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for Private Applicators
Pesticide Record Book







Nevada Department of Agriculture and University of Nevada Cooperative Extension





APPLICATOR INFORMATION

NAME
ADDRESS
PHONE #
MOBILE #
E-MAIL
PESTICIDE APPLICATOR
CERTIFICATION NUMBER
EXPIRATION DATE

Information herein is current as of January 2004. Pesticide label information is the law and always takes precedence. Always read and follow the label instructions exactly. Reference to products is for educational purposes only and does not imply their endorsement, nor is criticism implied of unmentioned products.

PESTICIDE RECORD BOOK FOR PRIVATE APPLICATORS

Private applicators are certified applicators that use or supervise the use of restricted-use pesticides for the purpose of producing an agricultural commodity. The state of Nevada and the United States Department of Agriculture require that certified private applicators maintain records of all restricted-use pesticide applications for a period of two years.

Pesticide-use records may be maintained in any format such as computer programs or field notebooks. This book was produced for the purpose of providing private applicators with a simple method of maintaining records that will meet state and federal requirements.

While state and federal laws require that restricted-use pesticide records be maintained, it is recommended that applicators keep records of all pesticide applications, including general-use pesticide applications. Good records can help applicators determine the effectiveness of pesticide applications during the season and from year to year. Good records help with next season's crop planning.

A licensed or custom applicator is anyone who does pest control for hire. This record book does not meet record keeping requirements for licensed pesticide applicators. However, it is the responsibility of the licensed applicator to provide specific application information to the certified private applicator.

Restricted-use Pesticide Record Keeping Requirements

Records must include: (See example on page 4)

- · Date of application
- · Certified applicator's full name
- Brand or generic name of the product
- EPA registration number
- Total amount of undiluted material applied; or amount of diluted material & concentration applied
- Size of area treated (units, area, or vol.)*
- · Crop, commodity, item, or site
- · Location of the application (address)
- Purpose for which the pesticide was applied*
- Temperature start & finish*
- Wind velocity and direction start & finish*
- Time start & finish*

Record this information within 14 days of the application. Records must be kept for a period of two years.

> EPA registration numbers are found on pesticide labels. For quick reference, use page 42 of this book to record registration numbers and names of pesticides that you apply.

Recording Spot Treatments

Spot applications with herbicides are often used to control noxious weeds. Spot herbicide treatments applied to a total area of less than 1/10 of an acre in the same day require the following records:

- Certified applicator's name
- Brand or product name
- EPA registration number
- Total amount applied
- Spot application followed by location of application. Example: spot application to pasture land and ditches.
- Date of application
- * = These records must be kept when applications of pesticides are conducted in the private categories of agricultural plant, chemigation, greenhouse & nursery, forest, or ornamental & turf

Pesticides Applied by Licensed (Custom) Pesticide **Applicators**

Pesticide record keeping regulations require all professional applicators to furnish a copy of the required data to the customer within 30 days of the application. Private applicators are required to maintain this information for two years.

Disposal of Unwanted Pesticides

Improper disposal of waste pesticides may contaminate Nevada's surface and ground waters, soils, and harm non-target specieshumans, animals and plants. The Nevada Department of Agriculture provides for the collection and safe disposal of waste pesticides like insecticides, weed killers, fungicides, rodent baits, fumigants, and others at no cost to applicators. Non-pesticide products (oil, paint, antifreeze, solvents, drugs, etc.) are not eligible for this program. Contact the Nevada Department of Agriculture office for details (page 57). 3

EXAMPLE: PRIVATE APPLICATOR APPLICATION RECORD

Location: * field #5

Crop: alfalfa hay Variety: Lahontan								
Date	Brand Name	EPA Registration Number	Total Amount **	Acres Treated	Pest Treated	Temps*** Start/End	Wind Speed & Direction	
4-3-03	gramoxone	10182-280	2 pints/acre	80 acres	annual weeds	6070	calm to 5 mph from the SW	
6-12-03	strychnine	NV 830009	1 gallon	40 acres	gophers	6575	calm	
6-15-03	tordon 22k	62719-006	2 quarts	spot application ditch banks	weeds	7080	calm to 5 mph westerly	

- * This is the location of the application. You must be able to locate the site of the application two years after the application. Any of the following methods of keeping this record are acceptable:
 - county, range, township, and section;
 - maps or written descriptions;
 - a USDA identification system such as those used by the Farm Services Agency or the NRCS;
 - the legal property description.
- This is the actual amount of the <u>undiluted</u> pesticide applied. Do not include water or other substances. Record this information as specified on the label in ounces, pounds, etc.
- *** Temperatures at the beginning and end of the application.

Location	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction

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Read all the label instructions prior to mixing the chemical.

Location	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction

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Follow the label information to apply pesticides. Mix only the amount of pesticide to be used for the current application. Buy only what you will use.

Location	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction

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Maintain your application equipment in good working condition.

Location	on:								
Crop:	Crop: Variety:								
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction		

Calibrate equipment before each use to ensure the proper application rate is used and the proper amount of product is applied.

Location	on:								
Crop:	Variety:								
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction		

Follow the established re-entry time as stated on the labels or see the restricted entry interval (REI) Table found on many labels.

Location	on:								
Crop:	p: Variety:								
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction		

Avoid over spray and drift, especially when surface water, sensitive non-target species or crops, or urban interface are close to treated fields.

Location	on:								
Crop:	Crop: Variety:								
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction		

Avoid applying pesticides within 100 feet of wells and surface water unless the label instructs otherwise.

Location	on:								
Crop:	rop: Variety:								
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction		

Know what to do in case of accidental pesticide poisoning. Emergency phone numbers are located on page 57 of this booklet.

Location	on:								
Crop:	Variety:								
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction		

Read the product label to learn precautions and emergency procedures that can prevent injury and death.

Location	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction
							_

Load and mix pesticides and clean spray tanks and equipment at the application site, never at a wellhead. Use a portable water tank.

Location	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction
							_

Triple rinse or pressure rinse pesticide containers immediately after emptying them. Dispose of the rinse water by using the spray tank to apply it.

Location	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction
							_

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Triple rinse and puncture empty pesticide containers and dispose of them according to label instructions (see pages 3 and 57).

Locatio	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction

Do not burn or dispose of pesticide containers on the farm; dispose of them according to label instructions (see pages 3 and 57).

Locatio	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction
							_

Notes:

When possible, apply herbicides as a spot or band application rather than a broadcast application.

Individual Field Pesticide Use Record

Locatio	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction

Notes:

To prevent development of pest resistance, avoid repetitive use of the same pesticide, or those of similar chemistry.

Individual Field Pesticide Use Record

Locatio	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction

Notes:

Minimize drift by not spraying on extremely hot or windy days.

Individual Field Pesticide Use Record

Locatio	on:						
Crop:			Vai	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction

Notes:

Store pesticides in their original containers with intact, visible and legible labels.

Individual Field Pesticide Use Record

Location	on:						
Crop:			Va	riety:			
Date	Brand Name	EPA Registration Number	Total Amount	Acres Treated	Pest Treated	Temps Start/End	Wind Speed & Direction
							_

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Notes:

Follow all labeled directions for storing, mixing, applying and disposing of pesticides and their containers.

Use this table to record EPA registration numbers of pesticides that are applied.

Product Name	EPA Registration Number

The Worker Protection Standard (WPS) requires that agricultural employers take steps to reduce the risk of pesticide-related illness and injury to farm workers and pesticide handlers.

Any producer that employs non-family members to work in areas where pesticides have been applied or that employs individuals to mix and load pesticides must comply with federal WPS requirements.

Employers are required to provide:

- · Pesticide safety training
- Specific application information
- · Restricted entry information
- Decontamination sites with supplies
- · Personal protective equipment
- Emergency assistance

The Worker Protection Standard applies to all general- and restricted-use pesticides that are used on cropland.

See "Agricultural Use Requirements" under "Directions for Use" on pesticide labels for complete information on the WPS.

Access to record information is limited to:

- USDA authorized representatives who present identification;
- State authorized representatives who present identification;
- Attending licensed health care professionals, or those acting under their direction, when treating individuals who may have been exposed to restricteduse pesticides.

Civil Penalties:

A certified applicator that violates any provision of the federal regulations will:

- For the first offense, be subject to a fine of not more than \$550.00;
- For subsequent offenses, be subject to a minimum fine of \$1,100 for each violation. The penalty shall be less than \$1,100 if the administrator of USDA Agricultural Pesticide Records Branch, or his or her designee, determines that the certified applicator made a good faith effort to comply.

The state of Nevada may also impose monetary penalties if restricted-use pesticide records are not properly maintained.

Under Federal law, combining pesticides is legal unless labeling of any of the pesticides involved instructs the applicator not to combine them. However, not all pesticides can be mixed. Spray mix incompatibilities contribute to losses of pesticide efficacy and efficiency. Read and follow the label instructions. Always spray mixes as soon as possible.

Antagonism is one type of incompatibility. The following antagonisms are well documented:

- Aliette + fixed copper fungicides
- Basagran + Poast
- DSMA + low pH buffers
- Sulphonyl urea herbicides + low pH
- Paraquat herbicides + anionic surfactants

- · Spray oils + sulfur
- Water soluble bags + boron

Herbicides may not always mix evenly throughout a sprayable fluid fertilizer or the components may separate too quickly to make their combined use of any practical value.

If unsure about the compatibility of the mixture's components, test a small quantity by mixing them together before you mix large quantities of the products together. If they separate quickly, combine and form a precipitate, or produce a gelatinous mixture, they should be applied separately. Consult with your pesticide supplier regarding compatibility of specific products.

Sprayer Calibration

Calibration of your spraying equipment is very important. It should be done daily or whenever you change chemicals to ensure application of the proper dosages. Applying incorrect amounts may do more damage than good and always wastes time and money.

Adjustable factors that determine calibration and affect application rate are: speed, pressure, nozzle size, nozzle type and wear, or a combination of these. Speed is the easiest and most common adjustment.

Three Calibration Methods

Method I

A. Measure nozzle flow rate:

gal/nozzle/min =

ounces collected for 1 min from 1 nozzle

128

B. Calculate gallons per acre =

gal/nozzle/min x 12 x 43,560 nozzle spacing x speed

Where:

- nozzle spacing = inches between nozzles and speed = MPH x 88
- Test all nozzles to ensure uniformity and replace any that have greater than 10% variation from the average of all nozzles.

Method II

- A. Spray 660 feet at the desired speed and pressure.
- B. Determine the amount of spray discharged (water) while traveling this distance:
 - Collect the spray from each nozzle and add it together; or
 - Mark the beginning level of water in the tank and measure the amount of refill back to the beginning level after spraying.
- C. Use this formula:

gallons/acre = gallons used in 660 feet x 66 swath width (ft)

Method III

- A. Fill the spray tank to a mark and spray a specified number of feet.
- B. After spraying, refill tank to the beginning mark measuring the quantity of material needed for refilling.
- C. Use this formula.

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gallons/acre = 43,560 x gallons sprayed distance sprayed x swath width (ft)
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USEFUL FORMULAS

 To determine the amount of active ingredient (ai) needed.

number of gallons or pounds =

acres to spray x lb ai/A (recommended)
lb ai/gal (liquid) or ai/lb of product

 To determine the size of pump needed to apply gallons/acre desired.

pump capacity =

gal/A desired x boom width (ft) x MPH

495

To determine the **nozzle capacity** in gallons/minute at a given rate/acre and MPH.

nozzle capacity =

gal/A x nozzle spacing (in) x MPH

5940

• To determine the sprayed acres/hour.

acres/hour =

<u>swath width (in) x speed (MPH)</u>

100

 To determine the amount of purchased material to use.

liquids (gallons of product required/A) =

lb ai/A (recommended)
lb ai/gal (product)

wettable powders (lb of product required/A) =

lb ai/A (recommended)
% ai in formulation

To determine the rate of speed in MPH.
 Measure the seconds it takes the tractor to go a distance of 300 to 500 feet.

MPH = <u>distance traveled (ft)</u> 1.47 x time (seconds) To determine the **nozzle flow rate**. Time the seconds necessary to fill a pint container from a nozzle. Divide the number of seconds into 7.5.

 To determine the acreage sprayed per hour.

acres sprayed/hour =
$$\frac{\text{boom width (ft) x MPH x 5280}}{\text{ft.}^2}$$
43,560 ft.²

Sprayer Tank Capacity*

1. Cylindrical Tanks:

gallons = length x diameter
2
 x 0.0034

2. Elliptical Tanks:

3. Rectangular Tanks:

gallons = length x width x depth x
$$0.004329$$

Proportionate Amounts of Dry Material

	Troportionato rumo antico or 213 materia.								
Water gallons	Quantity of Material								
100	1 lb	2 lb	3 lb	4 lb	5 lb				
50	8 oz	1 lb	24 oz	2 lb	21/2 lb				
5	3 tbs	1½ oz	2½ oz	3¼ oz	4 oz				
1	2 tsp	3 tsp	1½ tbs	2 tbs	3 tbs				

^{*}Note: all tank measurements in inches

Proportionate Amounts of Liquid Material

	Water gallons		Quantity of Material				
-	100	1 qt	1 pt	1 cup			
	50	1 pt	1 cup	½ cup			
	5	3 tbs	5 tsp	21/2 tsp			
	1	2 tsp	1 tsp	½ tsp			

Miles per Hour (MPH) Converted to Feet per Minute (FPM)

<u>MPH</u>	<u>FPM</u>
1	88
2	176
3	264
4	352

• To find the rows/acre, use this formula:

rows/acre =
$$\frac{43,560_{\text{ft}}^2}{\text{row spacing (ft) x row length (ft)}}$$

To calculate the acres sprayed, use this formula:

acres =
$$\frac{\text{distance traveled (ft) x swath width (ft)}}{43,560 \text{ ft}^2}$$

Other Equivalents:

- 1 acre = 43.560 square feet
- 1 gallon = 128 fluid ounces
- 1 gallon = 16 cups
- 1 gallon = 4 quarts
- 1 gallon = 8 pints
- 1 pint = 16 fluid ounces
- 1 pound = 16 fluid ounces of water

Use this table to calculate the rows/acre from row length and spacing.

Row Length	Row Spacing			
(feet)	12"	30"	36"	40"
	Rows/Acre			
5280	8	3	2.7	2.5
3960	11	4	4	3.3
2600	17	7	6	5
1300	33	13	11	10
600	73	29	24	22
300	145	58	48	44
100	436	174	145	131

◆To find the rows/acre with other spacings or lengths use this formula:

rows/acre =
$$\frac{43,560 \text{ ft}^2}{\text{row spacing (ft) x row length (ft)}}$$

Use this table to calculate the acreage from swath width and distance traveled.

Dis- tance	Swath Width (feet)					
Trav-	10	15	20	25	30	35
eled (feet)	Acres Covered					
100	0.02	0.03	0.05	0.06	0.07	0.08
150	0.03	0.05	0.07	0.09	0.10	0.12
200	0.05	0.07	0.09	0.12	0.14	0.16
250	0.06	0.09	0.12	0.14	0.17	0.20
300	0.07	0.10	0.14	0.17	0.21	0.24
350	0.08	0.12	0.16	0.20	0.24	0.28
400	0.09	0.14	0.18	0.23	0.28	0.32
450	0.10	0.16	0.21	0.26	0.31	0.36
500	0.12	0.17	0.23	0.29	0.35	0.40
600	0.14	0.21	0.28	0.35	0.41	0.48
700	0.16	0.24	0.32	0.40	0.48	0.56
800	0.18	0.28	0.37	0.46	0.55	0.64
900	0.21	0.31	0.41	0.52	0.62	0.72
1000	0.23	0.35	0.46	0.58	0.69	0.81
1200	0.28	0.41	0.55	0.69	0.83	0.97
1300	0.30	0.45	0.60	0.75	0.90	1.05
2600	0.60	0.90	1.20	1.50	1.79	2.09
3960	0.84	1.26	1.68	2.10	2.53	2.95
5280	1.21	1.82	2.43	3.04	3.64	4.25

◆To determine the acres in a given area:

acres = distance traveled x swath width (feet) x 0.000023

Nevada Department of Agriculture Offices

Elko

4780 E. Idaho St., 89801 (775) 738-8076, FAX (775) 738-2639

Las Vegas

2300 McLeod St., 89104 (702) 668-4590, FAX (702) 668-4567

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2345 Red Rock St., Ste. 330 Las Vegas 89146 (702) 251-7531, FAX (702) 251-7536

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Caliente

360 Lincoln St., P.O. Box 728, 89008 (775) 726-3109, FAX (775) 726-3332

Carson City/Storey County

2621 Northgate Ln., Ste. 15, 89706 (775) 887-2252, FAX (775) 887-2065

Elko

1500 College Parkway, 89801 (775) 738-7291, FAX (775) 753-7843

Elv

995 Campton St., 89301 (775) 289-4459, FAX (775) 289-1462

Eureka

701 S. Main St., P.O. Box 613, 89316 (775) 237-5326, FAX (775) 237-5164

Fallon

111 Sheckler Rd., 89406 (775) 423-5121, FAX (775) 423-7594

Incline Village

865 Tahoe Blvd., Ste. 110 P.O. Box 8208, 89452 (775) 832-4150, FAX (775) 832-4139

Las Vegas

2345 Red Rock St., Ste. 100, 89146 (702) 222-3130, FAX (702) 222-3100

Logandale

1897 N. Moapa Valley Blvd., P.O. Box 126, 89021 (702) 397-2604, FAX (702) 397-8301

Lovelock

810 6th St., P.O. Box 239, 89419 (775) 273-2923, FAX (775) 273-7647

Minden/Gardnerville

1329 Waterloo Lane, P.O. Box 338, 89423 (775) 782-9960, FAX (775) 782-9968

Pahrump

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Reno

5305 Mill St., P.O. Box 11130, 89520 (775) 784-4848, FAX (775) 784-4881

Tonopah

1 Frankee St., P.O. Box 231, 89049 (775) 482-6794, FAX (775) 482-5396

Winnemucca

1085 Fairgrounds Rd., 89445 (775) 623-6304, FAX (775) 623-6307

Yerington

504 S. Main St., P.O. Box 811, 89447 (775) 463-6541, FAX (775) 463-6545

Website Addresses

Nevada Department of Agriculture: agri.nv.gov University of Nevada Cooperative Extension: www.unce.unr.edu

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Other Important Numbers	

Emergency Phone Numbers

CHEMTREC Emergency Hotline (material safety information, spills, leaks, etc.) (800) 424-9300

> National Poison Center Hotline (800) 222-1222

Washoe Poison Center (outside Clark, Nye Counties) (800) 222-1222

Rocky Mountain Poison Center (Clark, Nye Counties) (800) 222-1222

Phone Numbers for Pesticide Safety and Information

University of Nevada Cooperative Extension (775) 784-1931

Nevada Department of Agriculture

Reno... (775) 353-3600 Las Vegas... (702) 668-4590 Elko... (775) 738-8076

United States Department of Agriculture Pesticide Records Branch (703) 330-7826

National Pesticide Information Center (NPIC)

(800) 858-7378 npic.orst.edu

Important Dates:		

Nevada Department of Agriculture Division of Plant Industry



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