



Better materials at lower prices will keep agricultural chemical market growing

MORE EFFECTIVE MATERIALS at lower cost will help keep the market for agricultural chemicals growing rapidly is the prediction of Sherman E. Johnson, assistant chief for production economics, Bureau of Agricultural Economics.

His faith in the future, Mr. Johnson notes, is based on a series of solid achievements in the past. The leading agricultural chemical, commercial fertilizers, for example, now make up a billion dollar market. Increase in use of fertilizers in the past 15 years has averaged 10% a year. While the rate of increase has varied, in no year has there been a decrease.

In 1947-48 there was a drop in net farm income. In 1948-49 the increase in fertilizer consumption was only 6%. This situation, which is comparable in some respects to that prevailing today, gives one clue as to fertilizer prospects for the immediate future.

With a population growth of 2.5 million persons a year, barring a severe depression, Mr. Johnson foresees no down-turn in farm purchases of chemical products as a whole. With new and improved products, or relative price changes, there will be some shifts.

Once farmers learn to use these chemicals profitably, they will be reluctant to discard them even when facing a cost-price squeeze. In such periods, however, improvements must show a wider range between cost and income before farmers will adopt them readily. The fact that they will adopt improvements if they promise significant cost reduction and increased income was proven in the 20's. At that time, despite unfavorable cost-price relations, farmers mechanized rapidly (tractors and low cost attachments) to save hired labor and expand operations.

One trend which will lead to increased use of fertilizer is that toward more

concentrated fertilizers. Freight charges alone to haul one ton of plant nutrients 500 miles are \$50 in 18% fertilizer but only \$20 in 45% fertilizer.

The potential for chemical weed killers and defoliants is great, Mr. Johnson feels. In cotton alone, effective weed control and defoliation would permit effective mechanical cultivation and thus reduce labor to one fourth of present levels. New methods, however, which call for greater skill and managerial ability, will delay a change over on small farms.

Research and education designed to show farmers how to use fertilizers more profitably will help increase consumption. One possibility is to use fertilizer in converting some wheat and cotton acreage to improved hay and pasture.

Agricultural Chemicals Are Big Business

Mr. Johnson was one of four speakers on a panel on agricultural economics and their chemical implications. The panel spoke before a combined meeting of the Chemical Market Research Association and the Division of Chemical Marketing and Economics, AMERICAN CHEMICAL SOCIETY, held in Washington, Nov. 18 and 19.

The panel chairman was Oris V. Wells, administrator of the Agricultural Marketing Service, USDA. In addition to Mr. Johnson, participants were Shelby Robert, market development specialist, BAE, who described the many statistical reports available to farmers and those interested in agricultural economics, and Bruce Easton, who has been deputy director of PMA's mobilization activities branch. Philip H. Groggins, AGRICULTURAL AND FOOD CHEMISTRY, was moderator.

Mr. Wells noted that while the chemical industry and agriculture are mutually dependent in many respects, it should be

remembered that the future of both will be determined by needs and wants of producers and consumers and not what chemists and economists may think they want.

Dr. Groggins noted that agriculture and the chemical industry constitute large segments of the nation's economy and at the same time have much in common. Agriculture, with assets of \$160 billion is an enormous producer of raw materials for the chemical industry. The wholesale value of farm products, excluding cotton and wool, used annually for nonfood purposes, is about \$1 billion.

The chemical industry, with assets of \$35 billion, is a major supplier of items for agriculture. In 1953, for example, it supplied 21 million tons of processed fertilizers worth more than \$1 billion. This large sum does not include lime, phosphate rock, or liquid ammonia for direct application. The value of pesticides sold in 1952 was about \$250 million. In 1953, the volume of pesticides was about the same although the dollar value was considerably less.

Mr. Easton amplified figures concerning plant food materials and other agricultural chemicals. Plant food material consumption in 1952-53 was four times greater than the prewar 1935-39 average and nearly double that used at the end of World War II. The amount of nitrogen available in 1952-53, for example, is estimated at 1.8 million tons, double that of 1945. Phosphoric acid consumed in 1952-53 was 2.4 million tons, a 900,000 ton increase over 1945-46. Between 1945 and 1953 potash consumption also doubled and now exceeds 1.7 million tons.

The pesticide consumption pattern has changed rapidly since the end of World War II. Organic compounds such as DDT and BHC came into use and began to replace such inorganic chemicals as lead and calcium arsenate, copper compounds and botanical products. DDT production in 1944 of 9.6 million pounds is now up to 100 million pounds a year. BHC rose from 8.2 million pounds in 1947 to 117 million pounds in 1951.

In the past 10 years use of antibiotics has increased steadily. In 1946, 47,000 pounds of antibiotics were used; by 1952 the figure was 1.5 million pounds (medicinal purposes only) representing a \$150 million a year business. In 1951 and 1952 annual sales of antibiotics for animal feed supplements were around \$17 million.

Synthetic organic weed killers and defoliants have boomed. Production of weed killers rose from almost one million pounds in 1945 to 71.5 million pounds in 1952. Defoliants were not in use to any extent on cotton before 1946. At present they are used on 3 million acres.