LYGUS BUG CONTROL DURING FLOWERING IN DRY LIMA BEANS

There has been some doubt in the minds of agronomists as to the advisability of controlling lygus bugs at flowering time in order to enhance the pod set in dry limas. The two general reasons for this doubt have been the ability of the lima bean plants to produce large numbers of flowers; and even with control, flowers may desiccate due to high temperatures.

Temperatures in the last two growing seasons (1962, 1963) in the interior lima bean areas of California have been optimal for pod set; however, pod set was observed to be spotty, with some fields almost completely devoid of any crownset beans. Samples of floral racemes brought to Davis from fields not setting pods had the entire spectrum of lygus damage symptoms. That is, damage ranged from some buds which were aborted at a very early stage of development, with the result that no flowers were produced, to racemes with visible lygus damage on juvenile pods. Observations made over the years at Davis indicated that reduction in yield by lygus was more severe with large than with baby limas.

During the summer of 1963, a field comparison of control, versus non-control in a late planting (June 4) of large and baby limas was made. The control plots were treated once with toxaphene at the rate of 4 lbs. per acre. The treatment was made at the mid-flowering stage when a population of three lygus per sweep was encountered. Treated large limas yielded 300% of the non-treated, or four sacks per acre vs. 12 sacks per acre. The treated baby limas had a yield advantage of 112% of the non-treated, or 26 sacks per acre vs. 29 sacks per acre. Both increases in yield were more than enough to pay for the treatment. The treated plots were significantly different from the non-treated plots at the 1% level.

Detailed study of the action of lygus on lima beans is being carried out by University of California entomologists. With the information that has been gathered and the future combined efforts of University scientists, a better understanding of lygus bug damage at flowering time and the effect of their control will be used to make new recommendations.—R. L. Sanchez, Assistant Specialist, Department of Agronomy, University of California, Davis. Experiment Station Project 772A, B.

A more realistic way for the processor to evaluate the possibility of mechanical harvesting of pears is to compare the yield of choice grade fruits. These data are available only for the 1963 season. Hand harvested, conventionally pruned trees, with a field-delivered tonnage (tonnage delivered to cold storage by grower) of 10.2 tons per acre, yielded 9.5 tons of processed fruit. Mechanically harvested, conventionally designed trees, with a field-delivered tonnage of 10.0 tons, yielded 7.3 tons of processed fruit. Redesigned trees that were mechanically harvested yielded 7.5 tons of processed fruit from a field-delivered tonnage of 7.86 per acre.

The data so far developed does not offer a final solution to the problem of the horticultural or economic feasibility of redesigning mature pear trees for mechanical harvesting, but the direction for further study is indicated.

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PHOSPHORUS-DEFICIENCY-INDUCED DORMANCY SYMPTOMS IN ALFALFA

The effects of nutrient deficiencies on some facets of crop production such as yield and rate of maturity have been well documented. A recent project to determine nutrient requirements of alfalfa grown for seed has shown that phosphorus deficiency may induce dormancy symptoms. Mopani variety alfalfa, a non-dormant type, was transplanted into pots of phosphorus-deficient (less than 3 ppm P) and phosphorus-sufficient soils. The pots were left outside and given no care except for watering. With the advent of winter weather, the plants in the phosphorus-sufficient soil retained their foliage while those lacking adequate phosphorus died back and then started regrowth from the crowns. As facilities become available at West Side Field Station, this observation will be followed up as part of a program to relate the nutrition of seed alfalfa to some aspects of its physiological behavior.

—Verle Q. Hale, Assistant Agronomist, University of California, Agricultural Experiment Station, Davis.