

REARING INVESTIGATIONS

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Objectives:

To improve rearing techniques and develop methods of mass producing insects infesting cotton that can be used in the laboratory and in field releases of parasites and predators.

Summary of Progress:

Laboratory cultures of bollworms, beet armyworms, pink bollworms, salt-marsh caterpillars, and tobacco budworms are maintained at the laboratory in Tucson. These cultures are used for studies of parasites and predators that are oriented toward methods of biological control and for resupply for other individuals and/or laboratories in the United States and Canada.

During 1970, a new method of rearing tobacco budworms was developed. Hot lima bean diet was spread in a thin layer and dried to form thin flakes. These flakes were then put into 10-1/2 x 13-1/2 inch plastic sweater boxes containing a layer of diet around the sides and bottoms. The flakes absorb excess moisture from the diet, form an isolation barrier between the larvae, and provide additional feeding surface as they become moistened. When this method was used to rear parent stock, 50 newly-hatched budworm larvae per box were implanted, and an average of 39 pupae per box were recovered. It can therefore be used to produce budworm hosts for tachinid parasites since as many as 400 larvae per box can be reared to suitable size.

A new method of rearing pink bollworms has been adopted which eliminates the use of individual cups. The hot diet is poured onto and spread out on wax paper which is then rolled up and sliced into 4-1/2 inch wide sections and placed in one-gallon ice cream cartons. Newly-hatched larvae are implanted into the cartons, the alternate layers of diet and paper separating the larvae from each other. In one year, this method has been used to produce about 3,000 pupae per week at about 1/3 the cost required for rearing in individual cups.

In an effort to cut down on the cost of the insect diet, tests have been made in which Wheast^{1/} is substituted for brewers yeast in the diet of all species reared at this laboratory. The lower cost of the Wheast saves about \$.90 per six-gallon batch of diet. The tests are being continued to find out whether the substitution has any effect on survival and fecundity.

^{1/} Mention of a proprietary product in this paper does not constitute an endorsement of this product by the U.S. Department of Agriculture.