SURVEY OF INSECTICIDE USE IN SUGARBEET IN MINNESOTA AND EASTERN NORTH DAKOTA IN 2014

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Other portions of the survey are published in the Weed Control and Plant Pathology sections of this publication.

Sugarbeet growers reported on their 2014 insecticide use in sugarbeet acreage by completing the annual pesticide use survey conducted by the NDSU Extension Service. This year's survey reports on insecticide usage patterns for 92,112 acres in Minnesota and eastern North Dakota (Tables 1, 2, and 3). Counter 20G, Lorsban 15G, Thimet 20G, and Mustang are primarily used as planting-time treatments, whereas Lorsban and Asana are mostly applied postemergence. Poncho Beta (clothianidin + beta-cyfluthrin), Cruiser (thiamethoxam), and NipsIt (clothianidin) are used as seed treatments at planting. In 2014, Poncho Beta was used on 27% of reported acres compared to 29% in 2013, 21% in 2012, 25% in 2011, 36% in 2010, and 29% in 2009, the first year Poncho Beta was commercially available (Table 1). Respective use rates of Cruiser and NipsIt in 2014 were 3 and 5% of reported acres, respectively. Counter 20G and Lorsban 15G were used on 17% and 1% of reported acres, respectively, in 2014, while Counter products (15G, 20G, and 20CR) and Lorsban 15G were applied to 26% and 2% of reported acreage, respectively, in 2013, 23% and 2% in 2012, 29% and 4% in 2011, 19% and 2% in 2010, and 19 and 6% in 2009 (Table 2). Chlorpyriphos-based liquid insecticides (i.e. Lorsban 4E, Lorsban Advanced, and generics) were applied to 4% of sugarbeet acres in 2005, 5% in 2006, 4% in 2007, 2% in 2008, 4% in 2009, 10% in 2010, 7% in 2011, 9% in 2012, 8% in 2013, and 10% in 2014 (Table 3). Mustang was used on 21% of the acreage in 2005, 28% in 2006, 23% in 2007, 31% in 2008, 10% in 2009, 14% in 2010, 18% in 2011, 21% in 2012, 11% in 2013, and 9% in 2014. Averaged over all insecticides and counties, 74% of the respondents' acreage was treated in 2014 compared to 98% in 2013, 86% in 2012, 89% in 2011, 90 % in 2010, 71% in 2009, 92% in 2008, 80% in 2007, 83% in 2006, and 79% in 2005.

Table 1. Seed treatment use by survey respondents in 2014.

County	Respondent acres planted	Number of applications	NipsIt	Cruiser	Poncho Beta	Total Seed Treatments
			----------% of acres planted----------			
Cass	4,393	7	5	28	31	65
Chippewa[1]	7,611	0	0	0	0	0
Clay[2]	5,244	4	0	0	36	36
Grand Forks	6,009	15	23	3	59	84
Kittson	920	1	0	0	33	33
Marshall	6,359	7	9	0	71	80
Norman[3]	5,237	5	0	0	50	50
Pembina	5,132	7	0	15	51	66
Polk[4]	13,032	22	18	1	38	57
Renville[5]	8,939	1	0	0	1	1
Richland[6]	8,301	0	0	0	0	0
Traill	492	1	0	0	41	41
Traverse[7]	7,370	0	0	0	0	0
Walsh	3,052	6	0	7	74	81
Wilkin[8]	10,021	2	0	1	1	2
Total	92,112	78	5	3	27	34

[1]Includes Kandiyohi and Swift Counties
[2]Includes Becker County
[3]Includes Mahnomen County
[4]Includes Pennington and Red Lake Counties
[5]Includes Lac Qui Parle, McLeod, Redwood, Stearns, and Yellow Medicine Counties
[6]Includes Roberts (SD) County
[7]Includes Grant and Stevens Counties
[8]Includes Otter Tail County

Table 2. Granular insecticide use by survey respondents in 2014.

County	Respondent acres planted	Number of applications	Not treated	Counter 20G	Thimet 20G	Lorsban 15G	Total Granular Insecticide
			% of acres planted				
Cass	4,393	2	74	26	0	0	26
Chippewa[1]	7,611	0	100	0	0	0	0
Clay[2]	5,244	8	51	49	0	0	49
Grand Forks	6,009	0	100	0	0	0	0
Kittson	920	0	100	0	0	0	0
Marshall	6,359	1	92	8	0	0	8
Norman[3]	5,237	1	92	8	0	0	8
Pembina	5,132	3	60	27	12	0	40
Polk[4]	13,032	12	62	38	0	0	38
Renville[5]	8,939	0	100	0	0	0	0
Richland[6]	8,301	1	96	4	0	0	4
Traill	492	1	41	59	0	0	59
Traverse[7]	7,370	0	100	0	0	0	0
Walsh	3,052	1	81	19	0	0	19
Wilkin[8]	10,021	10	54	35	0	11	46
Total	92,112	40	81	17	1	1	19

[1]Includes Kandiyohi and Swift Counties
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[8]Includes Otter Tail County

Table 3. Liquid insecticide use by survey respondents in 2014.

County	Respondent acres planted	Number of applications	Not treated	Lorsban	Mustang	Asana	Total Liquid Insecticide
			% of acres planted				
Cass	4,393	0	100	0	0	0	0
Chippewa[1]	7,611	4	89	0	0	11	11
Clay[2]	5,244	3	68	13	19	0	32
Grand Forks	6,009	3	73	13	14	0	27
Kittson	920	1	41	0	59	0	59
Marshall	6,359	0	100	0	0	0	0
Norman[3]	5,237	2	56	2	42	0	44
Pembina	5,132	6	26	67	7	0	74
Polk[4]	13,032	2	97	0	3	0	3
Renville[5]	8,939	5	62	34	0	4	38
Richland[6]	8,301	3	83	0	14	4	17
Traill	492	0	100	0	0	0	0
Traverse[7]	7,370	2	96	1	0	3	4
Walsh	3,052	3	67	33	0	0	33
Wilkin[8]	10,021	5	81	2	17	0	19
Total	92,112	39	79	10	9	2	21

[1]Includes Kandiyohi and Swift Counties
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Grower evaluations of insect control by insecticide, averaged over all counties, are presented in Table 4. 2014 was the third year that an "unsure" or "not applicable" category was included for this question. A surprisingly large percentage of responses came back in this category. However, of those growers who did evaluate insect control, 90% evaluated sugarbeet root maggot control as good or excellent while 93% evaluated other insect control as good or excellent.

Table 4. Evaluation of root maggot and other insect control by survey respondents in 2014.

	Sugarbeet Root Maggot Control						Other Insect Control					
Insecticide	No. of Responses	Exc	Good	Fair	Poor	Unsure or NA[1]	No. of Responses	Exc	Good	Fair	Poor	Unsure or NA
		----------% of responses----------						----------% of responses----------				
Poncho Beta	54	43	37	7	4	9	54	33	31	9	0	26
Cruiser	12	42	50	0	0	8	12	17	25	8	0	50
NipsIt	12	50	42	8	0	0	12	25	67	0	0	8
Seed Treatment Sub-Total	**78**	**44**	**40**	**6**	**3**	**8**	**78**	**29**	**36**	**8**	**0**	**27**
Counter 20G	37	59	27	3	0	11	37	43	41	0	0	16
Lorsban 15G	2	50	50	0	0	0	2	0	100	0	0	0
Thimet 20G	1	100	0	0	0	0	1	0	0	0	0	100
Granular Sub-Total	**40**	**60**	**28**	**3**	**0**	**10**	**40**	**40**	**43**	**0**	**0**	**18**
Lorsban	16	19	38	6	13	25	16	31	44	6	0	19
Mustang	14	7	29	7	0	57	14	29	36	7	0	29
Asana	9	0	0	0	0	100	9	44	33	0	0	22
Liquid Sub-Total	**39**	**10**	**26**	**5**	**5**	**54**	**39**	**33**	**38**	**5**	**0**	**23**
Total	**157**	**39**	**33**	**5**	**3**	**20**	**157**	**33**	**38**	**5**	**0**	**24**

[1]NA=Not applicable. Grower did not have the insect and therefore could not evaluate control.

Cutworms, grasshoppers, lygus bugs, springtails, wireworms, white grubs, cocklebur beetles were identified as insect pests other than sugarbeet root maggot that were targeted for control in areas treated with insecticides and seed treatments in 2014 (Table 5). Respondents viewed wireworms and springtails as the most common non-maggot insect pest problem in sugarbeet.

Table 5. Insects other than root maggot that were targeted for control by survey respondents in 2014.

County	Number of Responses	Cutworm	Grasshopper	Lygus	Springtail	Wireworm	White Grub	Cocklebur beetle
		----------% of responses----------						
Cass	22	8	0	0	69	23	0	0
Chippewa[1]	8	100	0	0	0	0	0	0
Clay[2]	41	23	0	0	31	35	12	0
Grand Forks	39	10	5	0	48	38	0	0
Kittson	5	33	0	0	0	67	0	0
Marshall	19	36	0	0	27	36	0	0
Norman[3]	15	0	0	0	29	71	0	0
Pembina	20	50	0	0	0	50	0	0
Polk[4]	97	28	0	0	33	36	3	0
Renville[5]	14	75	25	0	0	0	0	0
Richland[6]	9	20	20	0	20	20	20	0
Traill	5	0	0	0	67	33	0	0
Traverse[7]	4	67	0	0	0	0	0	33
Walsh	14	0	0	0	50	50	0	0
Wilkin[8]	52	29	3	0	31	26	11	0
Total	364	27	2	0	33	33	5	0

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Survey data on granule placement methods used by growers in 2014 is presented in Table 6. Band applications were the most commonly used placement method for all granular insecticides reported.

Table 6. Placement of granular insecticides used in sugarbeet in 2014.

Insecticide	No. of Responses	Band	Spoon	Mod. In-Furrow	Broadcast
		----------% of responses----------			
Counter 20G	37	41	24	35	0
Thimet 20G	1	100	0	0	0
Lorsban 15G	2	50	0	50	0
Total	40	43	23	35	0

Survey data on liquid insecticide placement methods by growers is listed in Table 7. Postemergence (POST) broadcast applications were the most common spray placement method when averaged across all liquid insecticides reported. Mustang was most commonly reported as being applied at planting.

Table 7. Placement of liquid insecticides used in sugarbeet in 2014.

Insecticide	No. of Responses	Band at Plant	In-Furrow	POST Broadcast	POST Band
		----------% of responses----------			
Lorsban	16	0	0	100	0
Mustang	16	13	69	19	0
Asana	9	0	0	100	0
Total	41	5	27	68	0

Survey participants were asked to specify application rates of granular insecticides and data are shown in Table 8. Rates for Counter 20G ranged from 4.5 lbs/acre to 9 lbs/acre and were fairly evenly split across all rate ranges given in Table 8.

Table 8. Insecticide use rate in sugarbeet in 2014.

		lbs per acre				
Insecticide	No. of Responses	4.5 to 5.5	5.6 to 6.5	6.6 to 7.5	7.6 to 9	10
		----------% of responses----------				
Counter 20G	37	35	24	30	11	0
Thimet 20G	1	0	0	100	0	0
Lorsban 15G	2	0	0	0	0	100
Total	40	33	23	30	10	5