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RECEIVED

DEC 11 2009

DEPARTMENT OF
WATER RESOURCES

First received by
FAX Dec. 10, 2009.

s. Keen

Attorney for Lawrence and Kay Hansen

**BEFORE THE DEPARTMENT OF WATER RESOURCES
FOR THE STATE OF IDAHO**

IN THE MATTER OF APPLICATION	)	DECEMBER 10, 2009 SUBMITTAL OF
FOR PERMIT NO. 63-33064,	)	2,4-D INFORMATION BY
IN THE NAME OF LAWRENCE	)	APPLICANTS LARRY AND KAY
HANSEN AND KAY HANSEN	)	HANSEN
	)	

In accordance with the hearing on December 3, 2009 and as provided by the IDWR
Hearing Officer Shelly Keen, applicants Lawrence and Kay Hansen submit the following
information into the record for their ground water Application 63-33064:

1. December 10, 2009, ERO Resources' letter to Josephine Beeman (no data or monitoring program that considers the amount of 2,4-D in the irrigation water or any wastewater in the Boise-Kuna Irrigation District service area).
2. December 2000, information on 2,4-D from the State of Wisconsin.
3. July 2004, *chemicalWATCH* Factsheet on 2,4-D, (published by Beyond Pesticides, Washington, DC).
4. Two-page label for use of 2,4-D Amine Weed Killer (active ingredient is 2,4-D).
5. October 1999, Oregon State University Extension Service: Preventing Phenoxy Herbicide. Damage to Grape Vineyards (phenoxy herbicides include 2,4-D).

The information relates to herbicide 2,4-D and surface irrigation water from the Boise Kuna Irrigation District. The irrigation component of ground water application 63-33064 will be used for 6 acres of vineyard; the commercial component of ground water application 63-33064 is for a winery whose bottled product will be consumed by the public.

DATED this 10TH day of December 2009.

BEEMAN & ASSOCIATES, P.C.

By Josephine P. Beeman
Josephine P. Beeman

CERTIFICATE OF SERVICE

I certify that on this 10th day of December 2009, I caused to be served a true and correct copy of the foregoing document to be served on IDWR by facsimile and to the other parties by U.S. mail.

Original to:

IDWR Hearing Officer Shelley W. Keen
P. O. Box 83720
Boise, ID 83720-0098

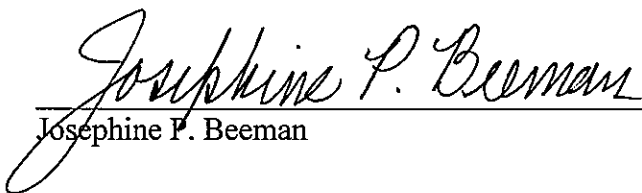
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December 10, 2009

Josephine Beeman
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RE: 2-4-D in Boise Kuna Irrigation District Water

Dear Ms. Beeman:

At the Idaho Department of Water Resources (IDWR) hearing regarding Larry and Kay Hansen's Application for Permit 63-33064, held on December 3, 2009, the Hearing Officer, Shelly Keen, allowed both sides to offer information regarding the herbicide 2-4-D into the record.

I contacted the Boise Project Board of Control, specifically, Paul Devoe and Tim Page, who are both familiar with and are in direct charge of the operations and maintenance of the Boise Kuna Irrigation District, which is the irrigation district that serves the area around the Hansen's property. I asked if the Boise Project Board of Control has any data or knows of a monitoring program that considers the amount of 2-4-D in the irrigation water or any waste water in the Boise Kuna Irrigation District service area. To their knowledge no such data exists.

Regards,

A handwritten signature in cursive script that reads "Steven R. Hannula".

Steven Hannula

2,4-D

Also known as: 2,4-Dichlorophenoxyacetic acid, Weed-B-Gone, Acme, Aquakleen
Chemical reference number (CAS): 94-75-7

WHAT IS 2,4-D?

2,4-D is a popular weed killer used to control weeds like dandelions, clover, and thistles. In its pure form, it is a colorless crystal that dissolves easily in water. Nearly 60% of the 2,4-D sold in the United States is used on agricultural crops. The rest is used on range and pasture land, lawns and turf, forests and in surface water.

In the home it may be found in common weed-and-feed products used on lawns. 2,4-D can contaminate air during, and shortly after it's applied. It can also be carried along by rainwater. Soil may be contaminated with 2,4-D when the chemical is spilled or improperly disposed.

HOW ARE PEOPLE EXPOSED TO 2,4-D?

Touching: People and their pets can be exposed to 2,4-D when they play or walk on treated grass. Higher levels of exposure are possible during its manufacture, distribution, or application.

Drinking/Eating: 2,4-D is rarely found in drinking water. People who handle contaminated soil may be exposed when they touch their mouths or eat with dirty hands.

Breathing: When 2,4-D is applied to lawns people can inhale mist or dust that contains the chemical. It can be carried indoors on shoes or in windblown dust. Once inside, 2,4-D breaks down slowly and can contaminate the indoor air.

DO STANDARDS EXIST FOR REGULATING 2,4-D?

Water: The state and federal drinking water standards for 2,4-D are both set at 70 parts per billion (ppb). We suggest you stop drinking water that contains more than 70 ppb of 2,4-D.

Air: No standards exist for the amount of 2,4-D allowed in the air of homes. We use a formula to convert work place limits to suggested home limits. Based on the formula, we recommend levels of 2,4-D in household air be no higher than 0.2 parts per million.

WILL EXPOSURE TO 2,4-D RESULT IN HARMFUL HEALTH EFFECTS?

The following symptoms may occur immediately or shortly after high level exposure to 2,4-D:

- Severe burning in throat and chest
- Skin rash
- Stiffness of arms and legs
- Lack of coordination
- Drowsiness
- Loss of appetite
- Vomiting
- Liver and kidney function changes
- Stupor and coma at very high levels

Health effects of concern after several years of exposure to 2,4-D:

Cancer: The EPA has not determined the ability of 2,4-D to cause cancer. However, studies have found that exposure to 2,4-D appears to increase the risk of lymphoma (a type of cancer affecting the immune system).

Reproductive Effects: It is not known whether exposure to 2,4-D is safe during pregnancy. Some evidence suggests high-level exposure during pregnancy may increase the risk of certain birth defects.

Organ Systems: Long term or high level exposure may result in kidney and liver damage. Anemia has also been observed in laboratory animals.

In general, chemicals affect the same organ systems in all people who are exposed. However, the seriousness of the effects may vary from person to person. A person's reaction depends on several things, including individual health, heredity, previous exposure to chemicals including medicines, and personal habits such as smoking or drinking.

CAN A MEDICAL TEST DETERMINE EXPOSURE TO 2,4-D?

Testing a person's urine for "chlorophenoxyacetic acid" can confirm a recent exposure to 2,4-D, but cannot predict future symptoms. A medical evaluation after high-level exposure may include tests of liver and kidney function and tests for anemia. These tests indicate whether damage occurred, but may not be able to tell whether 2,4-D caused the damage.

Seek medical advice if you have any symptoms that you think may be related to chemical exposure.

This fact sheet summarizes information about this chemical and is not a complete listing of all possible effects. It does not refer to occupational exposure or emergency situations.

FOR MORE INFORMATION

- Poison Control Center, 800-222-1222
- Your local public health agency
- Division of Public Health, BEOH, 1 West Wilson Street, Rm. 150, Madison, WI 53701-2659, (608) 266-1120 or Internet: <http://dhfs.wisconsin.gov/eh>



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chemicalWATCH Factsheet

2,4-D

What is 2,4-D?

2,4-Dichlorophenoxyacetic acid, commonly known as 2,4-D, is a widely used herbicide in the phenoxy class of chemicals. It is the most commonly used pesticide in the non-agricultural sector and the sixth most common in the agricultural sector, with over 40 million pounds being used in the U.S. annually.¹ 2,4-D production supports a world market of over \$300 million. While the herbicide is manufactured and marketed by many different companies, Dow AgroSciences is currently the biggest producer.²

2,4-D is a general use pesticide, and does not require a license to use or purchase. It is used in a wide variety of locations, including agricultural, residential, and public areas. 2,4-D can be found in many lawn care products, it is used as a treatment for roadsides and rights of way, and to control aquatic weeds. In agriculture it is used as a herbicide for grass-like crops, including wheat and barley.³ Products containing 2,4-D are often marketed as "weed and feed" and include Aqua-Kleen, Ortho Weed B Gon, Salvo, Spectracide, Scotts Green Sweep, UltraStop, and Weedone.

2,4-D is a selective herbicide, used to kill broadleaf weeds with little harm to grass crops.³ It is a plant growth regulator, and mimics the natural plant growth hormone, auxin. Unlike auxins, 2,4-D stays at high levels within plant tissues rather than fluctuating. As a result, it causes rapid cell growth and plants die when their transport systems become blocked and destroyed by abnormally fast growth.⁴ While 2,4-D is normally applied to a plant's leaves, it can also be absorbed through the roots and stems.⁵ The half-life of 2,4-D in soil is about 1-2 weeks and 1-3 weeks in water.⁶

Health effects of 2,4-D are of particular concern due to its widespread distribution. In a 2003 study of indoor air toxins, 2,4-D was found in the dust of 63% of sampled homes.⁷ In a 2001 study, levels of 2,4-D in indoor air and on surfaces (floors, tables, windowsills) increased following lawn application of the herbicide. This resulted in exposure levels for children that were ten times higher than pre-application and shows that 2,4-D is easily tracked into homes.⁸

2,4-D has been linked to

- ✓ Cancer
- ✓ Endocrine Disruption
- ✓ Reproductive Toxicity
- ✓ Neurotoxicity
- ✓ Kidney/Liver Damage
- ✓ Toxicity to Dogs, Fish, Birds, Earthworms, and Beneficial Insects

Acute Toxicity

2,4-D is produced in several forms, including acids, salts, amines and esters, and its toxicity varies between the different forms. The EPA toxicity class ranges from I-III (on a I-IV scale with I being the most toxic) depending on the form and method of exposure. The diethylamine salt is the most toxic (class I) by eye exposure. Inhalation generally leads to coughing, burning, dizziness, and loss of muscle coordination.⁹ Oral consumption irritates the digestive tract, results in nausea, diarrhea, vomiting, and can lead to kidney and liver damage.¹⁰ 2,4-D is one of few herbicides to cause nervous system damage; both digestion and inhalation affect the central nervous system. Effects to the nervous system include inflamed nerve endings, lack of coordination, stiffness in the arms and legs, inability

to walk, fatigue, stupor, coma, and death.¹¹ 2,4-D is a serious skin and eye irritant. For the acid form, the LD 50 in rats is 375-666 mg/kg orally and approximately 1500 mg/kg dermally.¹²

Chronic Toxicity

Although a mounting body of evidence links 2,4-D to various cancers, particularly non-Hodgkin's lymphoma, EPA has been reluctant to classify it as a carcinogen in the face of industry pressure. EPA lists the herbicide in class D for carcinogenicity. Chemicals in this class are considered to have inadequate evidence for carcinogenicity, or not enough data is available.¹³ However, the link between 2,4-D and non-Hodgkin's lymphoma has been demonstrated in the United States, Italy, Canada, Denmark, and Sweden.¹⁴ A 1986 National Cancer Institute (NCI) study found that farmers in Kansas exposed to 2,4-D for 20 or more days per year had a six-fold higher risk of developing non-Hodgkin's lymphoma than non-farmers.¹⁵ The risk of cancer was higher for farmers who mixed or applied the pesticide themselves. Another study done in 1990 found a 50% increase in non-Hodgkin's lymphoma in farmers who handle 2,4-D.¹⁶ A manufacturer's study submitted to EPA in 1986 indicated that the herbicide can cause rare brain tumors in rats.¹⁷ In 1991, an NCI study found that dogs were more likely to contract canine malignant lymphoma if their owners use 2,4-D on their lawns than if owners did not use the herbicide.¹⁸ When 2,4-D was applied four or more times per year, dogs were twice as likely to contract lymphoma. In addition to these epidemiological studies, a laboratory study conducted by the Food and Drug Administration (FDA) found a 4% incidence of lymphoma in rats exposed to 2,4-D and no lymphoma in unexposed rats.¹⁹ Despite these studies, the carcinogenic potential of 2,4-D remains



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controversial. The pesticide industry has criticized some of the studies mentioned here and cites other studies, which support its claim that 2,4-D does not cancer.²⁰

Long-term exposure to 2,4-D also results in a wide range of other health problems. Chronic (long-term) oral intake results in lesions of the kidney and liver in both rats and dogs.²¹ In humans, two studies showed a connection between hepatitis cases and chronic oral consumption of 2,4-D, by golfers who habitually licked their golf balls.²²

2,4-D is also an endocrine disruptor, a chemical that can interfere with the body's hormone messaging system and can alter many essential processes.²³ The National Institute of Health Sciences lists 2,4-D as a suspected endocrine disruptor.²⁴ In studies with rats, 2,4-D has been shown to alter levels of metabolism and sex hormones.²⁵

Several studies have demonstrated that 2,4-D can be a mutagen, or a substance that induces genetic mutations. Workers who apply 2,4-D had a higher number of white blood cells with multiple nuclei than people who were not exposed.²⁶ In rabbits, 2,4-D exposure resulted in unusual numbers of chromosomes in brain cells.²⁷ Genetic problems like these can have further consequences in terms of cancer and reproductive problems.

Reproductive toxicity has also been observed in relation to 2,4-D. Residues of 2,4-D are detectable in urine and semen samples of men who apply the herbicide.²⁸ In rats, exposure resulted in fetuses with abnormal cavity bleeding, increased mortality and genetic damage.²⁹ A 1996 study of private pesticide applicators in Minnesota found a higher rate of birth defects among the children of applicators than the general public.³⁰ It also found the birth defect rate to be highest in areas where 2,4-D use was the highest. Another study conducted in 2003 examined the wheat producing states of Montana, Minnesota, South Dakota and North Dakota, where more than 85% of the acre-

age is treated with chlorophenoxy herbicides, including 2,4-D. Children conceived during the time or herbicide production (April- June) were more likely to have birth defects.³¹

Environmental Effects

Due to its relatively short half-life, 2,4-D is said to have low persistence in both soil and water. However, 2,4-D has a high potential to leach from soils, and therefore a potential for contaminating ground water. The herbicide has been detected in ground water in at least five states and Canada. Low concentrations have also been detected in surface water and drinking water in the US.³²

2,4-D has been shown to have negative impacts on a number of animals. In birds, 2,4-D exposure reduced hatching success and caused birth defects.³³ It also indirectly affects birds by destroying their habitat and food source. The toxicity of 2,4-D to fish is variable. The butoxyethanol ester is very toxic to fish, but other forms are less toxic.³⁴ 2,4-D also bio-accumulates in fish, meaning that fish tissues will contain a higher concentration of 2,4-D than the water surrounding them, which puts them at even greater risk.³⁵ 2,4-dichlorophenol, a breakdown product of 2,4-D, is extremely toxic to earthworms, 15 times more toxic than 2,4-D itself.³⁶ The herbicide also has negative effects on a range of beneficial insects. It reduces offspring numbers in honeybees, kills predatory beetles and ladybug larvae.³⁷ This reduction in ladybug numbers caused an increase in aphids, a major pest, in oat fields.³⁸ Consumption of plants treated with 2,4-D has killed cattle and horses and 2,4-D can also indirectly affect many wild mammal species, including moose, gophers, and voles, by damaging or killing plants they rely on for food.³⁹

Regulatory Status and History

2,4-D was one of the first herbicides to be commercially marketed. It was first introduced in the United States in the late 1940's.⁴⁰ 2,4-D made up a major portion

(about 50%) of the herbicide known as Agent Orange, which was used during the Vietnam War. However, it is thought that most of the health problems related to Agent Orange were actually due to dioxin contamination of the other major component, 2,4,5-T.⁴¹ While 2,4,5-T was the main culprit and has now been banned, several forms of dioxin have also been found in 2,4-D, including 2,4,7,8-TCDD.⁴²

The history of dioxin contamination further increases the dangers related to 2,4-D, particularly for the amine and ester forms.⁴² Dioxins are highly carcinogenic and can cause health problems as severe as weakening of the immune system, decreased fertility, altered sex hormones, miscarriage, birth defects, and cancer. EPA studies in 1994 detected dioxins in a number of 2,4-D products.⁴³ The Washington Department of Agriculture also detected dioxins in a 2,4-D product in 1998.⁴⁴

2,4-D is currently undergoing EPA's reregistration process. According to EPA the Reregistration Eligibility Decision (RED) is scheduled for May 2005.⁴⁵ On June 23, 2004, the EPA released to the public a series of risk assessment documents summarizing current data on the human health and environmental effects of 2,4-D.⁴⁶ This began a comment period during which the EPA will accept statements from any interested parties, which will then be considered in the final reregistration decision. As part of the reregistration process, EPA also required over 200 new studies on 2,4-D.⁴⁷ A group of major manufacturers of 2,4-D set up the "Industry Task Force II on 2,4-D Research Data" which has now funded 270 of these studies.⁴⁸ According to EPA, there are still several data gaps in the current 2,4-D research. The risk assessment indicates that a 28-day inhalation study is needed because there are no data available on the effects of repeated inhalation of 2,4-D. A developmental neurotoxicity study is also needed, as well as a 2-generation reproductive study that addresses endocrine disruptor concerns.⁴⁹



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Updated July 2004



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2,4-D AMINE WEED KILLER

SELECTIVE BROADLEAF WEED CONTROL

ACTIVE INGREDIENT:

Dimethylamine salt of 2,4-D-Dichlorophenoxyacetic acid 48.3%
INERT INGREDIENTS: 53.7%
TOTAL 100.0%
*2,4-D-Dichlorophenoxyacetic Acid Equivalent 38.4% = 3.8 lbs/gal isomer Specific by AOAC Method No. 6 D01-5

DANGER-PELIGRO KEEP OUT OF REACH OF CHILDREN

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

STATEMENT OF PRACTICAL TREATMENT

IF IN EYES: Hold eyelids open and flush with steady, gentle stream of water for 15 minutes. Get medical attention. **IF ON SKIN:** Wash with plenty of soap and water. Get medical attention. **IF SWALLOWED:** Call a doctor or get medical attention. Do not induce vomiting. Drink promptly a large quantity of milk, egg whites, gelatin solution, or if these are not available, drink large quantities of water. Avoid alcohol. **IF INHALED:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention. **NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

see side panel for additional Precautionary statements

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive; causes irreversible eye damage. May be fatal if absorbed through skin. Harmful if swallowed or inhaled. Do not get in eyes, on skin or on clothing. Avoid breathing vapor or spray mist.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers, including persons repacking or cleaning equipment, must wear:
1. Coveralls over short-sleeved shirts and short pants, Waterproof gloves, Chemical-resistant footwear and socks.

2. Protective eyewear such as face shields or safety glasses (brow and temple protection recommended).

3. Chemical-resistant headgear for overhead exposure

4. A chemical-resistant apron should also be worn when cleaning equipment, mixing or loading. Discard clothing and 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 and maintaining PPE. If no other instructions for washing, use detergent and hot water. Keep and wash all PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

For containers over 1 gallon but less than 5 gallons: Mixers and loaders who do not use a mechanical system (probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to the other required PPE.

ENGINEERING CONTROLS STATEMENTS

Mechanical transfer for containers of 5 or More gallons: A mechanical system (probe and pump) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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

USER SAFETY RECOMMENDATIONS

Users should: 1. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

2. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

3. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Vapors, spray drift or runoff may adversely affect non-target plants. This product may injure cotton, beans, peas, grapes, ornamentals, etc. (coarse sprays are less likely to drift). For terrestrial use, do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater.

MIXING AND LOADING: Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

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.

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. Do not apply this product through any type of irrigation system.

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), restricted-entry intervals. 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 48 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: 1. Coveralls over short-sleeved shirt and short pants, 2. Waterproof gloves, 3. Chemical-resistant footwear plus socks, 4. Protective eyewear, 5. Chemical-resistant headgear for overhead exposure.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, nurseries, or greenhouses. Do not allow people (other than applicator) or pets on treated area during application. Do not enter treated area until spray has dried.

GENERAL INFORMATION

This product is recommended for numerous broadleaf weeds and certain 2,4-D susceptible woody plants without injury to most established grasses. A partial list of weeds controlled: Beggaricks, Bitterweed, Blueweed Texas, Broomweed, Buckwheat Wild, Burdock, Burhead, Caperweed, Catnip, Chicory, Cocklebur, Coffeeweed, Cornflower, Croton, Dandelion, Docks, Dogfennel, Fanweed, Galinsoga, Garlic (Wild), Goatsbeard, Hagelton, Hemp (Wild), Jewelweed, Jimsonweed, Kochia, Lambquarter, Mallow Venice, Marshelder, Midgetch, Morningglory (Annual), Mustards, Nettles, Onion (Wild), Pennywort, Pepperweed (Field), Pigweed, Plantains, Poojoe, Radish (Wild), Ragweed, Rape (Wild), Redstem, Salsify, Shepherdspurse, Sicklepod, Smartweed, Smartweed Bitter, Sowthistle (Annual), Spanshreedles, Sunflower, Sweetclover, Tansymustard, Tansyragwort, Thistle Bull, Thistle Musk, Thistle Russian, Velvetleaf, Vervains, Velch, Water Plantain, Witchweed, Wormwood, Yellow Rocket, Yellow Starthistle.

HOW TO MIX

Fill the spray tank half full, then add the required amount of this product and continue filling the tank with the balance of water. Keep agitator running when filling the tank and during spray operations. Apply this product as a water spray during warm weather when weeds or brush are actively growing. Treatment during drought periods often will give poor results. Use low spray pressure to minimize spray drift. On cropland and along roadsides, do not exceed 20 psi pressure.

Apply enough spray volume to provide uniform coverage of weeds and brush, usually 5 to 20 gallons water per acre by ground equipment and 1 to 5 gallons water by aircraft. Higher gallonage may be used if desired to improve spray coverage. The lower dosages recommended on this label will be satisfactory for young, succulent growth of sensitive weed species. For less sensitive species and under conditions where control is more difficult, the higher rates will be needed. Do not mix with oil, atrazine, surfactant or other adjuvants unless specifically recommended on this label. Deep rooted perennial weeds such as Canada Thistle and Field Bindweed and many woody plants usually require repeated applications for best control. Do not use in Greenhouses. Do not use the same equipment for applying other materials to 2,4-D susceptible crops as injury may result.

USE PRECAUTIONS

Do not apply this product to or otherwise permit it to come into contact with cotton, grapes, fruit trees, vegetables, flowers or other desirable crop or ornamental plants which are sensitive to 2,4-D. Do not permit spray mist containing it to drift onto them, since even very small quantities of spray, which may not be visible, can cause severe injury during both growing and dormant periods. Use coarse sprays to minimize drift. With ground equipment, spray drift can be lessened by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by using no more than 20 psi with flat fan or flooding flat fan nozzle tips; by not spraying when wind exceeds 8 to 7 miles per hour. Do not apply with hollow cone-type insecticide or other nozzles that produce a fine droplet spray.

With aircraft application, drift can be lessened by applying not less than 5 gallons of spray per acre; using no more than 20 psi at the nozzles; by using nozzles that produce a coarse spray pattern; and by spraying only when the wind velocity is less than 5 miles per hour. Aircraft applications should only be made by applicators experienced in the use of 2,4-D formulations. Consult local regulatory agencies concerning requirements before making applications.

NOTE: When stored at temperatures below freezing, it may be necessary to warm contents to 45°F and mix thoroughly before using.

Wheat, Barley, Oats, Rye

Post-emergence (BARLEY, WHEAT, RYE): Not underseeded with a Legume crop for annual weeds use 1 1/2 pints per acre. For perennial weeds use 2 pints per acre. For general weed control however use 2 pints per acre. Spray when grain is in full tiller stage (usually 4 to 8 inches tall) and weeds are small. Do not apply before the tiller stage nor from early boot up to the milk stage.

For Post-emergence weed control on OATS use 1/2 to 1 pint per acre. For pre-harvest treatment when grain is in the soft to hard dough stage, spraying can be done to control large weeds that interfere with harvest operation. Do not graze or feed treated forage from treated fields within 2 weeks after treatment. Do not use treated straw for livestock feed.

SORGHUM (MILO)

Apply $\frac{1}{2}$ pint per acre when plants are 6 to 15 inches tall. A higher rate of $\frac{1}{2}$ to 1 pint per acre may be needed for some weeds but the chance of crop injury is likewise increased. Do not use with oil. Do not treat before plants are 5 inches tall nor during boot, flowering or early dough stages. If plants are taller than 8 inches, use drop nozzles to keep spray off the foliage as much as possible. Temporary crop injury may occur under conditions of high soil moisture and high air temperatures. If it is necessary to treat crop at this time, use $\frac{1}{2}$ pint per acre. Varieties vary in tolerance to 2,4-D and some sensitive varieties should not be sprayed. Consult with your local Extension Service personnel or University Specialist for this information.

RICE

Use 1 to 2 $\frac{1}{2}$ pints per acre in 5 to 10 gallons of water per acre, 7 to 10 weeks after planting or when rice is fully tillered but not yet in the "boot" stage. Do not apply after panicle initiation, after rice in modes exceed 1 $\frac{1}{2}$ inch at early seeding, early panicle, boot, flowering or early heading growth stages.

NOTE: Some rice varieties can be injured by 2,4-D under certain conditions; therefore, consult local Extension Service personnel or University specialists for rates and timing of sprays.

CORN

Preemergence: Apply 2 to 4 pints per acre (1 $\frac{1}{2}$ - 3 TBSL. per 1000 sq. ft.) to soil anytime after planting but before corn emerges. Do not use on light sandy soils.

Post-emergence: After emergence of corn plants use $\frac{1}{2}$ pint per acre (1 $\frac{1}{2}$ tsp. per 1000 sq. ft.). Applications of $\frac{1}{2}$ to 1 pint per acre (1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ tsp. per 1000 sq. ft.) may be needed for maximum control of some weeds but such rates are more likely to injure corn. If corn is over 8 inches tall, use drop nozzles to keep spray off the corn foliage as much as possible. Do not apply from the tasseling to the dough stage. Do

not use with oil, alachlor or other adjuvants. Crop injury is more likely to occur if corn is growing rapidly under high temperature and high soil moisture conditions. To reduce breakage of stalks from temporary brittleness caused by 2,4-D, delay cultivations for 8 to 10 days after treatment. **NOTE:** Hybrids vary in response to 2,4-D and some are easily injured. Spray only varieties known to be tolerant to 2,4-D. Contact the seed company or the Agricultural Experiment Station weed specialists for this information.

SUGAR CANE

Apply as a pre-emergence application before canes appear or as a post-emergence spray in the spring after the canes emerge and then through the layby stage in accordance the State recommendations. Use 2 to 4 pints in sufficient water to treat 1 acre.

GRASS SEED CROPS

Use 1 to 2 pints per acre (2 $\frac{1}{4}$ to 4 $\frac{1}{2}$ tsp. per 1000 sq. ft.) in sufficient water to give uniform coverage by air or ground application. Apply to established stands in the spring from the tiller to the early boot stage. Do not spray in boot stage. New spring seedlings may be treated with the lower rate after the grasses have at least 5 leaves. Perennial weed regrowth may be treated in the fall at the higher rate.

PASTURES AND RANGELAND

The maximum application rate to pasture and rangeland is 2 pounds 2,4-D acid equivalent per acre per application site.

NOTE: observe the following; A 7-day pregrazing interval for dairy cattle; a 30-day preharvest interval for grass cut for hay; and a pre-slaughter interval for meat animals of 3 days. Do not use on bent grasses, alfalfa, clover or other legumes or on newly seeded pastures. Do not apply after heading begins or when the grass is in the boot to milk stage where grass seed production is desired.

For Bitterweed, Broomweed, Docks, Kochia, Marshelder, and other broad-leaf weeds: Use 3 to 4 pints per acre (6 $\frac{1}{2}$ to 9 tsp. per 1000 sq. ft.) to control most species; if weeds are young and actively growing, 2 to 3 pints per acre (4 $\frac{1}{2}$ to 6 $\frac{1}{2}$ tsp. per 1000 sq. ft.) may control same species. Deep rooted perennials may require repeated treatments "fall-spring-fall" or "spring-fall-spring."

In newly sprigged Coastal Bermudagrass apply 2 to 3 pints per acre (4 $\frac{1}{2}$ to 6 $\frac{1}{2}$ tsp. per 1000 sq. ft.) either pre-emergence or post-emergence treatment.

LAWNS, GOLF COURSES, CEMETERIES, PARKS, AND SIMILAR ORNAMENTAL TURF

Apply 3 pints per acre (6 $\frac{1}{2}$ tsp. per 1000 sq. ft.) in sufficient water to give good coverage (usually between 3 to 5 gals water per 1,000 sq. ft.). Increase this to 4 pints per acre (3 Tablespoons per 1000 sq. ft.) if hard to kill weeds (Spurge) are present. Do not apply to newly seeded lawns until grasses become well established. Injury may result if applied to Bentgrass, St. Augustinegrass, Carpetgrass, Centipedegrass, Dichondra, and Clovers. After weeds have died remove all dead vegetation. Prepare the seed bed by addition of top soil, peat moss or other soil amendments. Work into the topsoil. Wait 2 weeks then seed the area at 1 $\frac{1}{2}$ times the recommended seeding rate. Keep soil moist through the first cutting.

The Maximum number of broadcast applications per treatment site is 2 per year.

FOR FENCES, DITCHBANKS, ROADSIDES, AND INDUSTRIAL SITES
Apply 2 to 3 pints in 100 gallons of water and spray weeds to point of runoff. Treat as soon in spring as possible, since young actively growing weeds are easier to control.

SPOT TREATMENT OF WEEDS

Mix 2 to 3 tablespoons per gallon of water and apply to control broadleaf weeds in small non-cropland areas with a hand sprayer. Add a suitable, approved surfactant to the spray mixture to insure better coverage of target weeds. Do not use the same sprayer for insecticides or fungicides.

NOTICE: Seller warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use, but neither this warrant nor any other warrant of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE, express or implied, extends to the use of this product contrary to label instructions or under abnormal conditions, or under conditions not reasonably foreseeable to seller, and buyer assumes the risk of any such use.

Buyer assumes all risk and liability of use, storage and/or handling of this material not in accordance with the terms of this label.

IN CASE OF EMERGENCY CALL 24 HOURS A DAY:
CHEMTREC 1-800-424-9300.

STORAGE AND DISPOSAL

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

STORAGE: Store product in a cool, dry, locked place out of reach of children. Store at temperatures above 32°F.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate water is a violation of Federal law and may contaminate groundwater. 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) and offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, or by other approved state and local procedures.

MINI-BULK and/or 55 GALLON DRUM CONTAINER PRECAUTION - Before refilling, inspect thoroughly for damage, such as cracks, punctures, bulges, dents, abrasions and damage or worn thread on closure devices. **REFILL ONLY WITH SA-50 Brand 2,4-D AMINE WEED KILLER.** The contents of this container cannot be completely removed by cleaning, refilling with materials other than SA-50 Brand 2,4-D AMINE WEED KILLER will result in contamination and may weaken container. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container. **CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER.**

If any part of this label is missing, contact your supplier or manufacturer for full labeled uses and requirements.

SA-50 Brand 2,4-D Amine Weed Killer

EPA Reg. No. 48273-4-829

Distributed By: Southern Agricultural Ins., Inc.
Palmetto, FL 34220



Oregon State University

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Extension Service

Preventing Phenoxy Herbicide Damage to Grape Vineyards

EM 8737-e

Revised October 1999

E. Hellman and J. Fuhs

Do you want to print a copy?

We recommend downloading the [print version](#) (71 K).

First download the free [Adobe Reader](#), if you don't already have it.

What are phenoxy herbicides?

Phenoxy herbicides include 2,4-D, MCPA, Crossbow, Banvel, Garlon, Weed-B-Gone, and Brush Killer. They also are the active ingredient (2,4-dichlorophenoxy-acetic acid, 2-methyl-4-chlorophenoxyacetic acid, triclopyr, or dicamba) in "weed and feed" and brush control products for use in the home landscape.

This family of pesticides includes many very effective broadleaf weed killers. They are used on lawns, golf courses, rights-of-way, and agricultural fields. They are very popular for controlling blackberries and poison oak.

These products come in containers ranging from 1-quart bottles of ready-to-use solution to 5-gallon drums of highly concentrated active ingredient. They do not require a pesticide license for purchase and are readily available from department stores, home improvement stores, co-ops, retail nurseries, farm chemical dealers, etc.

Grapevines are highly sensitive

Grapevines and many ornamental plants are extremely sensitive to herbicides containing phenoxy-type active ingredients. These plants are sensitive to phenoxy herbicides throughout the growing season, but grapevines are most vulnerable from the early growing season through the bloom period (early April to mid-July).

During the active shoot growth period, phenoxy damage often causes growth to stop temporarily and to be retarded for several weeks. If the effects are not too severe, normal growth will resume the same or following year. Severely injured vines may not recover for 2 years or more.

Flower clusters are particularly sensitive; exposure during bloom can greatly reduce fruit set. Injured vines also may have delayed fruit ripening. Severe injury can prevent complete maturation of the fruit. The delayed maturation effect may exist in a vine for 1 to 3 years before normal ripening resumes. Slight injury may have little or no effect upon fruit maturity.

Oregon vineyards have experienced significant crop loss and long-term damage to vines inadvertently exposed to phenoxy herbicides applied to distant targets. In contrast, minor symptoms on grape leaves probably do not cause crop loss, but it can take significant time and energy to resolve the issue with a neighbor.

How damage occurs

Unintended drift of herbicides can be caused by wind, shifting air currents, climatic inversions, or spraying at high pressure (which causes a very fine mist). Even small amounts carried by the wind can create symptoms in grapevines.

Grapevines, caneberries, or other sensitive vegetation in close proximity to a sprayed area are at highest risk. However, even grapevines some distance from a phenoxy-treated area can be damaged under certain conditions. Even slight winds can carry small spray droplets toward a vineyard. Temperatures above 70-75°F allow ester formulations of phenoxy herbicides to volatilize (vaporize) and be carried by the wind, even several days after the spray application.

Symptoms of phenoxy injury

The symptoms of phenoxy herbicide damage are most dramatic on the youngest leaves and the tips of growing shoots (Figures 1 and 2). Affected leaves are small, narrow, and misshapen, and have closely packed, thick veins that lack chlorophyll. Farther down the shoot, damage symptoms are progressively less severe; leaves have a distinctive fan-shape appearance with parallel, strap-like, clear veins (Figure 2). The leaves sometimes are cupped, and the leaf margins often terminate in sharp points. Small, puckered, interveinal spots retain some green chlorophyll. Damaged flower clusters set very few or no berries.

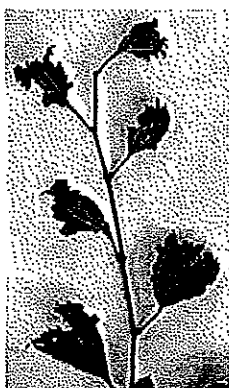


Figure 1.--New leaves and growing tips show the most severe damage. Affected leaves are small, narrow, and misshapen.

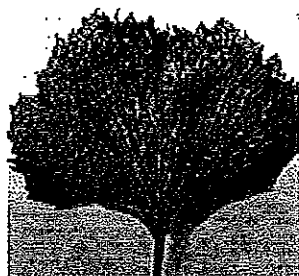


Figure 2.--Farther down the shoot, leaves have a fan-shape appearance. Leaves sometimes are cupped, and margins often end in sharp points.

Reducing the risk of phenoxy damage

Consider using a herbicide with a different active ingredient, such as glyphosate (Roundup), when you are trying to control difficult weeds such as blackberry or poison oak. Fall applications of glyphosate tend to be more effective than spring applications.

If you need to use a phenoxy herbicide, decrease the risk of volatilization by using an amine (dimethylamine salt) formulation instead of an ester formulation. Consider making applications in early spring before grapevines begin to grow or in the fall after their leaves have dropped.

Always use extreme caution when making applications when desirable vegetation is present and temperatures start warming up. Monitor wind speed and direction closely. Read and follow all label directions and precautions before using any pesticide. Adding a spray-thickening agent (drift retardant) may reduce spray drift, although recent evidence suggests some drift retardants may break up or lose their chemical integrity when agitated or repeatedly passed through a spray pump.

Be a good neighbor and don't trespass with your chemicals, either directly by spray drift or indirectly through vapor drift. Either way, as the applicator who decides to spray a product, you will be held responsible for damage, even if it is unintentional.

Use pesticides safely!

- Wear protective clothing and safety devices as recommended on the label.
- Bathe or shower after each use.
- Read the pesticide label--even if you've used the pesticide before.
- Follow closely the instructions on the label (and any other directions you have).
- Be cautious when you apply pesticides.
- Know your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.

Prepared by Edward Hellman, Extension agent, North Willamette Research and Extension Center, Oregon State University; and Janet Fuhs, Oregon Department of Agriculture.
Published July 1999. Revised October 1999.

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ASSISTANT SECRETARY-TREASURER

BOISE PROJECT BOARD OF CONTROL

(FORMERLY BOISE U.S. RECLAMATION PROJECT)

2465 OVERLAND ROAD
BOISE, IDAHO 83705-3155

OPERATING AGENCY FOR 167,000
ACRES FOR THE FOLLOWING
IRRIGATION DISTRICTS

NAMPA-MERIDIAN DISTRICT
BOISE-KUNA DISTRICT
WILDER DISTRICT
NEW YORK DISTRICT
BIG BEND DISTRICT

07 December 2009

TEL: (208) 344-1141
FAX: (208) 344-1437

Caroline Nitz
5325 S. Locust Grove
Meridian, Idaho 83642

RE: Surface Water Use
Vs.
Groundwater Use

RECEIVED
DEC 10 2009
Department of Water Resources

Caroline Nitz;

The Boise Project Board of Control was formed in 1926 as an operation and maintenance agency for the Bureau of Reclamation and 5 Irrigation Districts, Boise-Kuna, New York, Nampa-Meridian, Wilder and Big Bend. We service approximately 167,000 acres between Boise and Big Bend, Oregon, staying mainly south of the Boise River and north of the Snake River. The Project consists of over 1500 miles of canals, laterals, sub-laterals, ditches and wasteways.

The water we utilize is stored in Anderson Ranch Reservoir, out of the South Fork of the Boise River, Arrowrock Reservoir, out of the Boise River and Lake Lowell Reservoir, an offstream reservoir. It is diverted into the New York Canal out of Lucky Peak and delivered to over 46,000 consumers in our area of responsibility.

The Boise Project's customer base consists of large agricultural operations that grow crops such as hay, corn, sugar beets, etc., local Vineyards' grape crops that contribute to the Idaho Wine Industry's growing popularity, small acreage farms, as well as thousands of homes that use pressurized irrigation or gravity flow to irrigate their yards.

In regards to herbicides, such as 2, 4, D, these sprays are non aquatic and therefore are not used in the live irrigation system. We do, however, use them for chemical mowing along our facilities and follow stringent safety guidelines in respect to our waterusers crops. Some of these precautions are not spraying within a ¼ to ½ mile of any grapes or other sensitive crops and not spraying when the wind is above 10 m.p.h..

It is the Boise Project Board of Control's policy to not allow return flows such as storm drainage and/or street runoff into our irrigation facilities, thereby reducing the possibility of pollutants entering our system.

We at the Boise Project feel that the use of surface water for irrigation purposes is one way to alleviate the pressure put on an already over taxed ground water supply.

The Boise Project Board of Control takes great pride in our ability to manage, develop and protect the water from the Boise River system in an environmentally and economically sound manner. We are proud of our ability to deliver water to our consumers in a timely, efficient and cost effective manner, provide critical assistance in flood control to protect the community, and be good stewards of the land.

If you have any further questions or comments regarding this matter, please do not hesitate to contact me at (208) 344-1141.

Sincerely,



Tim Page

Assistant Project Manager BPBC

tmp/tp

cc: Phil Comegys Watermaster, Div: 2 BPBC
Lauren Boehlke Secretary-Treasurer, BKID
File

Shelly,

RECEIVED

DEC 09 2009

DEPARTMENT OF
WATER RESOURCES

Here is our findings for 240 in
the surface water

Application 63-33064 Hansens
hearing date 12-3-09

Please let me know if I can supply
you with anything else.

I did not receive any other originals
as they both came to me via fax.

Thanks
Carolyn

866-8049

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Tim Page

Assistant Project Manager BPBC

tmp/tp

cc: Phil Comegys Watermaster, Div: 2 BPBC
Lauren Boehlke Secretary-Treasurer, BKID
File



Williamson Orchards

19692 Williamson Lane
Caldwell, Idaho 83607
PHONE: (208) 459-7333
FAX: (208) 454-8746



Dec 7 2009

Ms Carolyn Nitz

I am Roger Williamson an owner of Williamson Orchards and Vineyards. We have had vineyards since 1998 and orchards since 1930's. We use surface irrigation water delivered to us by the Wilder Irrigation District as often as we can. In some fields that are higher than the canal system and thus not in the irrigation district we do use ground water. We have not had problems in grapes from contamination from Boise Project water.

Certain chemicals are indeed very hazardous to grapes but to my knowledge the problems like this have come from drifted herbicide sprays from roadsides and adjacent fields not from water.

Sincerely

Roger Williamson