PUBLIC HEALTH

More Pesticide Research

Report of the President's Science Advisory Committee analyzes situation and charts plans for control and inquiry of chemical and other methods of pest control.

➤ MORE RESEARCH on pesticides is likely to result from the report of the President's Science Advisory Committee panel issued by the White House.

In order to develop safer and more specific controls of pests, the Government is advised to provide more research support for selectively toxic chemicals, non-persistent chemicals, selective methods of application, and non-chemical control methods such as the use of attractants and the prevention of reproduction.

The report, excerpted here, recognizes the hazards as well as the gains to mankind from the use of chemicals.

The modern organic chemicals are remarkably effective, the report said, in facilitating both the control of insect vectors of disease and the unprecedented production of food, feed and fiber. The use of pesticides associated with the production of our food is carefully controlled by the growers and supervised by agricultural specialists and the Food and Drug Administration. As a result, the residue levels measured on foods intended for interstate and foreign commerce are low and rarely above Federal tolerance limits.

The report declared that the use of pesticides must be continued if we are to maintain the advantages now resulting from the work of informed food producers and those responsible for control of disease. On the other hand, it has now become clear that the proper usage is not simple and that, while they destroy harmful insects and plants, pesticides may also be toxic to beneficial plants and animals, including man.

Their toxic effects in large doses are well known and precautions can be taken to see that humans are never needlessly exposed. But we must now also take measures to ensure that continued exposures to small amounts of these chemicals in our environment will not be harmful over long periods of time.

Gains From Pesticides

Our material standard of living has been greatly elevated during the twentieth century by increased control over the environment. Few recent developments have been so effective or have had application in such a wide range of human endeavor as the pesticide chemicals. Although pesticides have been used for centuries as adjuncts in pest control, the great advances of the last 20 years resulting from the discovery, manufacture and application of new compounds have changed their role in many instances to that of the principal and frequently sole control measure.

Pesticides have made a great impact by facilitating the production and protection of food, feed and fiber in greater quantity and quality; by improving health; and by keeping in check many kinds of nuisance insects and unwanted plants. Agricultural needs have entailed the largest applications of pesticides in this country. Productivity has been so increased that famine is an unknown experience to the people of the developed nations.

Mechanization, improved fertilizers, and the breeding of productive and disease-resistant crops have also contributed importantly. In addition, pesticides have made possible the economical production of many crops which otherwise would be available only to a limited number of wealthy consumers.

While reducing food losses, pest control has also resulted in foodstuffs of the highest quality. Today, for example, sweet corn, potatoes, cabbage, apples and tomatoes are all available unmarred, and the American housewife is accustomed to blemish-free products. Citrus fruits are seldom damaged or lost because of scale insects, fruit flies or diseases, and the cost of animal protein is lower because large losses of cattle from tick fever and grubs no longer occur.

Colorado College

WILD FALCON—Prof. James Enderson of Colorado College is shown placing a Government band on the leg of a wild prairie falcon. These bands will help Dr. Enderson, who is conducting a long-range study of these birds, to check their migratory habits and to find whether they are a disappearing species.

Modern agricultural efficiency is maintained not only through the use of insecticides, but also by means of herbicides, fungicides, rodenticides, nematocides, plant growth regulators and other chemicals. Their benefits extend beyond crops raised for direct human consumption. They permit efficient production of forage and grains, which in turn are needed for a productive livestock economy. In addition, they allow profitable yields of non-food crops such as cotton, tobacco and timber.

Pesticides have not, however, reached an optimum of effectiveness. More than 100 established pests have developed resistance to one or more previously effective chemicals, and new pests are occasionally introduced by international traffic.

Rapid population growth and concomitant decrease in land available for agriculture necessitate greater crop yields per acre and reduction of losses and spoilage in stored foods. Moreover, many products must be protected during the process of manufacture and distribution.

Besides enabling spectacular increases in agricultural production, pesticides have freed man from communicable diseases to an unprecedented extent. In less developed areas of the world, malaria, typhus and yellow fever, previously controlled only with great difficulty, are now limited and in some locations eradicated. In each case, pesticides have facilitated control of the insect vector.

At some stage of their natural history a number of the major communicable diseases involve an intermediate host or vector. Most successful disease control programs have been directed at eliminating this link in the chain of transmission, rather than treating man after he has contracted the disease.

However, control programs have not achieved disease eradication. Malaria is still the disease responsible for the largest number of deaths in the world each year, although new cases are rare in the United States. Yellow fever, schistosomiasis, plague and some rickettsial diseases are almost unknown in the mainland of North America, but they still take a large toll of human lives in the rest of the world.

Furthermore, reservoirs of disease in animals, and insects which can transmit them, will remain with us for the predictable future both in this country and in other parts of the world, thus requiring a continued effort to control them.

An additional complication in disease control is that the insect vectors, such as mosquitoes that transmit malaria, may produce resistant populations capable of transmitting the resistance to pesticides from generation to generation. In order to keep up with the successive threats of insect vectors as they develop resistance to one chemical after another, it is important to enlarge and improve our capability for controlling pests.

Pesticides also have made control of many nuisance insects and plants financially feasi-