

beans, in which the government has cooperated with the Rockefeller Foundation. Expenditures of the foundation alone in this program amounted to \$3 million at the close of 1953.

This collaborative plan is being operated through the Office of Special Studies, a unit of the Mexican Ministry of Agriculture. A recent stimulus was the emergency program decreed in 1953 by the Mexican president to increase the nation's basic food crops.

It has been shown that increases in wheat and corn yields of the order of one half to one ton per hectare (2,471 acres) through the proper use of nitrogen and phosphorus have been obtained. Larger yields have also been obtained by interplanting wheat and corn with legumes such as habam clover.

Irrigation Program

Irrigation has played a significant role in Mexico's increased farm production. From 1939 through 1950 agricultural output was expanded by about 90%, and from 20 to 30% of the gain may have been accounted for by irrigation. In the period mentioned the government spent 1.8 billion pesos (\$225 million) on such projects, and the total area under irrigation in Mexico is now placed at more than 2 million hectares, or 22% of the arable land. One result of this program in 1954 was to boost the country's cotton crop about 16% to around 1.4 million bales. The 1954-55 coffee crop will also be larger. Exports of both have increased the nation's dollar reserves.

As to fertilizer consumption in Mexico, Ricardo Acosta, director general of the Department of Agricultural Extension, says more than 200,000 metric tons of fertilizer mixtures were used on last year's crops, chiefly for wheat, corn, sugar, and cotton. Through the present extension program it is believed that the total can be increased, by 100,000 to 200,000 tons, in areas where water is supplied through irrigation and "well regulated precipitation."

Long-Term Needs

For the longer term, future fertilizer requirements in Mexico could run to between 400,000 and 500,000 tons. Demands for potassium salts have exceeded tonnages actually used in the cultivation of cane sugar, alfalfa, and certain cereals. Some thought may also be given to the use of trace elements in combination with plant foods.

Imports have supplied roughly 25% of nitrogen supplies. In 1954, for example, imports of ammonium sulfate were about 25,000 metric tons, and the national production not more than 75,000 tons.

Mexican production of calcium sulfate at the same time was around 50,000 tons. Both were supplied by the Compania Guanos y Fertilizantes de Mexico, S.A., the American Smelting & Refining Co., and the Beick Felix y Cia, S. en C.

A large area of Mexico, about 14 million hectares, is under cultivation, and in this sense arable; but the vast majority of this acreage is subject to devastating drought and not considered profitable to fertilize. Less than 10%, 1.25 million hectares of the land under cultivation, has a dependable source of water, either by irrigation or rainfall. It is this smaller acreage which the Mexican government believes can be effectively fertilized for increased food production.

Pink Bollworm

One of cotton's most troublesome threats retarded. Smallest area of spread last year since 1949 — three counties

THE PINK BOLLWORM, which has presented one of the most worrisome pest threats to cotton in recent years, was subdued somewhat last year. No simple, sure control measure for eradication is yet in effect in the entire infested area; but quarantine, pesticides, cultivation techniques, and other management practices brought the pests' spread almost to a dead stop last year. Damage last year was sharply confined, a happy comparison with 1952's \$30 million loss.

Last year marked the smallest area of spread for this dangerous cotton insect since 1949, says R. W. White, leader of the Pink Bollworm Control Project, USDA.

New bollworm infestations this past season were found only in Arkansas, White indicated, in a report before the recent eighth annual Beltwide Cotton Insect Control Conference (AG AND FOOD, Dec. 22, 1954, page 1305). "Our inspection has now been completed in Florida, Georgia, Alabama, Mississippi, Missouri, and Tennessee, and no pink bollworms were found in those states," said White. Most of the inspection, he added, has also been completed in California, the nonregulated part of Arizona, and in the West Coast states of Mexico, with negative results so far.

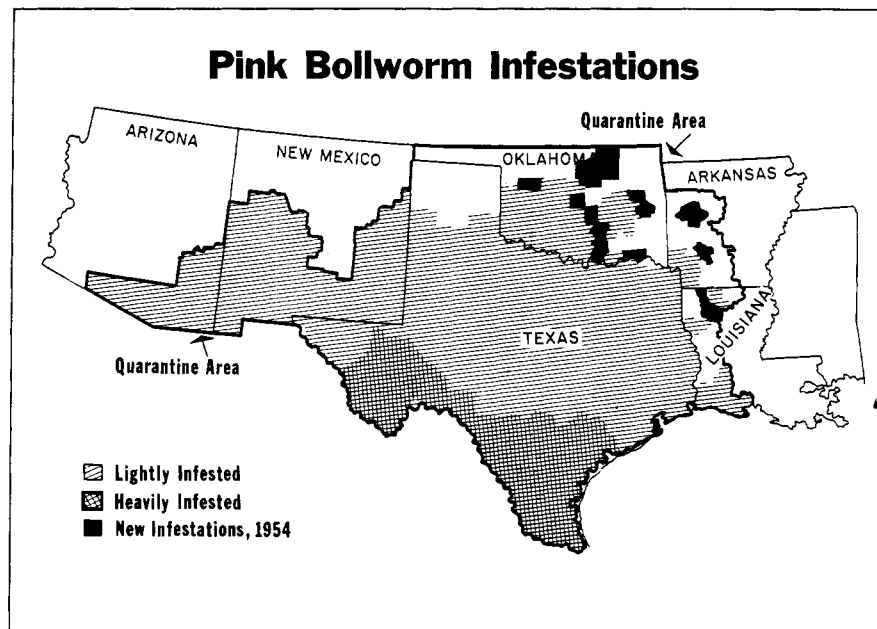
As to damage, the report is even more favorable. The \$30 million loss caused by the bollworm in South Texas during 1952 was the worst yet. Due to excellent field clean up in 1953, damage during 1954 in that section was confined to the latest maturing fields. The bulk of the cotton crop escaped with none at all.

Arkansas Extends Quarantine

Cotton growers, ginner, and processors in 28 counties, chiefly in western Arkansas, are now under strict regulations by the Arkansas State Plant Board, in an effort to control the pest (see map).

The state extended its regulated area on Nov. 5 to take in three newly infested counties, and 17 others as a buffer zone.

The new order includes nearly all cotton growing areas in western Arkansas south of the Arkansas River. Similar federal quarantine action will follow, according to government officials.



For administrative purposes, the entire state of Oklahoma is under quarantine, even though pink bollworms have not been found in several of the counties.

In Oklahoma the infestation, although light, is now rather general, says R. W. White.

Louisiana is winning its fight against the pink bollworm. Only a slight infestation was reported last year in eight parishes, and none outside the quarantined area. In the regulated area, some parishes were infested for the first time.

Cooperation of farmers in plowing under all cotton stalks and other cotton debris, he added, was responsible for the definite improvement. Mandatory stalk destruction program in all infested states, similar to the requirement of the new Arkansas order, has been urged.

Arizona in Good Shape

Last year the situation changed very little in Arizona, where five counties are under quarantine. During the 1953 season, bollworms were found only in Graham and Greenlee counties, but Cochise, Graham, Greenlee, and Pima were infested again in 1954.

Since 1947 pink bollworm infestation in Arizona has been so low that no special control measures have been necessary. Arizona's pink bollworms are adequately controlled by the normal cultural methods; deep plowing and winter irrigation kills the majority of the over-wintering larvae. Application of insecticides for other insects takes care of the emerging pink bollworm. Sterilization of cottonseed and cotton gin trash prevents further spread of the insect.

Drought Killed Texas Bollworm

Texas now has 239 regulated counties, 15 nonregulated counties in the extreme panhandle. The USDA recently placed these 15 counties under quarantine to facilitate movement of cotton and its by-products into and through the area. Since very little cotton is grown in these counties, and pink bollworms have not been found there, the Texas Department of Agriculture has not placed these counties under State quarantine.

The current situation is generally satisfactory, indicated Charlie Chapman, chief, Division of Plant Quarantine. "Each year we expect, and generally have, isolated areas of rather heavy pink bollworm infestations," he said. This always follows an attempt by some farmers in certain areas to harvest a top crop of cotton, hence they do not practice early and thorough stalk destruction. Such an area developed last spring during bloom inspection. At a recent meeting of area leaders of those counties, all agreed to abide by a voluntary stalk destruction

date. With favorable weather conditions the percentage of infestation may be expected to decrease in direct proportion to the cooperation of farmers in their voluntary program.

Infestations in the southern part of the state, which in previous years has been the location of extensive damage, was generally much lighter, particularly in the Coastal Bend section. Some counties in the Winter Garden area were more heavily infested than the year before.

Counties along the Louisiana border showed little change either way from the previous year. Some counties in central-west Texas showed decreases; others showed increases. On the South Plains an increasing trend was apparent. In the irrigated valleys of western Texas marked increases were noted.

Inspection Stations Help

Traffic leaving the lower Rio Grande Valley was checked at Falfurrias and Riviera during the rush periods (part of July and the entire month of August). During the latter part of August and in September, spot checks were made at or near crossings of the Brazos River.

The Louisiana-Arkansas traffic inspection work was set up early in August. Eight of these stations were located at points on the Louisiana-Texas border and three near the Arkansas-Texas border. Large numbers of migratory pickers pass through these stations, and interceptions of material containing live pink bollworms have been rather frequent, particularly at the Arkansas stations. All cotton picking sacks are fumigated before being released.

The Pink Bollworm Control Project also assisted in setting up stations which the State of Mississippi established at Natchez, Vicksburg, and Greenville on Sept. 1. Even tourists are checked, because they pick up souvenir cotton. Commissioner of Agriculture Si Corley said the halting of one car with souvenir cotton from Texas may have justified all of Mississippi's expense in manning its inspection stations; the cotton contained at least 10 living full-grown pink bollworms.

The Ohio car was halted at the Greenville station and tourists indicated the stalks were picked up near Austin, Tex. Public reaction to being stopped for inspection has been very gratifying, says Ross E. Hutchins, state entomologist, "We have had many favorable comments and almost no criticism." He has requested other southeastern states to cooperate in halting the pink bollworm spread by establishing inspection stations.

Chemical Control Helpful

The pink bollworm is spread by flight or drift of the moths, says Fred C. Bish-

opp, coordinator of the Pink Bollworm Research Project. In fact, he adds, wide dispersion of the pest in the southwestern United States has been due to natural dissemination and not to man's actions.

Highly successful cotton production in pink bollworm infested areas can only be carried on where the boll weevil, bollworm, aphids, thrips, fleahoppers, and other cotton insects are kept under control. The object, he explains, should be to get a heavy set of fruit and hold it on the plants so that the crop may be harvested early; the stalks and remaining bolls can then be destroyed early in the fall.

The pink bollworm can be controlled with the proper use of insecticides; DDT is best suited for this purpose, says Bishopp. Such control, however, in the absence of good cultural control practices is bound to be expensive. It means frequent application of DDT throughout the season; this often upsets the biological balance and results in the appearance of other cotton pests in injurious numbers.

Farm Program

Flexible supports expected. Surplus solutions include direct subsidies, production and marketing controls, Iron Curtain trade

AMERICAN AGRICULTURE must decide soon whether to accept the Administration's new policy of flexible price supports or go back to the days of a firm 90% of parity.

The new system was officially put into operation at the beginning of the year. Farmers have yet to live long enough under flexible supports to form firm opinions—where firm opinions had not been formed before. There are determined supporters on both sides, but no huge ground swell from the farms has developed yet.

In Congress, there is a prevalent feeling that the Benson Plan will be put on a trial basis for a year, perhaps two. Farmers and their representatives will keep a sharp eye on wavering farm prices and any major softening may bring action.

Democratic control of Congress does not mean that the high supports will come back automatically. The supports were initiated by past Democratic administrations, but their chief function was to stimulate wartime food production. After the war, supports became a prop for agricultural readjustments and were looked upon as stop-gap measures.