coke oven plant, designed to manufacture 600 tons of coke daily, was completed last September. A unit for the expansion of fertilizer production using by-product coke oven gas is under construction. Bids have been invited for equipment to produce 35 tons of urea and 150 tons of ammonium nitrate per day, or alternatively 70 tons urea and 110 tons ammonium nitrate per day, using waste gases from the coke ovens.

Ammonium sulfate facilities at Mysore and Travancore bring total installed capacity in India up to some 432,000 tons. Actual production in 1953 was only 320,000 tons, and last year's estimated production was slightly less. Distribution is the big problem, but the Indian government has been taking active steps to promote increased consumption.

There are 15 plants in India producing superphosphate using rock phosphate imported from Egypt, Morocco, Kossier, and Safaga. Rated capacity is some 275,000 tons, but here again the actual production is much lower; estimated production for 1954 is 100,000 tons.

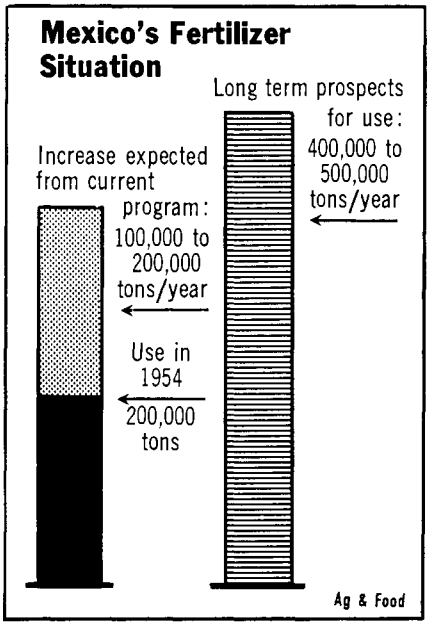
At Delhi, the Indian government is completing a new plant designed to produce 700 tons of DDT annually. Requirements have been estimated at 10,000 tons of DDT annually, but so far the Delhi plant is the only one in India. Benzene hexachloride is produced in India by ICI at the rate of 500 tons per year. A new unit for BHC has recently been completed by Tata Chemicals, Ltd., designed to produce 1500 tons per year.

In Pakistan, a 50,000-ton ammonium sulfate plant, estimated to cost over $19 million, is under construction and is scheduled to go into production by the middle of 1956. This may well be the nucleus of a heavy chemicals industry. The United States is providing engineering services and financial backing for the plant. The Pakistan Industrial Development Corp. is setting up a sulfuric acid plant at Lyallpur and a caustic soda plant at Nowshera.

### *Bulwark against Communism*

Continued economic support, whether through the Colombo Plan or through a new Asian "Marshall Plan" is now believed to be the best ensurance against the spread of communism in Asia. Congress must decide what part the United States will play in this program.

In London, *The Times* has put it this way: "Only the provision and organization of adequate assistance by the West will give any assurance that the Asian peoples will not gradually succumb to the blandishments of communism. The most important single agency for guiding development and assistance must be the Colombo Plan."




# Mexican Fertilizer

## American capital considers investment in Mexican fertilizer as government program there calls for more capacity

MORE FOREIGN CAPITAL investment in the fertilizer industry of Mexico seems to be the aim of the government of that country. The Mexican administration is calling for more fertilizer plant capacity to boost production of the nation's food crops. The problem is capital. The most likely answer lies in other countries, including the U. S. A. Details of the program have not been clarified with respect to plant capacities or production goals, but a number of U. S. manufacturers are being mentioned as possible participants.

The fertilizer expansion goal of the Mexican government has been spurred by the success encountered last year in increasing the output of food crops through fertilization, more scientific use of agricultural chemicals, and irrigation. As a result better yields are being obtained in wheat, corn, beans, cotton, and cane sugar. A part of the farm chemicals required is supplied by local industry, but it is evident that the tonnage so produced is not sufficient to meet the government aims.

Several American companies have been reported planning facilities in Mexico for fertilizer and pesticides manufacture. Olin Mathieson has been mentioned in this connection but up to mid-January it had no definite plans, it said. Through a division of its E. R. Squibb subsidiary in Mexico City, Olin Mathieson has been supplying agriculture in that country with some essential chemicals.

Other interests mentioned in this connection are Union Carbide, Allied Chemical & Dye, Du Pont, and Phillips Petroleum. It is unlikely that Carbide would enter the fertilizer business as it is not basic in those materials. It does manufacture fungicides and herbicides. Allied Chemical, Du Pont, Olin Mathieson, and Phillips, on the other hand, are large manufacturers of fertilizer ammonia.

A sum of $50 million (U. S. dollars) was earmarked recently for the fertilizer project out of the total $90 million obtained through the World Bank. The remainder would be spent on electrification and port works. A supplementary source for nitrogen would be provided by the $15 million coke-oven installation being constructed by German interests in the state of Coahuila.

### *Broadened Research*

Mexico has turned very definitely in the direction of scientific agriculture, which explains her greater utilization of chemical fertilizers and pesticides for basic food crops. Research emphasis has been placed on wheat, corn, and

**Mexico's Imports 1954**

| | *Metric Tons* |
|---|---|
| Ammonium sulfate | 25,000 |
| Ammonium phosphate | 20,000 |
| Ammonium nitrate | 14,000 |
| Nitrophosphate | 12,000 |
| Nitrosulfate | 10,000 |
| Sodium nitrate | 10,000 |
| Anhydrous ammonia | 8,000 |
| Urea | 8,000 |
| Normal superphosphate | 6,000 |
| Concentrated superphosphate | 3,500 |
| Phosphoric acid | 3,000 |
| Potassium chloride | 7,000 |
| Potassium sulfate | 3,000 |

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, ginners, 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.