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## **PESTICIDES and WORK SAFETY**

Technology has enabled us to produce more and better food, but it has also been accompanied by increasingly complex problems. Fortunately, the University of California, as a large public institution for education and research, can marshal a wide range of scientists and scholars to deal with such technological problems.

For example, the Division of Agricultural Sciences is presently engaged in a multi-disciplinary research project to improve the pesticide safety regulations that protect agricultural workers. Better protection has become necessary since the banning of such pesticides as DDT, which were not very toxic to man, but were harmful because of their long persistence in the environment. To replace them, growers have turned for crop protection to another class of pesticides, the organophosphates, such as parathion. These are relatively short-lived, but are potentially more toxic to those who apply them or work in fields where they have been applied. And because these compounds are short-lived, they must be applied frequently.

The project—funded for four years by the National Institute of Health with a grant of over \$750,000—is designed to develop better criteria for setting the waiting period that must be observed between application of a pesticide and entry into a field by workers who will come into contact with the treated plants.

Researchers will study treated orchards and fields to determine (1) how much pesticide goes onto the plants or elsewhere in the environment; (2) what residues are left after various periods of time; and (3) what physiological effects,

if any, can be detected in workers who enter the fields after the official re-entry periods. This last task will be carried out by a research team of medical personnel directed by a physician from the Department of Community Health on the Davis campus.

The project fits into a broader research effort on the part of the university to learn more about the problems of worker exposure to pesticides. Earlier findings have helped establish the existing regulations for re-entry periods, which range from one day for short-lived, less toxic materials such as malathion, to a month or longer for heavy applications of highly toxic compounds such as ethyl parathion. The major goal of the new project is to provide new data that can be used by the State Department of Food and Agriculture and the State Department of Health and other regulatory agencies to evaluate existing re-entry periods and to set new ones where necessary.

Coordinated by scientists from the Food Protection and Toxicology Center, and staffed by others from the Department of Agricultural Engineering, the Department of Environmental Toxicology, and the U.C. Cooperative Extension, the project represents a truly multi-disciplinary effort which will provide more precise worker safeguards, at the same time that it will benefit growers by eliminating the time lost from unnecessarily long re-entry periods. This research program shows why universities are a unique and valuable public resource—only in such institutions can so many diverse professional competencies be assembled to help solve these complex problems.