Pink Bollworm (PBW) Gossyplure Pheromone Research

R.T. Huber, J. D. Blihar, J. D. Busacca, M. W. Grubbs, W. C. Jany and A. K. Nelson

Operating under EPA Experimental Use Permit No. 38334-EUP-1, grower financed mass-trapping evaluation programs were conducted on a total of 19,500 acres in Arizona during 1978.

The 8 oz coffee-cup type oil trap was used in all of the mass-trapping areas, and all traps were baited with 1 mg of gossyplure impregnated on red rubber tubing dispensers.

The addition of a small 3 oz plastic souffle cup inside each trap eliminated oil loss due to leakage, and was a significant improvement over the 1977 oil traps that were without the plastic insert.

The following are results of the 1978 mass-trapping program:

1. In the Safford area 14,278 acres were trapped at 5.0 traps/acre. Average trap catch for the trapping season (1st square - Oct. 5) was 915 moths per acre, or a total of 13,064,370 male PBW moths. Seasonal PBW infestations averaged 4.4% in 1978, and seasonal insecticide applications for PBW control averaged 1.81/acre.

In another study, 10 mass-trapped and 10 untrapped cotton fields with similar management practices were compared to determine the effectiveness of mass-trapping in the Safford area. Based on whole plant samples taken at the end of the growing season, we obtained the following results:

a.) Total seasonal PBW infestation averaged 39% in the mass-trapped fields compared to 84% in the untrapped fields.

b.) An average of 19% of the open bolls had multiple exit holes in the mass-trapped fields, while 41% of the open bolls had multiple exit holes in the untrapped fields.

These data indicate that mass-trapping did reduce and delay seasonal PBW population growth in these trapped fields during 1978. In addition, the mass-trapped fields averaged 2 insecticide applications while the untrapped fields averaged 4 insecticide applications.

2. In Marana, a paired comparison of a mass-trapped and an adjacent untrapped field was made with the following results:

a.) Seasonal PBW infestation averaged 5.2% in the mass-trapped field, and 7.3% in the untrapped field.

b.) The mass-trapped field received 3 insecticide applications, while the untrapped field was sprayed 6 times.

In Pinal County and Yuma County, cotton fields that were mass-trapped prior to first square never reached economic PBW levels in 1978. However, most of these fields were sprayed for lygus and/or bollworm - budworm, and a fair evaluation could not be made.

In summary, our mass-trapping results in 1977 and 1978 using oil traps indicate that 1.) mass-trapping delayed PBW buildups, and 2.) fields that were mass-trapped in early season and sprayed to suppress the PBW during August and September, averaged fewer insecticide applications and had lower PBW infestations than untrapped check fields where insecticides alone were used to control PBW.