

TURNING POINT® SURVEY OF SUGARBEET INSECT PEST PROBLEMS AND MANAGEMENT PRACTICES IN MINNESOTA AND EASTERN NORTH DAKOTA IN 2018

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Attendees of the 2019 Winter Sugarbeet Grower Seminars were asked about their 2018 insect pest problems and associated management practices in a live polling questionnaire by using a Turning Point® interactive personal response system. Initial questioning identified the county in which respondents produced the majority of their sugarbeet crop in 2018 (Tables 1, 2, 3, and 4). This report does not include data from the Willmar Seminar because that survey did not include questions on insect pest incidence or insect pest management practices.

Table 1. 2019 Fargo Grower Seminar – county in which sugarbeet was grown in 2018

| County | Number of Responses | Percent of Responses |
|---------------------|---------------------|----------------------|
| Becker | 1 | 3 |
| Cass | 12 | 31 |
| Clay | 10 | 26 |
| Norman ¹ | 12 | 32 |
| Richland | 2 | 5 |
| Traill | 1 | 3 |
| Totals | 38 | 100 |

¹Includes Mahnomon County

²Includes Otter Tail County

Table 2. 2019 Grafton Grower Seminar – county in which sugarbeet was grown in 2018

| County | Number of Responses | Percent of Responses |
|-------------|---------------------|----------------------|
| Grand Forks | 3 | 8 |
| Kittson | 5 | 13 |
| Marshall | 2 | 5 |
| Pembina | 13 | 33 |
| Walsh | 14 | 36 |
| Other | 2 | 5 |
| Totals | 39 | 100 |

Table 3. 2019 Grand Forks Grower Seminar – county in which sugarbeet was grown in 2018

| County | Number of Responses | Percent of Responses |
|---------------------|---------------------|----------------------|
| Grand Forks | 19 | 21 |
| Mahnomen | 1 | 1 |
| Marshall | 9 | 10 |
| Pennington/Red Lake | 1 | 1 |
| Polk | 45 | 51 |
| Traill | 2 | 2 |
| Walsh | 4 | 5 |
| Other | 8 | 9 |
| Totals | 89 | 100 |

Table 4. 2019 Wahpeton Grower Seminar – county in which sugarbeet was grown in 2018

| County | Number of Responses | Percent of Responses |
|----------|---------------------|----------------------|
| Clay | 3 | 10 |
| Grant | 4 | 13 |
| Richland | 6 | 20 |
| Traverse | 1 | 3 |
| Wilkin | 16 | 53 |
| Totals | 30 | 99 |

This report is based on an estimated 145,059 acres of sugarbeet grown in 2018 by 191 survey respondents that attended the 2019 Fargo, Grafton, Grand Forks, and Wahpeton Winter Sugarbeet Grower seminars (Table 5). The majority (39%) of respondents reported growing sugarbeet on between 400 and 799 acres during the 2018 production season. An additional 9% grew sugarbeet on between 300 and 399 acres, whereas 12% produced sugarbeet on 1,000 to 1,499 acres, and another 11% grew the crop on a reported range of over 1,500 acres in 2018. The remaining 20% of growers surveyed reported growing sugarbeet on up to 299 acres.

Table 5. Ranges of sugarbeet acreage operated by respondents in 2018

| Location | Number of Responses | Acres of sugarbeet | | | | | | | | | |
|-------------|---------------------|--------------------------|---------|---------|---------|---------|---------|---------|-----------|-----------|-------|
| | | <99 | 100-199 | 200-299 | 300-399 | 400-599 | 600-799 | 800-999 | 1000-1499 | 1500-1999 | 2000+ |
| | | -----% of responses----- | | | | | | | | | |
| Fargo | 36 | 6 | 6 | 8 | 3 | 28 | 17 | 6 | 8 | 11 | 8 |
| Grafton | 42 | 5 | 14 | 0 | 10 | 33 | 14 | 17 | 5 | 2 | 0 |
| Grand Forks | 83 | 11 | 7 | 5 | 4 | 16 | 20 | 7 | 17 | 8 | 5 |
| Wahpeton | 30 | 7 | 3 | 0 | 30 | 20 | 10 | 7 | 13 | 7 | 3 |
| Totals | 191 | 8 | 8 | 4 | 9 | 22 | 17 | 9 | 12 | 7 | 4 |

From a total of 178 respondents at the Fargo, Grafton, Grand Forks, and Wahpeton seminars, 36% reported that the sugarbeet root maggot was their worst insect pest problem during the 2018 growing season (Table 6). That was a significant increase from 2017, for which only 27% of growers viewed the root maggot as their worst insect pest problem. The majority of respondents at both Grafton (57% of respondents) and Grand Forks (52% of respondents) identified the sugarbeet root maggot as their worst insect pest problem in 2018. Other significant insect pest problems reported included cutworms (13 and 7% of respondents at Fargo and Wahpeton, respectively), and wireworms (10, 5, 5, and 10% of respondents, respectively, at Fargo, Grafton, Grand Forks, and Wahpeton).

Table 6. Worst insect pest problem in sugarbeet in 2018

| Location | Number of Responses | Springtails | Cutworms | Lygus bugs | Wireworms | Root maggot | White grubs | Grass-hoppers | None |
|-------------|---------------------|--------------------------|----------|------------|-----------|-------------|-------------|---------------|------|
| | | -----% of responses----- | | | | | | | |
| Fargo | 31 | 3 | 13 | 0 | 10 | 3 | 0 | 0 | 71 |
| Grafton | 42 | 0 | 0 | 0 | 5 | 57 | 0 | 7 | 31 |
| Grand Forks | 75 | 9 | 3 | 0 | 5 | 52 | 0 | 1 | 29 |
| Wahpeton | 30 | 7 | 7 | 7 | 10 | 0 | 3 | 0 | 67 |
| Totals | 178 | 6 | 4 | 1 | 7 | 36 | 1 | 2 | 43 |

The majority (66%) of grower respondents, averaged across all four seminar locations, indicated that they planted seed treated with Poncho Beta insecticidal seed treatment in 2018, whereas NipsIt Inside- and Cruiser-treated seed were each only used by 3% of respondents (Table 7). Growers at the Fargo, Grafton, and Grand Forks grower seminars reported most of the seed treatment use for the production area in 2018. The highest use of Poncho Beta in 2018 was reported by seminar attendees at Fargo (79%), Grafton (77%), and Grand Forks (75%); whereas, the highest use of NipsIt Inside was reported by Grafton and Grand Forks attendees. A relatively large number (28%) of respondents at these events reported not using an insecticidal seed treatment. Wahpeton seminar attendees significantly influenced this figure, as 92% reported no seed treatment insecticide use in 2018.

Table 7. Seed treatment insecticide use for sugarbeet insect pest management in 2018

| Location | Number of Responses | % of responses | | | |
|-------------|---------------------|----------------|---------|---------------|------|
| | | Poncho Beta | Cruiser | NipsIt Inside | None |
| Fargo | 33 | 79 | 0 | 0 | 21 |
| Grafton | 35 | 77 | 3 | 9 | 11 |
| Grand Forks | 76 | 75 | 5 | 4 | 16 |
| Wahpeton | 26 | 8 | 0 | 0 | 92 |
| Totals | 170 | 66 | 3 | 3 | 28 |

Planting-time granular insecticides were used in 2018 by an average of 32.5% of grower attendees of the Fargo, Grafton, Grand Forks, and Wahpeton seminars (Table 8). An overall average of 28% of growers at these meetings reported using Counter 20G at planting time, whereas only 2% of attendees reported applying Lorsban 15G for planting-time protection of their sugarbeet crop from insect pests. Grower-reported use of Counter 20G as a planting-time treatment by Fargo and Grand Forks seminar respondents was at 42 and 32%; whereas only 17 and 19% of growers at the Grafton and Wahpeton locations, respectively, reported using Counter 20G at planting to protect their sugarbeet crop. Overall, 68% of respondents across all four grower seminars reported that they did not use a granular insecticide at planting in 2018.

Table 8. Planting-time granular insecticides used for insect pest management in sugarbeet during 2018

| Location | Number of Responses | % of responses | | | | |
|-------------|---------------------|----------------|-------------|------------|-------|------|
| | | Counter 20G | Lorsban 15G | Thimet 20G | Other | None |
| Fargo | 38 | 42 | 0 | 0 | 5 | 53 |
| Grafton | 42 | 17 | 5 | 0 | 0 | 78 |
| Grand Forks | 76 | 32 | 1 | 1 | 0 | 66 |
| Wahpeton | 31 | 19 | 0 | 0 | 3 | 77 |
| Totals | 187 | 28 | 2 | 0.5 | 2 | 68 |

Averaged across all seminar locations, the majority (28%) of planting-time granular insecticide use in 2018 involved Counter 20G (Table 9). The most commonly used application rate of Counter in 2018 was the moderate rate of 7.5 lb product/ac, which was used by 14% of all grower seminar attendees. An additional 7% used Counter at its highest labeled application rate (9 lb/ac), and another 7% applied it at the low labeled rate of 5.25 lb/ac.

The majority (52%) of Fargo respondents reported no use of Counter 20G, but 24% reported using it at the low (5.25 lb product/ac) rate, and 18% used the moderate (7.5-lb) rate. The majority of growers surveyed at Grafton and Wahpeton (81% at both locations) reported no use of a granular insecticide at planting. Similarly, 70% of the Grand Forks attendees reported that they did not use a planting-time granular insecticide. However, a total of 28% of Grand Forks attendees used Counter 20G, and most (19%) reported using it at the 7.5-lb application rate. Similarly, 19% of Wahpeton attendees reported using Counter 20G for their planting-time-applied protection from insect pests; however, they used the 7.5-lb rate slightly more than the high and low labeled rates. A small number (2%) of growers at the Grafton seminar reported using Lorsban 15G (or a generic granular chlorpyrifos product) for planting-time insecticide protection, and all applied it at the highest labeled rate of 13.4 lb of product per acre.

Table 9. Application rates of planting-time granular insecticides used for sugarbeet insect pest management in 2018

| Location | Number of Responses | Counter 20G | | | Lorsban 15G | | | Other | None |
|-------------|---------------------|-------------|--------|---------|-------------|-------|--------|-------|------|
| | | 9 lb | 7.5 lb | 5.25 lb | 13.4 lb | 10 lb | 6.7 lb | | |
| Fargo | 33 | 6 | 18 | 24 | 0 | 0 | 0 | 0 | 52 |
| Grafton | 41 | 10 | 5 | 2 | 2 | 0 | 0 | 0 | 81 |
| Grand Forks | 73 | 8 | 19 | 1 | 0 | 0 | 0 | 1 | 70 |
| Wahpeton | 31 | 3 | 10 | 6 | 0 | 0 | 0 | 0 | 81 |
| Totals | 178 | 7 | 14 | 7 | 0.5 | 0 | 0 | 0.5 | 71 |

For postemergence root maggot management in 2018, 47% of all grower seminar attendees reported using some form of insecticide. The majority (30%) of which chose Lorsban or a similar chlorpyrifos-containing sprayable liquid insecticide, whereas, Mustang Maxx and Thimet were both only used by 5% of respondents. An additional 4% reported using Lorsban 15G for this purpose.

At the Fargo grower seminar, 13% of respondents reported that they used a sprayable liquid formulation of Lorsban, and 11% of respondents applied Mustang Maxx for postemergence root maggot management in 2018. In contrast, 43 and 42% of the Grafton and Grand Forks seminar attendees, respectively, reported using sprayable liquid Lorsban for root maggot control. Mustang Maxx was reported as being used by 15% of the Wahpeton attendees for this purpose. Grafton seminar attendees indicated the highest incidence of using Thimet 20G for postemergence root maggot control (11% of respondents), whereas just 5% of Grand Forks seminar attendees used Thimet. Lorsban 15G was reported as being used for this purpose by just 7% of respondents at both Grafton and Grand Forks. An additional 2% of Grafton respondents reported using Counter 20G as a postemergence treatment for root maggot control.

An average of 53% of survey respondents across all locations indicated that they did not apply a postemergence insecticide to manage the sugarbeet root maggot in 2018. The majority of those respondents were attendees of the Fargo and Wahpeton locations, where a respective 76 and 85% of respondents reported no use of a postemergence insecticide for root maggot control.

Table 10. Postemergence insecticide use for sugarbeet root maggot management in 2018

| Location | Number of Responses | Lorsban | Mustang Maxx | Other Asana liquid | Counter 20G | Lorsban 15G | Thimet 20G | None |
|--------------------------|---------------------|------------------------------|--------------|--------------------|-------------|-------------|------------|------|
| | | (4E, Advanced, or a generic) | | | | | | |
| -----% of responses----- | | | | | | | | |
| Fargo | 37 | 13 | 11 | 0 | 0 | 0 | 0 | 76 |
| Grafton | 44 | 43 | 2 | 0 | 5 | 2 | 7 | 30 |
| Grand Forks | 74 | 42 | 0 | 1 | 0 | 0 | 7 | 45 |
| Wahpeton | 27 | 0 | 15 | 0 | 0 | 0 | 0 | 85 |
| Totals | 182 | 30 | 5 | 0.5 | 1 | 0.5 | 4 | 53 |

Overall satisfaction with insecticide applications made for root maggot management was rated as good to excellent by 85% of respondents when averaged across the Fargo, Grafton, Grand Forks, and Wahpeton seminar locations (Table 11). That was a reduction from 86% of attendees of all seminars rating their root maggot control performance as good to excellent during the previous growing season (2017). At the Fargo location, 90% of respondents rated their satisfaction with root maggot control tools as being good to excellent. Similarly, most (92%) of the respondents rated their satisfaction with root maggot management practices as being good to excellent at the Grafton seminar location. Although the majority (78%) of Grand Forks seminar attendees also rated their insecticide performance as good to excellent, that figure was down from 90% during the previous survey year (2017 growing season). Although 100% of respondents at the Wahpeton seminar rated their satisfaction with performance of root maggot management practices as good to excellent, that figure was only based on six respondents.

Table 11. Satisfaction with insecticide treatments for sugarbeet root maggot management in 2018

| Location | Number of Responses | Excellent | Good | Fair | Poor | Unsure |
|-------------|---------------------|-----------|------|------|------|--------|
| | | | | | | |
| Fargo | 20 | 70 | 20 | 0 | 0 | 10 |
| Grafton | 37 | 41 | 51 | 8 | 0 | 0 |
| Grand Forks | 61 | 29 | 49 | 15 | 0 | 7 |
| Wahpeton | 6 | 67 | 33 | 0 | 0 | 0 |
| Totals | 124 | 41 | 44 | 10 | 0 | 5 |

A total of 181 growers responded to the question pertaining to which insecticide they used for springtail management in 2018 (Table 12). Averaged across all locations, Poncho Beta was relied on by 25% of respondents for springtail control, which was more than any other chemical tool used to manage springtails in 2018. However, 46% of all growers surveyed at the four seminar locations reported not using an insecticide for springtail control. Counter 20G was used by 17% of all survey respondents, and Mustang Maxx was used by 8% of the attendees across all four seminar locations.

At the Fargo seminar, Counter 20G and Poncho Beta were used by 32% and 24% of respondents, respectively, with only 3% of growers reporting that they used Mustang Maxx for springtail control and 41% reporting that they did not use any insecticide for this purpose in 2018. Insecticide use for springtail management by Grafton seminar attendees was split between Mustang Maxx, Poncho Beta, and Counter 20G (18, 12, and 10%, respectively). An additional 2% of growers at the Grafton seminar reported using NipsIt Inside seed treatment for their springtail control, and 58% of respondents at that location indicated no insecticide use for this purpose in 2018. The majority (43%) of the 76 respondents at Grand Forks reported using Poncho Beta for springtail control, and an additional 18% used Counter 20G for this purpose. Only 4% of Grand Forks attendees reported using Cruiser seed treatment for springtail management, and 30% of them reported no insecticide use for springtail management. The majority (74%) of attendees at the Wahpeton seminar indicated that they did not use an insecticide to control springtails; however, 16% of respondents there reported using Mustang Maxx, and a small number (7%) of attendees relied on a planting-time application of Counter 20G for springtail control. NipsIt Inside insecticidal seed treatment was used by 3% of Wahpeton attendees for protection against springtail infestations.

Table 12. Insecticide use for *springtail* management in 2018

| Location | Number of Responses | Cruiser | NipsIt Inside | Poncho Beta | Mustang Maxx | Counter 20G | Lorsban 15G | Other | None |
|--------------------------|---------------------|---------|---------------|-------------|--------------|-------------|-------------|-------|------|
| -----% of responses----- | | | | | | | | | |
| Fargo | 34 | 0 | 0 | 24 | 3 | 32 | 0 | 0 | 41 |
| Grafton | 40 | 0 | 2 | 12 | 18 | 10 | 0 | 0 | 58 |
| Grand Forks | 76 | 4 | 0 | 43 | 1 | 18 | 3 | 0 | 30 |
| Wahpeton | 31 | 0 | 3 | 0 | 16 | 7 | 0 | 0 | 74 |
| Totals | 181 | 2 | 1 | 25 | 8 | 17 | 1 | 0 | 46 |

As presented in Table 13, 74% of grower respondents across all four seminar locations rated their insecticide performance for springtail management as good to excellent, and only 2% rated insecticide performance as poor. Satisfaction among growers was mostly similar across locations, with ratings of good to excellent by 77, 85, and 86% of respondents at Fargo, Grafton, and Wahpeton, respectively. Exceptions included slightly less satisfaction (68% good to excellent) with Grand Forks respondents, and 14% of Wahpeton respondents rating performance as poor.

Table 13. Satisfaction with insecticide treatments for springtail management in 2018

| Location | Number of Responses | Excellent | Good | Fair | Poor | Unsure |
|--------------------------|---------------------|-----------|------|------|------|--------|
| -----% of responses----- | | | | | | |
| Fargo | 22 | 36 | 41 | 5 | 0 | 18 |
| Grafton | 13 | 39 | 46 | 0 | 0 | 15 |
| Grand Forks | 54 | 22 | 46 | 9 | 2 | 20 |
| Wahpeton | 7 | 43 | 43 | 0 | 14 | 0 |
| Totals | 96 | 29 | 45 | 6 | 2 | 18 |

Of the 173 growers surveyed across all seminar locations, 86% reported no use of an insecticide for Lygus bug management in 2018 (Table 14). This was common across all locations, with percentages of growers reporting no insecticide use for this purpose ranging from 83% of Wahpeton attendees to 88% of those at Fargo. At the Grafton location, 13% of respondents reported using Lorsban or a generic version of chlorpyrifos for Lygus control in their sugarbeet crop. Similarly, 10% of grower respondents at Wahpeton reported using Mustang Maxx to control this pest. Lorsban (or a generic equivalent) was used by 8% of Grand forks attendees for Lygus bug management.

Table 14. Insecticide use for *Lygus bug* management in 2018

| Location | Number of Responses | -----% of responses----- | | | | | | |
|-------------|---------------------|--------------------------|---------|--|---------|-----------------|-------|------|
| | | Asana | Lannate | Lorsban (4E, Advanced. or generic) | Movento | Mustang Maxx | Other | None |
| Fargo | 33 | 0 | 0 | 3 | 3 | 3 | 3 | 88 |
| Grafton | 39 | 0 | 0 | 13 | 0 | 0 | 0 | 87 |
| Grand Forks | 72 | 1 | 0 | 8 | 0 | 0 | 4 | 86 |
| Wahpeton | 29 | 3 | 0 | 3 | 0 | 10 | 0 | 83 |
| Totals | 173 | 1 | 0 | 8 | 0.5 | 2 | 2 | 86 |

Although a relatively small number of growers (i.e., 24 across all locations) responded to the question regarding satisfaction with insecticide performance for *Lygus bug* control, 67% rated it as good to excellent (Table 15). Satisfaction levels of good to excellent ranged from 50% at the Grand Forks seminar location to 100% at Grafton, although it should be noted that only four respondents answered this question at the Grafton seminar. No respondents rated their insecticide performance as poor at any of the locations; however, 33 and 50% of respective attendees at Fargo and Grand Forks responded as being unsure of the quality of their insecticide performance.

Table 15. Satisfaction with insecticide treatments for *Lygus bug* management in 2018

| Location | Number of Responses | -----% of responses----- | | | | |
|-------------|---------------------|--------------------------|------|------|------|--------|
| | | Excellent | Good | Fair | Poor | Unsure |
| Fargo | 3 | 0 | 67 | 0 | 0 | 33 |
| Grafton | 4 | 25 | 75 | 0 | 0 | 0 |
| Grand Forks | 10 | 40 | 10 | 0 | 0 | 50 |
| Wahpeton | 7 | 57 | 14 | 14 | 0 | 14 |
| Totals | 24 | 38 | 29 | 4 | 0 | 29 |

The majority (81%) of respondents, averaged across all grower seminar locations, reported that they applied their postemergence liquid insecticides in a total spray output volume of between six and 10 gallons per acre (GPA). At individual locations, the percentage producers that reported using this spray output volume ranged from 60% at Wahpeton to 89% at Grafton. Responses to this question at Wahpeton should be considered with discretion, as only five individuals provided input on it at that seminar location. At Fargo and Grand Forks, 17 and 14% of respondents, respectively, reported applying postemergence insecticide sprays in a volume of 11 to 15 GPA. Small numbers (6 to 8%) of attendees at the Fargo and Grand Forks grower seminars responded as having used an output volume of one to six gallons per acre to deliver their postemergence liquid insecticide. Using such a low output volume for a ground-based foliar application would be quite rare and, most likely, ineffective for insect control. It is possible that some respondents misread this question, and responded with the output volume of treatments made on their fields by aircraft. However, that is only speculated, and cannot be concluded with a reasonable level of certainty. A small number (4%) of respondents at Grafton also reported applying their postemergence insecticides at the higher output volume range of 16 to 20 GPA.

Table 16. Spray volume output used for ground-applied postemergence insecticide applications in 2018

| Location | Number of Responses | -----% of responses----- | | | | |
|-------------|---------------------|--------------------------|-------------|--------------|--------------|-------------|
| | | 1–5 GPA | 6–10 GPA | 11–15 GPA | 16–20 GPA | > 20 GPA |
| Fargo | 12 | 8 | 75 | 17 | 0 | 0 |
| Grafton | 28 | 0 | 89 | 7 | 4 | 0 |
| Grand Forks | 35 | 6 | 80 | 14 | 0 | 0 |
| Wahpeton | 5 | 20 | 60 | 0 | 0 | 20 |
| Totals | 80 | 5 | 81 | 11 | 1 | 1 |

Overall, 73% of all respondents at the 2019 Winter Sugarbeet Grower Seminars (all locations combined) reported that their insecticide use in 2018 was not different from what it had been during the previous five years (Table 17). At the Fargo Growers Seminar, 8% of respondents indicated that their insecticide use in sugarbeet had decreased, and 78% of respondents at that location reported no change in insecticide use in comparison to the past five years. However, 8% of grower respondents at both Grafton and Wahpeton, as well as 13% of Grand Forks attendees, indicated that their insecticide use had increased when compared to the previous five years. This finding was probably due to sugarbeet root maggot population increases in 2018 in areas that typically experience lower root maggot infestations. At the Wahpeton seminar location, 46% of attendees reported that they did not use an insecticide on their sugarbeet crop in 2018.

Table 17. Insecticide use in sugarbeet during 2018 compared to the previous 5 years

| Location | Number of Responses | -----% of responses----- | | | No Insecticide Use |
|-------------|---------------------|--------------------------|-----------|-----------|--------------------|
| | | Increased | Decreased | No Change | |
| Fargo | 36 | 6 | 8 | 78 | 8 |
| Grafton | 38 | 8 | 5 | 84 | 3 |
| Grand Forks | 75 | 13 | 8 | 77 | 1 |
| Wahpeton | 26 | 8 | 8 | 38 | 46 |
| Totals | 175 | 10 | 7 | 73 | 10 |

Averaged across all 2019 grower seminar locations, 77% of respondents indicated that they used some form of online or cellular-enabled information source for information regarding sugarbeet insect management during the 2018 growing season (Table 18). The most commonly used online/electronic decision-making tools used by attendees for pest management in 2018, as averaged across locations, included cellular text alerts (28%), the NDSU Crop & Pest report (16%), and the NDSU Entomology Department’s online posting of sugarbeet root maggot fly counts (12%).

At the Fargo seminar, about 73% of respondents indicated using some form of online information, with most use involving the NDSU Crop & Pest Report (27%) and cellular text-alert system (20%). The majority (30%) of respondents at Grafton reported using the text-alert system, and 14% of them used the Crop & Pest Report weekly newsletter, and 11% of Grafton attendees also reported using NDSU’s online posting of root maggot fly counts and the NDSU Root Maggot Model on the North Dakota Agricultural Weather Network (NDAWN) website for guidance with management decisions. Attendees of the Grand Forks seminar location reported substantially greater use of the cellular text-alert system (39% of respondents) and the online posting of NDSU’s root maggot fly counts (20%) than at any other seminar location. Ten percent of Grand Forks attendees also reported using the NDSU Crop & Pest Report for information and their pest management decision-making activities in 2018. The majority of Wahpeton respondents indicated no use of online/electronic tools for acquiring insect pest management information; however, 18% of them responded as getting information from the NDSU Crop & Pest Report.

Table 18. Use of online decision-making tools for sugarbeet insect management in 2018

| Location | Number of Responses | -----% of responses----- | | | | | | | |
|-------------|---------------------|--------------------------|-------------------|-----------------------|-------------------------------|---------------------------|----------------------------|-------|------|
| | | Cellular text alerts | Maggot Mobile app | NDSU Crop&Pest Report | Root Maggot Fly Count Website | Root Maggot Model (NDAWN) | Sugarbeet Production Guide | Other | None |
| Fargo | 45 | 20 | 2 | 27 | 7 | 4 | 7 | 7 | 27 |
| Grafton | 56 | 30 | 7 | 14 | 11 | 11 | 0 | 11 | 16 |
| Grand Forks | 96 | 39 | 3 | 10 | 20 | 2 | 4 | 8 | 14 |
| Wahpeton | 28 | 4 | 0 | 18 | 0 | 0 | 7 | 7 | 64 |
| Totals | 225 | 28 | 4 | 16 | 12 | 4 | 4 | 8 | 23 |