

ENFORCEMENT OF THE FEDERAL PESTICIDE
LAW: AN ASSESSMENT OF
OREGON'S PROGRAM

by

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This thesis is an analysis of how the Plant Division of the Oregon Department of Agriculture (ODA) administers the enforcement provisions of the Federal Insecticide, Fungicide, and Rodenticide Act in Oregon. Based primarily on interviews with personnel at ODA and a detailed analysis of records, this study specifically describes (a) how potential violations are identified, (b) how investigations

are conducted, (c) which enforcement tools are used, (d) how many cases are initiated annually, (e) how long it takes to complete cases, and (f) how well the operations of the program are documented. This analysis revealed several significant problems, including (a) documentation omissions and inconsistencies resulting in inaccurate representation of the program's operation, (b) an extremely long time period between case initiation and completion, and (c) the majority of enforcement actions taken consisting solely of warning letters to the violator. The study concludes with recommendations for remedying the identified problems.

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CHAPTER I

INTRODUCTION

Pesticides which can contaminate the environment and cause adverse human health effects are used extensively in the United States, exposing all Americans on a regular basis through the air we breathe, the food we eat, and the water we drink. Therefore, the regulation of pesticides is of national importance. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 121 et. seq.) administered by the Environmental Protection Agency (EPA) governs the manufacture, distribution, classification, sale, and use of a broad category of substances designed to control pests. Under FIFRA most states have the authority to assume primary responsibility for the enforcement of pesticide regulations by entering into a Cooperative Agreement with EPA.

Many concerns about the regulatory approach taken by FIFRA have been voiced and are well documented; however, how state enforcement programs operate is a subject which deserves further study. For this reason, the purpose of this study is to investigate the pesticide enforcement program in Oregon. The Oregon Department of Agriculture (ODA) has primary responsibility for enforcement of the

regulations established under FIFRA and the Oregon Pesticide Control Act (ORS 634), which parallels the federal law in many ways. The goal of this thesis is to describe the operations, procedures, and accomplishments of the ODA Plant Division which administers the pesticide enforcement program. Specifically, the questions I sought to answer included the following: (a) How does the program identify potential violations? (b) What procedures does it use to conduct investigations? (c) How does it determine that a violation of law has occurred? (d) What are the various enforcement tools available to the program? (e) How long does it take to complete cases? (f) How well does it document its investigatory and decision-making processes?

In order to place Oregon's pesticide enforcement program within the national context, Chapter II provides background information on pesticide use and regulation. Chapter III describes the specific methods used to gather data for this study and Chapter IV presents the results. The last chapter identifies the study limitations and makes recommendations for the pesticide enforcement program in Oregon.

CHAPTER II

PESTICIDE USE AND REGULATION

This chapter provides background information on Oregon's pesticide enforcement program within the context of national pesticide use and control. The first section summarizes basic facts about the nature, development and use of pesticides on the national level. The second section details the development of federal pesticide regulation, in order to clarify how the law has evolved. Finally, Oregon's pesticide enforcement program is briefly described.

Use of Pesticides

Although a variety of methods for controlling pests in agriculture has been used for centuries, the discovery of the insecticidal properties of DDT in 1939 ushered in an era of heavy dependence on chemicals for pest control. Accurate and comprehensive data on agricultural and non-agricultural pesticide use are not available. However, Postel (1987) estimates that pesticide use in American agriculture nearly tripled during the past two decades alone (1965 to 1985). Pimentel and Levitan (1986) calculate that about 500 million kilograms (kg) of pesticides, primarily synthetic organic chemicals, are currently used in the United States each year

(approximately 60% are herbicides, 24% insecticides, and 16% fungicides). They further estimate that these 500 million kg are applied on approximately 150 million hectares, or 16% of the total area of the United States every year. Of the total pesticides applied, approximately 68% is applied by farmers, 11% by government and industry, 11% in and around the home, and 8% to forests. In addition to these synthetic organic pesticides, an estimated 500 million kg of creosote, petroleum, and coaltar products are used as biocides (i.e., a substance destructive to many different organisms) to preserve wood and other materials (Pimentel & Levitan, 1986).

Accurate data on use of pesticides in Oregon do not exist. However, a 1981 report from Oregon State University estimates that nearly 18,000 tons of pesticide active ingredient are used each year in the state (Oregon Department of Environmental Quality, 1988). Based on a survey of approximately 400 farms of various sizes in the state, the Oregon Agricultural Statistics Service (1988) estimates that the agriculture industry spent \$60.8 million dollars in 1987 on pesticides.

The term "pesticide" describes any chemical designed to control pests. Pests include a variety of unwanted agents, and a variety of pesticides have been developed in response to them: insecticides are used to kill insects; herbicides to kill weeds; rodenticides to kill rodents; fungicides to

prevent mold; acaricides to kill mites, ticks and spiders; and nematocides to control nematodes. In addition, pesticides are used for an assortment of other purposes, ranging from regulating the growth of apples to sterilizing equipment in hospitals.

Synthetic organic pesticides fall into three main chemical groups: chlorinated hydrocarbons, organic phosphates, and carbamates. Toxic metals (such as arsenic, lead and mercury) are a fourth group and are little used today. Still other pesticides fall into additional minor groups.

The prototypical chlorinated hydrocarbon is DDT (other examples include: dieldrin, endrin, aldrin, heptachlor, and chlordane). DDT became the most widely used of the earlier chemical insecticides, because it was cheap and easy to make. It was hailed as a means of eradication of insect-borne diseases and as the answer to the farmer's pest problems. However, chlorinated hydrocarbons are highly mobile in the environment. They are also highly persistent remaining active for a long time; as a result, chlorinated hydrocarbons accumulate in the soil and food chain. Furthermore, chlorinated hydrocarbons are fat soluble and can be stored in fatty tissue. The effects of long-term exposure to humans and other organisms are difficult to measure. Though most of this group of pesticides are no

longer used in the United States, they are still manufactured here and shipped for use in other nations.

Organophosphates (e.g., parathion, diazinon, and malathion) were discovered in Germany in the late 1930's through the search for nerve gas. Used primarily as insecticides, they destroy the cholinesterase enzyme in the nervous system, which regulates the body's secretions, breathing heart rate, muscular action and brain function (Doherty & Heumann, 1987). Carbamates (e.g., carbaryl and aldicarb) are used as insecticides, fungicides and nematocides. They have similar effects on the functioning of the nervous system to those of organophosphates. Although it has generally been thought that most organophosphates and carbamates are much less persistent than chlorinated hydrocarbons, some persist in the environment much longer than originally thought, making long-term effects on non-target organisms a serious concern (Dover, 1985). Both organophosphates and carbamates are more acutely toxic to humans than chlorinated hydrocarbons; therefore, they pose a greater immediate hazard, especially to farmworkers.

Federal Pesticide Regulation

The evolution of federal pesticide regulation since the beginning of this century reflects changes in the nature of public concern over pesticide use and distribution. The

original legislative scheme was designed to be "a 'truth in packaging law'...devoted to smoothing the flow of pest-control technology from the factory to the farm" (Bosso, 1987, p. 154). However, by 1970, public concern over health and environmental effects of pesticide use revealed many legal and procedural weaknesses in the law (Bosso, 1987), some of which have been the subject of repeated amendments to the original legislation.

Federal control of insecticides began with the Insecticide Act of 1910. The law prohibited the manufacture, sale, and transportation of misbranded or adulterated insecticides and fungicides in order to protect the farmer from improper practices by chemical manufacturers. A substance was considered adulterated if, in addition to killing insects, it was injurious to vegetation when applied (Grad, 1987).

This law was expanded with the passage of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in 1947. Originally administered by the U.S. Department of Agriculture (USDA), there was a conflict of interest within the agency, since it was responsible for both promoting increased food production using pesticides and regulating the sale of pesticides. This conflict was probably inevitable, given FIFRA's origins:

The 1947 act essentially was the product of close cooperation among members of the House Committee on Agriculture, mid-level personnel within the U.S. Department of Agriculture (USDA), and those

representing the major agricultural pesticide makers - a classic 'iron triangle'. (Bosso, 1987, p.10)

FIFRA extended the earlier Insecticide Act by including herbicides and rodenticides under the regulatory scheme, and in 1959 it was amended to include nematocides, plant regulators, defoliants, and desiccants in its definition of what it then termed "economic poisons." FIFRA attempted to control pesticides by establishing a registration process for economic poisons sold in interstate commerce. The Administrator had to approve the marketing of such products. Approval was given to products that were believed to justify the claims made by the applicant for registration. The Administrator could require changes in the submitted labels and refuse to register those substances believed to be harmful to humans, vertebrate animals and desirable plants. However, the process also allowed for the manufacturer to claim that the label did not need corrections and the Administrator was required then to register it "under protest" (Grad, 1987). Therefore, an Administrator's decision to require label changes or to refuse registration could not keep the product off the market.

The provision that required registration under protest was deleted in 1964 and was replaced with an administrative review procedure applicable to both the refusal to grant registration and to the cancellation of registration. This process was criticized as cumbersome and time consuming, so the Administrator was given the power to suspend a pesticide

immediately in order to prevent an "imminent hazard" to the public during cancellation proceedings. This would halt sale of a product and supposedly lead to an accelerated version of the administrative review procedure (Grad, 1987).

Although there was a slight shift in the emphasis of FIFRA from protection of the farmer and cattle grower against misbranded and adulterated pesticides to a more general concern for the safety of the public, the law still did not attempt to protect against adverse environmental impacts. With the 1962 publication of Silent Spring by Rachel Carson came an increased public concern about the ecological impacts of pesticide use. Due in large part to issues voiced by Carson and others, an intense battle was fought over the use of DDT and the need to reform the pesticide law (Bosso, 1987).

There was increasing scrutiny of the policies of USDA. In 1968, the General Accounting Office (GAO) published a report that was severely critical of USDA's registration and enforcement procedures. For example, it showed that no action had been taken against some 562 major violations of FIFRA in 1966 alone, and the Pesticide Regulation Division of USDA failed to report violators of FIFRA for prosecution during the thirteen years prior (Bosso, 1987). When the EPA was established in 1970, the administrative responsibilities for the pesticide law were given to the Administrator of the new agency through the Environmental Protection Agency

Reorganization Plan No. 3 in 1970 (Grad, 1987). This shift reflected Congressional discontent with USDA's enforcement (GAO, 1981).

It was not until the passage of the Federal Environmental Pesticide Control Act (FEPCA) in 1972 that FIFRA was amended to allow for the cancellation or rejection of a registration solely on the basis of "unreasonable adverse effects on the environment." This phrase is defined in Section 2(bb) of the Act to mean "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide" (7 U.S.C. 136(bb)). The law tightened the requirements for pesticide registration and expressly required a risk-benefit assessment for determining whether the risks imposed by a given pesticide are "unreasonable." Therefore, by law, EPA must balance the environmental risks of exposure to a given pesticide against the economic benefits of the pesticide to industries using, making, and selling it.

If EPA decides to cancel or alter a pesticide registration, "adversely affected" parties may request an administrative hearing and may appeal to the federal court system if dissatisfied with the hearing results. However, provisions allowing any citizen to sue to enforce the law (i.e., citizen suits), which were being included in the other major environmental legislation in the early 1970's,

were not included in FIFRA. Throughout the legal process, the pesticide remains on the market unless EPA finds that an "imminent hazard" exists. An administrative finding of "imminent hazard" which leads to suspension after expedited hearings is also defined as "unreasonable adverse effects on the environment" and, therefore, is also subject to risk/benefit assessment. If an emergency exists, the Administrator may issue an emergency order suspending the registration of a pesticide pending the completion of a suspension hearings.

As of 1972, FIFRA required that health and safety data be submitted to EPA during the registration process. Subsequently, all pesticides registered under the less stringent data requirements prior to 1972 became "conditionally registered" until sufficient data are submitted to and accepted by EPA to meet the new requirements (i.e., for reregistration). Derived from about 600 basic chemical ingredients, some 50,000 pesticide products are registered by EPA for use in the United States (GAO, 1986b). Few basic chemical ingredients have been fully tested under the new requirements for testing established under the FEPCA (GAO, 1986b; Weiss & McCauley, 1988). Pesticides that are used only for nonagricultural needs will be the last to be reassessed (see GAO [1986a] for a discussion of the risks associated with nonagricultural pesticides).

Another important provision of FEPCA was the requirement that EPA indemnify (i.e., compensate monetarily) all pesticide makers, sellers, and users possessing products adversely affected by agency regulatory decisions that limited the marketing of a registered product. The 1972 legislation also expanded the regulatory scheme to include all pesticides whether they were marketed in interstate commerce or not. Finally, the law established the requirement that chemical applicators (i.e., persons who apply pesticides to the land or food) be licensed.

The Federal Pesticide Act of 1978 further amended FIFRA, particularly with respect to the role of states in enforcement. Section 26 of FIFRA gives states primary enforcement responsibility over pesticide use violations. Section 27 gives EPA the ability to suspend a state's enforcement authority, if that state lacks the proper controls. It is the functioning of the enforcement program in Oregon which is the focus of this study, and further discussion of the state enforcement provisions will be presented below.

In 1988 FIFRA was once again amended. These most recent amendments require pesticide manufacturers to provide EPA with comprehensive test data on all pesticides within a short time period and it directs EPA to review these data quickly to assess whether stricter regulation is necessary. Manufacturers must pay fees to EPA for the evaluation costs,

which will make the cost of registration even more expensive. The tests for a typical pesticide cost between 5 and 6 million dollars (Bonine & McGarity, 1984). The other major change in the 1988 FIFRA amendments is that it transferred some of the indemnification responsibilities for banned pesticides away from EPA to the pesticide manufacturer. The storage and disposal costs are made the responsibility of manufacturers and distributors.

In summary, the basic framework of the law in its present form still embodies the original legislative scheme of regulation through the labels and registration of pesticide products. However, changes in the 1970's have created a system of registration based on risk-benefit assessment rather than on truth in packaging. In addition, labels must now be designed to ensure use of the product that precludes "unreasonable" risk to society and the environment, rather than simply accurately represent the product's intended action. Label violations are enforceable under the law.

Problems with FIFRA

The intent of the current version of FIFRA is to insure that the public and the environment are not exposed to an "unreasonable" risk posed by the application of pesticides. A risk's acceptability is to be determined by weighing the potential economic and other benefits of use against the

potential hazards (or costs); this represents the core of the FIFRA registration and cancellation process.

Unfortunately, weighing benefits against costs in any meaningful way is enormously difficult, and, of course, ultimately value laden. For example, risk analysis, a technique used to quantify the probability of harmful effects occurring from the application of a pesticide, requires many controversial assumptions and incorporates large and compounded uncertainties (O'Brien, 1988; Thorpe, 1988). Also, recent work in economics and psychology has shown that there are serious limitations with attempts to place dollar values on "non-market" goods, such as some of the "costs" of pesticide use (e.g., negative health effects from pesticide exposure) (Cummings, Brookshire & Schulze, 1986; Fischhoff & Cox, 1986; Fischhoff & Furby, 1988; Sagoff, 1988). Thus, implementation of FIFRA's benefit-cost framework is highly problematic.

A second problem with FIFRA concerns its effectiveness in protecting the public and the environment. Proper pesticide registration requires a label containing cautionary statements to prevent "unreasonable" human exposure or environmental harm. Thus, if registered pesticides are used and disposed of in a manner consistent with the label, "unreasonable" levels of human exposure and residues in the environment should not result. In addition, various limitations are placed on how certain highly toxic

products may be used. Such use limitations attempt to contain the risk and bring the product to acceptable levels by requiring, for example, that sprayers wear protective clothing (Wasserstrom & Wiles, 1985). Unfortunately, there is evidence to suggest that these provisions may not be effective.

First, our understanding of the health risks associated with pesticide exposure is limited. Any one pesticide may cause cancer, birth defects, genetic mutations, nerve damage, and/or other debilitating or lethal effects (Mott & Snyder, 1987). As discussed above, many pesticides have not been thoroughly studied. Moreover, there are serious scientific limitations to those studies which do exist (e.g., difficulties in assessing delayed effects or the impact of long-term exposure) (Tattersall, 1986; Wartenberg, 1988). Even if health risks were perfectly understood, pesticide labels display the degree of toxicity based on the immediate effects of a single large exposure; they do not take into account cumulative or delayed effects. There is the added problem of assuring that the application requirements are followed.

Secondly, pesticide products contain some 1,200 "inert" ingredients, some of which are banned pesticides and many of which are of toxicological concern (O'Brien, 1986). Inert ingredients are not subjected to the testing requirements of "active ingredients." The identity of the inert ingredients

in a pesticide formulation is not available to the public and is protected as "confidential."

Third, farmworkers in particular appear to suffer from inadequate protection, undoubtedly because they bear the greatest risk of both acute and chronic exposure to pesticides (Wasserstrom & Wiles, 1985). One estimate states that perhaps in each year some 313,000 U.S. farmworkers suffer the acute effects of pesticide-related illnesses (Wasserstrom & Wiles, 1985). However, accurate data on the frequency of acute poisoning have not been compiled, and an unknown number of people endure chronic effects.

Fourth, there is evidence that all of us are exposed to pesticides in our homes and workplaces through the air we breathe, the water we drink, and the food we eat. Pimentel and Levitan (1986) have shown that often less than 0.1% of those pesticides applied to crops actually reaches target pests. Over 99% moves directly into the environment to contaminate the land, air, and water. Although the precise extent of pesticide residues on food is unknown, between 1982 and 1985 the Federal Food and Drug Administration (FDA) detected residues in 48 percent of the most regularly consumed fruits and vegetables. Mott and Snyder (1987) characterize this estimate as probably understating the pesticide residues in food, because "about half of the pesticides applied to food cannot be detected by FDA's

routine laboratory methods, and FDA samples less than one percent of our food" (p. 6-7).

Another example of environmental degradation caused by pesticide use is the contamination of groundwater. This valuable resource, the source of drinking water for over one half of the U.S. population, was once considered invulnerable to pollution (Smith, 1987). There is generally a lack of knowledge about groundwater contamination; however, pesticides have been detected in groundwater throughout much of the United States in recent years. EPA reported in 1987 that 19 pesticides contaminate groundwater in 24 states; however, new data reveal that the total number of pesticide contaminants in groundwater is now at least two or three times higher (Mott, 1988). A limited study done by the Oregon Department of Environmental Quality to assess groundwater contamination from pesticides and fertilizers sampled 216 wells for 15 to 25 pesticides (depending on the site) and confirmed pesticides in 32 wells (Pettit, 1987). Five wells contained levels of pesticides above a health advisory level. Despite efforts to include provisions to protect groundwater in the 1988 amendments of FIFRA, the law does not guard against groundwater contamination from pesticides (Mott, 1988). Many states, including Oregon, are creating legislation to address this problem.

This brief review is intended to highlight some of the shortcomings of the pesticide regulatory framework. These

environmental and human health problems may be a result of many factors and, therefore, may involve a variety of solutions. In order to identify those solutions it is important to understand how pesticide control currently is implemented. One critical aspect of the regulatory framework implementation which has been inadequately studied is the enforcement of pesticide use regulations at the state level. As the General Accounting Office noted in 1981:

...pesticide enforcement is a key factor in assuring that the public and the environment are not unnecessarily exposed to hazardous pesticides. While laws governing pesticides are important, the public and the environment will be protected from pesticides only if these laws are enforced. The assumption is that an energetic strong enforcement program, fairly but firmly administered, is the best guarantee. An effective enforcement program will also generate a deterrent impact and contribute to less pesticide misuse. (p.5)

State Enforcement of FIFRA

The discussion of FIFRA thus far has focused on how the law operates at the federal level. Generally, at the state level efforts are concentrated on enforcing restrictions on pesticide use and carrying out various priorities set by EPA and the state. This section looks at what is known about state programs nationwide.

The 1978 amendments gave EPA the power to enter into agreements with individual states and Indian tribes to delegate primary enforcement responsibility (primacy) for FIFRA (Section 26). If a state was found to have adopted the proper laws and regulations, then it could carry out the

inspection and enforcement activities once done by EPA. Usually states also carry out programs for the certification of private and commercial pesticide applicators. States are permitted to approve under Section 24(c) additional uses of federally registered pesticides within their own jurisdictions to meet identified "special local needs", if that use has not previously been disapproved, denied, or cancelled by EPA. Section 18 allows federal or state agencies to grant emergency exemptions allowing the use of suspended, cancelled, or unregistered pesticides if emergency conditions exist (e.g., a pest outbreak).

Under Section 23 of the Act, EPA and states can enter into a "Cooperative Agreement" delegating specific responsibilities to and granting partial funding for state programs. EPA establishes enforcement guidelines, and monitors and evaluates the quality of the state programs within the context of the Cooperative Agreement. The law (Section 27) also provides that EPA may rescind a state's primary enforcement responsibility if the program fails to assure enforcement of the pesticide use regulations.

When provisions were made in the law for state primacy, Congress did not specify what type of state agency should be given the authority. Most governors have given that authority to their state agriculture departments. This occurred despite the fact that Congress had deliberately taken authority over FIFRA away from the USDA because of

concerns about conflicting interests within that federal agency. Some states (e.g., New York) gave that authority to their environmental protection agencies. In Nebraska, Colorado, and Wyoming no primary enforcement responsibility was delegated, thus EPA is responsible for enforcing federal pesticide law in these states (Wasserstrom & Wiles, 1985).

Nationwide, there has been little assessment independent of EPA of how state enforcement programs are working. One of the few studies was conducted by the General Accounting Office (GAO) in 1981. It reviewed the enforcement programs of six regional EPA offices and of eleven states for the period 1975 to 1980. Of the 2,855 cases reviewed "questionable enforcement actions" (p.10) were taken in 17 percent of the cases. In some programs only 5 percent of the cases were questionable, in others up to 80 percent. Questionable actions were considered to be those where "no action was taken in response to a violation or if only a warning letter was issued in a case involving a serious violation" (p.10). GAO concluded that such questionable enforcement actions did not create an effective deterrent to ensure compliance with the pesticide laws. GAO also found that states often failed to apply acceptable standards when carrying out their investigations and that EPA monitoring of state programs was careless. GAO attributed the lack of adequate enforcement to the fact that state departments of agriculture tend to have a different

approach and view of pesticide control than does EPA.

More recent evidence suggests that the pesticide enforcement programs may not have improved much since the GAO study. The following information was gathered from EPA sources and reported by Wasserstrom and Wiles (1985) of the World Resources Institute. The total number of state actions remained approximately the same from 1981 to 1983 (around 6,500), but enforcement patterns shifted away from more severe measures (such as suspension or revocation of applicator licenses) to a dramatic increase in hearings, cease-and-desist orders, and warning letters. Between 1981 and 1983 there was a 51% decrease in the number of civil actions taken, a 43% decrease in criminal actions taken, a 17% decrease in the suspension of applicator licenses, a 92% decrease in the revocation of licenses, and a 60% decrease in the number of cases referred to EPA.

Oregon's Pesticide Enforcement Program

Within the State of Oregon there are various programs administered by several different agencies (ranging from worker exposure to contamination of public drinking water) relating to pesticides.

The overall objectives of these programs are to protect pesticide users, workers and the general public, as well as the environment, from adverse effects of pesticides, and to maintain pesticides as a tool for use in producing agricultural and forest crops, and protecting human and animal health, food supplies and structures from the adverse effects of pests (Oregon Department of Agriculture, 1988b, p. 1).

The program of particular interest to this study focuses on enforcement of FIFRA and is housed in the Oregon State Department of Agriculture (ODA). Within the Plant Division of ODA, the pesticide enforcement program operates not only under FIFRA through a Cooperative Agreement with EPA, but also under the authority of the Oregon Pesticide Control Act (ORS 634.006 et seq.) and its accompanying regulations (OAR 603 - Division 57). The content and intent of the federal and state laws are essentially the same; therefore, they basically function as if they were one. Every pesticide must be registered with the state each year and a complete formula of the pesticide must be included in the registration. ODA can restrict pesticide use, refuse to register a pesticide, and approve pesticides for experimental purposes.

The Oregon Pesticide Control Act requires the training and licensing of pesticide consultants, dealers, operators and applicators by ODA. Pesticide operators must prove that they can assume the financial responsibility for liability insurance (a minimum of \$25,000 for bodily injury to one or more persons, and a minimum of \$25,000 for property damage). The Act establishes a procedure for persons wishing to bring liability claims against a pesticide operator for alleged damage (ORS 634.172). This procedure, which is unique to Oregon, is commonly referred to as a "report of loss."

There has been no general study of how Oregon's program

performs. The objective of the present project was to fill this gap by gathering and analyzing some basic information on how the program currently functions. The following chapter identifies the specific questions which I sought to answer and details the methods used to address them.

CHAPTER III

METHODS

My methods of data collection for this study were designed to answer the following specific questions regarding the operation of the pesticide enforcement program in the Plant Division at ODA:

1. How does the program identify violations to be investigated?
2. What is the general procedure by which investigations are conducted?
3. Once an investigation is complete, what process is used to determine if there has been a violation of the law?
4. What are the various enforcement actions available to the agency, how is it determined which one will be taken, and what is their relative frequency of use?
5. How much time elapses between the initiation of an investigation and the completion of the case?
6. How well are the enforcement program's procedures and decisions documented?

The methods used to answer these questions involved (a) interviews with key personnel and persons knowledgeable about the enforcement of FIFRA, and (b) a review of documents pertinent to ODA's pesticide enforcement program.

This chapter provides a detailed description of how the interviews were conducted and with whom. It also presents a description of the documents reviewed and methods used for analyzing certain statistical data in order to clarify the basis for the findings described in Chapter IV.

Interviews

This section describes persons I contacted for information or interviewed and how these interviews were carried out. The organizational chart presented in Figure 1 depicts the structure of ODA as it applies to the pesticide enforcement program. I interviewed four staff from the Plant Division, all of whom are directly involved in the daily operation of the pesticide enforcement program: the Administrator of the Plant Division; the Supervisor of the Pesticide, Feed and Fertilizer Programs; and two of the four Agricultural Chemical Investigators. I also interviewed the Oregon Project Officer, Pesticides Section, EPA Region 10. Since my main goal was to describe how the program functions, I did not interview people at higher levels of administration at ODA or EPA, because they are relatively less involved in the pesticide enforcement program.

The Investigators conduct all field investigations of pesticide application, chemical applicator record-keeping, chemical manufacturing plants, and marketplaces for compliance with state and federal laws and regulations.

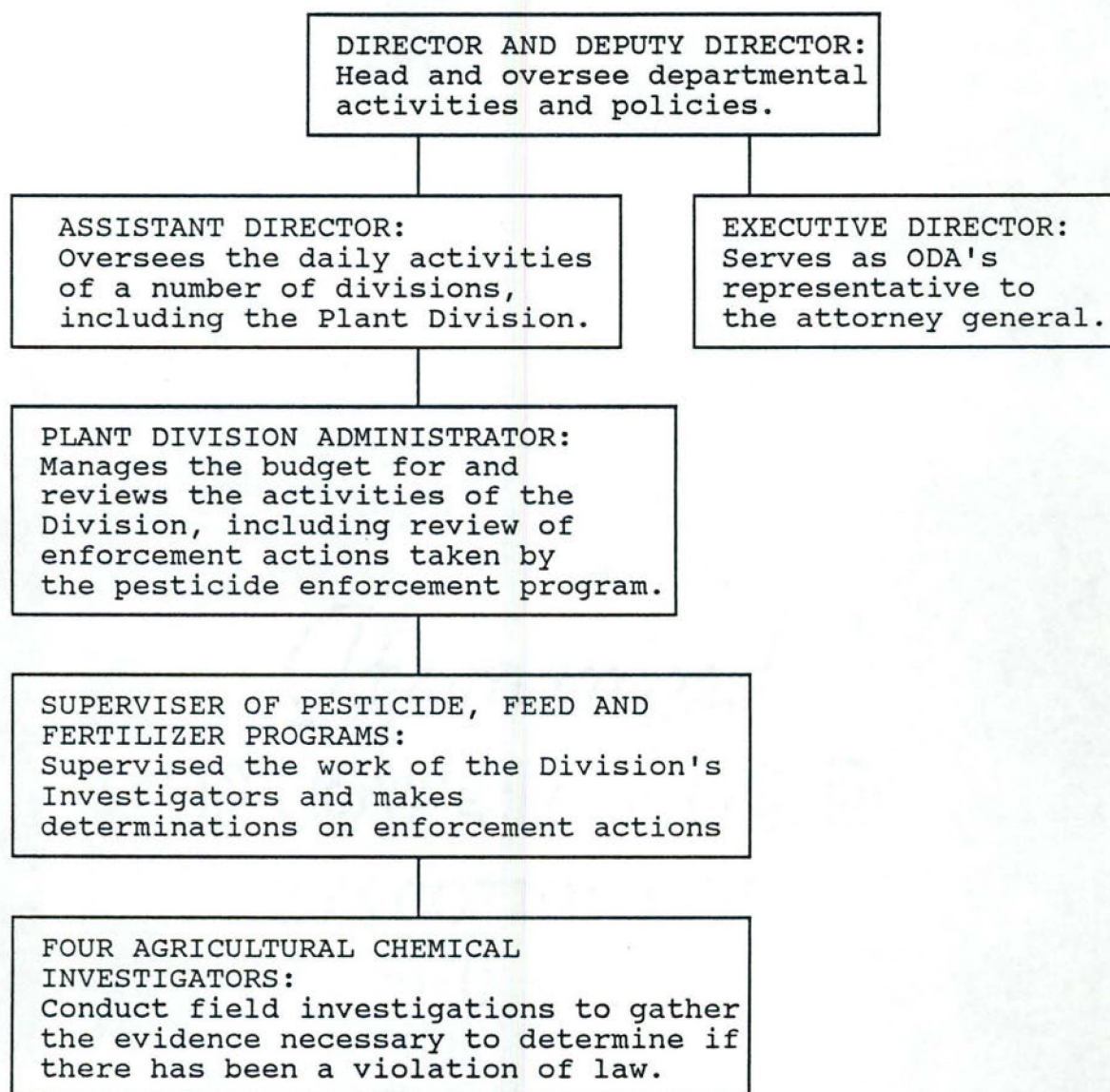


FIGURE 1. The positions within the Oregon Department of Agriculture as they relate to the operation of the pesticide enforcement program. Note: From Oregon Department of Agriculture, Plant Division. (1988a). Biennial report 1987-1988. Salem, OR: Author.

After all the evidence is gathered, the Investigators give their report to the Supervisor of the Pesticide, Feed and Programs who is responsible for making the determination about whether an enforcement action will be taken. The Supervisor communicates regularly with the Oregon Project Officer from EPA Region 10, who oversees Oregon's Cooperative Agreement with EPA and to whom certain cases from ODA are referred for enforcement action. The Administrator of the Plant Division maintains surveillance over the daily and financial activities of the enforcement program, as well as reviewing the decisions made on enforcement actions.

Each interview with the four ODA staff took from one to three hours. I kept detailed notes on all the interviews conducted. Since it is not important to the purpose of this study that the identity of the interviewees be revealed and several of them were guaranteed anonymity, in the results section I refer to interviewees by numbers which I have assigned to them. All of the interviewees were extremely cooperative.

The exact questions posed to each individual varied slightly on the basis of their particular role in the enforcement process. However, each interview was based on the following general set of questions:

1. What is your role in the program?
2. What prompts an investigation of the various types?

3. When a complaint comes in, to whom is it referred?
4. Is there a record of all people who call to voice a complaint? If not, what percentage of the total number of complaints would you estimate are investigated?
5. How is it decided that an investigation will be initiated? Are there criteria for the decision, and how is the process documented?
6. How are investigations carried out?
7. How well do you think the program identifies violations?
8. What is the process by which it is decided what type of enforcement action will be taken when a violation has been confirmed? Is the process documented? How is the Enforcement Response Policy outlined in the Cooperative Agreement used?
9. After an action is taken, does the agency follow up to see if the violator has fixed the problem?
10. What, if any, enforcement tools do you wish your program had available to it?

My questions to EPA's Oregon Project Officer were tailored to his oversight role. Basically, I asked him to describe his impressions of: (a) the strengths and weaknesses of Oregon's pesticide enforcement program, (b) the priorities set by EPA for the states to carry out, (c) the effectiveness of various enforcement tools, and (d)

EPA's process for handling cases which Oregon refers to EPA for enforcement action.

In addition to the interviews described above, I communicated more briefly with people in the following positions at EPA Region 10 in Seattle, Washington: the Chief, Pesticides Section; the Assistant Regional Counsel; and an Environmental Protection Specialist who works on pesticide registration. I spoke with two people from other states to get a perspective on how other programs operate: the Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law; and the Supervisor of the Agricultural Chemicals Branch at the State of Washington Department of Agriculture.

One additional experience which gave me a general understanding of the perspectives and goals of the various agencies was attending one day of a "Chemical Applicator's Short Course" (Jan. 18, 1989) which is a course designed for the recertification of chemical applicators. There were three presentations on the topic of "Enforcement of Pesticide Rules and Regulations" by people in the following positions: Agricultural Chemical Specialists from both the Oregon and Washington Departments of Agriculture, and the Chief, Pesticides and Toxic Substances Branch, EPA Region 10.

Review of Documents

The second major source of information for this study was various documents pertinent to implementation of the enforcement program. These included ODA records, statistical summaries provided by ODA, and U.S. government documents describing the Cooperative Agreement between EPA and ODA. How these documents were used and interpreted is detailed below.

The nature of the records available from ODA played a role in the methodology used in this study. First, ODA records summarizing basic information about each case investigated from initiation to completion are kept on a federal fiscal year (FY) basis (i.e., October to September). Given that the most recently completed year is 1988, I focused on ODA's records for that year. To provide a more complete picture, comparable information from several previous years was also gathered; however, it was not my intention to present an analysis of trends over time. Because there were changes in both program administration and record-keeping format between FY 85 and FY 86, this meant information obtained for years prior to FY 88 was for the most part limited to FY 86 and FY 87.

For FY 88, the case summary records available consisted of the Investigations Summary Log and the Enforcement Actions Summary Log. A sample of each of these forms is

presented in Figures 2 and 3, respectively. Each of these logs was also available for FY 87. For FY 86, the Investigations Summary Log was available; however, the Plant Division was unable to provide an Enforcement Actions Summary Log for that year.

Results derived from the data on these forms will be presented in Chapter IV. Because there were occasionally missing data, contradictory data, and other potential points of confusion, the following explains the methods used for calculating each of the eight principal values presented in Chapter IV.

1. The number of cases initiated in a given year.

This was calculated by counting the total number of different log number entries in column one of the Investigations Summary Log. Each case is given a six-digit log number, the first two numbers of which indicate the year within which the cases were initiated (e.g., log number 881078 would have been initiated in FY 88).

2. The number of cases of each type initiated in a given year. Each investigation is categorized by ODA into one of ten categories. The number of cases for each type of investigation was determined by counting the occurrences of each respective type code in column two of the Investigations Summary Log.

3. The number of violations found in FY 88 by type of investigation. First, each case listed on the FY 88

OREGON DEPARTMENT OF AGRICULTURE
PLANT DIVISION

PESTICIDE INVESTIGATIONS
SUMMARY LOG

Log Number	Type	Initiated	Case Name	Investi- gator	Samples	Related Cases

FIGURE 2. An example of the form used to record investigations initiated in a given year. Note: From Oregon Department of Agriculture, Plant Division. (1988b). Cooperative Agreement for FY 89. Salem, OR: Author.

OREGON DEPARTMENT OF AGRICULTURE
PLANT DIVISION

PESTICIDE ENFORCEMENT ACTIONS
SUMMARY LOG

Log Number	Reviewed (date)	Violations (yes/no)	Violator	History (yes/no)	Action (code)	Completed (date)

FIGURE 3. An example of the form used to record enforcement actions taken in a given year. Note: From Oregon Department of Agriculture, Plant Division. (1988b). Cooperative Agreement for FY 89. Salem, OR: Author.

Enforcement Actions Summary Log was located on its corresponding Investigations Summary Log and its investigation type was recorded on the Enforcement Actions Summary Log. On the latter, the number of unique log number (column one) - violator (column four) combinations with a "yes" entry for violations (column three) were counted separately by investigation type. The only exception was when one violator had two log numbers on the same entry line; then only one violation was tallied. A "yes" was also tallied for unique log number - violator combinations with a blank for violations (column three) when an enforcement action, other than EPA referral, was recorded in column six. Where there was a blank for violations (column three) and the case had been referred to EPA for action (column six), no decision was made by ODA confirming or denying a violation had occurred. Thus, these cases were not counted as violations and are treated separately in the results section.

4. The total number of enforcement actions taken in a given year. This was determined by counting the number of entries for actions (column six) on the Enforcement Actions Summary Log. More than one action is sometimes taken for a single log number (case).

5. The number of enforcement actions of each type taken in a given year. This was calculated by counting the number of occurrences of each respective type code for

actions (column six) on the Enforcement Actions Summary Log. The codes in this column each represent a different type of action taken.

6. The number of cases initiated in FY 87 which have been completed as of the end of FY 88 by type of investigation. First, each FY 87 log number on the Enforcement Actions Summary Logs for FY 87 and FY 88 was located on the Investigations Summary Log for FY 87. Its investigation type was then recorded on the Enforcement Actions Summary Logs. Since the log number (column one) of each case identifies the year within which the investigation occurred, I counted the number of FY 87 cases entered on the Enforcement Actions Summary Logs from FY 87 and FY 88 separately by type.

7. The number of cases initiated in a given year for which an action was taken. For each of FY 87 and FY 88, I counted the number of cases for which an action was coded in column six of the Enforcement Actions Summary Logs.

8. The number of cases completed in a given year that were referred to EPA. This was calculated by summing action codes indicating referral to EPA in column six of the Enforcement Actions Summary Log for a given year.

In addition to the records described above which provide information on individual cases, I obtained from ODA and consulted the following statistical summary tables:

1. The Pesticides Enforcement Cooperative Agreement

Quarterly Accomplishment Report to EPA from the pesticide enforcement program for FY 88.

2. The FY 86 FIFRA Enforcement Agreement Report.

3. A summary of the number of investigations and enforcement actions taken during FY 86, FY 87, and FY 88 pertaining to pesticide product registration, distribution and use prepared by the Plant Division for use in the 1989 Oregon Legislature.

4. A list of cases referred to the local district attorney for violations of the Oregon Pesticide Control Act from 1986 to the present, prepared by the Plant Division for the 1989 Oregon Legislature.

5. A list of the number and types of licenses issued by the Plant Division as of September, 1988.

I have obtained and reviewed documents provided by the Region 10 office of EPA which provide information on how the Cooperative Agreement between EPA and ODA operates:

1. The FIFRA Compliance Cooperative Agreement Guidance for FY 89 which outlines the priorities and regulations regarding such agreements as set by the headquarters of EPA in Washington, D.C..

2. The FY 88 FIFRA Enforcement Cooperative Agreement.

3. The FY 89 FIFRA Enforcement Cooperative Agreement.

4. The 1988 Oregon Pesticide Enforcement Cooperative Agreement End-of-year Review and Mid-year Review.

CHAPTER IV

RESULTS AND DISCUSSION

Although this study is specifically concerned with the enforcement of FIFRA at the state level, there is little that differentiates the federal law from the Oregon Pesticide Control Act in content and intent. To avoid duplication of effort and funding, the pesticide enforcement program within the Plant Division of ODA administers both the state and federal law; therefore, activities undertaken by the program will be discussed as a whole.

This chapter presents and discusses the findings of this study. The context within which the pesticide enforcement program at ODA operates, the Cooperative Agreement with the Region 10 office of EPA, is described in the first section. This includes funding of the program, priority setting, and projections for and descriptions of the investigations conducted. Second, the mechanisms used to identify potential violations are explained and the figures on the size of the regulated community in Oregon are discussed. Third, the numbers of investigations conducted are presented. Fourth, the investigation procedure and methods of evidence gathering are explained. Fifth, a presentation of enforcement actions available and their

frequency of use provides the context for the analysis of cases completed. Lastly, some of the problems in record keeping and documentation at the pesticide program are described. The final chapter will provide further discussion of the findings of this study within the context of conclusions and recommendations for change.

The Cooperative Agreement with EPA

The Cooperative Agreement between the Region 10 office of EPA and the Plant Division at ODA provides the specific context for enforcement of FIFRA in Oregon and defines the expectations of the two agencies. The agreement, which is renegotiated for each fiscal year, outlines the essential elements of the pesticide enforcement program, including financial statements; the priorities of EPA and how the program proposes to handle them; and a description of and projections for field investigations, laboratory procedures, and enforcement actions. The Headquarters of EPA (1988a) has also produced a document, "FIFRA Compliance Cooperative Agreement Guidance for FY 89," which supplements the federal regulations governing such agreements. The Guidance outlines the responsibilities of the Regional Offices and of the states and includes the priorities set by the Headquarters of EPA to be addressed through the Cooperative Agreement (EPA, 1988a).

The pesticide enforcement program in Oregon is funded

by both federal and state funds. In FY 88, thirty-five percent of the pesticide enforcement program's budget of \$495,026 came from EPA, and EPA will provide twenty-six percent of the \$471,064 budget of FY 89 (Oregon Department of Agriculture, 1987, 1988b). ODA receives funding from EPA for a given fiscal year to meet a set of projections established in the Cooperative Agreement. EPA accepts some of the program's activities which fall under state law as partial fulfillment of the program's responsibilities outlined in the Cooperative Agreement. When the federal money is exhausted, state funds are used. Within the budget for state agencies in Oregon, the pesticide enforcement program is considered an "other funds" supported program, because it does not receive funds from the General Fund. In addition to EPA money, funding for the pesticide program is appropriated from the Department of Agriculture Service Fund which receives the money from all license and service fees paid to the Department (ORS 561.144; ORS 634.326).

Ten types of investigations constituting the core of the enforcement process are defined in Appendix V of EPA's Guidance document (EPA, 1988a) and in the Cooperative Agreement. The procedures for conducting and documenting each of these investigation types are listed in the "Pesticide Investigative Activities Procedures and Written Materials/Forms Summary" in the Cooperative Agreement for FY 89 (Oregon Department of Agriculture, 1988b). Although no

attempt made in this study to assess how well investigations are actually carried out in the field, it is critical to the rest of the analysis to understand the types of investigations. In all of these ten investigation types, a sample may be collected, photographs taken, and/or signed statements obtained:

Agricultural Use Observation (AUO). The investigators observe the application of a pesticide where an agricultural commodity is produced. Investigators look to see what pesticide products are used, and how they are mixed, loaded and applied.

Agricultural Use Followup Investigation (AUF). These investigations are done after a pesticide application in an agricultural setting has been made to ascertain if the application was done correctly. The investigators look for and gather evidence of a potential violation of the law (e.g., misuse).

Nonagricultural Use Observation (NUO). This is the same as an agricultural use observation except it is conducted in a nonagricultural setting.

Nonagricultural Use Followup Investigation (NUF). This is the same as the agricultural use followup investigation except it is conducted in a nonagricultural setting.

Experimental Use Permit (EUP) Investigations.
Experimental Use Permits are granted to pesticide manufacturers by the Headquarters of EPA under Section 5 of

FIFRA and allow for the experimental use of an unregistered pesticide (7 U.S.C. 136c). EUP investigations involve obtaining a copy of the label and gathering information on use and crop disposal. They may also involve the actual observation of an application.

Producer Establishment Investigations (PEI). As defined in FIFRA, a "producer" means the "person who manufactures, prepares, compounds, propagates, or processes any pesticide or device or active ingredient used in producing a pesticide" (7 U.S.C. 136(w)). These inspections of producer establishments involve a review of the following: annual report, records, product labelling, technical product, storage procedures, disposal procedures, child resistant packaging, and devices.

Marketplace Investigations (MPI). Any place which sells pesticides (including the local supermarket) is a marketplace which may be inspected for the following: proper product labelling, restricted use pesticides, shipping/receiving records, and child resistant packaging.

Import Investigations (II). An import inspection is an inspection of a product being imported into the United States to determine whether it is in compliance with FIFRA. A copy of records may be obtained.

Certified Applicator Record Investigation (ARI). Through the review of application records, the investigators look to see if records are kept in compliance with the law

and if pesticide-related licensing requirements are met.

Restricted-Use Pesticide Dealer Record Investigations (DRI). Outlets which sell restricted-use pesticides are inspected to determine if the dealers are properly licensed, if records are maintained correctly, and if the records indicate that the dealer is only selling to certified applicators (i.e., those who are authorized to apply restricted-use pesticides).

The following investigation types should be conducted in accordance with the EPA Pesticides Inspection Manual, because they are done primarily under the authority of FIFRA: experimental use permit, marketplace, producer establishment and import. The rest of the investigations are conducted under authority of ORS/OAR, but they may still identify violations of federal law.

There are two additional types of investigations conducted by the pesticide enforcement program which are unique to Oregon law:

Pesticide Analytical and Response Center (PARC) Investigations. PARC is a non-regulatory, multi-agency program which is set up to investigate illnesses that could have been caused by pesticide exposure. The pesticide enforcement program acts as a fact gatherer for PARC. If appropriate, the investigator observes and identifies possible damage and maps the affected area.

Report of Loss (ROL) Investigations. The liability

claims procedure set out in ORS 634.172 states that no liability action may be taken against a pesticide operator arising out of the use of a pesticide unless a report of loss has been filed with the pesticide enforcement program. An ROL investigation may examine and determine the extent and nature of the damage; however, the source or cause of the damage and the financial extent of the loss shall not be determined by the investigator.

EPA's Guidance document identifies the top national pesticide enforcement priorities (areas of concern) which the work programs of the state agencies should address in FY 89. These priorities are established by analyzing major recurring areas of concern identified by states and related information from other sources. The top national priority is "Cancellation Compliance Inspections" defined in the Guidance as:

Inspections to assure compliance with major pesticide regulatory actions within one year after the effective date of the action, or sooner if specified in a specific strategy. Inspections for compliance with major pesticide regulatory actions include but are not limited to:

- 1) Major cancellation actions;
- 2) All suspensions under FIFRA (Section 6);
- 3) Changes in a pesticide products classification to restrict its sale, distribution and/or use; and
- 4) Stop sale, use, or removal orders issued for suspensions under FIFRA (Section) 3(c)(2)(B) (EPA, 1988, p.5-6).

Other priority areas identified by EPA are not ranked, but include:

- Compliance with the endangered species requirements;
- Drift from pesticide application;
- Pesticide misuse by pest control operators during structural applications;
- Disposal of pesticides and pesticide containers;
- Pesticide use problems associated with major spray programs;
- Worker exposure to pesticides before, during and after application;
- Enforcement against the illegal sale of restricted use pesticides to uncertified applicators;
- Enforcement against illegal sale or use of recently suspended or cancelled pesticides; and
- Enforcement against pesticide misuse that could result in pesticide contamination of groundwater (EPA, 1988, p.6).

In the Cooperative Agreement for FY 89, the pesticide enforcement program proposed to address these priorities through the twelve investigation types listed above, including PARC and ROL investigations. However, the enforcement program does not refer to these priorities other than in the Cooperative Agreement and it is difficult to assess whether or not these priorities are given the kind of attention which EPA would like to see. The focus of the program is on the investigation types. The program expressed its reluctance to prioritize its own activities in the Cooperative Agreement claiming that it investigates "all alleged pesticide misuse situations and inappropriate

pesticide distribution situations brought to its attention;" however, the investigative activities were ranked "in general terms" as follows (Oregon Department of Agriculture, 1988b):

1. PARC investigations.
2. Report Of Loss investigations.
3. Investigations of other specific public concerns.
4. Intra-departmental referrals.
5. EPA referrals.
6. Referrals from other state agencies.
7. Followups to other investigations.
8. Routine investigations as detailed in EPA agreement.
9. Routine investigations as detailed in ORS.
10. Other investigations. (Oregon Department of Agriculture, 1988b, p. 6-7)

In the Cooperative Agreement, the program projects the number of investigations of each type that will be carried out in the coming fiscal year. Table 1 presents the projections made in the Cooperative Agreement for FY 88 of investigations to be conducted and the samples to be collected by the program for that year. Because funding comes from both EPA and the state as described above, the projections to be completed under the Cooperative Agreement can be met almost exactly because investigations and samples are logged as EPA funded until the projected numbers are reached and then accounting switches to state funds.

Having discussed the Cooperative Agreement between EPA and the pesticide enforcement program, some important points about the context within which the program operates have emerged. First, the allocation of funding from EPA is supplemented by state funds. Secondly, all investigations

TABLE 1. Projections for FY 88: Investigations to Be Conducted and Samples to Be Collected

INVESTIGATION TYPE	PROJECTED INVESTIGATION	PROJECTED SAMPLES
Agricultural use observation	10	0
Agricultural use followup	46	138
Nonagricultural use observation	10	0
Nonagricultural use followup	21	42
Experimental use permit	4	0
Producer establishment	25	20
Marketplace	20	5
Imports	2	2
Applicator records	60	0
Dealer records	59	0
TOTAL	257	207

Note: From Oregon Department of Agriculture, Plant Division. (1988b). Cooperative Agreement for FY 89. Salem, OR: Author.

fall into one of twelve types described above. These types are important for understanding how the program operates and the reader may need to refer to their definitions when going through the following sections. Thirdly, from the viewpoint of the program the priorities set in EPA Headquarters Guidance document are addressed using the existing investigation types (and apparently Region 10 of EPA concurs since it approves and negotiates the Cooperative Agreement). Finally, the Cooperative Agreement includes projections of the activities for the coming year.

Identification of Potential Violations for Investigation

The investigations which the pesticide enforcement program conducts are usually brought to its attention by outside sources. Investigations are triggered through complaints, referrals from EPA, and referrals from other agencies.

Complaints. When a citizen (e.g., a neighbor) voices concern about a pesticide misuse to the program, the Supervisor generally makes the decision about whether or not to investigate. There is no log kept by the program to record all of the complaints that come in; therefore, there is no way of knowing why specific cases are not investigated and what percentage of all complaints are actually investigated. Some complaints are not investigated, because the program views them as "nebulous" (Interviewee #1).

There are no clear criteria that form the basis for a decision about whether or not to investigate; however, an assessment is generally made based on the type and amount of information the complainant can provide (e.g., how much time has elapsed since the spraying occurred). Complaints generally initiate any of the following types of investigations: agricultural use observation, agricultural use followup, nonagricultural use observation, nonagricultural use followup, report of loss, marketplace investigations and licensing requirements

EPA Referrals. The Region 10 office of EPA refers the following types of investigations to the pesticide enforcement program: experimental use permit, producer establishment, marketplace, and import investigations. The numbers and specifics on these types may be negotiated between the two agencies.

Other Agency Referrals. The U.S. Food and Drug Administration and the Food and Dairy Division of ODA may refer cases if they suspect that a pesticide residue exceeds the established tolerance level. PARC also refers cases for fact-gathering.

Of course, many of the investigation types may lead to another type of investigation. For example, an investigator may decide to conduct a nonagricultural use followup when investigating a report of loss. Although the EPA Guidance document says that "visits to the dealer and applicator

should not be reported as separate inspections, if in fact the visits were only part of the use or followup inspection" (EPA, 1988, Appendix V, p.5), investigators at the pesticide enforcement program routinely check records and include them as separate investigations when conducting a use or followup investigation (Interviewee #1).

Consideration of the size of the regulated community illustrates the magnitude of the task involved in identifying potential violations. Table 2 presents the number and types of licenses granted and Table 3 presents the number of registered pesticides and registrants in Oregon as of September, 1988. Given the number of investigations initiated per year (i.e., 553 in FY 88), it is clear that only a small number of people or businesses in the regulated community are ever investigated for possible misuse or record-keeping violations. Moreover, these numbers do not include people who are untrained and unlicensed but who apply pesticides in a way which requires a license.

In addition to the above targets of regulation, there are producing establishments, marketplaces and experimental use permits which are regulated. The number of producing establishments currently in Oregon is 107. The number of marketplaces is unknown, since it includes any store which sells pesticides. As of 4/19/89, nineteen experimental use permits are currently granted by EPA for use in Oregon for

TABLE 2. The Numbers and Types of Licenses in Oregon
as of September 1988

LICENSE TYPE	DESCRIPTION	NUMBER
Pesticide dealer	An outlet which sells restricted use pesticides.	307
Private applicator	A person who uses restricted use pesticides on land in agricultural production, owned, leased or rented by him/her or his/her employer.	10,513
Consultant	A person who offers or provides technical advice to users of restricted use pesticides.	913
Commercial operator	A business which applies a pesticide for others as a commercial activity.	495
Commercial applicator	A person employed by a commercial operator and who applies restricted use pesticides or general use pesticides with power equipment.	1,916
Commercial trainee	A person applying pesticides under the direct supervision of a licensed commercial applicator.	370

TABLE 2. (continued)

LICENSE TYPE	DESCRIPTION	NUMBER
Public applicator	A person employed by a governmental agency applying or supervising the use of restricted use pesticides or general use pesticides with power equipment.	1,398
Public trainee	A person applying pesticides under direct supervision of a public applicator.	144

Note: The data in column 1 are from Oregon Department of Agriculture. (1988c). Report of license types and numbers as of 9/2/88. Salem, OR: Author. The data in column 2 are from Oregon Department of Agriculture. (1988e). Summary of Oregon pesticide license types. Salem, OR: Author.

TABLE 3. Statistics on Pesticide Registration in Oregon
in 1988

REGISTRATION TYPES	DESCRIPTION	NUMBER
Registrants	Persons who have registered any pesticide for use in Oregon.	611
Pesticide products	Registered pesticides manufactured, compounded, delivered, sold, or offered for sale in Oregon.	6,486
Special local need	Federally registered pesticides approved by the State for additional uses to meet identified local needs.	16
Specific/crisis exemption	Pesticides exempted from the provisions of FIFRA which may be used if an emergency exists.	18

Note: From Oregon Department of Agriculture, Plant Division. (1988c). Report of license types and numbers as of 9/2/88. Salem, OR: Author.

either a one or two year period (Interviewee #6). This probably does not reflect the true number of experiments being conducted here; because an EUP may be authorized for use in a state but not implemented. EPA says that few EUPs are implemented in this Region; yet, EPA does not know whether a company with a permit issued for use in Oregon is conducting an experiment here unless EPA tries to find out (Interviewee #6).

Clearly, by examining the size of the regulated community, identification of potential violations is an extremely large task. Moreover, the benefits to an applicator of using a pesticide on a job for which it is prohibited may be great (Interviewee #2). For example, some pesticides are considerably less expensive than others and, therefore, may be used instead of the one permitted for that use. In addition, there are obviously many people applying general use pesticides who are not included in the figures cited here, such as the average homeowner.

The mechanisms used to trigger investigations, principally complaints, essentially rely on the chance that someone will notice and report a suspected misuse. As described by one interviewee (#4), reliance on complaints means that the person had to actually notice a possible violation and had to know where to complain. However, he also said that he believed many people do not know which agency is responsible for the regulation of pesticides.

Interestingly, this interviewee also pointed out that some applicators are deterred from working in an area where people are known to complain and even put this type of information on a map. Of course, EPA does not expect the pesticide enforcement program to identify all violators. However, we obviously do not know what percentage of pesticide users are obeying the law if the processes utilized for identification of violations are as complaint dependent as they are and include no random sample or surprise inspections. As one interviewee (#3) pointed out, there is "no question" that many violations go undetected.

Investigations Conducted

The number of investigations conducted in FY 87 and FY 88 are presented in Table 4 by type of investigation. When these figures are presented by the pesticide enforcement program, ROL and PARC investigations are usually incorporated into other categories and are not separated out from the other the investigation types. However, for a more accurate comparison of the types of investigations conducted, Table 4 places ROL and PARC investigations into separate categories.

The total number of cases investigated is considerably higher for FY 88 than for FY 87. The most dramatic increase was in the number of marketplace investigations. On the other hand, dealer record and producer establishment

TABLE 4. Investigations Conducted by the Pesticide Enforcement Program for FY 87 and FY 88

INVESTIGATION TYPE	NUMBER OF INVESTIGATIONS CONDUCTED IN FY 87	NUMBER OF INVESTIGATIONS CONDUCTED IN FY 88
Agricultural use observation	15	10
Agricultural use followup	51	71
Nonagricultural use observation	4	10
Nonagricultural use followup	28	46
Experimental use permit	3	5
Producer establishment	36	26
Marketplace	16	182
Imports	0	0
Applicator records	64	81
Dealer records	94	38
Pesticide analytical and response center	26	30
Report of loss	61	54
TOTAL	398	553

investigations declined. Although the focus here is not on changes over time, a comparison of these figures to those of FY 85 and FY 86 shows a overall trend across the four years toward an increasing caseload. In FY 85 there was a total of 107 investigations and in FY 86 the total was 241.

EPA expects the caseload to increase in the future as a result of new initiatives which it would like to see undertaken (Interviewee #5). For example, the amendments to FIFRA passed in 1988 should accelerate the reregistration process by requiring data be provided by the manufacturer. If the data are not provided and EPA suspends the use of specific products, there will be an increased need to investigate producer establishments, marketplaces, and dealers of restricted use pesticides to verify that the suspended product has been removed. Other initiatives will require labelling changes and increased efforts to uncover misuse violations. These include restrictions to protect farmworkers, protection of endangered species, and protection of groundwater. Of course, these priorities cannot be addressed through increased investigations unless there is an increase in funds available.

Investigation Procedures and Evidence Gathering

It was beyond the scope of this study to assess the accuracy with which investigations are conducted in the field; however, some general information was obtained in the

interviews which shed some light on investigation procedures.

Investigations are essentially developed around the types of information an investigator would view himself giving in a court of law. For example, statements that people make must be signed. Although the investigators do not determine of whether a violation has occurred, their role in gathering evidence is critical to whether a violation can be proven by the pesticide enforcement program in court. Some cases are obviously less complicated than others; for example, applicators and dealers either keep their records correctly or not. Other types of investigations, such as those related to the misuse of pesticides, require more detailed evidence gathering. To document possible violations of law, investigators rely on photographs; symptomatology (i.e., could damage have been caused by a certain disease rather than a pesticide); chemical analysis of soils, water, and/or plants; and circumstantial evidence (i.e., if damage looks like a certain herbicide caused it, and records show that an applicator applied that herbicide the day before).

Chemical analysis of samples collected is a method of evidence gathering which is heavily relied upon and considered the best hard evidence by the pesticide enforcement program. Samples which are gathered are given to the Laboratory Services Division of ODA for analysis.

Although the accuracy of and techniques used in laboratory testing for pesticides is an area which deserves considerable scrutiny (O'Brien, 1984), an analysis of these concerns with regard to the Laboratory Services Division was not an element of this study. However, interviews have revealed that there is a serious problem with the amount of time it takes for the Laboratory Services Division to complete analysis of samples for pesticide residues (not analyses of formulations such as those gathered in producer establishment investigations). One interviewee (#4) recalled that when he first began working for the program, the time it took to complete the analysis of the samples was around four to six weeks, and several interviewees (#'s 2, 3, and 4) estimated that the time it now takes to get samples back from the lab can be anywhere from five to twelve months.

In an attempt to address this problem, the Laboratory Services Division has set up a system of prioritizing samples given to it from the pesticide enforcement program for completion. As described in a Plant Division document, "Pesticide Residue Samples," this "priority scheme" means that each sample is assigned one of the following priority numbers:

Priority #1: Analytical results are needed quickly. Such samples may pertain to the harvesting of crops or politically sensitive issues. A date for providing analytical results will generally be provided.

Priority #2: Analytical results are needed within 30

to 60 days of the collection date. Such samples may pertain to standard Report of Loss cases or cases in which analytical results are anticipated to provide evidence of pesticide-related violative acts.

Priority #3: Analytical results are deemed useful. Such samples may pertain to non-critical Report of Loss cases or cases in which analytical results are anticipated to confirm proper pesticide usage.

Priority #4: Analytical results are deemed informative. Such samples would not be needed for case evaluation or evidence, but could be informative. (Oregon Department of Agriculture, 1988c)

An example of samples of a "politically sensitive" nature under priority #1 was the increased concern over daminozide (Alar), a plant growth regulator applied to apples. According to one interviewee (#4), the Laboratory was devoting a considerable amount of time to collecting and analyzing apple products for residues, while "lower priority" samples await their turn. Information obtained in interviews revealed that it is still taking a long time to receive analyses of samples designated priority #2 or #3 and it is likely that samples identified as priority #4 may never be completed. The impact that this delay has on the completion of cases will be discussed below.

Enforcement Actions

A case is completed by ODA when a determination has been made about whether or not an enforcement action is warranted, and, if so, what type. This section first describes the decision-making process involved in completion of a case by ODA. Secondly, the range of enforcement

actions available to ODA and the Enforcement Response Policy which it has developed are described. Finally, the findings with respect to the frequency with which the various enforcement actions are utilized will be presented and the results of the analysis of cases completed will be discussed.

The investigators gather all the necessary information for evaluation of a case, including evidence collected in the field, results from any sample analyses, and facts about prior violations of the same type by the party in question, if any. This information, along with the opinion of the investigator as to what specific violation(s), if any, occurred, is given to the Supervisor. The Supervisor then makes the determination about whether or not a violation has actually occurred. If a violation is found, an enforcement action is chosen using the penalty matrix described immediately below, and a letter is drafted. The Administrator then reviews the case for the following: the type of investigation that was conducted, what information was developed, and whether there has been a violation which is clearly addressed in the law. The decision-making process for selection of an enforcement action is not documented. After an action is taken against a violator, no investigation is made to see if the violator resolved the problem.

The Cooperative Agreement for FY 89 in its Appendix II

describes the Enforcement Response Policy of the pesticide enforcement program. The "penalties" available to the program pursuant to the Oregon Pesticide Control Act are the following:

1. Letter of warning or written notice of violation.
2. Letter of warning with requirement for response.
3. Stop sale, use or removal order (SSURO).
4. Referral to local District Attorney.
5. Suspension, revocation or refusal to issue license.
6. Referral to Oregon Attorney General.
7. Referral to U.S. Environmental Protection Agency.
8. Referral to another state agency.

In an attempt to clarify what response might be taken for a given type of violation, the program has developed a penalty matrix, presented here as Table 5. The numbers on the matrix refer to the penalties listed above. According to one interviewee (#1), the Enforcement Response Policy was intentionally designed to retain a certain amount of latitude in the decision-making process for the program and to reserve the option of taking a more stringent action than the one designated for a violation, if deemed appropriate. In addition, the program explains in the Cooperative Agreement that if the party has had a prior violation of the same type within the preceding three consecutive years, penalties are increased. Another interviewee (#2) pointed out that although the enforcement action chosen should be a function of the violation, it also looks at the individual and circumstances to determine what the violation will mean to them. The program claims that whether or not an injury has occurred does not affect its decision making.

TABLE 5. Enforcement Response Policy, Penalty Matrix

TYPE OF VIOLATION	FIRST VIOLATION	SECOND VIOLATION	THIRD VIOLATION
Licensing: No license or improper license	1/2	4	6/7
Misuse: Use inconsistent with the label; faulty, careless or negligent application	1/2	2/4/5	4/5/6/7
Records: Failure to prepare and maintain required records	1/2	2/4/6	5/6/7
Records: Refused to provide	4/5/6/7	4/5/6/7	4/5/6/7
Unregistered product or misbranded product	3	3/4	3/5/6/7
Sale of product under SSURO	4/5/6/7	4/5/6/7	4/5/6/7
Sale of restricted use pesticide to unlicensed applicator	1/2	2/4/5	4/5/6/7

Note: From Oregon Department of Agriculture, Plant
Division. (1988b). Cooperative Agreement for FY 89.
Salem, OR: Author.

In FY 88 the program took a total of 84 enforcement actions. As recorded in the Enforcement Action Summary Log for FY 88, the numbers of enforcement actions taken are presented in Table 6. I found very few cases where no action was taken when a violation had been clearly recorded. The numbers presented in Table 6 show that warning letters and referral to EPA were the enforcement powers most frequently exercised by the program in FY 88. The other enforcement tools available are used much more reluctantly.

One example is referrals to a local district attorney, which have not been very successful in the past. Of the nine cases referred to a local district attorney between 1986 and 1988, only prosecuted four of them were prosecuted. In two other cases warning letters were sent by the district attorney's office. When district attorneys have agreed to prosecute, the results have varied widely from a \$75 fine for applying a pesticide to a food crop for which the product was not registered, to a 30-day jail sentence and \$1,000 fine with a three-year probation for applying pesticides without a license.

Another example of an enforcement tool which is used reluctantly is the suspension, revocation or refusal to issue a license. One interviewee (#2) explained that the program hesitates to utilize this tool unless it is a "serious situation" because it might negatively impact the licensee's income. The program apparently views this tool

TABLE 6. The Numbers and Types of Enforcement Actions
Taken in FY 88

TYPES OF ENFORCEMENT ACTION TAKEN	NUMBER OF ENFORCEMENT ACTIONS TAKEN IN FY 88	PERCENT OF TOTAL FY 88 ACTIONS TAKEN
Warning letter	32	38%
Warning letter with response required	3	4%
Stop sale, use or removal order	3	4%
Referral to local district attorney	1	1%
Suspension, revocation or refusal to issue license	6	7%
Referral to Oregon Attorney General	0	0%
Referral to U.S. EPA	37	44%
Referral to other state agency	0	0%
Other	2	2%
TOTAL	84	100%

as one which is too drastic, and, therefore, supports the legislation currently in the Oregon Legislature which would give the program the power to assess civil penalties as a middle ground between taking away someone's livelihood and issuing a warning letter.

Although there is no way to measure the effectiveness of the enforcement tools in encouraging compliance with the law, some attempt was made in the interviews for this study to ascertain the program's perspective on the effectiveness of warning letters. The most common response to a question on this subject was that it depends on the individual violator. Several people claimed that some violators are really concerned if they are sent a warning letter, particularly because of possible consequences from insurance companies. Insurance companies will apparently raise premiums or be reluctant to insure applicators who have been found to violate the law. The insurance companies contact the program for this information. This indicates, however, that insurance companies may be more effective in encouraging compliance with the law than the government.

Referral to EPA as an enforcement action presents some problems because of the time involved in completion of these cases. Generally, ODA does not make a determination of whether a violation occurred for cases referred to EPA. The types of cases referred to EPA in FY 88 in order of frequency included producer establishment investigations,

agricultural use followup investigations, marketplace investigations, nonagricultural use followup investigations, and applicator record inspections. Cases may be referred to EPA for several reasons. Apparently, producer establishment investigations should automatically be referred to EPA after any samples of formulations are returned from the Laboratory Services Division. The enforcement powers of EPA are broader, since EPA can assess civil penalties and/or prosecution under federal law. In addition, ODA may refer a case to EPA if it believes that no violation occurred, yet believes that EPA may view the case differently and find a violation.

EPA reports that it has a significant backlog in completing cases which are referred to it. The Region 10 office was unable to provide me with any information on the number of cases still to be completed and could not estimate the numbers of cases. Therefore, when one looks at the numbers presented in Table 6 and sees the total number of actions taken, it is important to remember that referrals to EPA do not necessarily indicate that the case is complete. According to the End-of-year Review of the 1988 Oregon Pesticide Enforcement Cooperative Agreement by EPA Region 10, EPA issued five civil complaints, seven warning letters, and one advisory letter. These figures do not indicate the year in which those cases were initiated or were referred to

EPA. In fact, whether EPA has completed the cases referred to it in the past few years was impossible to ascertain.

There also seems to be a serious delay at the pesticide enforcement program in completing cases once they are initiated. The following analysis of the numbers of enforcement actions taken by ODA was based on a review of all the cases for a given year. A case is considered here to have been completed by ODA if an enforcement action was taken by ODA, the case was referred to EPA, or a determination was made that no violation had occurred.

By the end of FY 88, only 22% of the 398 cases initiated in FY 87 (including PARC and ROL investigations) had been completed. If one excludes the PARC and ROL cases initiated in FY 87, because no action is required by ODA (although they are sometimes recorded in the logs), 311 actionable cases were initiated in FY 87 and 83 of these were completed by the end of FY 88. Therefore, 27% of the actionable cases from FY 87 were completed by ODA by the end of FY 88. That means at least 73% of the FY 87 actionable cases took or will take more than 12 months to complete.

Table 7 presents the numbers of cases initiated in FY 87 by type of investigation and their respective rates of completion. Applicator record inspections have the highest rate (59%). These inspections should be straight-forward, since they do not require analysis of samples. On the other hand, dealer record investigations should also be relatively

TABLE 7. Cases Initiated in FY 87 and the Number of These Cases Completed by the End of FY 88

INVESTIGATION TYPE	CASES INITIATED IN FY 87	CASES COMPLETED BY THE END OF FY 88	PERCENT OF FY 87 CASES COMPLETED BY THE END OF FY 88
Agricultural use observation	15	0	0%
Agricultural use followup	51	14	27%
Nonagricultural use observation	4	1	25%
Nonagricultural use followup	28	10	36%
Experimental use permit	3	0	0%
Producer establishment	36	9	25%
Marketplace	16	6	38%
Imports	0	0	0%
Applicator records	64	38	59%
Dealer records	94	4	4%
Pesticide analytical and response center	26	3	12%
Report of loss	61	2	3%
TOTAL	398	88	22%

straight-forward, yet only 4% of them had been completed by the end of FY 88.

Of the 88 cases from FY 87 that were completed by the end of FY 88, a total of 65 actions were taken, of which 18 were referrals to EPA. If one excludes EPA referral cases (since the information on completion of these cases is unavailable), 67% of the cases initiated in FY 87 and completed in FY 87 or FY 88 required enforcement actions taken. If EPA referrals are not excluded, 74% of these cases required some action by ODA. Apparently, then, ODA is not wasting its time - a high percentage of completed investigations reveal violations and require enforcement action.

Although I chose to focus on FY 87 rather than FY 88 for analyzing completion rates, in order to allow as long a period following case initiation as possible, I examined completion of FY 88 cases as well. Of the 553 cases initiated in FY 88 (see Table 4), only 57 or 10% of them had been completed by the end of FY 88. If one excludes PARC and ROL investigations, 12% were completed.

The length of time it takes for cases to be completed can be problematic in terms of taking enforcement actions against a party who may be found to violate the law again. The Enforcement Response Policy described above stated that penalties would be increased if a violator was found to have had a prior violation of the same type that occurred within

the three previous years. Given the amount of time it takes for most cases to be completed, if a party happens to be investigated again and another violation found, the likelihood of that case being completed within the three years following the first violation is not very good.

Problems with Documentation

Several problems with the documentation and data available on the program make it difficult to accurately represent the program operations. First, ODA documents refer either to investigations conducted in a given fiscal year and/or to enforcement actions taken in a given year. Since most cases are not completed in the same fiscal year in which they were initiated, essential program characteristics are not readily available.

Second, considerable confusion may result when one attempts to calculate certain program characteristics. For example, the program was unable to locate an Enforcement Actions Summary Log for FY 86, making it impossible to verify what actions were taken that year. Where detailed logs were available for other years, there were a number of blanks or otherwise incomplete information given. Moreover, data in the Enforcement Action Summary Log for FY 87 are dramatically different from figures presented by ODA in their own summary tables prepared for the 1989 Oregon Legislature (see Appendix). The former indicates a total of

two cases referred to EPA that year; whereas, the latter claims 36 such actions. When asked about this discrepancy, I was told that the program must not have recorded in the Enforcement Summary Log all of the cases it referred to EPA in FY 87, and the number of such cases was estimated to be 35 (Interviewee #1). This documentation failure was attributed to the fact that producer establishment investigations should "automatically" be referred to EPA. (Note that if we assume this to be the case, the results regarding percentages of actions taken on completed cases initiated in FY 87 presented above increase slightly from 27% to 35%). This undocumented inconsistency makes it extremely difficult to establish exactly what occurred in a given year.

Another documentation problem is that there are no clear data available on case completion rates. I have not seen any documents either by ODA or by EPA Region 10 that provide the types of information on completion rates described in the previous section. EPA conducted a review of 23 cases for timeliness in their End-of-year review for FY 88; however, they did not use a statistically valid sample (by their own admission) and reviewed only cases which had been completed (thus omitting from their timeliness evaluation the cases which take the longest!). My analysis looked at every case for FY 87 and FY 88 to reveal the percentages still to be completed.

A fourth problem is the confusion present in ODA's own summary sheet developed to give information to the 1989 Oregon Legislature which is currently considering funding issues for the program (see Appendix). The percentages on the last line of the table were apparently derived by using the numbers of actions initiated in a given year and dividing them by the number of cases investigated in that year (excluding PARC and ROL cases). Such a calculation is meaningless. As presented in the table, the implication of this percentage is that, for example, 24% of the investigations taken in FY 87 required an enforcement action. However, most actions taken in FY 87 were from cases which were not initiated in that year. The actual percentage of investigations initiated in FY 87 that will require an enforcement action is unknown, since only 27% of the actionable cases had been completed by the end of FY 88. However, of the latter, 74% required some action by the end of FY 88. Presentation of the figures as they are in the Appendix could mislead one into thinking that a relatively small percentage of people are found to be in violation of the law once investigated.

A second problem with this summary table is that the asterisk next to FY 88 enforcement actions indicating that "evaluation of FY 88 investigations are still in process," and the lack of an asterisk for previous years, implies that the cases from previous years are completed; however,

analyses presented above show that some 73% are still outstanding from FY 87 alone. Furthermore, one might not guess from the asterisk that 88% of the cases initiated in FY 88 were outstanding at the end of that fiscal year (excluding PARC and ROL investigations).

A third problem with this table is labelling referral to EPA as an "enforcement action." This category accounts for almost half of the enforcement actions taken, but EPA may or may not have taken an enforcement action on each of these cases. Information on the completion rates for cases referred to EPA is not available.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The first section of this final chapter points out limitations of this study. Subsequent sections then draw conclusions from the major findings and make recommendations for improving Oregon's pesticide enforcement program.

Limitations of this Study

This study was designed to provide a general description of the procedures and operations of ODA's pesticide enforcement program. However, it was necessarily limited in its scope. The following related subjects were not addressed and are areas which deserve further study:

1. There was no survey of the regulated community to analyze their perceptions of the pesticide enforcement program.

2. I did not survey people who have complained to the pesticide enforcement program concerning a potential violation of law or survey the general public to study the extent to which people know whom to contact when they are concerned about pesticide misuse.

3. There was no attempt to study the protocol of the Laboratory Services Division.

4. I did not go into the field with investigators to observe how investigations are conducted.

5. Several aspects of FIFRA carried out at the state level were not studied in detail including the training program for the certification of applicators, and the registration of pesticides for "special local needs" or for "emergency exemptions."

6. A comparison of Oregon's program with other states would have proven useful; however, I did not systematically conduct such an analysis.

7. Finally, I did not analyze the Food and Dairy Division of ODA which samples foods for pesticide residues under an agreement with the U.S. Food and Drug Administration.

Major Findings

The findings of this study have revealed the following about the pesticide enforcement program. First, the Cooperative Agreement with EPA Region 10 provides the context within which the program operates. The agreement details the essential elements of the program, including financial statements; the priorities set by EPA and how the program proposes to address them; and a description of and projections for field investigations, laboratory procedures, and enforcement actions.

Second, the number of investigations has increased

significantly over the past few years. The program has apparently been more willing and/or able to conduct investigations than it had been in the past. EPA expects that there will be a need for increased enforcement efforts to meet the initiatives recently identified by them (i.e., accelerated reregistration, improvements in restrictions to protect farmworkers, and protection of groundwater and endangered species); therefore, the trend toward increasing numbers of investigations is likely to continue provided sufficient funding is made available.

Third, the major means of identifying potential violators are complaints, referrals from EPA, or referrals from other agencies; thus, the potential violations the program investigates are usually brought to its attention by outside sources. Relying solely on complaints to identify potential violators means that in most cases a citizen must have seen and suspected a violation of law and must know where to voice the concern. Given the size of the regulated community, it is likely that many violations go uncovered.

Fourth, there is no record of all the complaints which come into the agency. Therefore, there is no documentation regarding what percentage of complaints are investigated nor how each decision is made about whether or not an investigation will be conducted.

Fifth, completion of cases is particularly problematic. It takes anywhere from five to twelve months for the results

of analyses of samples collected during investigations to be received by the program. Apparently this factor has a significant impact on the completion of cases; however, many cases which do not rely on sample analyses are also being completed slowly. At the current rates of completion, the backlog does not appear to be eased, but rather compounded. Only 22% of the cases initiated in FY 87 were completed by ODA by the end of FY 88 (including PARC and ROL cases). Some cases may never be completed.

Sixth, warning letters and referrals to EPA are the enforcement actions used most frequently. Although warning letters may sometimes be effective at encouraging compliance simply because of the potential consequences from insurance companies, such a letter is not imposing a penalty that is likely to have a strong deterrent effect, particularly when the potential benefits from violating the law are substantial economically. Despite the fact that warning letters count as a prior violation, the likelihood of another violation being found within the following three years is not very good, given the length of time it takes to complete cases and the chances that another complaint will be made about the same party. Referrals to EPA are likewise problematic because there is a backlog at the Region 10 office in completing the cases referred to it, although there are no data available to document the extent of the problem at EPA.

Seventh, records and documents that do exist on other aspects of the program are sometimes incomplete and/or misleading. There are no data on case completion rates. In addition, the summary sheet developed by ODA to give information to the 1989 Oregon Legislature (see Appendix) could mislead one into thinking that most cases initiated have been completed and that only a small percentage of completed cases confirm a violation. In fact, my analysis shows that 74% of the cases initiated in FY 87 which were completed by the end of FY 88 required some action by ODA.

Recommendations

On the basis of the findings of this study, the following recommendations can be made:

1. The enforcement program will need to expand if the caseload increases and the goals identified by EPA are to be accomplished. Expansion of the program should not only include more investigators, but also more staff to conduct evaluations of the cases after evidence is gathered.

2. The information on the records kept by applicators and dealers could be summarized and submitted to the pesticide enforcement program on a regular basis.

Currently, these records are used to document what is applied or sold in case an investigation occurs or the information is requested by the landowner for whom it was applied. However, this information could also be used to

provide data on pesticide use and distribution in Oregon which is not available at this time. Although this would impose an increased amount of data processing work on the program, careful design of summary record forms combined with computer data storage make this a reasonable goal.

3. All citizen complaints should be recorded and a log number given to each such complaint. The decision to conduct or not conduct an investigation should be recorded with a justification of the decision.

4. All inspections undertaken relevant to one case should be recorded under one log number, thereby avoiding multiple log numbers for a single case. This is both suggested by the EPA Guidance document (1988a) and would result in more accurate summary statistics regarding investigations conducted.

5. The program should consider sending samples to an independent laboratory, if the delay at the Laboratory Services Division is not remedied. This has been done in other states.

6. The program should be less reluctant to take stronger enforcement actions. The heavy reliance on warning letters does not really penalize the violator. Although it is certainly valid to be concerned about the livelihood of the pesticide applicator or dealer, violation of pesticide laws are a broad social and environmental concern that should not be taken lightly; therefore, suspension,

revocation, and refusal to issue licenses restrictions are tools that could be used with more frequency. In addition, the ability to assess civil penalties, an issue now being considered by the Oregon Legislature, could also provide a mechanism for more stringent enforcement action.

7. The program should consider follow-up investigations after an enforcement action has been taken to ensure compliance. Cases might be considered completed only after such follow-up.

8. It seems advisable that the program undertake at least one major survey/ investigation/ public report a year. For example, compliance with a particular priority of pesticide law enforcement might be examined by conducting a random sample investigation. This would serve two purposes. It could provide a mechanism by which overall compliance with pesticide regulations may be measured. Of course, such a program would only be useful if developed carefully as a statistically reliable tool. The problem with the lack of indicators for how well FIFRA operates was identified by

EPA:

Unfortunately, regulators have no basis upon which to assume that public complaints accurately represent real world risks. More serious risks could remain undisclosed (EPA, 1988b).

Although widespread environmental monitoring would perhaps be the best indicator of the extent to which contamination is occurring, the data do not exist and the collection of such data would be extremely expensive, particularly since

FIFRA does not provide for any such monitoring funds. As long as enforcement is meant to motivate compliance with the law, a second purpose served by random (and unannounced) investigations is that they may be more of a deterrent than complaint initiated investigations.

9. ODA summary statistics presented for review by EPA, the Oregon Legislature, and the public should indicate completion rates for cases initiated and describe the current backlog of cases. If the Legislature is to provide adequate funds for FIFRA enforcement and if the public is to understand the state of pesticide law in Oregon, such data are essential.

10. Citizen suit provisions need to be made available under FIFRA and the Oregon Pesticide Control Act. Given that the regulated community is as large as it is and the use of pesticides so widespread, it may be unreasonable to expect that the government can effectively accomplish such a large task as identifying and enforcing all violations of the law. Citizen suit provisions in the other major environmental laws have been constructively and actively used against violators. In recent years such citizen suits have constituted an increasingly large percentage of enforcement actions against violators (Miller, 1987). Citizen suits provide an alternative means of law enforcement and allow people to become actively involved in social and environmental concerns.

Given the widespread use of pesticides in the United States and the potential environmental and health risks associated with their use, the regulation of pesticides is of critical importance. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) provides the basis for the regulatory scheme. It is administered by EPA which delegates enforcement powers to most of the states. Assuming that a strong, aggressive enforcement program can serve as a deterrent to violations of the law, no law will be effective if not properly enforced. There has been little analysis of state programs to enforce FIFRA. The goal of this thesis is to help fill this gap by examining the operation of the pesticide enforcement program in Oregon. I offer the above recommendations, based upon the findings of this study, for the purpose of improving the pesticide enforcement program in Oregon and ultimately protecting our citizens and environment from the hazards of pesticides.

APPENDIX

TABLE OF SUMMARY STATISTICS AS PRESENTED TO THE 1989
OREGON LEGISLATURE BY THE OREGON DEPARTMENT OF AGRICULTURE,
PLANT DIVISION

Investigations Pertaining to Pesticide Product Registration,
Distribution and Use

<u>Investigations</u>	<u>FFY86</u>	<u>FFY87</u>	<u>FFY88</u>	<u>Total</u>
Conducted under agreement with U.S. E.P.A.	163	297	252	712
Report of Loss - limited to nature and extent of observed damage (ORS 634.146)	65	60	54	179
Pesticide Analytical and Response Center (PARC) investigations conducted by section personnel	25	26	30	81
Other	0	13	217	230
Totals	253	396	553	1202

(continued)

Enforcement Actions Pertaining to Pesticide Product
Registration, Distribution and Use

<u>Enforcement Actions</u>	<u>FFY86</u>	<u>FFY87</u>	<u>FFY88*</u>	<u>Total</u>
Warning Letter or Notice of Violation	18	44	33	95
Stop Sale, Use or Removal Order	2	0	4	6
Referral to Local District Attorney	4	3	2	9
Suspension, revocation or refusal to issue license	0	0	4	4
Referral to U.S. Environmental Protection Agency	8	36	37	81
Totals	32	73	80	195
Investigations resulting in Enforcement Action (excludes Report of Loss and PARC investigations)	20%	24%	17%	21%

*Evaluations of FFY88 investigations still in process.

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