

Pesticides In Prespective

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With so much attention focused on the use of pesticides today, many views concerning their effects on the environment are arising. The Extension Service is not only interested in this public concern but is involved with the educational aspects of pesticide usage, as well as with learning how to properly control pests with minimum danger to desirable life forms. Commercial agriculture must be advised of chemical uses and the associated

risks involved so that production of food and other goods remains at high levels and safe for the consumer to use. With the present system one farmer is able to produce enough for more than 40 other people. The use of chemical pesticides and other agricultural chemicals has contributed to this tremendous achievement in production. Mistakes may have been made, yet we cannot afford to become alarmed to the point where pesticides should be banned. It is recognized that certain pesticide uses must be changed, because con-

tamination has occurred. Research efforts have to be directed toward materials and ways to protect the environment and at the same time assure adequate production of food, fiber, shelter, and protection of health.

Safeguards

The Cooperative Extension Service carries on a continuing program to inform the public — farmers, homeowners, gardeners, and commercial growers — concerning the safe effective use of pesticides. Likewise, recommendations on pesticide usage are based on the newest information from registrations, regulations, and research developed by competent scientists. These "built-in" safeguards help to assure the user that a particular chemical may be directed toward a pest species without adverse effects on himself or the environment. Each chemical undergoes several years of testing on many life forms and in a variety of habitats before it can be registered for use by the USDA and a tolerance established by the Food and Drug Administration. The Federal Fish and Wildlife Service also must evaluate the data presented and make a final judgement. A chemical that has any questionable effect on the test species is discarded.

Other Important Control Methods

Different approaches to pest control include many nonchemical methods. Parasites to help eliminate certain harmful pests (such as the alfalfa weevil, gypsy moth, and cabbage looper) are being reared and studied. Crop varieties resistant to pest attack are being developed. Life cycles of pests are studied to find the "weak link" in their growth cycle, at this point, control is usually relatively easy. Sterility,

attractant, repellent, and hormones are methods being tried and used on various insect species. Along with nonchemical methods is a system called integrated control where natural predators and parasites are encouraged to wage war on the pests, so only a minimum of chemical pesticides is required. This has been successful in some areas of commercial fruit production. The practice of continuous cropping has had advantages, but this has also increased pest problems, sometimes to the point of no solution. Crop rotation helps to control certain pest species by changing the habitat and food supply and thus maintaining the population at a level of minor economic importance.

The Use Of Chlorinated Hydrocarbons

The use of pesticides has always presented a paradox. By using them a certain degree of hazard is created, and yet without them, pests would severely damage crops causing food prices to increase. To immediately ban all chlorinated hydrocarbons would be unwise. There is a great degree of variation within this class of pesticides that is not clearly understood and must be considered. These factors include such items as mammalian toxicity, persistence in various media, and degradation and detoxification by environmental influences such as sunlight, plant enzymes, water, soil colloids, intricate chemical combinations and recombinations, organic matter, and microorganisms. Specifically the insecticide methoxychlor has a chemical structure similar to DDT, yet it is comparatively nontoxic to warm-blooded animals, being about 1/10 as toxic as common table salt. It also quickly decomposes into harmless components. Methoxychlor is an effective insecticide and can still serve to control pests without serious injury to desirable species. Other chlorinated hydrocarbons — fungicides and herbicides as well as insecticides — fit into this same category.

Improved chemical control may be achieved by adjusting spray recommendations. Chemicals with shorter residual life are replacing other materials in most instances, but here again costs will be sacrificed and application methods must be carefully watched. New spray techniques with applications in rates of only a few ounces per acre are available. The chemical is directed specifically to the pest but has little effect on non-target organisms. Systemic pesticides also provide excellent control of the pest without threat of spray drift or hazard to wildlife. Scientists are looking for materials and techniques that will enable a grower to select a short residual chemical and direct it at the pest species at the most vulnerable period of its life span.

At the same time users of pesticides will be required to observe the utmost in safety precautions — first to protect themselves and others from accidental pesticide poisoning, second to be certain that all registered uses are followed to keep chemical residues on crops at a minimum, and lastly to see that no undue environmental contamination occurs from their application methods. Further attention will be required for pesticide storage and disposal. Any threat to ground water supplies must be avoided before accidental contamination results. A moderate curtailment of certain chlorinated hydrocarbons is to be expected within the near future. At present, no chlorinated hydrocarbon pesticide (except methoxychlor) is recommended for any phase of meat or milk production. Replacements will ultimately be necessary for DDT,

BHC, Lindane, Aldrin, Dieldrin, Endrin, Heptachlor, and Toxaphene for use against certain pest species. With the replacements users must be objective and carefully weigh advantages and disadvantages in each instance. Many chemical uses can be maintained without fear of doing serious harm or injustice to wildlife and the environment.

Meeting Food Needs

When man learned how to conquer plant and animal pests without backbreaking labor, new opportunities came to develop agriculture, improving both quality and quantity of food and fiber. Successful pest control has helped to improve agricultural efficiency, freeing labor to help create other economic opportunities. The sustained economic growth of any nation depends on how well its people can obtain their food requirements. Of all human needs, food and shelter come first.

Let's look at a few figures. In the United States today there are over 200 million people that have to be fed three times a day with milk, meat, grain, fruits and vegetables. If this flow of food were cut off as little as two weeks, there would be panic in the market place. By the year 2000 AD U.S. population will be past the 250 million mark, and to feed, clothe, shelter and protect this population is still a tremendous challenge to modern agriculture. Upwards of 250 billion pounds of food a year will be needed by 2000. With it pest control this task would be formidable, if not impossible.

There are no known indications that present levels of pesticide usages in Pennsylvania (Continued on Page 10)

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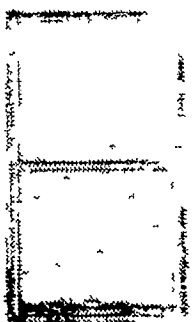
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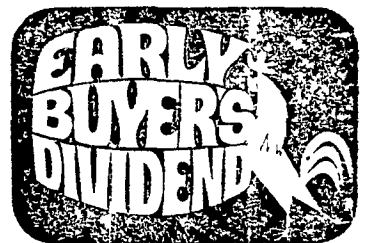


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