TURNING POINT SURVEY OF FUNGICIDE USE IN SUGARBEET IN MINNESOTA AND EASTERN NORTH DAKOTA IN 2023

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The ninth annual fungicide practices live polling questionnaire was conducted using Turning Point Technology at the 2024 Winter Sugarbeet Growers' Seminars held during January and February 2024. Responses are based on production practices from the 2023 growing season. The survey focuses on responses from growers in attendance at the Fargo, Grafton, Grand Forks, Wahpeton, ND and Willmar, MN Grower Seminars. Respondents from each seminar indicated the county in which the majority of their sugarbeets were produced (Table 1-4). The average sugarbeet acreage per respondent grown in 2023 was calculated from Table 6 at between 400 and 599 acres and 1,000 and 1,499 acres at 17% each.

Survey respondents were asked about soilborne disease and control practices. Fifty-five percent said their fields were affected by Rhizoctonia, six percent said Aphanomyces was the biggest issue, two percent said they had issues with fusarium and another two percent listed rhizomania as the biggest problem. Ten percent said multiple diseases including Rhizoctonia, Aphanomyces, Fusarium and Rhizomania and 25% said they had no soilborne disease issues (Table 10). Additionally, participants were asked about the prevalence of Rhizoctonia in sugarbeet with which preceding crops. Sixty percent of respondents said they saw more rhizoctonia when soybeans preceded their sugarbeet crop. Eighteen percent reported more Rhizoctonia following edible beans, six percent saw more Rhizoctonia following field corn, eleven percent said any crop, 4% said small grains, eleven percent said other crop as the crop preceding sugarbeets they saw the most Rhizoctonia develop (Table 11). Of the respondents to the question regarding whether a specialty variety was used for Rhizoctonia, 71% of respondents said yes they did use a specialty variety for Rhizoctonia while 29% said no (Table 12).

Participants were asked what methods were used to control Rhizoctonia and 42% said they used a seed treatment only, 19% used a seed treatment and a POST fungicide and another 24% used a seed treatment plus an in-furrow fungicide while 13% also said they used a seed treatment, in-furrow fungicide and a POST fungicide while two percent used a seed treatment followed by an in-furrow spray and two POST applications (Table 13).

Respondents were asked what POST fungicides were used to control Rhizoctonia and 43% did not use a POST fungicide to control Rhizoctonia. Twenty two percent used Quadris or generic, 20% used Azteroid, nine percent used Proline, four percent used Excalia and 1% used Azterknot while one percent used other (Table 14). Participants were then asked to grade the effectiveness of the POST fungicides that were used. Forty one percent were unsure of their results, 30% said they had good results, 12% reported fair results, 16% said the fungicides performed excellently and 1% said they performed poorly (Table 15). Respondents were also asked how they applied POST fungicides and 16% stated they used a band application and 31% used a broadcast application while 53% said that they did not use a POST application (Table 16).

Participants were also asked about use of waste lime to control Aphanomyces. Sixty three percent of participants did not use waste lime in their fields while 28% used between 6 and 10 tons/acre and 10% used less than 5 tons/acre (Table 17). The growers were asked how effective their waste lime application was. Fifty five percent of respondents did not apply lime, 19% said they had good results and another 14% were unsure of their results, 8% said excellent and 3% reported fair results (Table 18).

Survey participants were then asked a series of questions regarding their CLS fungicide practices on sugarbeet in 2023. Thirty seven percent said that they used 3 sprays to control CLS, 28% used four applications, 21% used two applications, 4% used zero applications, 6% used one application while 4% used five applications (Table 19). Survey participants were also asked how many CLS applications were made to control CLS on non-CR+ varieties. Twenty seven percent said four applications, 18% used three applications, 14% used five applications, 11% used six

applications, six percent said two applications, while three percent said seven sprays and two percent said one spray on non-CR+ varieties. Twenty one percent said they applied no sprays but that includes growers who did not grow and CR+ varieties (Table 20).

Respondents were asked about when their CLS application started and ended. Forty six percent of respondents said that they began their CLS sprays between June 25 and July 1. Thirty four percent said between July 2 and July 10, 10% said before June 25 while nine percent said after July 10 (Table 21). Fifty percent said their late CLS spray was between September 1 and 10. Twenty two percent said between August 21 and 31, 19% between September 11 and 20, seven percent said before August 21 and two percent said after September 20 (Table 22).

Seventy one percent of survey respondents made 100% of their CLS applications by ground application. Sixteen percent of respondents made between 1% and 20% of their applications by aerial application, five percent between 21% and 40%, four percent made all of their CLS applications by air, three percent between 41% and 60% and one percent between 61% and 80% (Table 23). Regarding water usage in gallons per acre as applied by tractor, 45% of respondents used 20 gallons per acre in applying CLS fungicides, 30% between 11 and 15 gallons per acre, 19% between 16 and 19 gallons per acre and six percent used more than 20 gallons per acre (Table 24).

Table 1. 2024 Fargo Grower Seminar – Number of survey respondents by county growing sugarbeet in 2023.

County	Number of Responses	Percent of Responses
Barnes	1	6
Becker	1	6
Cass	4	24
Clay	6	35
Norman/Mahnomen	5	29
Ransom	-	-
Richland	-	-
Steele	-	-
Trail	-	-
Wilkin/Otter Tail	-	-
Total	17	100

Table 2. 2024 Grafton Grower Seminar – Number of survey respondents by county growing sugarbeet in 2023.

County	Number of Responses	Percent of Responses
Cavalier	1	3
Grand Forks	2	6
Kittson	3	9
Marshall	1	3
Nelson	-	-
Pembina	13	39
Polk	-	-
Ramsey	-	-
Walsh	13	39
Other	-	-
Total	33	99

Table 3. 2024 Grand Forks Grower Seminar – Number of survey respondents by county growing sugarbeet in 2023.

County	Number of Responses	Percent of Responses
Grand Forks	16	24
Mahnomen	-	-
Marshall	6	9
Nelson	-	-
Pennington/Red Lake	-	-

Polk	29	44
Steele	-	-
Traill	6	9
Walsh	3	5
Other	6	9
Total	66	100

Table 4. 2024 Wahpeton Grower Seminar – Number of survey respondents by county growing sugarbeet in 2023.

County	Number of Responses	Percent of Responses
Cass	6	8
Clay	11	14
Grant	7	9
Otter Tail	1	1
Ransom	-	-
Richland	13	16
Roberts	1	1
Stevens	-	-
Traverse	3	4
Wilkin	37	47
Total	79	101

Table 5. 2024 Willmar Grower Seminar - Number of survey respondents by county growing sugarbeet in 2023.

County	Number of Responses	Percent of Responses
Chippewa	20	32
Kandiyohi	7	11
Pope	1	2
Redwood	4	6
Renville	19	31
Yellow Medicine	-	-
Stevens	4	6
Swift	6	10
Other	1	2
Total	62	100

Table 6. Total sugarbeet acreage operated by respondents in 2023.

		Acres of sugarbeet									
Location	Responses	<99	100-199	200-299	300-399	400-599	600-799	800-999	1000-1499	1500-1999	2000+
		----------% of responses----------									
Fargo	15	13	13	7	13	27	20	-	7	-	-
Grafton	30	-	10	-	7	13	10	7	37	10	7
Grand Forks	65	11	9	5	11	17	11	12	12	5	8
Wahpeton	71	3	8	10	13	21	15	6	15	8	-
Willmar	65	8	5	6	14	14	14	12	15	11	2
Total	246	7	8	6	12	17	13	9	17	8	3

Table 7. What crop preceded most of your sugarbeet acreage in 2023?

Location	Respondents	Field Corn	Sweet Corn	Dry Bean	Peas	Soybean	Wheat

		----------% of respondents----------					
Fargo	17	18	-	-	-	6	77
Grafton	30	-	-	10	-	3	87
Grand Forks	65	2	-	2	-	2	95
Wahpeton	77	23	1	-	-	10	65
Willmar	66	71	14	2	2	12	-
Total	255	27	4	2	<1	7	59

Table 8. What was your most serious production problem?

Location	Respondents	Aph	CLS	Emergence	Herbicide Injury	Rhizoc	Rhizomania	Root Maggot	Weeds
		----------% of respondents----------							
Fargo	15	-	7	27	-	-	-	13	53
Grafton	32	-	9	38	-	3	-	3	47
Grand Forks	65	-	12	31	3	2	2	-	51
Wahpeton	82	-	4	32	5	5	1	1	52
Willmar	65	2	2	20	2	9	-	-	66
Total	259	<1	6	29	3	5	1	2	55

Table 9. What is your primary method of tillage?

Location	Respondents	Conventional	No-Till	Strip Tillage
		----------% respondents----------		
Fargo	17	100	-	-
Grafton	35	100	-	-
Grand Forks	67	96	1	2
Wahpeton	74	96	-	4
Willmar	62	94	2	5
Total	255	96	1	3

Table 10. What soil-borne diseases affected your sugarbeet production in 2023?

		Root disease					
Location	Respondents	Rhizoctonia	Aphanomyces	Fusarium	Rhizomania	All	None
		----------% of respondents----------					
Fargo	16	38	-	13	-	25	25
Grafton	35	60	9	3	-	-	29
Grand Forks	62	50	6	2	2	5	35
Wahpeton	73	59	5	1	1	18	15
Willmar	63	57	8	-	3	8	24
Total	249	55	6	2	2	10	25

Table 11. With which of the preceding crops did you see the most rhizoctonia in 2023?

Location	Respondents	Edible Beans	Field Corn	Sweet Corn	Small Grains	Soybeans	Any Crop
		----------% of respondents----------					

Fargo	14	-	29	-	14	57	-
Grafton	32	47	3	3	3	44	9
Grand Forks	55	27	5	-	7	51	9
Wahpeton	64	3	2	2	-	83	11
Willmar	57	12	9	-	2	63	14
Total	222	18	6	1	4	60	11

Table 12. Did you use a specialty variety to control Rhizoctonia in 2023?

Location	Respondents	Yes	No
		----------% respondents----------	
Fargo	16	81	19
Grafton	33	67	33
Grand Forks	64	56	44
Wahpeton	74	85	15
Willmar	61	70	30
Total	248	71	29

Table 13. What methods were used to control *Rhizoctonia solani* in 2023?

Location	Respondents	Seed Treatment Only	Seed Treatment + In-Furrow	Seed Treatment + POST	Seed Treatment + In-Furrow + POST	Seed Treatment + In-Furrow + 2xs POST
			----------% respondents----------			
Fargo	14	14	36	43	-	7
Grafton	34	26	29	12	26	6
Grand Forks	63	30	30	22	17	-
Wahpeton	70	79	13	6	3	-
Willmar	65	28	26	28	15	3
Total	246	42	24	19	13	2

Table 14. Which POST fungicide did you use to control R. solani in 2023?

		POST fungicide							
Location	Respondents	Azteroid	Azterknot	Excalia	Quadris or generic	Proline	Elatus	Other	None
		----------% of respondents----------							
Fargo	16	6	-	6	56	6	-	-	25
Grafton	35	31	-	6	14	17	-	-	31
Grand Forks	62	35	5	5	23	6	-	-	26
Wahpeton	67	9	-	1	7	10	-	-	72
Willmar	62	15	-	5	32	5	-	5	39
Total	242	20	1	4	22	9	-	1	43

Table 15. How effective were your POST fungicides at controlling Rhizoctonia solani in 2023?

		Effectiveness of fungicides				
Location	Respondents	Excellent	Good	Fair	Poor	Unsure
		----------% of respondents----------				
Fargo	14	14	57	14	-	14
Grafton	31	16	45	16	-	23
Grand Forks	57	26	32	14	-	28
Wahpeton	49	6	16	10	2	65

Willmar	51	16	24	8	2	51
Total	202	16	30	12	1	41

Table 16. How did you apply POST fungicides to control Rhizoctonia in 2023?

Location	Respondents	Band	Broadcast	None
		----------% respondents----------		
Fargo	15	-	67	33
Grafton	35	17	49	34
Grand Forks	62	23	37	40
Wahpeton	73	7	15	78
Willmar	59	24	25	51
Total	244	16	31	53

Table 17. What rate of precipitated calcium carbonate (waste lime) did you use in 2023?

		Lime use rate		
Location	Respondents	None	>5 T/A	6-10 T/A
		----------% of respondents----------		
Fargo	16	69	6	25
Grafton	36	67	-	33
Grand Forks	65	65	3	32
Wahpeton	74	51	11	38
Willmar	61	70	21	8
Total	252	63	10	28

Table 18. How effective was waste lime at controlling aphanomyces in 2023?

		Waste lime effectiveness					
Location	Respondents	Excellent	Good	Fair	Poor	Unsure	No Lime
		----------% of respondents----------					
Fargo	16	13	19	6	-	6	56
Grafton	37	8	22	-	-	16	54
Grand Forks	65	11	8	3	-	18	60
Wahpeton	70	10	31	4	-	11	43
Willmar	61	3	16	2	-	13	66
Total	249	8	19	3	-	14	55

Table 19. How many fungicide application did you make on CR+ varieties to control CLS in 2023?

		Number of applications					
Location	Respondents	0	1	2	3	4	5
		----------% of respondents----------					
Fargo	17	6	-	35	41	12	6
Grafton	34	-	21	56	24	-	-
Grand Forks	56	7	9	20	29	34	2
Wahpeton	73	3	3	7	41	42	4
Willmar	61	3	2	15	48	26	7
Total	241	4	6	21	37	28	4

Table 20. How many fungicide application did you make on non-CR+ varieties to control CLS in 2023?

Location	Respondents	Number of applications								
		0	1	2	3	4	5	6	7	>7
		----------% of respondents----------								
Fargo	14	21	14	7	14	14	29	-	-	-
Grafton	33	3	3	21	52	18	3	-	-	-
Grand Forks	60	7	-	3	23	48	15	3	-	-
Wahpeton	37	78	-	3	3	14	-	3	-	-
Willmar	55	7	-	2	2	20	25	33	11	-
Total	199	21	2	6	18	27	14	11	3	-

Table 21. What date was your first CLS application?

Location	Respondents	Date of first CLS application			
		Before June 25	June 25 – July 1	July 2-10	After July 10
		----------% of respondents----------			
Fargo	16	-	56	38	6
Grafton	34	-	12	62	26
Grand Forks	64	3	48	36	13
Wahpeton	69	12	52	30	6
Willmar	60	25	53	20	2
Total	243	10	46	34	9

Table 22. What date was your last CLS application in 2023?

	Date of last CLS application

Location	Respondents	Before August 21	August 21-31	September 1-10	September 11-20	After September 20
		----------% of respondents----------				
Fargo	15	-	20	60	13	7
Grafton	35	9	9	63	17	3
Grand Forks	65	6	20	46	22	6
Wahpeton	69	7	25	54	15	-
Willmar	61	7	30	41	23	-
Total	245	7	22	50	19	2

Table 23. What percent of total fungicide applications for CLS were made by an aerial applicator?

Location	Respondents	0%	1%-20%	21%-40%	41%-60%	61%-80%	81%-99%	100%
		----------% of respondents----------						
Fargo	16	56	25	13	-	-	-	6
Grafton	37	70	14	3	8	-	-	5
Grand Forks	63	73	10	5	5	3	-	5
Wahpeton	70	70	20	6	-	1	-	3
Willmar	64	73	17	3	3	-	-	3
Total	250	71	16	5	3	1	-	4

Table 24. How many gallons per acre of water per acre did you use to apply CLS fungicides by tractor?

Location	Respondents	11-15	16-19	20	20+
		----------% of respondents----------			
Fargo	15	67	27	7	-
Grafton	34	44	26	26	3
Grand Forks	62	61	13	21	5
Wahpeton	71	11	28	58	3
Willmar	65	3	11	72	14
Total	247	30	19	45	6