SURVEY OF WEED CONTROL AND PRODUCTION PRACTICES ON SUGARBEET IN EASTERN NORTH DAKOTA AND MINNESOTA - 2005

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Other portions of the survey are published in the
Entomology and Plant Pathology sections.

The thirty-seventh annual weed control and production practices questionnaire was mailed in September, 2005 to sugarbeet growers producing sugarbeet for the American Crystal Sugar Company, the Minn-Dak Farmers Cooperative, and the Southern Minnesota Beet Sugar Cooperative. Growers were requested to evaluate weed control and sugarbeet injury from specific herbicides, and to list the most important weed and production problems. In addition, growers were requested to list insecticide use, fungicide use, total acreage, acres of hand-weeded sugarbeet, herbicide application methods and cost of hand thinning and hand weeding. Insecticide use and fungicide use portions of the survey can be found in the Entomology and Plant Pathology sections.

Sugarbeet growers planted 725,611 acres of sugarbeet in the Red River Valley and West Central Minnesota in 2005. Growers representing 16 percent of the total acres responded to the survey. The responses to the questionnaire are reported in Tables 1 to 25.

Table 1 gives a summary of herbicide use and performance averaged over all counties. The number of growers reporting the use of a herbicide treatment is listed and the acres treated is expressed as a percentage of the total acreage reported on the survey. Multiple herbicide treatments are tabulated for each grower, thus the number of growers reporting in Table 1 exceeds the total number of survey responses. Also, multiple herbicide treatments on the same acreage are listed separately in the tables, thus acres treated exceeds 100%. The ratings of weed control and sugarbeet injury are presented as the percentage of growers who judged weed control or sugarbeet injury as belonging in the listed categories. Data for individual counties are in Tables 2 through 16.

The trade names listed in the tables for the herbicides are the original trade names. These old trade names also represent the generic formulations of the same active ingredient. Thus Nortron represents Etho SC and Ethotron; Betamix represents D-P Mix and Phen-Des; Betanex represents Des and Alphanex; Progress represents Des-Phen-Etho; Stinger represents ClopyrAg; and Select represents Prism and Arrow.

Total sugarbeet acreage treated with herbicides in 2005 was 378%, which compares to 427% in 2004, 437% in 2003, 428% in 2002 and 368% in 2001. The acres treated does not include “other weed control methods” which were non-herbicidal methods. Ro-Neet, Dual and Nortron were the soil applied herbicides reported in 2005. Soil applied herbicide use was 47% in 1989, 32% in 1993, 11% in 1998, 4% in 1999, 4% in 2002, 29% in 2003, 31% in 2004 and 24% in 2005. Postemergence herbicide use was 336% in 2005, 379% in 2004, 380% in 2003, 388% in 2002 and 342% in 2001. The use of soil applied herbicides increased from 4% in 2002 to 29% in 2003, and 31 % in 2004 but dropped back to 24% in 2005. Postemergence herbicide use dropped from 388% in 2002 to 380% in 2003, 379% in 2004 and 336% in 2005. Sugarbeet injury from PRE or PPI Dual Magnum declined from 53% of the survey respondents indicating moderate or severe sugarbeet injury in 2003 to 22% indicating moderate or severe injury in 2004 and 19% in 2005.

The usage of postemergence grass control herbicides was 203% of the acreage in 2005 as compared to 226% in 2004, 214% in 2003, 209% in 2002 and 214% in 2001. Assure II was used on 13% of the acreage in 2002, 15% in 2003, 9% in 2004 and 12% in 2005. Prism/Select was used on 190% of the acreage in 2002, 180% in 2003, 198% in 2004 and 165% in 2005. Poast was used on 17% of the acreage in 2002, 19% in 2003, 20% in 2004 and 25% in 2005.

Most of the grass herbicides were applied in combination with the micro-rate or mid-rate which included an oil adjuvant. About 39% of the acres treated with a grass herbicide were treated with a grass herbicide used alone. Betanex use was 107% of the acreage in 2001, 112% in 2002, 100% in 2003, 71% in 2004 and 51% in 2005. Betamix use was 116% of the acreage in 2001, 139% in 2002, 115% in 2003, 125% in 2004 and 95% in 2005. Progress use was 81% of the acreage in 2001, 97% in 2002, 122% in 2003, 137% in 2004 and 149% in 2005. Progress use is increasing due to the problem with kochia in sugarbeet. UpBeet use was 278% of the acreage in 2001, 332% in 2002, 324% in 2003, 306% in 2004 and 276% in 2005. Stinger use was 138% of the acreage in 1997, 291% in 1999, 298% in 2000, 274% in 2001, 304% in 2002, 305% in 2003, 310% in 2004 and 275% in 2005. The most common herbicide treatment in 2005 was Progress + UpBeet + Stinger + Select + Oil adjuvant on 47% of the acreage. Combination treatments that included an oil generally would be micro-rate or mid-rate treatments. Treatments including oil were applied to 241% of the acreage in 2005, 273% in 2004, 297% in 2003, 301% in 2002 and 265% in 2001.

The rotary hoe or harrow were used on 56% of the acres in 2005 compared to 64% in 2004, 65% in 2003, 42% in 2002, 63% in 2001 and 62% in 2000. The electrical discharge system, weed pullers, mowing or swathing were used on 7.6% of the acreage in 1995, 1.6% in 1997, 2.4% in 2001, 3.1% in 2002, 2% in 2003 and 0.5% in 2004 and 1.9% in 2005.

Pigweed species was named most often as "worst weed" in sugarbeet in 2005 (Table 18). Kochia was the most common "worst weed" choice in 2004, 2003 and 2000. "Pigweed (all types)" was listed as a choice rather than redroot pigweed on the survey. Waterhemp was left as a choice on the survey even though waterhemp is a pigweed. The percentage of respondents indicating redroot pigweed as their worst weed was 40% in 1999, 18% in 2000, 43% in 2001, 44% in 2002, 25% in 2003, 21% in 2004 and 42% in 2005. Kochia was named the worst weed problem by 29% of the survey respondents in 2005 compared to 41% in 2004, 46% in 2003, 26% in 2002, 32% in 2001, 43% in 2000, 33% in 1999 and 13% in 1998. The widespread occurrence of kochia that is resistant to UpBeet helps explain the prevalence of kochia being named as worst weed. Rainfall was unusually high to excessive in 2005 in several areas which may help explain the decline in the % of respondents who named kochia as worst weed in 2005. Kochia is a weed that thrives in dryer conditions. Common lambsquarters was named most important weed problem in sugarbeet by 15% of respondents in 2005. Common lambsquarters was named as worst weed by 25% of the respondents in 2004 and by 18% in 2003.

Weeds were named as the most serious production problem by 36% of the survey respondents in 2005 compared to 47% in 2004, 61% in 2003, 53% in 2002 and 52% in 2001. (Table 19). The percentage of respondents who named emergence and stand as their worst problem was 5% in 2001, 19% in 2002, 1% in 2003, 21% in 2004 and 3% in 2005. The percentage of respondents who named Cercospora leaf spot (CLS) as their worst problem was 36% in 1998, 6% in 1999, 3% in 2000, 1% in 2001, 1% in 2002, 1% in 2003 and was not listed as the worst production problem by a single grower in 2004 or 2005. The Section 18 labels for Eminent in 1999 through 2004, the full label for Eminent in 2005 and the new label for Headline in 2003 probably explain the reduction in Cercospora being identified as the worst problem. Rhizoctonia/aphanomyces was named as worst problem by 18% of the respondents in 2000, 16% in 2001, 9% in 2002, 11% in 2003, 8% in 2004 and 22% in 2005. Soil moisture and soil temperature have a very large influence on sugarbeet injury caused by rhizoctonia and aphanomyces.

Rhizomania was listed as a "worst problem" choice for the first time in 1997 (Table 19). Rhizomania caused identifiable yield loss only in the Southern Minnesota Beet Sugar Cooperative in 1998 but it was identified in the Red River Valley in 1999. Rhizomania was named as worst problem by 3% of the respondents in 1998, by 2% in 1999 and 2000, by 3% in 2001 and 2002, by 2% in 2003, by 1% in 2004 and by 11% in 2005.

The percentage of acreage hand weeded was 62% in 1996, 45% in 1997, 28% in 1998, 25% in 2000, 23% in 2001, 32% in 2002, 30% in 2003, 28% in 2004 and 23% in 2005(Table 22).

Averaged over all herbicides, herbicides were band applied to 29%, broadcast applied with a ground sprayer to 54% and broadcast applied by air to 18% of the sugarbeet acreage in 2005 (Table 23). In 1998, 40% of the acreage was band treated, 37% was band treated in 2000 and 38% in 2002 . Herbicides were applied by air to 14% of the acreage in 2002, 9% in 2000 and 17% in 1998. Herbicide application by air was higher than usual in 2005 due to wet soil from multiple rain events during the herbicide application season.

The cost of hand weeding and hand thinning varied from zero to over $80/A in 2005 (Table 24). The most common cost was zero dollars for 57% of the respondents. Zero cost responses were 56% in 2000, 57% in 2001, 48% in 2002, 41% in 2003 and 47% in 2004. The average cost of hand weeding as calculated from Table 24 was $10.78/A in 2005 as compared to $12.61/A in 2004, $13.75/A in 2003, $15.95/A in 2002, $11.15/A in 2001 and $34/A in 1995. The percentage of respondents who used no hand labor varied by county from 27% in Cass County to 100% in Kittson County.

Sugarbeet acreage operated by respondents to the survey in 2005 varied from less than 50 acres to over 2,000 acres (Table 25). The most common acreage was 400 to 599 acres for 20% of the respondents. Other common acreages were 100 to 199 acres at 12%, 200 to 299 acres at 13%, 300 to 399 acres at 18% and 600 to 799 acres at 17%. Nine percent of the respondents reported over 1,000 acres and 15% had over 800 acres. In 1998, 5% reported over 1,000 acres and 11% had over 800 acres.

Table 18. A summary of the most important weed problem responses from 1979 to 2005.

	Weed indicated as most important weed problem in sugarbeet													
Year	PIWE[1]	FXTL	COLQ	WIOA	WIBW	WIMU	KOCZ	COCB	SMWE	EBNS	COMA	LASA	VELE	WAHE
	Percent of responses													
1979	53	22	5	5	7	1								
1980	43	23	10	10	8	1								
1981	46	20	8	6	9	3	5							
1982	44	8	7	9	11	7	14							
1983	50	8	11	6	5	4	12							
1984	54	5	6	6	5	4	10							
1985	43	2	11	9	6	5	12							
1986	71	5	4	3	2	1	5	4						
1987	61	7	6	3	6	2	6	2						
1988	75	2	5	1	2	<1	9	1						
1989	54	5	4	1	5	<1	21	1						
1990	51	2	8	1	5	0	23	1	3					
1991	59	3	4	0	2	0	18	2	3					
1992	47	4	8	3	4	<1	16	3	8					
1993	38	3	6	6	8	1	13	3	9	3	2			
1994	61	2	6	2	8	1	8	2	6	2	1			
1995	71	2	4	1	2	1	4	1	8	4	1			
1996	72	4	4	2	1	1	3	2	6	2	1			
1997	53	7	4	2	6	1	3	2	5	4	1			
1998	51	9	7	2	4	1	13	1	4	1	<1			
1999	40	2	10	2	1	<1	33	1	3	1	<1	2		
2000	18	2	19	<1	2	<1	43	2	3	<1	<1	2		1
2001	43	1	10	<1	1	0	32	1	4	4	<1	1		2
2002	44	<1	14	<1	<1	0	26	1	4	<1	<1	<1	2	5
2003	25	<1	18	<1	<1	0	46	<1	4	<1	<1	1	1	2
2004	21	<1	25	1	0	0	41	1	4	1	1	1	2	1
2005	42	<1	15	0	<1	0	29	2	4	<1	0	<1	1	1

[1]PIWE = Pigweed species, FXTL = Green & Yellow foxtail, COLQ = Common lambsquarters, WIOA = Wild oats, WIBW = Wild buckwheat, WIMU = Wild mustard, KOCZ = Kochia, COCB = Common cocklebur, SMWE = Smartweed, EBNS = Eastern black nightshade, COMA = Common mallow, LASA = Lanceleaf sage, VELE = Velvetleaf and WAHE = Waterhemp.

Table 19. A summary of the worst production problem responses from 1979 to 2005.

	Production problem indicated as worst in sugarbeet									
Year	No Problem	Weeds	Weather	Emergence/ stand	Labor mgmt.	Root Maggot	Cercospora leaf spot	Herbicide injury	Rhizomania	Rhizoctonia/ Aphanomyces
	percent of responses									
1979	19	41	28	6	4	1	0			
1980	5	23	42	28	2	0	0			
1981	4	35	38	16	1	0	6			
1982	10	39	35	9	3	4	0			
1983	3	37	37	13	2	1	5			
1984	5	26	49	8	2	1	2			
1985	4	20	45	17	1	1	1			
1986	4	39	31	18	1	1	1			
1987	5	42	23	22	2	0	2			
1988	1	37	12	40	1	1	1			
1989	5	38	19	16	3	8	2			
1990	5	42	20	10	2	8	4			
1991	3	26	4	18	1	26	7			8
1992	11	45	9	15	5	9	1			3
1993	3	40	21	16	4	1	2			12
1994	3	56	12	13	4	1	3			8
1995	2	51	6	2	3	<1	24			11
1996	6	53	12	11	6	2	3			6
1997	15	34	13	12	3	1	5		2	14
1998	3	25	9	4	1	1	36		3	17
1999	14	39	14	12	2	1	6		2	9
2000	8	48	9	10	1	<1	3		2	18
2001	6	52	13	5	2	1	1		3	16
2002	4	53	11	19	1	<1	<1		3	9
2003	7	61	9	4	1	<1	1	4	2	11
2004	6	47	10	21	2	1	0	1	1	8
2005	3	36	22	3	3	0	0	0	11	22

TABLE 20. Worst weed problem in sugarbeet, 2005.

County	Responses	No Problem	MIWE[1]	COCB	COLQ	COMA	VELE	EBNS	FXTL
		% of respondents							
Cass	12	0	0	0	8	0	0	0	0
Chippewa[2]	28	0	0	7	36	0	7	0	0
Clay[3]	16	0	0	6	13	0	0	0	0
Grand Forks	12	0	0	0	0	0	0	0	0
Kittson	13	15	0	0	0	0	0	0	0
Marshall	17	0	0	0	12	0	0	0	0
Norman[4]	12	17	0	0	0	0	0	0	0
Pembina	13	8	0	0	8	0	0	0	0
Polk	44	5	0	2	14	0	0	0	0
Renville[5]	24	0	0	4	42	0	0	4	0
Richland	7	0	0	0	0	0	0	0	0
Traill	5	0	0	0	20	0	0	0	20
Traverse[6]	5	0	0	0	0	0	0	0	0
Walsh	11	0	0	0	0	0	0	0	0
Wilkin[7]	7	0	0	0	0	0	0	0	0
Total	226	3	0	2	15	0	1	<1	<1

Table continued

TABLE 20 (con't). Worst weed problem in sugarbeet, 2005.

County	KOCZ	LASA	PIWE	SMWE	WAHE	WIBW	WIMU	WIOA	Other[8]
	% of respondents								
Cass	17	0	75	0	0	0	0	0	0
Chippewa[2]	0	0	25	21	4	0	0	0	0
Clay[3]	31	0	50	0	0	0	0	0	0
Grand Forks	42	0	58	0	0	0	0	0	0
Kittson	23	0	62	0	0	0	0	0	0
Marshall	53	0	29	6	0	0	0	0	0
Norman[4]	33	8	42	0	0	0	0	0	0
Pembina	38	0	46	0	0	0	0	0	0
Polk	45	0	32	0	0	0	0	0	2
Renville[5]	0	0	33	8	8	0	0	0	0
Richland	0	0	100	0	0	0	0	0	0
Traill	0	0	40	0	0	0	0	0	20
Traverse[6]	20	0	80	0	0	0	0	0	0
Walsh	82	0	9	0	0	9	0	0	0
Wilkin[7]	29	0	71	0	0	0	0	0	0
Total	29	<1	42	4	1	<1	0	0	1

[1]MIWE = Milkweed; COCB = Common cocklebur; COLQ = Common lambsquarters; COMA = Common mallow; VELE = velvetleaf; EBNS = eastern black nightshade; FXTL = Green & yellow foxtail; KOCZ = Kochia; LASA = Lanceleaf sage; PIWE = pigweed species; SMWE = Smartweed; WAHE = Waterhemp; WIBW = Wild buckwheat; WIOA = Wild oats.
[2]Includes Swift and Kandiyohi Counties.
[3]Includes Becker County.
[4]Includes Mahnomen County.
[5]Includes Redwood, Faribault, Yellow Medicine, Lac Qui Parle and Sibley Counties.
[6]Includes Grant, Stevens and Big Stone Counties.
[7]Includes Ottertail County.
[8]Other weeds = biennial wormwood, Venice mallow.

TABLE 21. Most serious production problem in sugarbeet, 2005.

County	Responses	No Prob	Weeds	Emerg/ Stand	Labor Mangmt	Root Maggot	CLS[1]	Rhizo- mania	Rhizoctonia/ Aphanomyces	Weather	Herb injury	Other[8]
		% of respondents										
Cass	14	14	29	14	0	0	0	0	22	21	0	0
Chippewa[2]	27	7	44	0	7	0	0	4	26	11	0	0
Clay[3]	15	0	33	0	0	0	0	13	27	20	0	7
Grand Forks	11	0	55	0	0	0	0	9	0	36	0	0
Kittson	12	0	8	0	0	0	0	0	17	75	0	0
Marshall	18	0	22	0	6	0	0	11	28	33	0	0
Norman[4]	12	0	42	25	0	0	0	8	25	0	0	0
Pembina	12	0	17	0	8	0	0	0	0	67	0	0
Polk	45	4	27	2	2	0	0	33	18	13	0	0
Renville[5]	24	4	67	0	0	0	0	0	29	0	0	0
Richland	8	0	50	0	0	0	0	13	13	25	0	0
Traill	4	0	50	0	0	0	0	0	25	25	0	0
Traverse[6]	6	0	17	17	0	0	0	33	33	0	0	0
Walsh	12	0	42	0	0	0	0	0	42	17	0	0
Wilkin[7]	7	0	29	0	14	0	0	0	29	29	0	0
Total	227	3	36	3	3	0	0	11	22	22	0	1

[1]CLS = Cercospora leaf spot.
[2]Includes Swift and Kandiyohi Counties.
[3]Includes Becker County.
[4]Includes Mahnomen County.
[5]Includes Redwood, Faribault, Yellow Medicine, Lac Qui Parle and Sibley Counties.
[6]Includes Grant, Stevens and Big Stone Counties.
[7]Includes Ottertail County.
[8]Other = Fusarium

TABLE 22. Sugarbeet acreage that was hand weeded, 2005.

County	Acres planted by respondents	Hand weeded
		% of acres
Cass	8,124	29
Chippewa[2]	15,112	50
Clay[3]	9,685	10
Grand Forks	6,335	18
Kittson	6,487	<1
Marshall	9,613	7
Norman[4]	3,565	9
Pembina	7,754	43
Polk	23,349	13
Renville[5]	6,763	47
Richland	4,776	18
Traill	1,620	51
Traverse[6]	2,740	19
Walsh	4,566	9
Wilkin[7]	3,170	29
Total	113,659	23

[2]Includes Swift and Kandiyohi Counties.
[3]Includes Becker County.
[4]Includes Mahnomen County.
[5]Includes Redwood, Faribault, Yellow Medicine, Lac Qui Parle and Sibley Counties.
[6]Includes Grant, Stevens and Big Stone Counties.
[7]Includes Ottertail County.

TABLE 23. Method of herbicide application, 2005.

Herbicide	Method of application		
	Band	Broadcast ground	Broadcast air
	% of acres		
Roundup (PRE)	44	32	24
Treflan (Lay-By)	100	0	0
Dual (PRE/PPI/Lay-By)	4	92	4
Nortron (PRE/PPI)	85	10	5
Outlook (Lay-By)	43	34	22
Betamix/Betanex/Progress	33	33	34
Poast, Select, Assure II	14	82	3
Bnex/Bmix/Progress+UpBeet	17	47	37
Bnex/Bmix/Progress+Stinger	6	81	13
Bnex/Bmix/Progress+UpB+Stinger	16	45	39
Bnex/Bmix/Prog + UpB + Sting + Nortron + Grass	44	47	9
Bnex/Bmix/Prog+UpB+Sting+Grass	35	60	6
Bnex/Bmix/Prog + UpB + Sting + Nortron	10	76	14
Bnex/Bmix/Prog + UpBeet + Grass	23	18	59
All herbicides	29	54	18

TABLE 24. Cost of hand weeding and hand thinning sugarbeet, 2005.

County	Respondents	Dollars per acre					
		0	1-10	11-15	16-20	21-25	26-30
		% of respondents					
Cass	11	27	0	9	0	27	9
Chippewa[2]	31	29	6	6	16	10	6
Clay[3]	15	73	7	0	0	7	7
Grand Forks	12	58	0	0	8	8	8
Kittson	13	100	0	0	0	0	0
Marshall	16	88	0	6	0	0	0
Norman[4]	11	82	0	0	0	9	9
Pembina	12	33	0	8	0	25	17
Polk	43	65	2	5	5	14	7
Renville[5]	24	42	0	13	13	13	8
Richland	8	63	0	0	0	25	13
Traill	4	50	0	0	0	25	0
Traverse[6]	5	40	0	0	20	20	0
Walsh	11	64	0	0	0	27	0
Wilkin[7]	7	57	0	0	0	29	0
Total	223	57	2	4	5	13	6

Table continued.

TABLE 24 (con't) Cost of hand weeding and hand thinning sugarbeet, 2005.

County	Dollars per acre							
	31-35	36-40	41-45	46-50	51-55	56-60	61-70	>80
	% of respondents							
Cass	0	18	0	9	0	0	0	0
Chippewa[2]	10	3	0	6	0	3	0	3
Clay[3]	0	7	0	0	0	0	0	0
Grand Forks	0	8	8	0	0	0	0	0
Kittson	0	0	0	0	0	0	0	0
Marshall	6	0	0	0	0	0	0	0
Norman[4]	0	0	0	0	0	0	0	0
Pembina	0	0	17	0	0	0	0	0
Polk	0	0	0	2	0	0	0	0
Renville[5]	0	4	4	4	0	0	0	0
Richland	0	0	0	0	0	0	0	0
Traill	0	25	0	0	0	0	0	0
Traverse[6]	0	0	0	0	0	20	0	0
Walsh	0	0	9	0	0	0	0	0
Wilkin[7]	0	14	0	0	0	0	0	0
Total	2	4	2	2	0	1	0	<1

[2]Includes Swift and Kandiyohi Counties.
[3]Includes Becker County.
[4]Includes Mahnomen County.
[5]Includes Redwood, Faribault, Yellow Medicine, Lac Qui Parle and Sibley Counties.
[6]Includes Grant, Stevens and Big Stone Counties.
[7]Includes Ottertail County.

TABLE 25. Total sugarbeet acreage operated by respondents to the survey, 2005.

County	Respondents	Acres of sugarbeet					
		<50	50-99	100-199	200-299	300-399	400-599
		% of respondents					
Cass	11	0	0	0	9	18	18
Chippewa[1]	31	0	6	6	19	19	23
Clay[2]	15	0	0	20	13	13	13
Grand Forks	12	0	0	8	17	8	33
Kittson	13	0	0	8	15	23	15
Marshall	16	0	0	13	19	19	13
Norman[3]	11	0	9	9	27	27	18
Pembina	12	0	0	0	8	17	33
Polk	43	0	7	2	7	19	21
Renville[4]	24	0	4	50	13	13	13
Richland	8	0	0	13	13	13	0
Traill	4	0	0	0	25	50	0
Traverse[5]	5	20	0	0	0	20	40
Walsh	11	0	9	9	9	18	36
Wilkin[6]	7	0	0	29	0	14	29
Total	223	<1	4	12	13	18	20

Table continued.

TABLE 25 (cont.). Total sugarbeet acreage operated by respondents to the survey, 2005.

County	Acres of sugarbeet				
	600-799	800-999	1000-1499	1500-1999	>2000
	% of respondents				
Cass	18	9	18	9	0
Chippewa[1]	6	6	13	0	0
Clay[2]	13	13	7	0	7
Grand Forks	8	17	8	0	0
Kittson	23	15	0	0	0
Marshall	19	0	13	0	6
Norman[3]	0	9	0	0	0
Pembina	33	0	0	0	8
Polk	30	7	5	2	0
Renville[4]	4	0	4	0	0
Richland	38	0	25	0	0
Traill	25	0	0	0	0
Traverse[5]	0	0	20	0	0
Walsh	9	9	0	0	0
Wilkin[6]	29	0	0	0	0
Total	17	6	7	1	1

[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.