

A CITIZENS' GUIDE TO PESTICIDE USE AND REGULATION IN NEW MEXICO



**Practical information to protect
yourself, your community and the
environment from harm**

**Southwest Environmental Center
January 2004**

This book is dedicated to the Asprey family of Las Cruces and all the other New Mexicans who have been exposed against their will to pesticides and turned to the Southwest Environmental Center for help. They were the inspiration for this book.

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The Southwest Environmental Center is a member-supported nonprofit organization dedicated to protecting and restoring the unique natural heritage of the Southwestern borderlands through education, research, advocacy and on-the-ground restoration work. For more information, or to report errors or omissions, please contact us:

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Introduction

Pesticides may be useful at times, but they are also dangerous, widely used poisons. The purpose of this book is to help New Mexicans protect themselves and the environment from the harm pesticides can and do cause.

Rachel Carson warned the world about the dangers of pesticides in her 1962 book *Silent Spring*. More than 30 years later, pesticides continue to threaten our health and the planet. With more than \$30 billion in sales, the global pesticide industry is gigantic, dominated by multinational corporations like Novartis, Aventis, BASF, and Dow Pesticide.

We've been repeatedly assured by pesticide producers and their defenders that pesticide products are safe. If pesticides weren't safe, they wouldn't be on the market, right? Wrong!

The pesticide industry wields formidable influence over elected officials and government agencies at the highest levels. The results are laws that give equal or more weight to corporate profits than sick children or dead birds, and regulatory agencies plagued by politics and conflicts of interest.

If the government will not protect us, we must do it for ourselves. Where do we begin? We begin by educating ourselves about pesticide use in our own backyard, our community and our state. We begin by learning how pesticides are regulated, how they harm us, and what we can do to protect ourselves and our environment from further contamination. Then we can educate, organize, and activate others to do the same. With this report, we hope to give the citizens of New Mexico the information and tools they need to begin this important work.

A number of people deserve recognition for their contribution to this publication. The principal authors are Patricia Wolff and Kevin Bixby. We appreciate the helpful feedback we received from our team of reviewers: Daryl Smith, Kitty Richards and Doug Henson. Dr. Ann McCampbell, M.D. especially, provided many insightful and useful suggestions related to both content and organization. However, the authors alone are responsible for the opinions expressed in this guidebook, along with all omissions and errors.

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Executive Summary and Recommendations

Pesticides are widely used. They permeate our daily lives. We are exposed to them in countless ways, at home and work, in the food we eat, and in the air we breathe.

More than 18,000 pesticide products are registered for use in the U.S. In 1999, Americans used 912 million pounds of conventional pesticides. Most of this—about three-fourths—was used in agriculture. Industry, commercial applicators and government accounted for 14 percent, while 9 percent (80 million pounds) was applied in our homes and gardens.

Basic information about pesticide usage in New Mexico is not available. Although state law requires that pesticide applicators keep records, these are not compiled at a central location nor is the public allowed to see them. An estimated 2.6 million pounds of pesticides are applied to New Mexico's croplands.

Pesticides have been linked to many kinds of immediate and long-term health problems in humans. They can damage the nervous system, disrupt hormone and immune systems, cause birth defects, miscarriages, and reduced birth weights, decrease fertility, and cause cancer. Children are more vulnerable than adults because they are growing and developing, they eat proportionately more fruits and vegetables and drink more water than adults, and their behavior patterns puts them at greater risk.

Dangerous pesticides continue to be used in New Mexico's schools. Children are exposed to pesticides in school buildings and on school grounds. Common symptoms of pesticide exposure include headaches, rashes, allergic reactions, asthma attacks, nausea, fevers and other flu-like symptoms. Some school districts and the state board of education are moving towards reducing the use of pesticides in schools.

The food we eat very often contains pesticides. Nearly two-thirds of the fruits and vegetable samples and 19 percent of the beef samples tested by the federal government in 2001 contained detectable pesticide residues. Food grown in the U.S. is contaminated with pesticide residues more often than imported food items.

Our air and water are contaminated with pesticides. Government studies have found pesticides in the atmosphere in all areas of the nation. Pesticides are blown far from where they are applied. Pollution of our rivers and underground water supplies is widespread, with pesticides detected in virtually every river in the country, and in more than half of all the shallow wells tested.

Pesticides harm more than people. Wildlife are affected in many ways, from direct poisoning and death, to long-term chronic effects, to ecological changes that threaten the ability of wildlife populations to survive. An estimated 67 million birds die from pesticide poisoning each year, along with 6 to 14 million fish.

Registration is the process by which the government decides if a pesticide can go on the market. Registration is not a guarantee of safety. At the federal level, the decision to register a pesticide is based on a comparison of its risks and benefits, not whether it harms people or the environment. Flaws and loopholes in the registration process allow many dangerous pesticides to enter and remain on the market.

Pesticide use in New Mexico must conform to both federal and state laws, mainly the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the New Mexico Pesticide Control Act (NMPCA).

At the federal level, the Environmental Protection Agency (EPA) generally sets standards for pesticide use, which other agencies monitor and enforce. In New Mexico, the New Mexico Department of Agriculture (NMDA) is the lead state agency for regulating pesticide use.

Unlike other cabinet level state agencies that answer directly to the governor, NMDA operates under the direction of the Board of Regents of New Mexico State University. NMDA's mission is both to protect the public *and* advocate for agricultural interests. Since agriculture uses more than three-fourths of pesticides in the U.S., this creates an obvious conflict of interest.

The NM Pesticide Control Act requires that pesticides distributed and used within the state be registered by NMDA, and that they be used according to

their label and for the purpose for which they were registered. It also establishes licensing and recordkeeping requirements for various kinds of pesticide applicators, and creates a Pesticide Advisory Board. It prohibits local governments from taking stronger measures to protect the public from pesticides.

The NM Pesticide Control Act does *not* require that applicators make their pesticide use records available to the public or to agencies other than NMDA, nor does it require that the public be notified when pesticides are used. It does not mandate that health or environmental advocates be represented on the pesticide advisory board.

Anyone can file a complaint of pesticide misuse with NMDA. People who file pesticide complaints with NMDA often complain about the agency's lack of responsiveness. A common perception is that the agency is slow to respond, favors pesticide users, and imposes light penalties, if any.

Most complaints do not result in NMDA taking enforcement action. The agency is more likely to take enforcement action in the case of administrative-type complaints, such as licensing violations, than it is for other types of complaints, such as illegal pesticide use.

There are a number of things you can do to protect yourself from being harmed by pesticides—before, during and after spraying. Take videotapes or photographs if possible. Try to find out the exact name of the product to which you are exposed. Get a copy of the pesticide label. You should seek medical help if you are at all concerned about your health, even if you have no immediate symptoms. Report the incident to NMDA. Be persistent.

Persons harmed by pesticides may pursue civil remedies through the court. Try to find an attorney who has experience with pesticide cases. Keep in mind that the more you do to document your case during and after being exposed, the better chance you have of ultimately winning in court.

Fast action is required to help someone who has swallowed or inhaled a pesticide, or gotten it in the eye or on the skin. Call 911 if the person is unconscious, having trouble breathing, or having convulsions. Check the pesticide label for directions on how to give first aid. Take the person to the nearest emergency medical care facility.

Recommendations

We recommend the following five steps to protect New Mexicans from unwanted exposure and harm from pesticides:

1. *Get the fox out of the henhouse.* The New Mexico Department of Agriculture (NMDA) is supposed to both advocate for agricultural interests *and* protect the public from pesticides. Since agriculture is by far the largest user of pesticides, this creates an obvious conflict of interest. State law should be amended to put another agency in charge of regulating pesticides, one with a clear mandate to protect health or the environment.
2. *Let local communities protect themselves.* Currently, cities and counties are prohibited from enacting more stringent local pesticide regulations than the New Mexico Pesticide Control Act. State law should be changed to allow communities to protect themselves as they see fit.
3. *Give New Mexicans access to information they need to protect themselves.* People have a right to know about pesticides used in their communities, yet current state law treats that information as confidential. This should be changed to *require* that such information be compiled by a state agency and made available to the public.
4. *Require notification.* People have a right to know where pesticides have been or will be used. Pesticide users should be required to provide advance notification of spraying to the public wherever there is a chance people might be exposed. If NMDA does not currently have the authority to do this, than state law should be changed to provide it.
5. *Don't use pesticides yourself.* Buy organically grown food, and support ecologically-based pest management practices.

Chapter One

PESTICIDES

The Basics

What is a pesticide?

A pesticide is anything intended to kill or repel a pest. By law, a pesticide is “any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.”¹

The term “pesticide” is actually very broad and includes things like chlorine products used to disinfect drinking water. The term “conventional pesticide” refers to man-made chemicals developed and produced primarily to kill pests.

Are pesticides dangerous?

Yes. By definition, pesticides have the ability to harm or adversely affect living things. And as discussed later in this book, just because a pesticide is registered for use by the government does not mean it is safe.

What are the different kinds of pesticides?

Specific types of pesticides are named after the pest they are intended to control: insecticides (insects), herbicides (plants), fungicides (fungi), rodenticides (rodents), and so on. The word “pesticide” is commonly used, incorrectly, as a synonym for insecticide.

There are chemical pesticides and biopesticides. Chemical pesticides, like DDT and malathion, include the following categories:

- *Organophosphate pesticides* — These chemicals affect the nervous system by disrupting the enzyme that regulates acetylcholine, a neurotransmitter. Although not usually persistent in the environment, some organophosphates are highly toxic, and were used in World War II as chemical weapons.
- *Carbamate pesticides* – These affect the nervous system in the same way as organophosphates.
- *Organochlorine pesticides* — These were commonly used in the past, but many have been removed from the market (in the U.S., but not necessarily in other countries) due to their health and environmental effects, and their persistence in the environment. DDT and chlordane are two examples.

- *Pyrethroid pesticides* — These were developed as synthetic versions of the naturally occurring pesticide pyrethrin, found in certain flowers (chrysanthemums). Some synthetic pyrethroids are toxic to the nervous system.
- *Phenoxy herbicides* – These include 2,4-D, dicamba, MCPP and others. Agent Orange, a defoliant used in Vietnam, was a mixture of two phenoxy herbicides, 2,4-D and 2,4,5-T.

Biopesticides are pesticides derived from natural materials such as animals, plants and bacteria. These are generally considered safer than chemical pesticides, but that does not mean they are necessarily safe. Biopesticides include:

- *Microbial pesticides*—These contain a microorganism, such as a bacterium or a virus, as the active ingredient. The most widely used microbial pesticides are strains of the bacterium *Bacillus thuringiensis* (Bt). Each strain of Bt produces a different mix of proteins designed to kill one or a few species of insect larvae by binding to a receptor in the larvae’s gut, causing it to starve.
- *Plant-incorporated protectants (PIPs)*—These are pesticides that plants produce from genetic material that has been added to the plant, usually to make the plant resistant to certain kinds of chemical herbicides or to particular insect pests. The use of such genetically modified (GM) crops is growing rapidly worldwide, particularly in the U.S., where the three main GM crops are corn, soybeans and cotton. In recent years, the European Union has restricted the import of such crops because of health and environmental concerns.
- *Biochemical pesticides*—these are naturally occurring substances that control pests by non-toxic means. Examples include insect sex pheromones that interfere with mating, and capsaicin, derived from chile peppers and used as an insect and bird repellent.

How are people exposed to pesticides?

Pesticides are widely used. They permeate our daily lives. We ingest them, inhale them, and absorb them through our skin. Here are some of the many ways we are exposed to pesticides:

- Drift from farms
- Drift from neighbors spraying gardens and yards
- Lawns, parks, ball fields and golf courses that have been treated with herbicides (Herbicides are often combined with fertilizers in the same product. The most commonly used lawn herbicide is 2,4-D, a compound linked to increased cancer in humans and dogs, birth defects, and sperm damage.)
- Sidewalks and roadsides that have been sprayed
- Fruits and vegetables with pesticide residues on them
- Meat with pesticide residue in it
- Cut flowers from the store (Many flowers sold in the U.S. are imported from other countries. Growers routinely use pesticides to ensure a bug-free product.²)

The most commonly used lawn herbicide is 2,4-D, a compound linked to cancer in humans and dogs, birth defects, and sperm damage.

- Pets that have been treated with flea and tick killers, or that are wearing flea collars
- Pesticides in drinking water. (The U.S. Geological Survey found one or more pesticides in nearly all of the nation's streams and fish it sampled, and in about half the wells it tested.³)
- Pesticides used at schools. (School districts often contract with commercial applicators to spray schools on a regular schedule.)
- Pesticides used at home, including sprays, baits, pest strips and foggers.
- Pesticides used in the workplace. (Many managers of office buildings and public buildings hire commercial exterminators to spray regularly.)

- Hotels. (Many establishments regularly spray their rooms with pesticides.)
- Apartments and condos. (These are frequently sprayed on a regular basis.)
- Restaurants. (Ditto)
- Flower bulbs. (Most bulbs have been treated with fungicides before they are sold.)
- Pesticides used in daycare centers.
- Pesticides used in hospitals. (Nearly all U.S. hospitals use chemical pesticides in their buildings and on their grounds.)
- Contact with clothing (yours or somebody's else's) that has been exposed to pesticides.
- Contact with indoor air and surfaces contaminated by pesticides (especially lawn herbicides, such as 2,4-D) tracked in by people and pets, and stirred up as dust.
- On airplanes. (Airlines routinely spray the cabins of planes used on routes that include certain tropical countries, sometimes over the heads of passengers in flight.)

Given the myriad ways we can come in contact with pesticides, it is not surprising that most people carry these chemicals around in their bodies, as evidenced by two recent studies. The Center for Disease Control and Prevention tested thousands of people for 116 chemicals. Nineteen pesticides were detected in the blood and urine of test subjects.⁴ In another study, researchers at Mount Sinai School of Medicine found 167 industrial chemicals in the blood and urine of nine subjects. Each person carried an average of 91 compounds, including 17 breakdown products from pesticides.⁵

How can I tell what is in a pesticide?

The pesticide label is your best source of information about a particular product. By law, the label must contain certain information, including:

- The brand name of the product (e.g. Cyclone Max). (Note: different manufacturers use different brand names for the same active ingredients, and a manufacturer will sometimes use different brand names for different formulations of the same active in-

redient.)

- A list of active ingredients (e.g. paraquat)
- Product type (e.g. herbicide)
- The manufacturer’s name and address
- Directions for use, storage and disposal.
- “Signal” words (e.g. DANGER) indicating how poisonous the product is to people and animals
- Precautionary statements about how to avoid harm to people, pets and the environment.
- Details about what to do in case of poisoning.

What is the legal significance of a pesticide “label”?

The label is a legal document. According to both federal and state law, a pesticide can only be used according to the directions on its label. Anyone who uses a pesticide without following all of the directions and precautions on the label is breaking the law.

What is the difference between active and inert ingredients?

Pesticides consist of active and inert ingredients. Active ingredients are designed to kill or damage a pest. There are more than 800 active ingredients registered for use in the U.S. Inert ingredients are all other ingredients in a pesticide product, added to make the pesticide more potent or easier to apply.

Inert ingredients are not necessarily inactive. They are called inert because the manufacturer claims that they are not added to a product to kill the target pest. Inert ingredients are considered trade secrets, and are not required to be listed on labels.

Inert ingredients include chemicals that can be as or more toxic than the active ingredient, including active ingredients in other pesticides, metabolites, surfactants and solvents. The government requires only minimal testing of inert ingredients, even though the vast majority of pesticides are made up of more than 90 percent inert ingredients.⁶

What is a restricted use pesticide?

Under both federal and New Mexico law, a pesticide is classified as either general or restricted use. General use pesticides are considered safe enough for anyone to use, as long as they follow the instructions

on the label. Restricted use pesticides are more dangerous, and legally may only be used by, or under the supervision of, certified applicators with special training.

What is “acute toxicity” and how is it determined?

Acute toxicity refers to how poisonous a pesticide is to humans and animals. EPA rates toxicity according to the results of LD50 (lethal dose) and LC50 (lethal concentration) tests. LD50 and LC50 refer to the dose of a substance which causes death in half of the test animals (usually rats or mice, but also monkeys, dogs, cats, rabbits and other animals).⁷

EPA categorizes the toxicity of pesticides on a scale of I to IV, as shown in Table 1.

Table 1. EPA toxicity ratings.

Category	Signal word required on label	LD50 oral mg/kg (ppm)	LD50 dermal mg/kg (ppm)	Probable oral lethal dose
I Highly Toxic	DANGER- POISON (Skull and Crossbones)	Less than 50	Less than 22	A few drops to 1 teaspoon
II Moderately Toxic	WARNING	51 to 500	200 to 2000	1 teaspoon to 1 ounce
III Slightly Toxic	CAUTION	Over 500	Over 2000	Over 1 ounce
IV Practically non- toxic	None required	na	na	na

Chapter 2

PESTICIDE USE IN THE U.S. AND NEW MEXICO

How much is used, and for what purpose?

How much pesticide is used in the United States?

EPA keeps statistics on the amount of pesticides registered for use, sold and used in the U.S. According to the most recent information:⁸

- More than 18,000 pesticide products are registered under the Fungicide, Insecticide, Fungicide and Rodenticide Act (FIFRA).
- About 5 billion pounds of chemicals are used as pesticides in the U.S. each year.
- Annual U.S. pesticide user expenditures totaled approximately \$11.2 billion in 1999—about one-third of the world market.
- Slightly more than half of pesticides used in the U.S. consists of chlorine products used to disinfect drinking water, wastewater and swimming pools.
- The use of conventional pesticides, including herbicides, insecticides, fumigants, plant growth regulators, etc., totaled 912 million pounds of active ingredient in 1999.
- There are about 1.2 million certified pesticide applicators in the U.S. Of these, most are agricultural applications (803,000) and the remainder (384,000) are certified commercial applicators.

Where are pesticides used?

Agriculture accounted for 77 percent, or 724 million pounds, of the total amount of active conventional pesticide ingredient used in the U.S. in 1999.⁹ Pesticides are used on nearly one million farms. The most widely used pesticide in U.S. agriculture, by volume, is the weed killer atrazine.

Pesticide applications by industry, commercial operators and government accounted for 14 percent, or

126 million pounds, of total active conventional pesticide ingredient used in 1999. Home and garden use accounted for 9 percent, or 80 million pounds, of active conventional pesticide ingredient used in 1999. The weed killer, 2,4-D, is the pesticide used the most in non-agricultural applications. It is found in more than 200 commercial products. Pesticides are used in nearly three-fourths (77 million) of U.S. households.

What are the most commonly used pesticides?

The most commonly used pesticides in the U.S. in 1999 are shown in Table 2:¹⁰

Table 2. Most commonly used pesticides in U.S. in 1999.

Agriculture	Home and Garden	Industry/Commercial/ Government
Atrazine (herbicide)	2,4-D (herbicide)	2,4-D (herbicide)
Metolachlor (herbicide)	Glyphosate (herbicide)	Glyphosate (herbicide)
Metam Sodium (soil fumigant)	MCPP (herbicide)	Copper Sulfate (fungicide)
Methyl Bromide (fumigant)	Dicamba (herbicide)	Pendimethalin (herbicide)
Glyphosate (herbicide)	Diazinon (insecticide)	Chlorpyrifos (insecticide)
Dichloropropene (soil fumigant)	Chlorpyrifos (insecticide)	MSMA (herbicide)
Acetochlor (herbicide)	Carbaryl (insecticide)	Chlorothalanil (fungicide)
2,4-D (herbicide)	Benefin (herbicide)	Diuron (herbicide)
Pendimethalin (herbicide)	Malathion (insecticide)	Malathion (insecticide)
Trifluralin (herbicide)	DCPA (herbicide)	Triclopyr (herbicide)

How much pesticide is used in New Mexico?

Unfortunately, statistics on pesticide usage are not available for New Mexico. State law¹¹ requires licensed applicators to keep usage records, but does not require that those records be made available to the public. No state agency compiles such records.

This is a glaring deficiency in pesticide regulation in New Mexico. The fact that this basic question cannot be answered shows how current state law places the interests of pesticides users and sellers above human health and the environment.

How many pesticides are registered for use in New Mexico?

According to the New Mexico Department of Ag-

riculture (NMDA), 8,930 pesticide products were registered by NMDA for distribution in New Mexico in 2000.¹² Not all pesticides used in the state are legal, however. NMDA found a total of 375 unregistered pesticides at various locations during inspections in 1997 and 1998.¹³

What is the extent of agricultural pesticide use in New Mexico?

Although usage records are not available directly to the public, several studies have used indirect methods to estimate pesticide use on cropland in New Mexico.

The National Center for Food and Agricultural Policy (NCFAP) is a private, non-profit research organization which maintains a database of pesticide use for each of the lower 48 states, based on information gleaned from a variety of sources. According to NCFAP, more than 2.6 million pounds of active pesticide ingredients were applied to cropland in New Mexico in 1997 (the most recent year for which information is available).¹⁴ The most commonly used pesticides are shown in Table 3.

The New Mexico Department of Health (NMDH) used an indirect method to estimate the amounts and types of agricultural pesticides used in two of New Mexico's principal farming counties, Dona Ana and Luna.¹⁵ By comparing the acreages of the various crops grown in these counties with the pesticides most often recommended for these crops by chemical companies and agricultural extension agents, NMDH was able to reach conclusions about the most commonly used pesticides in these counties, as shown in Table 4.

Table 3. Most commonly used pesticides on cropland in New Mexico (1997) Source: NCFAP

PESTICIDE	TYPE	AMOUNT USED (LBS)
1,3-D	other pesticide	1,066,983
ATRAZINE	herbicide	243,778
2,4-D	herbicide	186,773
METOLACHLOR	herbicide	138,825
SODIUM CHLORATE	other pesticide	119,673
CHLORPYRIFOS	insecticide	82,912
PENDIMETHALIN	herbicide	57,469
PROMETRYN	insecticide	50,997
ALACHLOR	herbicide	50,345
TRIFLURALIN	herbicide	47,392
BENEFIN	herbicide	47,010
MALATHION	insecticide	42,883
TRIBUFOS	other pesticide	31,210
GLYPHOSATE	herbicide	19,905

Table 4. Most commonly used pesticides on crops in Dona Ana and Luna Counties.

Pesticide	Type	Crops	Acres treated in Dona Ana County	Acres treated in Luna County	EPA Toxicity Category
Glyphosate	herbicide	Onions, lettuce, vegetables, grain, corn, apples, alfalfa, cotton, sod, chile, Christmas trees, pecans, wheat, soybeans, grapes, melons, apples	67,600	21,300	III
Paraquat	herbicide	Pecans, alfalfa, chile	61,300	NA	II
Carbaryl	insecticide	Grain, pecans, trees, alfalfa, chile	40,400	NA	III
2,4-D	herbicide	Grain, apples, corn, trees, alfalfa, sod	39,300	NA	I
Malathion	insecticide	Onions, lettuce, vegetables, grain, corn, apples, trees, cotton, chile, Christmas trees, wheat, grapes	34,000	18,000	III
Methyl Parathion	insecticide	Onions, lettuce, vegetables, grain, corn, alfalfa, wheat, soybeans	22,300	6,800	I
Diazinon	insecticide	Onions, lettuce, vegetables, corn, apples, chile	13,100	NA	II
Dimethoate	insecticide	Lettuce, vegetables, grain, corn, apples, trees, chile	13,100	NA	II
Bacillus Thuringiensis	insecticide	Lettuce, grain, chile	6,800	NA	III
DCPA	herbicide	Onions	2,600	NA	IV
Trifluralin	herbicide	Christmas trees, pecans, wheat, alfalfa, corn, onions, soybeans, chile, vegetables, melons	NA	16,300	III
Dichloropropene	soil fumigant	Chile, sorghum	NA	12,700	II
Metolachlor	herbicide	Christmas trees, chile	NA	9,500	III

Chapter Three

HEALTH HAZARDS OF PESTICIDES

What is known about the health risks of pesticides?

Are pesticides hazardous to human health?

Yes. Pesticides have been linked to many kinds of health problems, including those that occur immediately (acute) and those that develop over time (chronic).

What are the acute health hazards of pesticides?

The immediate health effects of pesticides range from relatively mild symptoms, such as eye irritation and rashes, to poisoning and death.

According to the Natural Resources Defense Council (NRDC), pesticides are responsible for about one of every 16 calls to poison control centers.¹⁶ Pesticide poisonings often involve organophosphate pesticides or their relatives, n-methyl carbamates. These products were developed from chemical warfare agents developed during World War II. Some organophosphates and n-methyl carbamates commonly used in New Mexico include malathion, diazinon, methyl-parathion, aldicarb (Temik®) and carbaryl (Sevin®).

Symptoms of organophosphate/carbamate poisoning include blurred vision, salivation, diarrhea, nau-

sea, vomiting, wheezing, and in severe cases, seizures, coma and death. Health professionals may mistake a mild to moderate poisoning as gastroenteritis, bronchitis, or asthma.

Table 5 shows the acute poisoning symptoms caused by different types of pesticides used in New Mexico.¹⁷

What are the chronic health hazards of pesticides?

Pesticides have been linked to many types of long-term, or chronic, health problems. They can damage the nervous system, disrupt hormone and immune systems, cause birth defects, miscarriages, and reduced birth weights, decrease fertility, and cause cancer.¹⁸

Long-term neurological problems have been reported in adults exposed to certain pesticides, such as shortened attention span and reduced coordination.¹⁹

A study of preschool children in rural Mexico found that children who were exposed to heavy pesticide use had impaired coordination, decreased physical stamina, short-term memory loss, difficulty drawing, and more aggressive behavior compared to other children.

Table 5. Acute symptoms of selected pesticides used in NM.

Pesticide group	Examples of pesticides used in NM	Symptoms
Organophosphates	malathion, diazinon, methyl parathion	Headache, muscle twitching, nausea, diarrhea, seizure, loss of consciousness
N-methyl carbamates	aldicarb, carbaryl	malaise, muscle weakness, dizziness, sweating, headache, salivation, nausea, vomiting, abdominal pain, diarrhea, depression, pulmonary edema
Synthetic pyrethroids		seizures, stinging, burning, itching, numbness
Chlorophenoxy herbicides	2,4-D; dicamba	skin and mucous membrane irritation, vomiting, diarrhea, headache, confusion, bizarre or aggressive behavior, peculiar odor on breath, kidney failure
Paraquat		burning pain in mouth, throat, chest, upper abdomen; diarrhea, giddiness, headache, fever, myalgia, lethargy, coma; pulmonary edema, pancreatitis, kidney failure
Other herbicides	glyphosate, atrazine, metolachlor	skin, eye and respiratory irritation
Other pesticides	sodium chlorate	nausea, vomiting, abdominal pain; skin, eye and mucous membrane irritation; kidney failure, shock, tissue hypoxia

Do pesticides cause cancer?

Probably. According to Natural Resources Defense Council (NRDC), at least 101 pesticides in use in 1998 are probable or possible human carcinogens.²⁰ Of the 28 most commonly used conventional pesticides in the U.S., more than 40 percent are classified as carcinogens (able to cause cancer) by EPA, according to the Northwest Coalition for Alternatives to Pesticides (NCAP).²¹ Total use of these carcinogenic pesticides was 350 million pounds in 1997.

NCAP identified 16 pesticides in current use in the U.S. that have been linked to breast cancer.²² Implicated pesticides include atrazine, the most commonly used herbicide in the U.S.

Results from a number of clinical studies in the U.S. and elsewhere suggest that women with high levels of insecticides related to DDT in their blood or other tissues have an increased risk of breast cancer.²³ DDT residues are still showing up in food samples, breast milk, and the environment, even though the pes-

ticide was banned in the United States more than 25 years ago.

Another comprehensive cancer study, reported in the July 13, 2000 issue of *The New England Journal of Medicine*, noted that for cancer at four of the five common anatomical sites, estimates of the proportion of risk due to environmental effects were all 65 percent or greater, and that 73 percent of breast cancers are caused by environmental factors.²⁴

According to an NRDC report, a growing body of evidence links pesticide exposure to cancer, birth defects, reproductive harm, neurological and developmental toxicity, immunotoxicity, and disruption of the endocrine system.²⁵ The report also notes that EPA has identified at least 96 different pesticide active ingredients registered for use that are potential human carcinogens.

A large study in California, reported in the November, 2001 issue of the *American Journal of Industrial Medicine*, found that Hispanic farmworkers have higher rates of brain, leukemia, skin and stomach cancers than other Hispanics in the state, possibly due to their higher exposure to pesticides.²⁶

The Cancer Prevention Coalition reports that over recent decades, the incidence of cancer in Europe, the U.S. and other industrialized nations has escalated to epidemic proportions, with lifetime cancer risks in some nations reaching 1 in 2 for men and 1 in 3 for women. The overall increase of all cancers in the U.S. from 1950 to 1995 was 55 percent. The coalition has concluded that the predominant cause of the modern cancer epidemic is the pervasive contamination of our environment, air, water, food, and consumer products by persistent industrial carcinogens, including pesticides.

For an excellent review of studies examining the link between pesticides and cancer, visit the website of the Lymphoma Foundation of America at <http://www.lymphomahelp.org/report.php>.

Do pesticides cause Parkinson's disease?

Very likely. Parkinson's disease is a degenerative brain disorder causing loss of control over the body's movements. Symptoms include involuntary trembling, muscle rigidity, slow movement and loss of balance. Parkinson's disease affects more than 500,000 people, including the late U.S. Representative Joe Skeen (R-NM), former U.S. Attorney General Janet Reno and actor Michael J. Fox.

Studies have shown a link between certain pesticides and Parkinson's disease.²⁷ In 2000, University of Rochester researchers found that two commonly used crop pesticides, the herbicide paraquat, and the fungicide maneb, when administered together caused brain damage in mice similar to Parkinson's disease. Earlier that year, researchers at Emory University discovered that rats developed Parkinson's after ingesting the pesticide rotenone. Since then, other pesticides have been shown to have the same effect.²⁸

Do pesticides damage our reproductive, hormone and immune systems?

Yes. The book *Our Stolen Future* documents the effects that pesticides have on our reproductive and endocrine (hormone) systems. Those effects include reduced disease resistance, altered fetal development, diminished fertility and compromised intelligence and behavior.

According to the book's authors, the following pesticides have been found to cause reproductive failures and endocrine disruptions: 2,4,5-T, 2,4-D, alachlor, aldicarb, amitrole, atrazine, benomyl, beta-HCH, carbaryl, chlordane, cis-nonachlor, cypermethrin, DBCP, DDT, DDT metabolites, dicofol, dieldrin, endosulfan, esfenvalerate, ethylparathion, fenvalerate, lindane,

EPA's risk assessment of 19 of the 28 most commonly used pesticides in the U.S. showed that all but one caused reproductive problems in laboratory tests.

heptachlor, h-epoxide, kelthane, kepone, malathion, mancozeb, maneb, methomyl, methoxychlor, metiram, metribuzin, mirex, nitrofen, oxychlordane, permethrin, synthetic pyrethroids, toxaphene, trans-nonachlor, tributyltin oxide, trifluralin, vinclozolin, zineb, and ziram.²⁹

EPA's risk assessment of 19 of the 28 most commonly used pesticides in the U.S. showed that all but one caused reproductive problems in laboratory tests, including miscarriages, birth defects, sperm abnormalities, reduced sperm production and damage to male reproductive organs. Total use of these pesticides is nearly 550 million pounds annually.³⁰

Are children especially at risk?

Yes. Children are more vulnerable to pesticides and other environmental toxins because they are growing and developing, they eat proportionately more fruits and vegetables and drink more water than adults, and their behavior patterns—crawling around the floor and putting things in their mouths—puts them at greater risk.

Children's special vulnerability to pesticides was brought to the public's attention by the National Research Council (NRC). In a 1993 report³¹, NRC estimated that 50 percent of all the pesticides a person ingests in a lifetime is ingested in the first five years of life. The report found that some foods contain an amount of pesticide nearly equal to a toxic dose if eaten by children, a conclusion that was a major reason for enactment of the Food Quality Protection Act in 1996.

A report by the Northwest Coalition for Alternatives to Pesticides details how children are affected by pesticides.³²

- Children's brains and nervous systems are not completely developed, making them more susceptible to the effects of nerve poisons. Several major classes of insecticides are nerve poisons.
- Children's livers and kidneys are unable to detoxify or filter and excrete certain chemicals as quickly as adults. This contributes to the greater toxicity of some substances to infants and young children.
- Children are growing and their cells are dividing more quickly than those of adults, making them vulnerable to the effects of cancer-causing chemicals.
- Children receive relatively greater doses than adults when exposed to pesticides in their environment, due to the fact that they breathe in a greater volume of air and have a greater skin surface area relative to their smaller body weights.

In a 1998 report, the Natural Resources Defense Council (NRDC) found pesticide exposure to be one of the top five environmental threats to children's health.³³ Children living on or near farms in the United States were especially at risk because of their disproportionately high exposure to pesticides. The report noted that:

- Fetuses, infants, and children are particularly sus-

ceptible to pesticides compared with adults because their bodies cannot efficiently detoxify and eliminate chemicals, their organs are still growing, and developing, and because they have a longer life-time to develop health complications after an exposure.

- Many pesticides that are never used indoors are tracked into the home and accumulate there at concentrations up to 100 times higher than outdoor levels.
- In non-agricultural urban or suburban households, an average of 12 different pesticides per home have been measured in carpet dust and an average of 11 different pesticide residues per household have been measured in indoor air in homes where pesticides are used.
- In a rural community, all 197 children tested had urinary residues of the cancer-causing pesticide pentachlorophenol, all except six of the children had residues of the suspected carcinogen p-dichlorobenzene, and 20 percent had residues of the normally short-lived outdoor herbicide 2,4-D, which has been associated with non-Hodgkins lymphoma.

Are dangerous pesticides used in schools?

Yes. Although many people assume schools are safe places for children to learn, sadly that is often not the case. Many—probably most—schools are routinely treated with pesticides.

Children can be exposed when they touch a school desk, sit on a carpeted classroom floor, breath in a room or hallway that has been treated, pick up a ball that has rolled across an area that has been treated, or while exploring school grounds. Common symptoms of such exposure include headaches, rashes, allergic reactions, asthma attacks, nausea, fevers and other flu-like symptoms.³⁴

Of the 48 most commonly used pesticides in schools, the vast majority can cause debilitating and life threatening health effects: 21 can cause cancer, 27 can adversely affect reproduction, 31 are nervous system poisons, 31 can cause liver and kidney damage, and 17 can cause birth defects.³⁵

Children's health advocates have tried in recent years to get Congress to pass national legislation regulating the use of pesticides in schools. While those ef-

forts have been unsuccessful, many school districts are moving towards reducing the use of pesticides in schools.³⁶ In New Mexico, schools districts in Santa Fe, Albuquerque, Clovis, Rio Rancho and Taos have adopted an integrated pest management approach to reduce the use of pesticides in their schools.³⁷ In 2000, the New Mexico Board of Education passed guidelines to reduce the use of pesticides in schools as well. See Chapter Six for more information.

Are there pesticides in food?

Often. The Food and Drug Administration (FDA) is charged with monitoring pesticide residues in imported foods and in domestic foods shipped in interstate commerce, including fruits, vegetables, grains, fish, and dairy products. FDA also samples and analyzes animal feeds for pesticide residues. In 2001, FDA analyzed more than 6000 food samples. Pesticide residues were detected in one-third of the domestic samples, and in nearly one-fifth of the imports. The most frequently detected pesticides were malathion, chlorpyrifos-methyl, diazinon, and chlorpyrifos.³⁸

The U.S. Department of Agriculture (USDA) monitors meat, poultry, and egg products. USDA's Pesticide Data Program also maintains a database containing the results of USDA's own monitoring plus that of other state and federal agencies. In 2001, more than 12,000 food and water samples were tested. Nearly two-thirds of the fruits and vegetable samples, almost half the drinking water samples, and 19 percent of the beef samples contained detectable pesticide residues.³⁹

In 2003, the advocacy organization Environmental Working Group (EWG) announced the results of its review of more than 100,000 government pesticide test results from 1992 to 2001. EWG found 192 dif-

ferent pesticides on 46 fresh fruits and vegetables.⁴⁰ The most and least consistently contaminated items are shown in Table 6.

A study by the advocacy group Consumers Union (CU) found that pesticide residues on foods commonly eaten by children - such as apples, grapes and strawberries - often exceed safe levels.⁴¹ CU based its conclusions on an independent analysis of government tests in 1998 of thousands of fruit and vegetable samples. Consumers Union noted that U.S. grown produce generally is more likely to have higher residues than imported fruits and vegetables, with a few exceptions, such as tomatoes grown in Mexico. It also found that organochlorine pesticides banned in the 1970's are still showing up in foods that children eat today.

Does organic food contain pesticides?

Organic food is grown without the use of synthetic chemicals. Surprisingly, organic food does sometimes contain pesticide residues, but less often than conventional foods.

In 2002, Consumers Union analyzed test data for pesticide residues on organic and non-organic foods from three independent sources. In all cases, organic fruits and vegetables contained residues only about one-third as often as produce grown by conventional methods. Conventionally grown produce was six times as likely to contain multiple pesticide residues as organic. The researchers discovered that about half the pesticide residues on organic produce were from long-banned, persistent organochlorines such as DDT. The rest they attributed to mislabeling or contamination by pesticide drift from nearby non-organic farms.⁴²

Table 6. Foods that are most and least consistently contaminated with pesticide residues. (Source: Environmental Working Group)

CONSISTENTLY MOST CONTAMINATED	CONSISTENTLY LEAST CONTAMINATED
apples	Asparagus
bell peppers	Avocados
celery	Bananas
cherries	Broccoli
imported grapes	Cauliflower
nectarines	Corn
peaches	Kiwi
pears	Mangos
potatoes	Onions

Chapter Four

PESTICIDES AND THE ENVIRONMENT

How do pesticides affect the natural environment?

Do pesticides contaminate our air?

Yes. Pesticides have been detected in the atmosphere in all areas of the nation sampled by the United States Geological Survey (USGS), including persistent pesticides banned long ago, such as DDT (banned in 1973) and toxaphene (1982). DDT was found in over 90 percent of air samples, while diazinon and malathion were found in 80 percent of air samples taken across the country and tested by USGS.⁴³

The highest atmospheric concentrations of pesticides occur seasonally in high-use areas when applications are greatest, while low-levels of long-lived pesticides are present in the atmosphere throughout the year, the agency says. USGS found evidence that some pesticides were carried long distances in the atmosphere from one part of the country to another.⁴⁴ A complete list of pesticides found in air samples by USGS can be found at <http://ca.water.usgs.gov/pnsp/atmos>.

Pesticide contamination of indoor air has also been documented. In 1990, EPA's Nonoccupational Pesticide Exposure Study found 26 different pesticides in indoor air.⁴⁵ Of the 26 pesticides detected, 19 are nerve poisons, 18 may cause cancer, 15 are mutagens, 15 cause birth defects, and 19 can cause reproductive problems.⁴⁶

Do pesticides pollute our water?

Yes. Pesticide contamination of surface and groundwater is widespread. In 1999, USGS reported on the results of its assessment of water quality in streams and groundwater across the nation. Water and fish tissue samples were tested for 76 pesticides. It found at least one pesticide in virtually all samples collected from streams, and in more than half of all the shallow wells tested.⁴⁷ Even more alarming, nearly every stream and about half of all wells contained *more* than one pesticide. More than half the stream samples contained five or more pesticides.

The most commonly found pesticides in water were four of the most heavily used herbicides on cropland, four herbicides with the greatest use in urban

areas and other non-agricultural applications, and four insecticides that have both agricultural and urban uses. The herbicide atrazine was the most widely detected, showing up in two-thirds of the water samples collected in farming areas.

A 1995 study of tapwater in midwestern cities by the Environmental Working Group found atrazine in the drinking water of 28 out of 29 cities, and the herbicide cyanazine in the tap water of 25 cities.⁴⁸ In eight cities, more than half of the samples exceeded either the federal limit for atrazine in drinking water, or the cyanazine lifetime health advisory. The peak level of contamination found in the study was more than 30 times federal health standards. In thirteen cities, peak contamination levels were at least triple federal health standards.

How do pesticides affect wildlife?

Pesticides harm wildlife in many ways, from direct poisoning and death, to long-term chronic effects, to ecological changes that threaten the ability of wildlife populations to survive.

Literally millions of animals are directly poisoned or sickened by pesticides in the U.S. each year. Birds are particularly vulnerable because of their mobility and because many live and feed around farms. The American Bird Conservancy estimates that pesticides affect some 672 million birds each year, resulting in the outright death of about 67 million of these.⁴⁹

According to the U.S. Fish and Wildlife Service, 50 pesticides currently used in the United States have caused documented bird die-offs.⁵⁰ In New Mexico, pesticide poisoning reportedly killed 800 to 1,200 geese east of Roswell, near the Bitter Lake National Wildlife Refuge, in March, 2000.⁵¹

Fish are also at high risk, because of their susceptibility to toxins in water and the tendency of pesticides to wash into streams and lakes. An estimated 6 to 14 million fish are killed each year by pesticides.⁵²

Secondary poisoning results when an animal consumes another animal whose body has been contaminated with pesticides. In the winter of 1996, for ex-

ample, an estimated 20,000 Swainson’s hawks—a bird common in New Mexico’s grasslands—died after feeding on insects in alfalfa and sunflower fields sprayed with insecticide. Secondary poisoning often occurs as a consequence of pollutants becoming more concentrated as they go up the food chain.

Pesticide-induced deformities have been found in many kinds of wild animals, including alligators in Florida, eagles in the Great Lakes region, fish in Great Britain, and vultures in India.⁵³ Pesticides are widely suspected as a potential cause of amphibian declines and deformities around the world. Several recent studies have linked the popular herbicide atrazine to sexual abnormalities in frogs.⁵⁴ Pesticides are also suspected as a contributing factor in the decline of pollinator species and other beneficial insects.⁵⁵

The impact on pollinators such as honey bees, birds, bats and insects, is especially troubling. Without pollinators, 90 percent of the world’s flowering plants cannot reproduce, including three-quarters of food crop species.⁵⁶

Pesticides can harm wildlife indirectly in many ways. The build up of DDT and other persistent organochlorine pesticides in the tissues of birds causes thinning of egg shells, resulting in fewer offspring. This was the main factor in the decline of bald eagles, peregrine falcons and other birds in the U.S., and is still a problem in Africa and other parts of the world today where such chemicals continue to be used.⁵⁷

Pesticides can weaken animals, making them more vulnerable to predation and generally reducing their ability to survive the rigors of life in the wild. Wildlife is also affected when pesticides kill off their prey, or destroy the vegetation they need for shelter and nesting.

Genetically modified crops also pose a threat to wildlife. In one study, monarch butterflies died after being fed milkweed plants dusted with pollen from corn plants containing the bacterium *Bacillus thuringiensis* (Bt).⁵⁸ More than 10 million acres of Bt corn is planted each year in the U.S. Since corn pollen is wind dispersed, plants adjacent to corn fields are easily contaminated.

Thousands of nontarget wild animals in the U.S. are accidentally poisoned each year as a result of government funded efforts to control “nuisance” wildlife. A variety of pesticides are employed by this program, led by the U.S. Department of Agriculture’s Wildlife Services agency. In New Mexico, the main state agency

assisting in this effort is the New Mexico Department of Agriculture (NMDA), the same entity that is also responsible for protecting public health and the environment from pesticides.

Many nontarget animals are killed by poison devices known as M44s set out by ranchers and government agents to kill coyotes. These spring-loaded devices shoot sodium cyanide into the mouth and nose of any unsuspecting animal that investigates the bait. Table 7 shows the animals reported poisoned by M44s in New Mexico in FY 2002.⁵⁹

Table 7. Wildlife species reported killed by M44 devices in NM (FY2002)

Species	Number killed
Coyotes	1377
Black bears	2
Dogs	6
Gray foxes	22
Swift foxes	4
Raccoon	1
Raven	1
Striped skunks	6

Intentional illegal poisoning of wildlife is also a problem. A U.S. Fish and Wildlife Service (FWS) undercover investigation in the early 1990s found that hundreds of bald and golden eagles were being illegally poisoned by sheep ranchers using pesticides. Raids in Colorado and Wyoming netted enough poison “to kill every man, woman, child and mammal in the western U.S.”⁶⁰

An undercover federal wildlife agent told one of the authors of this report in May 2000 that his agency still occasionally gets reports of wildlife being illegally poisoned in New Mexico by ranchers and herders using the banned predicide Compound 1080. More frequently, agents find poisoned wildlife lying next to carcasses illegally laced with the pesticides Temik® (aldicarb) or Furadan® (carbofuran).

Are pesticides used on our public lands?

Yes. Pesticides are used on federal public lands managed by the U.S. Forest Service, the Bureau of Land Management (BLM), and other federal agencies. Herbicides are commonly used to control “noxious” weeds that spread as a result of ground-disturbing activities. Herbicides, especially tebuthiuron, are also used to kill shrubs in an attempt to encourage grass growth on BLM lands grazed by cattle. Predicides,

such as sodium cyanide, are used to poison canines on livestock grazing allotments.

Salt cedar and herbicides

There is growing interest in using herbicides in New Mexico to eliminate salt cedar (*Tamarix* spp.), a non-native tree that has replaced native vegetation along many waterways in the Southwest and allegedly consumes large quantities of water.⁶¹ Conservationists generally support the replacement of salt cedar with native plant species to restore wildlife habitat, but point out that the proliferation of salt cedar is in large part the result of past and current river management that favors the growth of salt cedar over native plants such as cottonwoods.

The herbicide Arsenal® (imazapyr) has been sprayed along the Rio Grande and Pecos Rivers to remove salt cedar. Although studies suggest that imazapyr has low toxicity for humans and mammals, it breaks down slowly in the environment and is easily washed out of soils into rivers.⁶² These characteristics raise concerns about its potential to harm soil and aquatic organisms, as well as contaminate drinking water supplies. The city of El Paso currently obtains about half its drinking water from the Rio Grande, and Albuquerque will soon tap the river for its drinking water too. Ozone degradation, a process for removing impurities from water to make it potable, does not work with imazapyr.⁶³

Other methods besides broadcast application of herbicides have been used successfully to remove salt cedar, including mechanical removal, and the “cut-stump” method in which the tree is cut and a small amount of herbicide immediately applied to the stump in order to kill the roots. There is on-going research to see if goats and beetles can be effective in controlling salt cedar.⁶⁴

West Nile virus and pesticides

West Nile virus (WNV) is a mosquito transmitted disease that infects people, birds, horses and other animals. Since it first appeared in New York City in 1999, it has spread rapidly across the U.S., prompting state and local governments to beef up mosquito control programs, including increased spraying of pesticides.

Most people infected with the virus show no symptoms. About one in six develop flu-like symptoms, and about one in 150 develop encephalitis or meningitis

that can be life-threatening.

The first human case of west Nile virus in New Mexico was reported in 2003, a year in which 201 New Mexicans were diagnosed with the illness. Four New Mexicans died, all of them older than 70 years of age.⁶⁵

Strategies against WNV that rely heavily on spraying for adult mosquitos are inefficient because there are so many places where mosquitoes can hide out of reach of pesticides. Spraying may actually increase mosquito numbers by killing their predators, such as dragonflies. Some of the most commonly used pesticides against mosquitos are also some of the most dangerous pesticides on the market, such as chlorpyrifos (Dursban®—banned by EPA for all household uses in 2000), naled (Dibrom®) and malathion.⁶⁶ Naled and malathion have been linked to cancer, and malathion is suspected of causing blood, vision and reproductive disorders.⁶⁷ One expert has called spraying “a waste of money.”⁶⁸

A more effective and economical approach is to reduce mosquito breeding sites, and to mosquito-proof your house to keep from getting bit. Mosquitoes can reproduce in any source of water left standing for more than a few days, including old tires, roof gutters, ceramic pots, garden ponds and flooded fields. See the New Mexico Department of Health’s website for more information (<http://www.health.state.nm.us>).

Chapter Five

PESTICIDE REGULATION: AN OVERVIEW

What are the laws, and who is supposed to enforce them?

Which laws regulate the use of pesticides?

Pesticide use in New Mexico must conform to both federal and state laws.

- **The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)**⁶⁹ is the primary law regulating pesticides in the United States. Under FIFRA, pesticides must be registered with the U.S. Environmental Protection Agency (EPA) to be sold or distributed. EPA will register a pesticide if it determines that the pesticide will not generally cause “unreasonable adverse effects on the environment” when used in accordance with “widespread and commonly recognized practices.” FIFRA defines this to mean “any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits” of the pesticide’s use.

EPA may cancel a registration if it decides that a pesticide poses an unreasonable risk. EPA’s means of ensuring proper use of pesticides is enforcement of the agency-approved label directions, restrictions, and precautions. Failure to use a pesticide in accordance with the label is a violation of federal law, and may result in civil or criminal penalties.⁷⁰

FIFRA was originally enacted in 1947 as a product reliability law, designed to ensure farmers that the pesticides they bought performed as advertised. Although it has been amended over the years, it is still not a health or safety-based law. It is based on weighing risks against benefits, which means that dangerous pesticides can still be registered if the economic benefits are great enough. Critics of the law argue that the costs of 1000 children with leukemia, or one million dead birds, cannot adequately be weighed against the profit margins of chemical manufacturing companies.

- **The Federal Food, Drug, and Cosmetic Act (FFDCA)** requires EPA to set maximum residues limits, or tolerances, for pesticides used in or on

foods or animal feed. Tolerances (or exemptions from tolerances) are established based on a health-based standard, such that there is a “reasonable certainty of no harm.” A single pesticide registered for multiple food or feed uses must have multiple tolerances.

It is important to understand that this law does not prohibit pesticide contamination of your food. Rather, it sets a limit on the amount of pesticide that can be in your food based on what the government believes is safe, and it requires that food samples be tested to ensure that these levels are

FIFRA was originally enacted in 1947 as a product reliability law, designed to ensure farmers that the pesticides they bought performed as advertised. Although it has been amended over the years, it is still not a health or safety-based law.

not exceeded. As discussed in chapter three, food samples often contain pesticide residues.

- **The Food Quality Protection Act (FQPA) of 1996** amended the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA). The FQPA established a new, health-based standard for pesticide residues on raw and processed foods, and required EPA to take into account the increased vulnerability of children when establishing acceptable levels of pesticides in foods.⁷¹ It directed EPA to set a 10-fold safety factor to protect children. It also set deadlines for EPA to reassess previous pesticide food tolerances using the new health standard. Critics say the agency has frequently failed to meet these deadlines due to pressure from industry.⁷²
- **The New Mexico Pesticide Control Act**

(NMPCA) is the primary state law governing pesticide use in New Mexico. The act defines the state's authority over pesticide applicator certification and licensing, pesticide use enforcement, and pesticide registration. See the next chapter for more information about this important law.

Who regulates the use of pesticides?

At the federal level, the Environmental Protection Agency (EPA) generally sets standards for pesticide use, which the Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) monitor and enforce.

EPA decides whether or not a pesticide can be registered for use in the U.S. For registered pesticides, EPA establishes the restrictions on its use, which must appear on the label. EPA also sets food tolerances for pesticides.

FDA and USDA monitor pesticide residues in foods and feed sold in interstate commerce using the tolerances established by the EPA. If food or feed products contain residues of pesticides that have not been granted tolerances or exemptions, or if residues exceed tolerances, foods are considered adulterated and are subject to seizure. FDA monitors most foods sold in interstate commerce except meat, poultry, and certain egg products which are monitored by USDA. States are responsible for monitoring foods that are not sold in interstate commerce.

The Federal Aviation Administration (FAA) regulates civil aviation in the U.S., including aerial application of pesticides. FAA regulations prohibit the dispensing from an aircraft of "any material or substance in a manner that creates a hazard to persons or property on the surface."⁷³

In New Mexico, the New Mexico Department of Agriculture (NMDA) is the lead state agency for regulating pesticide use. NMDA operates under the direction of the Board of Regents of New Mexico State University. See Chapter 6 for more information about this agency.

The New Mexico Environment Department (NMED) is responsible for monitoring pollutants, including pesticides, in the state's air and water.

The Scientific Laboratory Division of the New Mexico Department of Health provides analytical support services for agencies that administer health and environmental programs for New Mexico citizens. The laboratory can analyze samples of soil, water, and other

materials for pesticide contamination.

The New Mexico Administrative Code⁷⁴ requires health care workers to report confirmed and suspected pesticide related illnesses and injuries to the New Mexico Health Department's Office of Epidemiology.

What does it mean to "register" a pesticide?

Registration is the process by which a government agency—EPA at the national level, and NMDA in New Mexico—determines whether a product can be legally used as a pesticide, and under what conditions.

According to EPA⁷⁵ :

The process of registering a pesticide is a scientific, legal, and administrative procedure through which EPA examines the ingredients of the pesticide; the particular site or crop on which it is to be used; the amount, frequency, and timing of its use; and storage and disposal practices. In evaluating a pesticide registration application, EPA assesses a wide variety of potential human health and environmental effects associated with use of the product. The producer of the pesticide must provide data from tests done according to EPA guidelines.

If a pesticide is registered for use by EPA, does that mean it is safe?

No. By law, EPA is supposed to base its registration decisions on a comparison of risks and benefits, not whether or not a product causes harm to people or the environment. EPA itself does not view the registration process as an endorsement of a product's safety. In fact, EPA regulations specifically prohibit pesticide companies from making claims for its products like "safe" or "harmless."⁷⁶

EPA's job is overwhelming. When Congress amended FIFRA in 1972, it required EPA to not only consider the environmental impacts and chronic toxicity when registering new pesticides, but to go back and evaluate the 50,000 pesticides already on the market through a process called "reregistration."⁷⁷ Thirty years later, EPA has still not finished the task.

Nor is reregistration a guarantee of safety. EPA has reregistered some pesticides despite their known hazards. Here are some examples:

- metolachlor (herbicide)—reregistered in 1995. EPA classifies it as a "possible human carcinogen" (cancer-causing substance).

- chlorpropham (sprout inhibitor)—reregistered in 1996. This product is used on 60 percent of the potatoes eaten in the U.S. In animal lab studies, it caused anemia and fetal loss. The average child’s diet includes 85 to 231 percent of what EPA considers an acceptable amount of chlorpropham.
- heptachlor (insecticide)—reregistered in 1992. This chemical is persists in the soil for many years. It causes cancer and developmental effects in mice and rats.
- chlorothalonil (fungicide)—reregistered in 1999. A likely human carcinogen, this chemical causes kidney tumors in animals, eggshell thinning in birds, and is highly toxic to fish.

In addition, the registration process contains loopholes. One of these is something called “conditional” registration, which allows a new product to be registered with incomplete health and safety testing, so as not to be at a competitive disadvantage to older pesticides for which similar testing was not required. In a survey of 41 new conventional pesticides registered between 1997 and 2001, the Northwest Coalition for Alternatives to Pesticides found that more than half were conditionally registered.

Even “full” registration does not guarantee adequate testing. In NCAP’s survey, more than half of the new pesticides with full registration were incompletely tested at the time they were registered. The survey also found that the new pesticides posed significant health dangers, no matter how they were registered. About 20 percent were classified by EPA as carcinogens, more than one-third had caused genetic damage in laboratory tests, and over three-fourths had caused birth defects, miscarriages, or other reproductive problems.

Other loopholes are “experimental” and “emergency” registrations, routinely granted by EPA, which enable a pesticide to bypass most registration requirements.

Another major loophole is the special review process, initiated when EPA has reason to believe an already registered pesticide is causing unreasonable damage. During a special review, EPA conducts a risk-benefit assessment and considers “risk reduction” measures. Meanwhile, the pesticide in question continues to be sold and used. The process is intended to get particularly hazardous pesticides out of the market

quickly. In reality, the average special review take more than five years to complete.

There are also problems with the testing required by EPA. If a pesticide is not intended for use on crops, EPA can waive chronic toxicity tests needed to determine whether a chemical causes cancer, genetic damage, birth defects, etc., on the assumption that exposure will be minimal. As critics have pointed out, your child can roll around on grass treated with a pesticide that has never been tested for chronic toxicity.⁷⁸

EPA does not require testing for many health and environmental effects. Inert ingredients are seldom tested for chronic toxicity, despite the hazards they pose. Most pesticides are not tested for chronic neurotoxicity, endocrine disruption, effects on sperm production, or toxicity to the immune system.

Tests look at the average person rather than vulnerable groups like children and the elderly. EPA does not require testing for the effects of pesticides in combination, even though scientists have long known that some pesticides are more potent when combined than alone. Most tests focus on pesticide ingestion, ignoring other kinds of exposure that may be important, such as drinking or bathing in contaminated water.

EPA requires that pesticide manufacturers submit the data needed for registration, creating an obvious conflict of interest that has led to biased and fraudulent testing. To cite one example, Craven Laboratories was fined over \$15 million in 1994 and its president jailed for five years for falsifying residue data.⁷⁹

Are there special rules to protect workers from pesticides?

Yes. EPA established the Worker Protection Standard (WPS) in 1992 to protect agricultural workers from pesticides. The WPS covers pesticide handlers – those who mix, load, or apply agricultural pesticides; clean or repair pesticide application equipment; or assist with the application of pesticides in any way. It also covers workers who help to cultivate and harvest plants on farms or in greenhouses, nurseries, or forests. Some requirements apply to employees who handle pesticide application equipment or clean or launder pesticide-contaminated personal protective equipment. Office employees, truck drivers, and mechanics are not covered.

Workers are protected in the following ways:

- Applicators are prohibited from applying a pesti-

cide in a way that will expose workers or other persons. Workers are excluded from areas while pesticides are being applied.

- Restricted-entry intervals must be specified on all agricultural plant pesticide product labels. Workers are excluded from entering a pesticide treated area during the restricted entry interval, with only narrow exceptions.
- Personal protective equipment must be provided and maintained for handlers and early-entry workers.



The Worker Protection Standard is intended to protect agricultural workers from pesticides. (Photo by Sara Holguin)

- Workers must be notified about treated areas so they can avoid inadvertent exposures.
- Handlers and workers must have an ample supply of water, soap, and towels for routine washing and emergency decontamination.
- Transportation must be made available to a medical care facility if a worker or handler may have been poisoned or injured. Information must be provided about the pesticide to which the person may have been exposed.
- Training is required for all workers and handlers, and a pesticide safety poster must be displayed at a central location.
- Handlers and workers must be informed of pesticide label requirements. Central posting of recent pesticide applications is required.

Chapter Six

PESTICIDE REGULATION IN NEW MEXICO

The fox watching the chickens?

Which agency is responsible for enforcing pesticides laws in New Mexico?

The New Mexico Department of Agriculture (NMDA) is the lead state agency for regulating pesticide use in New Mexico. NMDA is a cabinet-level department, but unlike other state agencies that report to the governor, NMDA operates under the direction of the Board of Regents of New Mexico State University.

NMDA’s mission is both to protect the public *and* advocate for agricultural interests.⁸⁰ Since agriculture is by far the biggest user of pesticides (in the U.S., and presumably New Mexico, although usage records are not available to the public), this creates an obvious conflict of interest for the department, no matter how conscientious agency personnel might be.

NMDA is responsible for enforcing the New Mexico Pesticide Control Act (see below). It is also responsible for enforcing the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in New Mexico under a cooperative agreement and grant from EPA, thereby giving it authority within New Mexico to enforce the most important federal *and* state pesticide laws.

What is the main state law regulating pesticide use in New Mexico?

The **New Mexico Pesticide Control Act** (NMPCA) is the primary state law governing pesticide use in New Mexico.⁸¹ The act defines the state’s authority over pesticide applicator certification and licensing, pesticide use enforcement, and pesticide registration.

Table 8 summarizes the main points of the NMPCA, as well as some things it does not address. A more detailed description of its contents follows.

A closer look at the New Mexico Pesticide Control Act

NMPCA requires that pesticides dis-

tributed within the state be registered with the New Mexico Department of Agriculture (NMDA). NMDA will register a pesticide if it appears that the pesticide “warrants the proposed claims for it.”⁸²

The act prohibits the use and distribution within the state of pesticides that are not registered, except under an experimental use permit. It also prohibits the use of registered pesticides for uses for which they were not registered or in a manner inconsistent with their labels.

The act prohibits the use or handling of any pesticide in a manner that would “endanger man and his environment,” and the disposal and storage of pesticides in a manner that “may cause injury to humans, vegetation, crops, livestock, wildlife, pollinating insects or to pollute any water supply or waterway.”

The act defines various categories of applicators and establishes licensing requirements for each of them. These are:

- *Pest management consultant*—any individual who offers or supplies technical advice or makes rec-

Table 8. Key provisions of the NM Pesticide Control Act

WHAT NMPCA DOES...	...AND DOES NOT DO
Requires that pesticides distributed and used within the state be registered by NMDA	Allow local communities to enact stricter laws to protect themselves from pesticides
Requires that pesticides be used according to their label and for the purpose for which they were registered	Require that pesticide applicators put up signs or provide advance notification before using pesticides
Establishes licensing and recordkeeping requirements for various kinds of pesticide applicators	Require that applicators make their pesticide use records available to the public or other state and federal agencies
Gives NMSU regents the authority to issue regulations to protect people, animals, and plants from pesticide misapplication or drift	Allow citizens to initiate legal actions to stop violators of the act
Establishes a New Mexico Pesticide Advisory Board.	Require that environmental or health advocates be represented on the New Mexico Pesticide Advisory Board

ommendations to the user of highly toxic pesticides, restricted use pesticides, or both. Must obtain a license from NMDA.

- *Commercial pesticide applicator*—any certified applicator who for compensation uses or supervises the use of any pesticide for any purpose on any property. Must obtain a license from NMDA for use of both general and restricted use pesticides.
- *Public pesticide applicator*—any certified applicator who as an employee of a government agency uses or supervises the use of any restricted use pesticide. Must obtain a license from NMDA.
- *Commercial operator*—any person who uses any pesticide as an employee of a commercial applicator. Licensing by NMDA is required for use of both general and restricted use pesticides.
- *Private applicator*—any farmer or rancher who uses or directly supervises the use of restricted-use pesticides on property owned or rented by them, or on neighboring farms and ranches. The application of restricted use pesticides must be for the production of an agricultural commodity and may not be for payment. Must be certified by NMDA to use restricted use pesticides.

The act requires all licensed pesticide applicators except private applicators to keep records of pesticide use to which the department shall have access for the purpose of making copies, but which are otherwise confidential “unless required for the enforcement” of the act.

Violations of the act are a petty misdemeanor and may be subject to a fine of up to \$1000 per violation. The act authorizes NMDA to file a criminal complaint in magistrate court for violations of the act or its regulations.

The act authorizes the New Mexico State University board of regents (which oversees NMDA) to enact regulations to implement the act that are consistent with regulations of the New Mexico Environmental Improvement Board, the New Mexico Water Quality Control Commission and EPA. Among other things, the regents can enact regulations to:

- designate certain pesticides as “highly toxic to any animal including man”

- require pesticide applicators to notify adjoining and nearby landowners of a proposed application of pesticide (they have not done this)
- classify pesticides as general use or restricted use
- prescribe methods governing the application of pesticides as needed to “prevent damage or injury by drift or misapplication” to plants, nearby lands, wildlife, fish and other aquatic life, and humans, animals and beneficial insects.

New Mexico Pesticide Advisory Board

The act also establishes a pesticide advisory board to “assure the continuation of the basic policy of the state to protect and improve the environment by assuring the proper registration, distribution and use of pesticides and devices.”

By law, the board is supposed to meet at least once a year, but in reality, it does not meet at all in some years. The board is supposed to review pesticide regulations and pesticides in use or proposed to be used in the state, and advise which pesticides should not be

By law, the NM Pesticide Advisory Board is supposed to meet at least once a year, but in reality, it does not meet at all in some years.

registered in the state, which should be designated restricted use pesticides, and the use to which restricted use pesticides may be put.

The law states:

In determining the use to which restricted use pesticides may be put, the pesticide advisory board shall consider the need for control of the target pest, whether the use of effective alternate materials is practicable and whether the use of alternate materials is hazardous to the environment or public health and welfare, or both. The findings of the pesticide advisory board shall be submitted to the board [NMSU Board of Regents] in promulgating regulations pursuant to the Pesticide Control Act.

In reality, the board has taken little action in recent years. According to NMDA:

The pesticide advisory board meetings have not traditionally been discussion/decision-type meetings. The previous year's pesticide registration (and when necessary, new restricted-use classification) information is presented, and if no questions or comments are raised by the members, the meeting is adjourned. Minutes or notes are taken when the presented information is discussed, but this has not happened in last few meetings."⁸³

Current statutory members of the advisory board include:

- Dr. I. Miley Gonzalez, Director, NMDA
- Jerry Schickendanz, Dean of the College of Agriculture and Home Economics, NMSU
- Ron Curry, Environment Department Secretary
- Joanna Prukop, Energy, Minerals and Natural Resources Department Secretary
- James Jimenez, Department of Finance and Administration Secretary

Current citizen members (appointed by the director of NMDA) include:

- Greg Alpers, President, NM Crop Production Association (Dow AgroSciences LLC), Roswell, NM
- Jim Dye, President, New Mexico Pest Management Association, (Border Pest Control, Inc.), Deming, NM
- Richie Crockett, President, New Mexico Agricultural Aviation Association, (Devil Dusters, Inc.), Artesia, NM
- Ted Brown, Santa Fe, NM.

All but one of the appointed members is either a pesticide applicator or salesperson. None represent environmental or public health organizations. One works for a company (Devil Dusters, Inc.) that was cited by NMDA in 2002 for spraying pesticides illegally.

Application and Record Keeping Requirements

Under NMDA regulations, commercial, non-commercial and public applicators are required to keep usage records for pesticides applied by them or under

their supervision.⁸⁴ The records must include the following information:

- Name of person for whom the pesticide was applied
- target pest and crop or site
- Date and time of application
- brand name and common name of the pesticide, and EPA registration number
- wind direction and estimated velocity
- concentration and volume of pesticide used
- location
- aircraft identification numbers (if applied by air)
- name of applicator and business

Records must be available to NMDA within 24 hours after application, and must be kept for two years. Upon written request, the applicator must provide a copy of these records to NMDA and to the owner of the property where the pesticide was applied.

Farmers and ranchers ("private applicators") are exempt from these recordkeeping requirements. However, the Federal Insecticide, Fungicide and Rodenticide Act (which NMDA enforces in New Mexico) requires certified private applicators to keep records of restricted-use pesticide applications. These records must contain:

- brand or product name of the pesticide and EPA registration number
- total amount applied
- size and location of area treated
- crop, commodity or site to which the pesticide was applied
- date of application
- applicator's name and license number

The information must be recorded within 14 days of application, and must be kept for two years. Access to the records is limited to USDA or NMDA representatives and health care professionals treating individuals who have been exposed to restricted use pesticides. Each year, NMDA selects a number of private appli-

cators at random to inspect their records. The applicators are notified by mail and contacted by an inspector to schedule a "convenient date and time" for the inspection.⁸⁵

A certified applicator who violates any provision of the record-keeping regulations is subject to a fine of not more than \$550 for the first offense, and not less than \$1,100 for each subsequent violation. The penalty shall be less than \$1,100 if the Administrator of USDA Agricultural Marketing Service, or his or her designee, determines that the certified applicator made a "good faith effort" to comply with the law.

Pesticide applicators and financial responsibility

Under NMDA's regulations, commercial pesticide applicators must furnish evidence of financial responsibility with NMDA consisting of either a surety bond or a liability insurance policy to protect persons who may suffer legal damages as a result of the operations of the applicant. Commercial applicators using ground or manual application equipment are required to carry \$25,000 (aggregate) bodily injury, \$25,000 property damage, and \$50,000 single limit bodily injury and property damage coverage. The requirements for commercial applicators using aerial application equipment are double those amounts. Maximum allowable deductible is \$1,000 for any type equipment.

Can local governments pass stricter laws?

No. The NMPCA actually prohibits local governments from taking stronger measures to protect the public from pesticides⁸⁶—another indication of the power of pesticide interests in our state. The law states:

Except as otherwise authorized in the Pesticide Control Act, no city, county or other political subdivision of the state and no home rule municipality shall adopt or continue in effect any ordinance, rule, regulation, or statute regarding the registration, labeling, distribution, sale, handling, use, application, transportation or disposal of pesticides.

Public health advocates in 1997 unsuccessfully tried to change the law to allow cities and counties to regulate pesticides and require notification of pesticide use.⁸⁷

Even though localities are not allowed to regulate pesticides, NMDA has the authority to enact regulations specific to certain geographic areas of the state. For example, NMDA enacted special regulations cov-

ering restricted-use, hormone-type herbicide applications specifically for Roosevelt and Curry Counties. See administrative rule, 21 NMAC 17.56, titled "Restricted Use Pesticides" at <http://nmdaweb.nmsu.edu/STATUTES/AES/Pm/restrict.htm> for details.

Are there special rules for the use of pesticides in New Mexico schools?

Yes. In 2000, the New Mexico Board of Education enacted new rules intended to reduce the use of pesticides in schools. They include these important points:⁸⁸

- Pesticides will only be applied in or on the outside of school buildings when a pest is present and will not be applied on a regular or "calendar" basis unless it is to treat an infestation and is a part of a pest management system being implemented to address a particular target pest. A pest is considered to be present when it is observed directly or can reasonably be expected to be present based on finding evidence such as droppings, body parts, or damage that is typically done by the pest. This section of the regulation does not apply to pre-construction termite treatments or the use of outdoor herbicides.

"Schools will develop a list of parents and guardians who wish to be notified prior to pesticide application during the school year. These parents/guardians will be notified in writing prior to pesticide application."

---NM Board of Education

- Pesticides that are applied in a liquid, aerosolized, or gaseous form through spraying, aerosol cans, bombs, fumigation, or injections into the ground, foundation or plants will not be applied on public school property when students, staff, or visitors are present or may reasonably be expected to be present within 6 hours of the application. In emergency cases where a pest infestation threatens the health and/or safety of the occupants of public school property, and which requires the immediate application of a pesticide to remediate, students,

staff, and other school occupants will be removed from the treatment area prior to the application. Small amounts of gel or liquid pesticides applied to cracks and crevices or baits used to treat pest infestation are exempt from this section.

- At the beginning of each year, and when new students register, schools will develop a list of parents and guardians who wish to be notified prior to pesticide application during the school year. These parents/guardians will be notified in writing prior to pesticide application. General notification of anticipated pesticide applications will occur by means of posting or dissemination of notices or oral communication or other means of communication. In emergency cases where a pest infestation threatens the health and/or safety of the occupants of public school property, no pre-notification is required. Immediately following the application of a pesticide in emergency cases, signs will be posted indicating an application was made.
- Written records of pesticide applications will be kept for three years at each school site and be made available upon request to parents, guardians, students, teachers, and staff.

For more information, concerned parents should contact their local school boards or the New Mexico Public Education Commission (<http://sde.state.nm.us>) 300 Don Gaspar, Santa Fe NM 87501, Phone: 505-827-3860.

Who responds to pesticide spills?

According to EPA, federal law requires that spills of hazardous materials such as pesticides be reported to the National Response Center as soon as possible, which in turn notifies appropriate state and federal authorities.⁸⁹

However, that procedure was not followed when an airplane loaded with a dangerous pesticide crashed into an irrigation ditch near Hatch in 1997. Although notified of the incident by state police, officials with the New Mexico Environment Department in Santa Fe did not report it to federal authorities. No effort was made by any agency to clean-up or monitor the site to determine the extent of contamination.⁹⁰ The crop duster had been loaded with five pints of endosulfan, a highly toxic (Class I) restricted-use pesticide, diluted in 130 gallons of water. It had made just one

pass over a pecan orchard before crashing into the ditch, less than one mile from where the ditch flowed into the Rio Grande.

Anyone can report a pesticide spill to the National Response Center by calling 1-800-424-8802.

Chapter Seven

PESTICIDE COMPLAINTS IN NEW MEXICO

How to file one, and what happens when you do

How do I file a pesticide complaint?

If you are sprayed, or suspect that pesticides are being misused, you can report it to the New Mexico Department of Agriculture. This can be done by telephone, in writing, or in person. To file a complaint:

- Call: (800) 432-5310 or (505) 646-2133; or
- Write to: NMDA, Bureau of Pesticide Management, MSC 3AQ Box 30005, Las Cruces, NM 88003-8005; or
- In person: on main NMSU campus in Las Cruces, corner of Wells and Espina Streets

NMDA says that it will accept anonymous complaints, but “cannot guarantee” that anonymity can be maintained.⁹¹ Basic information is collected when the complaint is filed, including the location, the applicator involved (if known) and the nature of the complaint. NMDA will allow you to keep your name confidential, but requires that you be able to answer questions during the course of the investigation.

How does NMDA respond to complaints from the public?

If a complaint is determined to fall within NMDA’s jurisdiction, it is forwarded to an inspector within the agency’s Bureau of Pesticide Management. The inspector will contact the person making the complaint to schedule a meeting, often at the site of the reported violation. According to NMDA, the investigation “may involve interviews with several parties and may take place over a prolonged period.”⁹²

NMDA considers several factors in evaluating a complaint, including:

- The suspected pesticide involved;
- Length of time since the alleged misuse;
- Available medical records that provide evidence of pesticide exposure;
- Visible effects that indicate possible pesticide misuse;

- Reliable eyewitness accounts;
- The complainant’s general cooperation with the investigation.

The inspector may collect physical evidence, such as samples of the pesticide from the applicator’s equipment, swab samples from treated surfaces, soil or plant tissue samples, or copies of application records or receipts. These samples are sent to the New Mexico State Chemist Laboratory for analysis. The inspector may also take photographs at the site.

When the inspector has completed the investigation, a report will be sent to NMDA’s main office in Las Cruces. NMDA personnel will review all available information, including any physical and documentary samples collected by the inspector, and then determine whether a violation has occurred and what action is appropriate.

If NMDA finds that no violation could be documented, or is unable to determine the responsible party, the case may be closed without further action.

If NMDA decides a violation has occurred and a responsible party is verified, it may pursue enforcement action. NMDA’s enforcement actions are limited to those authorized by the New Mexico Pesticide Control Act as follows:

- *Warnings*—may be issued by the inspector on the spot or by NMDA’s main office.
- *Stop Sale, or Cease-and-Desist Orders*—these may be issued when unregistered pesticides are sold or displayed improperly; or when applicators or dealers are unlicensed.
- *Suspension or Revocation of a License*—When violations are serious enough to warrant this level of penalty, the respondent is notified of the violation and the contemplated enforcement action. He/she may admit to the violations, provide evidence refuting the allegations, or request a conference or a formal hearing with NMDA. An applicator whose license is suspended or revoked may not

apply pesticides in New Mexico.

- **Criminal Complaint**—Department counsel will review the case and make a recommendation to the director on filing criminal charges. According to NMDA, it rarely files criminal complaints, and usually only against uncertified/unlicensed commercial applicators who refuse to comply and for which administrative penalties are not available.⁹³

According to NMDA, any action it takes is based solely on the “official” investigation.⁹⁴ You may conduct your own investigation, and you may pursue civil remedies through the court system regardless of NMDA’s findings. (See Chapter 8 for more information about pursuing legal action.)

In accordance with the New Mexico Inspection of Public Records Act, NMDA will provide copies of investigation reports and complaint case files upon written request. Requests should be sent to: New Mexico Department of Agriculture, Custodian of Public Records, MSC 3189, Box 30005, Las Cruces, NM 88003-8005. NMDA may charge you a per-page fee (currently fifty cents) for each requested document.

What is NMDA’s track record in responding to complaints?

Tables 9 and 10 give an indication of the type of complaints received by NMDA since 1997, and how they tend to be resolved.

In general, NMDA receives (or initiates on its own) two types of complaints: those dealing with administrative and licensing violations of the law, and those related to potential pesticide misuse or harm. From the tables it appears that NMDA takes enforcement action more frequently and imposes more serious penalties for administrative-type complaints than it does for other complaints.

For example, between 1997 and 1999, monetary fines imposed for licensing, record-keeping and label violations averaged more than \$3500, compared to just over \$550 for off-target drift violations.

Of the complaints filed with NMDA in 2001-2002, the agency took enforcement action in slightly more than half of the administrative type complaints, com-

Table 9: Enforcement actions taken by NMDA for pesticide violations 1997-1999. (Source: NMDA)

Fiscal Year	Applicator	City	Violations	Penalties Imposed
1997	Gary Beverage	Las Cruces	Off-target drift	\$350; 60-day probation
1997	Greg Jaeger	Albuquerque	Licensing violations	\$3,500; 360-day probation
1997	Janice Myers	Albuquerque	Licensing/certification violations	\$2,500; 3-year revocation
1998	Miroslav Vucetic	Las Cruces	Off-target drift	\$850; 180-day probation
1998	Eugene Hagel	Albuquerque	Licensing, records violations	\$350; 60-day probation
1998	Eugene Hagel	Albuquerque	Label violations	\$1,750; 30-day suspension, 360-day probation
1998	Cecil Hobby	Albuquerque	Licensing violations	\$750; 180-day probation
1998	Richard Rupkey	Albuquerque	Licensing, records violation	\$500; 90-day probation
1999	Roger Zeledon	Las Cruces	Off-target drift	\$500; 90-day probation
1999	Louis Rossi	Albuquerque	Licensing, records, and label violations	\$16,000; 2 years pre-notification.

pared to only about 20 percent of the complaints of potential misuse and harm to people (including workers), animals or plants.

There are several possible explanations for this. One, of course, is that NMDA does not take complaints of people being harmed as seriously as administrative violations of the law. Another is that the things people complain about are often not, in fact, against the law, and NMDA simply cannot take any enforcement action. This is a matter that needs further investigation.

What has been people’s experience after filing complaints with NMDA?

We do not have firsthand experience filing a pesticide complaint with NMDA. However, several people have expressed dissatisfaction with NMDA’s lack of responsiveness and sympathy for their complaints. Daryl Smith’s story (see sidebar on page 32) is one example. Whether this type of experience is typical is unknown. However, given NMDA’s conflict of interest in both promoting agricultural interests and regulating pesticide use, it is not surprising to us that people might have this experience.

Table 10: Pesticide complaints received by NMDA and their disposition, 2001-2002 (Source: NMDA)

DATE	COMPLAINANT	APPLICATOR	NATURE OF ALLEGATIONS	RESOLUTION
1/2/2001	C. Burton	Bob Reed Pest Control	Odor from termite treatment	No NMPCA violations
1/10/2001	S. Stapleton	Tony's Exterminating	Dog, child reported sick after house treated	No NMPCA violations
1/29/2001	NMDA	Pooler Chemical	No 2,4-D permit obtained	Enforcement action taken
1/10/2001	NMDA	form. Sunset Pest Control	Improper termite treatments	Enforcement action taken
2/7/2001	B. Carter	R.J.Hergenreter	Unlicensed termite inspector	Enforcement action taken
2/23/2001	J. Niwa	Albuquerque BioPark	Worker Protection Standard violations	Enforcement action taken
2/28/2001	D. Milks	Liotta's Lawn Care	Unlicensed applicator	No action taken, unable to locate applicator
3/13/2001	NMDA	Aresia Alfalfa Growers	Unlicensed applicator	Enforcement action taken
3/29/2001	D. Vega	Tony's Exterminating	Incorrect termite treatment	No NMPCA violations
4/2/2001	M. Moore	Route 66 Pest Control	Odor after termite treatment	No NMPCA violations
4/16/2001	C. Lovato	Unknown	Avicide misuse	No NMPCA violations
4/20/2001	B. Ward	Devil Dusters	Off-target drift	No NMPCA violations
4/24/2001	K. Cavoland	Steven Reynolds	Unlicensed applicator	Enforcement action taken
4/6/2001	NMDA	Helena	Unlicensed operator	Enforcement action taken
5/8/2001	NM OSHA	Coates Tree Service	Worker safety issues	No NMPCA violations
5/14/2001	NMED	Aero Farm Chemicals	Improper disposal	No NMPCA violations
5/18/2001	J. Joy	Dooley Oilfield Services	Off-target drift	Enforcement action taken
5/23/2001	J. Mercer	S. Singh	Off-target drift	No NMPCA violations
6/11/2001	Cornell Services	Steve Austin	Unlicensed applicator	Enforcement action taken
6/27/2001	B. Borrett	Aldershot of NM	Improper disposal	No NMPCA violations
7/10/2001	J. Bragg	Superior Pest Control	Applicator not on schedule	No NMPCA violations
7/12/2001	R. Cisneros	Drywall, Inc.	Use of unregistered pesticide	No NMPCA violations
7/18/2001	E. Walters	Exterm-it-all	Unlicensed operator	Enforcement action taken
7/26/2001	J. Medina	Unknown	Worker Protection Standard violations	No NMPCA violations
7/27/2001	T. Knight	Vernon Lee	Off-target drift	Enforcement action taken
7/31/2001	L. Hernandez	Unknown	Plants dying in yard	No NMPCA violations
8/8/2001	J. Tillett	Unknown	Bird kill	No NMPCA violations
8/9/2001	B. Griffith	TruGreen ChemLawn	Off-target drift	No NMPCA violations
8/13/2001	NMDA	Preventive Pest Control	Unlicensed operators	Enforcement action taken
8/13/2001	BugsOrUs	Ken Hubbs	Unlicensed applicator	No action taken, unable to locate applicator
8/16/2001	C. Astorga	Advanced Pest Mgt.	Not servicing termite stations	No NMPCA violations
8/23/2001	J. Garcia	Valley Ag Services	Bees killed	No NMPCA violations
8/29/2001	M. Gentry	neighbor	Plants killed in yard	No NMPCA violations
8/27/2001	A. Beniente	Valley Ag Services	Health effects from application made > 1 year ago	No NMPCA violations
9/27/2001	S. Bucher	King Ag	Off-target drift	Enforcement action taken
9/28/2001	J. Garcia	Unknown	Bees killed	No NMPCA violations
10/12/2001	W. Jones	A. Brinkerhoff	Applied herbicide in wind	Enforcement action taken
10/31/2001	NMDA	Southwestern Pest Control	Improper use of baits in schools	Enforcement action taken
1/23/2002	NMDA	Truly Nolen	Licensing, records violations	Enforcement action taken
1/23/2002	K. Miller	Unknown	Bird kill	No NMPCA violations
2/26/2002	T. Gomez	Alliance Pest Mgt.	Termite inspection	No NMPCA violations
4/17/2002	NMED	Unknown	dead coyotes	No NMPCA violations
5/3/2002	J. Gentry	Socorro Pest Control	Household pets died	No NMPCA violations
6/13/2002	NMED	Unknown	General pesticide use by several growers	No NMPCA violations
6/13/2002	S. Tatum	Unknown	Off-target drift	No NMPCA violations
2/11/2002	E. Dalton	PNM	Yard, garden plants affected	No NMPCA violations
7/1/2002	S. O'Neil	Lawn Doctor	Products not compatible	No NMPCA violations
7/31/2002	D. Taylor	Devil Dusters	Off-target drift	Enforcement action taken
9/19/2002	M. Malesich	West Mesa Pest Control	Termite treatment	No NMPCA violations
9/24/2002	M. McClung	Unknown	Applying in wind	Under investigation
9/25/2002	J. Garcia	Unknown	Bees killed	No NMPCA violations

“The way things work around here”

One person’s experience after being illegally sprayed and filing a complaint with NMDA

As a follow-up to an incident that happened to me back in early August 1997, I feel that the public should be informed of “the way things work around here.”

Fairly early on a Saturday morning back in mid-August, a very low-flying plane went roaring over my house. After its second time, I realized that it was a crop duster spraying the fields surrounding my home.

Having only recently purchased a puppy, I ran outside in a pair of shorts to get my dog indoors. Instead I was greeted with a chemical shower of nasty smelling pesticides that had either drifted over my yard or were just plain off target.

That following Monday I filed a complaint with the New Mexico Department of Agriculture (NMDA) and they came to my house to take swab samples of the chemicals that were all over my fence, car, propane tank, etc. (not to mention my skin).

A month had gone by and I hadn’t heard anything about the results of those swab samples. I called back NMDA and asked about the results. Only when I called did they inform me of the results and told me that all swab samples confirmed that it was indeed an off-target pesticide application. I asked for the name of the chemicals that I was exposed to and they reluctantly shared that information with me as well.

After doing some research on those chemicals, I discovered that I was exposed to two Class I Toxicity level pesticides. In layman’s terms, poisons. Recommended clothing: impervious gloves, chemical tight goggles, respirator, and even coveralls over a long-sleeved shirt and long pants.

I called back NMDA to ask them what type of enforcement action they planned on taking now that it was confirmed. They stated that it

was the height of the agricultural season and that they probably wouldn’t get around to it until after the harvest.

December rolled around and I still hadn’t heard anything, so I wrote them a letter asking them that now that the majority of the harvesting was completed, would they now “get around” to taking action against the pilot or the company/farmer that hired him? They wrote me back telling me that the case was pending (no description of what was pending or when I would find out anything.) They did however give me the address to where I could obtain all documentation regarding my case once it has been closed. I promptly wrote that address requesting all information as soon as it was available.

Mid-February 1998 rolls around (six months later) and I finally receive a packet of information from NMDA. My case had finally been closed and now I was to find out just how serious NMDA is about a violation of this nature. What had originally started out as a \$750 fine and six-month suspension from flying ended up as a \$750 fine and two-month suspension from flying (effective immediately – ain’t no crop dusters in February).

The person(s) responsible for this violation were given the opportunity to meet with officials from NMDA to “negotiate” their punishment. As expected, I was not invited to the party. It should be noted that this was the second reported violation against this pilot.

So the question remains: was justice served? I think not.

--Daryl Smith, Las Cruces

[This originally appeared as a guest column in the Las Cruces Sun-News on March 28, 1998.]

Chapter Eight

PROTECT YOURSELF

How to avoid getting hurt by pesticides, and what to do if you can't

The following advice comes mainly from two advocacy groups: Beyond Pesticides, and Northwest Coalition for Alternatives to Pesticides.⁹⁵ You can find more information on their websites.

Before the spraying starts

- Notify people who might be spraying in your area that you are concerned about exposure to pesticides because of health issues (such as allergies, chemical sensitivities, and asthma), your organic garden, or other reasons. Writing them a note is best.
- Ask those people who might spray near you to notify you in advance so that you can protect yourself, your family, and your property.
- If county or town roadside spraying is a problem, post your roadside with “do not spray” signs and notify the appropriate local government agencies.

When spraying is about to happen

- If you know that pesticides will be used where you might be exposed, try to find out what will be sprayed. Ask the applicator for copies of the pesticide label and material data safety sheet. If that doesn't work, try to find out the name of the product being used. Get the complete name and the EPA registration number, if possible, because the names of many products are similar.
- Take steps to avoid the areas being sprayed.

When spraying begins

- If you can't leave the area, stay inside during the spraying and immediately after. Bring children, pets and laundry (if there's time) inside.
- If possible, get someone to help you take care of yourself and keep track of the incident.
- Leave the area as soon as possible and remove all contaminated clothing.

- Shower and shampoo, and change into clean clothes.
- When driving through an area that has been sprayed, close your windows and vents, putting your car's fan on maximum recirculation.
- Don't allow pets to run through sprayed areas. Besides the hazard to themselves, they can track pesticide inside.
- Don't eat food or drink water that has been sprayed.

Gather information as the incident is happening

- Videotape the incident if possible! Photographs are also useful.
- Make sure to write down or otherwise record the following information:
 - a. Date and time
 - b. Description and/or photos of plane, truck, or other application device
 - c. Plane, number, color, flight pattern, how turns were made, how many turns
 - d. Truck: license number, business name
 - e. Other: type of device, identification, how far away, how was spray directed?
 - f. Can you see spray being released off target?
 - g. What property is being sprayed?
 - h. Weather conditions (wind direction and speed, temperature, humidity, sky conditions)
 - i. Any effects you notice immediately: smell, strange behavior of bees, irritation to eyes or mucous membranes, headache, nausea, other symptoms.

Get medical help

- Get immediate medical help from a physician, lo-

cal hospital or poison control center. You should seek medical help if you are at all concerned about your health, even if you have no immediate symptoms.

- If you think you may take legal action, it will be to your benefit to see a doctor with experience in pesticide poisonings. You'll need a clear diagnosis to win in court. The sooner you have this examination, the better the chances your doctor will be able to make an accurate diagnosis.
- Many health providers are not familiar with the symptoms of pesticide poisoning which often resemble symptoms of a cold or flu. Tell them about your exposure, and ask them to check your symptoms. Blood and urine tests may be necessary. You can refer them to EPA's book called *Recognition and Management of Pesticide Poisoning* (available on EPA's website at www.epa.gov/pesticides/safety/healthcare/handbook/handbook.htm).
- When you go to a doctor, bring the following items if possible: label(s) from the pesticide to which you may have been exposed; the name of the active ingredient, product name or EPA registration number; a list of your symptoms, including their severity and pattern of occurrence. If you have had previous occupational exposure to chemicals, be prepared to provide information about the chemicals to which you were exposed and dates of exposure.
- Many medical personnel do not understand that they are required by law to report suspected pesticide poisonings to the New Mexico Department of Health, Office of Epidemiology (505-827-2613). Make this clear, and also plan to follow up yourself.

Find out what you were exposed to

- Contact the landowner, farmer or pesticide applicator to find out what pesticide was used. Ask them for a copy of the pesticide label and material safety data sheet. If that is not possible, try to get the complete name (both the trade name and the active ingredient) and the EPA registration number, if possible, because the names of many products are similar.

- Get a copy of the label. With the registration number, you can use EPA's label database to get an electronic version of the EPA-approved label (<http://www.epa.gov/pesticides/pestlabels/>). These labels are not in their final format, but the text is accurate. For labels in final format, a good place to start looking is Crop Data Management Systems (CDMS). This collection of current, downloadable labels (<http://www.cdms.net/manuf/default.asp>) is organized by manufacturer, but searchable by product. CDMS focuses on agricultural pesticides, but some residential and commercial products are also included.

*Many health providers are not familiar with the symptoms of pesticide poisoning which often resemble symptoms of a cold or flu. You can refer them to EPA's book called *Recognition and Management of Pesticide Poisoning* (available on EPA's website).*

If your pesticide is not in the CDMS collection, you will need to determine the manufacturer of your product. On the web, the best way to do this is to use a database maintained by the California Department of Pesticide Regulation for EPA (<http://www.cdpr.ca.gov/dprdatabase.htm>). Using this database you can enter either the product name or the EPA registration number and identify the manufacturer. To get this information by phone, call the National Pesticide Telecommunications Network (NPTN) at 1- 800-858-7378.

A product can be sold under a name that is different than its registered name; if you have trouble, call NPTN. If you talk to NPTN, also ask them for the name of the active ingredient in the product and a toll-free number for the manufacturer. Next, call the manufacturer of your pesticide, and request a faxed or mailed specimen label. Or, download a label from the manufacturer's website.

- Get a copy of the Material Safety Data Sheet (MSDS) for the pesticide to which you were exposed. Manufacturers are required to produce an MSDS for all their pesticide products. Unlike pes-

ticide labels, the MSDS will sometimes list inert ingredients contained in a product. Knowing what these are will give you a better understanding of the true hazards of a pesticide.

On the internet, CDMS (see above) provides a large collection of current MSDSs that can be easily downloaded. Their MSDS collection is organized by manufacturer, but searchable by product name. Or you can call the manufacturer and request a fax or mailed MSDS. In addition, many major manufacturers offer downloadable MSDSs on their corporate websites.

Report the incident

- Report the incident to the New Mexico Department of Agriculture (NMDA). As discussed in the previous chapter, this can be done as follows:
 - a. Call: (800) 432-5310 or (505) 646-2133; or
 - b. Write to: NMDA, Bureau of Pesticide Management, MSC 3AQ Box 30005, Las Cruces, NM 88003-8005; or
 - c. In person: on main NMSU campus in Las Cruces, corner of Wells and Espina
- Unfortunately, the burden of proof is usually on the person who reports a pesticide incident. You will have to stand your ground, follow-up, and insist that NMDA send investigators out. Insist that samples be taken of soil, vegetation and/or clothing to test for pesticide residues. **DO NOT WATER** before samples are taken (but you may have to wash off herbicides to save valuable plants). Don't let NMDA wait until rain or time breaks down the residues. Consider contracting with an independent lab to take and analyze samples if necessary.
- Although the process of gathering information, reporting and following up can be frustrating, it is important for several reasons: 1) it will contribute to better enforcement and compliance with the law; 2) it provides more accurate information about the frequency of such events; and, 3) it may help change current laws and policies to better protect health and the environment. Also, if you report an incident, NMDA may collect samples for analysis. These tests carry more weight in court than tests by private labs.

- Save all contaminated clothing for testing by storing in double or triple plastic bags where they will not contaminate other clothes. Keep them out of direct sun.
- Take photographs of the area that was sprayed to document damage from pesticide drift. For herbicides, watch for and document signs of damage to plants that may occur over time, such as plant deformities or stunted growth. Most herbicides will show their effects 1-7 days after the application. For insecticides, look for and photograph dried droplets on car windshields, windows that face the direction of the spraying, and children's play equipment.
- Keep a journal of the incident and subsequent events. Record all physical and behavioral symptoms, including dates and time.
- In the case of a bee kill, examine the hives immediately. Unusual behavior, lack of bees in the hive, and unusually high mortality are good indications of pesticide poisoning. Collect a handful of dead bees and put them in the freezer in a clean tightly sealed plastic bag for possible analysis.
- Keep a record of every phone call and conversation regarding the incident: name, date, time and subject. After a conversation by phone or in person in which something important was discussed, write a confirming letter restating your understanding of what was said and agreed to. Ask the recipient to respond within 5 days if they disagree with your summary of the conversation.

Take legal action

- There are two main avenues of legal recourse—action taken by NMDA against the applicator because of violations of the law, and civil action to recover compensation for damages. As discussed in the previous chapter, penalties imposed by NMDA tend to be light, and the agency rarely files criminal charges against violators of the law.
- Persons harmed by pesticides may pursue civil remedies through the court with the help of an attorney who specializes in personal injury, consumer protection, environmental law, or toxic torts. If you go to court to recover damages, you will want to show two things: 1) that the damage was

caused by the applicator's use of a pesticide; 2) the amount of the damage.

- Pesticide toxic tort claims can be brought on grounds of negligence, strict liability, failure to warn, breach of warranty, and similar grounds. Try to find an attorney who has experience with pesticide cases and does not have a conflict of interest.
- Groups like the Southwest Environmental Center,⁹⁶ the New Mexico Environmental Law Center,⁹⁷ and the Northwest Coalition for Alternatives to Pesticides⁹⁸ may be able to refer you to a qualified attorney. Victims aged 55 or older may contact the Lawyer Referral for the Elderly program at 800-876-6657 for advice. Low-income victims needing legal advice in the southern part of the state may contact Southern New Mexico Legal Services – Centro Legal Campesino, 300 N. Downtown Mall, Las Cruces NM 88001 (505)541-4800.
- Keep in mind that the more you do to document your case during and after being exposed, the better chance you have of ultimately winning in court.

Chapter Nine

WHAT TO DO IN A PESTICIDE EMERGENCY

Fast action is required to help someone who has swallowed or inhaled a pesticide, or gotten it in the eye or on the skin. The following information is from EPA⁹⁹ and Californians for Alternatives to Toxics.¹⁰⁰

General First Aid Guidelines

- Call 911 if the person is unconscious, having trouble breathing, or having convulsions.
- Check the label for directions on how to give first aid.
- In all cases, the instructions should be: **DON'T WAIT - DECONTAMINATE IMMEDIATELY.** Take the person to the nearest emergency medical care facility. Do not leave the person alone or allow them to drive.
- Call the Poison Control Center at 1-800-222-1222 for more first aid advice.

Swallowed poison

Induce vomiting **ONLY if emergency personnel on the phone tell you to do so.** It will depend on what was swallowed. Some petroleum products or caustic poisons will cause more damage if the victim is made to vomit. Do **NOT** give fluids or induce vomiting if the victim is unconscious or semi-alert.

Poison in eye

Eye membranes absorb pesticides faster than any other external part of the body; eye damage can occur in a few minutes with some types of pesticides. If poison splashes into an eye, hold the eyelid open and wash quickly and gently with clean running water from the tap or a gentle stream from a hose for at least 15 minutes. If possible, have someone else contact a Poison Control Center for you while the victim is being treated. Do not use eye drops or chemicals or drugs in the wash water.

Poison on skin

Pesticides easily penetrate skin and will continue to expose the victim for hours unless washed off. Remove contaminated clothing immediately. Drench exposed area with whatever clean water is available. Wash skin and hair thoroughly with soap and water. Wash in a shower, not a bath. Use cool water to wash victim including hair and fingernails. (Cool water keeps capillaries from dilating and helps prevent further absorption of the pesticide.) Later, discard contaminated clothing, save for analysis, or thoroughly wash it separately from other laundry.

Inhaled poison

Carry or drag victim to fresh air immediately. If you think you need protection such as a respirator and one is not available to you, call 911 and wait for emergency equipment before entering the area. Loosen victim's tight clothing. Keep victim warm and comfortable. If the victim's skin is blue or the victim has stopped breathing, give artificial respiration (if you know how) and call 911 for help. Open doors and windows so no one else will be poisoned by fumes.

For more help

- The National Pesticide Information Center (NPIC) (1-800-858-7378) can provide information about pesticide products and their toxicity.
- EPA's publication, *Recognition and Management of Pesticide Poisoning* provides information about symptoms caused by poisoning with specific pesticides and treatment information.

Chapter Ten

TAKE ACTION

Recommended steps to make New Mexico safer from pesticides

The following are a few recommended steps that individuals, communities and elected officials can take to protect New Mexico's people and environment from pesticides.

Get the fox out of the henhouse

The agricultural sector is the biggest user of pesticides in New Mexico. State law needs to be changed to take responsibility for regulating pesticides out of the hands of NMDA—the same agency also responsible for promoting agricultural interests—and give it to an agency with an explicit mandate to protect health and/or the environment, such as the New Mexico Environment Department or New Mexico Department of Health.

Allow communities to protect themselves

State law should also be changed to allow cities and counties to enact more stringent regulations on pesticides than those promulgated at the state level in order to protect public health and safety. Local governments can start by sharply limiting or totally eliminating the use of pesticides on public parks, public buildings, and other public property. Urge your local government officials to follow the example of the City of Arcata (California) which prohibits any pesticide use on city property.

Make information about pesticide use available to the public

To protect themselves, New Mexicans need access to basic information about which pesticides are being used in their communities. This includes the names of products used, amounts, purpose, location, and date, along with the names and addresses of the applicators. State law should be changed to require that such information be compiled by one agency and that it be made available to the public.

Require that the public be notified of pesticide use

If there is a chance of being exposed, the public has a right to know where pesticides are going to be

sprayed, and where they have been recently used so that people can protect themselves. The law should be changed to require such notification. NMDA should establish regulations to require pesticide applicators to provide notification wherever the public might be exposed to pesticides indoors or outdoors. Signs should be posted at least 48 hours in advance of spraying, and for at least 7 days after spraying.

Don't use pesticides yourself

Pesticides are usually far more dangerous than the pests they are intended to control. Find out about alternatives to pesticides from groups like the Southwest Environmental Center, Beyond Pesticides and Northwest Coalition for Alternatives to Pesticides.

Buy Organic Food

Organic food is grown without synthetic pesticides and other chemicals. Make it a point to support organic producers and buy organic food. Besides being sold in natural foods stores, such as the Marketplace, (Santa Fe), Mountain View Market (Las Cruces) and La Montanita Food Coop (Albuquerque), it is becoming increasingly available in conventional supermarkets like Albertsons.

The Organic Trade Association (www.ota.com) is a good place to find organic producers and businesses nationwide. You can get a list of certified New Mexico organic producers and businesses (nearly 100) by contacting the New Mexico Organic Commodity Commission, 4001 Indian School NE, Suite 310, Albuquerque, NM 87110; (505) 841-9070, erica.peters@state.nm.us.

Promote ecologically-based pest control

Integrated Pest Management (IPM) is an ecologically-based approach to pest management that has been proven to be much safer, less expensive, and more effective than chemical pesticides. IPM relies on preventive tactics and biological controls to keep pest populations within acceptable limits. Under IPM, pesticides are applied only as a last resort and then only

in their least-toxic varieties and with great care to minimize risks.

Understand the politics of pesticides

Pesticides are big business, accounting for \$11 billion in sales in the U.S. Like any interest group, pesticide manufacturers, distributors and applicators have their own political agenda.

One group working to advance that agenda is called Responsible Industry for a Sound Environment (RISE).¹⁰¹ Another group that lobbies and does public relations for the industry is the American Crop Protection Association, www.acpa.org, a non-profit trade organization representing the major manufacturers, formulators, and distributors of crop protection, pest control, and biotechnology products.

Businesses involved in the aerial application of pesticides lobby in Washington D.C. under the banner of the National Agricultural Aviation Association, www.agaviation.org. The pesticide industry is represented in New Mexico by the New Mexico Pest Management Association, www.nmpca.org. Knowing an organization's agenda is essential for evaluating its credibility.

Pesticide interests also influence New Mexico legislators through lobbying and campaign contributions. A list of registered lobbyists maintained by the New Mexico Secretary of State's office includes Novartis, the world's biggest pesticide company, and the Chemical Specialties Manufacturing Association, a pesticide trade association. Contact the Secretary of State's office (www.sos.state.nm.us) to get copies of campaign contribution and lobbyist reports.



Resources

Pesticide Hotlines and Databases:

New Mexico Poison Center

Call the Poison Control Center if you think someone has been poisoned and needs emergency treatment information, or if you have a question about any type of poison, or if you want information on poison prevention. The website has first aid tips and information about how to prevent poisonings.

New Mexico Poison Center
MSC09 5080; 1 University of New Mexico
Albuquerque, NM 87131-0001
(505) 272-4261; (505) 272-5892 fax
Emergency Line: 1-800-222-1222
<http://hsc.unm.edu/Pharmacy/poison/>

National Pesticide Information Center

NPIC is a cooperative effort of Oregon State University and the U.S. Environmental Protection Agency. (It was formerly known as National Pesticide Telecommunications Network). It offers general and technical information about a large number of pesticide products to the public via a toll-free telephone call. Open 6:30 a.m. to 4:30 p.m. Pacific time, 7 days a week, excluding holidays.

1-800-858-7378
<http://npic.orst.edu/>; npic@ace.orst.edu

EXTOXNET

EXTOXNET is a cooperative effort of several universities. It offers a great deal of online, useful information to the “non-expert” about specific pesticides, although it tends to understate their toxicity.

<http://ace.orst.edu/info/extoxnet/>

National Animal Poison Control Center

The name says it all--a poison control center for animals. Provides 24-hour veterinary poison hotline.

888-426-4435 or 900-680-0000
www.napcc.aspca.org

Advocacy groups with a primary focus on pesticides, toxics and/or food safety:

Northwest Coalition for Alternatives to Pesticides

Publishes many excellent factsheets on pesticide issues, policy and alternatives, as well as various reports and the *Journal of Pesticide Reform*. Website contains many useful resources and is highly recommended.

P.O. Box 1393; Eugene, Oregon 97440
541-344-5044 (phone); 541-344-6923 (fax)
www.pesticide.org; info@pesticide.org

Beyond Pesticides

(formerly the National Coalition Against the Misuse of Pesticides). Publishes factsheets about pesticide alternatives and issues, reports, daily news and *Pesticides and You*. Website contains many useful resources and is highly recommended.

701 E Street, S.E.; Washington DC 20003
202-543-5450; 202-543-4791 (fax)
www.beyondpesticides.org;
info@beyondpesticides.org

Pesticide Action Network North America

Publishes email Pesticide Action Network updates service (PANUPS) with international pesticide news, issues and resources. Very useful website, including PAN pesticide database and the Pesticide Advisor to help you find alternatives to pesticides.

49 Powell St., Suite 500
San Francisco CA 94102
415-981-1771; (415) 981-1991 (fax)
www.PANNA.org; panna@panna.org

Environmental Working Group

Produces many hardhitting reports, along with *Guide to Pesticides in Produce*. Website is very useful.

1436 U Street, NW, Suite 100
Washington DC 20009
Phone (202) 667-6982; Fax (202) 232-2592
www.ewg.org; info@ewg.org

Children's Health Environmental Coalition

CHEC is a national non-profit organization dedicated to educating the public, specifically parents and caregivers, about environmental toxins that affect children's health.

P.O. Box 1540; Princeton, NJ 08542
609-252-1915; 609-252-1536 (fax)
www.chechnet.org

The Center for Food Safety

Works to curb harmful food production technologies and promote sustainable agriculture

660 Pennsylvania Ave, SE, Suite 302
Washington DC 20003
(202)547-9359; (202)547-9429 (fax)
www.centerforfoodsafety.org;
office@centerforfoodsafety.org

Environmental Research Foundation

Publishes hardhitting *Rachel's Environment and Health News* (named after Rachel Carson).

P.O. Box 160; New Brunswick, NJ 08903
1-888-2RACHEL (1-888-272-2435)
www.rachel.org; erf@rachel.org

The Pesticide Education Center

Works to educate workers and the public about the hazards of pesticides. Produces reports, videos and other resources.

P.O. Box 225279; San Francisco CA 94122-5279
(415) 665-4722; (415) 665-2693 fax
www.pesticides.org; pec@igc.org

Organic Consumers Association

Promotes food safety, organic farming and sustainable agriculture practices.

6101 Cliff Estate Rd, Little Marais, MN 55614
218-226-4164; 218-353-7652 (fax);
Información en Español: 415-271-6833
www.organicconsumers.org

Farmworker advocacy groups:

New Mexico Legal Aid--Centro Legal Campesino

Provides legal services to low-income clients, including farmworkers.

300 N. Downtown Mall; Las Cruces, NM 88001
(505) 541-4800 or (800) 376-7665;
(505) 541-4860 FAX
www.nmla.org; olgap@nmlegalaid.org

Southern Area Health Education Center (SoAHEC)

Provides community education including bilingual training workshops on how to avoid pesticide exposure and the legal rights of farmworkers.

P.O. Box 30001, MSC AHC
New Mexico State University
Las Cruces, NM 88003
(505) 646-3441; (505) 646-6413 fax;
soahec@nmsu.edu
<http://www.border-health-education-training-center.org/index.html>

Border Agricultural Workers Project

This is a Sin Fronteras Organizing Project to help farmworkers improve their wages and their working and living conditions, especially in the chile fields of southern NM. Website is in English and Spanish.

201 E. Ninth Avenue; El Paso, Texas 79901
(915) 532-0921
www.farmworkers.org

The Farmworker Justice Fund, Inc.

FJF is a nonprofit organization that works to improve the living and working conditions of migrant and seasonal farmworkers throughout the United States.

1010 Vermont Ave., NW, Suite 915
Washington, D.C. 20005
(202) 783-2628; (202) 783-2561
www.fwjjustice.org; fjf@nclr.org

United Farm Workers

Includes information on UFW labor union activities and farmworkers.

Texas office:
1502 S. Flores St.
San Antonio, Texas 78204
(210) 212-7101 Fax: (210) 212-7110
www.ufw.org

Resources

National environmental advocacy groups:

Natural Resources Defense Council

Great website, with lots of information about many issues.

40 West 20th St.; New York, NY 10011
212-727-2700 (phone); 212-727-1773 (fax)
www.nrdc.org; nrdcinfo@nrdc.org

American Bird Conservancy

Launched its *Pesticides and Birds Campaign* in 1998.
Good information about pesticides on website.

1250 24th St. NW; Washington, DC 20037
202-778-9666; fax: 202-778-9778
www.abcbirds.org

New Mexico advocacy groups:

Multiple Chemical Sensitivities Task Force

Lobbies and educates on pesticide issues on behalf of people with environmental illnesses.

P.O. Box 23079
Santa Fe, NM 87502

Southwest Environmental Center

Works to protect the natural heritage of the Southwestern borderlands through advocacy, education, research and on-the-ground habitat restoration.

275 N. Downtown Mall; Las Cruces, NM 88001
(505) 522-5552; (505) 526-7733 (fax)
www.wildmesquite.org; swec@zianet.com

Federal Agencies:

U.S. Environmental Protection Agency (EPA)

EPA's website is huge and contains a great deal of information about pesticides, including factsheets and booklets, as well as many other environmental topics. Start with www.epa.gov/pesticides/ and go from there. There are references throughout this guidebook to more specific EPA online pesticide resources.

Besides its main office in Washington, D.C., EPA has 10 regional offices. New Mexico, Texas and Oklahoma comprise Region Six, headquartered in Dallas. There is an EPA border outreach office in El Paso, but it does not deal directly with pesticides.

National Office:

401 M Street, SW; Washington DC 20460
800-424-8802 To Report Emergencies (spills)
800-858-7378 General Information on Pesticides
800-858-7377 Medical Information on Pesticides

Region 6 Offices:

Pesticides and Toxics Branch (6PD-P)
1445 Ross Avenue; Dallas Texas 75202-2733
214-665-2200 General Information
800-887-6063 Public Information Center
214-665-2222 Emergency spills
214-665-2100 Regional Administrator's Office
214-665-2210 Compliance Assurance & Enforcement

915-533-7273 El Paso Border Outreach Office

U.S. Fish and Wildlife Service

The main office is in Washington, D.C. The Division of Environmental Contaminants deals with pesticides and wildlife. New Mexico is part of FWS' Southwest Region 2, headquartered in Albuquerque.

National office

Division of Environmental Contaminants
4401 N. Fairfax Drive, Suite 322; Arlington VA 22203
(703) 358-2148; <http://contaminants.fws.gov>

Region 2 office

500 Gold Ave. SW; Albuquerque, New Mexico 87102
505-248-6911
<http://southwest.fws.gov>; RDHall@fws.gov

U.S. Food and Drug Administration (FDA)

You can find annual reports of FDA's pesticide residue monitoring program (on food) on its website, along with technical information about pesticides and other toxics.

HFI-40; Rockville MD 20857

1-800-INFO-FDA; www.fda.gov

Occupational Safety and Health Administration (OSHA)

OSHA's mission is to protect the health and safety of workers.

OSHA/U.S. Department of Labor
Room N3647; Constitution Avenue NW
Washington, DC 20210
202-219-8021
www.osha.gov

Centers for Disease Control and Prevention (CDC)

This federal agency has general information about pesticides and diseases such as West Nile on its website, as well as many technical health-related documents.

1600 Clifton Road; Atlanta, GA 30333
(800) 311-3435; (404) 639-3311
www.cdc.gov; www.cdc.gov/spanish (in Spanish)

U.S. Department of Agriculture (USDA)

You can find the results of USDA's extensive pesticide residue monitoring program on its website at www.ams.usda.gov/science/pdp/index.htm. Also, USDA maintains an online Pesticide Property Database (www.arsusda.gov/ppdb2.html) with information about the chemical properties of more than 300 active pesticide ingredients. Statistics about pesticide usage in selected states is also available, at www.usda.gov/nass/pubs/reportname.htm.

14th & Independence SW
Washington DC 20250
www.usda.gov; www.usda.gov/spanish (in Spanish)

New Mexico Agencies:

New Mexico Department of Agriculture (NMDA)

NMDA's user-friendly website contains information about state laws and regulations pertaining to pesticides, pesticide registration, and licensing information for pesticide applicators.

NMDA--Bureau of Pesticide Management
MSC 3AQ Box 30005; Las Cruces, NM 88003-8005
(505) 646-2133; Fax (505) 646-5977
<http://nmdaweb.nmsu.edu/DIVISIONS/AES/pest.html>
bcpm@nmda.nmsu.edu

New Mexico Organic Commodity Commission

This entity was created in 1990 to provide a certification program for organic food producers and to promote organic agriculture in New Mexico.

Erica Peters, Director
4001 Indian School NE, Suite 310
Albuquerque New Mexico 87110
(505) 841-9070; erica.peters@state.nm.us

New Mexico Environment Department

You can view state and federal environmental laws at NMED's website, along with info about NMED's various programs. Call NMED's 24-hour hotline to report a pesticide spill.

Harold S. Runnels Bldg.
P.O. BOX 26110; 1190 St. Francis Drive, N4050
Santa Fe, NM 87502-0110
(800) 219-6157 or (505) 827-2855
www.nmenv.state.nm.us

To report a spill:

For 24-hour emergencies, call 505-827-9329

For non-emergencies, call 866-428-6535 (voice mail)

For non-emergencies, and to reach an on-duty NMED staff member during normal business hours, call 505-428-2500.

New Mexico Department of Health

Information about West Nile and other health related topics on its website.

1190 S. St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502-6110
(505) 827-2613; www.health.state.nm.us

(Note: All pesticide poisonings and suspected poisonings are required by law to be reported to the New Mexico Health Department's Office of Epidemiology at (505) 827-0006.)

Legal Resources:

TOXLAW

Resources for attorneys involved with toxic tort cases and others. Includes information about chemicals, pathogens, and allergens. www.toxlaw.com

New Mexico Environmental Law Center

Provides free or low cost legal services to citizens who otherwise would not have a voice in the complex legal proceedings that directly impact their environment. May be a source of legal help in case of pesticide poisonings.

1405 Luisa Street, Suite 5
Santa Fe, New Mexico 87505
(505) 989-9022; (505) 989-3769 fax
www.nmenvirolaw.org; nmelc@nmelc.org

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