



H - 64634

# DuPont™ Velpar® L

herbicide

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®

*“..... A Growing Partnership With Nature”*

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# DuPont™ Velpar® L

herbicide

*Water Dispersible Liquid*

*Contains 2 Lbs Active Ingredient Per Gallon*

<i>Active Ingredient</i>	<i>By Weight</i>
Hexazinone [3-cyclohexyl-6-(dimethylamino) -1-methyl-1,3,5-triazine-2,4(1H,3H)-dione]	25%
<i>Inert Ingredients</i>	75%
TOTAL	100%

EPA Reg. No. 352-392

## KEEP OUT OF REACH OF CHILDREN

### DANGER 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

**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 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.

**IF SWALLOWED:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

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

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 medical emergencies involving this product.

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### DANGER! CAUSES EYE DAMAGE.

Corrosive, causes irreversible eye damage. Harmful if swallowed. Do not get in eyes or on clothing. Wash thoroughly with soap and water after handling.

#### PERSONAL PROTECTIVE EQUIPMENT

*Applicators and other handlers must wear:*

- Long-sleeved shirt and long pants.
- Shoes plus socks.
- Protective eyewear.

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/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 hands before eating, drinking, chewing gum, using tobacco or using the toilet.

#### ENVIRONMENTAL HAZARDS

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 contaminate water when disposing of equipment washwaters.

The active ingredient, hexazinone, in this product is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination.

#### PHYSICAL AND CHEMICAL HAZARDS

**FLAMMABLE.** Keep away from heat, sparks, and open flames. Keep container closed.

## GENERAL INFORMATION

DuPont™ VELPAR® L herbicide is a water-dispersible liquid that is mixed in water and applied as a spray for weed control in certain crops, Christmas trees, forestry site preparation and release areas, and industrial areas. It may also be applied undiluted as a basal soil treatment for brush control in reforestation areas, rangeland, pastures and noncrop areas, or by stem injection for brush control.

NOTE: When the air temperature is around 32°F, tank mixtures of “Gramoxone Max” (paraquat dichloride) plus VELPAR® L may form a hard sludge in the spray tank. This effect is most likely to occur when the tank mixture comes into contact with aluminum.

VELPAR® L is an effective general herbicide providing both contact and residual control of many annual, biennial and perennial weeds and woody plants.

VELPAR® L is noncorrosive to equipment.

Caution should be exercised when applying VELPAR® L near desirable trees or shrubs as they can absorb VELPAR® L through roots extending into treated areas.

Refer to supplemental labeling entitled “VELPAR® L Herbicide Chemigation Use on Alfalfa” for use directions for chemigation. Do not apply this product through any irrigation system unless the supplemental labeling on chemigation is followed.

### ENVIRONMENTAL CONDITIONS AND BIOLOGICAL ACTIVITY

VELPAR® L is absorbed through the roots and foliage. Moisture is required to activate VELPAR® L in the soil. Best results are obtained when the soil is moist at the time of application and 1/4–1/2 inches of rainfall occurs within 2 weeks after application.

For best results, apply VELPAR® L preemergence or postemergence when weeds are less than 2 inches in height or diameter. Foliar activity is most effective under conditions of high temperature (above 80 °F), high humidity, and good soil moisture. Foliar activity may be reduced when vegetation is dormant, semi-dormant, or under stress.

On herbaceous plants, symptoms usually appear within 2 weeks after application under warm, humid conditions, while 4–6 weeks may be required when weather is cool or dry, or when plants are under stress. If rainfall after application is inadequate to activate VELPAR® L in the soil, plants may recover from contact effects and continue to grow.

On woody plants, symptoms usually appear within 3–6 weeks after sufficient rainfall has carried the herbicide into the root zone during periods of active growth. Defoliation and refoliation may occur, but susceptible plants are killed.

The degree and duration of control may depend on the following:

- Use rate
- Weed spectrum and size at application
- Environmental conditions at and following treatment

Where a rate range is shown, use the higher levels of the dosage range on hard-to-control species, fine-textured soils, or soils containing greater than 5% organic matter or carbon. Use the

lower levels of the dosage range on coarse-textured soils and/or on soils low in organic matter. Refer to specific uses for rate ranges.

## APPLICATION INFORMATION

VELPAR® L may be applied by ground equipment and, where permitted, aerial equipment. Use rates, minimum spray gallonage, and other application information are described for the various uses.

Dispose of the equipment washwater by applying it to a use-site listed on this label or in accordance with directions given in the “Storage and Disposal” section of this label.

## RESISTANCE

When herbicides that affect the same biological site of action are used repeatedly over several years to control the same weed species in the same field, naturally-occurring resistant biotypes may survive a correctly applied herbicide treatment, propagate, and become dominant in that field. Adequate control of these resistant weed biotypes cannot be expected. If weed control is unsatisfactory, it may be necessary to retreat the problem area using a product affecting a different site of action.

To better manage herbicide resistance through delaying the proliferation and possible dominance of herbicide resistant weed biotypes, it may be necessary to change cultural practices within and between crop seasons such as using a combination of tillage, retreatment, tank-mix partners and/or sequential herbicide applications that have a different site of action. Weed escapes that are allowed to go to seed will promote the spread of resistant biotypes.

It is advisable to keep accurate records of pesticides applied to individual fields to help obtain information on the spread and dispersal of resistant biotypes. Consult your agricultural dealer, consultant, applicator, and/or appropriate state agricultural extension service representative for specific alternative cultural practices or herbicide recommendations available in your area.

## INTEGRATED PEST MANAGEMENT

This product may be used as part of an Integrated Pest Management (IPM) program that can include biological, cultural, and genetic practices aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, and treating when target pest populations reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop systems in your area.

## DIRECTIONS FOR USE

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

DuPont™ VELPAR® L should be used only in accordance with recommendations on this label, or in supplemental DuPont publications.

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.

The correct use rates by crop and geographical area, specified on this label, and proper mixing/loading site considerations and application procedures must be followed to minimize potential for hexazinone movement into ground water. Users are encouraged to consult with their state Department of Agriculture, Extension Service, or other pesticide lead agency for information regarding soil permeability, aquifer vulnerability, and best management practices for their area.

## AGRICULTURAL USES

### 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 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.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 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.
- Protective eyewear.

## ALFALFA

VELPAR® L is recommended for control of certain weeds in established alfalfa grown for hay. Do not use on alfalfa grown for seed in any state except California.

## APPLICATION TIMING

### NONDORMANT AND SEMI-DORMANT VARIETIES

In the following states, make a single application during winter months when alfalfa plants are in the least active stage of growth:

Arizona	Montana	Oklahoma	Washington
California	Nebraska	Oregon	Wyoming
Colorado	Nevada	South Dakota	
Idaho	New Mexico	Texas	
Kansas	North Dakota	Utah	

In the following states, make a single application either in the spring before new growth exceeds 2 inches in height or to stubble after cutting following hay removal and before regrowth exceeds 2 inches in height:

Connecticut	Maine	New Hampshire	Vermont
Delaware	Maryland	New Jersey	Virginia
Illinois	Massachusetts	New York	West Virginia
Indiana	Michigan	Ohio	Wisconsin
Iowa	Minnesota	Pennsylvania	
Kentucky	Missouri	Rhode Island	

Severe alfalfa injury may result following application after cutting if either the regrowth is more than 2 inches high, significant stubble is left after alfalfa cutting, or the air temperature is above 90 °F.

### DORMANT VARIETIES

Make a single application after alfalfa becomes dormant and before new growth begins in the spring. Where weeds have emerged, use a surfactant.

### USE RATES

Use higher rates on hard-to-control species, fine textured soils, soils containing greater than 5% organic matter, or under adverse environmental conditions or when weeds are stressed due to low rainfall.

Select the appropriate dose for soil texture and organic matter content as follows:

Soil Texture Description	VELPAR® L (Pt/Acre)		
	Percent Organic Matter in Soil		
	<1%	1-5%	>5%
<b>Coarse</b>			
Loamy sand, sandy loam	2-3	2-3	4-6
<b>Medium</b>			
Loam, silt loam silt, clay loam, sandy clay loam	2-3	3-6	4-6
<b>Fine</b>			
Silty clay loam, sandy clay, silty clay, clay	3-6	3-6	4-6

Rate restrictions are also noted in **Important Precautions and Seed Alfalfa (California Only)**.

### WEEDS CONTROLLED

VELPAR® L, when applied preemergence or early postemergence at the following rates, will control these species:

#### 1-2 Pt/Acre

Tansy-mustard

## 2–4 Pt/Acre

Annual bluegrass	Jim Hill mustard
Blue mustard	London rocket
Cheatgrass (downy brome)	Miners lettuce
Common chickweed	Salsify
Common groundsel	Seedling orchardgrass
Dogfennel (mayweed)	Shepherd's-purse
English catchfly	Spurry
Fiddleneck (tarweed)	Tansy-mustard
Field pennycress	Wild radish
Filaree	Yellow rocket
Flixweed	

## 4–6 Pt/Acre

Common dandelion* (i.e. Canada bluegrass)	Perennial bluegrass* (spring only)
False dandelion	Prickly lettuce*
Foxtail (Setaria spp)*	Ryegrass, annual
Mexican tea*	Quackgrass*
White cockle*	Seedling alfalfa*

\* Partial control

DuPont™ VELPAR® L, when applied in late spring or after cutting at the following rates, will control these species:

## 2–6 Pt/Acre

Common lambsquarters	Foxtail (Setaria spp.)
Crabgrass	Jimsonweed
Fleabane	Redroot pigweed

## SPRAY EQUIPMENT

Apply VELPAR® L using a fixed boom power sprayer or aerial equipment.

## MIXING INSTRUCTIONS

Add VELPAR® L to a water-filled tank and mix it thoroughly. Apply it in at least 20 gal of water per acre by ground or 5 to 10 gal of water per acre by air. Use at least 5 pts of water for every 1 pt of VELPAR® L.

## REPLANTING (FOLLOWING ALFALFA)

- Do not replant treated areas to any crop except corn, root crops or sugarcane within two years after treatment, as crop injury may result.
- Corn may be planted 12 months after the last treatment in areas of moderate to high rainfall (greater than 20 inches), provided the use rate did not exceed 3 pt per acre.
- Root crops such as potatoes, sugarbeets, radish and carrots may be planted 12 months after last treatment, provided the use rate did not exceed 2 pt per acre. Sites with use rates higher than 2 pt per acre should not be replanted to any root crop within 2 years after application of VELPAR® L, or unacceptable crop injury may result.
- Sugarcane may be planted any time following treatment.
- In California, do not replant seed alfalfa areas to any crop within two years after treatment, as crop injury may result.

## Flood Irrigated Alfalfa

- When replanting alfalfa to other crops where flood irrigation was used, follow the guidelines listed above plus the information below:

In arid climates (10 inches of rainfall or less per year) or areas where drought conditions have prevailed for one or more years, a field bioassay should be completed prior to planting any desired crop. The results of this bioassay may require the rotation intervals listed above to be extended.

A successful bioassay means growing to maturity a test strip of the crop(s) intended for production. The test crop(s) strip should cross the entire field including knolls, low areas, and areas where any berms were located.

## USE PRECAUTIONS - ALFALFA ONLY

Best results are obtained when 1/2–1 inches of rainfall or sprinkler irrigation occurs within two weeks after application, when soil is moist at time of application, and when weeds have not germinated or are less than 2 inches in height or diameter. Heavy rainfall or excessive irrigation after application may result in crop injury or poor performance of the herbicide.

- Do not apply to snow-covered or frozen ground.
- On soils high in organic matter (greater than 5%), the effectiveness of VELPAR® L can be significantly reduced and weed control may be unsatisfactory.
- Since the effect of VELPAR® L on alfalfa varies with soil conditions, uniformity of application, and environmental conditions, growers should limit their first use to small areas.
- If abnormally dry conditions exist following application, restrict the first irrigation to no more than 1/2 acre inch of water.
- Temporary yellowing of alfalfa may occur following VELPAR® L applications.
- Treat only stands of alfalfa established for one year or for one growing season(except in California), provided the following conditions are met:
  - The alfalfa root system must be well established.
  - The crop must be healthy, vigorous and not under stress from adverse weather conditions, insect or disease damage.
  - The alfalfa crop must be free of excessive winter injury from freezing and thawing.
- In California, fall planted alfalfa may be treated in the following winter months with VELPAR L at 1 to 2 pts per acre to suppress or control Black Mustard, Common groundsel, London rocket, Shepard's-purse, Common chickweed, Fiddleneck or Filaree, provided:
  - alfalfa root growth exceeds 6 inches in length
  - vegetative top growth of alfalfa has lateral development of secondary growth
  - alfalfa is healthy and vigorous, not growing under stress from insect, disease, winter injury or other types of stress.Injury may result to alfalfa plants that fail to meet these growth criterion listed above.
- Do not use VELPAR® L on seedling alfalfa, alfalfa-grass mixtures, or other mixed stands as injury may result to the seedling alfalfa or companion crop.



- At elevations above 4,000 feet, do not use DuPont™ VELPAR® L on alfalfa that has been established with a cover or nurse crop until the alfalfa has gone through two summer growing seasons.
- Do not use VELPAR® L in low desert valleys in California or Arizona.
- Do not exceed 3 pt per acre on alfalfa less than one year old.
- Do not add a surfactant to VELPAR® L when treating nondormant alfalfa varieties.
- Do not use VELPAR® L on gravelly or rocky soils, exposed subsoils, hardpan, sand, poorly drained soil, or alkali soils.
- Crop injury, including mortality, may result in fields with restricted root growth due to nonuniform soil profiles such as gravel bases and clay lenses.
- Do not graze or feed forage or hay to livestock within 30 days following application.

**SEED ALFALFA (CALIFORNIA ONLY) - ADDITIONAL USE PRECAUTIONS**

- Do not use VELPAR® L on fields with sandy loam or loamy sand soils having less than 1% organic matter.
- Do not exceed 2 pt per acre on fields with sandy loam or loamy sand soils having 1–2% organic matter.
- Do not exceed 2 pt per acre on seed alfalfa that has been established for only one growing season.

**ALFALFA - IMPREGNATION ON DRY BULK FERTILIZER (EXCEPT CALIFORNIA AND ARIZONA)**

Dry bulk fertilizer may be impregnated or coated with VELPAR® L for application to established alfalfa. All recommendations, cautions and special precautions on this label must be followed along with state regulations relating to dry bulk fertilizer blending, impregnating and labeling. Keep VELPAR® L from heat, sparks, and open flame. (Refer to the material safety data sheet [MSDS] for VELPAR® L.)

If fertilizer materials are excessively dusty, use a suitable additive to reduce dust prior to impregnation, as dusty fertilizer will result in poor distribution during application. The dry fertilizer must be properly impregnated and uniformly applied to the alfalfa to avoid crop injury and/or poor weed control.

To impregnate the fertilizer, use a system consisting of a conveyor or closed drum used to blend dry bulk fertilizer. Any commonly used fertilizer can be impregnated with VELPAR® L, except potassium nitrate or sodium nitrate. Do not use VELPAR® L on limestone.

Use a minimum of 250 lb dry bulk fertilizer per acre and up to a maximum of 450 lb per acre. To impregnate or coat the dry bulk fertilizer with VELPAR® L, direct the nozzles to deliver a fine spray towards the fertilizer for thorough coverage while avoiding spray contact with mixing equipment. Uniform impregnation of VELPAR® L to dry bulk fertilizer will vary,

and if the absorptivity is not adequate, the use of an absorptive powder may be required to produce a dry, free-flowing mixture. “Microcel E” is the recommended absorbent powder. When another herbicide is used with VELPAR® L, mix and impregnate the fertilizer immediately.

Apply impregnated fertilizer immediately unless experience has shown that it can be stored without becoming lumpy and difficult to spread.

Select the rate of VELPAR® L to apply per acre from the appropriate section of this label. Then refer to the rate chart below to determine the amount of VELPAR® L that should be impregnated on a ton of dry bulk fertilizer, based on the amount of fertilizer to be distributed in one acre.

**Rate Chart for Impregnating Fertilizer with VELPAR® L**

Fertilizer Rate/Acre	VELPAR® L Rate Per Acre			
	2 Pints	3 Pints	4 Pints	6 Pints
250 pounds	16 pts/ton	24 pts/ton	32 pts/ton	48 pts/ton
300 pounds	13.4 pts/ton	20 pts/ton	26.8 pts/ton	40.2 pts/ton
350 pounds	11.4 pts/ton	17.2 pts/ton	22.8 pts/ton	34.2 pts/ton
400 pounds	10 pts/ton	15 pts/ton	20 pts/ton	30 pts/ton
450 pounds	8.8 pts/ton	13.2 pts/ton	17.6 pts/ton	26.4 pts/ton

For rates other than those listed, use the following formula to calculate the amounts of VELPAR® L to be impregnated per ton of dry fertilizer.

$$\text{VELPAR® L} \times \frac{\text{Pints}}{\text{Per acre}} \times \frac{2000}{\text{Lbs Fertilizer Per Acre}} = \text{VELPAR® L} \times \frac{\text{Pints}}{\text{Ton of Fertilizer}}$$

**APPLICATION INFORMATION**

Uniform application of VELPAR® L-impregnated dry fertilizer is essential for satisfactory weed control. Accurate calibration of the application equipment is essential for uniform distribution to the surface. The recommended method of application is to apply 1/2 the recommended rate and overlap 50%. This results in the best distribution pattern.

**CHRISTMAS TREES**

VELPAR® L is recommended for control of certain weeds where the following species are grown:

- |                   |                |
|-------------------|----------------|
| Austrian pine     | Noble fir      |
| Douglas fir       | Ponderosa pine |
| (western US only) | Scotch pine    |
| Grand fir         | Sitka spruce   |
| Loblolly pine     |                |

Do not use VELPAR® L on Christmas trees in the following states:

- |             |               |                |               |
|-------------|---------------|----------------|---------------|
| Alabama     | Louisiana     | New Jersey     | Texas         |
| Arkansas    | Maine         | New York       | Vermont       |
| Connecticut | Maryland      | North Carolina | Virginia      |
| Delaware    | Massachusetts | Pennsylvania   | West Virginia |
| Georgia     | Mississippi   | Rhode Island   |               |
| Florida     | New Hampshire | South Carolina |               |

## APPLICATION TIMING

### EASTERN US

Apply DuPont™ VELPAR® L as a broadcast spray in the spring prior to conifer bud break. If application is made after conifer bud break, use directional spray equipment to prevent contact with conifer foliage.

### WESTERN US

Areas of greater than 20 inches annual rainfall - VELPAR® L may be applied as broadcast spray in the spring prior to conifer bud break. If application is made after bud break, use directional spray equipment to prevent contact with conifer foliage.

Areas of less than 20 inches annual rainfall - VELPAR® L may be applied in the fall before the soil freezes or in the spring after snow cover melts, but before conifer bud break occurs.

### USE RATES

The rates listed below are for broadcast application. For band application, use proportionately less; for example, use 1/2 of the broadcast rates when treating a 3-foot band where row spacing is 6 feet.

Do not use more than one application of VELPAR® L per year.

Soil Texture	VELPAR® L (Pt/Acre)	
Description	First Year Plantings	Established Trees
<b>Coarse</b>		
Loamy sand, sandy loam (50-85% sand)	4	4-5
<b>Medium</b>		
Loam, silt loam silt, clay loam, sandy clay loam	4-5	5-7
<b>Fine</b>		
Silty clay loam, clay loam, sandy clay, silty clay, clay	5-6	7-8

**First year plantings** - Transplant stock that is 2 years old or more (1 year old for loblolly pine). Apply VELPAR® L only if rainfall has settled the soil around the base and root systems of the transplants.

**Established trees** - Trees that have been planted in the plantation for 1 year or more.

## WEEDS CONTROLLED

Annual bluegrass	Fleabane
Barnyardgrass	Foxtail
Bentgrass	Goldenrod*
Bromegrass	Heath aster*
Catsear* (false dandelion)	Horseweed*
Common groundsel	Orchardgrass*
Common ragweed	Oxeye daisy
Crabgrass*	Pennsylvania smartweed
Curly dock*	Ryegrass*
Dandelion*	Velvetgrass
Fescue*	Wild carrot*
Fireweed (willowweed)*	

\* Partial control

### SPRAY EQUIPMENT

VELPAR® L may be applied by ground equipment or by air.

### MIXING INSTRUCTIONS

Select a spray volume that will ensure a thorough and uniform application. Use at least 5 gal of water for every 1 gal of VELPAR® L.

### USE PRECAUTIONS - CHRISTMAS TREES

- Do not use VELPAR® L in nurseries, seed beds, or ornamental plantings.
- Do not add a surfactant in applications over the top of conifers.
- Weed control results from spring applications depend on sufficient moisture to activate VELPAR® L.
- Do not cut treated vegetation for forage or hay nor graze domestic animals on treated areas for 60 days following application.
- Poor weed and brush control may result from the following:
  - Heavy duff or slash present at the time of application.
  - Use on poorly drained sites.
  - Applications made when soil is saturated with water and rain is imminent within 24 hours.
  - Applications to soils high in organic matter (greater than 5%).
- Crop injury may occur when VELPAR® L is used on the following:
  - Trees that show poor vigor, insect damage, disease, winter injury, or other stress conditions.
  - Any soil containing less than 1% organic matter.
  - Loamy sand or sandy loam with less than 2% organic matter (except Jeffrey Pine and Ponderosa Pine).
  - Crop species not listed in this label.
  - Conifer foliage after conifer bud break.
  - Gravelly or rocky soils, exposed subsoils, clay knobs, sand, or sandy soil with 85% or more sand.

### PINEAPPLE

VELPAR® L is recommended for control of certain weeds in pineapple.



**APPLICATION TIMING**  
**- USE RATES - MIXING INSTRUCTIONS**

Use a sprayer properly calibrated to a constant speed and rate of delivery.

Mix the proper amount of DuPont™ VELPAR® L in water. Add a surfactant at 0.25% by volume of water.

- Intercrop period - Apply VELPAR® L as a broadcast spray in 100–400 gal of water per acre at the rate of 0.9–7 pt per acre. For aerial application, use at least 10 gal water per acre.
- Post mulch, preplant - Apply VELPAR® L as a broadcast spray in 100–400 gal of water per acre at the rate of 0.9–7 pt per acre.
- Post plant, before planting material starts active growth - Apply VELPAR® L as a broadcast spray in 100–400 gal of water per acre at the rate of 0.9–7 pt per acre.

A post-plant application should be made after planting material starts to grow only when weed growth has escaped control by other herbicide applications.

- Post-plant crop harvest, prior to forcing first ratoon - Apply VELPAR® L as a broadcast spray in 100–400 gal of water per acre at the rate of 0.9–7 pt per acre.
- Directed postemergence (pineapple and weeds) inter-space application - Apply VELPAR® L as a directed spray 3–10 months after planting in 50–200 gal of water per acre (broadcast basis) at the rate of 0.9–7 pt per acre (broadcast basis) using a stroller boom or knapsack.
- Directed spot treatments for perennial grasses before floral induction - Spray perennial grasses postemergence to wet (50–200 gals per acre depending on size) with 3.5–7 pt per 100 gal of water as a spot treatment.
- Treatments to field edges and roadsides - Apply VELPAR® L at 7–14.5 pt per acre in 100–400 gal of water.

**WEEDS CONTROLLED**

VELPAR® L is recommended for the control or suppression of the following weeds:

Ageratum	Kao haole*
Balsam apple	Mauna loa*
Castor bean	Morningglory
Crabgrass	Oxalis
Crotalaria	Popolo
Dallisgrass	Richardsonium
Guinea grass	Vaseygrass
Jungle rice	

\* Suppression

**USE PRECAUTIONS - PINEAPPLE**

- Use the lower rates on coarse-textured soils or in areas where rainfall exceeds 65 inches per year.
- Use the higher rates on fine-textured soils or in areas where rainfall is less than 65 inches per year.
- Do not exceed 1.8 gal VELPAR® L per acre per crop.
- Do not apply VELPAR® L within 181 days of harvest.

**SUGARCANE**

VELPAR® L is recommended for selective weed control in sugarcane except in the State of Florida.

**APPLICATION TIMING**  
**- USE RATES - MIXING INSTRUCTIONS**

Apply a single treatment of VELPAR® L per year using a fixed-boom sprayer and a minimum of 25 gal of spray per acre unless otherwise directed.

**HAWAII**

Apply VELPAR® L pre- or postemergence at the following rates for the indicated soil texture:

Soil Texture Description	VELPAR® L (Pt/Acre) (Plus surfactant 0.25% by volume)
<b>Coarse</b>	
Sand, loamy sand, sandy loam	1.8–3.5
<b>Medium</b>	
Loam, silt loam, silty clay loam	1.8–7.0
<b>Fine</b>	
Clay, gray hydromorphic clay	7.0–14.5

Use the higher levels of the recommended dosage ranges on soils high in organic matter. Do not apply more than twice the highest recommended rate for the indicated soil texture per crop (18–24 months).

A surfactant is recommended for all uses.

For preemergence use only, VELPAR® L may be applied with aerial equipment using at least 10 gal of spray per acre.

For spot treatments of emerged weeds, VELPAR® L may be applied with a knapsack sprayer in concentrations of 1.8–14 pt per 100 gal of water. Apply a sufficient volume to thoroughly wet weed foliage, but do not exceed 40 gal of spray per treated acre. Use the lower concentrations on coarse-textured soils that are low in organic matter, and use the higher concentrations on fine-textured soils that are high in organic matter.

**LOUISIANA**

Apply 1.8–3.5 pt of VELPAR® L per acre broadcast in the fall before sugarcane emerges or in the spring before active cane tillering begins. Fall treatments of 1.8–3 pt per acre may be followed by a spring treatment of 1.8–3 pt per acre. Do not apply more than 6 pt per year. Use the higher levels of the recommended dosage range on fine-textured soils.

**PUERTO RICO**

For preemergence treatments, apply 0.9–1.8 pt of VELPAR® L per acre.

For postemergence treatments, apply 0.9–1.8 pt of VELPAR® L per acre to weeds after they have emerged. Use the lower rates on coarse-textured soils and the higher rates on fine-textured soils (high in clay or organic matter). Each ratoon may receive up to 1.8 pt of VELPAR® L per acre.

For spot treatment of emerged weeds, VELPAR® L may be applied with a knapsack sprayer in concentrations of

0.9–1.8 pt per 100 gal of water. Apply a sufficient volume to wet the weed foliage. Do not exceed 100 gal of spray per treated acre. Use the lower concentration on coarse-textured soils and the higher concentration on fine-textured soils.

Note: Since it is difficult to calibrate “spot” knapsack applications, extra care must be taken not to exceed the rate equivalent of the maximum of 1.8 pt DuPont™ VELPAR® L per acre.

Do not apply more than 3.6 pt of VELPAR® L per acre per crop.

### TEXAS

Apply 1.8–7 pt of VELPAR® L per acre. On plant cane, apply the herbicide before the cane emerges or as a directed layby treatment. On stubble cane, apply VELPAR® L preemergence (up to the 3-leaf stage) or as a directed layby treatment. A pre- or early postemergence treatment may be followed by a layby treatment, provided at least 60 days have elapsed and 3 inches of rainfall or sprinkler irrigation have occurred since the first treatment.

Do not apply more than 7 pt of VELPAR® L per acre per crop.

Use the following rates for the soil texture:

Soil Texture Description	VELPAR® L (Pt/Acre)	
	Preemergence	Layby
<b>Coarse*</b>		
Sandy loam	1.8	1.8
<b>Medium</b>		
Loam, silt loam	2.7	2.7
<b>Fine</b>		
Clay loam	3.5	3.5

\* With at least 2% organic matter

On dormant cane, a surfactant may be added to the spray mixture to increase control of emerged weeds.

### WEEDS CONTROLLED

Ageratum*	Johnsongrass (from seed)
Alexandergrass	Jungle rice
Amaranth (slender, smooth)	Lambsquarter
American burnweed (fireweed)	Morningglory (hairy, three-lobed)
Balsam apple	Mustard (wild)
Barnyardgrass	Oxalis
Bermudagrass*	Panicum (brownleaf, browntop, Texas millet)
Carolina geranium	Paspalum (ricegrass, sour)
Chickweed	Pigweed (common, smooth)
Crabgrass (hairy, large, smooth)	Popolo
Crotalaria (fuzzy, showy)	Purslane
Cuphea (tarweed)	Sandbur
Dallisgrass	Sensitive plant (hila hila)
Fingergrass (radiate, swollen)	Signalgrass (broadleaf)
Flora's paintbrush	Sowthistle
Foxtail (bristly, yellow)	Spanish needle
Goosegrass	Sprangletop
Guineagrass	Spurge (prostrate, graceful)
Henbit	Sunflower
Itchgrass*	Vaseygrass
Jobs tears	Waltheria (hialoa)

\* Partial control

### TANK MIXTURES (LOUISIANA AND TEXAS)

A tank mixture of VELPAR® L at 1 quart per acre plus diuron (“Karmex” DF or “Direx” DF) at 2.25 lbs per acre may be applied to newly planted sugarcane prior to crop emergence or to ratoon (stubble) sugarcane following harvest for improved control of annual sedge, cutleaf eveningprimrose, red morningglory, pitted morningglory, Texas panicum, smellmelon, swinecress, toadflax and also provide additional suppression of itchgrass.

An early Spring application of the tank mix combination may be used postemergence (over the top) of sugarcane until it reaches a height of 18 inches. If weeds are present at the time of application, a non-ionic surfactant at the use rate of 0.25% V/V or a crop oil concentrate at the use rate of 1% V/V is recommended. If a tank mix partner is being used, follow the most restrictive adjuvant recommendation. Temporary crop chlorosis may result from postemergence applications to emerged sugarcane.

The tank mix combination may also be used as a post-directed/layby application. For best weed control, post-directed/layby applications should be made prior to weed germination. Post-directed/layby applications are required when the sugarcane plants reach or exceed a height of 18 inches. Post-directed/layby applications should be directed at the base of the sugarcane plants so the spray does not contact green leaves or the plant whorl.

If weeds are present at application, a tank mixture partner, labeled for use on sugarcane, is recommended. When adding other tank mix partners, read and follow all use instructions, warnings and precautions on the companion label(s).

Do not apply as a postemergence (over-the-top) application to sugarcane beyond a height of 18 inches.

The tank mix combination of VELPAR® plus diuron may be applied to fallow sugarcane fields up to 60 days prior to planting. For best results, applications should be made to a newly prepared seedbed that is free of clods and existing vegetation. If weeds are present, either a separate application of a contact herbicide or a tank mix partner is recommended for improved postemergence control.

### USE PRECAUTIONS - SUGARCANE

Do not plant any crop other than sugarcane following an application of VELPAR® L.

Do not feed sugarcane forage to livestock.

Do not apply VELPAR® L:

- Within 180 days of harvest in Hawaii.
- Within 234 days of harvest in Louisiana.
- Within 288 days of harvest in Puerto Rico.
- Within 234 days of harvest in Texas.

To avoid injury to sugarcane, observe the following precautions:

- Do not use VELPAR® L on cane that shows poor vigor because of insect damage, disease, or winter injury, or shows symptoms of other stress conditions such as drought stress.
- Do not add a surfactant in applications unless otherwise specified or allowed.

- Do not use DuPont™ VELPAR® L on gravelly or rocky soils, thinly covered subsoils, or coarse-textured soils (sands to sandy loams) with less than 1% organic matter.
- Temporary chlorosis of the crop may result from application over emerged cane. Applications during active cane growth should be directed to cover the weeds and soil while minimizing crop contact.
- Do not use VELPAR® L on varieties known to be susceptible to weed killers.

Extremely heavy rainfall after application may result in poor weed control and/or crop injury, especially if the application is made to dry soil.

## FORESTRY

### SITE PREPARATION

VELPAR® L is recommended for weed and brush control in areas where the following species are grown:

#### EASTERN US AND LAKE STATES

Austrian pine	Red spruce
Balsam fir	Scotch pine
Black spruce	Shortleaf pine
Loblolly pine	Slash pine
Longleaf pine	Virginia pine
Ponderosa pine	White spruce
Red pine	

#### WESTERN US

Blue spruce	Lodgepole pine
Douglas fir	Noble fir
Engleman spruce	Ponderosa pine
Grand fir	Sitka spruce
Jeffrey pine	White fir

### APPLICATION TIMING

#### EASTERN US

Apply VELPAR® L from early spring to early summer after hardwoods have broken bud and before the foliage has hardened off.

**Soil Texture** VELPAR® L (Qt/Acre)

Description	Eastern US
<b>Coarse</b>	
Sand, loamy sand, sandy loam	4-6
<b>Medium</b>	
Loam, silt loam, sandy clay loam	6-8
<b>Fine</b>	
Silty clay loam, clay loam, sandy clay, silt, silty clay, clay	8-10

The rates listed are for broadcast application. Use the lower rates on coarse textured soils and soils low in organic matter. Use the higher rates where weeds identified in this label as “partial control or suppression” predominate.

#### WESTERN US

For **SITE PREPARATION**, VELPAR® L may be applied at 2 to 6 quarts per acre. Use the lower rates on coarse textured soils and soils low in organic matter. Use the higher rates on fine textured soils and soils high in organic matter. Use the

higher rates where weeds identified in this label as “partial control or suppression” predominate.

In areas where other conifer species may be mixed in with the conifers listed above, VELPAR® L may be applied if the user has prior experience with VELPAR® L on the other conifer species. With no prior experience, it is recommended that either a small area of plantings be tested for conifer safety prior to treating larger areas, or make no application of VELPAR® L in these areas within the site preparation area. Conifer species that are sensitive to VELPAR® (hexazinone) L, such as, sugar pine and western larch, require 18 months before interplanting on treated sites.

Applications made to shelter wood sites may also result in mortality to over-story conifers. Factors that may influence conifer sensitivity in these sites could include application rate, conifer species, soil characteristics, uniformity of spray distribution across the treatment swath and environmental stress.

**Rain Belt** (areas of high spring rainfall): For best results, apply in late winter or spring when weeds and brush are actively growing.

**Snow Belt** (areas of low spring rainfall): For best results, apply in the fall before soil freezes, or in the spring after snow cover melts in anticipation of rainfall. Weed and brush control results from spring applications will be dependent on sufficient rainfall following application to activate VELPAR® L.

### PLANTS CONTROLLED

#### Herbaceous Plants

Annual bluegrass	Fleabane
Asters	Foxtail
Barnyardgrass	Goldenrod*
Bentgrass	Heath aster*
Bromegrass	Horseweed*
Canada thistle*	Orchardgrass*
Catsear (false dandelion)*	Oxeye daisy
Common groundsel	Pennsylvania smartweed*
Common ragweed	Pinegrass
Crabgrass*	Quackgrass*
Curly dock*	Ryegrass*
Dandelion*	Squawcarpet
Elksedge	Velvetgrass
Fescue*	Wild carrot
Fireweed (willowweed)*	

#### Woody Plants

Ash	Hickory
Aspen (big tooth, trembling)	Honeysuckle*
Balsam poplar	Oaks
Birch	Red maple*
Blackgum	Snowbush ceanothus (varnishleaf ceanothus)
Deerbrush ceanothus	Sourwood*
Elm	Sweetgum
Flowering dogwood*	Whitehorn
Greenleaf manzanita	Wild cherry
Hawthorne	Willows
Hazel	

\* Partial Control or Suppression - Specie suppression or partial control is a visible reduction in plant competition (reduced population and/or vigor) as compared to an untreated area. Degree of suppression will vary with rate applied, size of plants at application and environmental conditions following treatment. Species

indicated above, especially resprouts of these species, may require a follow up treatment for acceptable control. Burning, as a follow up treatment, will enhance control of resprouts.

Within several weeks after DuPont™ VELPAR® L activation by rainfall, affected vegetation may be burned, if desired. This burn may further enhance control of vegetation. Burn the vegetation only after any residual stand is completely defoliated, at least twice, allowing for sufficient root uptake of VELPAR® L. In the West, results may take one to two years in areas of low rainfall.

### SPRAY EQUIPMENT

When applied as a liquid spray using water as the carrier, VELPAR® L may be applied by ground equipment or by air (helicopter only).

### MIXING INSTRUCTIONS

For ground application, use enough water for thorough coverage, usually a minimum of 25 gal per acre. For aerial applications, use at least 5 gal of water per acre and at least 5 gal of water for every 1 gal of VELPAR® L.

### SITE PREPARATION - TANK MIXTURES

#### VELPAR® L PLUS “Tordon 101” Mixture

For improved, broad-spectrum brush control, tank mix VELPAR® L with “Tordon 101” Mixture. Consult the VELPAR® L Eastern US site preparation section and “Tordon 101” Mixture labels for a listing of crop tree species where this combination can be used.

#### APPLICATION TIMING

Apply VELPAR® L plus “Tordon 101” Mixture from late spring to early summer after the trees have reached full leaf, but before leaf tissue hardens. In the states of Maine, Michigan, Minnesota, New Hampshire, New York, Vermont, and Wisconsin, apply this tank mixture after bud break.

#### WOODY PLANTS CONTROLLED - USE RATES

Predominant Species	VELPAR® L (Qt/Acre)	“Tordon 101” M (Qt/Acre)
Blackberry, Elm, Oak (Prunus spp.), Sweetgum	6-10	4
Blackgum, Dogwood, Pine, Red maple, Sassafras, Sourwood	4-10	6-8

Refer to the use rate table in the VELPAR® L **Site Preparation** section of this label for recommended rates based on soil texture. Also refer to the “Tordon 101” Mixture label for rates based on species composition. Other weed and brush species may be controlled by VELPAR® L plus “Tordon 101” Mixture.

### SPRAY EQUIPMENT

VELPAR® L plus “Tordon 101” Mixture may be applied by ground equipment or by air (helicopter only).

### MIXING INSTRUCTIONS

For ground application, use enough water for thorough coverage, usually a minimum of 25 gal per acre. For aerial applications, use at least 5 gal of water per acre. Use at least 5 gal of water for every 1 gal of VELPAR® L. For best results, full foliar coverage is required.

### USE PRECAUTIONS

#### - VELPAR® L + “Tordon 101” Mixture

- To avoid injury, do not plant pine before the following intervals following application of “Tordon 101” Mixture:
  - Southern states - 6 months
  - Lake states - 9 months
  - Northeastern states - 9 months
- Burning treated sites after initial contact (browning) effect on foliage may result in poor control. Burn the vegetation only after brush has completely defoliated at least once, allowing sufficient root uptake of VELPAR® L (usually 60-90 days after adequate rainfall).
- Before using “Tordon 101” Mixture, read and carefully observe the cautionary statements and all other information appearing on the product label. “Tordon 101” Mixture is a 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 certified applicator’s certification.

#### VELPAR® L PLUS “Garlon 4”

For improved, broad-spectrum brush control, tank mix VELPAR® L with “Garlon 4”. Consult the VELPAR® L Eastern US site preparation section and the “Garlon 4” label for a listing of crop tree species on which this combination can be used. This tank mix may be used in the following states:

Alabama	Maryland	South Carolina
Arkansas	Michigan	Tennessee
Delaware	Minnesota	Texas
Florida	Mississippi	Virginia
Georgia	North Carolina	Wisconsin
Louisiana	Oklahoma	

#### APPLICATION TIMING

Apply VELPAR® L plus “Garlon 4” from late spring to early summer after the trees have reached full leaf, but before leaf tissue hardens.

#### USE RATES

Refer to the use rate table in the Site Preparation section of this label for recommended rates of VELPAR® L based on soil texture. Mix the recommended rate of VELPAR® L with 4–8 qt of “Garlon 4” per acre.



## SPRAY EQUIPMENT

Apply DuPont™ VELPAR® L plus “Garlon 4” by ground equipment or by air (helicopter only).

## MIXING INSTRUCTIONS

For ground application, use enough water for thorough coverage, usually a minimum of 25 gal per acre. For aerial applications, use at least 12 gal of water per acre.

For best results, full foliar coverage is required.

## USE PRECAUTIONS

### - VELPAR® L + “Garlon 4”

- Conifers planted sooner than two months after treatment with “Garlon 4” at 1–2 gal per acre may be injured.
- Burning treated sites after initial contact (browning) effect on foliage may result in poor control. Burn the vegetation only after brush has completely defoliated at least once, allowing sufficient root uptake of VELPAR® L (usually 60–90 days after adequate rainfall).
- Before using “Garlon 4”, read and carefully observe the cautionary statements and all other information appearing on the product label.

## SITE PREPARATION

### - UNDILUTED APPLICATIONS

VELPAR® L is recommended for control of brush in site preparation.

### GRID APPLICATION

Apply undiluted VELPAR® L directly to the soil surface in a grid pattern using an exact delivery handgun applicator. This equipment delivers a thin stream of a predetermined volume. VELPAR® L should be applied during the period from hardwood bud break to early summer.

Selection of the rate per acre and grid pattern will depend on soil texture and woody plant composition. Use the lower rates on coarse textured soils and when the major component of the hardwoods are susceptible species. Use the high rates on fine-textured soils and where weeds identified in the label as “partial control or suppression” predominate.

### Application Patterns and Rates For Undiluted VELPAR® L

	ML/Spot	Grid (Ft)	Qt/Acre
<b>Coarse</b>	0.6	3 X 3	3
	2.0	4 X 4	6
	3.1	4 X 6	6
<b>Medium/Fine</b>	1.6	3 X 3	8
	2.8	4 X 4	8
	3.5	4 X 4	10
	5.2	4 X 6	10

### SINGLE STEM (BASAL SOIL)

Apply undiluted VELPAR® L to the soil with an exact delivery handgun applicator. Apply at the rate of 2–4 ml for each inch of stem diameter at breast height. Direct the treatment to the soil within 3 feet of the root collar of woody plants to be controlled. When treating large stems

and when more than one delivery of VELPAR® L is needed per stem, make application on opposite sides of the stem.

For multi-stemmed and low-growing brush that have stem diameters that are difficult to determine, apply VELPAR® L at the rate of 2–4 ml per 3 feet of canopy width. For tall, slender (columnar) brush types, apply 4–8 ml per 3 feet of height. Base the rate on whichever canopy dimension is greater (width or height).

When treating brush that requires more than a single 4 ml application of VELPAR® L, apply subsequent applications equally spaced around the plant. If treating brush on sloped sites, apply most of the VELPAR® L on the uphill side of the stem. If treating resprouts from brush disturbed by cutting or shredding, the rate of application should be proportional to the original tree size, not just the small regrowth of sprouts.

## INJECTION

**No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is directly injected into agricultural plants.**

Inject 1 ml of undiluted VELPAR® L through the bark of undesirable trees. Injections should be made at 4 inch intervals around the circumference of the tree. When using tubular injection equipment, inject near the ground level. When using the “Hypo-Hatchet” Tree Injector or a similar device, inject at waist height. Treatment should be made in the summer. Woody species controlled include black cherry, oaks, and sweetgum.

## USE PRECAUTIONS

### - SITE PREPARATION

Where burning is desired, burn the vegetation only after any residual brush has completely defoliated, at least twice, allowing for sufficient root uptake of VELPAR® L.

Following harvest, allow sufficient time for stumps and injured trees to adequately resprout before applying VELPAR® L.

## RELEASE - HARDWOOD SUPPRESSION

VELPAR® L is recommended for conifer release where the following species are grown:

### EASTERN US

Balsam fir	Red spruce
Black spruce	Shortleaf pine
Loblolly pine	Slash pine
Longleaf pine	Virginia pine
Norway spruce	White spruce
Red pine	

### WESTERN US

Blue spruce	Noble fir
Douglas fir	Ponderosa pine
Engelman spruce	Sitka spruce
Grand fir	Western hemlock
Jeffrey pine	White fir
Lodgepole pine	



## APPLICATION TIMING

### EASTERN US

Apply DuPont™ VELPAR® L from early spring to early summer after hardwoods have broken bud and before full leaf expansion.

Applications made over the top of pines may result in excessive pine injury under conditions of high humidity and temperature (80 degrees F).

### WESTERN US

**Rainbelt** (areas of high spring rainfall): For best results, apply in late winter or spring when brush is actively growing, but prior to conifer budbreak. If application is made after bud break, use directional spray equipment to prevent contact with conifer foliage, as injury may result.

**Snowbelt** (areas of low spring rainfall): For best results, apply in the fall before soil freezes and after the final resting bud has hardened on the conifers. Or, spring applications may be made after snow cover melts in anticipation of rainfall prior to conifer budbreak. Brush control results from spring treatments will be dependent on sufficient rainfall following application to activate VELPAR L.

### USE RATES

The rates listed below are for broadcast application. Do not use more than one application of VELPAR® L per year.

### EASTERN US

Crop Species	Soil Texture Description	VELPAR® L (Qt/Acre) Established Trees
Loblolly pine	Loamy sand, sandy loam	2-3
Shortleaf pine	Loam, silt loam,	
Virginia pine	silt, sandy clay loam	2-4
Slash pine	Silty clay loam, clay loam, sandy clay, silty clay, clay	4.5-6
Red pine	Loamy sand, sandy loam	2-4
	Loam, silt loam, silt, sandy clay loam	4-6
	Silty clay loam, clay loam, sandy clay, silty clay, clay	6-8

Established Trees - 4 years of age from transplanting on coarse-textured soils  
 - 3 years of age from transplanting on medium-textured soils  
 - 2 years of age from transplanting for Red Pine

### WESTERN US

Application rates by soil type for VELPAR® L in the following western conifers: Blue spruce, Douglas fir, Engelman spruce, Grand fir, Jeffrey pine, Lodgepole pine, Noble fir, Ponderosa pine, Sitka spruce, Western hemlock, and White fir.

Soil Texture Description	VELPAR® L (Qt/Acre)
Loamy sand, sandy loam	2-4.5
Loam, silt loam, sandy clay loam	3.5-6
Silt, silty clay loam, clay loam, sandy clay, silty clay, clay	5-6

For first year plantings using bare root stock, treat only transplant stock that is 2 years old (2-0, 1-1) or more, except (1-0) for Ponderosa and Jeffrey pines. Apply VELPAR® L only if rainfall has settled the soil around the base and root systems of the transplants.

### BRUSH SUPPRESSION

Ash	Hawthorne
Aspen	Hazel
Balsam poplar	Honeysuckle
Birch	Oaks
Box elder	Red maple*
Brambles	Snowbush ceanothus
Cherry (black, pin)	Sumac*
Deerbrush ceanothus	Sweetgum*
Dogwood*	Whitehorn
Elm	Willow
Greenleaf manzanita	

\* Partial control

In addition to brush controlled, herbaceous species listed in Weeds Controlled section of Release-Herbaceous Weed Control may be controlled with these applications.

### SPRAY EQUIPMENT

When applied as a liquid spray using water as the carrier, VELPAR® L may be applied by ground equipment or by air (helicopter only).

### MIXING INSTRUCTIONS

For ground application, use enough water for thorough coverage, usually a minimum of 25 gal per acre. For aerial applications, use at least 5 gal of water per acre and at least 5 gal of water for every 1 gal of VELPAR® L.

### RELEASE - UNDILUTED APPLICATIONS

VELPAR® L is recommended for hardwood suppression in conifer release sites.

### GRID APPLICATION

Apply undiluted VELPAR® L directly to the soil surface in a grid pattern using an exact delivery handgun applicator. This equipment delivers a thin stream of a predetermined volume when triggered. Apply VELPAR® L during the period from hardwood bud break to early summer.

Selection of the rate per acre and grid pattern depends on soil texture and woody plant composition. Use the lower rates on coarse textured soils and when the major component of the hardwoods are susceptible species. Use the high rates on fine-textured soils and where weeds identified in this label as “partial control or suppression” predominate.

**Application Patterns and Rates For Undiluted DuPont™ VELPAR® L**

	ML/Spot	Grid (Ft)	Qt/Acre
<b>Coarse</b>	0.5	3 X 4	2*
	1.2	3 X 6	3
	2.1	4 X 6	4
<b>Medium/Fine</b>	1.2	3 X 3	6
	2.3	3 X 6	6
	1.6	3 X 3	8
	3.1	3 X 6	8

\* Use on deep sands with pines four years or more of age.

**SINGLE STEM (BASAL SOIL)**

Apply undiluted VELPAR® L to the soil with an exact delivery handgun applicator. Apply at the rate of 2–4 ml for each inch of stem diameter at breast height. Direct the treatment to the soil within 3 feet of the root collar of woody plants to be controlled. When treating large stems and when more than one delivery of VELPAR® L is needed per stem, make application on opposite sides of the stem.

For multi-stemmed and low-growing brush that have stem diameters that are difficult to determine, apply VELPAR® L at the rate of 2–4 ml per 3feet of canopy width. For tall, slender (columnar) brush types, apply 4–8 ml per 3feet of height. Base rate on whichever canopy dimension is greater (width or height).

When treating brush that requires more than a single 4 ml application of VELPAR® L, apply subsequent applications equally spaced around the plant. If treating brush on sloped sites, apply most of the VELPAR® L on the uphill side of the stem. If treating resprouts from brush disturbed by cutting or shredding, the rate of application should be proportional to the original tree size, not just the small regrowth of sprouts.

**INJECTION**

**No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is directly injected into agricultural plants.**

Inject 1 ml of undiluted VELPAR® L through the bark of undesirable trees. Injections should be made at 4 inch intervals around the circumference of the tree. When using tubular injection equipment, inject VELPAR® L near the ground level. When using the “Hypo-Hatchet” Tree Injector or a similar devise, inject at waist height. Treatment should be made in the summer. Woody species controlled include black cherry, oaks, and sweetgum.

**USE PRECAUTIONS**

**- RELEASE UNDILUTED**

- Application of VELPAR® L spots closer than 36 inches to conifer seedlings in their first season or directly up slope from these seedlings may result in injury or mortality.
- Use VELPAR® L on seedlings in their first or fourth year and older. Injury may result from use on two and three year old

seedlings where root growth is extensive but hardiness is lacking.

**RELEASE- HERBACEOUS WEED CONTROL**

VELPAR® L is recommended for controlling herbaceous weeds where the following species are grown:

**EASTERN US**

Loblolly pine	Red pine
Longleaf pine	Slash pine

**WESTERN US**

Blue spruce	Noble fir
Douglas fir	Ponderosa pine
Engleman spruce	Sitka spruce
Grand fir	Western hemlock
Jeffrey pine	White fir
Lodgepole pine	

**APPLICATION TIMING**

**EASTERN US**

Apply VELPAR® L as a broadcast or banded spray in the spring prior to conifer bud break to lessen conifer injury potential.

**WESTERN US**

**Rainbelt** (areas of high spring rainfall): For best results, apply as a broadcast or banded spray in the late winter or spring when weeds are actively growing, but prior to conifer budbreak.. If application is made after conifer bud break, use directional spray equipment to prevent contact with conifer foliage, as injury may result.

**Snowbelt** (areas of low spring rainfall): For best results, apply as a broadcast or banded spray in the fall before soil freezes and after the final resting bud has hardened on the conifers. Or, spring applications may be made after snow cover melts in anticipation of rainfall prior to conifer budbreak. Weed control results from spring treatments will be dependent on sufficient rainfall following application to activate VELPAR® L.

**USE RATES**

The rates listed below are for broadcast application. For band application, use proportionately less. For example, use 1/2 of the broadcast rates when treating a 3-foot band where row spacing is 6 feet.

**EASTERN US**

Soil Texture Description	VELPAR® L (Pt/Acre)	
	First Year Plantings	Established Trees
Loamy sand, sandy loam(50-85% sand)	4	4-5
Loam, silt loam, silt, sandy clay loam	4-5	5-7
Silty clay loam, clay loam, sandy clay, silty clay, clay	5-6	7-8

Red pine only - Refer to recommended rates in the HARDWOOD SUPPRESSION - Eastern US table on page 12.

**WESTERN US**

Refer to recommended rates in the HARDWOOD SUPPRESSION-Western US table on page 12.

## **WEEDS CONTROLLED**

Annual bluegrass	Fireweed (willowweed)*
Aster	Fleabane
Barnyardgrass	Foxtail
Bentgrass	Goldenrod*
Bracken Fern	Heath aster*
Bromegrass	Horseweed*
Catsear (false dandelion)	Orchardgrass*
Common groundsel	Oxeye daisy
Common ragweed	Panicums
Crabgrass*	Pennsylvania smartweed
Curly dock*	Ryegrass*
Dandelion*	Squawcarpet
Dogfennel	Velvetgrass
Fescue*	Wild carrot*

\* Partial control

## **FORESTRY—IMPREGNATION ON DRY BULK FERTILIZER**

DuPont™ VELPAR® L is recommended for impregnating or coating dry bulk fertilizer to be applied on forested sites for the establishment or release of conifer plantations (except longleaf pine) as specified on this label.

### **PLANTS CONTROLLED**

Fertilizer impregnated with VELPAR® L is recommended for the control and suppression of the weeds and brush identified for the specific applications on this label. Consult the appropriate segment of this label to determine the appropriate rate of VELPAR® L to be applied per acre. Apply this amount of VELPAR® L to the volume of fertilizer to be applied per acre.

### **IMPREGNATION EQUIPMENT**

To impregnate or coat the fertilizer use a system consisting of conveyor or closed drum used to blend dry bulk fertilizer.

### **IMPREGNATION INSTRUCTIONS**

VELPAR® L may be used undiluted or mixed with a sufficient quantity of water to ensure thorough coverage of the fertilizer.

Direct the spray nozzles of the impregnation equipment to deliver a fine spray of the mixture toward the fertilizer for thorough coverage while avoiding contact with mixing equipment. The use of a colorant or dye may be beneficial to visually determine the uniformity of impregnation.

Uniform impregnation of dry bulk fertilizer may vary. If absorption of the spray is not adequate, the use of an absorptive powder or additive, such as "Microcel E" or "HiSil 233", may be required to produce a dry, free flowing mixture.

Apply the fertilizer as soon as possible after impregnation for optimum performance. Impregnated fertilizer may become lumpy and difficult to apply following storage.

Diammonium phosphate, potassium chloride, 16-16-16 and 24-4-4 have been successfully impregnated.

### **APPLICATION EQUIPMENT**

Applications of impregnated fertilizer may be made by ground equipment or by air (helicopter or fixed wing). Accurate calibration and patterning of the equipment is

essential for uniform distribution of the impregnated fertilizer on the soil surface.

## **USE PRECAUTIONS—IMPREGNATED FERTILIZER FOR FORESTRY**

- If fertilizer materials are excessively dusty, use a suitable additive to reduce dust prior to impregnation. Application of dusty fertilizer which has been impregnated may result in off-target drift and injury to desirable vegetation. Such drift and associated injury may be aggravated by high wind conditions.
- The dry fertilizer must be properly impregnated and uniformly applied to avoid pine injury/mortality and poor weed and brush control.
- Uniform and precise application of the impregnated fertilizer is essential for satisfactory weed and brush control and to minimize pine injury. Overlaps or skips between adjoining swaths or non-uniform distribution of impregnated fertilizer within the swath will deliver poor results and may result in pine injury or mortality.
- Do not impregnate potassium nitrate, sodium nitrate or triple super phosphate fertilizers with VELPAR® L as herbicidal action will be lost.

## **USE PRECAUTIONS - FORESTRY**

- Do not use VELPAR® L in nurseries, seedbeds, or ornamental plantings.
- On tracts of land where various soil types are present and VELPAR® L rate selection is difficult, conifer damage or less-than-expected vegetation suppression may occur due to the different rates required for various soil types.
- Poor weed and brush control may result from the following:
  - Heavy duff or slash present at time of application
  - Use on poorly drained sites
  - Applications made when the soil is saturated with water and rain is imminent within 24 hours.
  - Applications to soils high in organic matter (greater than 5%).
- Following harvest, allow stumps and injured trees sufficient time to adequately resprout before applying VELPAR® L.
- Where burning is desired, burn vegetation only after any brush has completely defoliated, at least twice, allowing for sufficient root uptake of VELPAR® L
- Do not use VELPAR® L on frozen soils; use in spring after snow melt.
- Do not add a surfactant in applications over the top of conifers.
- Weed control results from spring applications depend on sufficient moisture to activate VELPAR® L.
- When applying VELPAR® L after transplanting, wait until rainfall has settled the soil around the base and root systems of the transplants before making the treatment.
- Crop injury may occur when VELPAR® L is used:
  - On trees that show poor vigor, insect damage, disease, winter injury, or other stress conditions
  - On any soil containing less than 1% organic matter
  - On loamy sand or sandy loam with less than 2% organic matter, except Jeffrey pine and Ponderosa pine
  - On conifer foliage after conifer bud break.

–On gravelly or rocky soils, exposed subsoils, clay knobs, sand, or sandy soil with 85% or more sand.

–On crop species not listed on this label

- Do not cut treated vegetation for forage or hay nor graze domestic animals on treated areas for 60 days following application.

## NON-AGRICULTURAL USES

### 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, forests, nurseries, or greenhouses.

Industrial and Pasture/Rangeland weed and brush control applications as described on this label for DuPont™ VELPAR® L are not within the scope of the Worker Protection Standard.

The area being treated must be vacated by unprotected persons.

Do not enter or allow entry into treated areas until sprays have dried to perform hand tasks.

### APPLICATION INFORMATION

DuPont™ VELPAR® L is recommended for general weed and brush control in noncrop sites such as railroads, highways, utility and pipeline rights-of-way, petroleum tank farms, storage areas, industrial plant sites, and other similar areas.

### NONCROP, INDUSTRIAL SITES

VELPAR® L is recommended for control of many annual, biennial, and perennial weeds in noncrop, industrial sites.

### APPLICATION TIMING

Apply VELPAR® L as a preemergence or postemergence spray when weeds are actively germinating or growing.

### WEEDS CONTROLLED - USE RATE

VELPAR® L effectively controls the following weeds when applied at the use rates shown. When applied at lower rates, VELPAR® L provides short-term control of the weeds listed; when applied at higher rates, weed control is increased and extended.

#### 1–2 1/2 Gal/Acre

Barnyardgrass	Lespedeza
Bindweed*	Milkweed*
Bouncingbet*	Mustard
Bromegrass	Nutsedge*
Buffalograss*	Orchardgrass*
Burdock	Oxalis
Cocklebur	Paragrass
Crabgrass	Pigweed
Crown vetch	Purslane
Curly dock*	Quackgrass
Dandelion*	Ryegrass, annual
Dogbane*	Smartweed
Fiddleneck	Spurge
Filaree	Star thistle
Fleabane	Trumpet creeper*
Goatsbeard vine	Wild oats*
Goldenrod	Wild parsnip

#### 3–4 Gal/Acre

Bahiagrass*	Guineagrass
Bermudagrass*	Heath aster
Blackberry	Honeysuckle
Bluegrass	Lantana
Broomsedge	Marestail
Camphorweed	Natalgrass
Canada thistle*	Plantain
Chickweed	Prickly lettuce
Clovers	Ragweed
Dewberry	Smutgrass†
Dogfennel*	Spanish needle
Fescue*	Vaseygrass
Fingergrass	Wild carrot
Foxtail	

\* Partial control

† Partial control may result with some of the giant (larger) smutgrass species.

### SPECIFIC WEED PROBLEMS

Control of Canada Thistle in Crown Vetch - VELPAR® L is recommended for control of Canada thistle in established stands of crown vetch on noncrop sites. Make a single application of 3–5 pt of VELPAR® L from late spring through mid-summer, when thistle is actively growing prior to flowering. Do not use a surfactant. Some discoloration of the crown vetch foliage may occur after application.

### SPRAY EQUIPMENT

Apply VELPAR® L uniformly over the desired area using ground equipment or helicopter. Do not apply more than 3 gal per acre of VELPAR® L by air.

### MIXING INSTRUCTIONS

Use enough water for thorough coverage. For ground application this is usually 25 gal per acre. Higher volumes may be needed to obtain uniform application with handgun equipment. For aerial applications (helicopter only) this usually a minimum of 5 gal per acre. Higher volumes of water may be needed when water temperatures are cold or the higher rates of VELPAR® L are used.

### INDUSTRIAL TURF (UNIMPROVED ONLY)

VELPAR® L is recommended for selective weed control in established stands of bermudagrass and/or bahiagrass in noncrop areas.

### APPLICATION TIMING

Make a single application of VELPAR® L per year when weeds are actively growing.

### WEEDS CONTROLLED - USE RATE

VELPAR® L effectively controls the following weeds at the rates shown. Use a lower rate on coarse-textured soils (sand to sandy loam). Use the higher rate on fine-textured soils (clay loam to clay) and on soils high in organic matter.

#### 2 3/4–4 1/2 pt

Barnyardgrass	Maypop (passion flower)
Dogfennel	Oxalis
Fescue	Pepperweed
Lespedeza	Pigweed
Little barley	Smutgrass†

† Partial control may result with some of the giant (larger) smutgrass species.



## SPRAY EQUIPMENT

Apply DuPont™ VELPAR® L uniformly over the desired area using ground equipment only.

## MIXING INSTRUCTIONS

For ground application, use enough water for thorough coverage usually a minimum of 25 gal per acre. The use of a surfactant is not recommended.

## USE PRECAUTIONS

### - INDUSTRIAL UNIMPROVED TURF

- Use VELPAR® L only in stands of bermudagrass and bahiagrass established for at least one year. Do not treat newly sprigged or sodded areas.
- Some discoloration of the bermudagrass or bahiagrass may occur after application.
- Injury may result when desirable grasses are under stress from drought, insects, disease, cold temperature, or poor fertility.
- Severe turf injury may occur if applications are made on gravelly or rocky soils, thinly covered subsoils, or soils with less than 1% organic matter.

## BRUSH CONTROL

VELPAR® L is recommended for the control of undesirable woody plants in noncrop sites.

## APPLICATION TIMING

Apply VELPAR® L from late winter through summer, prebud break until new growth hardens off.

In areas where the soil remains frozen during the winter and spring rains are usually inadequate for soil activation, a fall or winter treatment may be applied before the soil freezes.

## WOODY PLANTS CONTROLLED - USE RATE 2–4 Gal/Acre

Alder	Manzanita
American elm	Mesquite
Ash	Mulberry
Aspen	Multiflora rose
Balsam poplar	Myrtle
Birch	Oaks
Black cherry	Osage orange
Blackgum	Persimmon
Catclaw acacia	Privet
Chinaberry*	Red maple
Chinese elm	Sassafras*
Chinese tallow	Small soapweed
Deerbrush	Snowbrush
Dogwood	Sourwood
Eastern red cedar*	Sumac
Hackberry	Sweet bay
Hawthorne	Sweet gum
Hazel	Whitebrush
Hickory	Whitehorn
Huisache	Wild plum
Juniper	Willow
Locust	Yellow Poplar
Lotebush	

\*Partial control

## SPRAY EQUIPMENT AND APPLICATION TECHNIQUES

### BROADCAST

Apply 2 to 4 gals of VELPAR® L per acre as coarse spray by ground equipment or 2 to 3 gals per acre by air (helicopter only). Use enough water for thorough coverage. For ground equipment, usually a minimum of 25 gal per acre. For aerial equipment, usually a minimum of 10 gal per acre. Higher volumes of water may be needed when water temperatures are cold or the higher rates of VELPAR® L are used.

### BASAL (SOIL)

**Undiluted** - Apply VELPAR® L undiluted with an exact-delivery handgun applicator. This equipment delivers a thin stream of a predetermined volume when triggered. Apply VELPAR® L at the rate of 2–4 ml for each inch of stem diameter at breast height. Do not exceed 4 gal of VELPAR® L per acre per year. Direct the treatment to the soil within 3 feet of the root collar of woody plants to be controlled. When treating large stems and when more than one delivery of VELPAR® L is needed per stem, make applications on opposite sides of the stem.

For multi-stemmed and low-growing brush that have stem diameters that are difficult to determine, apply VELPAR® L at the rate of 2–4 ml per 3 feet of canopy width. For tall, slender (columnar) brush types, apply 4–8 ml per 3 feet of height. Base the rate on whichever canopy dimension is greater (width or height).

When treating brush that requires more than a single 4 ml application of VELPAR® L, apply subsequent applications equally spaced around the plant. If treating brush on sloped sites, apply most of the VELPAR® L on the uphill side of the stem. If treating resprouts from brush disturbed by cutting or shredding, the rate of application should be proportional to the original tree size, not just the small regrowth of sprouts.

**Diluted** - Mix one gal of VELPAR® L with 5 or more gal of water. Apply 2–4 gal of VELPAR® L per acre. Direct the spray to the soil in a serpentine pattern so that the swath on the soil is 6–12 inches wide at the base of the brush. Swaths should be 2–4 feet apart.

## USE PRECAUTIONS - NONCROP

- Injury to or loss of desirable trees or other plants may result if VELPAR® L is applied or if equipment is drained or flushed on or near desirable trees or other plants, on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
- Prevent spray from drifting to desirable plants.
- Poor weed and brush control may result from the following:
  - Use on poorly drained sites
  - Applications made when the soil is saturated with water and rain is imminent within 24 hours.
  - Applications to soils high in organic matter (greater than 5%).
- Following mechanical cutting or clearing, allow stumps and injured trees sufficient time to adequately resprout before applying VELPAR® L.



- Do not use DuPont™ VELPAR® L on frozen soils.
- Do not use VELPAR® L on lawns, driveways, tennis courts, or other residential or recreational areas.
- Weed and brush control results from spring applications depend on sufficient moisture to activate VELPAR® L.
- Do not cut treated vegetation for forage or hay nor graze domestic animals on treated areas for 60 days following application. For rates above 3 gal per acre, do not cut treated vegetation for forage or hay nor graze domestic animals for 1 year.

## PASTURE

VELPAR® L is recommended for control of brush and weeds in pasture.

### **BERMUDAGRASS/BAHIAGRASS PASTURES**

VELPAR® L is recommended for control of smutgrass and other weeds in established stands of bermudagrass and bahiagrass.

### **APPLICATION TIMING**

Make a single application of VELPAR® L per year when weeds are actively growing.

### **WEEDS CONTROLLED - USE RATES**

VELPAR® L effectively controls the following weeds at the rates shown. Use a lower rate on coarse-textured soils (sand to sandy loam). Use the higher rate on fine-textured soils (clay loam to clay) and on soils high in organic matter.

#### **2 3/4-4 1/2 pt**

Barnyardgrass	Maypop (passion flower)
Dogfennel	Oxalis
Fescue	Pepperweed
Lespedeza	Pigweed
Little barley	Smutgrass*

\* Partial control may result with some of the giant (larger) smutgrass species.

### **SPRAY EQUIPMENT**

Apply VELPAR® L uniformly over the desired area using ground equipment only.

### **MIXING INSTRUCTIONS**

For ground application, use enough water for thorough coverage usually a minimum of 25 gal per acre. The use of a surfactant is not recommended.

### **USE PRECAUTIONS - PASTURE**

- Use VELPAR® L only in stands of bermudagrass and bahiagrass established for at least one year. Do not treat newly sprigged or sodded areas.
- Some temporary discoloration of the bermudagrass or bahiagrass may occur after application.
- Treatment of mixed pastures containing forage species other than bermudagrass or bahiagrass may result in injury or mortality to the other forage species.
- Injury may result when desirable grasses are under stress from drought, insects, disease, cold temperature, or poor fertility.

- Injury to or loss of desirable trees or other plants may result if VELPAR® L is applied or if equipment is drained or flushed on or near desirable trees or other plants, on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
- Severe crop injury may occur if applications are made on gravelly or rocky soils, thinly covered subsoils, or soils with less than 1% organic matter.

## BRUSH CONTROL PASTURE/RANGELAND

VELPAR® L is recommended for the control of undesirable woody plants in pasture or rangeland.

### **APPLICATION TIMING**

Apply VELPAR® L from late winter through summer, pre-budbreak until new growth hardens off.

In areas where the soil remains frozen during the winter and spring rains are usually inadequate for soil activation, a fall or winter treatment may be applied before the soil freezes.

### **WOODY PLANTS CONTROLLED**

Alder	Manzanita
American elm	Mesquite
Ash	Mulberry
Aspen	Multiflora rose
Balsam poplar	Myrtle
Birch	Oaks
Black cherry	Osage orange
Blackgum	Persimmon
Catclaw acacia	Privet
Chinaberry*	Red maple
Chinese elm	Sassafras*
Chinese tallow	Small soapweed (yucca)
Deerbrush	Snowbrush
Dogwood	Sourwood
Eastern red cedar*	Sumac
Hackberry	Sweet bay
Hawthorne	Sweet gum
Hazel	Whitebrush
Hickory	Whitehorn
Huisache	Wild plum
Juniper	Willow
Locust	Yellow poplar
Lotebush	

\* Partial control.

### **SPRAY EQUIPMENT AND APPLICATION TECHNIQUES**

Basal (Soil) Undiluted - Apply VELPAR® L undiluted with an exact-delivery handgun applicator. This equipment delivers a thin stream of a predetermined volume when triggered. Apply VELPAR® L at the rate of 2-4 ml for each inch of stem diameter at breast height. Do not exceed 1/3 gal of VELPAR® L per acre per year. Direct the treatment to the soil within 3 inches of the root collar of woody plants to be controlled. When treating large stems and when more than one delivery of VELPAR® L is needed per stem, make applications on opposite sides of the stem.

## **USE PRECAUTIONS**

### **- PASTURE /RANGELAND**

- Injury to or loss of desirable trees or other plants may result if DuPont™ VELPAR® L is applied or if equipment is drained or flushed on or near desirable trees or other plants, on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
- Poor weed and brush control may result from the following:
  - Use on poorly drained sites
  - Applications made when the soil is saturated with water and rain is imminent within 24 hours
  - Applications to soils high in organic matter (greater than 5%)
- Following mechanical cutting or clearing, allow stumps and injured trees sufficient time to adequately resprout before applying VELPAR® L.
- Do not use VELPAR® L on frozen soils.
- Weed and brush control results depend on sufficient moisture to activate VELPAR® L.
- When VELPAR® L is applied as a basal soil treatment, there is no restriction on grazing by domestic animals nor on cutting surrounding vegetation for forage or hay.
- For broadcast pasture applications of VELPAR® L, do not cut treated vegetation for forage or hay nor graze domestic animals on treated areas for 60 days.

## **ADDITIONAL USE INFORMATION**

### **SPRAY DRIFT MANAGEMENT**

The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions. Avoiding spray drift is the responsibility of the applicator.

### **IMPORTANCE OF DROPLET SIZE**

The most effective way to reduce drift potential is to apply large droplets (greater than 150–200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly or under unfavorable environmental conditions! See the Wind, Temperature and Humidity, and Temperature Inversions sections below.

### **CONTROLLING DROPLET SIZE**

#### **- GENERAL TECHNIQUES**

- Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use a higher-capacity nozzle instead of increasing pressure.

- Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles.

### **CONTROLLING DROPLET SIZE - AIRCRAFT**

- Number of Nozzles - Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- Nozzle Orientation - Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.
- Nozzle Type - Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.

### **BOOM LENGTH AND HEIGHT**

- Boom Length (aircraft) - The boom length should not exceed 3/4 of the wing length, using shorter booms decreases drift potential. For helicopters use a boom length and position that prevents droplets from entering the rotor vortices.
- Boom Height (aircraft) - Application more than 10 feet above the canopy increases the potential for spray drift.
- Boom Height (ground) Setting the boom at the lowest labeled height (if specified) which provides uniform coverage reduces the exposure of droplets to evaporation and wind. The boom should remain level with the crop and have minimal bounce.

### **WIND**

Drift potential increases at wind speeds of less than 3 mph (due to variable direction and inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. AVOID GUSTY OR WINDLESS CONDITIONS.

**Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they effect spray drift.

### **TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

### **SURFACE TEMPERATURE INVERSIONS**

Drift potential is high during a surface temperature inversion. Surface inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Surface 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 a surface inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

## SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift, and not interfering with uniform deposition of the product.

## SPRAY TANK CLEAN OUT

Thoroughly clean all traces of DuPont™ VELPAR® L from application equipment immediately after use. Flush the tank, pump, hoses, and boom with several changes of water after removing nozzle tips and screens (clean these parts separately).

### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store product in original container only. Store in a cool, dry place.

**Pesticide Disposal:** Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal: For Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. **For Metal Containers (non aerosol):** Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

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**NOTICE:** Read This Limitation of Warranty and Liability Before Buying or Using This Product. If the Terms Are Not Acceptable, Return the Product at Once, Unopened, and the Purchase Price Will Be Refunded.

It is impossible to eliminate all risks associated with the use of this product. Such risks arise from weather conditions, soil factors, off target movement, unconventional farming techniques, presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of DuPont. These risks can cause: ineffectiveness of the product; crop injury, or; injury to non-target crops or plants.

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**Internet address: <http://cropprotection.dupont.com/>**

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