

Sales of Diamond chemicals in 1955 totaled approximately \$110,280,000, representing an increase of 18% above the 1954 figure of \$93,505,000, the previous all-time peak.

Net earnings in 1955 increased 53% to approximately \$8,440,000, equivalent, after preferred dividends, to \$3.38 per share based on 2,338,866 common shares outstanding after a 3% stock dividend, as compared to 1954 results of \$5,528,600, or \$2.14 on the same number of shares.

In reviewing the company's current financial position, Mr. Evans explained that due to the availability of funds beyond those earmarked for normal requirements, the company has prepaid one year in advance a \$1.2 million installment on bank notes. At the year end Diamond had \$14,273,000 in cash and equivalent compared to \$7 million at the close of 1954.

The board of directors has called for redemption of \$6 million par value of the company's 4.40% convertible preferred issue. Redemption record date is Jan. 19 and redemption date is Feb. 24. Privilege of converting will exist through the close of business Feb. 21. The preferred is convertible at the rate of 2.369 shares of common for each share of preferred.

## **RESEARCH**

### **USDA Tests Show Promise for Two New Herbicides**

Two promising new herbicides were discussed by Warren C. Shaw, USDA Agricultural Research Service, during last month's meeting of the Weed Society of America. The new herbicides, called 4(2,4-DB) and 4(MCPB), proved safer than present herbicides for use on seedling legumes and other crops in limited field trials last year. The newcomers, Dr. Shaw said, were found among a group of compounds developed by government and industrial scientists in both England and the U. S.

In Montana, 4(MCPB) gave excellent top kill of Canada thistle and other broadleaved weeds in canning peas and in established stands of alfalfa and white clover without reducing yields of peas or forage legumes. In Missouri, 4(2,4-DB) efficiently controlled weeds in birdsfoot trefoil.

In Mississippi, both 4(2,4-DB) and 4(MCPB) gave good control of bitterweed and pigweed in a pasture of white clover and dallisgrass without injury to the clover. Other tests in this State showed that 4(MCPB) was much less toxic to cotton than 2,4-D or MCPA, indicating that the new compound might be safer to use for

weed control in tolerant crops grown near cotton fields.

In Wyoming, 4(MCPB) killed pigweed and lambsquarter without injury to irrigated alfalfa and snap beans. The other new compound, 4(2,4-DB), controlled the same weeds with no injury to alfalfa but seriously damaged snap beans. MCPA and 2,4-D used in these experiments were toxic to both the crop plants and the weeds.

In Arkansas, both new compounds were highly effective on weeds in rice fields and proved less toxic to rice than standard herbicides.

Pre-emergence treatments with 4(2,4-DB) and 4(MCPB) resulted in good control of several annual broadleaved weeds and grasses with much less injury to corn, cotton, soybeans, peanuts, and sorghum than occurred from pre-emergence treatments with 2,4-D and MCPA.

### **USDA Chemist Solves Structure of Sesamolin Pyrethrum Synergist**

The chemical structure of sesamolin—a sesame-oil derivative that is the most potent synergist, or booster, known for pyrethrum insecticides—has been determined by Morton Beroza, USDA chemist. The outstanding effectiveness of sesamolin as a synergist for pyrethrum was discovered in earlier research by Dr. Beroza.

Sesamolin was produced experimentally by Dr. Beroza from sesame oil. He found that its distinguishing structural feature was a methylenedioxyphenoxy molecular grouping. He has reported the synthesis of 66 new chemical compounds containing this particular molecular structure, many of which proved to be excellent synergists (AG AND FOOD, January, page 49). Some, he found, were superior to the best commercial synergists now available, but none was as good as natural sesamolin.

The best commercial synergists, when mixed with pyrethrum in a ratio of 5 to 1, make the insecticide about 12 times more effective against flies than pyrethrum without a synergist. However, mixing sesamolin with pyrethrum in a ratio of only 1 to 1 increases the insecticide's fly-killing power by 31 times. It also boosts the already potent "knockdown" ability of pyrethrum.

### **Water-Soluble Insecticide Control Mosquito in Irrigated Rice**

Water-soluble insecticides can effectively destroy mosquito larva in irrigation water, USDA entomologists reported before the Entomological Society of America at its recent meeting.

Detailing results of his work with

John R. Noe at Stuttgart, Ark., James B. Gahan of USDA's Agricultural Research Service said that less than an ounce of one insecticide—when added to a million gallons of irrigation water as it flowed onto rice fields—was enough to kill all larvae of *Psorophora* species present in the water.

The insecticide parathion was the most effective of four chemicals tested.

The parathion solution was dripped into the water as it flowed into a canal leading to the rice fields from a 50-gallon oil drum fitted with a regulator to give even dispersion of liquid.

Gahan said that only 0.01 gallon of parathion was required in each million gallons of irrigation water to achieve complete kill.

### **New Bait Spray Controls Fruit Fly**

A research-developed bait spray that provides effective, low-cost control of all kinds of destructive fruit flies in Hawaii is now being used against the Mexican fruit fly along the California-Mexico border, USDA reports.

The bait spray—which depends on protein hydrolysate for the bait and malathion or parathion, organic phosphate insecticides, for killing action—was developed by Loren F. Steiner of USDA's Agricultural Research Service. Protein hydrolysates contain essential fruit-fly nutrients and thus have value as bait materials.

In extensive tests in Hawaii, the bait sprays have controlled the oriental fruit fly, the melon fly, and the Mediterranean fruit fly at costs of 2 to 5% of the crop value. Infestations were reduced 93 to 100% in 13 of 21 Hawaii field tests, where a 25% wettable powder bait spray containing parathion and protein hydrolysate was applied biweekly at rates of 1 to 8 pounds per acre.

Similar results were obtained with malathion wettable powder, and bait sprays with this material were adopted for use in the Mexican fruit-fly-eradication project because of lower toxicity to man and animals.

### **Fly-Bait Stations Effective for Several Weeks, USDA Reports**

USDA entomologists report that simple "bait stations" look promising for control of flies.

J. C. Keller, H. G. Wilson, and Carroll N. Smith, entomologists at the Orlando, Fla., laboratory of USDA, told the Entomological Society of America meeting recently that a bait station consists of a piece of screen wire (4 by 6 inches) covered with a slurry of bait (a mixture of sugar, agar,

sand, and insecticide) and attached to a stick that can be shoved into the ground or stapled to a fence post or other structure.

The entomologists tried out bait stations in dairy barns, poultry houses, hog pens and feed lots in Florida and on livestock farms in Kansas and Nebraska. Although the research results were generally favorable, USDA is not yet recommending use.

Four organic phosphorus insecticides—L 13/59, malathion, chlorthion, and American Cyanamid 4124—in 2% concentrations proved effective.

## ASSOCIATIONS

### NPFI Awards

The National Plant Food Institute recently made two of its annual awards—the Soil Builders Award for Editors, and in the Conservation Essay Award Contest.

George Johnson, crops and soil editor of *Successful Farming* and Carl Deitemeyer, managing editor of *The Nebraska Farmer* shared the Soil Builders Award for Editors. Mr. Johnson received the award for those publications which have a circulation of over 300,000, and Mr. Deitemeyer received the award for those in the less-than-300,000 circulation class.

In the conservation essay contest, which is jointly sponsored by the National Grange and NPFI, Byron E. Moyer, a 21-year-old Vermont farmer, won the \$500 first place prize. Second place and \$250 went to Charles M. Rioch, 17, of Glenwood, N. J., and third place (\$200) went to Malcolm Niles, 16, of Loleta, Calif.

### Williams to Speak at Ag and Food Luncheon

The ACS Division of Agricultural and Food Chemistry has announced that Roger J. Williams, director of the Biochemical Institute, University of Texas, is to be speaker at the Division's luncheon during the ACS National meeting in Dallas in April. His subject is: "The Wisdom of the Body—to Eat." The 129th ACS meeting is scheduled for April 8 through 13, and the divisional luncheon will be held on April 10.

### Pesticide Residue Analyses Being Studied by AOAC

The Association of Official Agricultural Chemists, has appointed 23 chemists to test proposed methods and develop new methods of analysis for

pesticide residues on foods. The appointments were made at the request of the Food and Drug Administration to aid in enforcing the Miller Pesticides Amendment to the Federal Food, Drug, and Cosmetic Act.

All of the chemists appointed to head individual studies are employed by FDA in its district laboratories or in its Washington, D. C., research laboratories. Those who would like to submit methods or participate in the collaborative work are asked to contact William Horwitz, association secretary, Post Office Box 540, Benjamin Franklin Station, Washington 4, D. C.

### Cottonseed Processing Clinic

The Fifth Annual Cottonseed Processing Clinic will be held at the Southern Regional Research Laboratory, New Orleans, La., March 12 and 13, under the joint sponsorship of the Southern Utilization Research Branch of the USDA Agricultural Research Service and the Valley Oilseed Processors' Association.

A symposium on linters will be held the first day of the conference. On the second day, problems and improvements in cottonseed processing will be discussed and current research on cottonseed products will be summarized.

### Chemurgic Conference in Chicago in April

The Council for Agricultural and Chemurgic Research announces that its 21st annual conference is to be held April 10 to 12 at the Congress Hotel in Chicago. Program for the meeting has not yet been announced.

### Pittsburgh Conference on Analytical Chemistry

The seventh annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy is to convene on Feb. 27 and last through March 2.

## Calendar

**Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy.** Pittsburgh, Pa. Feb. 27-March 2.

**National Agricultural Chemicals Association.** Hollywood Beach Hotel, Hollywood, Fla. March 14-16.

**American Chemical Society, 129th National Meeting.** Dallas, Tex. April 8-13.

Hosts are the Analytical Chemistry Group of the Pittsburgh Section of the AMERICAN CHEMICAL SOCIETY and the Spectroscopy Society of Pittsburgh. On the technical program will be 188 papers, among them a group of papers on analysis of nerve gases.

### International Nutrition Meeting in Paris in '57

Plans are being made for the fourth International Congress on Nutrition, which is scheduled for Paris July 24 to 29, 1957. The congress is held under the auspices of the International Union of Nutritional Sciences and will be devoted to the study of scientific problems of nutrition, considered in animals and in man, in their normal and in their pathological aspects. Further information can be obtained by writing to the Fourth International Congress of Nutrition, CNERNA, 71 Blvd. Pereire, Paris 17, France.

## PEOPLE

### Four New Members on Ag and Food Board

The terms of A. L. Elder, C. A. Elvehjem, J. L. St. John, and P. T. Truitt on AG AND FOOD's advisory board have expired. The four new members appointed to serve through 1958 are:

**J. W. Britton**, manager of agricultural chemicals at Dow Chemical. He received an A.B. from the University of Michigan in 1920 and an M.S. from the same university in 1921. He joined Dow in 1923. He became superintendent of the organic semi-plant in 1934 where he remained 10 years. He was made production manager in 1944, and manager of agricultural chemicals in 1949. He has 10 patents in the field of organic chemistry.

**Kenneth D. Jacob**, head of the Fertilizer and Agricultural Lime Section, Plant Industry Station's Soil and Water Conservation Research Branch, USDA. He received a B.S. degree from Mississippi A&M College in 1918, and graduated from George Washington Uni-

