

Public Health Officer Gives Insecticides Clean Bill

Malaria control with DDT is a most successful type of foreign aid program

SPRING LAKE, N. J.—The agricultural chemicals industry has compiled a first-rate record in the toxicological evaluation of its products, David E. Price, assistant surgeon general of the Public Health Service, told members of the National Agricultural Chemicals Association meeting here Sept. 8 to 10. Moreover, he said, the industry's accomplishments have made possible significant advancements in our national health, living standards, and international relations.

Describing two PHS studies, one in the Mississippi Delta where morbidity, mortality, and school attendance records before and after the introduction of the newer agricultural chemicals were compared and the other in Washington State where representative meals from restaurants and institutions were analyzed for DDT. Dr. Price said that PHS investigators found no evidence

that pesticides were related to the occurrence of disease.

Discussing some of the positive aspects of pesticides, Dr. Price pointed out that insect and rodent pests affect human health in three different ways: they impair agricultural productivity with resultant effect on human nutrition; they serve as vectors in the transmission of disease; and they cause untold discomfort and interfere with physical efficiency.

On the matter of insects which are vectors of disease, Dr. Price pointed out some of the startling accomplishments of pesticides, such as the reduction of new malaria cases in the U. S. to almost none since the discovery of DDT. Malaria has also practically disappeared in Greece, Italy, British Guiana, and several other countries as a result of DDT use. In Venezuela, seven years of DDT

spraying reduced the malaria death toll from 112 cases per 100,000 to 15 per 100,000.

Malaria control with DDT and other residual insecticides represents one of the most successful types of foreign aid program, Dr. Price said, because it meets the five major criteria agreed upon by most experts. These are that it is technically and administratively feasible; results are recognizable within a short time; costs are commensurate with the expected and attainable benefits; it is within the technical ability of the host country; and it affects a sizeable number of people.

For work of this type, the Foreign Operations Administration purchased 22 million pounds of 75% wettable DDT in the last fiscal year for projects in 17 countries affecting about 124 million people. The largest single project was in India where last year almost 14.5 million pounds were used at a gross cost of almost \$5 million. Homes of 70 million Indian people were sprayed last year and the plans for next year will affect 125 million people.

Pesticides' Future Depends on Research

Public relations problem will require eternal vigilance, says NACA president

SPRING LAKE, N. J.—The need for good publicity and public relations for agricultural chemicals will always be with the industry, contends Paul Mayfield, retiring president of the National Agricultural Chemicals Association. Speaking before association's 21st annual meeting here Sept. 8 to 10, Mr. Mayfield said that if we are not reading the scare stories in the public press claiming that pesticides are poisoning the entire human population, we are reading that someone has claimed that pesticides are ruining the beauty of public highways or destroying fish and wildlife. The latter, he said, will be a permanent public relations problem for the NACA and will require eternal vigilance. During the last year, he noted, there have been several examples of effective presentation of the positive sides of pesticides in popular media.

Mr. Mayfield, who is general manager of the naval stores department of Hercules Powder, said that he is "bullish" about the prospects for the future in the agricultural chemicals industry and, to prove his point, quoted statements from five prominent scientists, among them Byron T. Shaw, head of USDA's Agricultural Research Service, whose comments on the future had been

recorded on tape and were played back to the NACA audience.

Dr. Shaw listed five areas in which he and the staff of the ARS saw opportunities for pesticides: effective control

for soil insects and nematodes; materials and techniques for controlling range and grassland insects; herbicides that are specific and "hit the weed target like a rifle"; a chemical that holds back cotton regrowth after defoliation or desiccation; and more combinations of pest control materials, such as a combination of seedling protectants with a pre-

New president of NACA, W. W. Allen (left), manager of agricultural chemicals sales for Dow, with the new vice president, Fred W. Hatch, manager of Shell's agricultural chemicals division, and the retiring president, Paul Mayfield, general manager of Hercules' naval stores division



emergence herbicide and a systemic insecticide for cotton. Dr. Shaw's opinion is that the surest way to increase use of pesticides is first to keep building the fund of knowledge on crop pests, techniques to control them, and the dollars and cents value of using these techniques. Then, he emphasized, growers must be kept continually informed of the findings.

Mr. Mayfield told the group that so long as there is a reasonable profit to be made in current operations, funds for research can be plowed back. If the members of the industry do not supply the research to carry the whole industry forward, he cautioned, it is certain that someone else will do it for them—and send them the bill.

Research

Tomato Powder Processes Developed in West by USDA

Vacu-Dry, Inc., announces that it has continuous process near readiness

TWO PROCESSES for preparing tomato powders by vacuum drying have recently been developed in California, where a large share of the nation's tomatoes are grown. In addition, Vacu-Dry, Inc., of Oakland, Calif., first company to produce orange juice powders successfully, has announced that it will begin laboratory scale production "within a matter of days" by a continuous

process and distribute samples to the trade.

The two vacuum-drying processes resulted from a project at the Western Utilization Research Branch of USDA at Albany, Calif., which some time back produced a citrus juice powder process. (Vacu-Dry attained the first commercial orange juice powder by a slight modification of this process.) WURB also has

produced a promising tomato powder with slightly modified spray-dryers.

During the war a "tomato drying" plant operated at Riverbank, Calif., producing drum-dried tomato juice flakes which were used in soups. This plant operated for only a short time.

Processes and Process Conditions. In order to prepare a satisfactory juice powder, it is necessary, when using vacuum drying techniques, that the material "puff" during drying. Otherwise, the product will be a leathery mass completely unsuited to reconstitution. During vacuum drying of orange juice concentrates, this puffing occurs naturally. In tomato juice processing, however, puffing does not occur, and special steps need be taken.

Two vacuum-drying processes have been tried: (1) a one-step process in which the juice is concentrated and dried directly; (2) a split-run process in which pulp and "tomato serum" are separated, dried separately, and recombined.

One-Step Process. Juice is concentrated to about 40% solids in commercial concentrating equipment. This concentrate is then whipped in commercial beaters for periods of from 5 to 20 minutes to incorporate air in the concentrate (this air causes the concentrate to puff during drying). The aerated concentrate is spread on pans and placed in a vacuum tray dryer. The dryer is evacuated to 1 mm. Hg, and shelf temperature is rapidly raised to 220° F. As the concentrate temperature rises, tray temperature is gradually reduced to prevent concentrate temperature from exceeding 150° F. (an unsatisfactory product flavor-wise results if higher temperatures are used). When moisture content reaches 3%, the dried product is cooled by the admission of cold water to the shelf and, when cooled, is removed ready for packaging.

While this process works fine for batch production, it is questionable whether it would be suitable for continuous processing. It is possible that the methods used for spreading concentrates in a continuous vacuum dryer would also deaerate it, thus making it unsuited for drying. This has yet to be proved or disproved completely, however.

Split-Run Process. Juice is centrifuged to remove the pulp. The juice is concentrated to 62° to 65° Brix in a vacuum pan dryer at 15 mm. Hg and 135° F. This concentrated material, known as serum solids, is placed in pans and is vacuum-tray dried at 3 mm. Hg (220° F. shelf temperature) in a manner similar to orange juice powder drying. It puffs satisfactorily, can be dried to 3% moisture in about 1 hour. The pulp is dried separately—either air or vacuum drying—ground, and added back to the dried serum solids.

Maryland mill installs new LABCONCO laboratory



D. A. STICKELL and Sons Hagerstown, have stepped up control and research activities with their new LABCONCO feed laboratory. LABCONCO specialized steel furniture and apparatus save time, permit full operation with minimum staff.

Note safety dispensing stand (for acids and caustic) at far left. Carboys are stored in

cabinet. Dangerous solutions are elevated by vacuum, dispensed over lead top table.



SIX-UNIT GOLDFISCH fat extractor (for fat and carotene determinations) sits on cabinet specially designed to speed this work.



LABCONCO KJELDAHL apparatus (for protein determinations) is 12-unit hoodless combination model complete with water control and digestion timer. At right is LABCONCO illuminated titration table.

WRITE TODAY for free illustrated catalog FF-54. Tell us what you're considering. You'll get helpful information by return mail. Laboratory Construction Company, 1115 Holmes Street, Kansas City, Missouri.