

Observations on DDT for the Control of Lygus on Beet Seed in Colorado and Montana

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The data here presented are not the results of planned tests but are observations made as opportunity presented itself after application of DDT had been made. They are presented as a matter of record with brief mention of certain facts that may have a bearing upon their evaluation.

Windsor and Johnstown, Colo.—Tables 1 and 2 present the results of counts made in the Windsor and Johnstown districts, Colorado, on the population of Lygus bugs, adults and nymphs, before and after dusting with 5-percent DDT at an approximate rate of 20 to 25 pounds per acre by means of an airplane. The figures presented are averages of 50 sweeps with a standard insect net or with 100 or 150 sweeps in those instances where more than one observer participated.

Table 1.—Average Numbers of Lygus, adults and nymphs, per sweep before dusting and on five dates after dusting with DDT. Dust applied morning of June 21. Windsor and Johnstown, Colo., 1945.

Field	Before dusting				After dusting							
	6/19		6/21		6/22		6/25		6/28		7/6	
	A ¹		A	N	A		A	N	A	N	A	N
Windsor 1	.40	1.02	.30	.08	.07	.10	.03	.00	.10	.00	.22	.00
Windsor 2	.31	1. W	.20	1.30	.06	.05	.07	.02	.20	.01	.10	.00
Windsor 3	.38	2.18	.20	.84	.00	.05	.05	.00	.14	.00	.17	.03
Windsor 4	.17	.45	.15	.70	.40	.01	.08	.00	.23	.00	.20	.11
Windsor 5	.21	1.00	.07	.07	.03	.02	.07	.07	.11	.00	.11	.00
Mean	.29	1.45	.18	.78	.05	.05	.06	.02	.14	.00	.16	.03
	6/20		6/21		6/22		6/25		6/28		7/6	
Johnstown n 1	.40	1.60	.40	.78	.22	.12	.31	.17	.53	.17	.80	.17

¹Adults
•Nymphs

The dusting was done June 21 between sunrise and 8:30 a. m. The majority of the plants were approximately in the early blossom-

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Table 2.—Average numbers of lygus, adults and nymphs, per sweep before dusting and on five dates after dusting with DDT. Dust applied morning of June 21. Undusted strip compared with dusted major part of field. Windsor, Colo., 1945.

Field	Before dusting		After dusting									
	6/19		6/21		6/22		6/25		6/28		7/6	
	A ¹	N ²	A	N	A	N	A	N	A	N	A	N
Windsor 3												
Undusted	.38	2.18	.56	1.62	.21	.28	.17	.15	.29	.00	.70	.22
Dusted	.48	2.18	.20	.84	.08	.05	.05	.00	.14	.00	.17	.08
¹ Adults												
² Nymphs												

ing stage, and the Lygus population at the time was considered relatively low. There was very little wind at the time of application, and at Windsor the direction, when noted, was toward the east or away from the undusted strip of field 3.

The first check on the effect was made in the afternoon of the day of dusting. The day was warm without appreciable wind and some effect of the dusting was noted. Counts were made also on the following day, June 22, when a great reduction in the Lygus population was noted. At this time a reduction in population was noted also in the undusted strip of field 3. The reason for this reduction may have been a drift westward of some of the dust once deposited in the main part of the field. All counts after dusting were made on afternoons.

On June 28 nymphs as well as adults were found on an undusted steckling field in the northeast corner of the west farm, while on a similar field in a corresponding location on the east farm, numerous adults were noted but no nymphs. On July 6 these steckling fields showed both adults and nymphs in about equal numbers. At the same time three alfalfa fields on the east farm sampled in one location each yielded few to relatively many adults (up to .40 per sweep), but nymphs were either very scarce or absent in a mass of aphids which practically clogged the bottom part of the net.

Experiment Station, Longmont, Colo.—Table 3 presents data obtained at the Longmont Experiment Station from treated patches of pedigreed seed. Five-percent DDT was used at a rate insuring good coverage. These patches were relatively small and any immigration of Lygus from surrounding fields would have been instantly reflected in following counts. Twenty-five sweeps with an insect net were the basis for each individual count.

Table 3.—AveraBt* combined numbers of adults and nymphs per sweep before dusting and on four dates after dusting- with DDT. Longmont Experiment Station, 1945.

Patch	Before dusting-				After dusting					
	6/20		6/22		6/28		7/1		~ 7/5	
	A ¹	N ²	A	N	A	N	A	N	A	N
5 E	.8	.2	.2	.1	.3	.0	.2	.1	.2	.1
5 W	.1	.0	.0	.0	.5	.1	.8	.2	0.0	3.0
6	.4	.2	.1	.4	.0	.0	.1	.0	.1	.1
11	.4	.1	.2	.0	.2	.0	.3	.1	.4	.3
14	1.4	.4	.2	.0	.6	.1	.5	.2	.8	.5
17	1.3	.6	.2	.0	.2	.1	.3	.2	.8	.3
18	.8	.2	.2	.0	.2	.0	.2	.1	.3	.2
19	1.6	1.2	.1	.1	.2	.0	.3	.1	.2	.7
21	.6	.3	.1	.1	.2	.0	.2	.1	.3	.0
Mean	.86	.36	.14	.08	.27	.03	.32	.12	1.01	.51

¹Adults
²Nymphs

Billings, Mont.—Table 4 presents results with DDT for lygus control from Billings, Mont. In this case 10-percent DDT was applied at a rate insuring good coverage to one half of a breeding group which was compared with the undusted area. Fifty sweeps with an insect net were the basis for each individual count.

Table 4.—Average numbers of Lygus per sweep before dusting and on three dates after dusting with DDT. Billings, Mont., 1945.

	Before dusting		After dusting	
	6/21 ¹	6/22	6/23 ¹	6/25 ²
Undusted	.52	.76	1.22	1.22
Dusted	.52	.00	.06	.02

¹Only adult bugs roxind
²Numerous nymphs present with the adults

Summary and Conclusions

Dusting of seed beets with 5-percent DDT was followed by a reduction of the Lygus population by 80 to 98 percent in several fields, as indicated by counts made 1 to 4 days after application. At the same time a much less pronounced reduction in the number of Lygus was noted in some other dusted fields and seed beet patches of small size. It seems certain that the reductions mentioned were largely or exclusively due to the DDT treatments, and it is probable that migration of Lygus from surrounding areas may largely have obscured the effect of the DDT in some instances, especially in the small patches. Counts made 7 and 15 days after the dusting indicated an increase in adult Lygus, although the average number still was only approximately one-half of the pre-dusting number in five of the fields.

On the basis of the observations made, the DDT appears very promising as a means of Lygus control.