Effect of the Say Stink Bug On Maturing Sugar Beet Seed

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The Say stink bug, *Chlorochroa sayi* Stal., is erratic in its occurrence in sugar beets grown for seed. However, all the southwestern area in which the crop is grown is subject to outbreaks of this insect. In some years the insects move into the seed-beet fields in large numbers as the crop is approaching maturity. They have been known to remain in the shocks and windrows for an appreciable time after the cutting. Previous work (Hills 1941 and 1943; Hills and McKinney 1946) had shown that the viability of the seed was greatly reduced where adults and nymphs of the Say stink bug were allowed access to developing beet seed, from the bloom stage to maturity, but the effect of these insects on mature or nearly mature beet seed was not known. Therefore, during the spring of 1948, a field-cage experiment

Figure 1. One block of cages in place on a multiple-bolting seed beet.

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was conducted to determine the effect of infestations of the Say stink bug on maturing sugar-beet seed.

Methods and Materials

Seed beets grown in cooperation with the University of Arizona near Tempe, Ariz., were used for these studies. Previous to the cage tests the beets were thinned to 1-foot intervals, and as soon as the plants bolted the central seed stalks were removed to cause the production of multiple seed stalks. The cages were cylindrical, 1 foot in diameter and 3 feet long. They consisted of a wire frame covered with curtain scrim (22 threads per inch). Each cage enclosed the entire inflorescence of 1 seed stalk. Twenty-one cages were arranged in 7 randomized blocks. Each block consisted of 3 cages placed on separate stalks of the same plant (Figure 1). This precaution

Table 1.—Viability and yield of sugar beet seed produced in field cages infested with Say stink bugs for 2 weeks before and 2 weeks after the stalks were cut.

Period insects were on plants	Average yield per cage	Average germination	Average sprouts per viable ball
	Grams	Percent	Number
Before cutting	112	28	1.22
After cutting	90	80	1.94
None (check)	146	91	2.26
Difference required for significance ($P = 0.05$)	[1]	14	0.29

[1] Not significant by the *F* test.

was taken to reduce variation within blocks. In one cage of each block, 25 adults of the Say stink bug were introduced 2 weeks before the plants were to be cut for harvest and allowed to remain until cutting time, when they were killed with a benzene hexachloride dust. In another cage the same number of adults was introduced immediately after the cutting and allowed to remain for 2 weeks. The third cage was kept insect-free as a check. All the stalks were cut at the same time and kept in windrows with the cages intact. The cages were removed from the windrows 2 weeks after the cutting; the seed from each cage was threshed, cleaned and weighed to determine yield, the samples were taken for germination tests. Germination analyses consisted of sprout counts to determine the average number of viable seeds per viable ball as well as the percent of viable seed balls.

Results and Conclusions

The results of this experiment are summarized in table I. The grams of seed per cage were within the limits of experimental error. Adult Say stink bugs feeding for 2 weeks before the plants were cut caused a drastic reduction in the percent of viable seed balls and in the average number of seeds per ball. The adults feeding on the plants for 2 weeks after the cutting reduced the average number of seeds per seed ball.

These results indicate that adults of the Say stink bug can cause severe damage by feeding on sugar-beet seeds which are mature or nearly mature and may damage the seed in the windrow after the stalks are cut.

Literature Cited

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