

HEMIPTEROUS INSECTS AFFECTING SUGAR BEETS GROWN FOR SEED  
(Abstract)

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(Abstract of a paper for presentation to the American  
Society of Sugar Beet Technologists)

Results of surveys in fields of sugar beets grown for seed in the Southwest showed that several species of mirid bugs of the genus Lygus and several species of pentatomid bugs infest the fields. These surveys further indicated that the Lygus bugs come into the fields when seed stalks appear in the spring and that they reproduce rapidly, whereas the pentatomids come in somewhat later and reproduce much more slowly. These conclusions, however, are based on only 2 years' observations.

Results of isolation-cage studies showed that both Lygus and the pentatomids are capable of reducing the percentage of viable seed produced. The quantity of seed is apparently not reduced by these insects, but seed produced under conditions of insect infestation is somewhat lighter as well as of lesser viability.

In small cages an average of 52.1 seed balls were rendered non-viable by one female Lygus, whereas males did not significantly reduce the numbers of viable seed balls produced in the cages. In addition to increasing the numbers of non-viable seed balls, the females reduced the number of sprouts per viable ball from 1.99 in the check cages to 1.56 in the cages containing female Lygus. Here again the number of viable seed balls produced in the cages containing males was not significantly different from that produced in the check cages. These data would indicate that the males do very little, if any, damage to the seed. They also indicate that while the principal damage caused by the female Lygus is in the increased number of nonviable balls, still it is possible for the insects to damage one or more germs without damage to other germs within the same ball. The quantity of seed was not significantly reduced in either the cages containing males or those containing females which further substantiates the data from the isolation cages and indicates that species of Lygus do not materially reduce the quantity of seed produced.

Introduction of large numbers of Lygus on the beet plants before bolting altered the type of plant growth, drastically reduced the quantity of seed produced, and reduced the viability from 91.0 to 0.33 percent.

The beet leafhopper infests beets grown for seed in Arizona and New Mexico and causes injury by transmitting the curly top disease, which tends to decrease the yield.

Serious infestations by the beet leafhopper have been quite definitely correlated with late-summer conditions in desert breeding areas in adjacent territory. Such infestations result from large numbers of these leafhoppers produced in the desert areas on summer host plants, when winter mustards are absent late in October to serve as hosts of the leafhopper in the desert.

Two or more beet leafhoppers per foot of row of beets grown for seed in Arizona fields by November 1st would be potentially dangerous from the viewpoint of beet-seed production in the average field, while apparently one-half of this number might cause an equal degree of injury in New Mexico.

Much smaller numbers of the beet leafhopper occur in fields where the foliage practically covers the soil than occur at the same time in fields with small beets or poor stands; therefore, the hazard of curly top injury in Arizona and New Mexico can apparently be largely overcome by following agronomic practices which result in a growth of beet foliage that covers the ground by late in October.

Experiments conducted since 1935 for control of the beet leafhopper on beets grown for seed have shown that beneficial results were obtained by treating fields early in November with a pyrethrum-in-oil spray.