

A recent report on USDA research indicates that streptomycin may be effective for control of blue mold in tobacco.

The great selectivity and potency of the antibiotics as a group of chemical compounds seem to offer much promise in the application of plant disease control work.

The possibility of using these compounds for control of insects has also been investigated, specifically in stored grain.

Although the use of antibiotics for control of plant diseases is still in the research stage, indications are that some formulation of these materials will soon be moving out of the laboratory onto the farm.

rect financial savings that can be achieved through reduction of waste and increase of yield by the use of pesticides.

### **Potential Market Large**

In studying the opinion of competitive aspects of new pesticides on the existing markets for the well-established agents, there is frequent response to the effect that there is so much room for larger markets if properly developed, that there is no good reason for existing products to worry about the loss of their markets providing they are effective products.

Another area where education is needed is in conveying to the farmer sound information in an effective fashion on the proper use and application of pesticides. Both crops and human beings as well as farm animals can be injured by careless application of agricultural chemicals which need not be dangerous if properly used. This kind of education can come through improved distribution systems, better labeling, and more effective dissemination of general information.

### **Education As Part of Public Relations Program**

Education is also needed as a part of a public relations program. To quote President Paul Mayfield again, this time from a speech delivered recently before the Canadian Agricultural Chemicals Association: "Compared with the initial public reaction to such modern improvements as the automobile or anesthesia or pasteurized milk, the pesticide industry introduced its products without arousing any suspicion or antagonism. As the years went by tremendous progress was made through research. But we neglected consumer education, public education, the art of salesmanship and the problem of distribution, credits, and other commercial and economic principles. Now we find that some of these questions are waiting to be answered. This is particularly true in the field of consumer and public education.

"Strangely enough, years after pesticides were accepted and put to use today they are being falsely accused and harried. They are being attacked by men who either ignore or are not acquainted with the great amount of research behind modern pesticides and the legal protection now in existence that assures the American people they aren't being poisoned. These critics make wild and extravagant charges—they say our materials are the cause of polio, X-disease of cattle, heart disturbances, New Castle disease, and what have you. All of this is contrary to known scientific facts but they are sensational statements that get wide attention and they alarm the public."

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## **Soil Residues Problem Not Considered Overwhelming**

During the past year there have been several reports relative to the problem of the accumulation of residues of chlorinated insecticides in soil. Such residues have had effects on the growth of certain crops and also have had effect on flavors of certain crops grown in those soils.

The problem of soil residues appears to be of concern mostly with DDT and BHC. There is evidence that with most of the insecticides hydrolysis and decomposition of the compounds will take place in the soil within a relatively short period. Bacterial decomposition also appears to have some effects on the decomposition of organic compounds in the soil. For certain cases, reports of the use of DDT and BHC indicate that with normal cultivation procedures or with the specific crops studied, disappearance of the pesticides will not be satisfactory.

The consensus on this matter seems to be that although certain compounds may cause difficulties through accumulation of residues in soil, there are other pesticides which may be used to replace those that are unsatisfactory. Opinion is generally optimistic and there seems to be little concern of the probability that the soil residues problem will cause any serious harm to the development of pesticides. As newer products are being developed this matter is kept in mind. Recently before the American Association for the Advancement of Science, George McNew of Boyce Thompson In-

stitute for Plant Research said that there is every reason to believe that if the skills of organic chemistry are fully utilized, the organic pesticides can be made much less hazardous than the older type of inorganic pesticides. They are so much more effective against pests that the initial deposits can be reduced to only a fraction of that required of less potent materials and the deposit itself will naturally disappear under the influence of sun, wind, rain, and ordinary oxidative forces. There is very little evidence of absorption of new pesticides into plant tissues and these small quantities that are taken in are either metabolized into harmless compounds or are localized in the superficial tissues.

### **Problem of Definition**

The problem, said Dr. McNew, is to define the toxicological properties of new products and balance this against the possibility of accumulation of hazardous residues. Serviceable compounds can be developed which will not persist sufficiently to create potentially hazardous residues. It follows that safety in use of new organics will depend upon ascertaining their physical and chemical attributes, and educating the farmer as to the necessary precautions. The legal protection of the public should come from establishing residue tolerances, then enforcing them rigidly.

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## **Public Education a Major Problem**

In a direct contact survey of executives, research workers, sales leaders, formulators, and a variety of other people in the field of agricultural chemicals throughout the United States, almost unanimous opinion was found that one of the biggest needs of the agricultural chemicals industry today is a good educational program. This need for education exists in many of the activities of the industry.

Recently Paul Mayfield, NAC Asso-

ciation President stated in an article (AG AND FOOD, Feb. 17, page 172): "We estimate that less than 15% of the crop land is protected by chemical treatment during the growing season." The consensus seems to be that there is a far greater potential market for agricultural chemicals than has been realized so far. Part of the reason is lack of a realization of the possible benefits that may come from agricultural chemicals. Not enough farmers have been convinced of the di-