55  | 4.48  | 4.67  | 4.34  | 9            |   |
| 1   | 1   | 1   | 1311 | RH CK#40 CRY5101RR   | 4.55         | 4.55 | 4.60  | 4.58  | 4.65  | 4.55  | 7            |   |
| 1   | 1   | 1   | 1312 | RH CK#45 BTS82RR33   | 4.73         | 4.73 | 4.46  | 4.37  | 4.19  | 4.18  | 6            |   |
| 1   | 1   | 1   | 1313 | RH CK#47 SES36272RR  | 4.62         | 4.62 | 4.56  | 4.50  | 4.50  | 4.39  | 6            |   |
| 1   | 1   | 1   | 1314 | RH CK#48 HILL4094RR  | 3.80         | 3.80 | 3.85  | 3.71  | 3.90  | 3.44  | 10           |   |
| 1   | 1   | 1   | 1315 | RH CK#49 CRY5247RR   | 4.65         | 4.65 | 4.51  | 4.45  | 4.38  | 4.33  | 6            |   |
|     |     |     | 1316 | RES RHC #1           | 3.62         | 3.62 | 3.73  | 3.64  | 3.83  | 3.47  | 12           |   |
|     |     |     | 1317 | MOD RHC #6           | 4.68         | 4.68 | 4.50  | 4.36  | 4.32  | 4.09  | 12           |   |
|     |     |     | 1318 | SUS RHC #3           | 4.32         | 4.32 | 4.51  | 4.57  | 4.70  | 4.69  | 13           |   |
|     |     |     | 1319 | SUS RHC #9           | 4.43         | 4.43 | 4.54  | 4.47  | 4.65  | 4.34  | 9            |   |
|     |     |     | 1320 | MOD RHC #5           | 4.34         | 4.34 | 4.53  | 4.44  | 4.71  | 4.27  | 12           |   |
|     |     |     | 1321 | RES RHC #2           | 3.65         | 3.65 | 3.83  | 3.78  | 4.01  | 3.68  | 10           |   |
|     |     |     | 1322 | SUS RHC #3           | 4.95         | 4.95 | 4.85  | 4.79  | 4.74  | 4.69  | 13           |   |

**Tabel 32. 2017 Rhizoctonia Ratings for ACSC Official Trial Entries**  
**Rhizoctonia Nursery - BSDF, NWROC & Two ACSC Sites**

| Sus                 | Chk  | Chk                                 | Code | Variety | Adjusted @   |       |       |       |       |       | Trial<br>Yrs |
|---------------------|------|-------------------------------------|------|---------|--------------|-------|-------|-------|-------|-------|--------------|
|                     |      |                                     |      |         | BSDF<br>8/24 | 2017  | 2 Yr  | 3 Yr  | 2016  | 2015  |              |
|                     |      |                                     |      |         |              | 1 loc | 5 loc | 9 loc | 4 loc | 4 loc |              |
|                     | 1323 | SUS RHC #9                          |      |         | 4.51         | 4.51  | 4.54  | 4.47  | 4.57  | 4.34  | 9            |
|                     | 1324 | SUS RHC #10                         |      |         | 4.28         | 4.28  | 4.51  | 4.60  | 4.75  | 4.77  | 9            |
| <b>Conventional</b> |      |                                     |      |         |              |       |       |       |       |       |              |
|                     | 919  | BETA EXP 687                        |      |         | 4.20         | 4.20  | 4.18  | --    | 4.16  | --    | 2            |
|                     | 918  | BETA EXP 698                        |      |         | 4.45         | 4.45  | 4.40  | --    | 4.35  | --    | 2            |
|                     | 905  | BETA EXP 747                        |      |         | 3.93         | 3.93  | --    | --    | --    | --    | 1            |
|                     | 909  | BETA EXP 758                        |      |         | 4.31         | 4.31  | --    | --    | --    | --    | 1            |
|                     | 901  | Crystal 620                         |      |         | 4.37         | 4.37  | 4.45  | --    | 4.54  | --    | 2            |
|                     | 906  | Crystal 622                         |      |         | 4.49         | 4.49  | 4.31  | --    | 4.14  | --    | 2            |
|                     | 913  | Crystal 735                         |      |         | 4.61         | 4.61  | --    | --    | --    | --    | 1            |
|                     | 910  | Crystal 737                         |      |         | 4.25         | 4.25  | --    | --    | --    | --    | 1            |
|                     | 902  | Crystal R761                        |      |         | 4.54         | 4.54  | 4.55  | --    | 4.57  | --    | 11           |
|                     | 914  | Hilleshög 3035Rz                    |      |         | 4.07         | 4.07  | 4.00  | --    | 3.93  | --    | 13           |
|                     | 917  | Hilleshög 9891Rz                    |      |         | 4.46         | 4.46  | 4.34  | --    | 4.22  | --    | 2            |
|                     | 904  | Maribo MA615Rz                      |      |         | 4.73         | 4.73  | 4.63  | --    | 4.54  | --    | 2            |
|                     | 916  | Maribo MA720Rz                      |      |         | 4.55         | 4.55  | --    | --    | --    | --    | 1            |
|                     | 911  | Seedex 8869                         |      |         | 4.40         | 4.40  | 4.53  | --    | 4.67  | --    | 2            |
|                     | 907  | Seedex Deuce                        |      |         | 4.39         | 4.39  | 4.52  | --    | 4.66  | --    | 10           |
|                     | 912  | Strube 12720                        |      |         | 4.59         | 4.59  | --    | --    | --    | --    | 1            |
|                     | 908  | Strube 13722                        |      |         | 4.73         | 4.73  | --    | --    | --    | --    | 1            |
|                     | 903  | SV 48611                            |      |         | 4.35         | 4.35  | 4.50  | --    | 4.66  | --    | 2            |
|                     | 915  | SV 48777                            |      |         | 4.59         | 4.59  | --    | --    | --    | --    | 1            |
|                     | 1301 | RH CK#08 CRY539RR                   |      |         | 4.74         | 4.74  | 4.79  | 4.74  | 4.84  | 4.65  | 9            |
|                     | 1303 | RH CK#21 CRY5768RR                  |      |         | 4.66         | 4.66  | 4.49  | 4.41  | 4.32  | 4.25  | 9            |
|                     | 1311 | RH CK#40 CRY5101RR                  |      |         | 4.55         | 4.55  | 4.60  | 4.58  | 4.65  | 4.55  | 7            |
|                     | 1314 | RH CK#48 HILL4094RR                 |      |         | 3.80         | 3.80  | 3.85  | 3.71  | 3.90  | 3.44  | 10           |
|                     | 1315 | RH CK#49 CRY5247RR                  |      |         | 4.65         | 4.65  | 4.51  | 4.45  | 4.38  | 4.33  | 6            |
| 10                  | 15   | Mean of Check Varieties             |      |         | 4.51         | 4.51  | 4.51  | 4.46  | 4.51  | 4.38  |              |
|                     |      | Mean of Susc Checks                 |      |         | 4.60         | 4.60  | 4.62  | 4.58  | 4.64  | 4.49  |              |
|                     |      | Trial Mean                          |      |         | 4.38         |       |       |       |       |       |              |
|                     |      | Coeff. of Var. (%)                  |      |         | 7.0          |       |       |       |       |       |              |
|                     |      | Mean LSD (0.05)                     |      |         | 0.43         |       |       |       |       |       |              |
|                     |      | Mean LSD (0.01)                     |      |         | 0.56         |       |       |       |       |       |              |
|                     |      | Sig Lvl                             |      |         | **           |       |       |       |       |       |              |
|                     |      | Adjustment Factor                   |      |         | 0.72         |       |       |       |       |       |              |
|                     |      | Approval Limit (80% of susc checks) |      |         | 5.08         | 3.68  | 3.70  | 3.66  | 3.71  | 3.59  |              |

@ Adjustment is based upon check varieties.

Lower numbers indicate better tolerance (0=Ex, 7=Poor).

^ Approval criteria is based upon mean of 10 susc varieties (approval option 1) or 3.82 (approval option 2).

Created 11/3/2017

Table 33. 2017 Fusarium Ratings for ACSC Official Trial Entries  
Two Moorhead, MN Sites

| Chk<br>@ | Code              | Variety | Adjusted @        |                   |       |       |       |       | Trial<br>Yrs |
|----------|-------------------|---------|-------------------|-------------------|-------|-------|-------|-------|--------------|
|          |                   |         | N Mhd<br>4 Dates+ | S Mhd<br>4 Dates+ | 2017  | 2 Yr  | 3 Yr  | 2016  |              |
|          |                   |         |                   |                   | 2 loc | 4 loc | 6 loc | 2 loc | 2 loc        |
| 529      | BTS 80RR52        |         | 2.61              | 2.77              | 2.69  | 2.75  | 2.77  | 2.81  | 2.83 8       |
| 545      | BTS 8337          |         | 3.76              | 3.90              | 3.83  | 3.92  | 3.85  | 4.01  | 3.72 5       |
| 562      | BTS 8363          |         | 3.45              | 3.54              | 3.49  | 3.30  | 3.15  | 3.11  | 2.85 5       |
| 513      | BTS 8500          |         | 1.79              | 2.48              | 2.14  | 2.02  | 2.15  | 1.90  | 2.41 3       |
| 533      | BTS 8512          |         | 2.89              | 3.02              | 2.96  | 2.83  | 2.79  | 2.71  | 2.70 3       |
| 550      | BTS 8524          |         | 3.21              | 3.28              | 3.24  | 3.31  | 3.17  | 3.38  | 2.88 3       |
| 570      | BTS 8572          |         | 2.07              | 3.02              | 2.54  | 2.39  | 2.44  | 2.23  | 2.54 3       |
| 509      | BTS 8606          |         | 2.49              | 3.14              | 2.81  | 2.75  | --    | 2.69  | -- 2         |
| 525      | BTS 8629          |         | 4.15              | 4.26              | 4.20  | 4.12  | --    | 4.04  | -- 2         |
| 577      | BTS 8735          |         | 4.00              | 3.86              | 3.93  | --    | --    | --    | -- 1         |
| 506      | BTS 8742          |         | 2.21              | 2.98              | 2.59  | --    | --    | --    | -- 1         |
| 536      | BTS 8749          |         | 2.95              | 3.61              | 3.28  | --    | --    | --    | -- 1         |
| 540      | BTS 8756          |         | 2.36              | 2.99              | 2.67  | --    | --    | --    | -- 1         |
| 521      | BTS 8767          |         | 2.65              | 2.78              | 2.71  | --    | --    | --    | -- 1         |
| 518      | BTS 8770          |         | 2.39              | 3.24              | 2.82  | --    | --    | --    | -- 1         |
| 567      | BTS 8784          |         | 2.21              | 3.05              | 2.63  | --    | --    | --    | -- 1         |
| 502      | BTS 8787          |         | 1.98              | 3.02              | 2.50  | --    | --    | --    | -- 1         |
| 512      | BTS 8798          |         | 3.17              | 3.56              | 3.37  | --    | --    | --    | -- 1         |
| 549      | Crystal 093RR     |         | 3.22              | 3.74              | 3.48  | 3.42  | 3.35  | 3.35  | 3.22 8       |
| 551      | Crystal 101RR     |         | 2.14              | 3.31              | 2.72  | 2.56  | 2.59  | 2.40  | 2.64 7       |
| 507      | Crystal 246RR     |         | 3.10              | 3.38              | 3.24  | 3.17  | 3.11  | 3.10  | 3.00 6       |
| 560      | Crystal 247RR     |         | 2.97              | 3.02              | 3.00  | 2.90  | 2.77  | 2.80  | 2.51 6       |
| 565      | Crystal 355RR     |         | 2.58              | 2.94              | 2.76  | 2.71  | NE    | 2.65  | NE 5         |
| 523      | Crystal 467RR     |         | 1.75              | 2.21              | 1.98  | 1.91  | 2.09  | 1.84  | 2.46 4       |
| 503      | Crystal 572RR     |         | 2.33              | 2.95              | 2.64  | 2.23  | 2.27  | 1.82  | 2.36 3       |
| 554      | Crystal 573RR     |         | 3.05              | 3.16              | 3.10  | 3.29  | 3.20  | 3.49  | 3.02 3       |
| 544      | Crystal 574RR     |         | 1.87              | 2.59              | 2.23  | 2.02  | 2.02  | 1.82  | 2.00 3       |
| 571      | Crystal 578RR     |         | 2.15              | 2.66              | 2.41  | 2.20  | 2.27  | 1.99  | 2.42 3       |
| 510      | Crystal 684RR     |         | 1.73              | 2.30              | 2.01  | 1.89  | --    | 1.76  | -- 2         |
| 547      | Crystal 792RR     |         | 2.70              | 2.93              | 2.81  | --    | --    | --    | -- 1         |
| 557      | Crystal 793RR     |         | 2.72              | 3.18              | 2.95  | --    | --    | --    | -- 1         |
| 534      | Crystal 794RR     |         | 2.09              | 2.80              | 2.45  | --    | --    | --    | -- 1         |
| 522      | Crystal 795RR     |         | 2.39              | 2.93              | 2.66  | --    | --    | --    | -- 1         |
| 553      | Crystal 796RR     |         | 2.06              | 2.62              | 2.34  | --    | --    | --    | -- 1         |
| 528      | Crystal 797RR     |         | 3.12              | 3.24              | 3.18  | --    | --    | --    | -- 1         |
| 532      | Crystal 986RR     |         | 4.73              | 4.73              | 4.73  | 4.79  | 4.49  | 4.86  | 3.89 9       |
| 559      | Hilleshög HIL9707 |         | 4.13              | 4.06              | 4.09  | 4.49  | 4.22  | 4.88  | 3.68 3       |
| 576      | Hilleshög HIL9708 |         | 4.82              | 4.40              | 4.61  | 4.45  | 4.20  | 4.29  | 3.69 3       |
| 561      | Hilleshög HIL9895 |         | 3.93              | 4.36              | 4.15  | 3.27  | --    | 2.40  | -- 2         |
| 566      | Hilleshög HIL9920 |         | 6.01              | 5.84              | 5.92  | --    | --    | --    | -- 1         |
| 563      | Hilleshög HIL9921 |         | 4.72              | 4.60              | 4.66  | --    | --    | --    | -- 1         |
| 504      | Hilleshög HIL9922 |         | 4.58              | 4.40              | 4.49  | --    | --    | --    | -- 1         |
| 543      | Hilleshög HIL9923 |         | 4.91              | 5.67              | 5.29  | --    | --    | --    | -- 1         |
| 517      | Hilleshög HIL9924 |         | 4.54              | 4.62              | 4.58  | --    | --    | --    | -- 1         |
| 505      | Hilleshög 4302RR  |         | 4.99              | 5.19              | 5.09  | 5.09  | 4.74  | 5.09  | 4.05 7       |
| 542      | Hilleshög 4448RR  |         | 5.75              | 4.94              | 5.35  | 5.30  | NE    | 5.26  | NE 6         |
| 531      | Hilleshög 9528RR  |         | 4.52              | 3.97              | 4.25  | 4.39  | 4.26  | 4.52  | 4.00 5       |
| 556      | Maribo 109        |         | 4.45              | 4.02              | 4.23  | 4.37  | 4.11  | 4.50  | 3.58 4       |
| 539      | Maribo 305        |         | 5.91              | 5.86              | 5.89  | 5.89  | 5.60  | 5.89  | 5.02 5       |
| 526      | Maribo MA502      |         | 2.70              | 3.34              | 3.02  | 2.47  | 2.42  | 1.92  | 2.33 3       |
| 514      | Maribo MA504      |         | 4.62              | 4.43              | 4.52  | 4.56  | 4.41  | 4.60  | 4.11 3       |
| 568      | Maribo MA611      |         | 3.58              | 3.97              | 3.78  | 2.87  | --    | 1.96  | -- 2         |
| 574      | Maribo MA717      |         | 5.10              | 4.80              | 4.95  | --    | --    | --    | -- 1         |

Table 33. 2017 Fusarium Ratings for ACSC Official Trial Entries  
Two Moorhead, MN Sites

| Chk<br>@ | Code                | Variety              | Adjusted @        |                   |       |       |       |       |      | Trial<br>Yrs |
|----------|---------------------|----------------------|-------------------|-------------------|-------|-------|-------|-------|------|--------------|
|          |                     |                      | N Mhd<br>4 Dates+ | S Mhd<br>4 Dates+ | 2017  | 2 Yr  | 3 Yr  | 2016  | 2015 |              |
|          | 530                 | Maribo MA718         | 4.26              | 4.96              | 2 loc | 4 loc | 6 loc | 2 loc | --   | 1            |
|          | 538                 | Maribo MA719         | 6.36              | 5.16              | 5.76  | --    | --    | --    | --   | 1            |
|          | 564                 | SV RR244TT           | 3.85              | 3.62              | 3.74  | 3.94  | 3.91  | 4.14  | 3.86 | 4            |
|          | 511                 | SV RR265             | 5.19              | 5.46              | 5.32  | 5.29  | --    | 5.26  | --   | 2            |
|          | 555                 | SV RR266             | 6.14              | 5.14              | 5.64  | 5.41  | --    | 5.18  | --   | 2            |
|          | 572                 | SV RR268             | 5.37              | 4.65              | 5.01  | 5.11  | --    | 5.20  | --   | 2            |
|          | 541                 | SV RR333             | 5.66              | 5.03              | 5.35  | 5.09  | NE    | 4.84  | NE   | 5            |
|          | 573                 | SV RR351             | 5.07              | 4.86              | 4.96  | 4.86  | NE    | 4.75  | NE   | 3            |
|          | 515                 | SV RR371             | 4.92              | 4.90              | 4.91  | --    | --    | --    | --   | 1            |
|          | 501                 | SV RR372             | 4.33              | 4.06              | 4.19  | --    | --    | --    | --   | 1            |
|          | 508                 | SV RR373             | 5.64              | 4.70              | 5.17  | --    | --    | --    | --   | 1            |
|          | 578                 | SV RR374             | 4.74              | 4.13              | 4.44  | --    | --    | --    | --   | 1            |
|          | 546                 | SV RR375             | 5.64              | 5.25              | 5.44  | --    | --    | --    | --   | 1            |
|          | 537                 | SX Avalanche RR(858) | 5.67              | 5.84              | 5.75  | 5.57  | 5.42  | 5.38  | 5.12 | 3            |
|          | 548                 | SX Canyon RR         | 5.21              | 5.04              | 5.12  | 5.19  | 4.74  | 5.26  | 3.85 | 4            |
|          | 535                 | SX Cruze RR          | 3.98              | 3.97              | 3.98  | 3.39  | NE    | 2.80  | NE   | 4            |
|          | 519                 | SX Marathon RR(856)  | 5.25              | 4.43              | 4.84  | 4.87  | 4.87  | 4.90  | 4.87 | 3            |
|          | 558                 | SX RR1861            | 5.07              | 5.02              | 5.05  | 4.90  | --    | 4.75  | --   | 2            |
|          | 527                 | SX RR1863            | 6.45              | 5.64              | 6.04  | 5.92  | --    | 5.80  | --   | 2            |
|          | 516                 | SX RR1875            | 3.38              | 3.75              | 3.57  | --    | --    | --    | --   | 1            |
|          | 520                 | SX RR1876            | 3.74              | 3.96              | 3.85  | --    | --    | --    | --   | 1            |
|          | 569                 | SX RR1877            | 3.93              | 4.49              | 4.21  | --    | --    | --    | --   | 1            |
|          | 552                 | SX RR1878            | 5.21              | 4.86              | 5.03  | --    | --    | --    | --   | 1            |
|          | 524                 | SX RR1879            | 4.76              | 4.52              | 4.64  | --    | --    | --    | --   | 1            |
|          | 575                 | SX Winchester RR     | 4.62              | 4.67              | 4.64  | 4.38  | 4.23  | 4.11  | 3.95 | 5            |
| 1        | 1201                | FS CK #07 CRY5658RR  | 2.45              | 3.26              | 2.85  | 2.76  | 2.73  | 2.66  | 2.67 | 12           |
| 1        | 1202                | FS CK #08 HILL4000RR | 6.50              | 6.68              | 6.59  | 6.37  | 6.30  | 6.15  | 6.16 | 11           |
| 1        | 1203                | FS CK #09 HILL4010RR | 6.63              | 6.20              | 6.41  | 6.42  | 6.40  | 6.42  | 6.35 | 12           |
| 1        | 1204                | FS CK #12 HILL4012RR | 6.28              | 5.49              | 5.89  | 6.02  | 6.00  | 6.15  | 5.96 | 12           |
| 1        | 1205                | FS CK #13 HILL4043RR | 6.22              | 6.39              | 6.31  | 6.18  | 6.12  | 6.05  | 6.01 | 11           |
| 1        | 1206                | FS CK #17 CRY5765RR  | 3.90              | 4.13              | 4.02  | 4.06  | 4.13  | 4.10  | 4.26 | 9            |
| 1        | 1207                | FS CK #18 CRY5768RR  | 4.38              | 4.36              | 4.37  | 4.38  | 4.29  | 4.40  | 4.09 | 9            |
| 1        | 1208                | FS CK #26 BETA87RR68 | 4.64              | 5.45              | 5.05  | 4.78  | 4.70  | 4.51  | 4.53 | 8            |
| 1        | 1209                | FS CK #28 SES36918RR | 5.61              | 4.48              | 5.04  | 5.09  | 5.14  | 5.13  | 5.25 | 9            |
| 1        | 1210                | FS CK #29 CRY5875RR  | 4.68              | 4.86              | 4.77  | 4.73  | 4.60  | 4.68  | 4.35 | 10           |
|          | 1211                | FS CHK RES RR #1     | 2.73              | 2.73              | 2.73  | 2.55  | 2.62  | 2.37  | 2.77 | 7            |
|          | 1212                | FS CHK SUS RR #2     | 6.39              | 6.35              | 6.37  | 6.25  | 6.34  | 6.12  | 6.53 | 7            |
|          | 1213                | FS CHK MOD RR RES #2 | 4.55              | 4.15              | 4.35  | 4.26  | 4.22  | 4.17  | 4.14 | 11           |
|          | 1214                | FS CHK MOD RR SUS #1 | 4.64              | 4.59              | 4.61  | 4.92  | 4.88  | 5.23  | 4.81 | 11           |
|          | 1215                | FS CHK RES RR #2     | 1.97              | 2.82              | 2.40  | 2.22  | 2.20  | 2.04  | 2.15 | 6            |
|          | 1216                | FS CHK SUS RR #10    | 5.34              | 5.06              | 5.20  | 5.29  | 5.23  | 5.38  | 5.11 | 4            |
|          | 1217                | FS CHK SUS RR #10    | 5.66              | 5.19              | 5.43  | 5.37  | 5.28  | 5.32  | 5.11 | 4            |
|          | 1218                | FS CHK SUS RR #11    | 5.74              | 5.48              | 5.61  | 5.75  | 5.51  | 5.89  | 5.02 | 5            |
|          | <b>Conventional</b> |                      |                   |                   |       |       |       |       |      |              |
|          | 919                 | BETA EXP 687         | 3.65              | 3.38              | 3.51  | 3.46  | --    | 3.41  | --   | 2            |
|          | 918                 | BETA EXP 698         | 2.99              | 3.13              | 3.06  | 2.90  | --    | 2.74  | --   | 2            |
|          | 905                 | BETA EXP 747         | 4.64              | 4.53              | 4.58  | --    | --    | --    | --   | 1            |
|          | 909                 | BETA EXP 758         | 3.79              | 4.03              | 3.91  | --    | --    | --    | --   | 1            |
|          | 901                 | Crystal 620          | 2.55              | 3.03              | 2.79  | 2.76  | --    | 2.73  | --   | 2            |
|          | 906                 | Crystal 622          | 3.45              | 3.62              | 3.53  | 3.55  | --    | 3.57  | --   | 2            |
|          | 913                 | Crystal 735          | 3.69              | 3.55              | 3.62  | --    | --    | --    | --   | 1            |
|          | 910                 | Crystal 737          | 3.79              | 3.25              | 3.52  | --    | --    | --    | --   | 1            |
|          | 902                 | Crystal R761         | 3.18              | 3.28              | 3.23  | 3.24  | --    | 3.25  | --   | 11           |

**Table 33. 2017 Fusarium Ratings for ACSC Official Trial Entries**  
**Two Moorhead, MN Sites**

| Chk<br>@ | Code                 | Variety | Adjusted @        |                   |       |       |       |       |       |              |
|----------|----------------------|---------|-------------------|-------------------|-------|-------|-------|-------|-------|--------------|
|          |                      |         | N Mhd<br>4 Dates+ | S Mhd<br>4 Dates+ | 2017  | 2 Yr  | 3 Yr  | 2016  | 2015  | Trial<br>Yrs |
|          |                      |         |                   |                   | 2 loc | 4 loc | 6 loc | 2 loc | 2 loc |              |
| 914      | Hilleshög 3035Rz     | 3.76    | 3.63              | 3.70              | 3.67  | --    | 3.65  | --    | 13    |              |
| 917      | Hilleshög 9891Rz     | 3.71    | 3.60              | 3.66              | 3.71  | --    | 3.76  | --    | 2     |              |
| 904      | Maribo MA615Rz       | 4.93    | 4.52              | 4.72              | 4.92  | --    | 5.11  | --    | 2     |              |
| 916      | Maribo MA720Rz       | 3.44    | 3.17              | 3.31              | --    | --    | --    | --    | 1     |              |
| 911      | Seedex 8869          | 3.51    | 3.55              | 3.53              | 3.23  | --    | 2.92  | --    | 2     |              |
| 907      | Seedex Deuce         | 4.53    | 4.56              | 4.54              | 4.61  | --    | 4.68  | --    | 10    |              |
| 912      | Strube 12720         | 5.49    | 5.71              | 5.60              | --    | --    | --    | --    | 1     |              |
| 908      | Strube 13722         | 6.23    | 7.02              | 6.63              | --    | --    | --    | --    | 1     |              |
| 903      | SV 48611             | 5.84    | 5.64              | 5.74              | 5.49  | --    | 5.24  | --    | 2     |              |
| 915      | SV 48777             | 3.90    | 4.03              | 3.96              | --    | --    | --    | --    | 1     |              |
| 1201     | FS CK #07 CRY5658RR  | 3.01    | 2.99              | 3.00              | 2.83  | 2.78  | 2.66  | 2.67  | 12    |              |
| 1205     | FS CK #13 HILL4043RR | 6.04    | 6.17              | 6.10              | 6.08  | 6.05  | 6.05  | 6.01  | 11    |              |
| 1207     | FS CK #18 CRY5768RR  | 4.23    | 4.20              | 4.21              | 4.30  | 4.23  | 4.40  | 4.09  | 9     |              |
| 1209     | FS CK #28 SES36918RR | 5.61    | 5.46              | 5.54              | 5.33  | 5.30  | 5.13  | 5.25  | 9     |              |
| 1210     | FS CK #29 CRY5875RR  | 4.46    | 4.53              | 4.50              | 4.59  | 4.51  | 4.68  | 4.35  | 10    |              |
| 10       | Check Mean           | 4.86    | 4.75              | 4.81              |       |       |       |       |       |              |
|          | Trial Mean           | 4.06    | 4.14              | 4.10              |       |       |       |       |       |              |
|          | Coeff. of Var. (%)   | 12.67   | 13.16             |                   |       |       |       |       |       |              |
|          | Mean LSD (0.05)      | 0.70    | 0.70              |                   |       |       |       |       |       |              |
|          | Mean LSD (0.01)      | 0.93    | 0.93              |                   |       |       |       |       |       |              |
|          | Sig Mrk              | **      | **                |                   |       |       |       |       |       |              |
|          | Adj Factor           | 0.9346  | 0.9505            |                   |       |       |       |       |       |              |

@ Adjustment is based upon check varieties.

+ Average rating based upon multiple rating dates. Lower numbers indicate better tolerance (1=Ex, 9=Poor).

NE indicates variety was not evaluated in disease nursery.

Created 11/3/2017

Table 34. Herbicides and Fungicides Applied to ACSC Official Trials

| Location        | Herbicide/Insecticide |               |        | Fungicide                      |                                 |                  |
|-----------------|-----------------------|---------------|--------|--------------------------------|---------------------------------|------------------|
|                 | Herbicide & Rate      | Spray Dates   | Method | Fungicide Used                 | Spray Dates                     | Method           |
| Casselton       | Conventional          | 5/15,5/24,6/5 | Ground | Quadrис<br>CR.1/CR.2/CR.3/CR.4 | 5/31,6/20<br>7/10,7/20,8/7,8/18 | Ground<br>Ground |
| Felton          | RU1                   | 6/5           | Ground | Quadrис                        | 5/19,6/8                        | Ground           |
|                 | RU2                   | 6/22          | Ground | CR.1/CR.2/CR.3/CR.4            | 7/10,7/20,8/1,8/21              | Ground           |
| Georgetown      | RU1                   | 6/5           | Ground | Quadrис                        | 6/1,6/23                        | Ground           |
|                 | RU2                   | 6/22          | Ground | CR.2/CR.3/CR.4                 | 7/14,7/25,8/15,8/21             | Ground           |
| Hendrum         | RU1                   | 5/15*,5/26    | Ground | Quadrис                        | 5/19,6/8                        | Ground           |
|                 | RU2                   | 6/26          | Ground | CR.1/CR.2/CR.3/CR.4            | 7/10,7/20,8/1,8/18              | Ground           |
|                 | Conventional          | 5/15,5/26,6/5 | Ground |                                |                                 |                  |
| Hillsboro       | RU1                   | 6/1           | Ground | Quadrис                        | 5/19,6/8                        | Ground           |
|                 | RU2                   | 6/20          | Ground | CR.1/CR.2/CR.3/CR.4            | 7/10,7/20,8/7,8/18              | Ground           |
| Climax          | RU1                   | 6/5           | Ground | Quadrис                        | 6/1,6/20                        | Ground           |
|                 | RU2                   | 6/22          | Ground | CR.1/CR.2/CR.3/CR.4            | 7/14,7/25,8/15,8/21             | Ground           |
| Grand Forks + # | RU1                   | 5/24          | Ground | Quadrис                        | 5/31,6/22                       | Ground           |
|                 | RU2                   | 6/12,7/7      | Ground | CR.1/CR.2/CR.3                 | 7/14,7/25,8/15                  | Ground           |
|                 | Conventional          | 5/15,5/24,6/5 | Ground |                                |                                 |                  |
| Scandia         | RU1                   | 6/5           | Ground | Quadrис                        | 5/24,6/12                       | Ground           |
|                 | RU2                   | 6/22          | Ground | CR.1/CR.2/CR.3                 | 7/14,7/25,8/15                  | Ground           |
|                 | Conventional          | 5/15,5/24,6/5 | Ground |                                |                                 |                  |
| Stephen         | RU1                   | 5/26          | Ground | Quadrис                        | 5/24,6/12                       | Ground           |
|                 | RU2                   | 6/12          | Ground | CR.1/CR.2/CR.3                 | 7/14,7/26,8/17                  | Ground           |
| St. Thomas+#+   | RU1                   | 6/1           | Ground | Quadrис                        | 6/5,6/19                        | Ground           |
|                 | RU2                   | 6/20          | Ground | CR.1/CR.2/CR.3                 | 7/19,7/26,8/17                  | Ground           |
|                 | Conventional          | 5/23,5/31,6/8 | Ground |                                |                                 |                  |
| Humboldt        | Conventional          | 5/23,5/31,6/8 | Ground | Quadrис<br>CR.1/CR.2/CR.3      | 6/6,6/16<br>7/18,7/26,8/17      | Ground<br>Ground |
| Bathgate#       | RU1                   | 6/1           | Ground | Quadrис                        | 6/5,6/16                        | Ground           |
|                 | RU2                   | 6/20          | Ground | CR.1/CR.2/CR.3                 | 7/18,7/26,8/17                  | Ground           |

Ground applications complete by Technical Service personnel from ACSC.

Quadrис=first application on 2 leaf beets, second on 4-8 leaf beets.

RU1 = Roundup Powermax (32 oz./A), Event (1 gal./100 gal water).

CR.1=Insite XT + Penncozeb

RU1, \*= Early application of 22oz to control cover crop.

CR.2=Agritox + Incognito

RU2 = Roundup Powermax (22 oz./A), Event (1 gal./100 gal water).

CR.3=Penncozeb

CR.4=Headline + Agritox

+ Counter 20G applied at 9.0 lbs./A at Grand Forks & St Thomas. Thimet applied at Grand Forks & St Thomas near peak fly in early June.

# Warhawk 4E applied near peak root maggot fly in early June.