# BUSINESS AND FINANCE

## Chemical purchases amount to 1.5 to 2.5% of farm income; sizable increase expected . . . Optimum use of fertilizers still long way off, ACS meeting told

LOS ANGELES.—From $500 to $850 million, or 1.5 to 2.5% of the total farm income, annually goes for purchases of agricultural chemicals, according to I. Bergsteinsson, Union Oil Co. of California. These estimates, he admitted, are somewhat higher than we have been hearing up to now, but he believes that they are scheduled for sizable increases.

Mr. Bergsteinsson was speaking as chairman of the symposium on agricultural chemicals sponsored by the Division of Chemical Marketing and Economics at the spring meeting of the AMERICAN CHEMICAL SOCIETY here. While essentially directed to prospects on the West Coast, the symposium brought out a number of interesting observations on the national market as well.

Estimates on this phase of the agricultural chemical business, however, vary greatly. The speaker said that one authority had placed the cost of control measures annually, plus the cost of insecticides, plus the damage by insects, at $1.6 billion. Still another estimate placed the cost at nearer $4 billion.

F. H. Leavitt of Shell Chemical's western division, said that the rate of farm spending in a given area has changed slightly from year to year. During the last seven or eight years farmers in the southern states along the Eastern Seaboard have slowly decreased their expenditures for fertilizers, in relation to their total crop income, while farmers in other principal fertilizer-consuming states have increased the outlay for fertilizers.

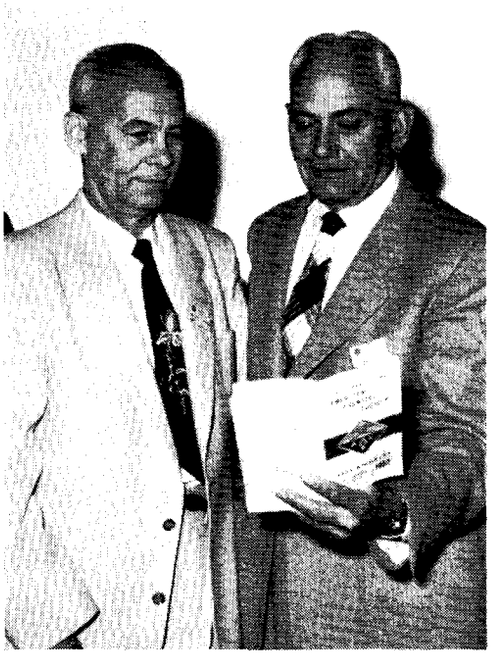
Department of Agriculture studies show that the national average of fertilizer spending has fluctuated between 5.2 cents per dollar income in 1925 to 6.5 cents in 1950. Despite these fluctuations the over-all trend is upward. Price is an important factor in fertilizer consumption. The Department has shown that the index for fertilizer prices increased to 139 in 1951, or 39% above the base year 1910–14 used for the index, while prices paid by farmers for all commodities increased 171%. The index of farm prices received at the same time rose 202%.

The point was made that any prediction of fertilizer use must be heavily weighted with forecasts of farm prices. It could be assumed, Mr. Leavitt thought, that national fertilizer use between 1952 and 1953 will go up by about 11% in nitrogen, 10% in available phosphoric acid, and 17% in potash, based on Department of Agriculture data. In tonnage this will mean an increase in nitrogen consumption from 1,425,000 tons in 1952 to 1,585,000 tons in 1953; in phosphoric acid from 2,235,000 tons to 2,465,000 tons; and potash from 1,585,000 to 1,850,000 tons.

Despite expected gross cash receipts by farmers of more than $33 billion, there were some sobering influences which pointed quite definitely to more stringent farm economy. In California, prices for cotton, cattle, and grapes already have been reflected in reduced demands for some agricultural chemicals. In recent years, however, the use of insecticides in California has shown some striking increases in the newer organics as the compilation from *The California Farmer*, given at the bottom of the page, indicates.

The same speaker offered some interesting comment in insect resistance to modern insecticides. Recent thinking is that the power to survive chemical treatments may be a characteristic possessed by relatively few insects.

While failure of a compound to continue adequate control of an insect may slightly reduce market demands, new uses, activators, and other factors may more than offset the losses. Insect resistance certainly is not a large influence factor in over-all future market demands, G. F. MacLeod of Sunland Industries, Inc., contended.



I. Bergsteinsson of Union Oil and G. F. MacLeod of Sunland Industries, two speakers at the symposium on agricultural chemicals, compare notes on the program

In a report on the market outlook for agricultural fungicides in the West, L. L. Isenhour of Rohm & Haas Co. said that the best approach toward determining the outlook for these materials in western United States would be to examine the market as it exists today. A profitable crop, he stated, generally can

**Expected Usage of Newer Organics in California**

| | *1950 Usage* | *1955 Projected Usage* | % *Increase-Decrease* |
|---|---|---|---|
| Chlorinated hydrocarbons, tons | 1.5 | 20 | +1233 |
| Organic phosphates, tons | 454 | 902 | +99 |
| Fluorine compounds, tons | 441 | 374 | −15 |
| Sulfur, tons | 27,000 | 26,000 | −4 |
| Spray oils, gal. | 4,500,000 | 4,000,000 | −11 |

be grown without the intensive use of fungicides or bactericides. When such applications have been found a futile waste of effort and money, they risk a no-treatment program during some seasons when control measures would be profitable.

### *Spray Programs Most Consistent on Spray Trees*

The most consistent spray programs are applied on tree crops where the grower has a large fixed capital investment to protect. Copper fungicides, sulfur, and lime sulfur are well entrenched in this market. They are fungicidally effective and relatively inexpensive. The newer organic fungicides are finding a limited place where their greater safety justifies their higher cost per acre.

Of more than 80,000 acres of apples in Pacific Slope states, less than one half regularly require fungicides. For almonds, fungicides are needed in the spring if late rains occur. Lack of such rains during the past few years has almost eliminated the disease potential. Few apricots are grown in areas where treatment is needed for shot hole protection. Most of them are very susceptible to loss by brown rot blight of the blossoms and most of the acreage is sprayed. Efforts to promote the use of the new organic fungicides on apricots have not been very successful.

Dr. Isenhour said that field crops such as sugar beets, cotton, and grain have few foliage diseases and fungicide treatments never have been justified.

Not so long ago sodium chlorate was the only weed exterminator employed on a large commercial scale, and then chiefly by railroads. Today 2,4-dichlorophenoxyacetic acid and the 2,4,5-trichloro product are in use throughout the land for weed killing, and business in all herbicides has grown to around $35 million annually. This estimate was made by Chester E. Otis of Dow Chemical Co.

There are 25 or more different basic materials employed as herbicides, Mr. Otis figures, and he thinks there must be at least 50 manufacturers exclusive of formulators in the market.

Otis estimated that the use of 2,4-D in the West has increased, in terms of the acid, from 2.6 million pounds in 1950 to 3.5 million in 1952. Usage for 1953 was placed at 3,850,000 pounds, and for 1957 at 5 million pounds. He thought the use of 2,4-D for perennial, selective, ditchbank, and roadside weed control has about leveled off. It was expected that brush control would account for the increased disappearance of 2,4-D during the next five years; chemical reclamation of brush-covered range land will be of large-scale commercial importance by 1957.

In a discussion on fumigants, A. F. Swain, American Potash and Chemical Corp., related that hydrogen cyanide for years was the oldest and best known fumigant for the control of scale insects on citrus trees. For this purpose high toxicity, extreme rapidity of action, and relatively low phytotoxicity under proper conditions made it ideal. But strains of insects developed resistance to HCN, and when parathion appeared on the scene the use of HCN fumigation declined. Today, little is used on citrus in California. Its utilization as a flour mill and warehouse fumigant also has gone down.

In the past 15 years methyl bromide has taken over certain fumigant fields entirely. First among these is the dried fruit field, particularly where figs, dates, and seedless raisins are stored for any length of time. For this purpose methyl bromide was so much more satisfactory that it replaced HCN and ethylene oxide in almost one season. It has likewise taken over flour mill fumigation.

## *DDT and lindane among leading pesticide materials heading downward in price . . . Sales competition keen*

MARKET CONDITIONS for leading insecticides and herbicides were far from stabilized at the start of April. Liberal supplies, a somewhat slower demand than expected, and some keen selling competition kept prices still subject to paring by leading manufacturers. This situation appears to stem from the unfavorable 1952 season when drought conditions in growing areas curtailed pesticide consumption far below government estimates.

Toward the end of March DDT found itself in the middle of a spirited selling contest during which prices slipped all the way to 23 cents per pound in car-lot quantities to formulators, freight allowed. Last September the car-lot market for technical DDT was as high as 48 cents a pound. Two leading manufacturers are particularly active in the market competiton, according to reports.

Previously this year lindane came in for the same kind of competitive selling, probably worse than DDT. It is said that one manufacturer desirous of writing 1953 business in better volume slashed the price all the way from $5.00 per pound to $2.75 to formulators. This last quotation, for the 99% minimum gamma isomer material, was met by other producers.

Parathion, another large-volume insecticide, has also been on the easy side. In recent months the market has come down about 5 cents, establishing the truckload price at around 48 cents a pound for the 15% spray powder. The 25% dust-base parathion is quoted by one producer at 73 cents per pound, off about 14 cents from the end of last season.

### *Lindane Tops List In Expansion Goals*

In a discussion on the influence of government regulations on plant expansions, held during the recent New York meeting of the Commercial Chemical Development Association, it was shown that no portions of the expansion goals for agricultural chemicals remained to be filled as of Dec. 15, 1952. The possible exception at that time was phosphatic fertilizers of which only a small percentage remains unfilled.

C. E. Waring, vice president of Davison Chemical, showed that the DDT goal called for expansion of 52% over capacity existing on Jan. 1, 1951, an increase from 102 million pounds to 155 million pounds. This goal will be met by new projects.

Lindane calls for the largest capacity expansions, or from 700,000 pounds at the beginning of 1951 to 5.1 million pounds, an increase of 628%. The goal had been provided for toward the close of 1952. It is known that production was far from the goal during 1952 as the only figure issued for lindane by the Tariff Commission, for the month of July, indicated that it was then being made at an annual rate of 1,752,612 pounds. This, however, is only a one-month indication and actually may be far from the year's final result.

### *DDT Production Turns Downward*

The Commission has just issued a preliminary report placing DDT output for last year at 99,444,572 pounds, compared with 106,139,000 pounds for 1951.

Production of 2,4-D is placed in this preliminary report at 33,560,000 pounds, compared with 31,537,322 pounds for 1951. These totals may not be comparable as the Commission's total for 1952 does not include esters and salts, whereas the 1951 figure does include derivatives.

Benzene hexachloride production is placed at 86,391,179 pounds for the year just passed, as against 116,605,230 pounds in 1951. Gamma isomer content of hexachlorocyclohexane is esti-