

War Against Pink Bollworm Intensified

New lab dedicated to eliminate cotton crop pest

BROWNSVILLE, TEX.—The country's first research laboratory designed to combat the pink bollworm was dedicated here, Jan. 24. Federal and state officials as well as members of experiment stations and the cotton industry attended the dedication in a gesture of support for this latest step in the drive against cotton's most rapidly rising pest.

Hailed as a monumental effort by all concerned, the pink bollworm research center is committed to win the war against this pest which began with its discovery 38 years ago near Hearn, Tex. One of the lieutenants in this campaign

is the original discoverer, Ivan Shiller, entomologist now stationed at the center. Dr. Fred C. Bishopp, until recently assistant chief in charge of research for the Bureau of Entomology and Plant Quarantine, USDA, has been appointed coordinator for the research center by the Oscar Johnston Cotton Foundation.

Although much valuable work has been done in the past thirty-odd years, no satisfactory facilities have been available for the conduct of research, particularly of the fundamental type.

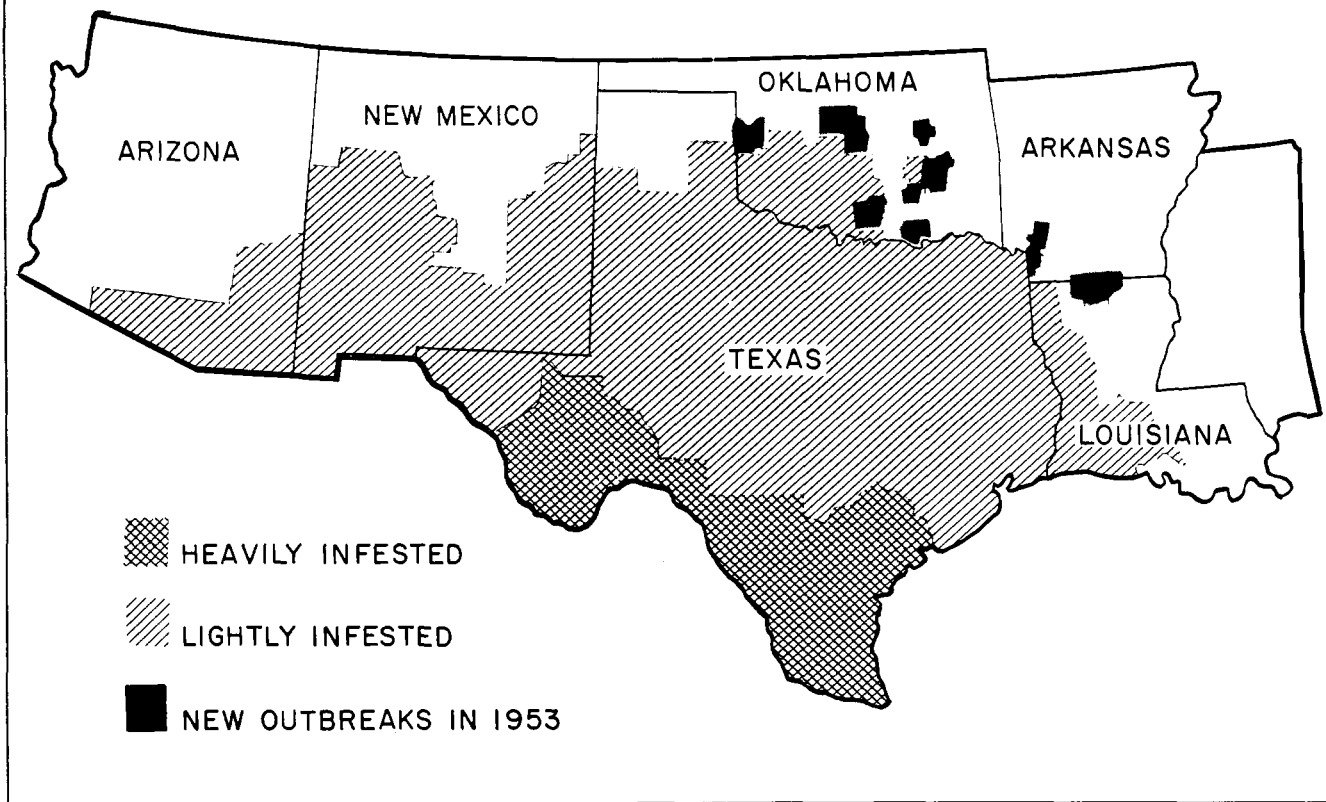
The present research facilities were made possible largely through funds

provided by the Bureau of Entomology and Plant Quarantine and the cooperation afforded by the Texas Southmost College, upon whose general campus the center is located, and by businessmen of the Brownsville area.

Direct support for the research work has thus far been provided by the Oscar Johnston Cotton Foundation and by Texas, Arkansas, Georgia, and Alabama.

The \$73,000 center at Brownsville now comprises about four acres and consists essentially of a 26-room air-conditioned office and laboratory building, housing five bioclimatic cabinets where temperatures and humidities similar to those existing in other areas can be maintained, a greenhouse with headhouse, an insecti-

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cide building, a small insectary, and a half acre screen cage. There is a small field for the conduct of cage and small plot experiments; adjacent buildings for storing equipment, heavy supplies, and automobiles.

Present personnel of the center and its substations number about 25. It is hoped to add a few more highly trained specialists for the conduct of certain phases of the fundamental research program.

The pink bollworm is another example of insect menace imported into this country. It is believed to have been introduced into the Western hemisphere in a shipment of cotton seed from Egypt to Mexico in 1911. The insect was first actually identified in some cotton grown from this seed near the Laguna District in north central Mexico in 1916.

By 1917 the cotton pest was identified in three counties in Texas and a rigid quarantine was set up around the infested areas. For a number of years the quarantine system kept the insect fairly well under control. Then about four years ago the pink bollworm began to spread rapidly out of the previously restricted area in South Texas into the southwestern cotton belt, until it is now considered to be a threat to the entire cotton crop in that area.

The present quarantine area includes most of the state of Texas and parts of Arizona, New Mexico, Oklahoma, Arkansas, and Louisiana.

Regarded by entomologists as the most devastating cotton pest now known, the chances are that if the pink bollworm really broke loose in the cotton belt it would top the damage of the boll weevil, which averages about \$2 billion per year. In 1952 the pink bollworm destroyed \$30 million worth of cotton in south and southwest Texas alone.

Research

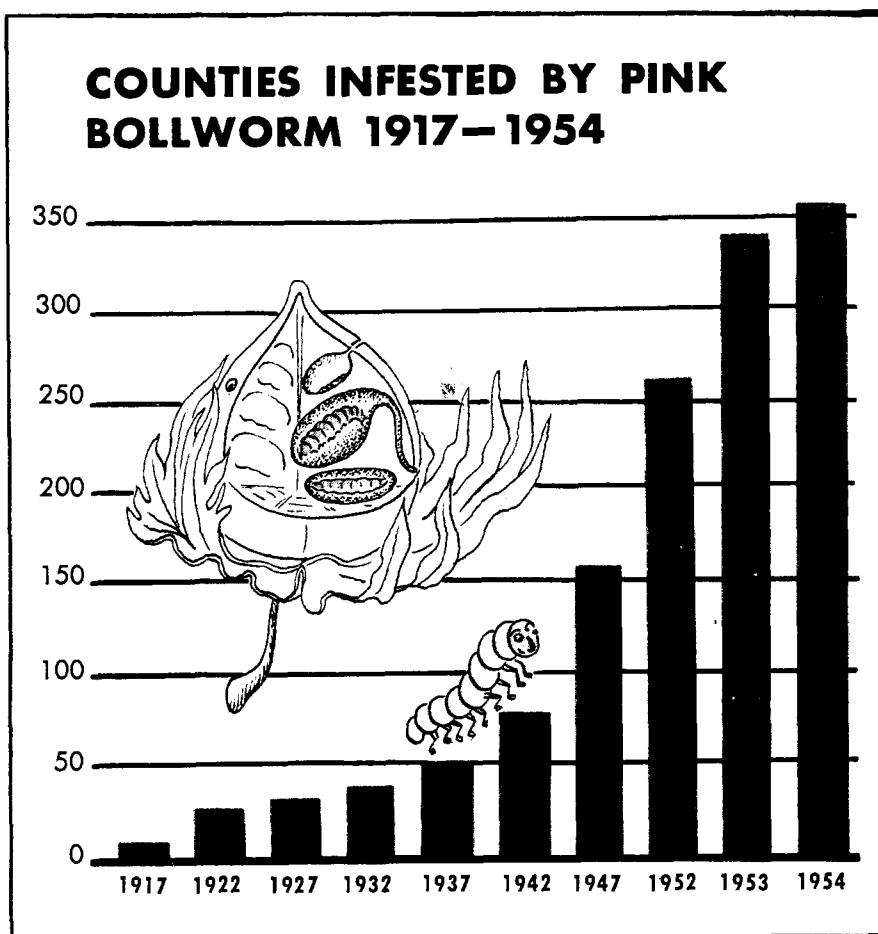
Present research programs are directed toward a variety of methods for control and eradication of the insect.

Scientists at the Texas Agricultural Experiment Station announced the development of an artificial medium for the culture of the pink bollworm larvae. Research of this type is aimed at defining the nutritional requirements of the pest, with the aim of eventually finding a metabolic antagonist.

Chemical research has been aimed at the development of some sort of systemic insecticide which would be absorbed by the growing cotton plant in quantities sufficient to kill the worms. An ideal systemic would save repeated spraying and dusting and would be effective within the boll where the worm does its damage.

The introduction of parasites, an extension of the theory of biological control, is also being investigated.

In 1952 the USDA sent an entomologist to India to search for natural enemies



of the pink bollworm. The introduction of natural antagonists for control of the pink bollworm has been tried before without success. Between 1932 and 1940 USDA released about a dozen insects which were found to attack the pink bollworm in Egypt, Japan, South America, Hawaii, South Europe, and Africa. Large numbers of these insects were reared by the USDA and released in the stricken areas of South Texas. However, none of these natural antagonists became established in the new area.

As a result of the recent Indian expedition, a quarter of a million wasp like insects, found to be enemies of the pink bollworm, were released in South Texas last summer. This year the entomologists will conduct surveys to see how well these new imports have survived.

Another research program which is thought to be promising is the development of techniques for the destruction of the pink bollworm larvae at the cotton gins. If a satisfactory device could be incorporated in the cotton gin and oil press installations to affect a total kill of infesting worms, it might result in a saving of many millions of dollars.

Control

Meanwhile the battle to control the menace with existing facilities goes on. The most effective device seems to be rigid quarantine of infested areas. Al-

ready this year 15 more counties have been added to the USDA's quarantine area.

Within the quarantine area the campaign is one of cultural and chemical control. Cultural control is directed toward destroying the bollworm larvae which carry over from one year to the next. Mandatory planting and harvesting seasons have been established in the various affected regions. In South Texas growers cannot plant their cotton before Jan. 20, and they must harvest and destroy all the cotton plant stalks before the end of August. This provides a period of almost six months during which the bollworm larvae have no natural host. In the southern regions the plant stalks are shredded, and exposure to the sunlight destroys many of the larvae.

Other cultural control practices have been applied to the processing of the cotton crop. Heat sterilization of the seed at the cotton gin is required. In addition, all seed moving out of the quarantine area must be either heat treated or fumigated before it can be passed through.

Chemical control is now based on the use of DDT, which has proved to be the most effective insecticide currently available. In the cotton growing areas the general practice is to spray with DDT and BHC for control of the boll weevil as well as pink bollworm.