

Initial Training – Core Exam

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BOARD OF PESTICIDES CONTROL
Think First...
Spray Last!
STATE OF MAINE

Maine Board of
Pesticides Control

**New Agricultural
Basic Pesticide
Applicator
License**

*Growers of food crops may
need to be licensed*



Pesticides and Medical Marijuana

- A registered dispensary or primary caregiver may not use a pesticide on marijuana except:
 - a pesticide that is used consistent with federal labeling requirements,
 - is registered by the Maine Board of Pesticides Control, and
 - is used consistent with best management practices approved by the Commissioner of Agriculture, Conservation and Forestry.

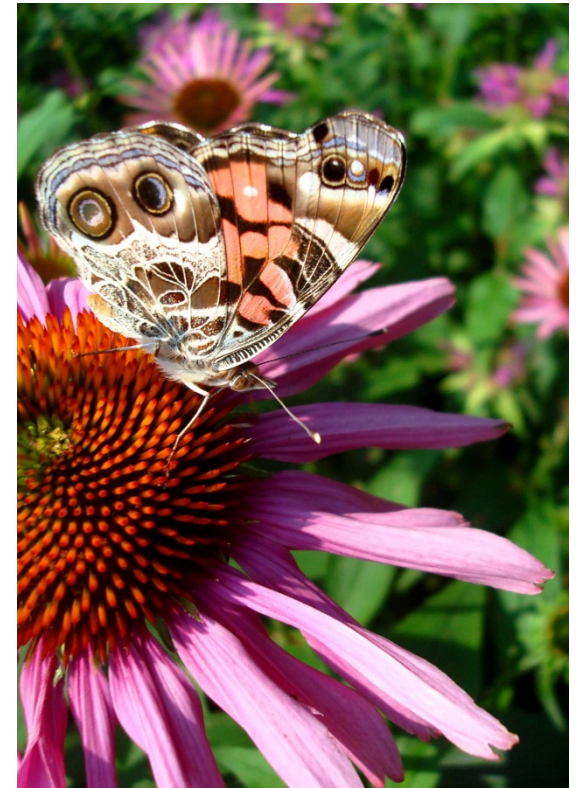
Licensing & Training Required

- A registered dispensary or primary caregiver may not use a pesticide unless at least one employee involved in the application of the pesticide is certified and licensed as an Agricultural Basic Pesticide Applicator, and
- All other employees who have direct contact with treated plants or apply pesticides must be trained according to the EPA Worker Protection Standard.



What types of pesticide uses require the Ag Basic license

- Use of general-use pesticides to produce plants or plant products intended for human consumption as food, where the person applying the pesticides or the employer of the person applying the pesticides derives \$1,000 or more in annual gross income from the sale of those commodities
- Food production applications include - Seed treatment through post harvest treatment or washing with disinfectants prior to sale



What is a pesticide?

- Any substance or mixture of substances intended for:

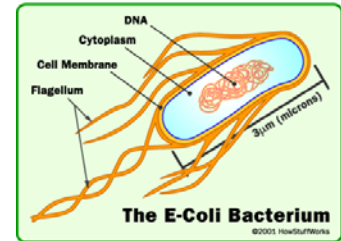
- preventing,
- destroying,
- repelling, or
- mitigating any pest



- Or, any plant regulator, defoliant or desiccant.
 - Does not include fertilizers or nutrients
 - Does not include beneficial organisms
 - Does not include traps or mechanical means

What is a pest?

- Bacteria, viruses (germs)
- Fungi, plant diseases
- Weeds
- Insects, mites, etc.
- Birds
- Deer, rodents, etc.

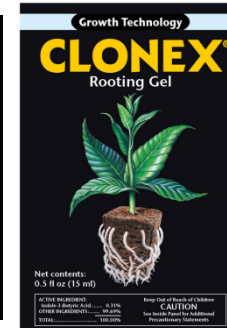


These are pesticides

- Disinfectants (*peroxides & bleaches*)



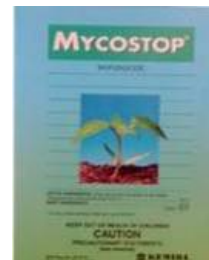
- Herbicides & Growth Regulators



- Rat & mouse baits



- Fungicides



No endorsement intended or implied

These are pesticides

- Insecticides



- Botanicals



- Biological controls



These are pesticides

- Deer and rabbit repellents



- Insect repellents



No endorsement intended or implied

These are pesticides too

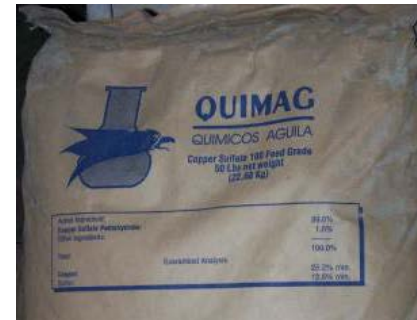
- Plant incorporated protectants
 - Bt corn has one or more *Bacillus thuringiensis* crystalline proteins engineered into it



No endorsement intended or implied

What about using products that are not labeled as pesticides?

- Anyone applying products to commercial food crops that have not been properly evaluated runs the risk of a food safety incident, illegal residues, and an embargoed crop



CHEF: ALLERGY ALERT

I have a severe allergy to FISH.

Even trace amounts of fish (bass, flounder, cod, etc.) can cause a life threatening reaction. Avoid cross contamination by cleaning all utensils, pans, cooking surfaces and cutting boards. Please verify safe cooking oils, marinades, sauces, seasonings, and ingredients are used in my meal.

Thank you for a safe dining experience. www.AllergyFreeTable.com

No endorsement intended or implied

What about home remedies?

- Home chemistry is not recommended by the BPC
- Many of the materials used seem “safe” because we eat them or use them on our skin
- Exposure routes may be different
- What we eat may not be safe to breathe

Examples



6. Eucalyptus oil

A great natural pesticide for flies, bees and wasps. Simply sprinkle a few drops of eucalyptus oil where the insects are found. They will all be gone before you know it

HOMEMADE ORGANIC PESTICIDE RECIPES AND NATURAL REMEDIES:

There are lots of organic pesticides now available at lawn and garden centres, but many can be made easily at home. While these natural mixtures are biodegradable, use them sparingly, since they will kill the good bugs such as spiders and ladybugs, along with the bad ones.

Rhubarb insecticide

Boil 500 grams of rhubarb leaves in a few pints of water for about 20 minutes, allow to cool, then strain the liquid into a suitable container. Add some dish detergent or soap flakes (not laundry detergent!) and spray on leaves to kill off all kinds of bugs like aphids and spider mites. * **NOTE: Rhubarb leaves contain high amounts of oxalic acid. If ingested, your heart will stop and you will die.**

Kidney failure more likely



From Medline Plus – NLM NIH

<http://www.nlm.nih.gov/medlineplus/druginfo/natural/700.html>

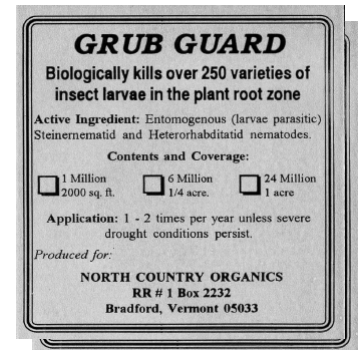
- Eucalyptus oil is **UNSAFE** when it is either taken by mouth or applied directly to the skin without first being diluted. **Taking 3.5 mL of undiluted oil can be fatal.** Signs of eucalyptus poisoning might include stomach pain and burning, dizziness, muscle weakness, small eye pupils, feelings of suffocation, and some others. Eucalyptus oil can also cause nausea, vomiting, and diarrhea.

Pregnancy and breast-feeding: Eucalyptus seems to be safe for pregnant and breast-feeding women when used in food amounts. **But don't use eucalyptus oil.** Not enough is known about safety during pregnancy or breast-feeding.

Children: Eucalyptus oil is **UNSAFE** for children. **It should not be taken by mouth or applied to the skin.** Not much is known about the safety of using eucalyptus leaves in children. It's best to avoid use in amounts larger than food amounts.

What products are NOT pesticides?

- Insect parasitic nematodes



- Rodent or insect traps



- Beneficial insects or mites



No endorsement intended or implied



Acceptable Label Wording for Pesticides Not Prohibited on Marijuana

- Acceptable wording, where the label says for use on:
 - Other plants/crops grown in greenhouses and nurseries
 - Flowering plants
 - Foliage (not foliage plants)
 - Potted plants
 - Plants grown in containers
 - Crops and other plants
- Not broad enough, where the label only says:
 - use on vegetables, fruits, ornamental plants
 - lists of specific crops/plants

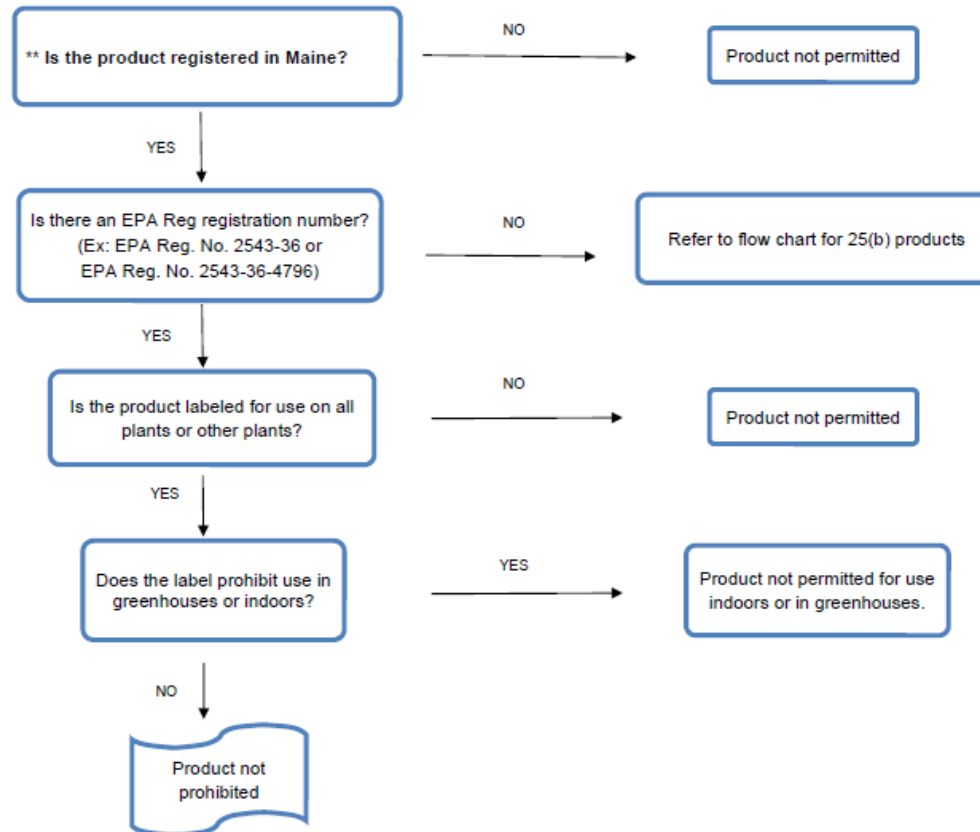
Selecting EPA Registered Pesticide Products Not Prohibited for Use on Medical Marijuana in Maine

All pesticide products used in the production of medical marijuana in Maine, must be registered with the Maine Department of Agriculture, Conservation and Forestry, Board of Pesticides Control. Most pesticides are registered with the Environmental Protection Agency, but some are exempt from federal registration if certain criteria are met. These are commonly known as FIFRA 25(b) pesticides and also must be registered in Maine.

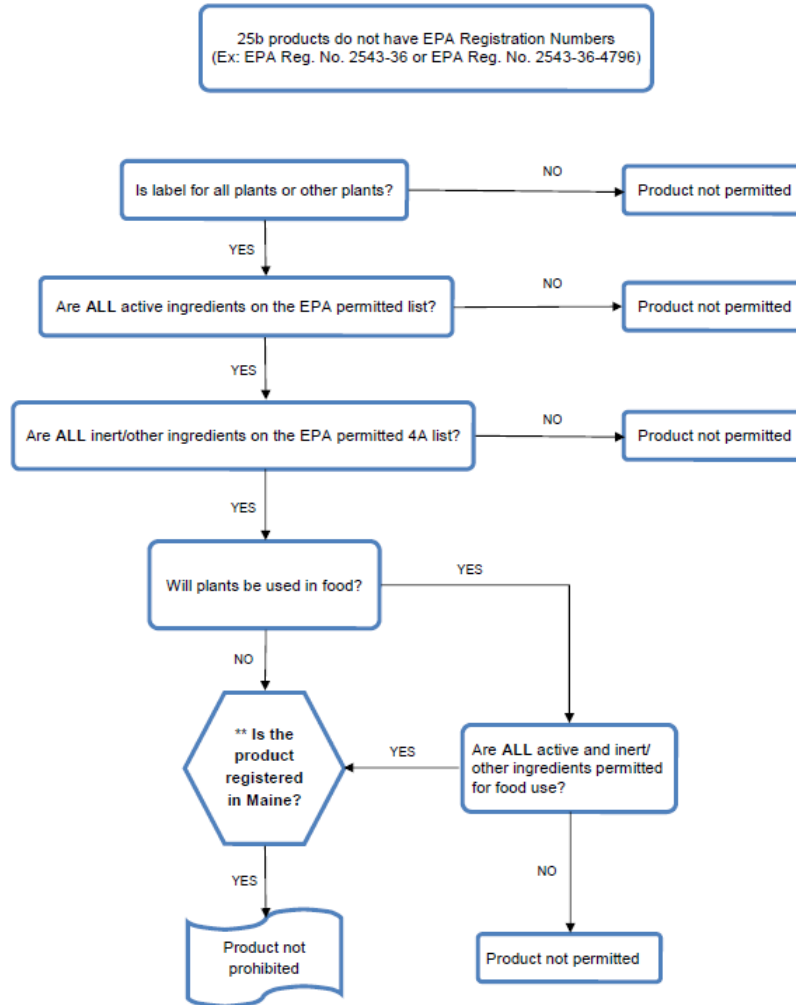
EPA registered pesticides have a two- or three-part number on the label, called the EPA registration number, as shown in the example: EPA Reg. No. 2543-36 or EPA Reg. No. 2543-36-4796. FIFRA 25(b) pesticides do not have an EPA Reg. No.

Use the flow chart below to determine if a specific pesticidal product is not prohibited for use.

Verify state registration at http://npirspublic.ceris.purdue.edu/state/state_menu.aspx?state=ME.



Flow Chart for Selecting FIFRA Section 25(b) Minimum Risk Pesticides Not Prohibited for Use on Medical Marijuana in Maine



** Check state registration at http://npirspublic.ceris.purdue.edu/state/state_menu.aspx?state=ME.

Growth Technology

CLONEX[®]

Rooting Gel



Net contents:
0.5 fl oz (15 ml)

ACTIVE INGREDIENT:
Indole-3-Butyric Acid..... 0.31%
OTHER INGREDIENTS:..... 99.69%
TOTAL:..... 100.00%

Keep Out of Reach of Children
CAUTION
See Inside Panel for Additional
Precautionary Statements

CLONEX[®]

Rooting Gel



PEEL BACK

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

CLONEX Rooting Gel is used to ensure root production on cuttings of plants by supplying essential hormones needed for accelerated root development. CLONEX Rooting Gel may be used on all types of cuttings, including woody, herbaceous, and flowering ornamental species, vegetables, fruit trees and small fruits.

Dip cutting in Clonex Rooting Gel to desired depth. Insert cutting into rooting medium. Mist cuttings and place in propagator or a warm, clean, moist and humid environment. Look for root development in 1 to 2 weeks.

Keep Out of Reach of Children

CAUTION

See Inside Panel for Additional
Precautionary Statements

EPA Reg. No. 79664-1

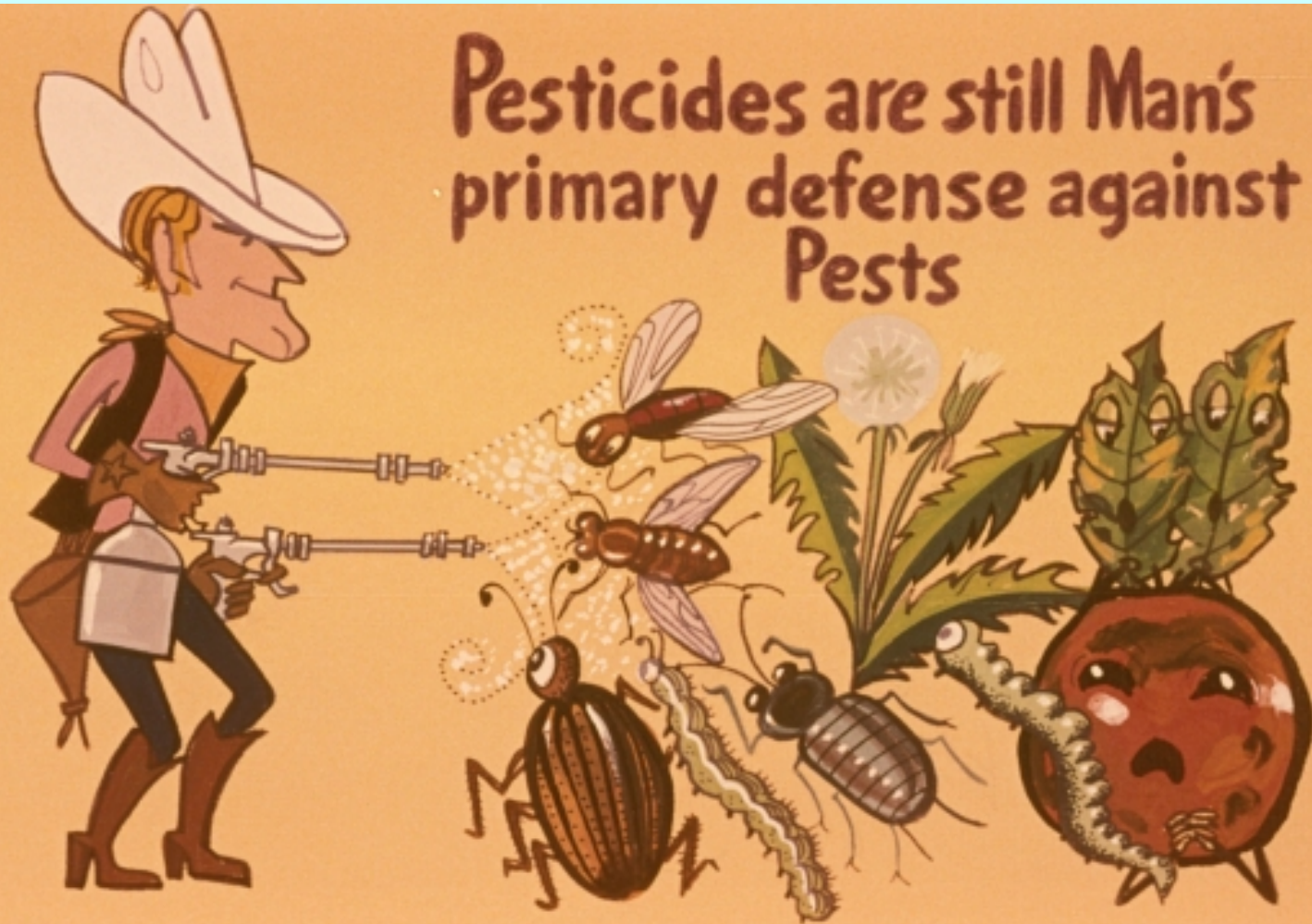
EPA Est. No. 79463-MI-001

Manufactured for:
Growth Technology Ltd.
Great Western Way, Taunton,
Somerset TA2 6BX, UK

Growth Technology
Focus on plants
www.growthtechnology.com



Pesticides are still Man's primary defense against Pests



What are the benefits?



- Aesthetics

- Healthy saleable plants



What are the benefits?



- Bountiful harvest



BROWNTAIL MOTH



DEER TICK

- Nuisance or public health pest control

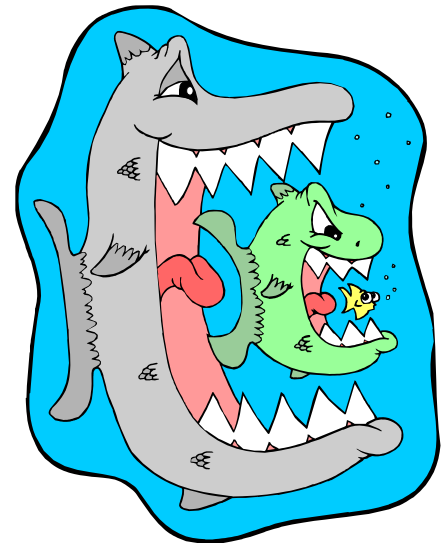


OH FOR CRYING OUT LOUD ETHEL, STOP SCREAMING, JUST HOW BIG CAN ONE GYPSY MOTH BE?

Concerns with Pesticide Dependence

Past, Present and Future

- ❖ **Pest resistance**
- ❖ **Environmental persistence**
- ❖ **Bioaccumulation:** when a chemical accumulates in animal tissues
- ❖ **Biomagnification:** when an organism accumulates residues at higher concentrations than the organisms they consume



Concerns with Pesticide Dependence Past, Present and Future

❖ Misuse

❖ Secondary pest outbreaks

❖ Non-target/Beneficial organism effects

❖ Pest Resurgence

Statesman Journal: Firm Fined For Bee Die-Offs

statesman_journal | Dec. 19, 2013 11 a.m. | Updated: Dec. 20, 2013 9:49 a.m.

CONTRIBUTED BY:

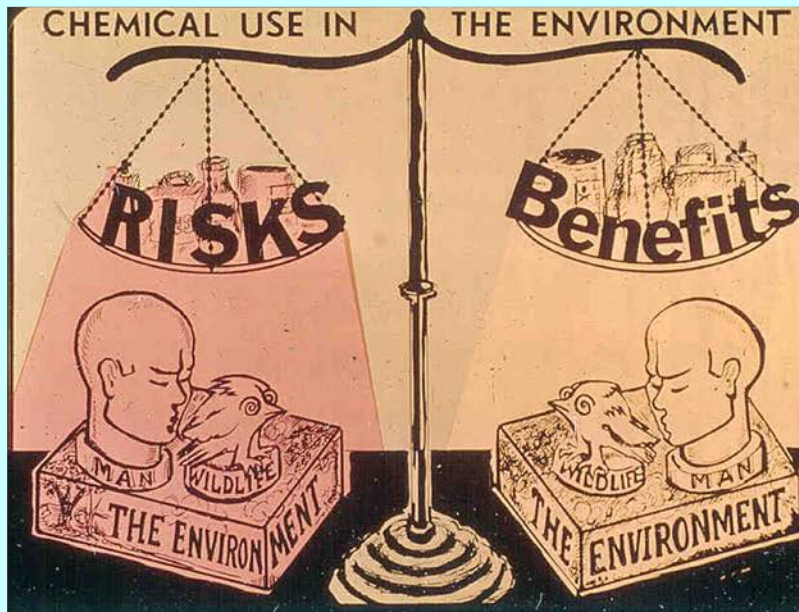
Tracy Loew

Massive bumblebee die-offs last summer were caused by improper pesticide applications, an Oregon Department of Agriculture investigation has concluded.

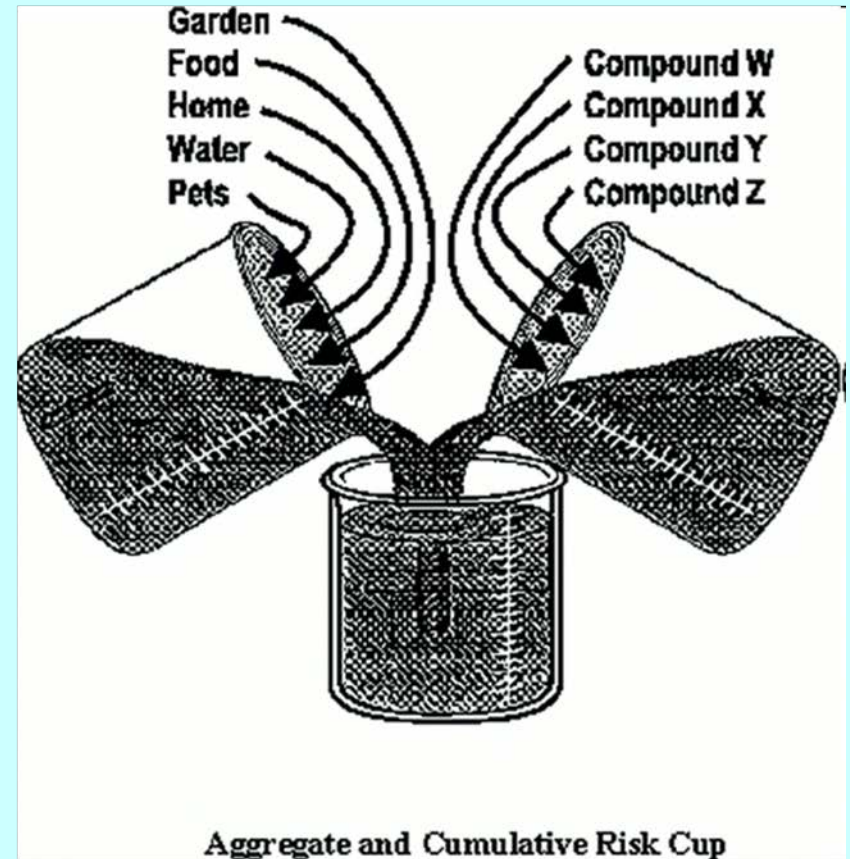
ODA has issued six civil penalties totaling \$2,886 in connection with three incidents, in Wilsonville, downtown Portland, and West Linn.



Risk assessment



Prior to 1996 FQPA



After 1996 FQPA

How are the risks determined?



RESTRICTED USE PESTICIDE
 ACUTE TOXICITY and GROUND WATER CONTAMINATION
 For retail sale to and use only by Certified Applicators or persons under the direct supervision of a Certified Applicator
 and only for those uses covered by the Certified Applicator's certificate.

 Bayer CropScience

TEMIK[®] brand 15G ALDICARB PESTICIDE

For Control of Certain Insects, Mites, and Nematodes.

ACTIVE INGREDIENT: Aldicarb (inertly chelated with propylene glycol dimethyl acrylate) 10%
 INERT INGREDIENTS 85%

EPA Reg. No. 264-333 EPA Est. No. 264-GA-01

 **KEEP OUT OF REACH OF CHILDREN** 
ANGER POISON
PELIGRO



= Toxicity **X** Exposure

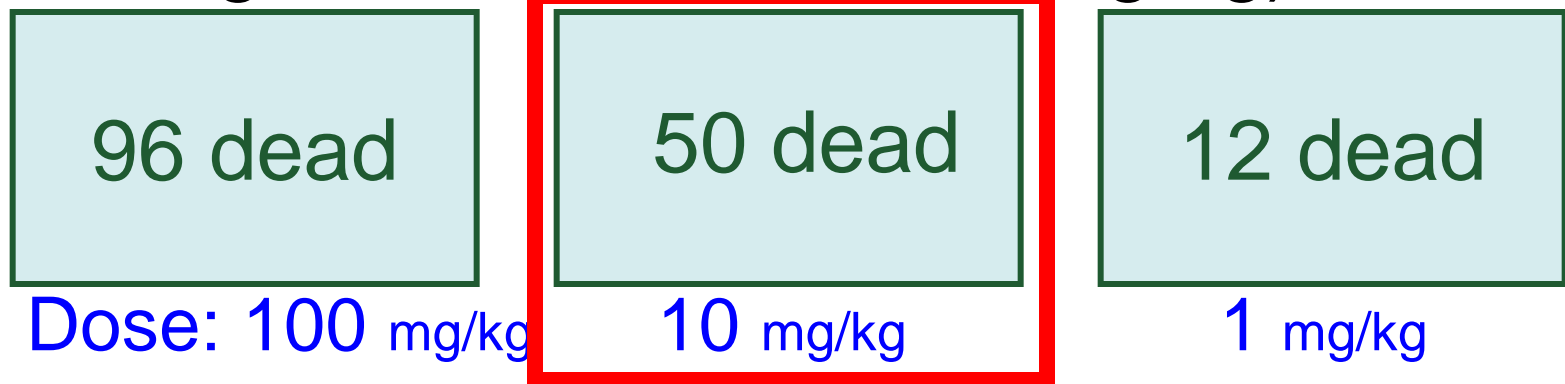


No endorsement intended or implied

LD₅₀ and LC₅₀

❖ **LD₅₀** = the *dose* of a substance that **kills 50%** of a population of test animals

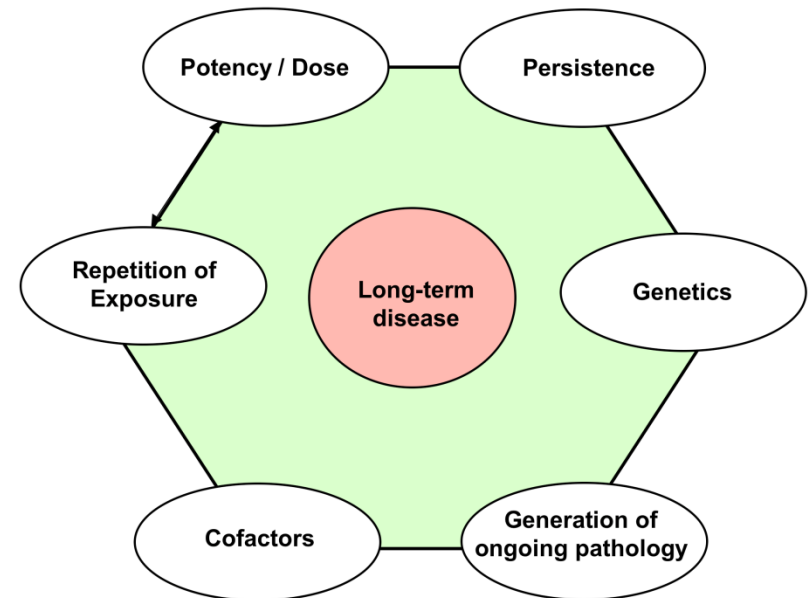
❖ measured in milligrams of toxicant per kilogram of body weight (mg/kg)



❖ **LC₅₀** = *concentration* of a substance in air, food or water that **kills 50%** of a test population, measured in parts per million

LD₅₀ and LC₅₀ have limitations because...

- ❖ they only measure death rates, not less serious acute effects
- ❖ they do not translate directly to humans
- ❖ they only measure effects of a single exposure, not multiple exposures
- ❖ must also consider actual rates of application and the potential dose to which a person could be exposed



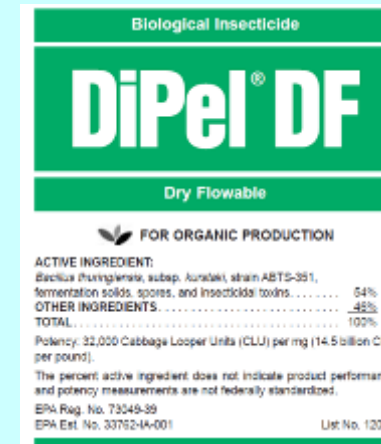
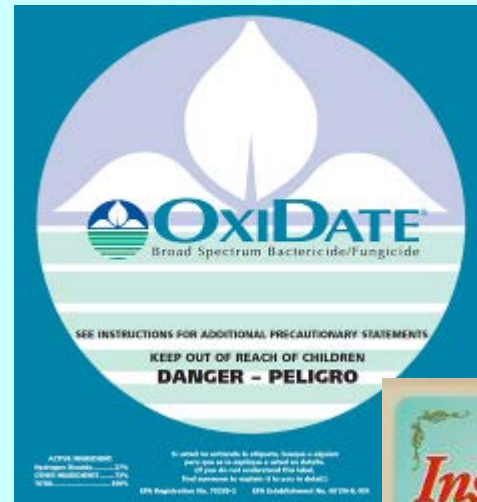
One way to quickly assess the acute risk?

Signal Words

Danger

Warning

Caution



No endorsement intended or implied

What are the human risks?

- Acute

- Rash
- Nausea
- Eye ticks
- Stomach cramps
- Death



- Chronic

- Cancer
- Birth defects
- Allergies
- Organ damage
- Endocrine effects
- Nerve disorders



Long term or delayed health effects



Pests can pose human risk too



Portland Press Herald

CENTRALMAINE | MAINETODAY | Public Notices

MONDAY OCTOBER 27, 2014

55° PARTLY SUNNY
High: 59° | Low: 38°
[TEN DAY FORECAST](#)

News

HOME NEWS ELECTIONS BUSINESS SPORTS OPINION FOOD LIFESTYLE OBI

LOCAL & STATE NEWS Two veteran lawmakers, newcomer seek Portland seat in State House

NEWS Posted October 31, 2012 INCREASE FONT SIZE **A+**

Maine confirms first-ever case of West Nile Virus

The Cumberland County man is recovering at home after being hospitalized for a disease now in 48 states.

BY **LESLIE BRIDGERS** STAFF WRITER
lbridgers@pressherald.com | [@lesliebridgers](https://twitter.com/lesliebridgers) | 207-791-6364

A 34-year-old man from Cumberland County who was hospitalized in October has been confirmed as the first person known to contract the West Nile virus in Maine, state health officials said Wednesday.

Portland Press Herald

CENTRALMAINE | MAINETODAY | Public Notices

MONDAY OCTOBER 27, 2014

55° PARTLY SUNNY
High: 59° | Low: 38°
[TEN DAY FORECAST](#)

News

HOME NEWS ELECTIONS BUSINESS SPORTS OPINION FOOD LIFESTYLE OBI

LOCAL & STATE NEWS Wallflower on Maine ballot: \$50 million in borrowing

NEWS Posted October 10 | Updated October 11 INCREASE FONT SIZE **A+**

Maine confirms its first case of EEE in human

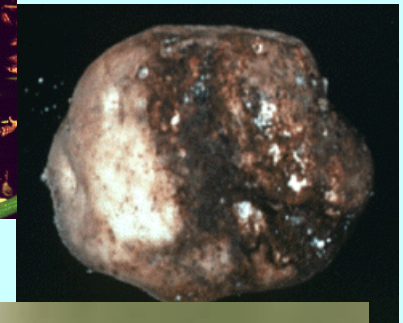
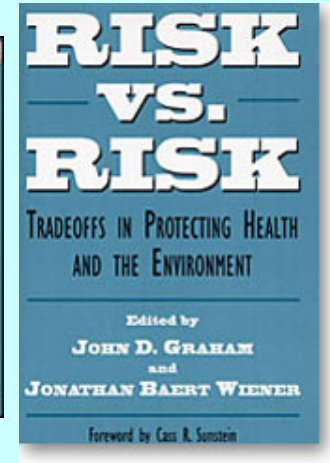
The unidentified adult from York County first got sick in August. Tests done by the state were positive for Eastern equine encephalitis.

BY **SCOTT DOLAN** STAFF WRITER
sdolan@pressherald.com | [@scottdolan](https://twitter.com/scottdolan) | 207-791-6304



Risk vs. Risk

- West Nile Virus & EEE
- Malaria
- Potato Late Blight Disease
- Lyme Disease



Courtesy of
Kevin Byron

All pesticides have risks!!!

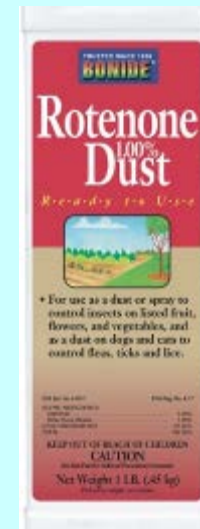
- Organic ≠ Safe



- Synthetic ≠ Highly toxic



- Natural ≠ Safe



No endorsement intended or implied

“All substances are poisons; there is none which is not a poison. The right DOSE differentiates a poison from a remedy.”

–Paracelsus (1493-1541)

Even too much water can kill
– over 1.5 liters/hour



Woman dies after water-drinking contest Water intoxication eyed in 'Hold Your Wee for a Wii' contest death

AP Associated Press

Updated: 10:24 p.m. ET Jan 13, 2007

SACRAMENTO, Calif. - A woman who competed in a radio station's contest to see how much water she could drink without going to the bathroom died of water intoxication, the coroner's office said Saturday.

Jennifer Strange, 28, was found dead Friday in her suburban Rancho Cordova home hours after taking part in the "Hold Your Wee for a Wii" contest in which KDND 107.9 promised a Nintendo Wii video game system for the winner.

"She said to one of our supervisors that she was on her way home and her head was hurting her real bad," said Laura Rios, one of Strange's co-workers at Radiological Associates of Sacramento. "She was crying and that was the last that anyone had heard from her."

NBC VIDEO



Launch

Woman in water drinking contest dies
Jan. 15: Sacramento Bee reporter Christina Jewett talks to MSNBC-TV's Confessa Brewer about the death of a woman who had competed in a radio station contest.

MSNBC

Even natural or organic products can be toxic!

NATURAL & MAN-MADE CHEMICALS

A COMMON MISCONCEPTION IS THAT ALL MAN-MADE CHEMICALS ARE HARMFUL, AND ALL NATURAL CHEMICALS ARE GOOD FOR US. HOWEVER, MANY NATURAL CHEMICALS ARE JUST AS HARMFUL TO HUMAN HEALTH, IF NOT MORE SO, THAN MAN-MADE CHEMICALS.

TOXIC EFFECTS SEEN AT 1000MCG/KG OR BODY WEIGHT
NATURAL

TOXIC EFFECTS SEEN AT 1000MG/KG OR BODY WEIGHT
MAN-MADE

ALL CHEMICALS CAN BE BROADLY DIVIDED INTO TWO CATEGORIES: NATURAL OR MAN-MADE

"EVERYTHING IS POISON, THERE IS POISON IN EVERYTHING. ONLY THE DOSE MAKES A THING NOT A POISON."
PARACELSUS, 1533-1541, "THE FATHER OF TOXICOLOGY"

ANY SUBSTANCE, IF GIVEN IN LARGE ENOUGH AMOUNTS, CAN CAUSE DEATH. SOME ARE LETHAL AFTER ONLY A FEW HANCOGRAMS, WHILE OTHERS REQUIRE KILOGRAMS TO ACHIEVE A LETHAL DOSE.

CHEMICAL TOXICITY IS A SLIDING SCALE, NOT BLACK AND WHITE - AND WHETHER A CHEMICAL IS NATURALLY OCCURRING OR MAN-MADE TELLS US NOTHING ABOUT ITS TOXICITY.

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MADE ON BEHALF OF SENSE ABOUT SCIENCE (@SENSEABOUTSCI) WWW.SENSEABOUTSCIENCE.ORG
www.senseaboutscience.org

TABLE 2-12 Original chart from Pests of the Garden and Small Farm by Mary Louise Flint Amended by Gary Fish September 2007
Oral LD₅₀ Values for Some Pesticides Used in Small Farms and Gardens.

CHEMICAL	COMMON TRADE NAMES	ORAL LD ₅₀ ^a	EIQ ^b	TYPE OF PESTICIDE
Nicotine	Black Leaf 40	55	45 ¹	insecticide
Rotenone*		132	33	insecticide
Bordeaux*		300	68	fungicide
Diazinon		300	43	insecticide
2,4-D		375	17	herbicide
Carbaryl	Sevin	500	21	insecticide
Acephate	Orthene	866	23	insecticide
Copper hydroxide*	Kocide	1000	33	fungicide
Copper oxychloride sulfate*	C-O-C-S	1000	33 ¹	fungicide
Ryania*		1200	55	insecticide
Malathion		1375	24	insecticide
Pyrethrum*		1500	18	insecticide
Propargite	Omite	2200	43	acaricide
Sabadilla*		4000	36	insecticide
Glyphosate	Round-up	4300	15	herbicide
Cryolite*	Kryocide	10,000	21	insecticide
Benomyl	Benlate	>10,000	53	fungicide
<i>Bacillus thuringiensis</i> *	Dipel	15,000	8	insecticide

NOTE: Some materials on this list may not be currently registered as pesticides or their use may be restricted.

* indicates chemical was acceptable for organically grown produce.

^a indicates the amount of pesticide that will kill half of a group of test animals. These values are for milligrams of pesticide per kilogram of body weight. These figures do not provide an indication of the chronic health risk or persistence in the environment.

^b or Environmental Impact Quotient is a method to calculate the environmental impact of most common fruit and vegetable pesticides (insecticides, acaricides, fungicides and herbicides) used in commercial agriculture. The values obtained from these calculations can be used to compare different pesticides and pest management programs to ultimately determine which program or pesticide is likely to have the lower environmental impact.

insecticide.

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ESPAÑOL

Potato plant poisoning - green tubers and sprouts

Potato plant poisoning occurs when someone eats the green tubers or new sprouts of the potato plant.

This is for information only and not for use in the treatment or management of an actual poison exposure. If you have an exposure, you should call your local emergency number (such as 911) or the National Poison Control Center at 1-800-222-1222.

Poisonous Ingredient

Solanine (very toxic even in small amounts)

Where Found

The poison is found throughout the plant, but especially in green potatoes and new sprouts. Never eat potatoes that are spoiled or green below the skin. Always throw away the sprouts.

Potatoes that are not green and have had any sprouts removed are safe to eat.

MedlinePlus Topics

Poisoning

What are the environmental risks?

- Wildlife effects



- Water contamination



- Residues on food



Always carefully read the
precautionary statements &
environmental hazards on the label



Know the “fate” of the pesticide you apply – Read the label

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish, aquatic invertebrates, and mammals. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean highwater mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

This chemical is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

This chemical can contaminate surface water through spray drift. Under some conditions, it may also have a high potential for runoff into surface water for several days to weeks after application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow groundwater, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlaying tile drainage systems that drain to surface water.

Some granular pesticides are very hazardous to birds





Persistence and Resistance

Reducing pest resistance

Mode of Action Classification
IRAC
 Insecticide Resistance Action Committee
 The Key to Resistance Management

More information on IRAC and the Mode of Action Classification is available from:
www.irac-online.org or enquiries@iac-online.org

The chart displays 28 numbered groups of insecticides, each with a representative chemical structure and a brief description of its mode of action. The groups are:

- Group 1: Acetylcholinesterase inhibitors
- Group 2: Nicotinic acetylcholine receptor (nAChR) agonists
- Group 3: Voltage-gated sodium channel activators
- Group 4: Voltage-gated sodium channel blockers
- Group 5: GABA-gated chloride channel activators
- Group 6: GABA-gated chloride channel blockers
- Group 7: Insect-specific sodium channel activators
- Group 8: Insect-specific sodium channel blockers
- Group 9: Insect-specific potassium channel activators
- Group 10: Insect-specific potassium channel blockers
- Group 11: Insect-specific calcium channel activators
- Group 12: Insect-specific calcium channel blockers
- Group 13: Insect-specific chloride channel activators
- Group 14: Insect-specific chloride channel blockers
- Group 15: Insect-specific potassium channel activators
- Group 16: Insect-specific potassium channel blockers
- Group 17: Insect-specific calcium channel activators
- Group 18: Insect-specific calcium channel blockers
- Group 19: Insect-specific chloride channel activators
- Group 20: Insect-specific chloride channel blockers
- Group 21: Insect-specific potassium channel activators
- Group 22: Insect-specific potassium channel blockers
- Group 23: Insect-specific calcium channel activators
- Group 24: Insect-specific calcium channel blockers
- Group 25: Insect-specific chloride channel activators
- Group 26: Insect-specific chloride channel blockers
- Group 27: Insect-specific potassium channel activators
- Group 28: Insect-specific potassium channel blockers

Specimen Label

Dow AgroSciences

Entrust[®] SC

Naturalyte[®] Insect Control

®Trademark of Dow AgroSciences LLC

A Naturalyte[®] insect control product formulated for control of lepidopterous larvae (worms or caterpillars), leafminers, thrips, and red imported fire ants.

Group	5	INSECTICIDE
Active Ingredient:		
spinosad (a mixture of spinosyn A and spinosyn D).....		22.5%
Other Ingredients.....		77.5%
Total.....		100.0%

Contains 2 lb of active ingredient per gallon.

OMRI[™]
Listed

The World of Herbicides
 According to HRAC classification on mode of action 2010

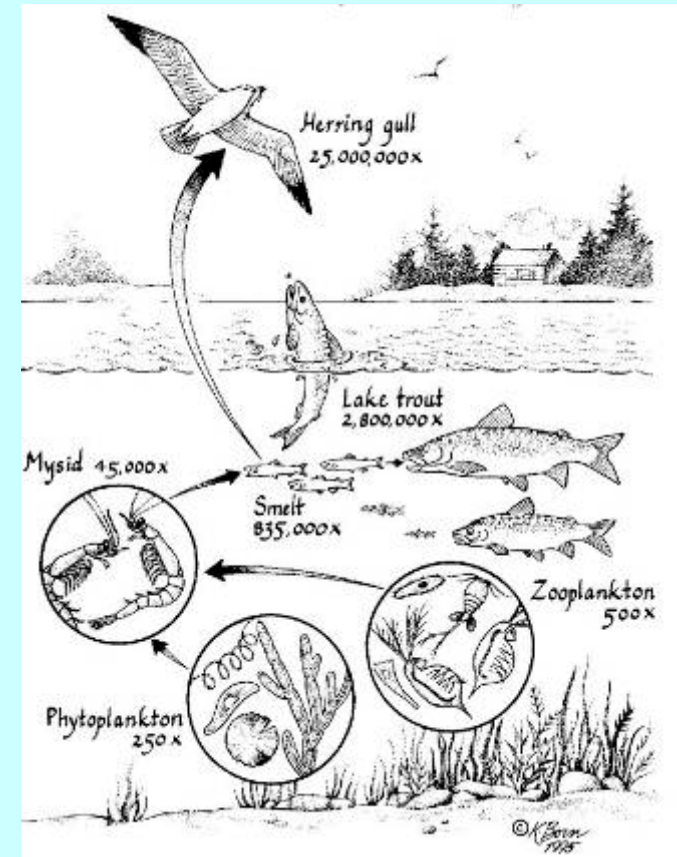
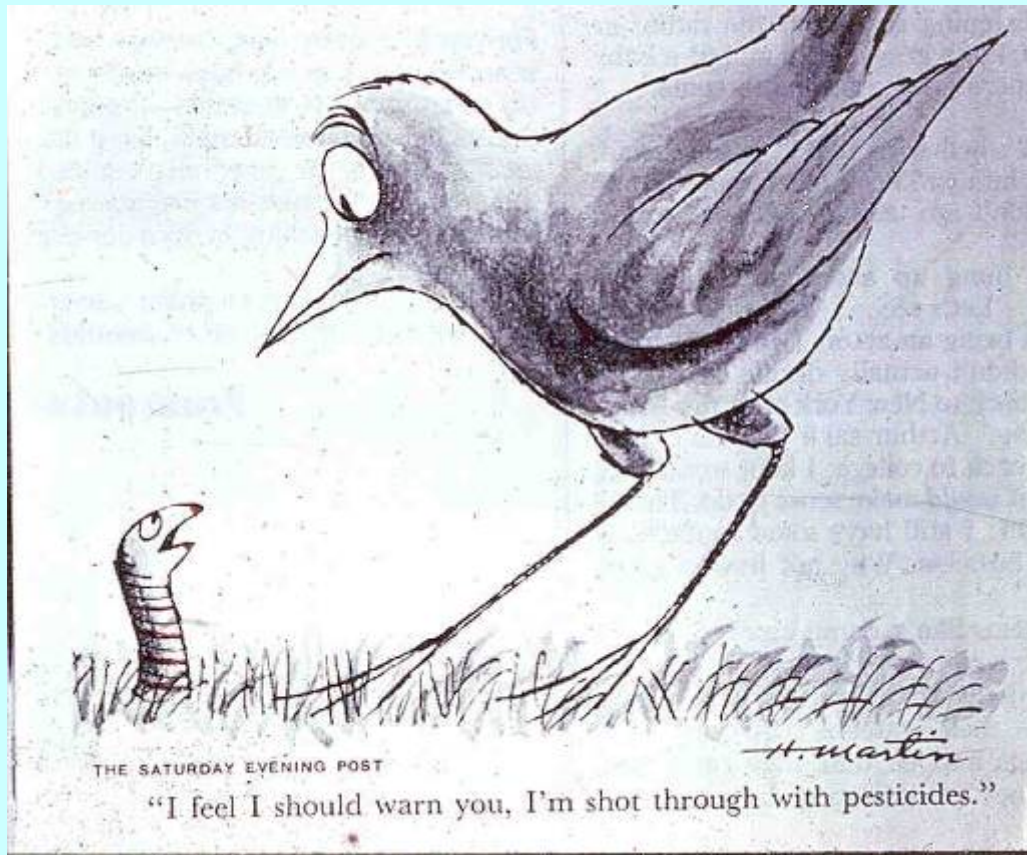
The chart displays 28 numbered groups of herbicides, each with a representative chemical structure and a brief description of its mode of action. The groups are:

- Group A: Acetolactate synthase inhibitors
- Group B: EPSP synthase inhibitors
- Group C: EPSP synthase inhibitors
- Group D: EPSP synthase inhibitors
- Group E: EPSP synthase inhibitors
- Group F: EPSP synthase inhibitors
- Group G: EPSP synthase inhibitors
- Group H: EPSP synthase inhibitors
- Group I: EPSP synthase inhibitors
- Group J: EPSP synthase inhibitors
- Group K: EPSP synthase inhibitors
- Group L: EPSP synthase inhibitors
- Group M: EPSP synthase inhibitors
- Group N: EPSP synthase inhibitors
- Group O: EPSP synthase inhibitors
- Group P: EPSP synthase inhibitors
- Group Q: EPSP synthase inhibitors
- Group R: EPSP synthase inhibitors
- Group S: EPSP synthase inhibitors
- Group T: EPSP synthase inhibitors
- Group U: EPSP synthase inhibitors
- Group V: EPSP synthase inhibitors
- Group W: EPSP synthase inhibitors
- Group X: EPSP synthase inhibitors
- Group Y: EPSP synthase inhibitors
- Group Z: EPSP synthase inhibitors

HERBICIDES AFFECTING: Light Processes, Cell Metabolism, Growth/Cell Division

www.hracglobal.com


Remember “Silent Spring”



*Biomagnification of chlorinated hydrocarbons like DDT or Dieldrin

Today's wildlife concerns

- Biomagnification is not a big issue any more
 - Fat soluble products were cancelled in the 70's
- Pollinators are now a focus area



The screenshot shows the University of Maine Cooperative Extension website. At the top left is the logo for The University of Maine Cooperative Extension, established in 1865. To the right of the logo, it says "Local Extension offices near you. Learn more about this institution." and "Select a different institution". Below the logo is a navigation bar with links for Home, About, Resource Areas, News, Articles, Answers, Calendar, and Learning Lessons. The main content area is titled "Bee Health Home" and features the "Managed Pollinator CAP: Coordinated Agricultural Project". It includes a "Have a question? Try asking one of our Experts" button, a "Print" button, and a "Share / Save" button. The project description states: "Managed Pollinator CAP Coordinated Agricultural Project. A National Research and Extension Initiative to Reverse Pollinator Decline." There is an image of a bee and a honeycomb graphic. The URL "www.beeccdcap.uga.edu" is visible at the bottom.

Look for the bee icon on new labels


- * Products with acute or residual toxicity to pollinators will have the bee icon on their labels
- * The new warnings will be next to that icon
- * Includes all types of pesticides not just insecticides




Protect Bees and Other Pollinators

- ❖ Do not apply pollinator toxic pesticides if the crop is blooming or about to bloom or if plants are blooming in nearby areas
- ❖ Mow blooming weeds before treatments
- ❖ Reduce drift
- ❖ Apply early or late when most pollinators are not foraging

PROTECTION OF POLLINATORS

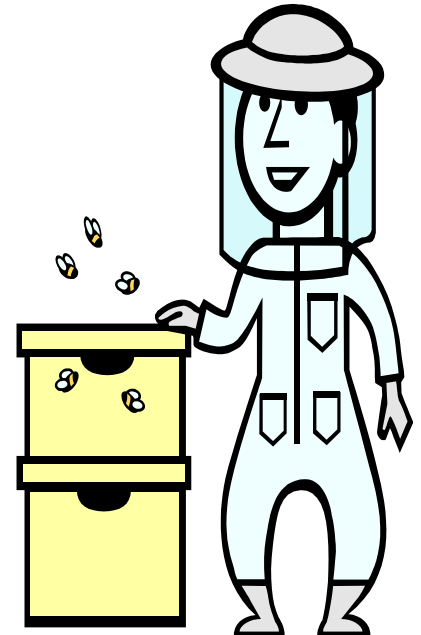


APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.

Look for the bee hazard icon  in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

Protect Bees and other Pollinators

- ❖ Select pesticides least harmful to bees
 - ❖ Use low hazard formulations, avoid microencapsulated formulations, dusts and powders
 - ❖ Be especially careful with systemic insecticides
 - ❖ Check the label for toxicity
 - ❖ Spot treat if appropriate
- ❖ Cooperate with beekeepers!



Protect Beneficial Insects

- ❖ Learn to recognize beneficial insects
- ❖ Valuable allies in pest management
- ❖ Minimize insecticide usage
- ❖ Use spot treatments with selective products when possible



Pesticides Can Leach Into Groundwater



More than two dozen pesticides have been detected in Maine groundwater

Pesticide Movement: in Water

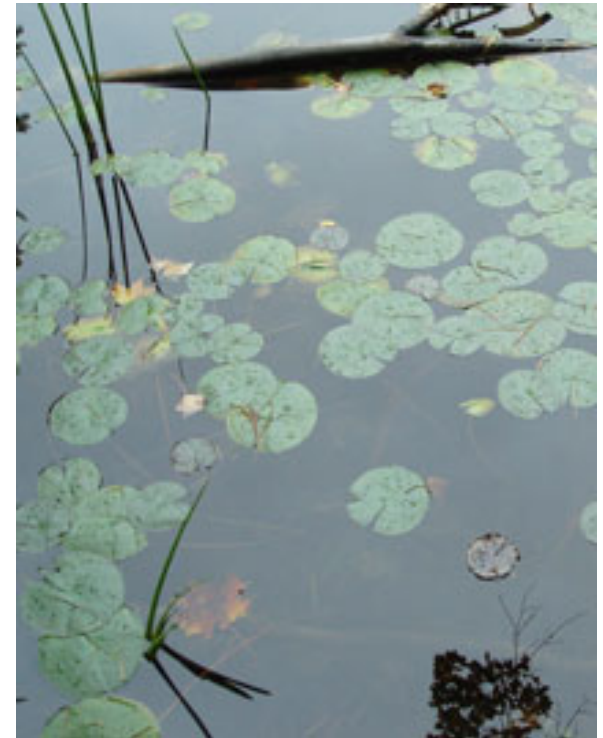
Leaching

- ❖ Movement of pesticide by water downward through the soil
- ❖ Chemical characteristics that pose concern:
 - ❖ high solubility,
 - ❖ low adsorption,
 - ❖ persistence



Leaching depends on...

- ❖ Geology – how permeable is the soil?
- ❖ Soil texture and structure
 - ❖ Sandy: fast percolation, few binding sites
 - ❖ Silt, clay or organic matter: slower percolation and many binding sites
- ❖ Depth to groundwater: shallow water tables pose a concern
- ❖ Amount and timing of rainfall or irrigation



Home pesticide use - Worst case

Groundwater monitoring results 1994 - 2005

Commodity Group	Number of Samples Collected			Number of Samples with Positive Detections			Percent of Samples with Positive Detections			Detections Above a Health Advisory		
	1994	1999	2005	1994	1999	2005	1994	1999	2005	1994	1999	2005
Potatoes	47	100	87	8	4	1	17%	4%	1%	None	None	None
Corn	49	51	28	7	0	4	14%	0%	14%	None	None	None
Blueberries	21	22	13	15	13	7	75%	59%	54%	None	None	None
Small Grains	3	9	17	0	0	1	0%	0%	6%	None	None	None
Orchards	1	5	3	1	0	0	100%	0%	0%	* One	None	None
Christmas Trees	5	4	3	0	0	0	0%	0%	0%	None	None	None
Strawberries	None	3	6	---	0	0	---	0%	0%	---	None	None
Totals:	129	194	157	31	17	13	23.3%	9.0%	8.3%	---	---	---

*Homeowner application of diazinon to control ants – 10x over MCL

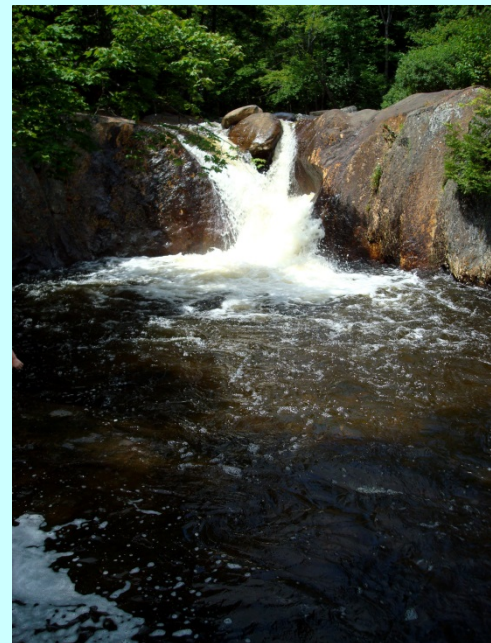
Groundwater monitoring results

- We sampled wells near blueberry fields in 2011
 - the number of wells with detections dropped to 38%
 - 2 different herbicides found
 - hexazinone
 - terbacil



2014 – Initial results for GW samples (47 wells)

Analyte	Number of Samples	Number of Samples with Detects	Above Lifetime Health Advisory Level
2,4-D	50	1	N
Alachlor (ESA)	50	2	N
Atrazine	50	6	Y*
Deethyl atrazine	50	7	Y*
Deethyl deisopropyl atrazine	50	1	Y*
Deisopropyl-atrazine	50	2	Y*
Bromocil	50	1	N
Clothianidin	50	1	N
Flumetsulam	50	1	N
Hydroxy-atrazine (HA)	50	2	N
Hexazinone	50	3	N
Imazapyr	50	2	N
Imidiclopid	50	7	N
Mecoprop (MCP)	50	1	N
Metalaxyl (mefenoxam)	50	13	N
Metolachlor	50	1	N
Metolachlor ESA	50	14	N
Metolachlor OA	50	3	N
Oxamyl	50	2	N
Prometon	50	3	N
Simazine	50	1	N
Terbacil	50	2	N
Thiamethoxam	50	5	N

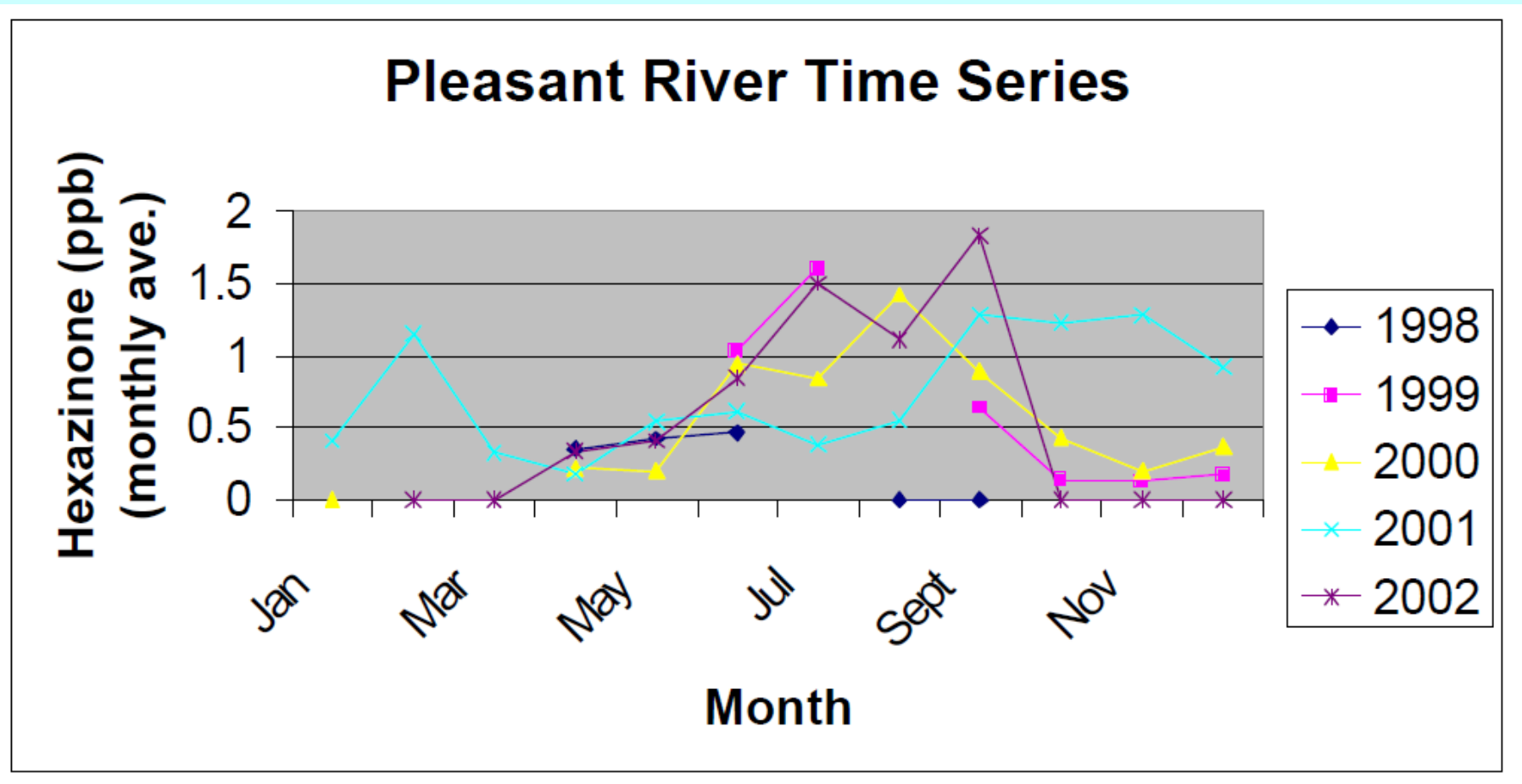


* One well was over the 2 ppb Maine Exposure Guideline for Atrazine and its three metabolites combined.

Pesticides Can Drift or Run Off Into Surface Waters



The BPC has detected agricultural pesticides in surface waters



Surface Water/sediment Sampling – Home, Lawn & Garden Pesticides

– Pesticide residues detected in surface water

- Diazinon up to (2.6 ppb)**
- 2,4-D up to (36.4 ppb)
- Dicamba up to (4.1 ppb)
- MCPP up to (26 ppb)
- MCPA up to (0.45 ppb)
- Clopyralid up to (0.91 ppb)
- Propiconazole up to (0.075 ppb)
- Chlorothalonil up to (0.22 ppb)
- Found Excess Nitrogen & Phosphorous in most samples



**Values in red exceed Aquatic Life Criteria

– Pesticide residues detected in sediments

- Bifenthrin up to (37 ppb)
- Permethrin up to (47 ppb)
- Cypermethrin up to (5 ppb)

Prevent water contamination

- Locate & stay away from wells
- Stay away from ledge
- Stay away from water
- Do not apply to slopes near water
- Do not apply before heavy rains
- Spot applications
- Store products over impervious floor



Food Quality Protection Act (FQPA)

- ❖ establishes food residue tolerances only when there is “reasonable certainty” of no harm
- ❖ considers cumulative exposures
- ❖ considers greater risks to infants and children
- ❖ mandates the review of older pesticides under new standards – every 15 years
- ❖ mandates testing for endocrine disruption
 - linked to sexual, behavioral, developmental, reproductive problems



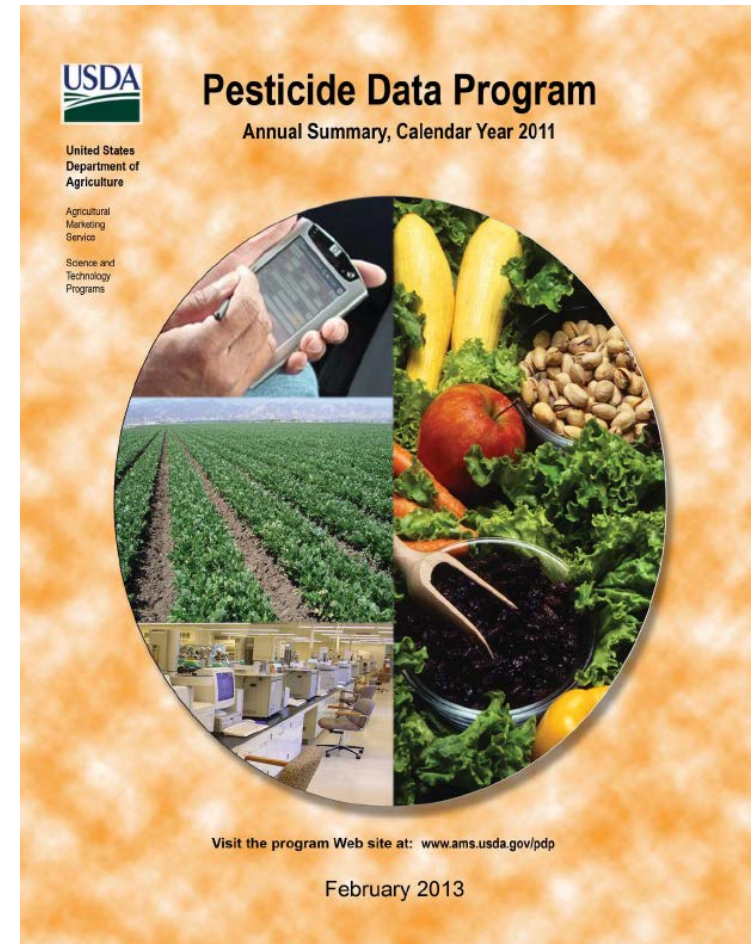


Pesticide residues are found on all types of food

- Samples are randomly chosen near the point of consumption, and
- reflect what is typically available to the consumer throughout the year
- Samples are selected without regard to country of origin, variety, or organic labeling

2011 USDA-PDP Sampling

- USDA – PDP 2011 sampling shows that 99.73% of all samples are well below the tolerances set by EPA
- In baby food no residues were found above the tolerance levels
- 399 (3.4%) of samples contained extremely low levels of pesticides for which there is no tolerance
- “The data reported by PDP corroborate that residues found in fruits and vegetables are at levels that do not pose risk to consumers’ health”



PDP also detects pesticide residues on organic produce

- According to the 2008 USDA Pesticide Data Program Report:
 - 43% of organic spinach samples were positive for spinosad (13 of 30 samples positive)
- According to the 2010 and 2011 USDA Pesticide Data Program Report:
 - 52% of organic baby food pear samples were positive for spinosad (16 of 31 samples) 2010
 - 49% of organic baby food pear samples were positive for spinosad (33 of 67 samples) 2011
- 2013 USDA PDP report
 - 92% of organic nectarine samples were positive for spinosad
 - (11 of 12 samples)
- Spinosad is National Organic Program approved and is derived from a naturally occurring soil bacteria



No endorsement intended or implied

Pesticide Registration

- All pesticides must be registered by both:

–The EPA*

–and

–The BPC



*Some “reduce risk” pesticides have been deregulated by the EPA

EPA exempt pesticides



- Some pesticides have been deregulated by EPA

- Exempt from Federal registration
- Must be registered by State of Maine
- Exempt from toxicity testing and FQPA
- NOT risk free

Ingredients in some of these products:

- Rosemary oil
- Peppermint oil
- Thyme oil
- Clove oil
- Wintergreen oil
- Cinnamon oil

No endorsement intended or implied

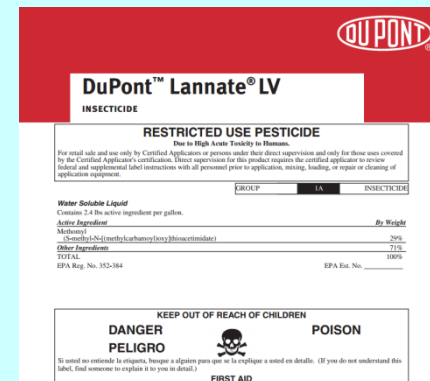
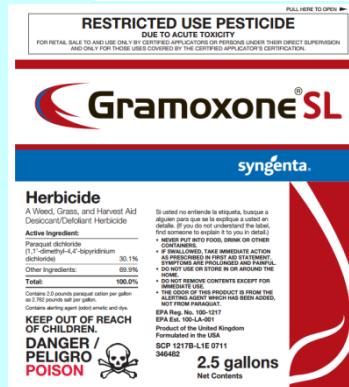
What does registration mean?

- Not a safety guarantee
- Reasonable certainty of no harm, **but not risk free**
- Must read and follow the label to manage the risk



Pesticide Classifications

- General Use – Lower risk, available over-the-counter
- Restricted Use – Higher risk, only available at licensed dealerships for purchase by licensed applicators
- Limited Use – Higher risk, only available by special permit



No endorsement intended or implied

Pesticide Registration - Pesticide Labeling

- Labels are legal documents that provide directions for pesticide mixing, application, storage & disposal
- Users must comply with all instructions on the pesticide label & labeling
- FIFRA 2ee



The key to proper use

- Read and follow the label & SDS
- Do your homework
- If you are a commercial grower
 - only use products approved for agricultural use
 - do not use products designed for home garden or home owner use

Specimen Label

 Dow AgroSciences



Naturalyte[®] Insect Control

*Trademark of Dow AgroSciences LLC

A Naturalyte[®] insect control product formulated for control of lepidopterous larvae (worms or caterpillars), leafminers, thrips, and red imported fire ants.

Group	5	INSECTICIDE
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Active Ingredient:
spinosad (a mixture of spinosyn A and spinosyn D)..... 22.5%
Other Ingredients 77.5%
Total 100.0%

Contains 2 lb of active ingredient per gallon.



Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

**COLORADO POTATO BEETLE BEATER
CONCENTRATE**

• DO-IT-YOURSELF HOME GARDEN INSECT CONTROL.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

For residential use in home gardens, lawns and ornamentals. Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes.

No endorsement intended or implied

Read the label before...

- ❖ Buying the pesticide
- ❖ Storing the pesticide
- ❖ Mixing and applying the pesticide
- ❖ Disposing of unused pesticide and empty containers



Label “Rules of Thumb”


- ❖ The site or crop must be stated on the label
- ❖ The target pest does not need to be listed
- ❖ Any application method may be used, unless prohibited by the label
- ❖ Applications may be made at a rate less than that stated on the label, not more!
- ❖ Tank mixtures are OK, unless the label says otherwise

VEGETABLES		SMALL FRUIT & NUT TREES <small>(Such as container grown, dwarf or young trees)</small>	
	DAYS TO WAIT TO HARVEST		DAYS TO WAIT TO HARVEST
Artichoke	7	Almond	21
Broccoli	3	Apple	21
Cabbage	3	Apricot	14
Carrots	7	Cherries	14
Cauliflower	3	Filberts	21
Collards	7	Nectarines	14
Cucumbers	3	Peaches	14
Dry Beans	21	Pecans	21
Dry Peas	21	Pears	28
Eggplant	7	Plums	14
Green Peas	3	Prunes	14
Peppers	7	Walnuts	21
Potatoes	7		
Pumpkin	3		
Radishes	7		
Snap Beans	3		
Squash	3		
Sweet Corn	1		
Tomatoes	1		

BERRIES & MELONS	
	DAYS TO WAIT TO HARVEST
Caneberries <small>(blackberries, loganberries, red raspberries & black raspberries)</small>	21
Elderberries	21
Gooseberries	21
Melons	3

NUISANCE PESTS CONTROLLED	
Ants, cockroaches (including German and Asian cockroaches), crickets, palmetto bugs, sowbugs, pillbugs, spiders, and ticks that transmit Lyme disease.	

HOW TO APPLY	
NUISANCE PESTS: Apply directly to listed pests in outdoor areas. OUTDOOR SURFACES: Spray buildings, porches, patios, garages, and other areas where bugs have been seen or are found. Do not spray near fishponds or other bodies of water.	

WHEN TO APPLY	
Apply as necessary to maintain control, waiting at least 7 days between each application.	
 People and pets may enter treated area after spray has dried.	
Avoid contamination of food or feedstuffs.	

No endorsement intended or implied

Labels of old



No endorsements intended or implied

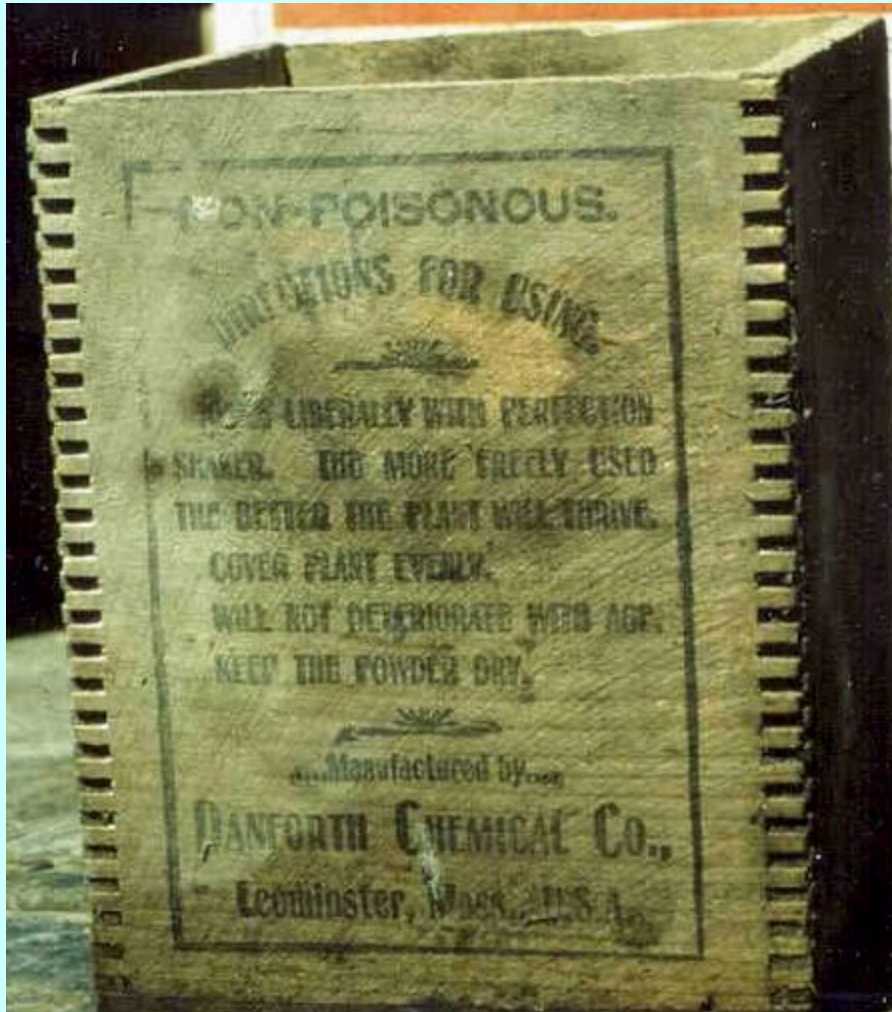
More labels of old



What do you think it was?



Great directions!



Contained 5% lead oxide & 47% zinc oxide

“Bug Death is a patented non-poisonous powder, and is entirely different from anything that has ever been placed on the market, and **overcomes all the objections to the deadly poisons that the farmers have been obliged to use in the past. It is just as effectual as Paris Green and other dangerous insect powders.** It is sure death to the potato, squash and cucumber bugs, currant and tomato worms, also other plant and vine eating pests.

The deadly effect on bugs will not always be as quick, but it is just as sure. **Contrary to the arsenic preparations, it is a benefit to the plant, and the more freely used the better the plant will thrive,** and for potatoes when blight is prevalent, the extra yield will more than pay all expense of Bug Death.”

Jim Dill's favorite



No endorsements intended or implied

Today's label

RESTRICTED USE PESTICIDE
DUE TO TOXICITY TO FISH AND AQUATIC ORGANISMS.
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.



GROUP **3** INSECTICIDE

DuPont™ Asana® XL insecticide

This product contains 0.66 lbs. Active Ingredient per gallon.
0.66 Emulsible Concentrate

Active Ingredient	By Weight
Esfenvalerate	
(S)-cyano (3-phenoxyphenyl) methyl (S)-4-chloro-alpha-(1-methylethyl) benzeneacetate	8.4%

Inert Ingredients*	91.6%
TOTAL	100 %

* CONTAINS XYLENE RANGE AROMATIC SOLVENT

EPA Reg. No. 352-515

KEEP OUT OF REACH OF CHILDREN

WARNING **AVISO**
Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

FIRST AID

IF SWALLOWED

Call a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so by a poison control center or a doctor. Do not give anything by mouth to an unconscious person.

IF INHALED

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

IF IN EYES

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center for treatment advice.

IF ON SKIN OR CLOTHING

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN

If on skin, after drying apply vitamin E cream or oil if available. If not available, apply vegetable oil liberally over painful areas. The oil or cream may be used repeatedly until relief is achieved.

Contains xylene range aromatic solvent - vomiting may cause aspiration pneumonia.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-441-3637 for emergency medical treatment information.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING! May be fatal if swallowed. Harmful if inhaled. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash clothing before reuse. **For medical emergencies involving this product, call toll free 1-800-441-3637.**

PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or Viton.
- Shoes plus socks.
- Protective eyewear.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

USERS SHOULD: Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

ENGINEERING CONTROL STATEMENTS

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR part 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

ENVIRONMENTAL HAZARDS

This pesticide is extremely toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when cleaning equipment or when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

WILDLIFE PROTECTION IS EVERYONE'S RESPONSIBILITY

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with the labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls.
- Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or Viton.
- Shoes plus socks.
- Protective eyewear.

DuPont™ ASANA® XL insecticide should be used only in accordance with recommendations in this label or in separate DuPont recommendations available through local dealers. DuPont will not be responsible for losses or damages resulting from (i) the reformulation of ASANA® XL into any other product, and (ii) the use of ASANA® XL in any manner that is not specifically recommended by DuPont on the label. User assumes all risk from such non-recommended use.

GENERAL INFORMATION

ASANA® XL insecticide 0.66 emulsible concentrate contains 0.66 pounds of active ingredient per gallon. For the applications given below, mix the required amount of ASANA® XL in sufficient diluent to provide uniform coverage (Refer to Use Tables). ASANA® XL may be applied by ground or aerial application equipment. For aerial application use the following directions unless otherwise specified in this label: use a minimum of 2 gallons per acre (gpa) of water, except in tree and orchard crops use a minimum of 10 gpa.

Apply at the recommended rates when insect populations reach locally determined economic thresholds. Consult the cooperative extension service, professional consultants or other qualified authorities to determine appropriate threshold levels for treatment in your area.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

STORAGE: Store in a secure, dry and temperate area. Store in original container. Keep container closed when not in use. Do not store near food or feed. Do not use or store around the home. Avoid contact with water. In case of spill or leak, soak up with sand, earth or synthetic absorbent (do not use alkaline absorbents) and dispose of wastes in compliance with local, State and Federal regulations.

PRODUCT DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Triple rinse (or equivalent), then offer for recycling or reconditioning if container reuse is permitted. If container reuse is prohibited, puncture metal containers and dispose of in a sanitary landfill, or by other approved State and local procedures. Dispose of plastic containers in a sanitary landfill, or by incineration if allowed by State and local authorities. If burned, stay out of smoke.

Container Refilling and Disposal (For Containers up to 250 gal): This is a refillable container. If the container is to be refilled, do not rinse with any material or introduce any pesticide other than DuPont™ ASANA® XL. Reseal and return the container to any authorized DuPont refilling facility. If the container is not to be refilled, triple rinse (or equivalent) and offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or by open burning, if allowed by state and local authorities. If burned, keep out of smoke.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.


Container Disposal for Bulk Containers: When this container is empty, replace the cap and seal all openings that have been opened during use, and return the container to the point of purchase or to a designated location named at time of purchase of this product. The container must only be refilled with this pesticide product. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.** Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transporting. Do not transport if this container is damaged or leaking. If the container is damaged, leaking or obsolete, contact DuPont at 1-800-441-3637. If not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling. Disposal of this container must be in compliance with state and local regulations.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

No endorsements intended or implied

Time for label exercise

Please find the DuPont Lannate LV label


GROUP	1A	INSECTICIDE
 DuPontTM Lannate[®] LV <hr/> insecticide		
Water Soluble Liquid Contains 2.4 lbs active ingredient per gallon.		
Active Ingredient By Weight		
Methomyl (S-methyl-N-[(methylcarbamoyl) oxy]thioacetimidate)		29%
Inert Ingredients		71%
TOTAL		100%

RESTRICTED USE PESTICIDE

Due to High Acute Toxicity to Humans.

For retail sale and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Direct supervision for this product requires the certified applicator to review federal and supplemental label instructions with all personnel prior to application, mixing, loading, or repair or cleaning of application equipment.

KEEP OUT OF REACH OF CHILDREN

DANGER  **POISON**

PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

FIRST AID

This Product is an N-Methyl Carbamate insecticide.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

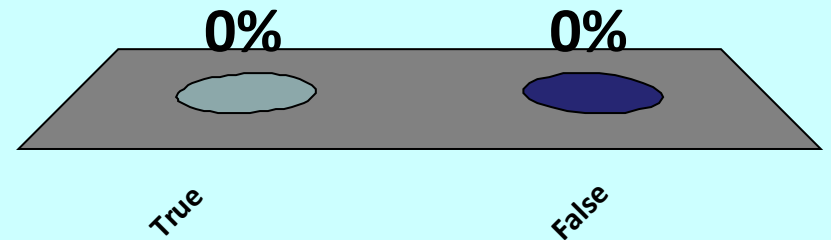
IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

ATROPINE IS AN ANTIDOTE --SEEK MEDICAL

Lannate LV is a low risk pesticide.

1. True
2. False



Danger – Poison = High Toxicity

RESTRICTED USE PESTICIDE

Due to High Acute Toxicity to Humans.

For retail sale and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Direct supervision for this product requires the certified applicator to review federal and supplemental label instructions with all personnel prior to application, mixing, loading, or repair or cleaning of application equipment.

GROUP	1A	INSECTICIDE
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DuPontTM

Lannate[®] **LV**

insecticide

KEEP OUT OF REACH OF CHILDREN

DANGER



POISON

PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

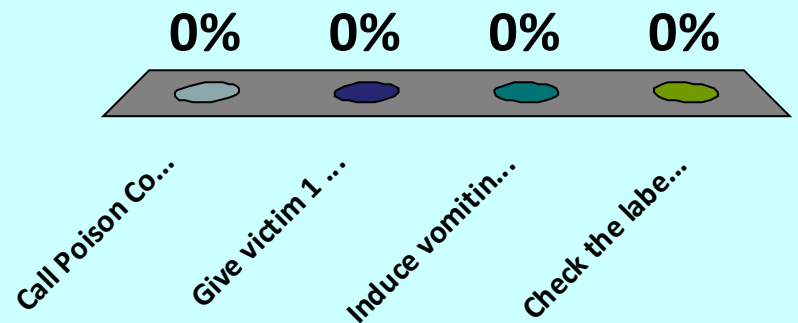
FIRST AID

This Product is an N-Methyl Carbamate insecticide.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

What should be done if someone swallows Lannate LV?

1. Call Poison Control
2. Give victim 1 – 2 glasses of water
3. Induce vomiting
4. Check the label for first aid instructions



All the answers are correct

Page 1

DuPontTM
Lannate[®] LV

insecticide

Water Soluble Liquid

Contains 2.4 lbs active ingredient per gallon.

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

FIRST AID

This Product is an N-Methyl Carbamate insecticide.

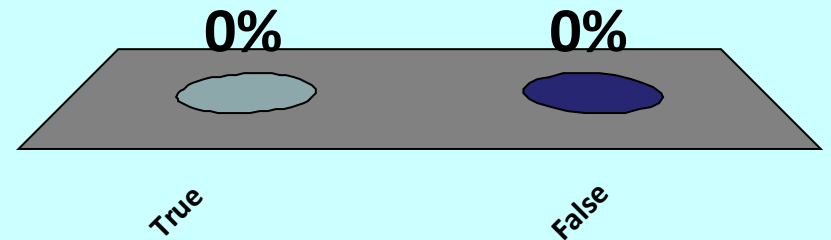
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IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not

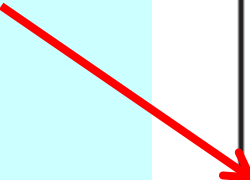
The inert ingredients in Lannate LV are harmless.

1. True
2. False



False – Contains methanol

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
AND DOMESTIC ANIMALS**

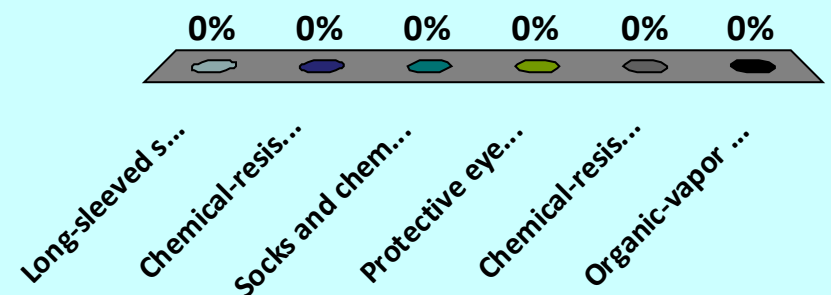


DANGER! FATAL IF SWALLOWED, CONTAINS METHANOL; MAY CAUSE BLINDNESS. CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE.

Do not get in eyes, or on clothing. Wear protective eyewear. Harmful if inhaled or absorbed through skin. Avoid contact with skin or breathing spray mist. Wash hands thoroughly with soap and water after handling.

What PPE must be worn by a mixer in an enclosed area?

1. Long-sleeved shirt & long pants
2. Chemical-resistant gloves
3. Socks and chemical-resistant footwear
4. Protective eyewear
5. Chemical-resistant apron
6. Organic-vapor removing respirator



They must wear everything

Page 2

PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category B on an EPA chemical-resistance category selection chart.

Applicators and others exposed to the diluted spray solution must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as barrier laminate or butyl rubber.
- Shoes plus socks.
- Protective eyewear.

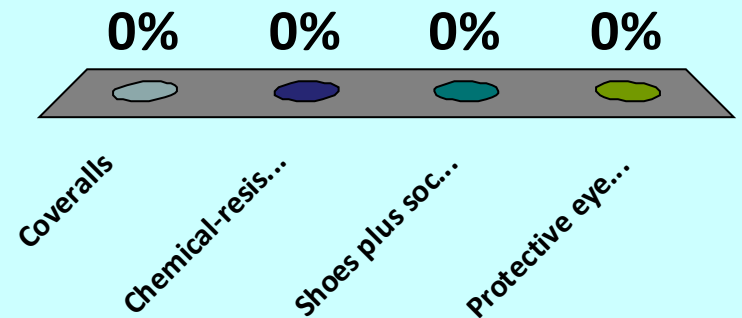
Mixers, loaders, cleaners, repairers of application equipment, and others exposed to the concentrate must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as barrier laminate or butyl rubber.
- Socks and chemical resistant footwear.
- Protective eyewear.
- Chemical resistant apron.

For exposures in enclosed areas, a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G), or NIOSH approved respirator with an organic vapor (OV) cartridge or a canister with any R, P, or HE prefilter.

What PPE must be worn for early entry into a treated area?

1. Coveralls
2. Chemical-resistant gloves
3. Shoes plus socks
4. Protective eyewear



All the
answers are
correct

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment(PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI). REI Summary: apple, cotton, grapefruit, lemon, nectarines, oranges, tangelo, tangerine = 3 day REI; peaches = 4 day REI; all other WPS uses = 48 hour REI.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

Coveralls.

Chemical-resistant gloves, such as barrier laminate or butyl rubber.

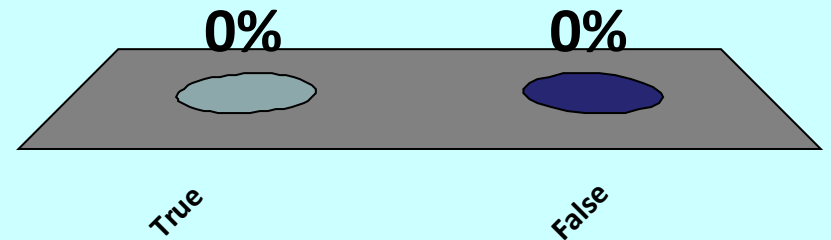
Shoes plus socks.

Protective eyewear.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

Lannate LV can be mixed with any other pesticide product.

1. True
2. False



False – see compatibility page 4

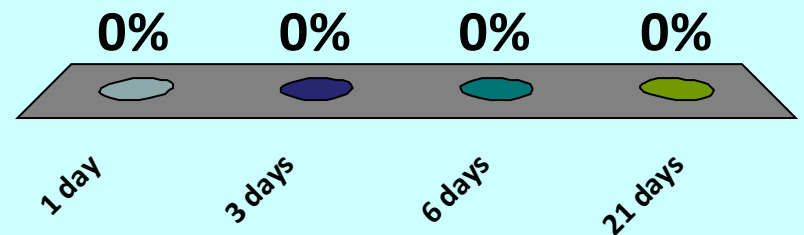
Page 4

Compatibility — Since formulations may be changed and new ones introduced, it is recommended that users premix a small quantity of a desired tank mix and observe for possible adverse changes (settling out, flocculation, etc.). Avoid mixtures of several materials and very concentrated spray mixtures.

Do not use LANNATE® LV with Bordeaux mixture, “Du Ter” (triphenyltin hydroxide), lime sulfur, “Rayplex” iron nor in highly alkaline solutions. Use mildly alkaline mixtures immediately after mixing to prevent loss of insecticidal activity.

What is the last application days to harvest for potatoes?

1. 1 day
2. 3 days
3. 6 days
4. 21 days

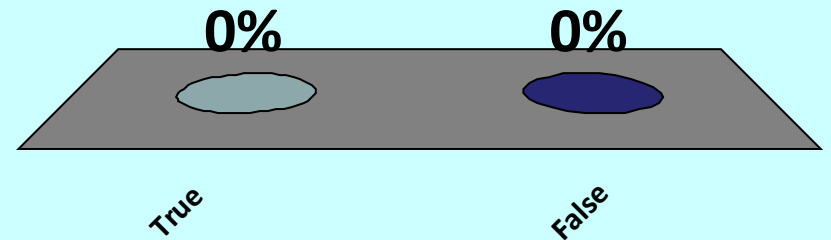


6 Days – see page 15

Crops	Insects	Rate	Last Application - Days To Harvest	REI
		DuPont™ LANNATE® LV Pts. Per Acre		
Potato	Tuberworm* Loopers Aphids Beet Armyworm Leafhoppers Fall Armyworm	1 1/2 - 3	6	48 hrs
	Variegated Cutworm Flea Beetles	1 1/2		
<p>Do not apply more than 15 pints of LANNATE® LV/acre/crop. Do not make more than 10 applications/crop. Chemigation - LANNATE® LV may be applied by overhead sprinkler chemigation. For best results, use the highest listed rate of LANNATE® LV for the target pests. Apply in 0.1 to 0.2 inches of water per acre. See "Chemigation" section for more information. * Repeat applications of LANNATE® LV on a 5-7 day schedule, or longer as needed, to control tuberworm populations. An application schedule of effective insecticides with different modes of action may be needed to keep foliar feeding larval populations as low as possible prior to harvest to reduce the risk of larval damage to the tubers. Failure to adequately control tuberworm larvae prior to crop senescence or vinekill increases the risk of tuber damage.</p>				

It is appropriate to apply Lannate LV early in the morning when there is no wind and ground fog is present.

1. True
2. False



False – temperature inversions prevent normal deposition of spray

Page 7

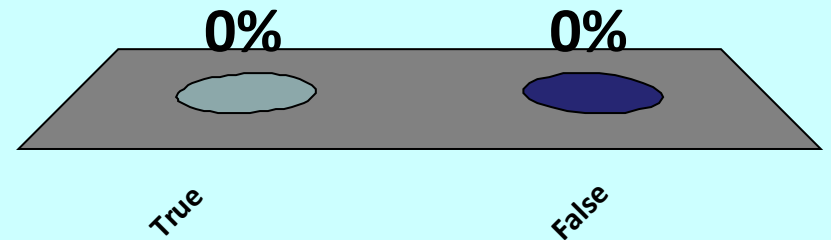
TEMPERATURE INVERSIONS

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.

Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Lannate LV should be applied to tomatoes when they are in bloom.

1. True
2. False

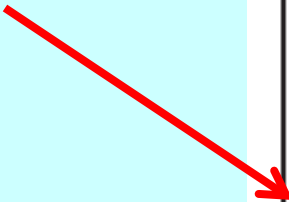


False – Lannate LV is highly toxic to bees

Page 2

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish, aquatic invertebrates, and mammals. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean highwater mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

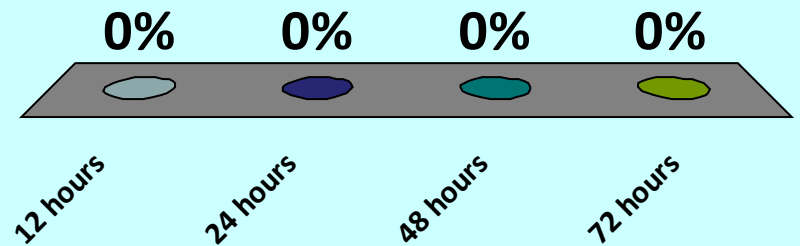


This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

This chemical is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

What is the restricted entry interval for applications to tomatoes?

1. 12 hours
2. 24 hours
3. 48 hours
4. 72 hours

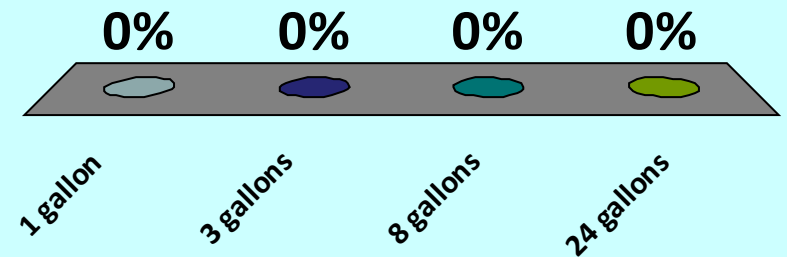


48 Hours

Crops	Insects	Rate	Last Application - Days To Harvest	REI
		DuPont™ LANNATE® LV Pts. Per Acre		
Tomato (Including Tomatillos *)	Tomato Fruitworm	1 1/2 - 3	1	48 hrs
	Aphids			
	Hornworm			
	Loopers			
	Beet Armyworm			
	Southern Armyworm			
	Pinworm			
	Fall Armyworm			
	Armyworm			
	Variegated Cutworm	1 1/2		
Do not apply more than 21 pints of LANNATE® LV/acre/crop. Do not make more than 16 applications/crop. * For tomatillos, do not apply more than 15 pints of LANNATE® LV/acre/crop. Do not make more than 5 applications/crop.				

How many gallons of Lannate LV should be added to a 150 gallon tank to treat 8 acres of potatoes for aphids at the highest application rate?

1. 1 gallon
2. 3 gallons
3. 8 gallons
4. 24 gallons

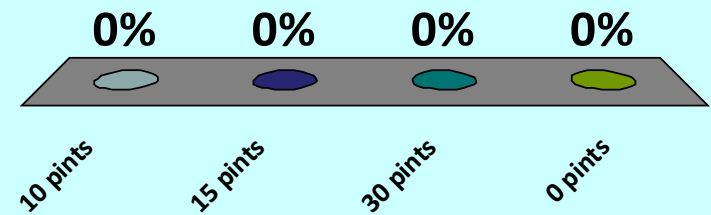


3 pints/acre x 8 acres = 24 pints
 24 pints = 3 gallons

Crops	Insects	Rate	Last Application - Days To Harvest	REI
		DuPont™ LANNATE® LV Pts. Per Acre		
Potato	Tuberworm* Loopers Aphids Beet Armyworm Leafhoppers Fall Armyworm	1 1/2 - 3	6	48 hrs
	Variegated Cutworm Flea Beetles	1 1/2		
<p>Do not apply more than 15 pints of LANNATE® LV/acre/crop. Do not make more than 10 applications/crop. Chemigation - LANNATE® LV may be applied by overhead sprinkler chemigation. For best results, use the highest listed rate of LANNATE® LV for the target pests. Apply in 0.1 to 0.2 inches of water per acre. See "Chemigation" section for more information. * Repeat applications of LANNATE® LV on a 5-7 day schedule, or longer as needed, to control tuberworm populations. An application schedule of effective insecticides with different modes of action may be needed to keep foliar feeding larval populations as low as possible prior to harvest to reduce the risk of larval damage to the tubers. Failure to adequately control tuberworm larvae prior to crop senescence or vinekill increases the risk of tuber damage.</p>				

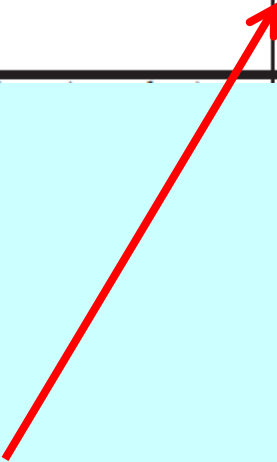
What is the maximum amount of Lannate LV you may apply to 10 acres of pears for control of green fruitworm when you have already treated that crop of pears with Lannate LV twice?

1. 10 pints
2. 15 pints
3. 30 pints
4. 0 pints



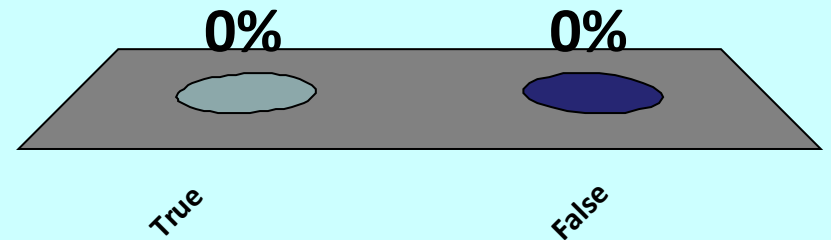
Maximum of 2 applications per crop

Crops	Insects	Rate	Last Application - Days To Harvest	REI
		DuPont™ LANNATE® LV Pts. Per Acre		
Pears Northeast only	Green Fruitworm	1 1/2 - 3 *	7	48 hrs
	Obliquebanded Leafroller			
Do not apply more than 6 pints of LANNATE® LV/acre/crop . Do not make more than 2 applications/crop. * Apply in a minimum of 50 gallons of water per acre.				



It is okay to store Lannate LV over the winter in an unheated storage area.

1. True
2. False



False – see page 18

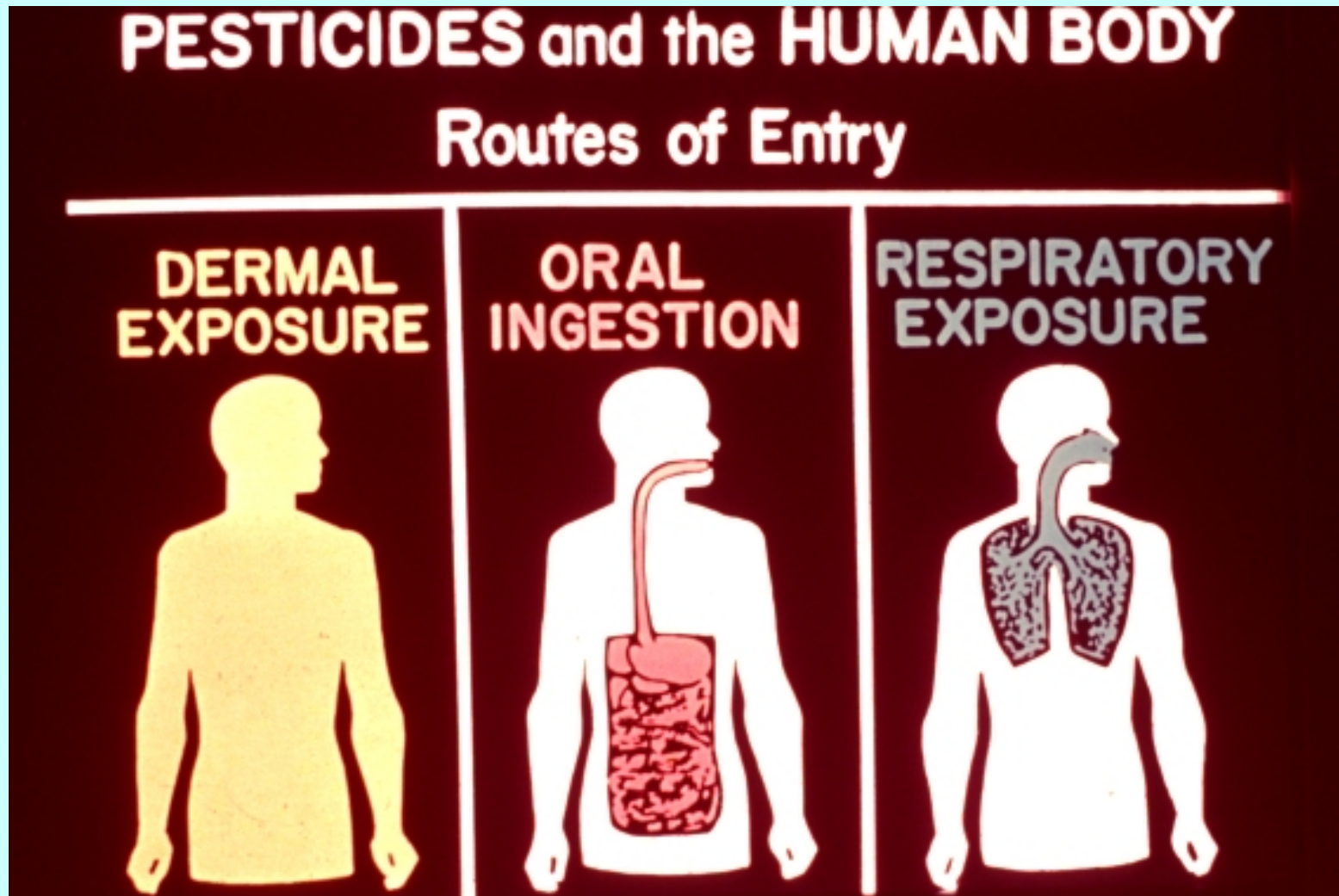
STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE: Do not subject to temperatures below 32 degrees F. Store product in original container only. Not for use or storage in or around the home.

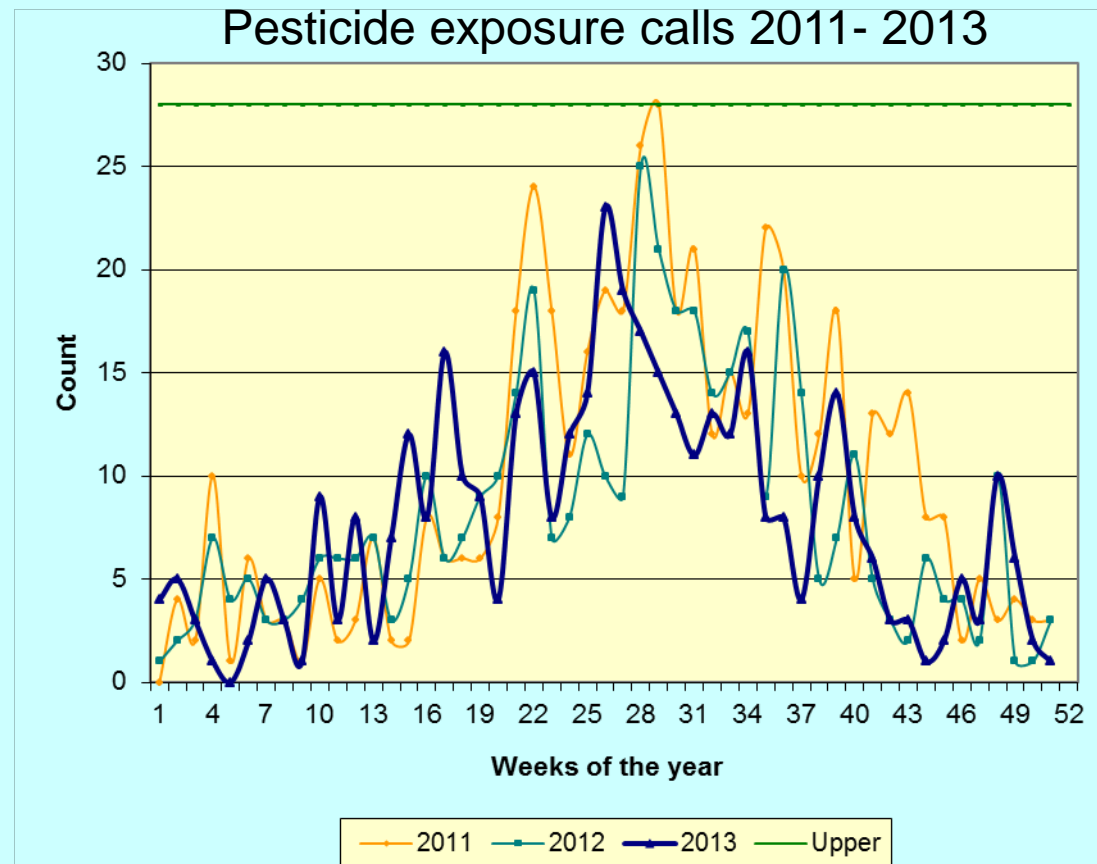
PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Pesticide Exposure



Pesticide Exposure Deaths

- Majority are suicides
- Many happen when children get into improperly stored product
- Very few occupational



Untrained use
can lead to
tragedy

It starts here.

The Province

NEWS SPORTS ENTERTAINMENT OPINION BUSINESS HEALTH LIFE TECHNOLOGY TRAVEL

Fort McMurray mother trying to kill bed bugs poisoned her children: fire department

Infant dead, four other children in critical condition after possible pesticide poisoning

BY OTIENA ELLWAND AND MARTY KLINKENBERG, EDMONTON JOURNAL FEBRUARY 23, 2015

Log In [Tweet](#) 19 [g+1](#) 5 [Pin it](#) [ShareThis](#)

STORY PHOTOS (2)



MORE ON THIS STORY

- Five children hospitalized in possible poisoning in Fort McMurray
- Don't let the bedbugs bite: Infestation comes with stigma and shame

STORY TOOLS

- E-mail this Article
- Print this Article

Font: A A A A

SPOTLIGHTS


A pesticide used in a unit in this apartment building killed an infant and left several other children in critical condition.


Photograph by: Bradley Karp , MyMcMurray.com

Paraquat Dichloride: One Sip Can Kill !

PULL HERE TO OPEN ►

RESTRICTED USE PESTICIDE
DUE TO ACUTE TOXICITY
FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION
AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.

 **Gramoxone Inteon**[®]


 **syngenta.**

Herbicide
A Weed, Grass, and Harvest Aid
Desiccant/Defoliant Herbicide

Active Ingredient:

Paraquat dichloride (1,1'-dimethyl-4,4'-bipyridinium dichloride)	30.1%
Other Ingredients:	69.9%
Total:	100.0%

Contains 2.0 pounds paraquat cation per gallon
as 2.762 pounds salt per gallon.
Contains alerting agent (odor), emetic, dye and
Inteon Technology.

**KEEP OUT OF REACH
OF CHILDREN.
DANGER /
PELIGRO
POISON** 

Si usted no entiende la etiqueta, busque a
alguien para que se la explique a usted en
detalle. (If you do not understand the label,
find someone to explain it to you in detail.)

- NEVER PUT INTO FOOD, DRINK OR OTHER CONTAINERS.
- IF SWALLOWED, TAKE IMMEDIATE ACTION AS PRESCRIBED IN FIRST AID STATEMENT. SYMPTOMS ARE PROLONGED AND PAINFUL.
- DO NOT USE OR STORE IN OR AROUND THE HOME.
- DO NOT REMOVE CONTENTS EXCEPT FOR IMMEDIATE USE.
- THE ODOR OF THIS PRODUCT IS FROM THE ALERTING AGENT WHICH HAS BEEN ADDED, NOT FROM PARAQUAT.

EPA Reg. No. 100-1217
EPA Est. 100-LA-001
Product of the United Kingdom
Formulated in the USA
SCP 1217A-L1D 0610
323048

2.5 gallons
Net Contents

TM

True Stories

- In 2008, an 8-year old boy drank paraquat that had been put in a **Dr. Pepper bottle**, which he found on a window sill in the garage.
- **He died in the hospital 16 days later.**
- His older brother had used the product on weeds around the house and put it in the bottle in the garage.
- The older brother obtained the product from a family friend who was a **Certified Private Applicator**.

2 charged after man dies from mistakenly drinking herbicide

By Meg Kinnard
Associated Press

COLUMBIA — A South Carolina man died after he mistakenly drank herbicide that was stored in a soft drink bottle he bought from two men, a prosecutor said Tuesday.

The men, Kenneth M. Beauford and Damon Lamonte Kelly, were arrested last month, Attorney General Alan Wilson

said in a news release.

Prosecutors said Kelly stole a restricted herbicide containing a highly toxic weed killer available only to commercially licensed users and Beauford put it in plastic soft drink bottles. Beauford sold the herbicide to two people in St. Stephen, and a buyer mistook the herbicide for a beverage, drank it and died in June, Wilson said.

Beauford is charged with involuntary manslaughter. Kelly faces a petty larceny charge. Both men are also accused of violating the Pesticide Control Act.

The Centers for Disease Control and Prevention says t paraquat marketed in the United States has a blue dye, a sharp odor and an added agent to cause vomiting if someone drinks it.

U.S. & Maine Reported Poisonings & Exposures

- Pesticides account for 10.3% of all reported poisonings in the USA in 2012
- Insecticides, herbicides, fungicides, etc. accounted for 3.3% (US)
- Disinfectants & pool chemicals accounted for 7% (US)
- 32% of those pesticide related poisonings were in children under 6 (Maine)



Maine Reported Pesticide Poisonings & Exposures

- In 2012, the NNE poison center reported an estimated 147 children under the age of six were involved in common household pesticide-related poisonings or exposures in Maine, and
- 1 major poisoning happened in a teen who was abused with a rodenticide





PRECAUTIONARY STATEMENTS*(continued)*
**HAZARDS TO HUMANS
AND DOMESTIC ANIMALS**

POISONING SYMPTOMS — Methomyl poisoning produces effects associated with anticholinesterase activity which may include weakness, blurred vision, headache, nausea, abdominal cramps, discomfort in the chest, constriction of pupils, sweating, slow pulse, muscle tremors. If poisoning symptoms appear, refer to First Aid section on front panel of DuPont™ LANNATE® LV label and seek medical attention at once.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

TREATMENT — Atropine sulfate should be used for treatment. Administer repeated doses, 1.2 to 2.0 mg. intravenously every 10 to 30 minutes until full atropinization is achieved. Maintain atropinization until the patient recovers. Artificial respiration or oxygen may be necessary. Allow no further exposure to any cholinesterase inhibitor until recovery is assured.

Do not use 2-PAM for exposure to LANNATE® LV alone. However, for exposure to combinations of LANNATE® LV and organophosphorous insecticides, 2-PAM may be used as required to supplement the atropine sulfate treatment. Do not use morphine.

**For medical emergencies involving this product,
call toll free 1-800-441-3637.**

ENGINEERING CONTROL STATEMENTS

Human flaggers must be in enclosed cabs.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR part 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

The enclosed cabs must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR part 170.240 (d)(4-6)]. The handler PPE requirements may be reduced or modified as specified in the WPS.

Pilots must not assist in the mixing and loading operations.

USER SAFETY RECOMMENDATIONS

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

In an emergency call for help and have a copy of the label handy

PRECAUTIONARY STATEMENTS *(continued)* HAZARDS TO HUMANS AND DOMESTIC ANIMALS

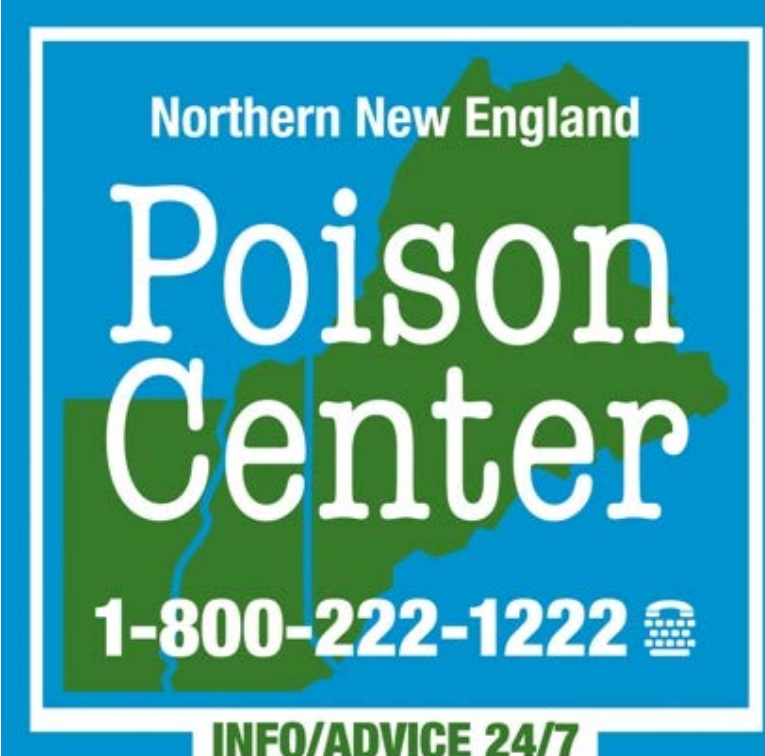
POISONING SYMPTOMS — Methomyl poisoning produces effects associated with anticholinesterase activity which may include weakness, blurred vision, headache, nausea, abdominal cramps, discomfort in the chest, constriction of pupils, sweating, slow pulse, muscle tremors. If poisoning symptoms appear, refer to First Aid section on front panel of DuPont™ LANNATE® LV label and seek medical attention at once.


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TREATMENT — Atropine sulfate should be used for treatment. Administer repeated doses, 1.2 to 2.0 mg. intravenously every 10 to 30 minutes until full atropinization is achieved. Maintain atropinization until the patient recovers. Artificial respiration or oxygen may be necessary. Allow no further exposure to any cholinesterase inhibitor until recovery is assured.

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Northern New England
Poison Center
1-800-222-1222 
INFO/ADVICE 24/7

Audit Number

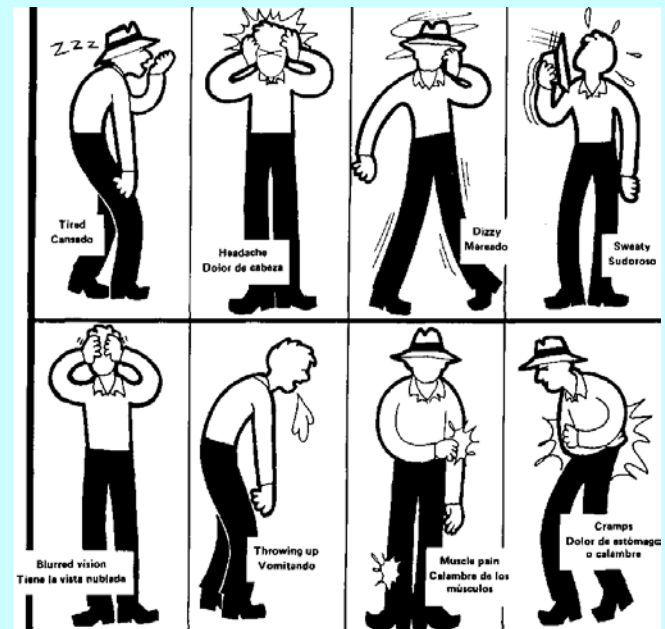
Emergency Telephone Numbers

Poison Center	1-800-222-1222
National Pesticide Info Center	1-800-858-7378
Board of Pesticides Control	1-207-287-2731
DEP Spill Response Number	1-800-482-0777

Back of
license

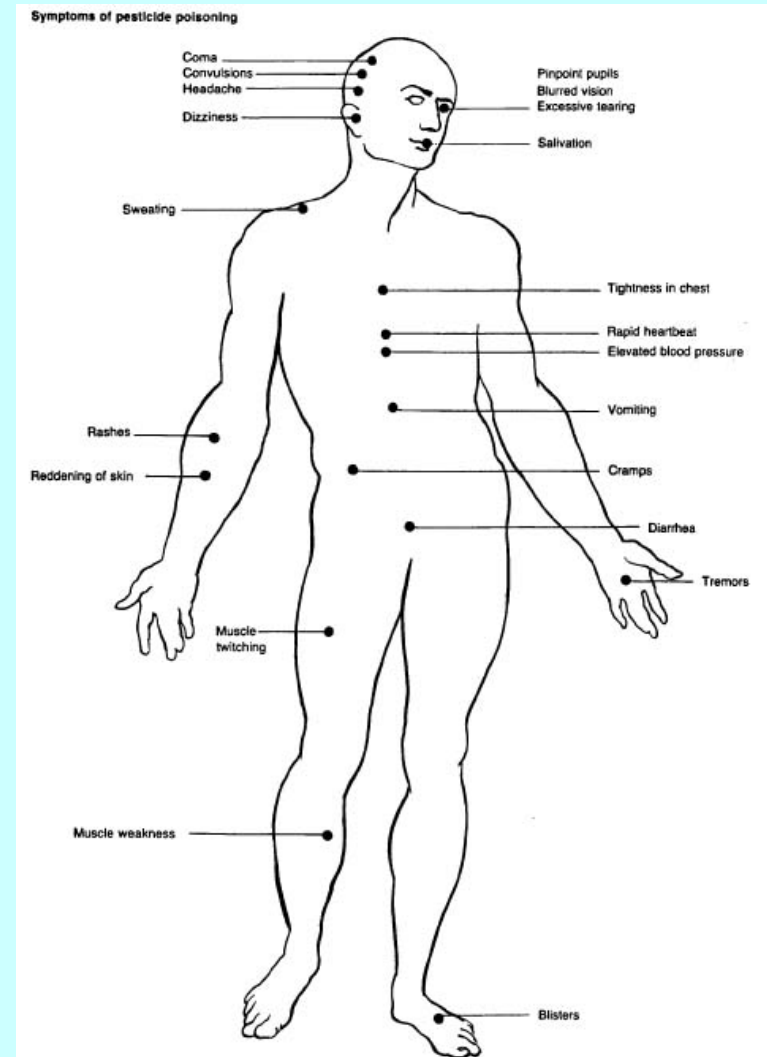
MILD POISONING

- Fatigue
- Rashes
- Headache
- Dizziness
- Blurred Vision
- Excessive Sweating
- Nausea and Vomiting
- Stomach Cramps
- Diarrhea



Moderate Poisoning

- Unable to Walk
- Weakness
- Chest Discomfort
- Muscle Twitches
- Constriction of Pupils



Severe Poisoning



Unconsciousness
Severe Pupil Constriction
Muscle Twitches
Secretions
Breathing Difficulty


Salt Lake City 35°
Traffic

The Salt Lake Tribune

WWW.SLTRIB.COM

OCT 28, 2014

Exterminator owner: 'I would have told the family ... to get out'

By Erin Alberty And Judy Fahys

The Salt Lake Tribune

Published February 10, 2010 8:46 pm

Pesticide » Bugman operator says use of chemical that may have killed 2 girls wasn't authorized.



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Bountiful » The owner of the company that placed a pesticide believed to have killed two Layton girls said Wednesday he would have warned the family to leave their home had he known what his employee had done.

**Poisoning by
Cholinesterase
Inhibitors**

OR

Influenza ?

Heat exhaustion ?

Alcohol intoxication ?

Hangover ?

Exhaustion?



Methods of Confirmation

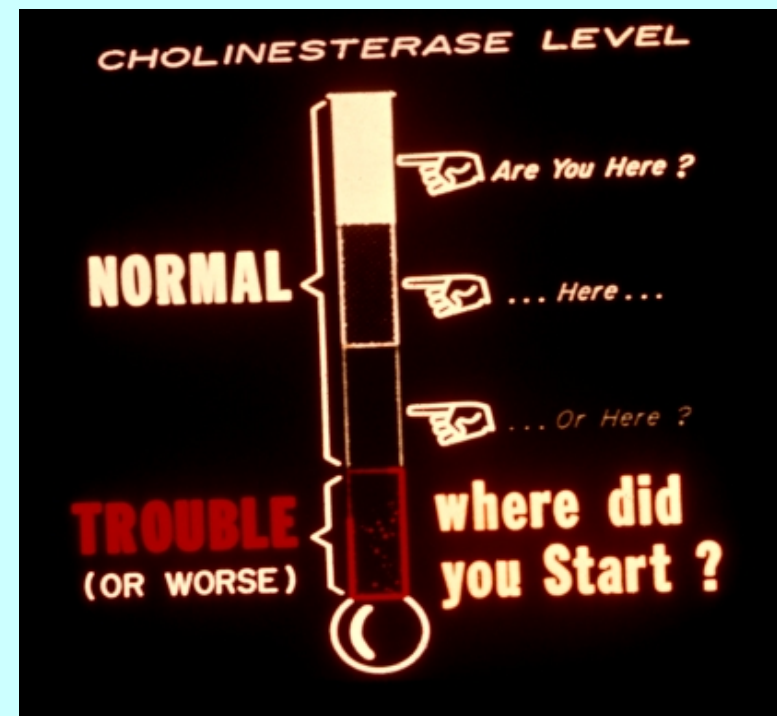
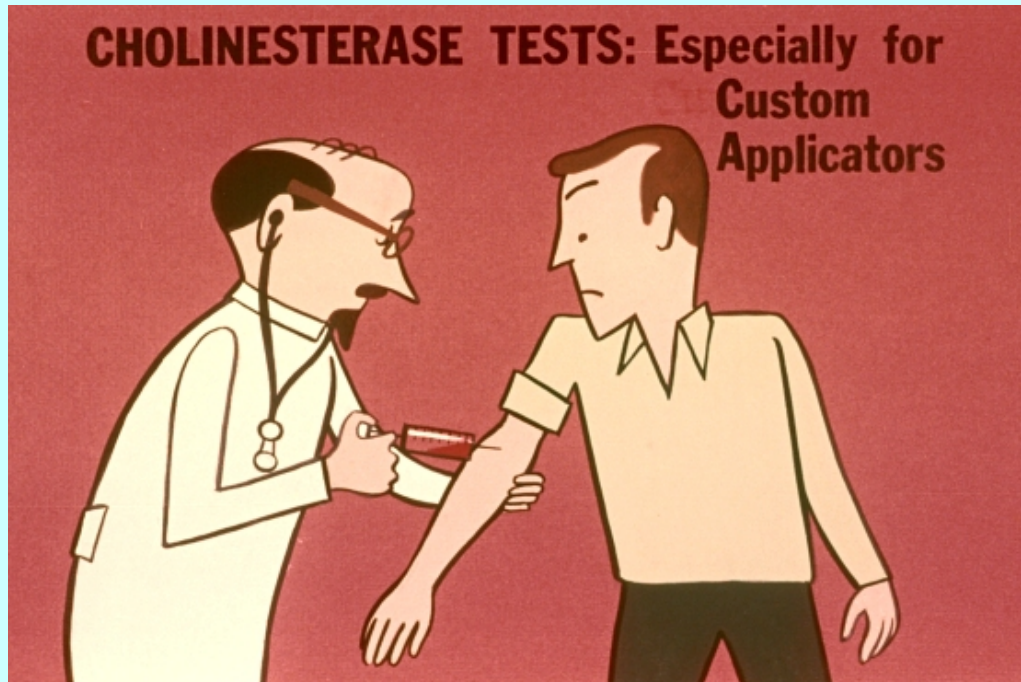
- Plasma and RBC cholinesterase activity
- Urinary pesticide metabolites

Table 1. List of Pesticides that can be Analyzed by Clinical Laboratories

(Biological Matrices: B=blood, S=serum, P=plasma, U=urine, F=fat)

Fumigants		Insecticides:	
acrylonitrile	B,U	Organophosphates	
halocarbons panel	B,S,P,U	azinphos-methyl	B,S,P,U
carbon disulfide	B,S,P,U	carbophenthion	B,S,P,U
carbon tetrachloride	B,S,P,U	chlorpyrifos	B,S,P,U
chloroform	B,S,P	cholinesterase	B,S,P
dibromoethane	B,S,P	coumaphos	B,S,P,U
dichlorobenzenes	B,S,P	diazinon	B,S,P,U
methyl bromide	B,U	dichlorvos	B,S,P,U
naphthalene	B,S,P,U	dimethoate	B,S,P,U
Herbicides		EPN	B,S,P,U
alachlor	B,S,P,U	ethion	B,S,P,U
atrazine	B,S,P,U	fenchlorphos	B,S,P,U
cyanazine	B,S,P,U	fenthion	B,S,P,U
2,4-D	B,S,P,U	fonofos	B,S,P,U
dicamba	B,S,P,U	malathion	B,S,P,U
diquat	S,P,U	metasystox	B,S,P,U
MCPA	B,S,P,U	methyl parathion	B,S,P,U
metribuzin	B,S,P,U	mevinphos	B,S,P,U
paraquat	S,P,U	paraoxon	B,S,P,U
pendimethalin	B,S,P,U	parathion	B,S,P,U
picloram	B,S,P,U	phorate	B,S,P,U
propazine	B,S,P,U	phosmet	S,P
simazine	B,S,P,U	propetamphos	U
2,4,5-T	B,S,P,U	temephos	U
triclopyr	S,P	terbufos	B,S,P,U
		p-nitrophenol	B,S,P,U
trifluralin	B,S,P,U	(metabolites of organophosphates)	
Insecticides:		dimethylphosphate	U
Carbamates		dimethylthiophosphate	U
bendiocarb	S,P,U	diethylphosphate	U
carbaryl	B,S,P,U	diethylthiophosphate	U
carbofuran	B,S,P,U	diethyldithiophosphate	U
propoxur	B,S,P		
Insecticides:		Rodenticides	
Organochlorines		brodifacoum	B,S,P,U
aldrin	B,S,P,U	difenacoum	B,S,P,U
chlordane	B,F,S,P	warfarin	B,S,P,U
DDD, DDE, DDT	B,F,S,P		

For applicators who use organophosphates or carbamates



Know the Antidote



READ THE LABEL

Antidote for ChE inhibitors

ATROPINE

PRALIDOXIME

Protopan[®]
2-PAM[®]

Hypersensitivity reactions



Exposure Reduction

- Avoidance
- Personal protective equipment
- Good hygiene
- Worker monitoring
- Follow label and regulations



Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are barrier laminate or viton. For more information, follow instructions in Supplement Three of PR Notice 93-7. If you want more options, follow the instructions for category H on an EPA chemical resistance category selections chart.

Loaders, applicators and all other handlers must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks
- A NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any N, R, P, or HE filter

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Prevent any direct human exposure



Reduce exposure by using targeted materials

- Enclosed baits & gels
- Spot treatments
- Broadcast treatments

Best



Worst

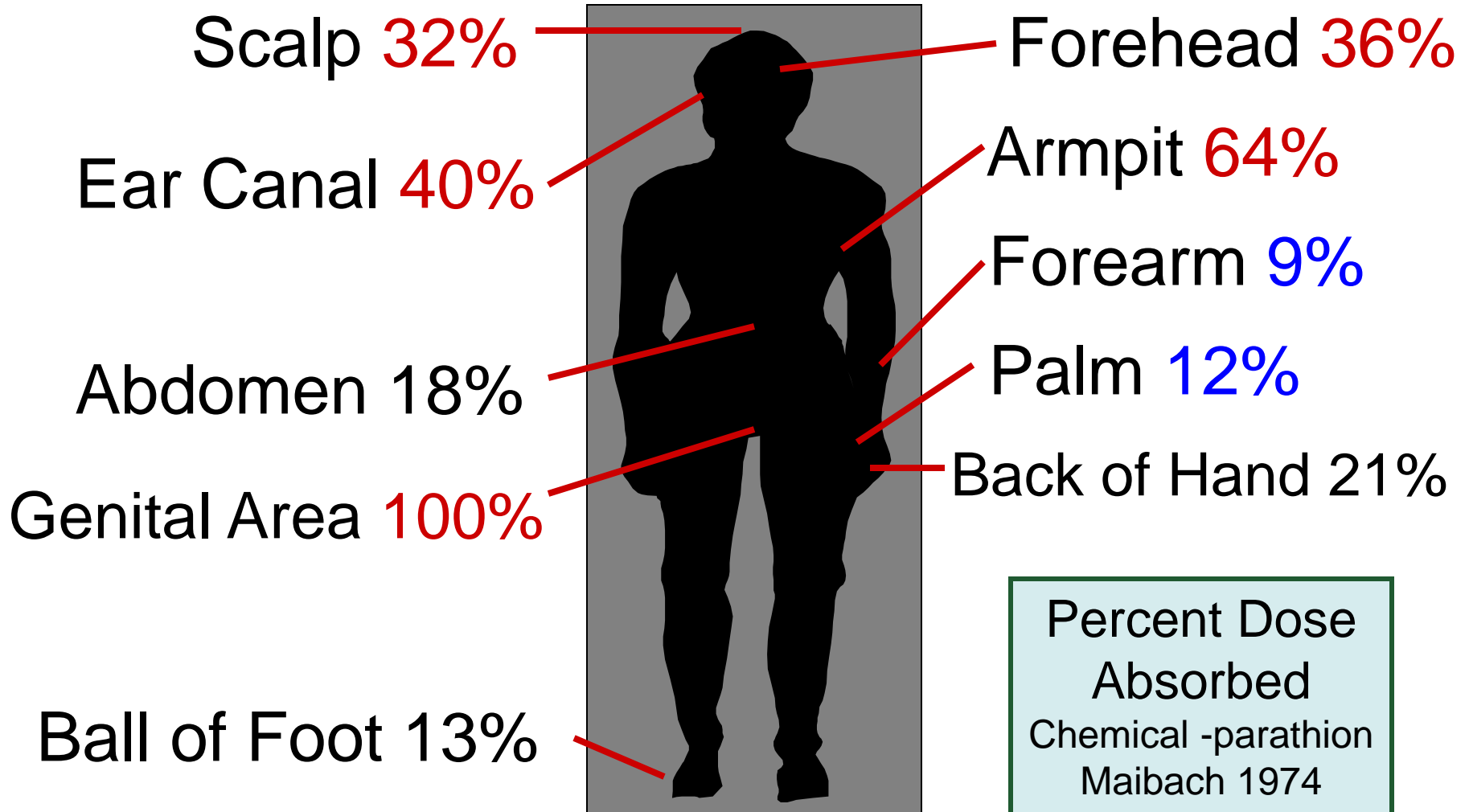
Routes of Entry: Skin (Dermal)



97% of all body exposure during spraying is by skin contact!



Different parts of the body vary in their ability to absorb pesticides.



Greater dermal absorption

- ❖ Warm, moist areas: groin, armpits, head, neck
- ❖ Cuts, abrasions, and rashes
- ❖ Pesticide formulations affect absorption

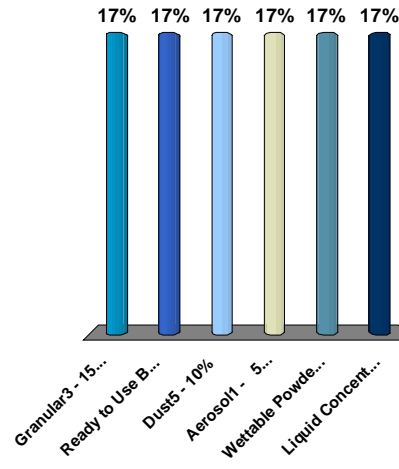
**Least
absorbed**



**Most
absorbed**

Please choose the two pesticide formulation types with the lowest exposure potential

	Formulation Type	Percent Active Ingredient
1.	Granular	3 - 15%
2.	Ready to Use Baits, Gels or Liquids	1 - 15%
3.	Dust	5 - 10%
4.	Aerosol	1 - 5%
5.	Wettable Powder	50 - 85%
6.	Liquid Concentrate	40 - 90%



RESTRICTED USE PESTICIDE
 ACUTE TOXICITY and GROUND WATER CONTAMINATION
 For retail sale to and use only by Certified Applicators or persons under the direct supervision of a Certified Applicator
 and only for those uses covered by the Certified Applicator's certificate.

 Bayer CropScience

TEMIK[®] brand 15G ALDICARB PESTICIDE

For Control of Certain Insects, Mites, and Nematodes.

ACTIVE INGREDIENT: Aldicarb (inertly chelated with propylene glycol dimethyl acrylate) 10%
 INERT INGREDIENTS 85%

EPA Reg. No. 264-333 EPA Est. No. 264-GA-01



KEEP OUT OF REACH OF CHILDREN

ANGER POISON

PELIGRO





= Toxicity X Exposure



No endorsement intended or implied

How is risk reduced?



It's not just recommended it's required!

Call toll free 1-800-741-5037.

PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category B on an EPA chemical-resistance category selection chart.

Applicators and others exposed to the diluted spray solution must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as barrier laminate or butyl rubber.
- Shoes plus socks.
- Protective eyewear.

Mixers, loaders, cleaners, repairers of application equipment, and others exposed to the concentrate must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as barrier laminate or butyl rubber.
- Socks and chemical resistant footwear.
- Protective eyewear.
- Chemical resistant apron.

Cotton, Denim, Leather:
Not recommended for most pesticide
applications!



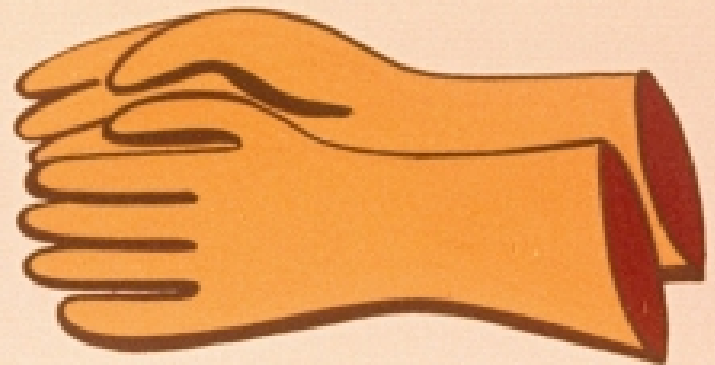


What's wrong with this picture?



MAKE SURE SAFETY EQUIPMENT IS **A..OK...**

- ✓ **CLEANLINESS**
- ✓ **LEAKS**
- ✓ **TEARS**
- ✓ **BROKEN SEAMS**













TIGHT FACIAL SEAL IS IMPORTANT



Fit check before each use!

❖ Positive pressure check:

Put hand over exhalation valve and exhale gently. If there is pressure in the mask, it's a good fit



Fit check before each use!

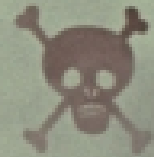
- ❖ **Negative pressure check:**
Cover cartridges with hands, inhale gently, and hold breath for 10 seconds. If the facepiece exhibits no leakage, the respirator fits properly
- ❖ **Facial hair does not allow a respirator to seal!**



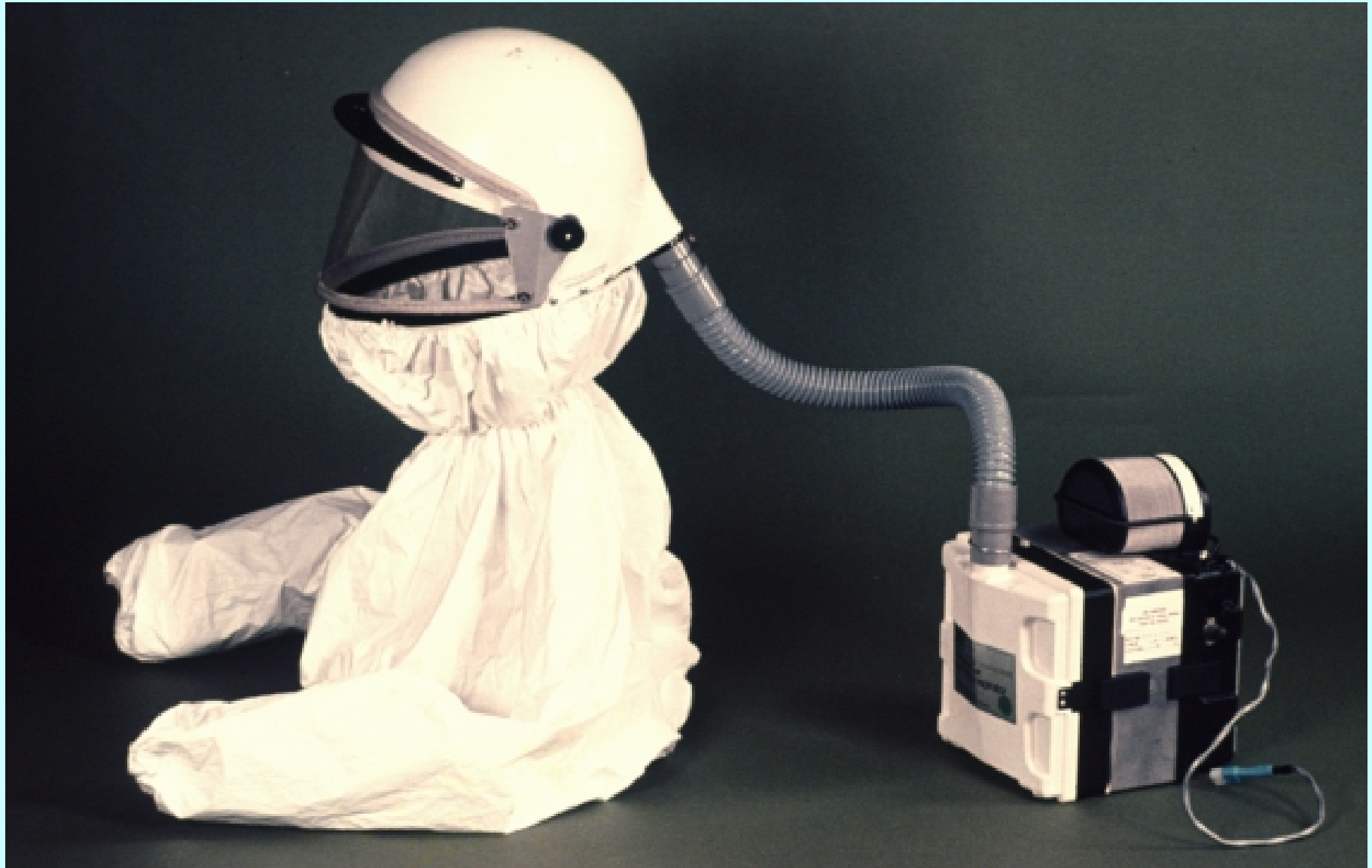




DANGER



**INSECT
FUMIGATION**







Limitations of Personal Protective Gear

- Must be kept clean
- Respirator pads changed according to manufacturers directions
- Rubber suits: heat exhaustion
- Not adequate against individual sensitivities
- Fumigant gases penetrate rubber

NORTH

***5500 & 7700 Series
Half Mask Air***

***Purifying
Respirator***

***Operating and
Maintenance
Instruction Manual***

4.1 SERVICE LIFE

The service life of this respirator will vary depending on the work environment.

4.1.1 CARTRIDGES

When you are using a gas or vapor cartridge respirator which does not have End-Of-Service-Life Indicators, you must establish a change out schedule that will result in cartridges being changed before the end of their useful service life. North provides EZ GUIDE™ software for assisting the user in establishing a change out schedule.

If the respirator has End-Of-Service-Life Indicators, the cartridges must be changed when the color of either one of the indicators match the color standard indicated on the cartridge.

4.1.2 PARTICULATE FILTERS

When you are using a particulate filter respirator, or a gas or vapor respirator with filters attached, the filters should be replaced when breathing becomes difficult.

Any "R" class filter if used in an oil environment must be replaced after a total of 8 hours use, or sooner, regardless of breathing resistance.

5 TO TAKE OFF THE RESPIRATOR

- 1) Go to an area with uncontaminated breathable air.
- 2) Loosen headbands and remove the facepiece.

Methyl Bromide



PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

Loose-fitting or well ventilated long-sleeved shirt and long pants.

Shoes and socks.

Full-face shield or safety glasses with brow and temple shields (Do NOT wear goggles). When the acceptable air concentration level is above **5 ppm** and a respirator is required, protect the eyes by wearing a full-face respirator.

No respirator is required if the air concentration level of methyl bromide in the working area is measured to be **5 ppm** or less.

A respirator is required if the acceptable air concentration level of **5 ppm** is exceeded at any time. The respirator must be one of the following types: (a) a supplied-air respirator (MSHA/NIOSH approval number prefix TC-19C) OR (b) a self-contained breathing apparatus (SCBA) (MSHA/NIOSH approval number prefix TC-13F).

WORK SAFETY REQUIREMENTS

1. Do not wear jewelry, gloves, goggles, tight clothing, rubber protective clothing, or rubber boots when handling. Methyl bromide is heavier than air and can be trapped inside clothing and cause skin injury.
2. If liquid fumigant splashes or spills on clothing or shoes, remove them at once.
3. Immediately after contamination remove outer clothing, shoes, and socks and do not reuse until thoroughly aerated or ventilated. Keep such clothing and shoes outdoors until thoroughly aerated. Then follow the PPE manufacturers instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE and work clothing separately from other laundry.
4. Discard clothing, shoes and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.
5. Follow PPE manufacturer's instructions for cleaning/maintaining protective eyewear and respirators.





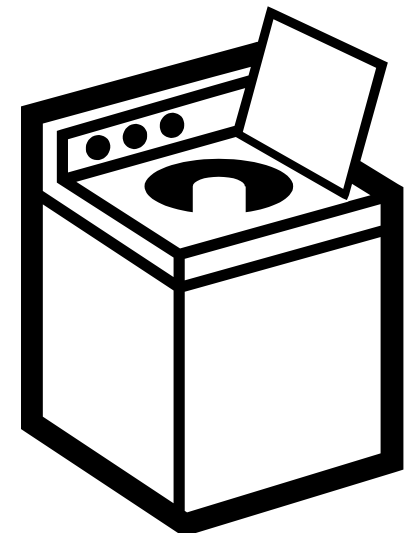


Always wash contaminated clothing separate



Laundering Pesticide Contaminated Clothing

- ❖ Use hot or warm water and **heavy-duty liquid detergent for ECs**
- ❖ Use **2 cycles** for moderate to heavy contamination
- ❖ **Rinse the washer** with an “empty load”



Line dry washed PPE



What are the Laws?

- Federal EPA –
 - FIFRA, FFDCA, FQPA, PRIA
 - Regulations (WPS, Certification, etc.)





Federal regulation - Worker Protection Standards required by the label

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR, Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas (that is permitted under Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water), is:

- Long sleeved shirt and long pants,
- Chemical-resistant gloves, such as Barrier Laminate, Nitrile Rubber, Neoprene Rubber or Viton;
- Shoes plus socks.

Worker Protection Standard for Agricultural Pesticides

An Overview



Protects Workers and Handlers



WORK

Commercial and Research Production of Agricultural Plants

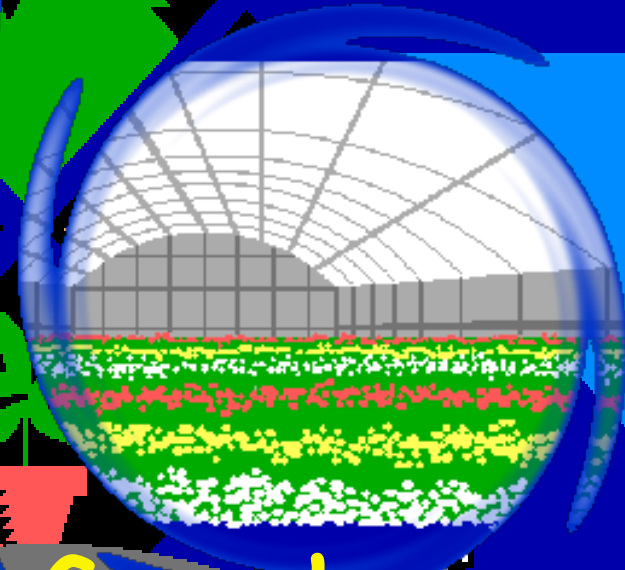




Farms



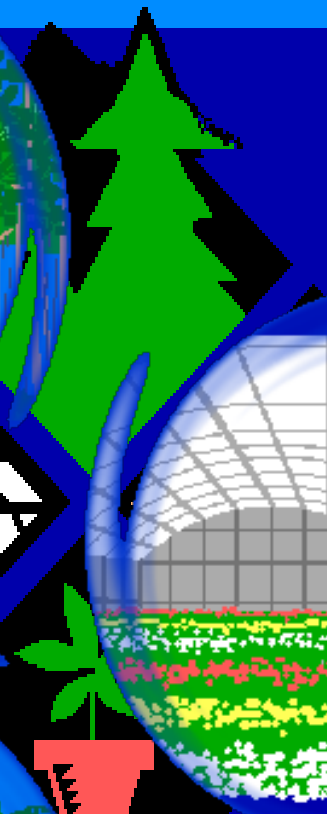
Forests

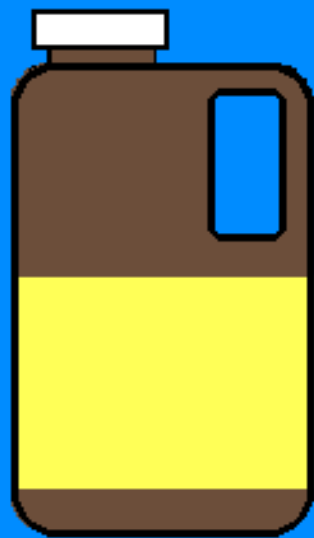


Greenhouses



Nurseries



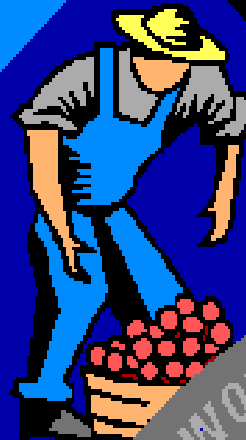


AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR 170. This Standard provides protections for agricultural workers on farms, and in forests, nurseries, and greenhouses. For more information, see the Worker Protection Standard, 40 CFR 170.

Agricultural Workers

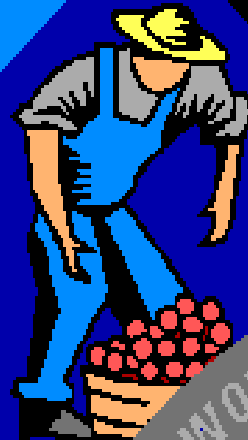
- do hand labor, such as weeding, planting, cultivating, harvesting
- do related tasks, such as moving or operating irrigation equipment



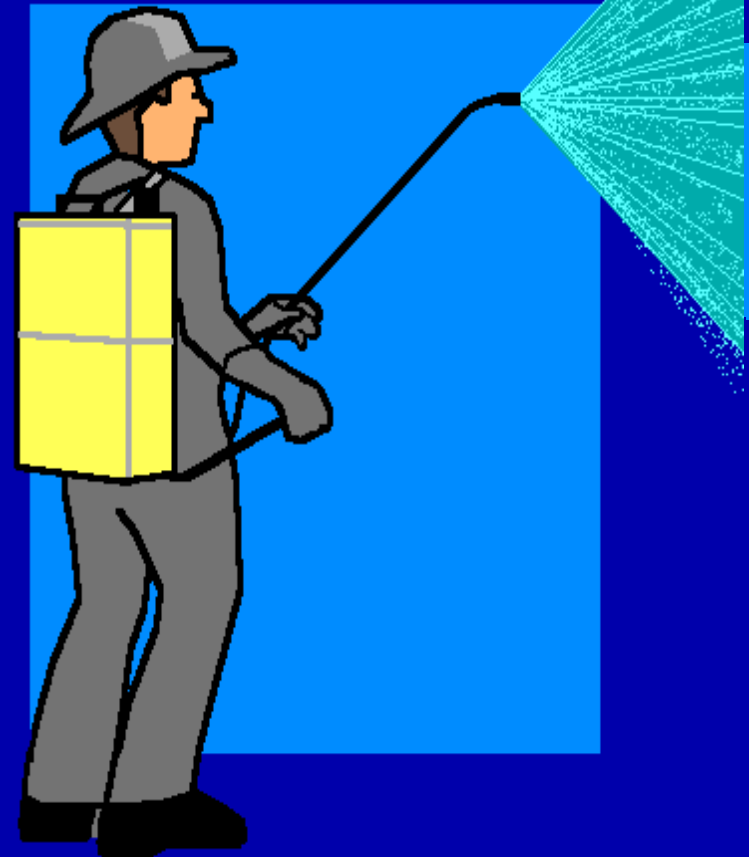
Pesticide Handlers



- Mix, load or apply pesticides
- Any tasks involving direct contact with pesticides



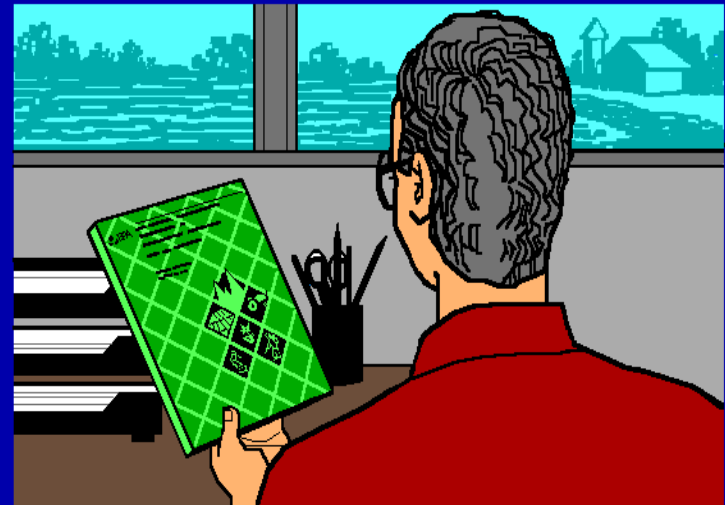
WORK



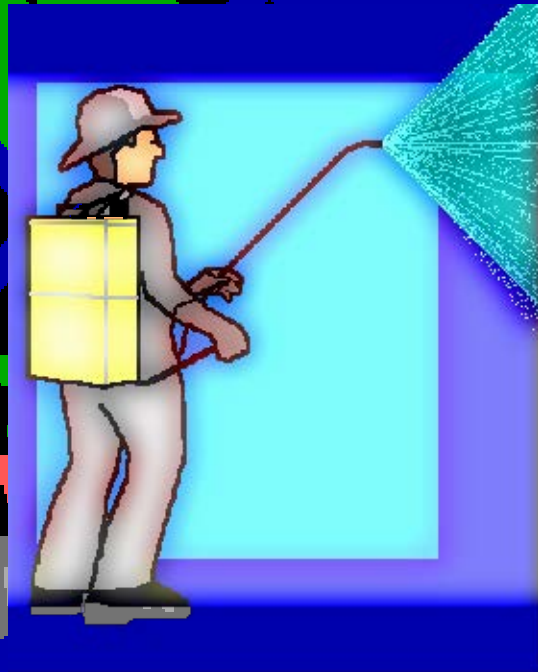
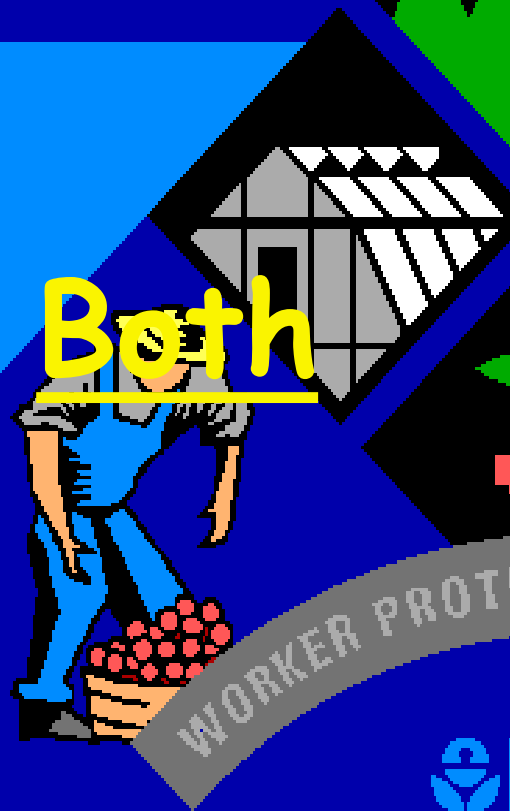
Responsibility for WPS Compliance

- Employer bears primary responsibility

- Labor contractors are jointly responsible



Some WPS protections are for:



Both

WORKER PROTECT

ARD



Agricultural
Workers

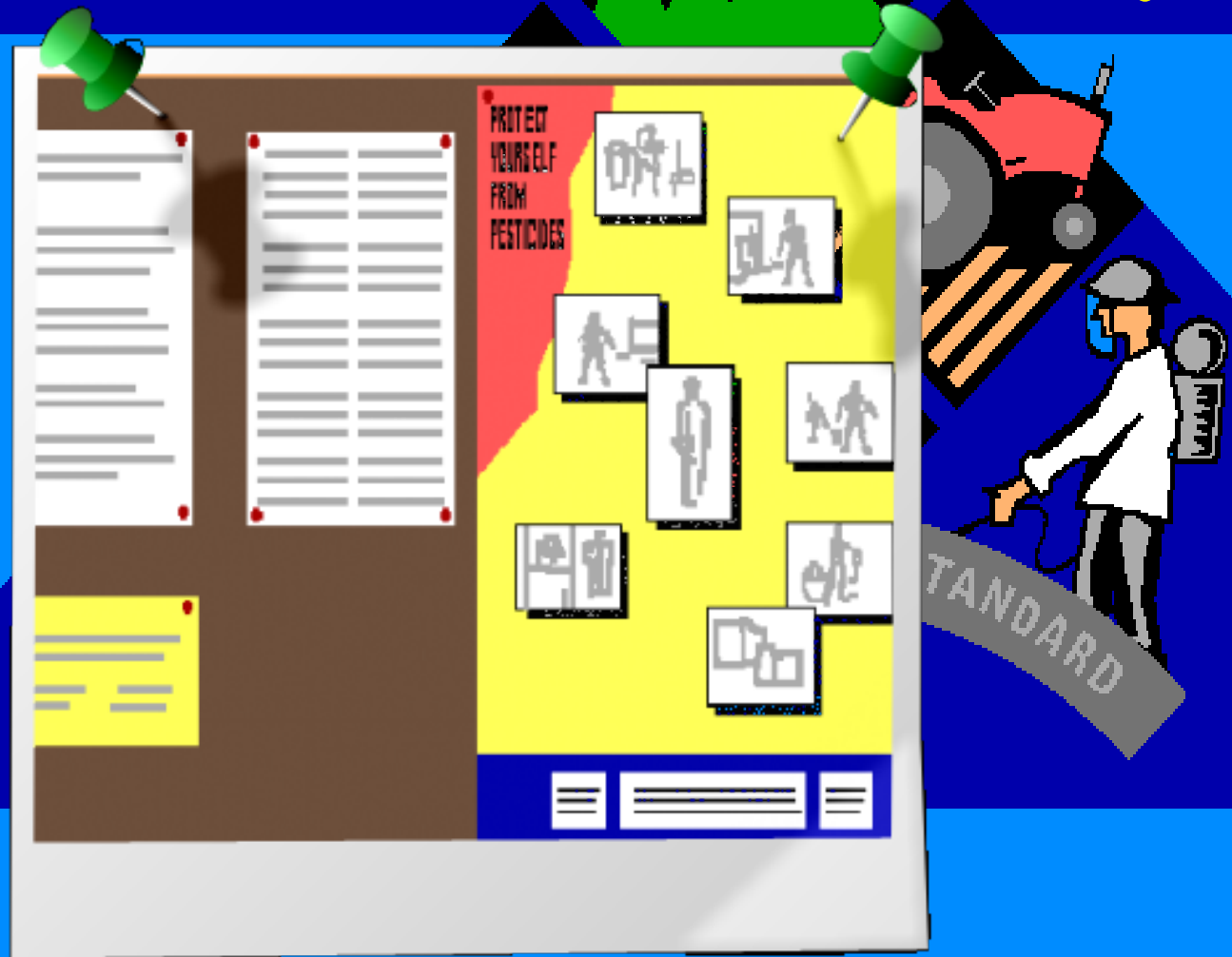
Pesticide
Handlers

Protections for Workers and Handlers

- Central location information



Display information at a place where workers and handlers are able to see it.



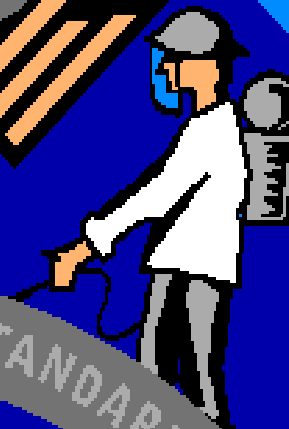
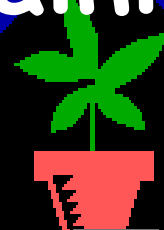
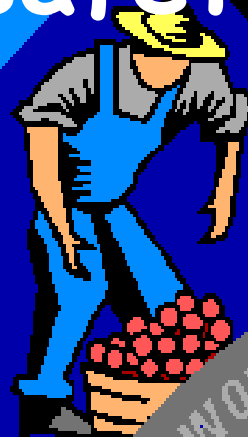
- 
- Specific information about recent applications
 - Pesticide safety poster
 - Emergency information

WORKER PROTECTION STANDARD



Protections for Workers and Handlers

- Central location information
- Pesticide safety training



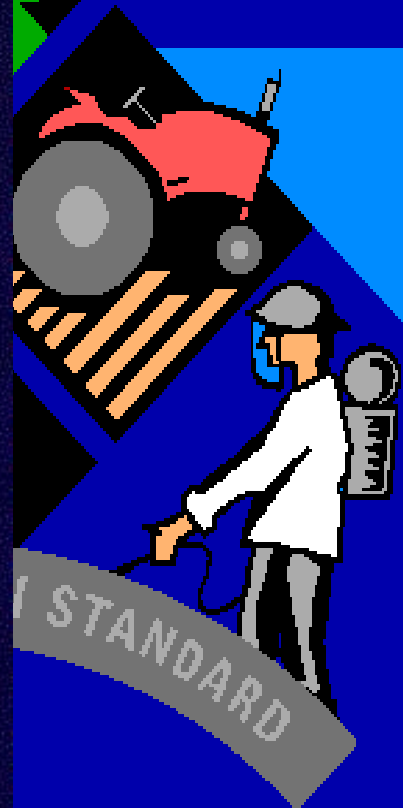
WORKER PROTECTION STANDARD



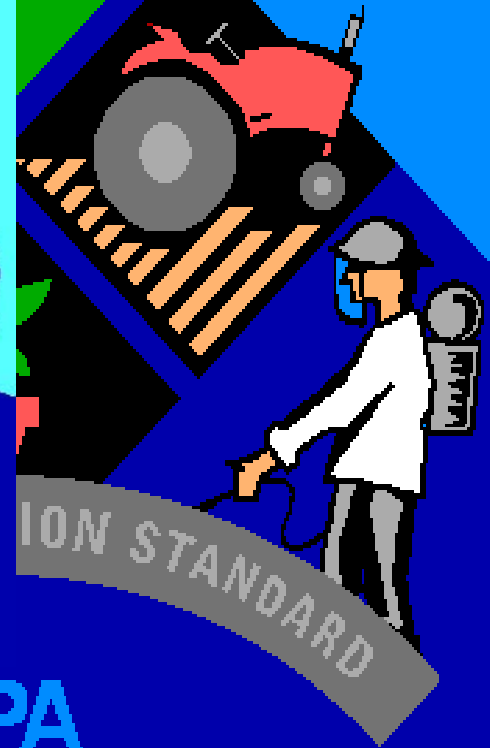
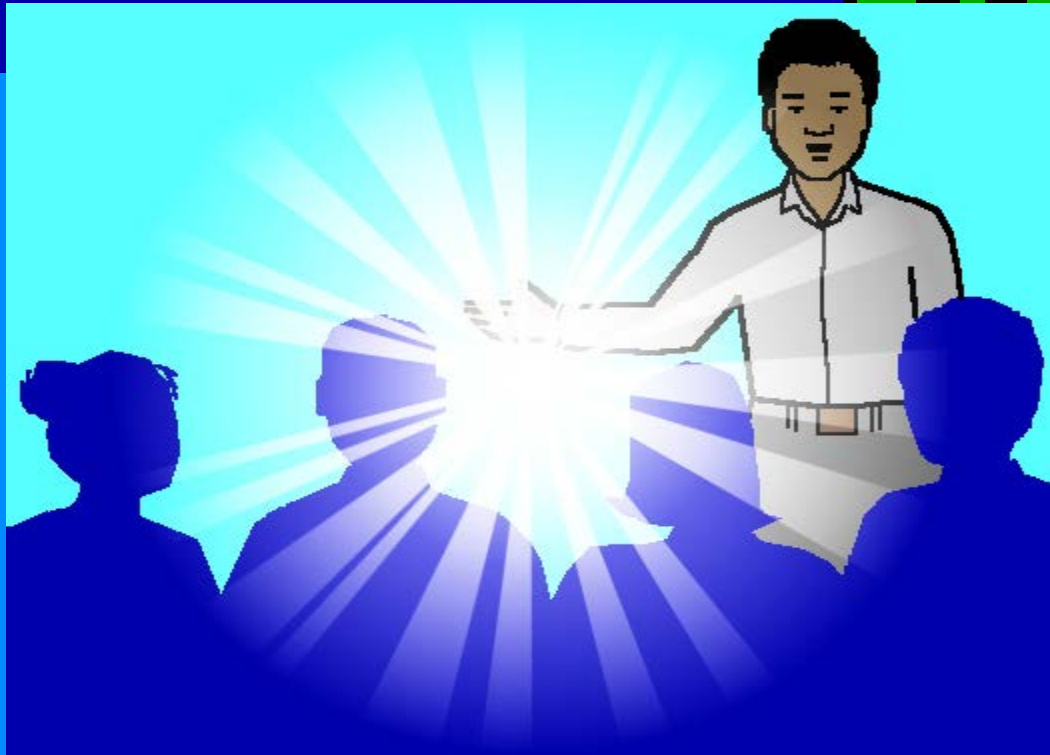
Present the training orally or use an audiovisual program



Use EPA approved training materials



Present training so employees understand it



Respond to questions

Protections for Workers and Handlers

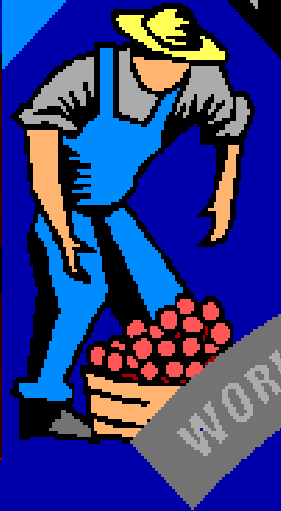
- Central location information
- Pesticide safety training
- Emergency assistance



Provide transportation to
an emergency medical
facility



Provide information to employee or medical staff



Protections for Workers and Handlers

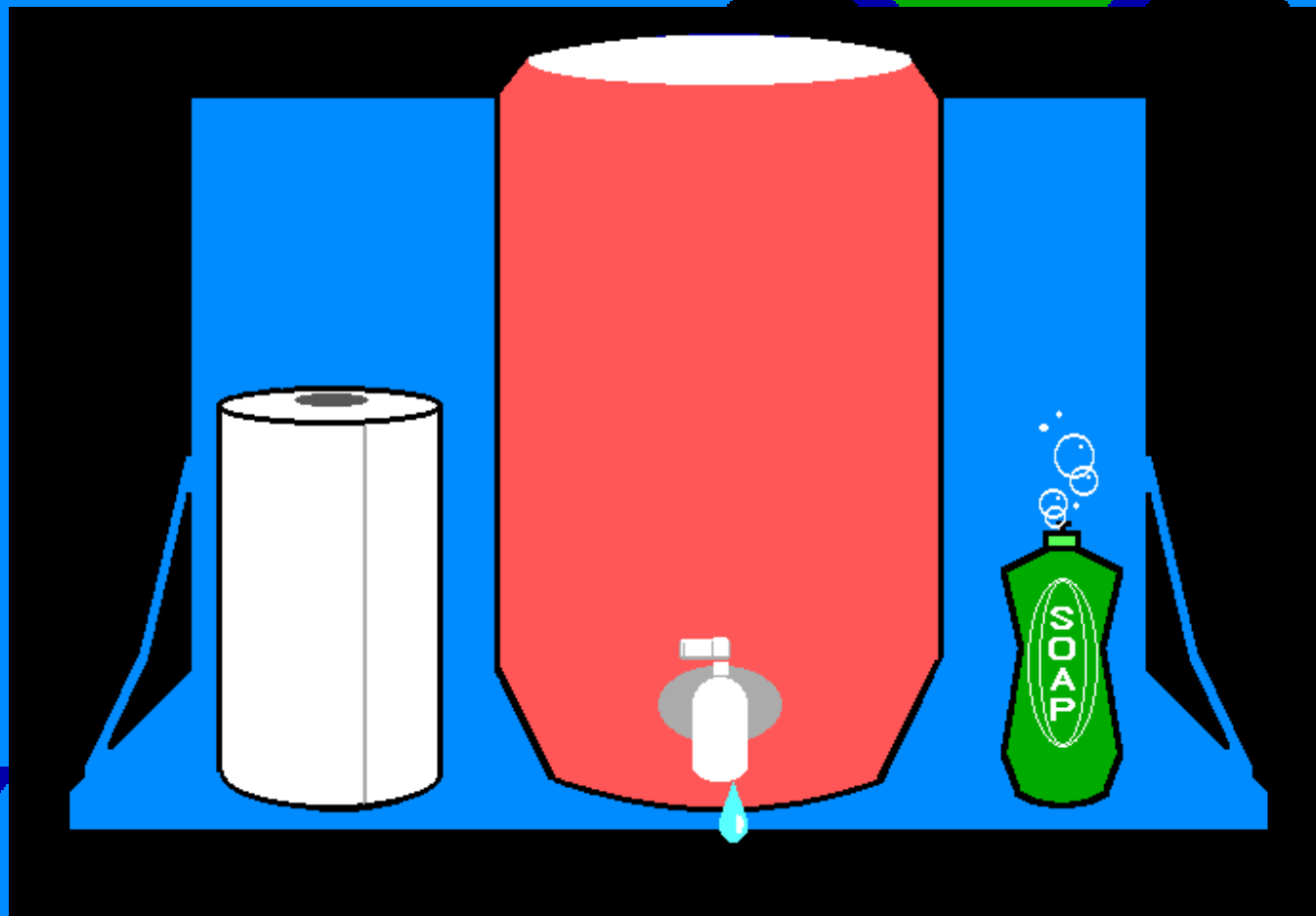
- Central location information
- Pesticide safety training
- Emergency assistance
- Decontamination materials



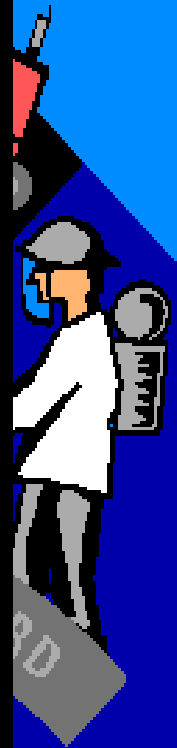
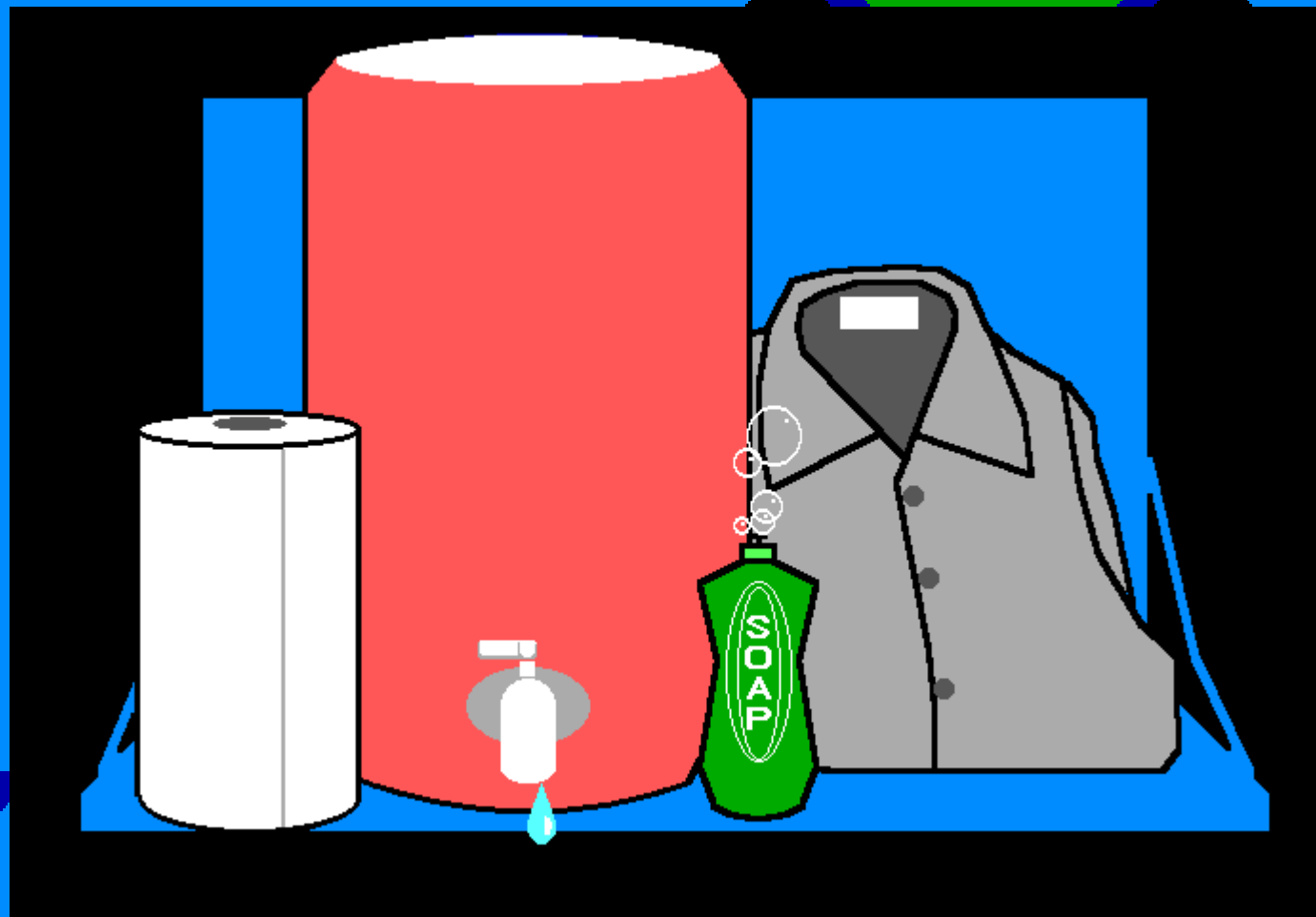
WORKER PROTECTION STANDARD



Water, soap and single use towels for workers



Plus clean coverall for Handlers





Locate within $\frac{1}{4}$ mile of
workers and handlers.

WORKER PROTECTION STANDARD



Some WPS protections
are only for:



Protections for Agricultural Workers

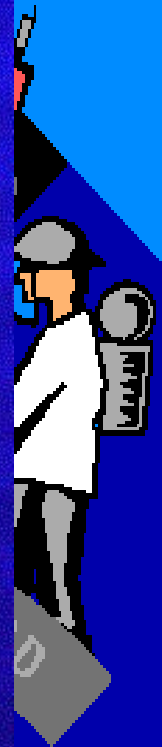
- Notify about applications



Oral warnings



Posted warnings



Warning signs required in greenhouses

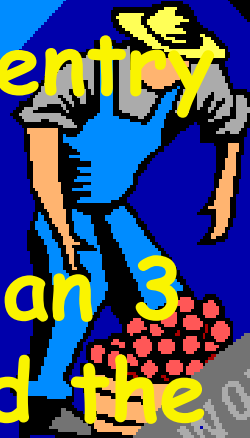


Put signs where workers enter treated areas



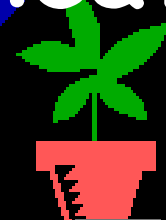
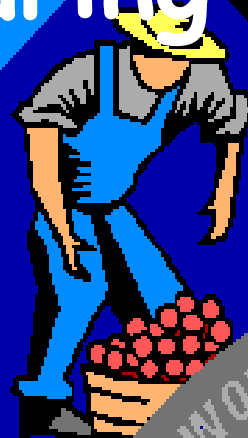
Post warning signs

- ❖ No more than 24 hours before the application.
- ❖ During the entire restricted-entry interval.
- ❖ No more than 3 days beyond the restricted-entry interval.



Protections for Agricultural Workers

- Notify about applications
- Protect during applications



WORKER PROTECTION STANDARD



Only trained and protected handlers may be in area during application

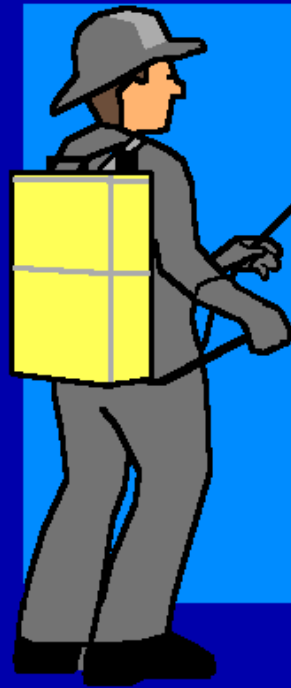


Protections for Agricultural Workers

- Notify about applications
- Protect during applications
- Observe REI

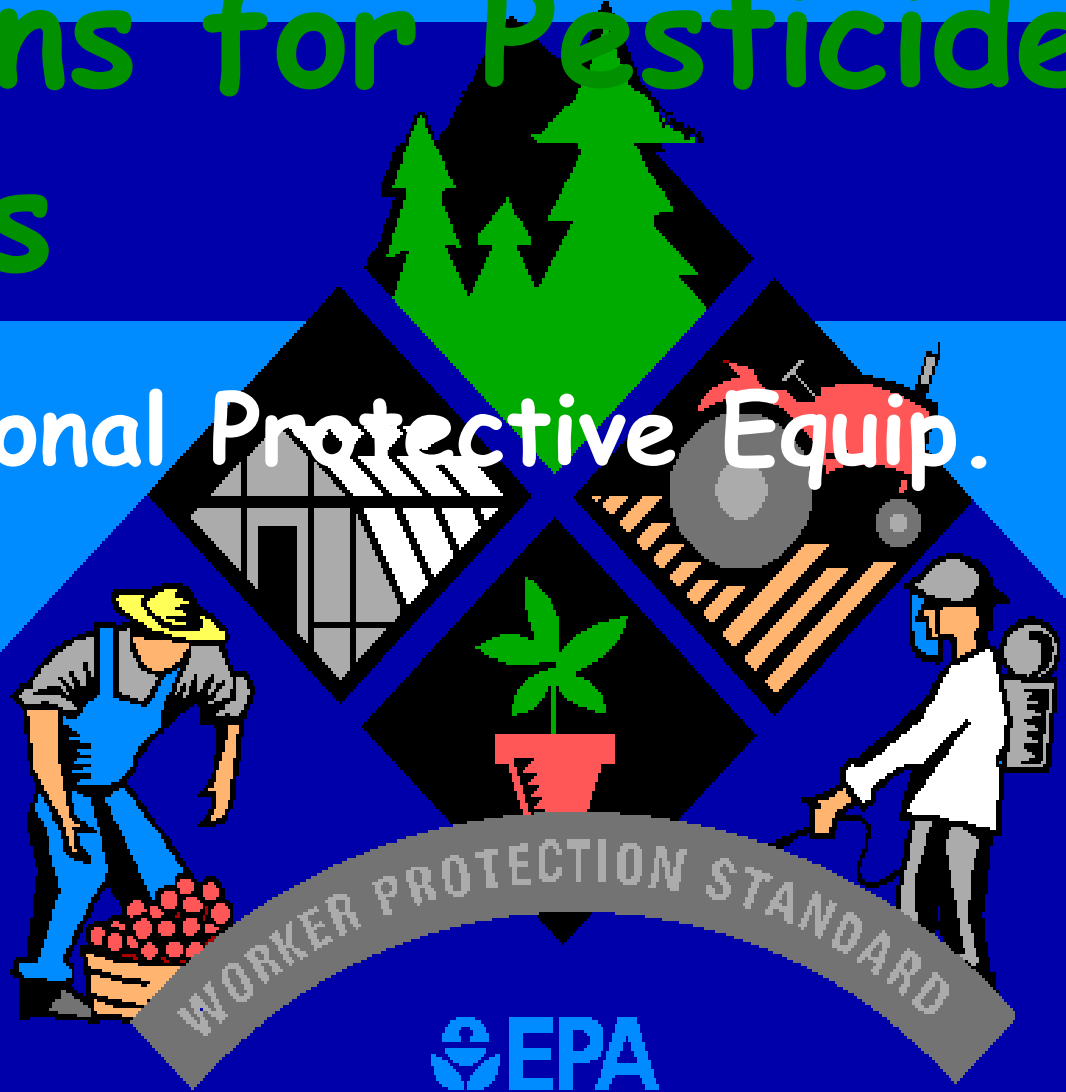


Some WPS protections
are only for:



Protections for Pesticide Handlers

- Provide Personal Protective Equip.



PERSONAL PROTECTIVE EQUIPMENT

**Applicators and Other Handlers
must wear:**

Coveralls over long sleeve shirt & long pants

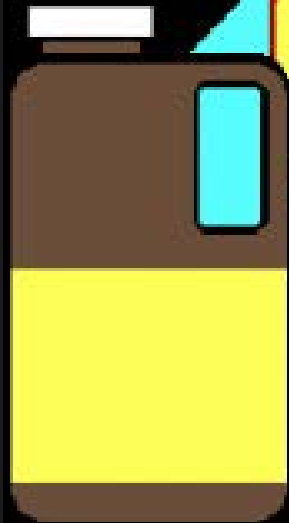
**Chemical-resistant gloves such as butyl
or nitrile or barrier laminate**

Chemical-resistant footwear plus socks

Protective eyewear

**Respirator with an organic vapor-removing
cartridge and a prefilter approved for
pesticides (MSHA/NIOSH approval prefix
R3C) or with a canister approved for
(1G)**

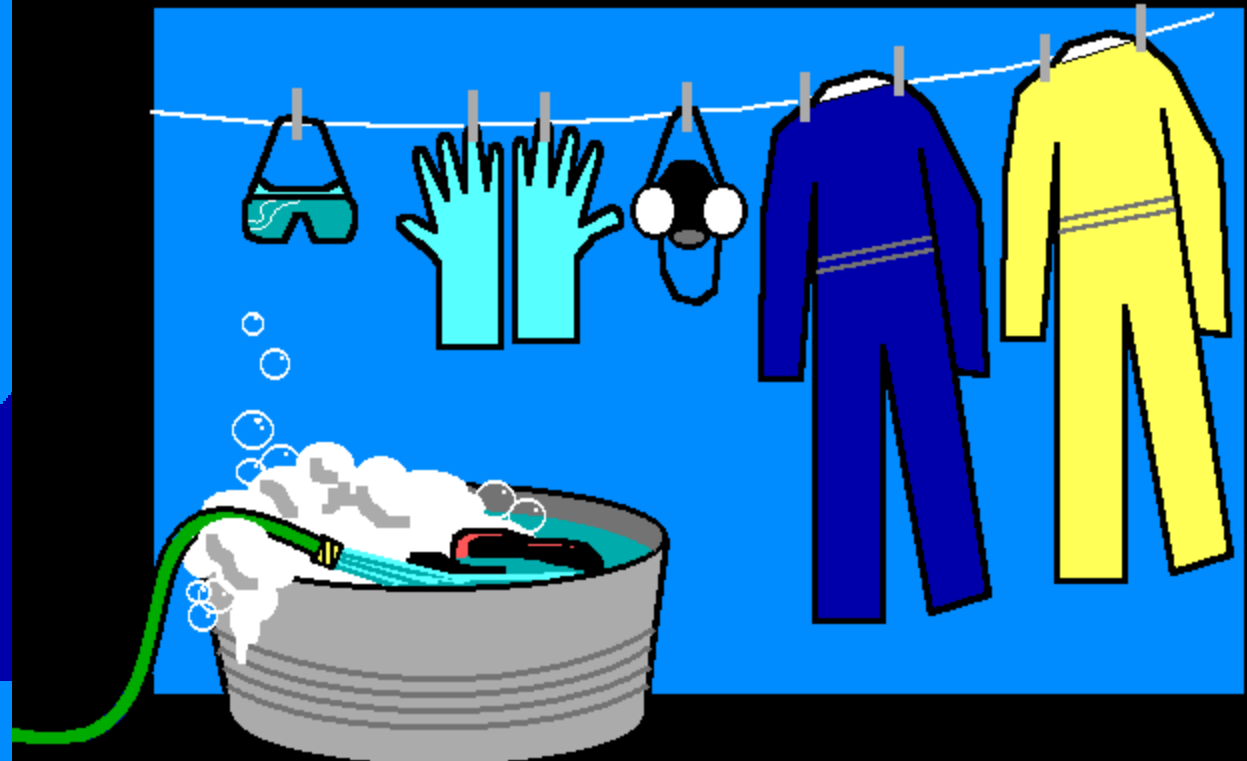
**For aerial applications: add chemical-resistant
hard hat or hood**



Be sure PPE is used



Make sure PPE is cleaned and maintained.



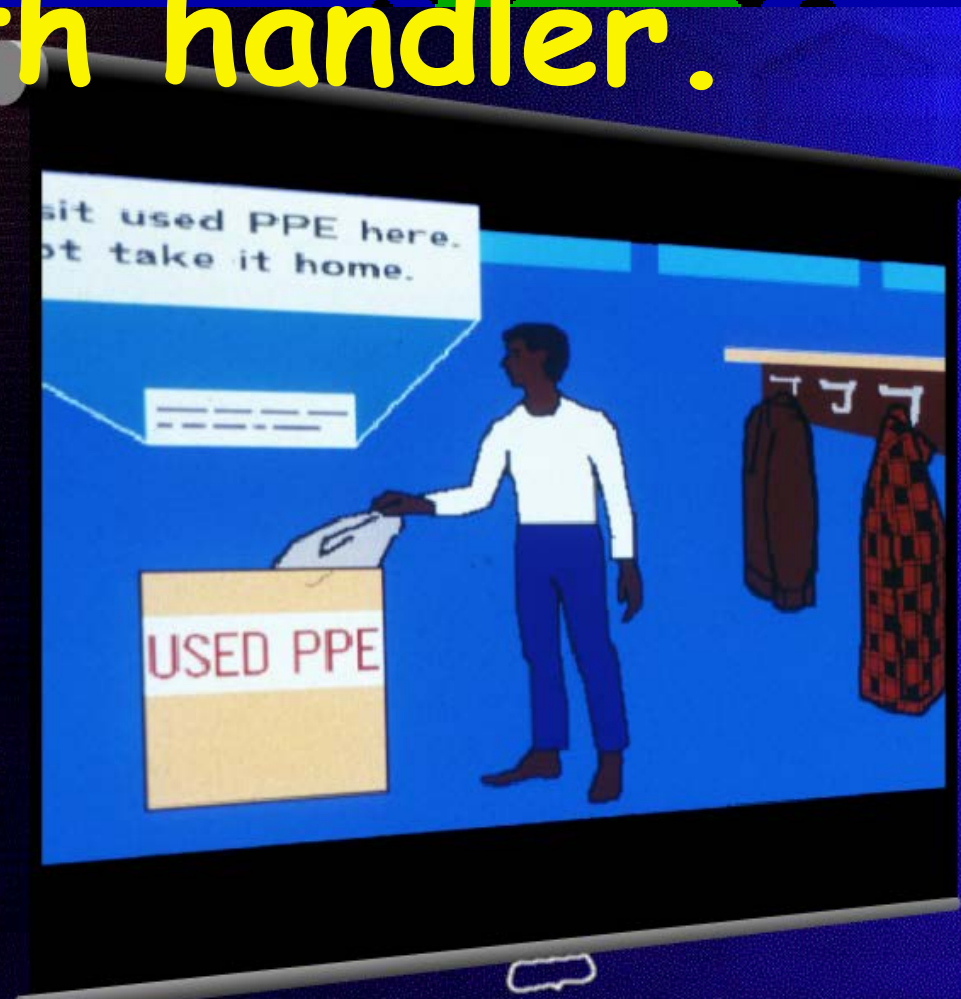
Take steps to prevent heat illness.



Provide handlers clean place to store personal clothing and to put on or remove their PPE.



Do not allow
contaminated PPE to go
home with handler.



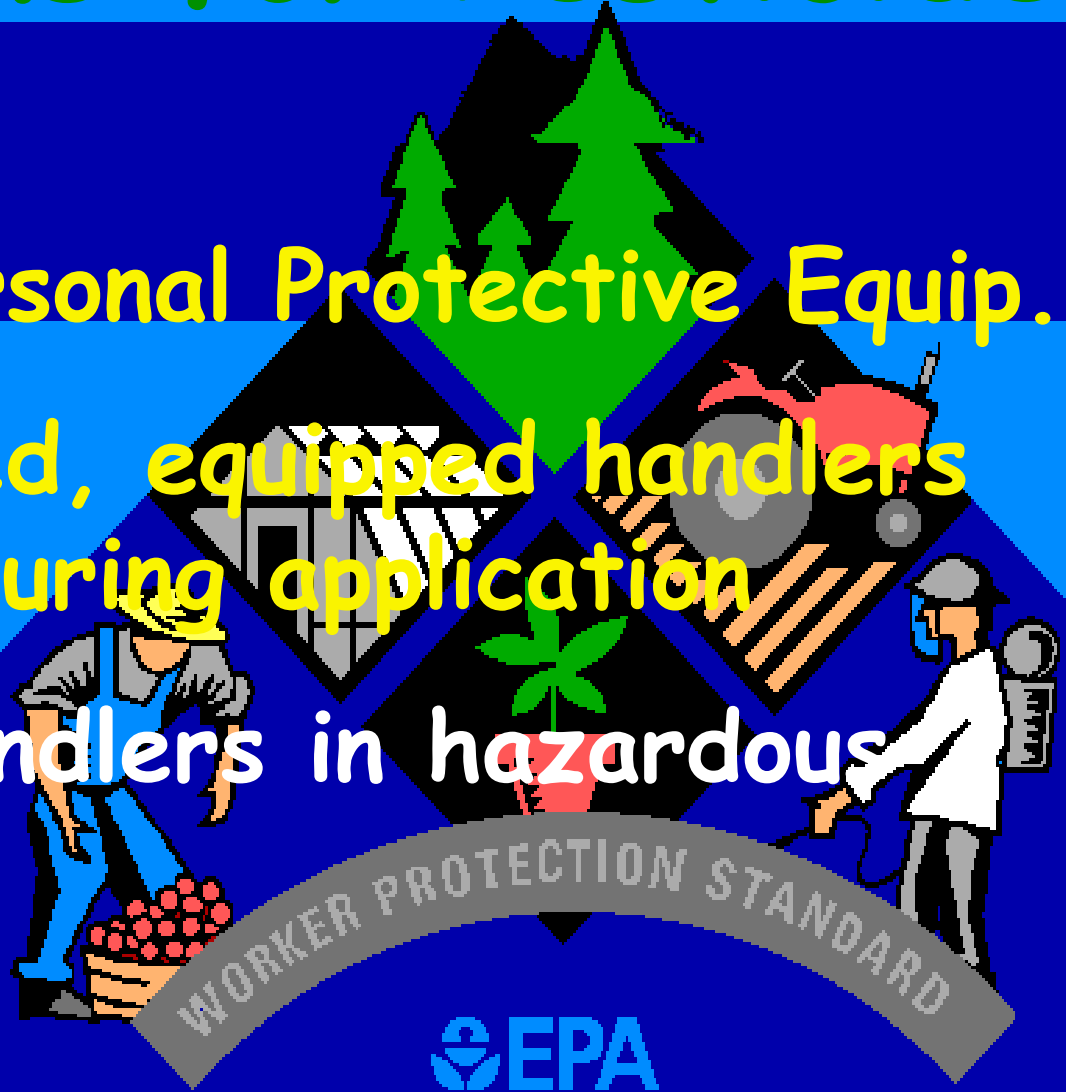
Protections for Pesticide Handlers

- Provide Personal Protective Equip.
- Only trained, equipped handlers present during application



Protections for Pesticide Handlers

- Provide Personal Protective Equip.
- Only trained, equipped handlers present during application
- Monitor handlers in hazardous situations



Every two hours when
skull and
cross bones
on label

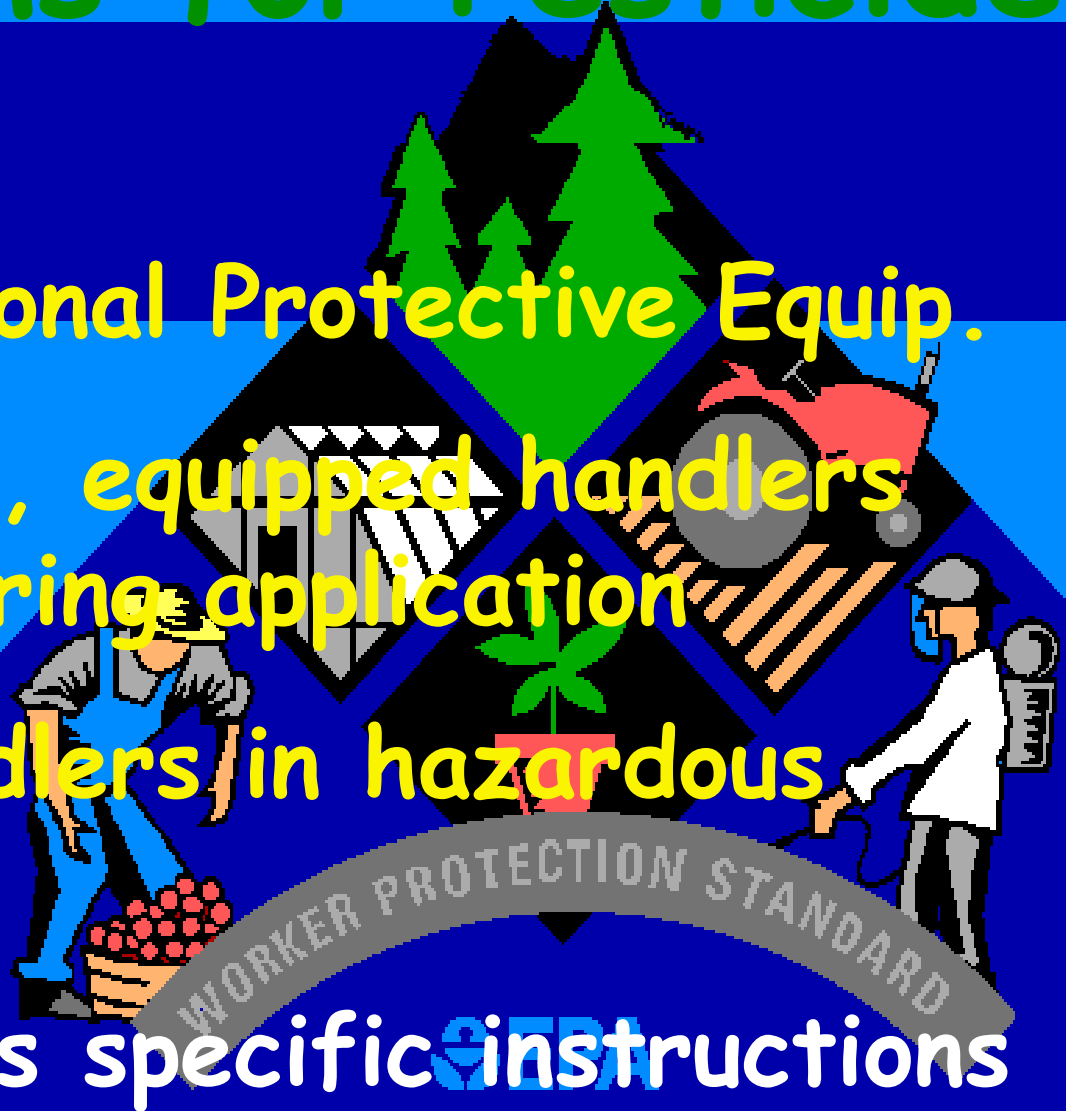


Constant monitoring of handler working with fumigant in greenhouse



Protections for Pesticide Handlers

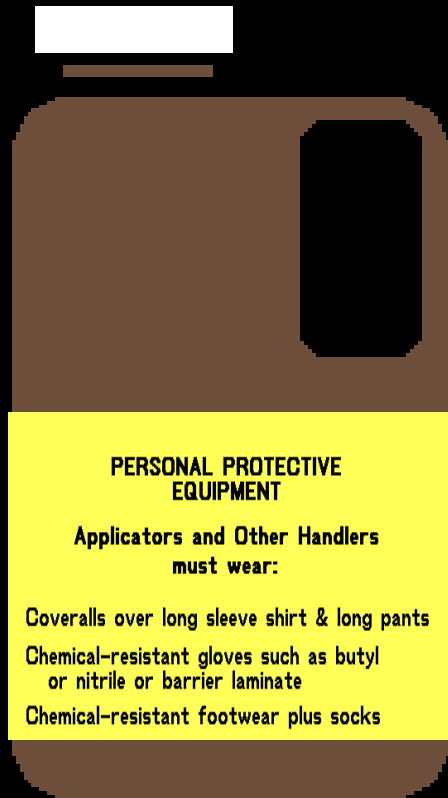
- Provide Personal Protective Equip.
- Only trained, equipped handlers present during application
- Monitor handlers in hazardous situations
- Give handlers specific instructions



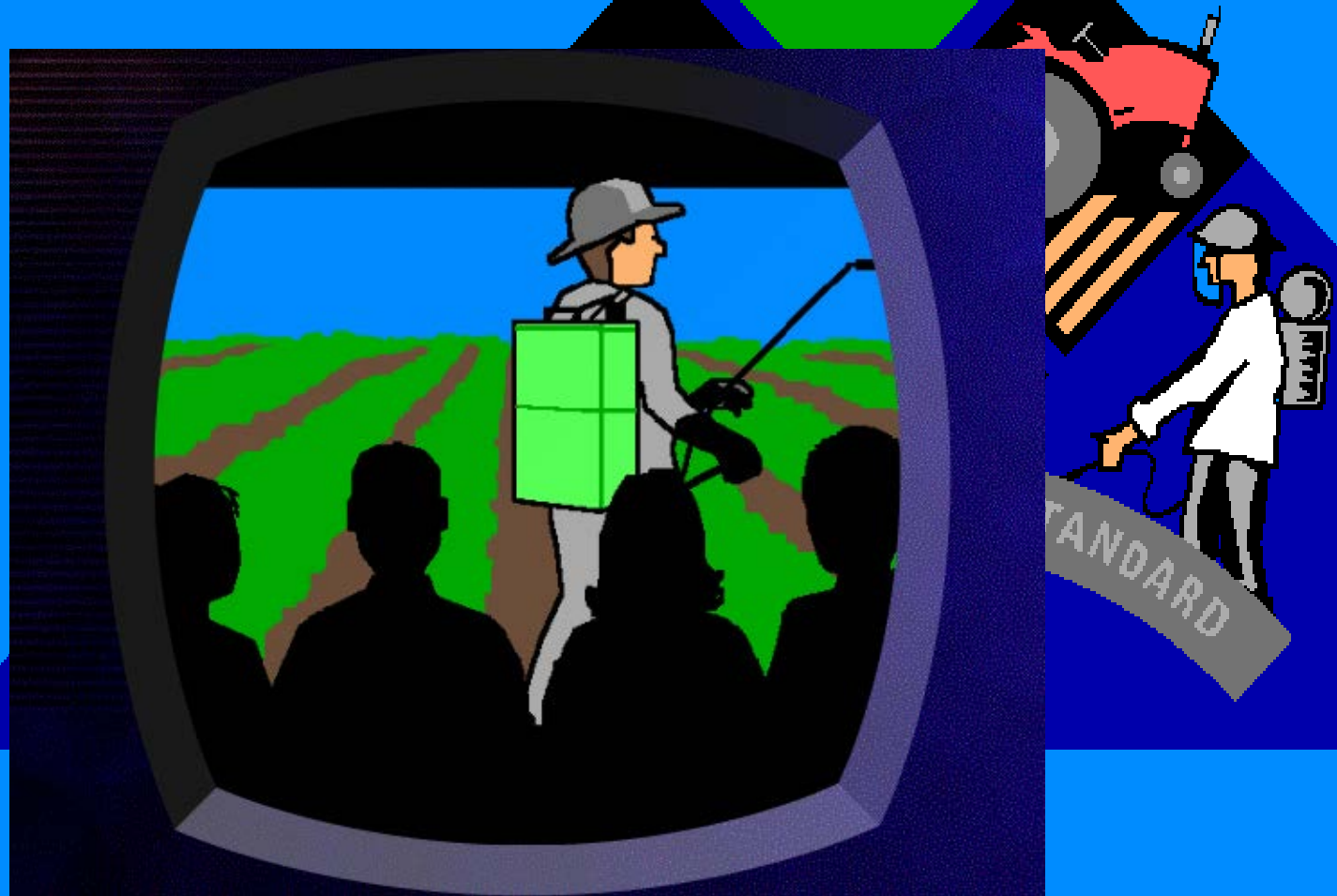
Tell or have handlers read
information on label



Be sure handlers have access to the label

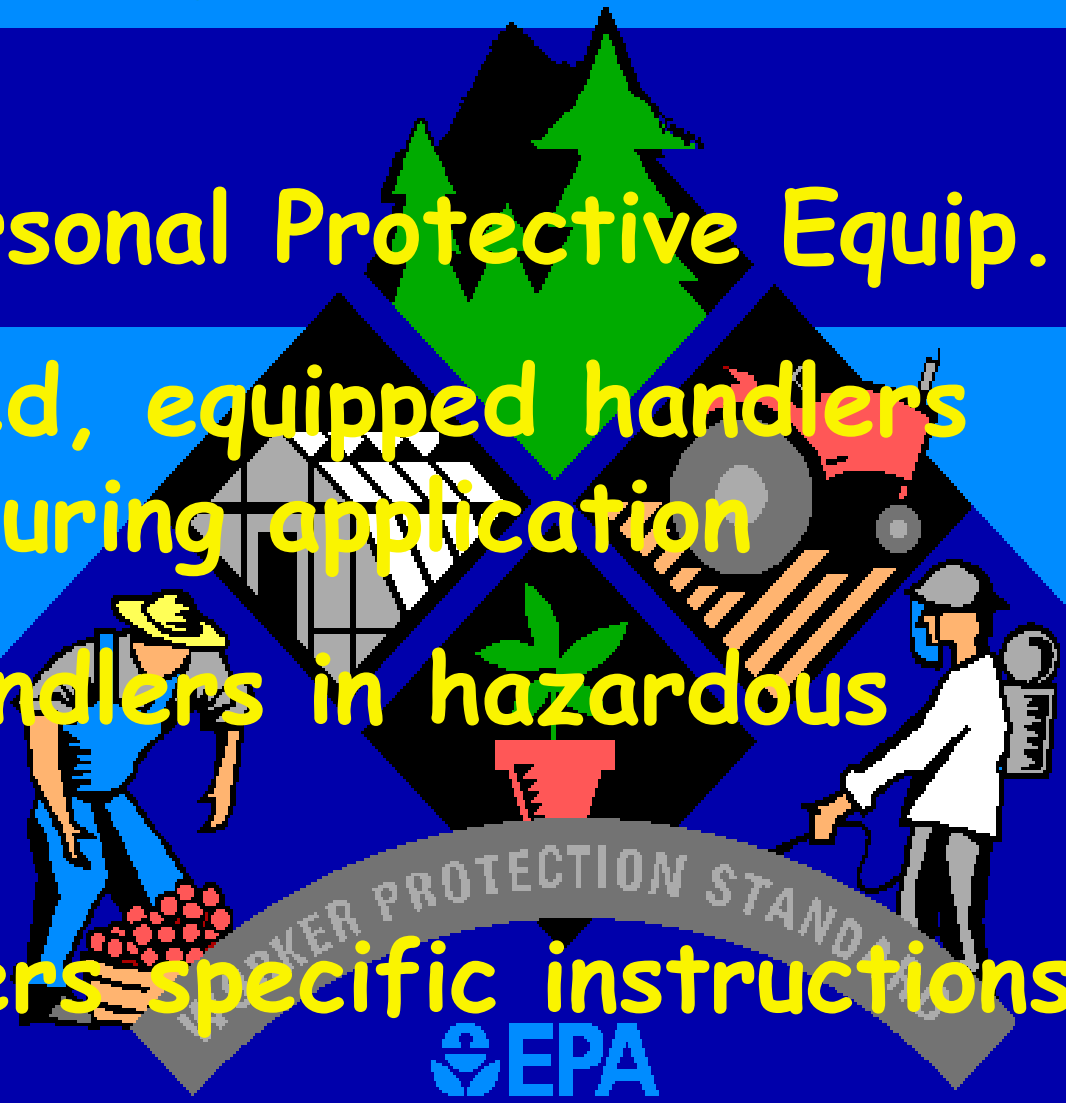


Train handlers in use of application equipment

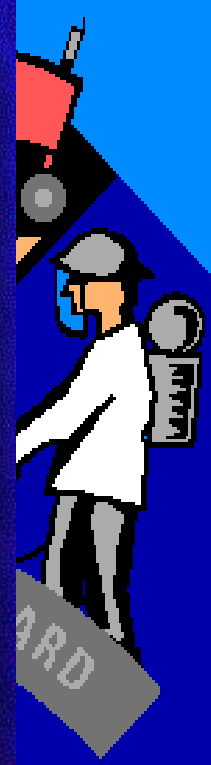
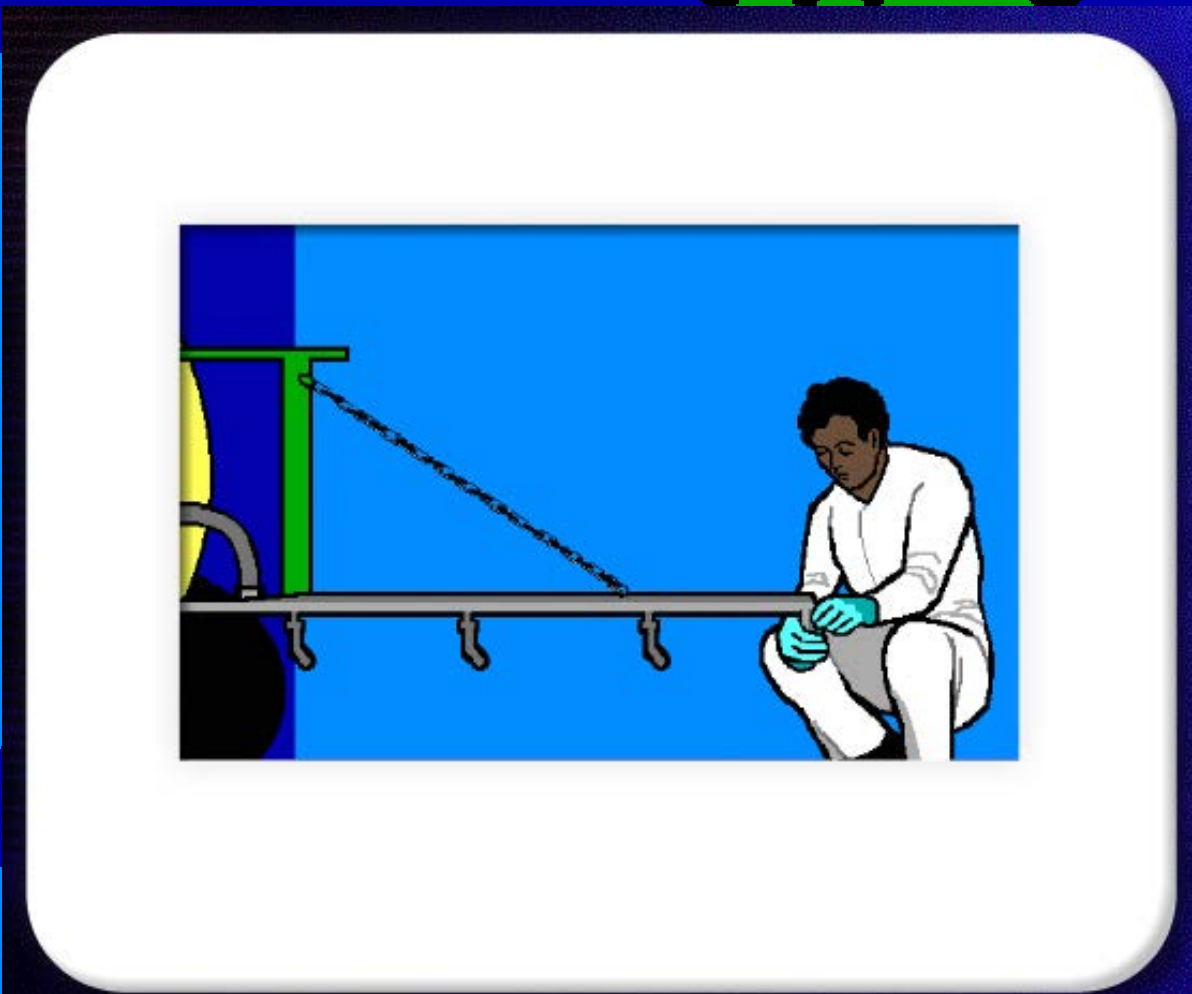


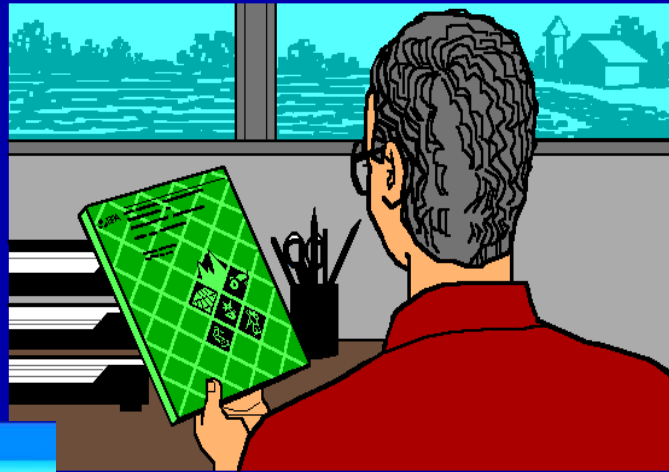
Protections for Pesticide Handlers

- Provide Personal Protective Equip.
- Only trained, equipped handlers present during application
- Monitor handlers in hazardous situations
- Give handlers specific instructions
- Protect against equipment hazards



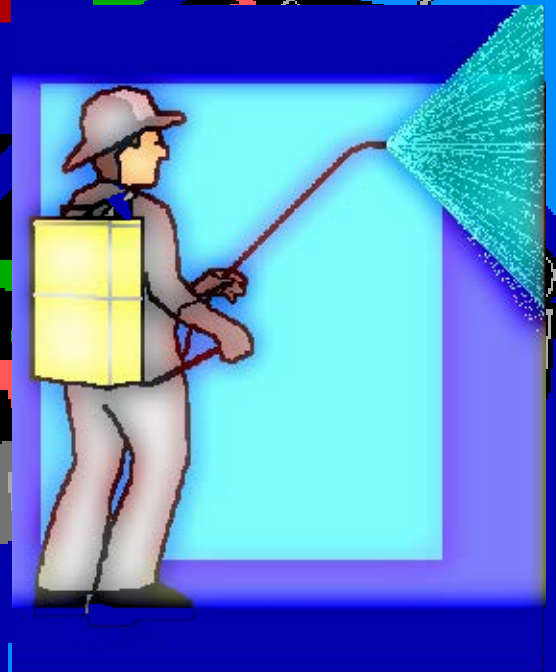
Inspect equipment and repair as necessary





Same?

WORKER PROT



Commercial handlers must provide information so the grower can protect workers.



Inform grower:

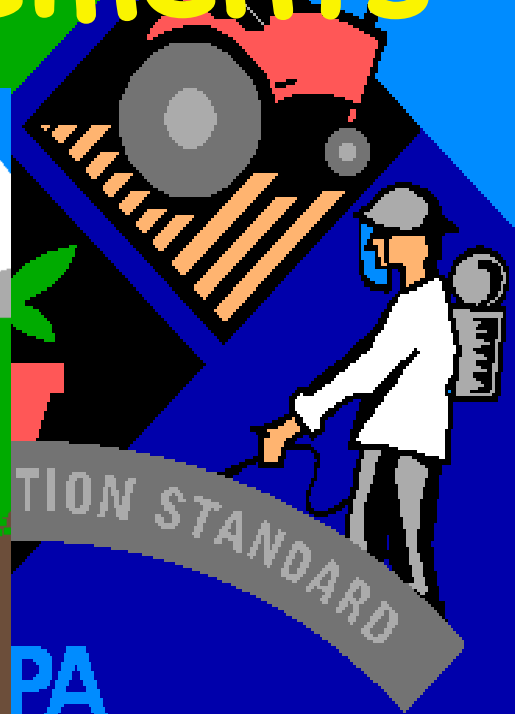
- when application will take place
- REI
- name of pesticide
- if treated area posting is required
- other label safety information



Growers inform commercial handler of pesticide applications



Owner and immediate family are exempt from some WPS requirements



What are the Laws?

- State BPC – Title 7 & Title 22 + Regulations
- Maine as most states has stricter regulations than Federal EPA

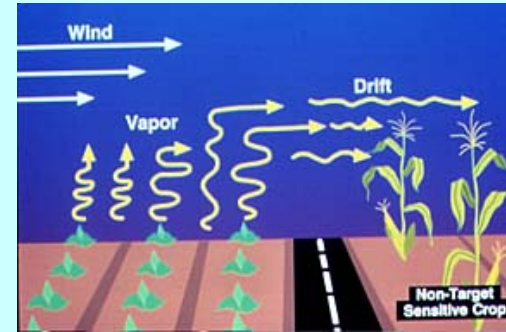


Who is on the Board of Pesticides Control?

- 2 general public members (**Deven Morrill & Curtis Bohlen**)
- 1 medical doctor (**Carol Eckert**)
- 1 IPM Specialist from U-Maine (**John Jemison**)
- 1 forestry specialist (**Clark Granger**)
- 1 commercial applicator (**Richard Stevenson**)
- 1 private applicator (grower) (**Bruce Flewelling**)

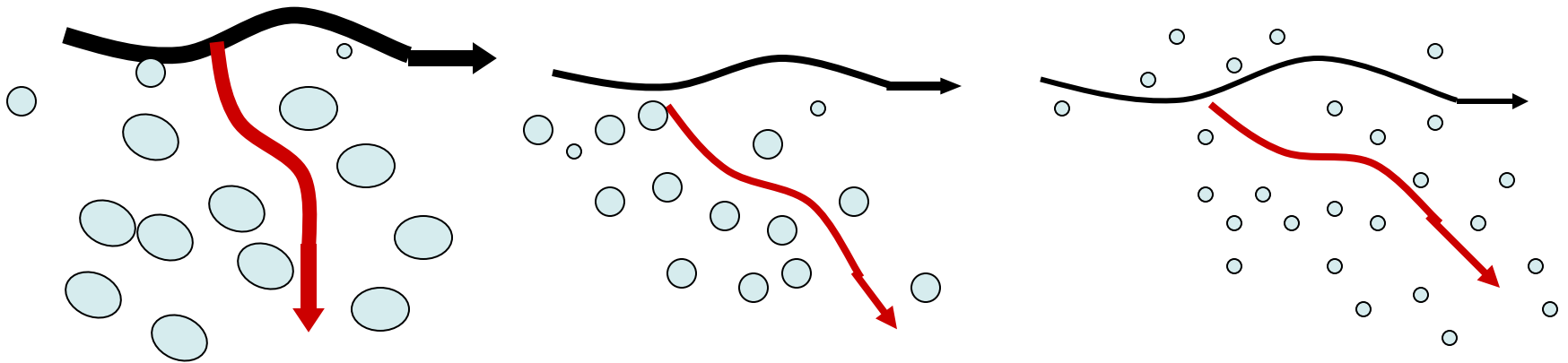


Drift reduction is very important!



Equipment Set Up: Droplet Size

**The Larger the Spray
Droplet Size**

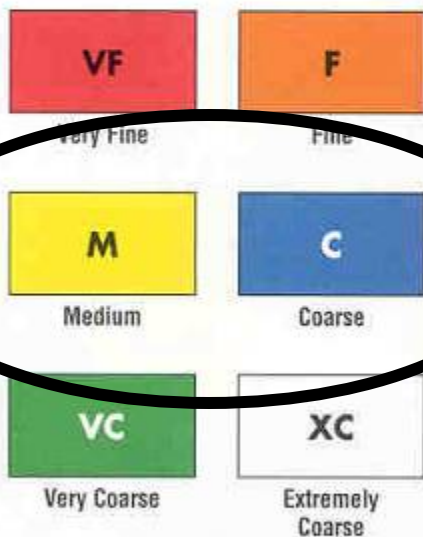


**The Less Distance the
Droplet Drifts**

Driftable Droplets*

Nozzle Type (.50 GPM Flow)	Approximate Percent of Spray Volume Less Than 200 Microns	
	15 PSI	40 PSI
XR TeeJet® 110°	14%	22%
XR TeeJet 80°	6%	12%
DG TeeJet® 110°	N/A	11%
DG TeeJet 80°	N/A	7%
TT – Turbo TeeJet®	<1%	<6%
TF – Turbo FloodJet®	<1%	<1%
AI TeeJet® 110°	N/A	<1%

*Data obtained by spraying water at room temperature under laboratory conditions.




Droplet size classifications are based on BCPC specifications and in accordance with ASAE Standard S-572 at the date of printing. Classifications are subject to change.


XR8005	C	C	C	C	C	M	M
XR8006	C	C	C	C	C	C	C
XR8008	VC	C	C	C	C	C	C
XR11001	F	F	F	VF	VF	VF	VF
XR110015	F	F	F	F	F	VF	VF
XR11002	M	F	F	F	F	F	F
XR11003	M	M	M	F	F	F	F
XR11004	M	M	M	M	F	F	F
XR11005	M	M	M	M	M	M	F
XR11006	C	M	M	M	M	M	M
XR11008	C	C	M	M	M	M	M

TP8005	C	C	C	C	M	M
TP8006	C	C	C	C	C	C
TP8008	C	C	C	C	C	C
TP11001	F	VF	VF	VF	VF	VF
TP110015	F	F	F	VF	VF	VF
TP11002	F	F	F	F	F	F
TP11003	M	F	F	F	F	F
TP11004	M	M	F	F	F	F
TP11005	M	M	M	M	M	F
TP11006	M	M	M	M	M	M
TP11008	M	M	M	M	M	M

TwinJet® (TJ)

	PSI				
	29	36	44	51	58
TJ60-8001	F	VF	VF	VF	VF
TJ60-8002	F	F	F	F	F
TJ60-8003	F	F	F	F	F
TJ60-8004	M	M	M	M	F
TJ60-8006	M	M	M	M	M
TJ60-8008	C	C	M	M	M
TJ60-8010	C	C	C	M	M
TJ60-11002	F	VF	VF	VF	VF
TJ60-11003	F	F	F	F	F
TJ60-11004	M	F	F	F	F
TJ60-11006	M	M	M	F	F
TJ60-11008	M	M	M	M	M
TJ60-11010	M	M	M	M	M


DG TeeJet® (DG E)

	PSI				
	29	36	44	51	58
DG95015E	M	M	F	F	F
DG9502E	C	M	M	M	M
DG9503E	C	C	M	M	M
DG9504E	C	C	C	M	M
DG9505E	C	C	C	C	M

Turbo FloodJet® (TF)

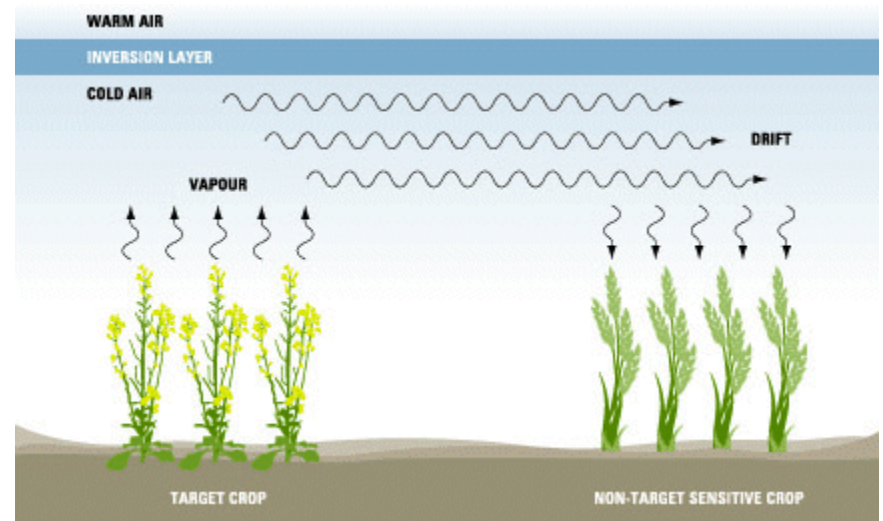
	PSI				
	29	36	44	51	58
TF-2	XC	XC	XC	XC	XC
TF-2.5	XC	XC	XC	XC	XC
TF-3	XC	XC	XC	XC	XC
TF-4	XC	XC	XC	XC	XC
TF-5	XC	XC	XC	XC	XC
TF-7.5	XC	XC	XC	XC	XC
TF-10	XC	XC	XC	XC	XC

DG TeeJet® (DG)

	PSI				
	29	36	44	51	58
DG80015	M	M	M	F	F
DG8002	C	M	M	M	M
DG8003	C	C	M	M	M
DG8004	C	C	C	C	M
DG8005	C	C	C	C	C
DG110015	M	F	F	F	F
DG11002	M	M	M	M	M
DG11003	C	M	M	M	M
DG11004	C	C	M	M	M
DG11005	C	C	C	M	M

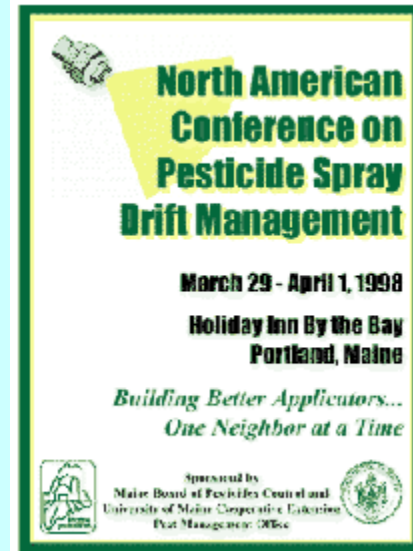
When can a temperature inversion occur?

- ❖ Can occur anytime
- ❖ Usually develops at dusk
- ❖ May continue through night
- ❖ Breaks up when ground warms up in morning
- ❖ Do not apply when winds are **less** than 2 mph



Drift Regulations

- Only applies to outdoor powered applications
- Requires applicators to minimize drift to the maximum extent practicable
- But, drift can be a problem with any type of application
 - Even granular or non-powered sprays



Major Elements of the Drift Regulations

- Applicator must first identify and record sensitive areas
- Applicators must calibrate equipment and make record of it in their log books
- Special restrictions on aerial applications
- Residue standard
- Standards of harm
- Enforcement considerations

01 DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
026 BOARD OF PESTICIDES CONTROL
Chapter 22: STANDARDS FOR OUTDOOR APPLICATION OF PESTICIDES BY POWERED EQUIPMENT IN ORDER TO MINIMIZE OFF-TARGET DEPOSITION

SUMMARY: These regulations establish procedures and standards for the outdoor application of pesticides by powered equipment in order to minimize spray drift and other unconsented exposure to pesticides. The primary purpose of these regulations is to implement the legislative mandate of the Board, as expressed by 7 M.R.S.A. §606(2)(G), to design rules which "minimize pesticide drift to the maximum extent practicable under currently available technology."

SECTION 1. EXEMPTIONS

The regulations established by this chapter shall not apply to pesticide applications in any of the following categories:

- A. Applications of pesticides confined entirely to the interior of a building;
- B. Applications of pesticides by non-powered equipment;
- C. Applications of pesticides exclusively in granular or pelletized form;
- D. Applications of pesticides injected underground or otherwise injected directly into the target medium. Such applications must involve no spraying of pesticides whatsoever.

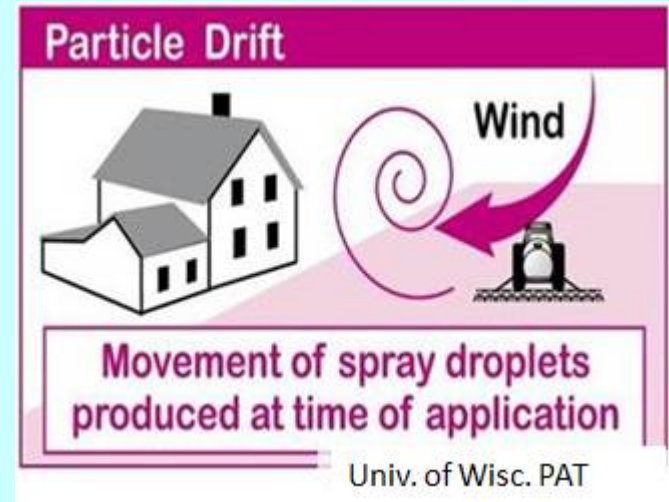
SECTION 2. STANDARDS OF CONDUCT FOR PESTICIDE APPLICATIONS

All pesticide applications subject to these regulations shall be undertaken in compliance with the following standards of conduct:

- A. **Equipment**
 - I. Pesticide spray equipment shall be used in accordance with its manufacturer's recommendations and instructions, and shall be in sound mechanical condition, free of leaks and other defects or malfunctions which might cause pesticides to be deposited off-target.
 - II. Pesticide spray equipment shall be properly calibrated consistent with Board or University published guidance. Sufficient records to demonstrate proper calibration must be maintained and made available to representatives of the Board upon request.

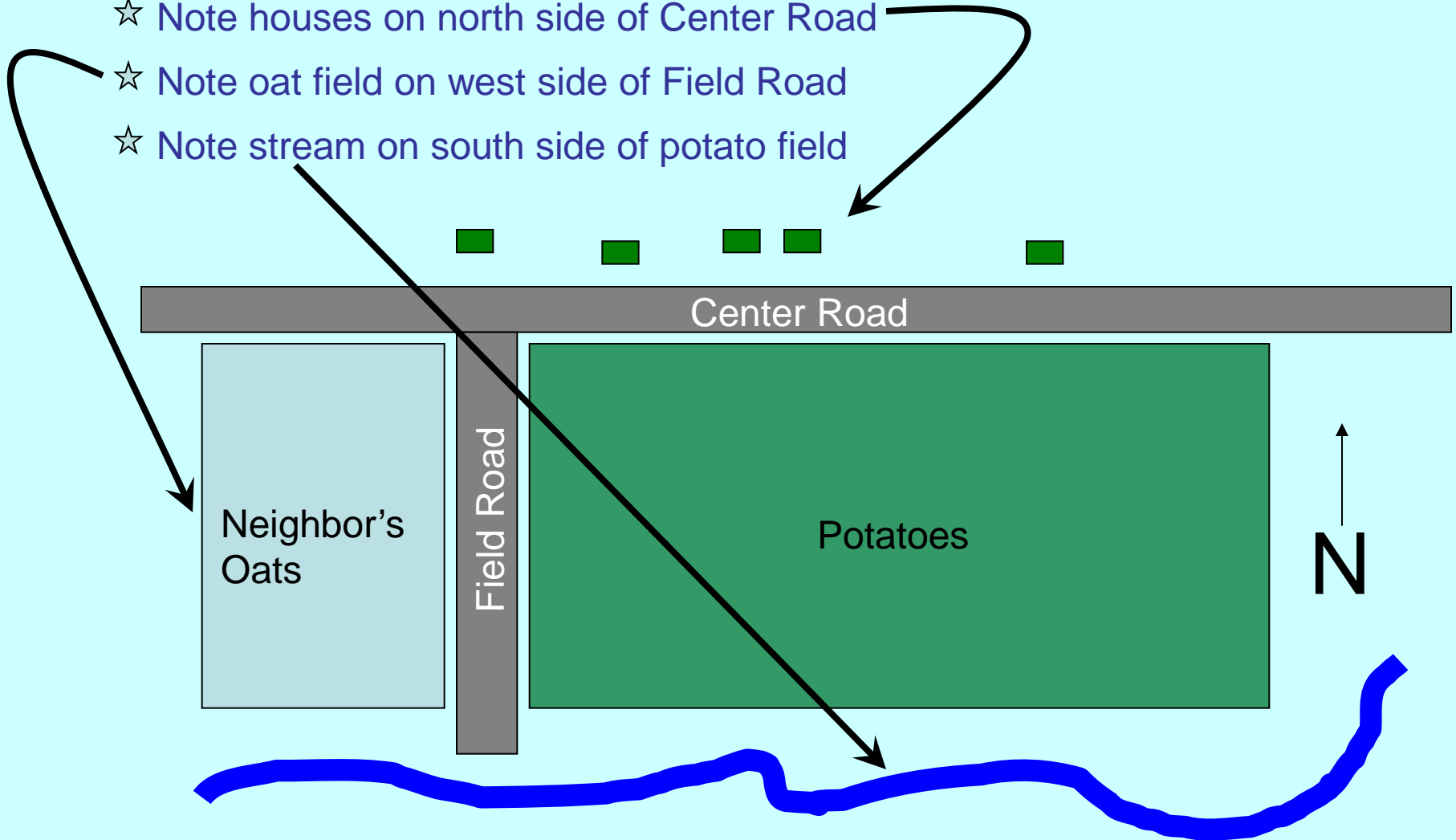
Sensitive Areas

- Before application you must identify and record all sensitive areas within 500 feet of the target site edge
- Sensitive areas include:
 - Homes, businesses and associated grounds
 - Athletic fields
 - Recreational areas
 - Crop or livestock areas
 - Water bodies, wetlands, etc.
 - Sensitive areas likely to be occupied (SALOs)



Record of Sensitive Areas

- ☆ Note houses on north side of Center Road
- ☆ Note oat field on west side of Field Road
- ☆ Note stream on south side of potato field



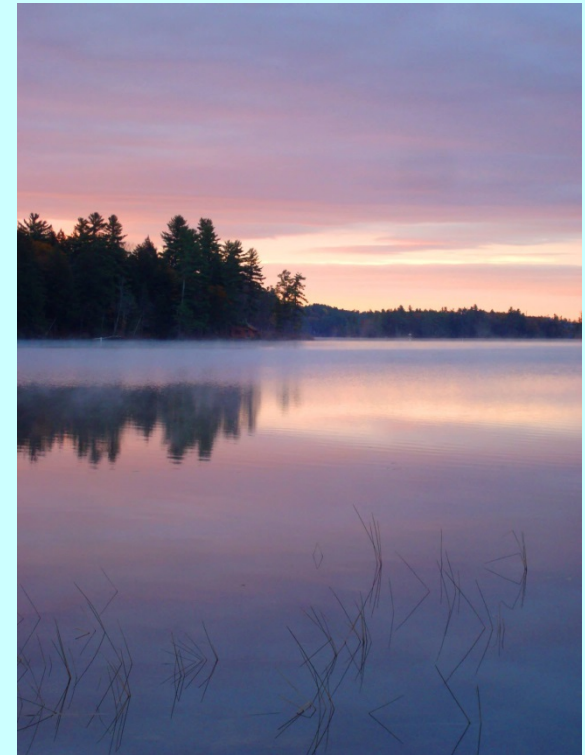
Standards for aerial application

- Standards for aerial application
 - Positive site ID (GPS or visible site markings)
 - Must make a site plan prior to spraying within 1000 feet of a SALO
 - Pre-flight application checklist required when spraying within 1000 feet of a SALO
 - Buffer zones should be used adjacent to SALOs
 - Wind restrictions next to SALOs (2 – 10 mph)



Residue Standard

- Prima facie evidence of violation
 - 1% or greater residue on SALOs
- Standards of harm
 - Drift onto organic or conventional crops
 - Residues detected on persons or vehicles using public roads
 - Documented human illness from drift
- Enforcement considerations
 - Standard of care exercised
 - Degree of harm
 - Risk of adverse effects from the pesticide used



Must not spray when the wind exceeds 15 mph



- Ideal application conditions are between 2 & 10 mph with no temperature inversion

Notification requirements

- For any outdoor ground application, neighbors may request to be notified of applications within 500 feet of a sensitive area on their property
- For any outdoor aerial application, neighbors may request to be notified of applications within 1000 feet of a sensitive area on their property
- For non-agricultural applications, anyone can pay a \$20 (fee can be waived) to be listed on a notification registry that triggers automatic notice of applications within 250 feet of the listed property

Board of Pesticides Control

Pesticide Notification—Your Rights & Responsibilities

It's All about Communication!

Maybe your next door neighbors apply [pesticides](#) to their lawn or trees. Or there's a farm or orchard near your home where pesticides might be used for crop protection. You've wondered about the pesticides that are applied outdoors in your vicinity and want to know in advance when these products are used.

You have the right to know, but you also have the responsibility to take the first step in opening communication with your neighbor. [Maine law](#) assures you that right in two ways:

- [Request for Notification](#) (for all outdoor pesticide applications)
- [Maine Pesticide Notification Registry](#) (for most non-agricultural pesticide applications)

Whichever of the two means of notification you choose, you will find that communication between you and your neighbors who use pesticides will help avoid one of the most common issues that arises between neighbors—being surprised when something unexpected occurs. Communication informs the people who use pesticides of your desire to be notified. And, you can then take measures to protect yourself and your family from unintended or incidental exposure by closing windows, taking clothes off the laundry line, or keeping children and pets indoors.

Pesticides are used every day in Maine for control of insects, weeds, and other pests, to protect our food supply, ourselves, and our homes and gardens. Examples of people who use pesticides include homeowners, renters, landscape and lawn care professionals, farmers (conventional and organic), foresters, utilities and rights-of-way managers, and public land managers. Similarly, examples of places where pesticides may be used include businesses, homes, farms, institutions, and public spaces.

Everyone has the right to use pesticides, but with that right comes the responsibility to follow the pesticide application laws, including reading and following label directions, and notifying nearby neighbors who request it.

Notification requirements

- For any outdoor lawn, ornamental or structural perimeter application...
- The applicator must post a 5" x 4" sign in areas where people could enter the treated area prior to application and it should stay up 48 hours after application



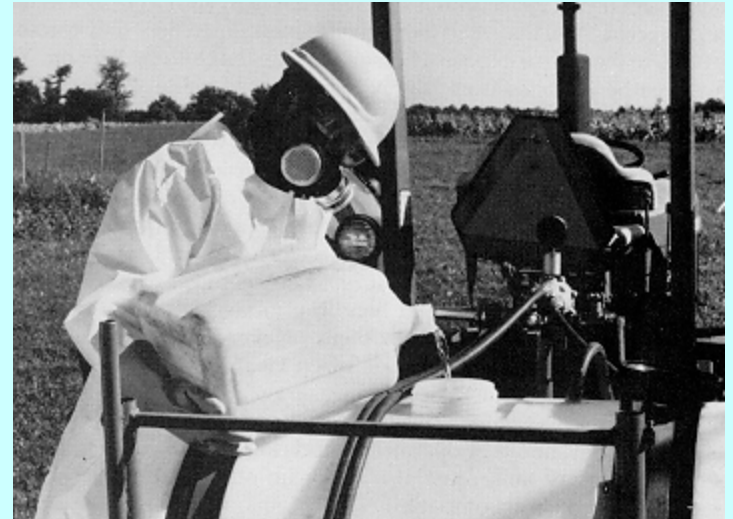
Spraying too close to water & wetlands is prohibited

- Broadcast application of pesticides is not allowed within 25 feet of the high water mark



Mixing & Loading Rules

- No mixing or loading within 50 feet of high water mark
- Water transfer pumps must not be contaminated with pesticides
- Must be anti-siphon device on all water pumps

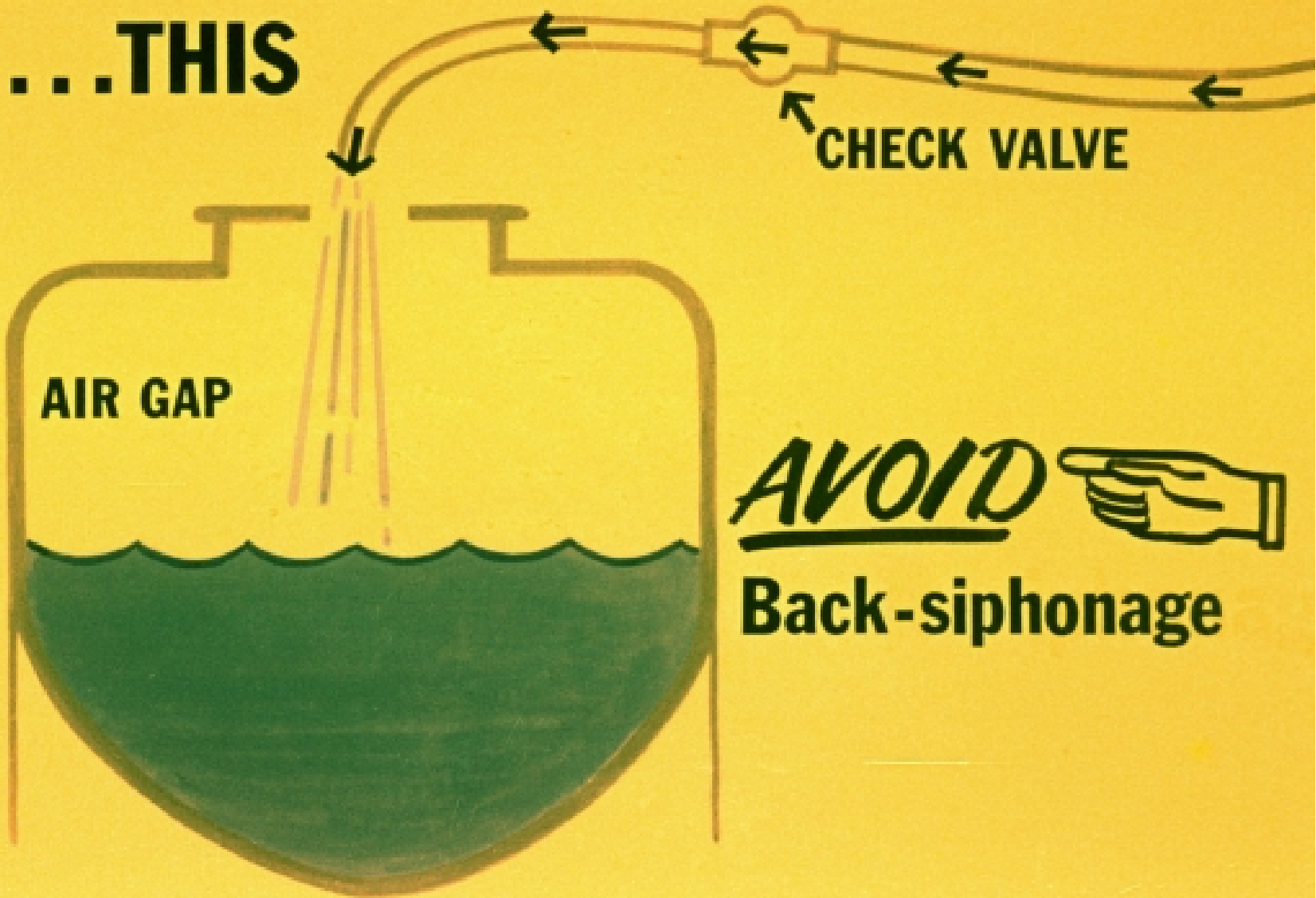


Water Quality Protection Rules

- Pesticide containers must be fastened securely to vehicles
- Spills must be cleaned up immediately and contaminated soils must be removed and disposed properly



...THIS



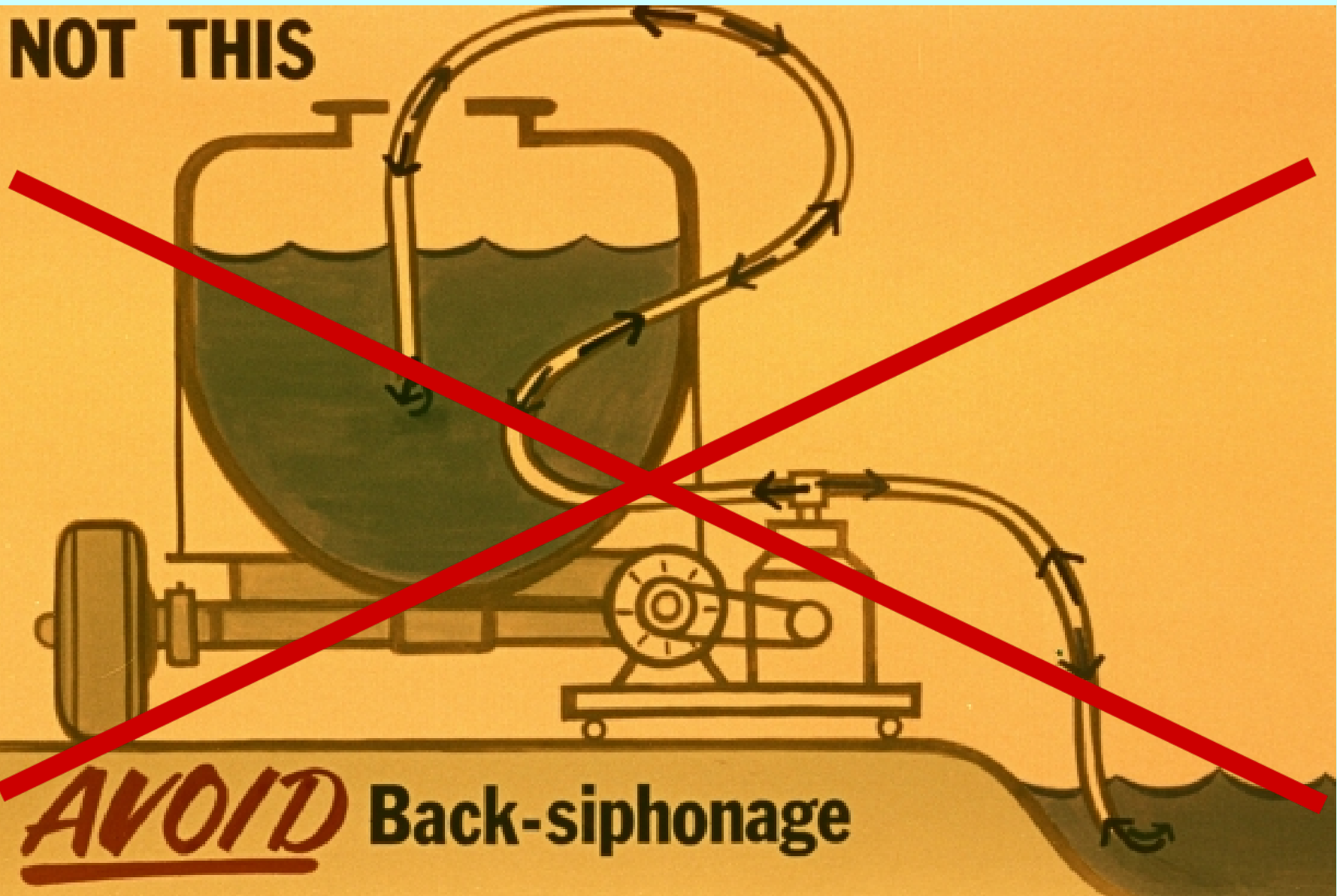
CHECK VALVE

AIR GAP

AVOID 

Back-siphonage

NOT THIS



AVOID Back-siphonage



Storage

- Buy *only* what you need
- Lock them up
- Keep in original containers
- Never store in basement!



Store Pesticides Safely!



Some pesticides are flammable or explosive





DANGER
PESTICIDE STORAGE
KEEP OUT



POISON

DANGER
POISONOUS SUBSTANCES
IN USE
KEEP OUT



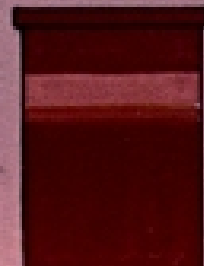
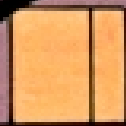
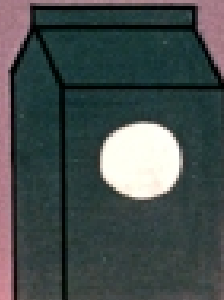
Handwritten text:
DO NOT TOUCH
DO NOT BREATHE
DO NOT INHALE
DO NOT TASTE

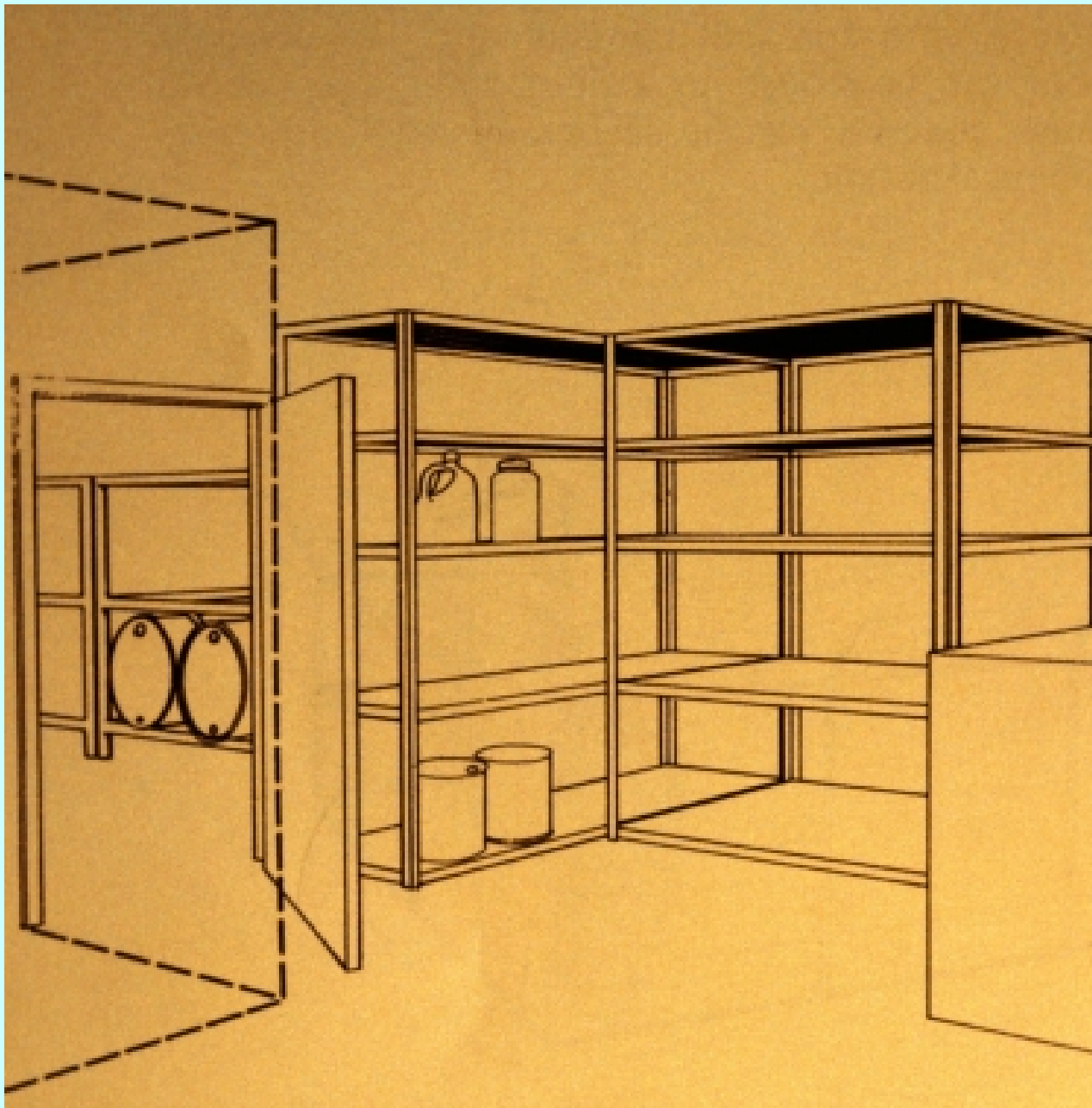


**KEEP
SEPARATED**

HERBICIDES

INSECTICIDES











DANGER
PELIGRO

POISON STORAGE AREA
ALMACEN DE VENENOS

ALL UNIDENTIFIED DRUMS ARE NOT
TO BE MOVED OR OPENED
UNLESS APPROVED BY THE
LOCAL HEALTH DEPARTMENT
AND STATE DEPARTMENT OF
HEALTH AND HUMAN SERVICES

Do not contaminate water when cleaning equipment or when disposing of wastes.

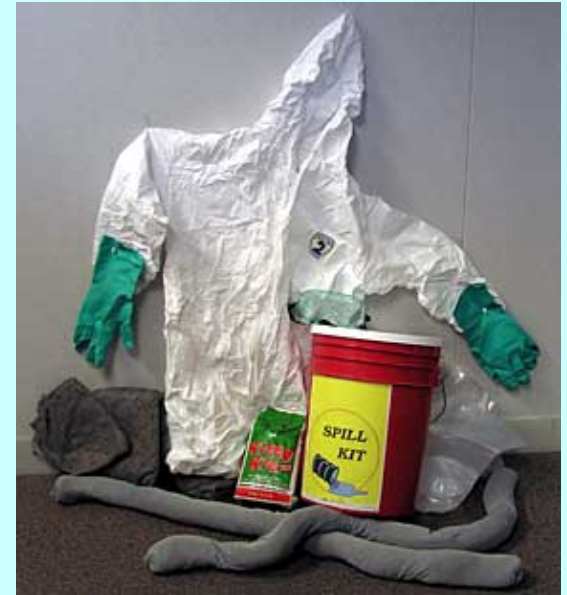


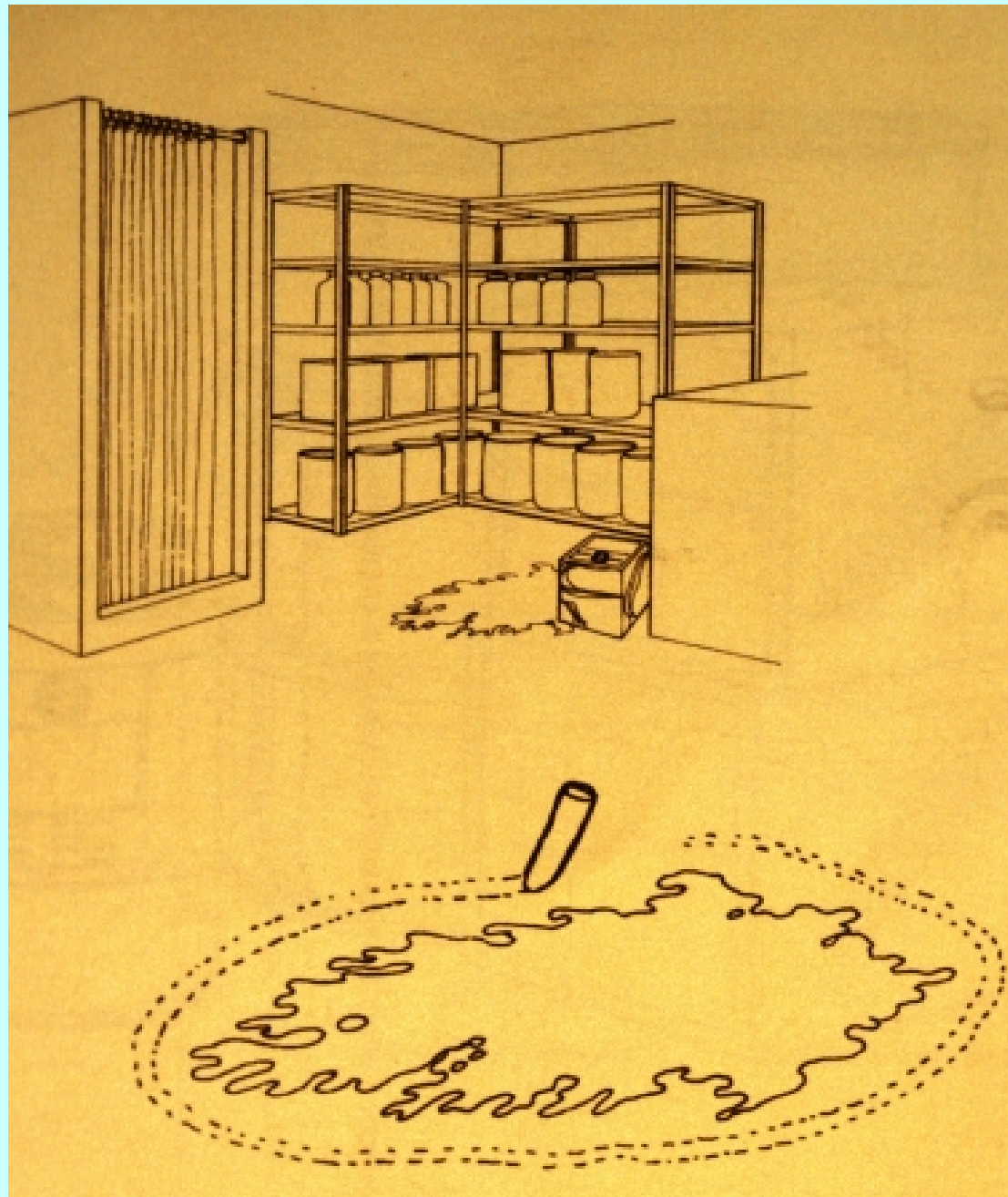
Spills



Spill Procedures

- Protect yourself
- Attend to the injured
- Contain the spill
- Call the BPC & DEP
- Absorb standing liquid
- Clean up contaminated soil and absorbents
- Dispose of wastes properly















Pesticide Container Dump in the 1980's









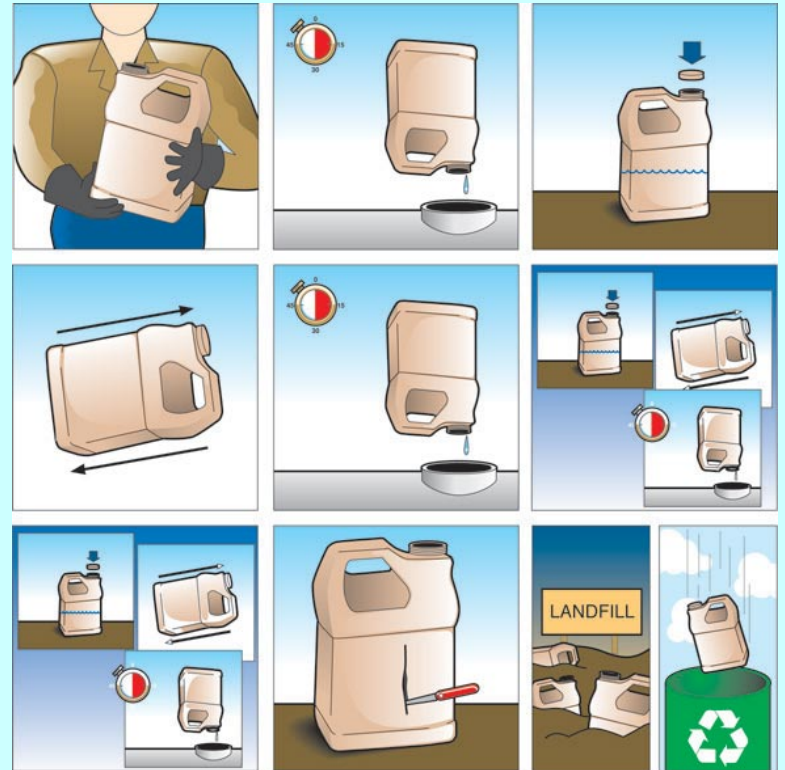






Containers must be properly rinsed

- Triple rinse or pressure rinse containers
- Always add the rinsate to the spray mixture
- Never pour rinsate on the ground or down a drain





Dispose of Containers Properly!

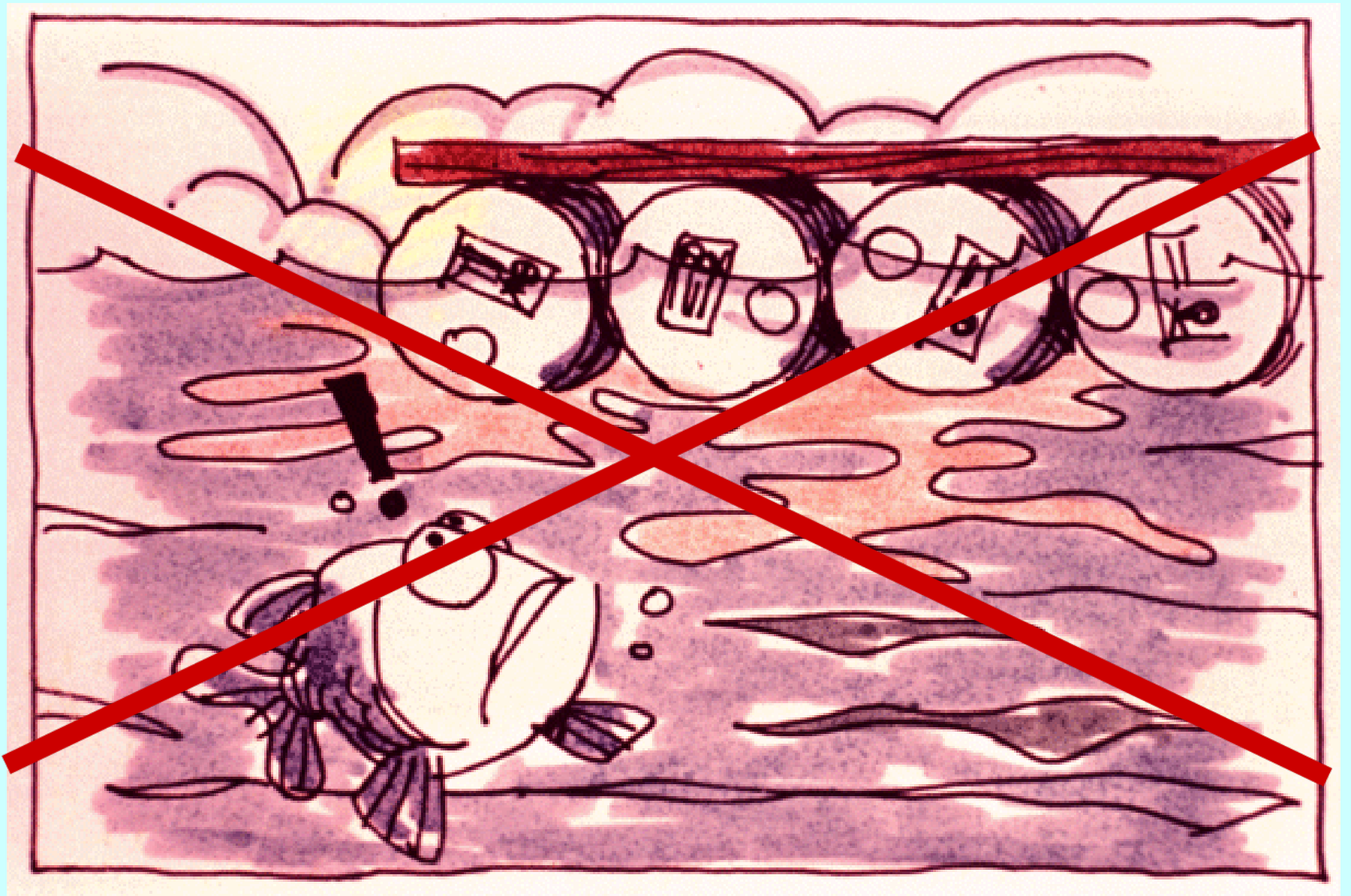
Or better yet, recycle them

Disposal

- Follow label
- Rinse containers
- Apply extra mix to labeled site
- Call BPC about obsolete pesticides









Burning pesticide containers is
illegal



Burying pesticide containers is also illegal



Certification & Licensing

- You must become certified to be eligible for a license
- Certification = passing exams
 - Core exam
 - Commodity exam
- Must score at least 80%



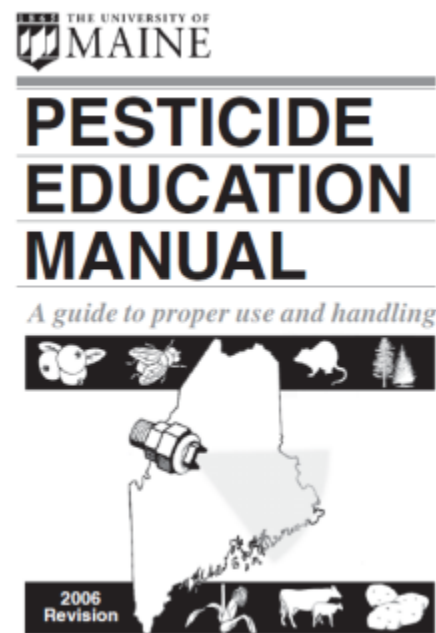
Who needs an Ag Basic license?

- Agricultural Basic
 - Growers who use only **general-use (over-the-counter)** EPA registered pesticides and annually sell more than \$1,000 of plant or plant products intended for human consumption.



How do you comply?

- Must pass the written, closed-book core exam (80% passing grade)
- The core exam is based on the Pesticide Education Manual available from the Cooperative Extension, Pest Management Office
 - 800-287-0279
 - donald.barry@maine.edu





How do you comply?

- Exams are given at BPC office or at County Cooperative Extension Offices
 - Must call BPC office 207-287-2731 to arrange for exam
- After passing exam must apply for the Agricultural Basic pesticide applicator license
 - \$15.00 fee for up to three year license



Expiration and recertification

- License expires on October 31st of the third year after issuance
- Ag Basic licensees must earn credits over their certification period in order to be eligible for license renewal
 - Ag Basic applicators must attend 3 hours of training over a 3 year period
 - Excess credits are not carried over into the next certification period
 - If they do not earn the required 3 credits, Ag Basic applicators must retake the exams to renew their license

When is a private applicator license required?

- Growers that want to purchase or use “restricted” products must have a private applicator license
- Restrictions may be federal or state

Code 96

RESTRICTED USE PESTICIDE

Due to Toxicity to fish and aquatic organisms
For retail sale to and use only by certified applicators or persons under their direct supervision, and only for those uses covered by the certified applicator's certification.

Net Weight



EPA Reg. No. 279-3051 EPA Est. 279-

Active Ingredients: Permethrin** 25.0%
Other Ingredients 75.0%
100.0%

**cis:trans ratio: Max. 55% (±) cis and min. 45% (±) trans
U.S. Patent No. 4,024,163

PRECAUTIONARY STATEMENTS
Hazards to Humans (& Domestic Animals)

Warning
Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.
Personal Protective Equipment (PPE):
Some materials that are chemical-resistant to this product include natural rubber. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.
Do not apply this product by ULV cold foggers or fog/mist generators.
All mixers, loaders, applicators, and other handlers must wear: Long-sleeve shirt and long pants, Shoes plus socks, Chemical-resistant gloves for all handlers except for applicators using motorized ground equipment, pilots, and flaggers, Chemical-resistant apron for mixers/loaders, persons cleaning equipment, and persons exposed to the concentrate, and protective eyewear for mixers/loaders and persons exposed to the concentrate.

Federal Restricted Product



State Restricted Products

No endorsement intended or implied

Who needs a Private Applicator license?

- Growers who want to purchase or use restricted or limited use pesticides
 - To grow a commodity
 - On their own property, or
 - Property they lease

RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

This product is a restricted use herbicide due to ground and surface water concerns. Users must read and follow all precautionary statements and instructions for use in order to minimize potential for atrazine to reach ground and surface water.



DuPont™
Basis Gold®
herbicide

For use in Field Corn

Active Ingredients

Nicosulfuron
2-[[[4,6-dimethoxy-pyrimidin-2-yl]amino]carbonyl]amino-sulfonyl-N,N-dimethyl-3-pyridinecarboxamide

Rimsulfuron
N[[4,6-dimethoxy-pyrimidin-2-yl]amino]carbonyl-3-(ethylsulfonamido)pyridine-5-sulfonamide

Percent By Weight

KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUTIONARY STATEMENTS
HAZARD TO HUMANS AND DOMESTIC ANIMALS

Caution. Harmful if swallowed, inhaled or absorbed through skin. Causes moderate eye irritation. Do not breathe dust or spray mist. Avoid contact with eyes, skin or clothing.

FIRST AID


IF SWALLOWED:

- Call poison control center or doctor immediately for treatment.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.

RESTRICTED USE PESTICIDE

Due to High Acute Toxicity to Humans.

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Direct supervision for this product requires the certified applicator to review federal and supplemental label instructions with all personnel prior to application, mixing, loading, or repair or cleaning of application equipment.




DuPont™
Lannate® LV
insecticide

Water Soluble Liquid

Contains 2.4 lbs active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

DANGER
PELIGRO

 **POISON**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

FIRST AID

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.


IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, then give artificial respiration, if possible. Call a poison control center or doctor for further treatment advice.

IF ON SKIN: Take off contaminated clothing. Wash thoroughly with soap and water.

RESTRICTED USE PESTICIDE

FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.



syngenta.

Herbicide

A Weed, Grass, and Harvest Aid Desiccant/Defoliant Herbicide

Active Ingredient:

Paraquat dichloride (1,1'-dimethyl-4,4'-bipyridinium dichloride) 30.1%

Other Ingredients: 69.9%

Total: 100.0%

Contains 2.0 pounds paraquat cation per gallon or 2.702 pounds salt per gallon.

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

- NEVER PUT INTO FOOD, DRINK OR OTHER CONTAINERS.
- IF SWALLOWED, TAKE IMMEDIATE ACTION AS PRESCRIBED IN FIRST AID STATEMENT. SYMPTOMS ARE PROLONGED AND PAINFUL.
- DO NOT USE OR STORE IN OR AROUND THE HOME.
- DO NOT REMOVE CONTENTS EXCEPT FOR IMMEDIATE USE.
- THE COVER OF THIS PRODUCT IS FROM THE ALERTING AGENT WHICH HAS BEEN ADDED.

These are all private applicators





Private applicator certification & licensing

- Must pass the written, closed-book core exam and a commodity exam (80% passing grade)
- The commodity exams are based on manuals available from the Cooperative Extension, Pest Management Office
 - 800-287-0279
 - donald.barry@maine.edu

Some commodity exam manuals



ORCHARD FRUIT PEST MANAGEMENT

Private Pesticide Applicator Training Manual



2009



POTATO PESTICIDE APPLICATION

Private Pesticide Applicator Training Manual: Potato



GREENHOUSE PESTICIDE MANAGEMENT

Pesticide Applicator Training Manual: Private Greenhouse



SMALL FRUIT PESTICIDE APPLICATION

Pesticide Applicator Training Manual: Small Fruit



VEGETABLE PESTICIDE APPLICATION

Private Pesticide Applicator Training Manual: Vegetable





How do you comply?

- Exams are given at BPC office or at County Cooperative Extension Offices
 - Must call BPC office 207-287-2731 to arrange for exam
- After passing exams must apply for the Private pesticide applicator license
 - \$15.00 fee for up to three year license



Expiration and recertification

- License expires on October 31st of the third year after issuance
- Licensees must earn credits over their certification period in order to be eligible for license renewal
 - Private applicators must attend 6 hours of training over a 3 year period
 - Excess credits are not carried over into the next certification period
 - If they do not earn the required 6 credits, private applicators must retake the exams to renew their license

Who needs a commercial license?

- Anyone who applies any pesticide...
 - For any type of compensation
 - In areas open to the public
 - As a government employee
 - Also includes application of restricted or limited use pesticides for other than agricultural purposes (e.g., termite control)



Pesticide Record Keeping Requirements

- *All Commercial Agricultural Producers* must keep records of *all* pesticide applications
- *Commercial Agricultural Producer* = Anyone who tries to make money producing plants, animals or animal products

Record Keeping
Requirements
for Commercial
Agricultural
Producers



Maine Board of Pesticides Control

Tel: (207) 287-2731
www.thinkfirstspraylast.org

All Pesticide Applications?

- General, restricted & limited use pesticides
- Powered & non-powered applications
- Granulars, liquids, foggers & aerosols
- Biological & organic pesticides
- All application sites – crops, animals & buildings
- Indoor & outdoor application sites

If it is applied to control a “pest” and you use it in your business, You Must Keep a Record



No endorsement intended or implied

Why keep records

- Helps with legal disputes
- Helps prevent duplication of errors
- Helps the applicator zero in on success
- Helps with planning for pesticide purchases



What must be recorded?

PESTICIDE KEY			
Brand Name	Active Ingredient(s)	EPA Registration No.	Restricted Entry Interval and/or Air Concentration Level
Guthion 3F	Azinphos-methyl	3125-338	48 hrs.
Agway 1 st Dairy Duster	Coumaphos	8590-374	N/A
Margosan-O	Azadirachtin	11688-5-58185	4 hrs.
ZP Rodent Bait	Zinc Phosphide	12455-17	N/A

PESTICIDE APPLICATOR LOG													
Application Method: <i>Various (see OTHER)</i>						Applicator's Name and License Number (if available): <i>John Doe P00000</i>							
Date	Time of Application		Weather Conditions			Town, Location and Size of Treated Area	Site or Crop	Target Pest	Pesticide(s) & Diluent Applied	Rate Description			Other
	Start	Finish	Wind Speed & Direction	Temp.	Sky Cond.					Undiluted	Mix	Mix Ratio	
95													
6/10	6 AM	7:15 AM	4 MPH NNE	65°	clear	Mars Hill Field #5 40 acres	Potato	Colo. Potato Beetle	Guthion 3F	7.5 gal			Tractor Boom
6/15	6 AM	6:10 AM	—	—	—	Thorndike Gateway 85 head	Cows + Cattle	Lice + Horn Fly	Dairy Duster	25 lbs.			Dusting Bag
7/15	7:30 AM	8:40 AM	—	—	—	Manchester G.H.#1 120 ft ² Bench #4	Boarding Planks	Thrips	Margosan-O	5 gal	5 t. gal.		Hand Sprayer
10/15	6:30 AM	6:45 AM	2 MPH NW	48°	over-cast	Turner Orchard #2 85 acres	Apples	Mice + Voles	ZP Rodent Bait	510 lbs.			Custom-Aircraft Boom

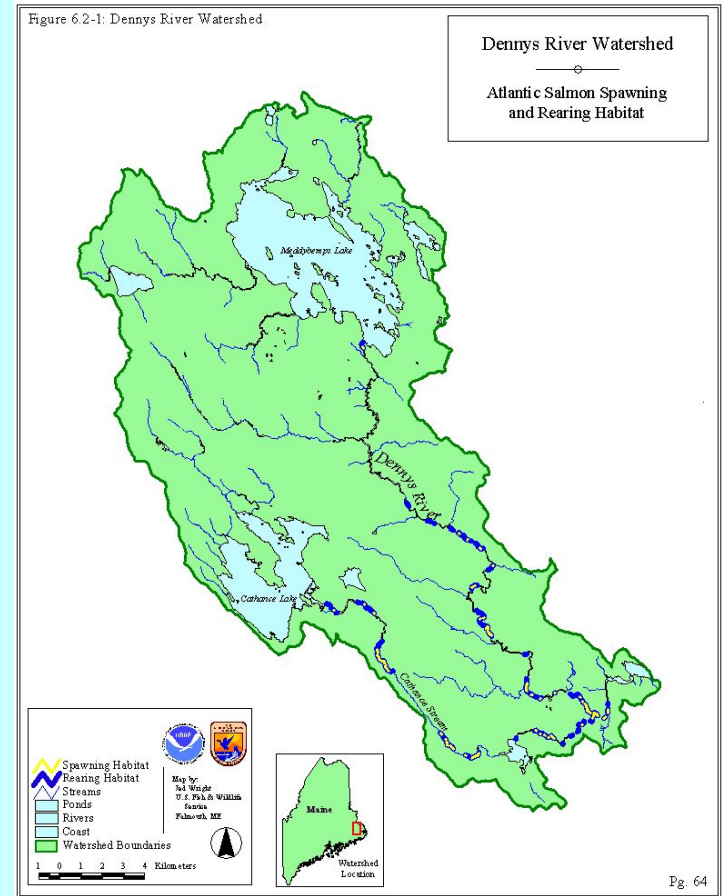
What must be recorded?

- Application records must be kept on file for *two years*
- Records must be available for inspection upon request
- *No reports* are required to be sent to the BPC by private growers




Critical Pesticide Control Area Law

- The Board may restrict or prohibit pesticide use in designated areas
 - Persons may petition the Board
 - Requires medical or ecological proof of need



Other Laws to Consider

- Attractive nuisance law
- Community Right-to-Know
- Transportation Laws
- Hazardous Waste Laws
- Labor Laws (OSHA Hazard Communication Standard)
 - <http://www.state.me.us/labor/bls/hazcomp/program.htm>

Health Hazard  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	Flame  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	Exclamation Mark  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  <ul style="list-style-type: none"> • Gases Under Pressure 	Corrosion  <ul style="list-style-type: none"> • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals 	Exploding Bomb  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  <ul style="list-style-type: none"> • Oxidizers 	Environment (Non-Mandatory)  <ul style="list-style-type: none"> • Aquatic Toxicity 	Skull and Crossbones  <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

Pesticide Fires

- Invite your local fire department to see your storage area
- Give them a list of the products you commonly store there
- Ask them to let it burn!



Post emergency numbers

Emergency Numbers

Police _____

Fire _____

Medical _____

Poison Center _____


Chemical Emergencies

For spill, leak, fire, exposure or accident, call CHEMTREC
day or night:

CHEMTREC – Any Chemical _____ **(800) 424-9300**
(toll free)

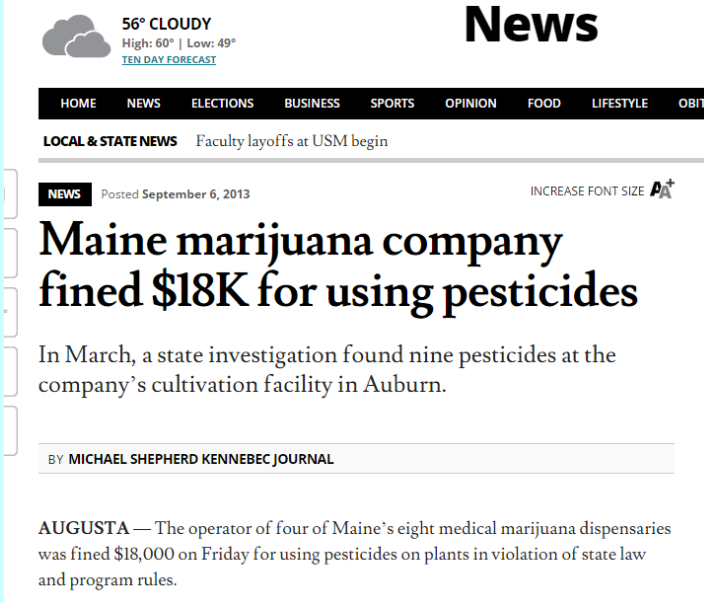
Chevron Chemical Products _____ **(415) 233-3737**
(collect)

*For calls originating outside the continental U.S. (Alaska, Hawaii,
Puerto Rico): (202) 483-7676—Washington, D.C.—Collect.

 Chevron Chemical Company
11500 Highway 100
San Francisco, CA 94134

Enforcement

- What we like to do the least
- Want to work with applicators
- 1st offense maximum fine \$1,500
- 2nd offense maximum fine \$4,000
- Knowing violation \$7,500 and/or 30 days



The screenshot shows a news article from the Kennebec Journal. At the top, there is a weather widget for 56° CLOUDY with a high of 60° and a low of 49°. The page title is 'News'. A navigation bar includes links for HOME, NEWS, ELECTIONS, BUSINESS, SPORTS, OPINION, FOOD, LIFESTYLE, and OBITIS. Below the navigation bar, there is a sub-header for 'LOCAL & STATE NEWS' with a link to 'Faculty layoffs at USM begin'. The main article is titled 'Maine marijuana company fined \$18K for using pesticides' and is dated September 6, 2013. The author is Michael Shepherd. The article text states that a state investigation found nine pesticides at the company's cultivation facility in Auburn. A sub-headline reads 'AUGUSTA — The operator of four of Maine's eight medical marijuana dispensaries was fined \$18,000 on Friday for using pesticides on plants in violation of state law and program rules.'

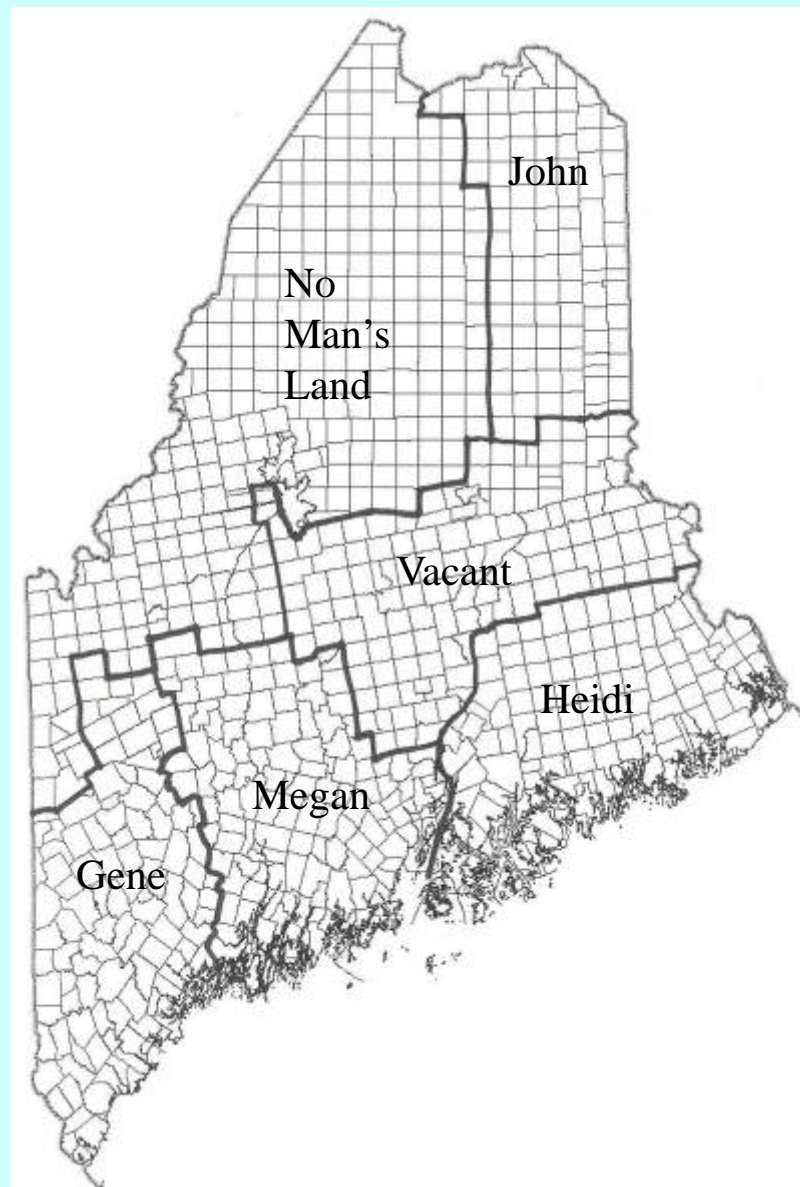
For very serious violations

- The Board can suspend or revoke a license



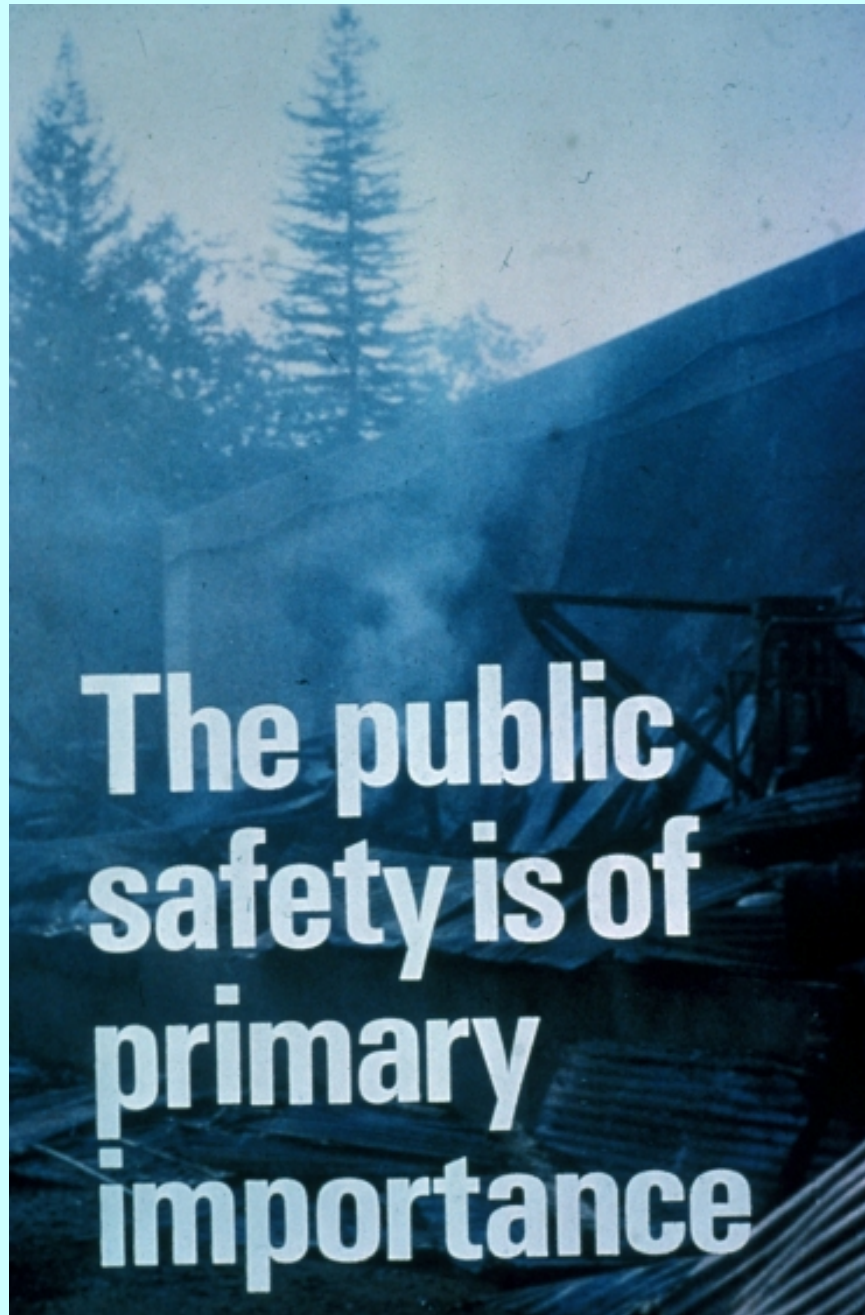
Who you might see?

- Gene Meserve - Southern & Western
- Megan Patterson – Mid Coast & South Central
- Heidi Nelson– Downeast
- Vacant – North Central
- John Haley - Aroostook



SAFETY IS EVERYONES RESPONSIBILITY





**The public
safety is of
primary
importance**













BPC Web Site

www.thinkfirstspraylast.org

DEPARTMENT OF
Agriculture, Conservation and Forestry

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Division of Animal and Plant Health

Board of Pesticides Control

- About Us
- Information for the Public
- Pest Management Resources
- Licensing, Applicators and Distributors
- Applicator Resources
- Pesticide Registration
- Water Quality Program
- Pesticide Laws, Regulations & Policies
- Publications & Forms

ASK THE EXPERT




Board of Pesticides Control

WHAT'S NEW

- [Next Board Meeting: December 5, 2014](#)
- At the October 24, 2014 meeting the Board adopted [amendments](#) to Chapters 20, 22, 28, 31, 32 and 41
- EPA Proposes to Remove 72 Chemicals from Approved Pesticide Inert Ingredient List. Comments due November 21, 2014. [Press Release](#) (note, takes you off Maine website)
- Mark your calendars for the 2015 Agricultural Trades Show to be held at the Augusta Civic Center on **January 13th-15th, 2015**

Useful Information on our Website

- [Pollinator Protection](#)
- [Environmental Risk Assessment Committee](#) (ERAC)
- [Important Warning Regarding Persistent Herbicides \[PDF\]](#); Herbicide Carryover Customer Acknowledgement Sample Form [\[PDF\]](#)
- Presentations from the [2014 General Recertification Sessions](#)
- 2014 Notification Registry [\[PDF or XLS spreadsheet\]](#)
- [Licensing and Certification \(Applicators and Distributors\)](#)
- [Pesticide Registration](#)
- [Water Quality Program](#)
- [Enforcement](#)
- [School IPM](#)
- [Worker Protection Standard](#)
- [Best Management Practices](#)
- [Maine YardScaping Partnership](#)
- [Bt Corn](#)
- [Container Recycling](#)
- [Obsolete Pesticide Collection](#)
- [Municipalities with Pesticide Ordinances](#)



Pollinator Health and Safety Conference

November 20, 2014, 8:00 am—4:30 pm.

Hurry! Registration fee increases after October 31!

The University of Maine Cooperative Extension and the Maine Department of Agriculture, Conservation and Forestry are co-sponsoring the Pollinator Health and Safety Conference to bring together farmers, bee-keepers, entomologists, policy-makers and others interested in protecting pollinators. State and national experts on pollinators, bee-keeping, and pesticides will share the latest scientific research on factors affecting pollinator health and best practices for their protection.

[Details, agenda and registration](#)

NEED CREDITS?

- [Make a complaint](#)
- [Search for Maine Registered Products](#)
- [Learn how to manage a pest](#) (GotPests? site)

CONTACT US

AUGUSTA: 207-287-2731
FAX: 207-287-7548
TDD: 207-287-4470
[more](#)

email: pesticides@maine.gov

DRIVING DIRECTIONS & MAPS

 [Board of Pesticides Control](#)