From observations made in April of 1947 it was indicated that unless controlled, Lygus populations would be the highest in the history of sugar beet seed production in Arizona and New Mexico. The entire acreage was treated with 30 pounds of 5-percent DDT per acre applied by airplane. Excellent control was obtained and the germination for seed produced in Arizona was 86 percent and in New Mexico 90 percent.

The average germination for Arizona and New Mexico sugar beet seed crops during the years that no effective Lygus control was obtained is compared to years of 1946 and 1947 in figure 1.

These outstanding increases in germination clearly indicate that effective Lygus control plays a major role in the production of uniformly high quality seed. From our experience we feel that even though Lygus populations are low, it is profitable in Arizona and New Mexico to carry on large-scale control programs, treating the entire acreage.

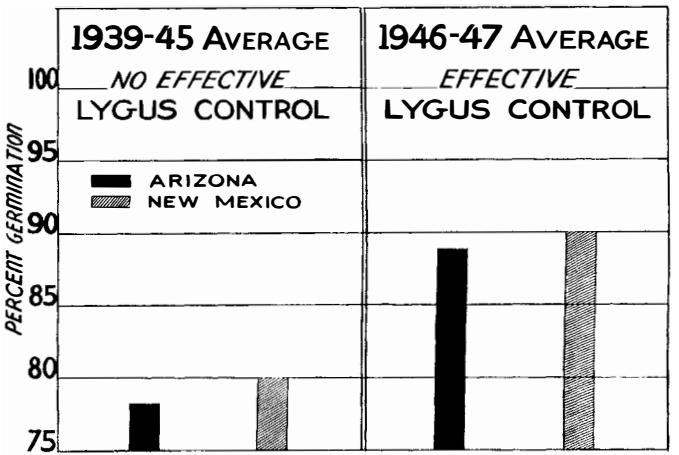

Figure 1.—Effect of lygus control on seed germination.

EFFECT OF LYGUS CONTROL ON SEED YIELDS IN ARIZONA AND NEW MEXICO

R. C. WOOD

Yield, like germination, has fluctuated widely throughout the history of sugar beet seed production in Arizona and New Mexico, and like germination, the fluctuations in yield were attributed to unfavorable weather

conditions until a relationship between Lygus and germination was known, and effective control was obtained.

Commercial methods of harvesting, threshing and cleaning make it very difficult to obtain yield data from small treated and untreated areas within the same field, therefore, no yield data from small replicated plots has been obtained. Consequently data presented to show a relationship between Lygus population and yield are based on an average for those years in which there was no effective control as compared to the years 1946-1947, in which effective control was obtained.

A comparison of Lygus populations and yields by years for the period 1939-1945 shows that the years of high Lygus populations were the years of lowest yield. The average number of Lygus per one hundred sweeps entering the fields in the Salt River Valley during April for the period 1939 through 1945 are shown in figure 2. The average yield per acre for that period and the same data for the years of effective Lygus control, 1946 1947 are also shown in figure 2. The average number of Lygus entering fields in April was 20 per one hundred sweeps for the years in which Lygus were not controlled and 32 per one hundred sweeps for the years of effective Lygus control. Average yield per acre for 1939-1945 was 1,625 pounds and for the Lygus control years, 1946-1947, 3,246 pounds per acre.

Although many factors other than Lygus effect beet seed production, the outstanding yields obtained under Lygus-free conditions indicate that Lygus control is an important factor affecting seed yields.

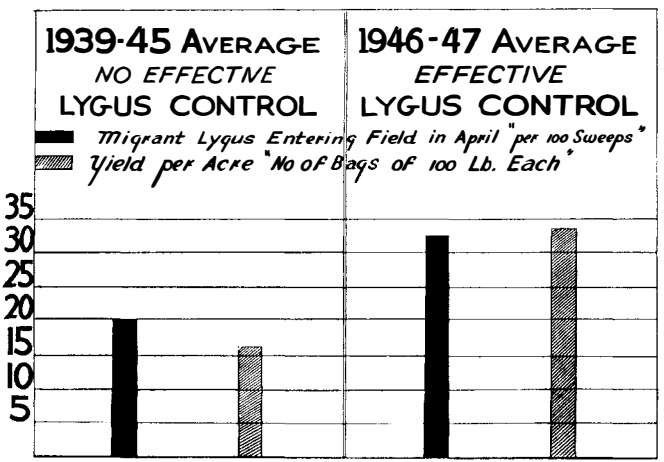

Figure 2.—Effect of lygus control on seed yield.