

Wise
Tuesday, May 13, 1963

Office of the White House Press Secretary

THE WHITE HOUSE

This report on the use of pesticides has been prepared for me by my Science Advisory Committee.

I have already requested the responsible agencies to implement the recommendations in the report, including the preparation of legislative and technical proposals which I shall submit to the Congress.

Because of its general public interest, I am releasing the report for publication.

John F. Kennedy

The White House
May 14, 1963

1. INTRODUCTION

Man's primary concerns have always been the struggle for survival and improvement of his lot. As his numbers increased, he attained greater ability to manipulate his environment. In the process he sometimes inflicted damage on himself and on his surroundings. Advances have always entailed a degree of risk which society must weigh and either accept, or reject, as the price of material progress.

A major step in civilization was the domestication of food plants. With the birth of organized agriculture and the resultant concentration of crops and animals, the stage was set for outbreaks of pests. Until that time man had to search for food as did the pests. Afterwards neither had to search; instead pest control became necessary. The welfare of an increasing human population requires intensified agriculture. This in turn enables the pests to increase, which necessitates the use of pesticides with their concomitant hazards. It thus seems inevitable that, as the population increases, so do certain hazards.

In an effort to understand and evaluate these problems, the Panel undertook a review of the information relevant to pesticides, including experimental data and the various administrative procedures which are designed for the protection of the public. The Panel could not have accomplished this review without the assistance it received from the Departments of Agriculture, Interior, Defense and Health, Education and Welfare, as well as from many individuals throughout the country.

The information provided to the Panel has demonstrated how remarkably effective the modern organic chemicals are 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 Panel believes 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.

Review of pesticides brings into focus their great merits while suggesting that there are apparent risks. This is the nature of the dilemma that confronts the nation. The Panel has attempted to state the case - the benefits, the hazards and the methods of controlling the hazards. It can suggest ways of avoiding or lessening the hazards, but in the end society must decide, and to do so it

must obtain adequate information on which to base its judgments. The decision is an unresolvable one which can never be final but must be constantly in flux as circumstances change and knowledge increases.

VI. RECOMMENDATIONS

The Panel's recommendations are directed to: an assessment of the levels of pesticides in man and his environment; to measures which will augment the safety of present practices; to needed research and the development of safer and more specific methods of pest control; to suggested amendments or public laws governing the use of pesticides; and to public education.

A. In order to determine current pesticide levels and their trends in man and his environment, it is recommended that the Department of Health, Education and Welfare:

1. Develop a comprehensive data gathering program so that the levels of pesticides can be determined in occupational workers, in individuals known to have been repeatedly exposed, and in a sample of the general population. As a minimum, the survey should include determinations on fat, brain, liver and reproductive organs in adults and infants; examinations to determine if placental transmission occurs; and determination of levels which may be excreted in human milk. These studies should use samples sufficiently large and properly drawn to obtain a clear understanding of the manner in which these chemicals are absorbed and distributed in the human body.

2. Cooperate with other departments to develop a continuing network to monitor residue levels in air, water, soil, man, wildlife and fish. Triennial diet studies on chlorinated hydrocarbons initiated by the Food and

Drug Administration should be expanded. These should, for example, include data on organophosphates, herbicides and the carbamates in populated areas where they are widely used.

3. Provide Federal funds to assist individual states to improve their capabilities for monitoring pesticide levels in foods which are produced and consumed within the state.

B. In order to augment the safety of present practices, it is recommended that:

1. The Food and Drug Administration proceed as rapidly as possible with its current review of residue tolerances, and the experimental studies on which they are based. When this review is completed, it is recommended that the Secretary of Health, Education and Welfare select a panel from nominations by the National Academy of Sciences to reevaluate toxicological data on presently used pesticides to determine which, if any, current residue tolerances should be altered. Of the commonly used chemicals attention should be directed first to heptachlor, methoxychlor, diazinon, aldrin, chlordane, lindane, and parathion because their tolerances were originally based upon data which are in particular need of review. Upholding the same standards, the Secretary should insure that new compounds proposed for registration be rigorously evaluated.

2. The existing Federal advisory and coordinating mechanisms be critically assessed and revised as necessary to provide clear assignments of responsibility for control of pesticide use. The Panel feels that the present mechanisms are inadequate and that it is necessary to provide on a continuing basis for:

- (k) Review of present and proposed Federal control and remediation programs to determine if, after consideration of benefits and risks, some programs should be modified or terminated.
- (l) Development and coordination of a monitoring program conducted by Federal agencies to obtain timely, systematic data on pesticide residues in the environment.
- (m) Coordination of the research programs of those Federal agencies concerned with pesticides.
- (n) Initiation of a broad educational program delineating the hazards of both recommended use and of the release of pesticides.
- (o) Review of pesticide uses and, after hazard evaluation, restriction or disapproval for use on a basis of "reasonable doubt" of safety.
- (p) A forum for appeal by interested parties.

3. The National Academy of Sciences-National Research Council be requested to study the technical issues involved in the concepts of "zero tolerance" and "no residue" with the purpose of suggesting legislative changes.

4. The Secretaries of Agriculture, Interior, and Health, Education and Welfare review and define their roles in the registration of pesticides that are not present on food, but that may impinge on fish and wildlife or come into intimate contact with the public.

5. The accretion of residues in the environment be controlled by orderly reduction in the use of persistent pesticides.

As a first step, the various agencies of the Federal Government might restrict wide scale use of persistent insecticides except for necessary control of disease vectors. The Federal agencies should exert their leadership to induce the states to take similar actions.

Elimination of the use of persistent toxic pesticides should be the goal.

C. Research Needs

1. In order to develop safer, more specific controls of pests, it is recommended that government sponsored programs continue to shift their emphasis from research on broad spectrum chemicals to provide more support for research on:

- a. Selectively toxic chemicals
- b. Non-persistent chemicals
- c. Selective methods of application
- d. Non-chemical control methods such as the use of attractants and the prevention of reproduction.

In the past few years, the Department of Agriculture has shifted its programs toward these specific controls. The Panel believes this trend should be continued and strengthened. Production of safer, more specific and less persistent pesticide chemicals is not an unreasonable goal; but its attainment will require extending research efforts beyond empirical approaches to more fundamental studies of subjects such as: the mode of action of pesticides; comparative toxicology; the metabolism of compounds in insects, plants, and higher animals; and the processes of chemical degradation and inactivation in nature. Such studies will also provide the information necessary to control those pests which are rapidly becoming resistant to currently available chemicals. Intensified effort is needed in

the search for selective methods of pesticide application. Compounds are often applied in excessive quantity or frequency because of such inefficiencies as drift, uneven coverage, or distribution methods insufficiently specific to reach the target pest.

2. Toxicity Studies Related to Man

The toxicity data upon which registrations and tolerances are based should be more complete and of higher quality. Although data are available on acute toxic effects to man, chronic effects are more readily demonstrated in animals because their generation time is shorter, and thus the natural history of pesticide effects is telescoped chronologically. However, there will continue to be uncertainty in the extrapolation from experimental animals to man, and in the prediction of the nature and frequency of effects in humans on the basis of those observed in other forms of life.

The Panel recommends that toxicity studies include determination of:

- a. Effects on reproduction through at least two generations in at least two species of warm-blooded animals. Observations should include effects on fertility, size and weight of litter, fetal mortality, term, toxicity, growth and development of sucklings and weanings.
- b. Chronic effects on organs of both immature and adult animals, with particular emphasis on hepatotoxicity and other effects common to the class of compounds of which the test substance is a member.
- c. Possible synergism and potentiation of effects of commonly used pesticides with such commonly used drugs as sedatives,

tranquilizers, analgesics, antihypertensive agents and steroid hormones, which are administered over prolonged periods.

3. Toxicity Studies Related to Wildlife

The Panel recommends expanded research and evaluation by the Department of the Interior of the toxic effects of pesticides on wild vertebrates and invertebrates.

The study of wildlife presents a unique opportunity to discover the effects on the food chain of which each animal is a part, and to determine possible pathways through which accumulated and, in some cases, magnified pesticide residues can find their way directly or indirectly to wildlife and to man.

4. Amplification of Research Resources

Only by stimulating training and basic investigation in the fields of toxicology and ecology are research needs likely to be met. An increased output of basic research data and a continuing supply of capable research personnel could be ensured by a system of grants and contracts. Training grants, basic research grants, and contracts to universities and other nongovernmental research agencies funded by the Departments of Agriculture, Interior, and Health, Education and Welfare would stimulate this research. In order to accelerate immediate progress, it might prove useful to explore the contributions which can be made by competent research people and their facilities in other countries.

5. In order to strengthen public laws on pesticides, it is recommended

that amendments to public laws be requested. These should:

1. Eliminate "Preempt" registrations.

The Panel concurs with the Department of Agriculture that these technically evade the intent of the public laws. Industry needs an appeal mechanism, however, to protect it from arbitrary decisions. Public hearings could be held on such appeals.

2. Require that every pesticide formulation carry its official registration number on the label.

The Department of Agriculture has recommended such an amendment as a means of increasing the protection of the consumer.

3. Clarify the intent of the Federal Insecticide, Fungicide, and Rodenticide Act to protect fish and wildlife by including them as useful vertebrates and invertebrates.

4. Provide, as a part of the operating budgets of Federal control and evaluation programs, funds to evaluate the efficiency of the programs and their effects on nontarget organisms in the environment. Results of these studies should be published promptly.

Approximately \$3 million dollars were allocated to pest control programs in 1964, but no funds were provided for concurrent field studies of effects on the environment. The Department of Agriculture has repeatedly suggested that other interested agencies participate in the control programs, but funds have not been available except by diversion from other

essential agency functions.

E. To enhance public awareness of pesticide benefits and hazards, it is recommended that:

The appropriate Federal departments and agencies initiate programs of public education describing the use and the toxic nature of pesticides. Public literature and the experiences of panel members indicate that, until the publication of "Silent Spring" by Rachel Carson, people were generally unaware of the toxicity of pesticides. The government should present this information to the public in a way that will make it aware of the dangers while recognizing the value of pesticides.