SURVEY OF INSECTICIDE USE IN SUGARBEET IN MINNESOTA AND EASTERN NORTH DAKOTA IN 2011

Aaron L. Carlson[1], Mark A. Boetel[2], Mohamed F.R. Khan[1], and Jeff M. Stachler[1]

[1]Sugarbeet Research Technician, Extension Sugarbeet Specialist, and Extension Sugarbeet Specialist
North Dakota State University - University of Minnesota, Fargo, ND
and
[2]Associate Professor, Dept. of Entomology, North Dakota State University

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

Sugarbeet growers reported on their 2011 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 136,959 acres in Minnesota and eastern North Dakota (Tables 1 and 2). Counter 15G, Counter 20G, Lorsban 15G, and Mustang are primarily used as planting-time treatments, whereas Lorsban 4E, Lorsban Advanced, and Asana are mostly applied postemergence. Poncho Beta and Cruiser are used as seed treatments at planting. In 2011, Poncho Beta was used on 25% of reported acres compared to 36% in 2010 and 29% in 2009, the first year Poncho Beta was commercially available. Counter products (15G and 20G formulations) and Lorsban 15G were used on 29% and 4% of reported acres, respectively, in 2011, while Counter 15G and Lorsban 15G were applied to 19% and 2% of reported acreage, respectively, in 2010, and 19 and 6%, respectively, in 2009. Lorsban 4E was applied to 4% of sugarbeet acres in 2005, 5% in 2006, 4% in 2007, 2% in 2008, 4% in 2009, 10% in 2010, and 7% in 2011. 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, and 18% in 2011. Averaged over all insecticides and counties, 89% of the respondents' acreage was treated in 2011 compared to 90 % in 2010, 71% in 2009, 92% in 2008, 80% in 2007, 83% in 2006, and 79% in 2005.

Table 1. Granular insecticide use by survey respondents in 2011.

County	Respondent acres planted	Number of applications	Not treated	Poncho Beta	Cruiser	Counter 15G	Counter 20G	Lorsban 15G	Total Granular Insecticide
			----------% of acres planted----------						
Cass	3,471	7	23	23	2	37	15	-	77
Chippewa	4,409	0	100	-	-	-	-	-	0
Clay[1]	9,940	17	10	18	-	27	32	7	84
Grand Forks	7,457	11	22	49	3	3	14	-	69
Kandiyohi	2,186	0	100	-	-	-	-	-	0
Kittson	8,581	3	88	12	-	-	-	-	12
Marshall	6,250	13	11	36	-	9	43	-	88
Norman[2]	8,679	9	62	19	-	5	14	-	38
Pembina	12,235	13	13	61	6	3	13	5	88
Polk	32,329	52	10	35	1	13	30	9	88
Renville[3]	4,387	0	100	-	-	-	-	-	0
Richland	6,613	3	83	-	-	3	14	-	17
Stevens[4]	3,174	0	100	-	-	-	-	-	0
Traill	4,773	10	24	19	-	21	36	-	79
Walsh	4,100	13	2	36	-	16	30	16	98
Wilkin[5]	8,777	4	83	-	-	10	7	-	17
No Response	9,598	9	44	26	-	-	24	-	50
Total	136,959	164	40	25	1	9	20	4	59

[1]Includes Becker County
[2]Includes Mahnomen County
[3]Includes Faribault, Redwood, and Sibley Counties
[4]Inclueds Grant, Swift, and Traverse Counties
[5]Includes Ottertail County

Table 2. Liquid insecticide use by survey respondents in 2011.

County	Respondent acres planted	Number of applications	Not treated	Lorsban 4E	Lorsban Advanced	Mustang	Asana	Total Liquid Insecticide
			% of acres planted					
Cass	3,471	0	100	-	-	-	-	0
Chippewa	4,409	4	81	16	-	-	3	19
Clay[1]	9,940	3	90	-	-	10	-	10
Grand Forks	7,457	6	57	13	8	22	-	43
Kandiyohi	2,186	1	98	-	-	-	2	2
Kittson	8,581	9	16	-	-	84	-	84
Marshall	6,250	2	87	5	-	10	-	15
Norman[2]	8,679	6	39	-	25	54	5	84
Pembina	12,235	7	61	35	2	6	-	43
Polk	32,329	7	93	<1	-	6	-	7
Renville[3]	4,387	6	44	18	-	<1	38	56
Richland	6,613	2	57	-	-	43	-	43
Stevens[4]	3,174	0	100	-	-	-	-	0
Traill	4,773	5	64	4	-	40	-	44
Walsh	4,100	2	79	21	-	-	-	21
Wilkin[5]	8,777	5	62	-	2	30	6	38
No Response	9,598	2	78	12	-	-	10	22
Total	136,959	68	70	7	2	18	3	30

[1]Includes Becker County
[2]Includes Mahnomen County
[3]Includes Faribault, Redwood, and Sibley Counties
[4]Inclueds Grant, Swift, and Traverse Counties
[5]Includes Ottertail County

Grower evaluations of insect control, averaged over all counties, are presented in Table 3. Satisfaction with sugarbeet root maggot control insecticides generally was good with 97% evaluating control as good or excellent. Performance of insecticides for control of other insect pests was rated as good or excellent by 94% of the respondents.

Table 3. Evaluation of root maggot and other insect control by survey respondents in 2011.

Insecticide	Root Maggot Control					Other Insect Control				
	No. of Responses	Excellent	Good	Fair	Poor	No. of Responses	Excellent	Good	Fair	Poor
		% of responses					% of responses			
Poncho Beta	65	58	38	3	-	46	70	24	7	-
Cruiser	6	33	67	-	-	5	60	-	40	-
Counter 15G	28	75	25	-	-	22	68	32	-	-
Counter 20G	51	75	23	-	2	43	79	19	-	2
Lorsban 15G	7	100	-	-	-	5	60	40	-	-
Granular & Seed Trt Sub-Total	157	68	31	1	<1	121	72	23	4	<1
Lorsban 4E	1	-	100	-	-	15	73	27	-	-
Lorsban Advanced	0	-	-	-	-	6	67	17	17	-
Mustang	2	-	50	50	-	34	47	47	6	-
Asana	0	-	-	-	-	10	50	40	10	-
Liquid Sub-Total	3	0	67	33	0	65	55	38	6	0
Total	160	66	31	2	<1	186	66	28	5	<1

Cutworms, lygus bugs, wireworms, springtails, and white grubs were identified as insect pests other than sugarbeet root maggot that were targeted for control in areas treated with insecticides in 2011 (Table 4). Cutworms were viewed as the most common non-maggot insect pest problem.

Table 4. Insects other than root maggot that were treated for control by survey respondents in 2011.

County	Number of Respondents	Cutworm	Lygus	Wireworm	Springtail	White Grub
		% of responses				
Chippewa	1	100	-	-	-	-
Grand Forks	1	-	-	-	100	-
Norman[1]	3	-	67	33	-	-
Pembina	1	100	-	-	-	-
Polk	5	20	-	20	60	-
Renville[2]	2	100	-	-	-	-
Richland	2	-	-	-	-	100
Traill	2	50	-	50	-	-
Wilkin[3]	1	100	-	-	-	-
Total	18	39	11	17	22	11

[1]Includes Mahnomen County
[2]Includes Faribault, Redwood, and Sibley Counties
[3]Includes Ottertail County

Survey data on granule placement methods used by growers in 2011 is presented in Table 5. Modified in-furrow application was the most commonly used placement method, and band application was the second most common delivery method for all granular insecticides reported. A surprisingly high number (57%) of growers reported using modified in-furrow placement for Lorsban 15G applications. This is concerning because modified in-furrow placement of Lorsban 15G is not recommended by NDSU Extension due to the likelihood of seedling injury, stunting, and associated yield reductions compared to other placement methods.

Table 5. Placement of granular insecticides used in sugarbeet in 2011.

Insecticide	No. of Responses	Band	Mod. In-Furrow	Spoon	No Response
		% of responses			
Counter 15G	29	17	48	7	28
Counter 20G	53	38	40	13	9
Lorsban 15G	7	29	57	14	0
Total	89	30	44	11	15

Survey data on liquid insecticide placement methods by growers is listed in Table 6. Postemergence (POST) broadcast applications were the most common placement method when averaged across all liquid insecticides reported. Mustang was the only insecticide reported as being applied in-furrow, while Lorsban 4E was the only insecticide reported as being applied POST in a band.

Table 6. Placement of liquid insecticides used in sugarbeet in 2011.

Insecticide	No. of Responses	Band at Plant	In-Furrow	POST Broadcast	POST Band	No Response
		% of responses				
Lorsban 4E	16	-	-	69	19	13
Lorsban Advanced	6	-	-	100	-	-
Mustang	36	17	72	11	-	-
Asana	10	-	-	90	-	10
Total	68	9	38	44	4	4