SURVEY OF FUNGICIDE USE IN SUGARBEET IN EASTERN NORTH DAKOTA AND MINNESOTA - 2004

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Sugarbeet growers were asked to report the fungicide used and the number of applications to sugarbeet acreage as part of the annual survey of sugarbeet growers. Multiple applications of fungicides to the same acreage were counted as multiple acres treated; thus, acres treated may exceed 100% of acres planted. All fungicides in Table 1 would be used primarily for control of Cercospora.

Fungicide use in 2004, averaged over all counties, was 206% as compared to 275% in 2003, 262% in 2002, 248% in 2001 and 304% in 2000 (Table 1). Acres not treated with fungicide was less than 1% in 2001, 2002, 2003 and 2004 and was 1% in 2000. Fungicide usage in Chippewa County was 291% in 2004. Fungicide use was 852% in 1998, 599% in 1999, 409% in 2000, 299% in 2001, 304% in 2002 and 295% in 2003 in Chippewa County. Use was 702% in 1998, 625% in 1999, 430% in 2000, 308% in 2001, 297% in 2002, 308% in 2003 and 305% in 2004 in Renville County. Eminent was the most common fungicide and was used on 99% of the acres. Super Tin was used on 25% of the acres alone and on 11% of the acres in combination.

Eminent had a Section 18 label in 1999, 2000, 2001, 2002, 2003 and 2004 and was used on 165% of the acreage in 1999, 170% in 2000, 144% in 2001, 153% in 2002, 124% in 2003 and 99% in 2004 (Table 1). Headline was fully labeled in 2003 and was used on 85% of the acreage in 2003 and 52% of the acreage in 2004. The Eminent and Headline use apparently had a large impact on Cercospora control. The percentage of respondents who named Cercospora as their worst production problem dropped from 36% in 1998 to 6% in 1999, 3% in 2000, 1% in 2001, and <1% in 2002 and 2003. Cercospora was not named as the worst production problem by a single respondent in 2004.

Eminent and Headline are excellent fungicides but they should be rotated with other fungicides to reduce the risk of Cercospora developing resistance. Fifty-four of the 372 survey respondents used only Eminent for Cercospora and none of these growers applied Eminent more than once. Two of the 372 survey respondents used only Headline and none of these growers applied Headline more than once. Eminent and Headline should never be used as the only fungicide for Cercospora unless the field is only treated once.

The number of fungicide applications varied from zero to nine times per acre (Table 2). Eighty-two percent of the respondents applied fungicides two or three times per acre. The average number of applications was 2.3 in 2004, 2.8 in 2003, 2.8 in 2002, 2.5 in 2001 and 3.1 in 2000.

Averaged over fungicides and counties, 73% of the fungicides were applied with a ground sprayer and 27% with aerial application (Table 3). The usage of ground sprayers varied from 30% in Traill County to 93% in Renville County. The overall usage of ground sprayers was 58% in 1999, 63% in 2000, 60% in 2001, 67% in 2002, 79% in 2003 and 73% in 2004.

The date of the first Cercospora spraying was spread from June 20 to after July 20 (Table 4). The southern areas generally were sprayed earlier than more northern areas. In general, spraying started later in 2004 with 20% of the respondents starting treatments prior to July 11 in 2004, 33% starting prior to July 10 in 2003, 29% in 2002 and 22% in 2001.

Cercospora leaf spot control was evaluated as excellent or good by 97% of the survey respondents averaged over all fungicides (Table 5). Comparisons among all fungicides are of questionable value since the number of responses

varies so greatly from one fungicide to another. However, a large number of responses were received for Eminent, Headline and Super Tin/Agri Tin. Excellent or good evaluations were received from 98% of the respondents for Eminent, 98% for Super Tin/Agri Tin, and 95% for Headline.

The reported acreages of sugarbeet that were affected by Rhizomania in 2004 are given in Table 6. Renville, Chippewa, Polk and Clay counties had the greatest number of acres with Rhizomania. All other counties had less than 1000 acres reported as affected but all counties except Kittson and Pembina reported some affected acres.

Table 1. Fungicide use for Cercospora control by survey respondents in 2004.

		Fungicide treated acres											
County	Respondent acres planted	Acres not treated	Super/ Agri tin	Tin+ Topsin	Topsin/ Benlate	Headline	Mancozebs	Topsin+ Mancozeb	Tin+ Mancozeb	Eminent	GEM	Coppers	Total acres treated
		----------% of acres planted----------											
Cass	10333	0	30	0	0	26	0	0	0	99	28	0	183
Chippewa[1]	11990	0	90	0	0	91	0	3	0	95	8	5	291
Clay[2]	20997	0	19	3	0	41	0	0	0	110	0	0	173
Grand Forks	9305	0	22	23	8	75	0	0	0	100	9	3	239
Kittson	6847	0	0	0	0	51	0	0	0	88	42	0	181
Marshall	14186	0	<1	5	0	21	0	0	0	100	19	0	145
Norman[3]	11050	0	42	38	0	24	0	0	0	123	2	0	229
Pembina	11722	0	0	0	0	49	0	0	0	95	9	0	153
Polk	32364	0	19	30	5	63	<1	0	0	96	7	0	220
Renville[4]	12276	0	87	5	0	80	0	0	0	105	28	0	305
Richland	13761	4	21	0	0	34	0	0	0	98	46	0	200
Traill	5544	<1	0	66	0	69	0	0	0	99	4	0	238
Traverse[5]	9540	0	8	0	0	76	0	0	0	107	18	0	209
Walsh	16342	3	9	1	0	40	0	0	0	68	24	0	142
Wilkin[6]	14016	0	12	0	0	44	0	0	0	116	38	0	211
Other[7]	1791	0	82	18	0	86	0	0	0	76	0	0	262
Total	202064	<1	25	11	1	52	<1	<1	0	99	17	<1	206

[1]Includes Swift and Kandiyohi Counties.
[2]Includes Becker County.
[3]Includes Mahnomen County.
[4]Includes Redwood, Faribault, Yellow Medicine, Lac Qui Parle, and Sibley Counties.
[5]Includes Grant, Stevens, and Big Stone Counties.
[6]Includes Ottertail County.
[7]Includes Stearns, Brown and No Response .

Table 2. Number of fungicide applications by survey respondents in 2004.

County	Respondents	Number of applications						
		0	1	2	3	4	5	>5
		----------% of respondents----------						
Cass	19	0	16	47	37	0	0	0
Chippewa[1]	32	0	3	6	91	0	0	0
Clay[2]	26	0	42	35	23	0	0	0
Grand Forks	20	0	0	55	45	0	0	0
Kittson	13	0	15	77	8	0	0	0
Marshall	19	0	47	47	5	0	0	0
Norman[3]	18	0	11	50	33	6	0	0
Pembina	17	0	29	71	0	0	0	0
Polk	55	0	16	36	44	2	0	2
Renville[4]	42	0	0	12	76	7	0	5
Richland	25	4	8	68	20	0	0	0
Traill	12	8	8	25	58	0	0	0
Traverse[5]	22	0	9	77	14	0	0	0
Walsh	20	5	30	45	20	0	0	0
Wilkin[6]	27	0	15	52	33	0	0	0
Other[7]	5	0	20	0	80	0	0	0
Total	372	1	16	42	40	1	0	1

[1]Includes Swift and Kandiyohi Counties.
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[3]Includes Mahnomen County.
[4]Includes Redwood, Faribault, Yellow Medicine, Lac Qui Parle, and Sibley Counties.
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[7]Includes Stearns, Brown and No Response.

Table 3. Ground and aerial application of fungicides, 2004.

County	Ground	Aerial
	----------% of treated acres----------	
Cass	84	16
Chippewa[1]	85	15
Clay[2]	88	12
Grand Forks	77	23
Kittson	73	27
Marshall	63	37
Norman[3]	48	52
Pembina	57	43
Polk	56	44
Renville[4]	93	7
Richland	91	9
Traill	30	70
Traverse[5]	83	17
Walsh	81	19
Wilkin[6]	76	24
Other[7]	76	24
Total	73	27

[1]Includes Swift and Kandiyohi Counties.
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[7]Includes Stearns, Brown and No Response.

Table 4. Date of first fungicide application, 2004.

County	June 20-30	July 1-10	July 11-20	After July 20
	----------% of respondents----------			
Cass	6	13	38	44
Chippewa[1]	0	32	68	0
Clay[2]	4	0	65	30
Grand Forks	5	5	47	42
Kittson	8	17	17	58
Marshall	0	0	13	88
Norman[3]	13	20	40	27
Pembina	0	7	36	57
Polk	7	2	39	52
Renville[4]	3	41	54	3
Richland	0	15	40	45
Traill	13	13	13	63
Traverse[5]	0	12	71	18
Walsh	0	0	42	58
Wilkin[6]	0	33	42	25
Other[7]	0	50	50	0
Total	4	16	45	36

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[7]Includes Stearns, Brown and No Response.

Table 5. Fungicide control of cercospora leafspot in 2004.

Fungicide	Number of Responses	Cercospora leafspot control rating			
		Excellent	Good	Fair	Poor
		----------% of respondents----------			
Super Tin/Agri Tin	105	65	33	2	0
Headline	198	71	25	5	0
Mancozebs	1	100	0	0	0
Topsin/Benlate	2	100	0	0	0
Tin + Topsin	40	65	28	8	0
Tin + Mancozeb	0	0	0	0	0
Topsin + Mancozeb	1	100	0	0	0
Eminent	313	80	18	2	0
GEM	58	78	19	3	0
Dithane	2	100	0	0	0
Total	720	74	23	3	0

Table 6. Acres affected by Rhizomania, 2004.

County	Respondent acres planted	Acres reported as affected by Rhizomania
Cass	10,333	968
Chippewa[1]	11,990	5932
Clay[2]	20,997	3659
Grand Forks	9,305	276
Kittson	6,847	0
Marshall	14,186	40
Norman[3]	11,050	690
Pembina	11,722	0
Polk	32,364	6214
Renville[4]	12,276	3317
Richland	13,761	515
Traill	5,544	405
Traverse[5]	9,540	652
Walsh	16,342	111
Wilkin[6]	14,016	857
Other[7]	1,791	200
Total	202,064	23,836

[1]Includes Swift and Kandiyohi Counties.
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