

FEB 27 1993

Willy Lin, Ph.D.
Ag Products
E. I. du Pont de Nemours & Co. Inc.
P.O. Box 80038
Wilmington, DE 19880-0038

Dear Dr. Lin:

Subject: Du Pont Velpar[®] Herbicide
EPA Registration No. 352-378
Application Dated February 25, 1993 Responding To
This Agency's Letter of January 11, 1993 by Adding
Appropriate PHS for Broadcast Treatments for
Sugarcane Use-Patterns and by Adding an Appropriate
PHS for Grazing and Harvesting Forage and Hay
from Forestry Sites of Application, and Other
Clarifying Amendments

The proposed amendments described in your application of February 25, 1993 and in the caption subject of this letter are acceptable for registration under section 3 of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as amended are acceptable provided that you:

- o Submit five (5) printed copies of the final printed label before releasing the product for shipment.

If this condition is not complied with, the registration will be subject to cancellation in accordance with FIFRA, section 6(a). Your release for shipment of the product constitutes acceptance of this condition.

A stamped copy of the labeling is enclosed for your records.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Fungicide-Herbicide Branch
Registration Division (H-7505C)

Enclosure

E. Wilson: Diskette #0009: 03-10-93

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PH23 352-378 1000X, New York, NAC 2011
26 Wilson - 3-10-93

REGISTRATION CODE 0392-000
PACKAGE SIZE
8 - 5 POUND BAGS/CARTON
50 POUND BAGS



VELPAR®

**HERBICIDE
SOLUBLE POWDER**

ACTIVE INGREDIENT
Hexazinone: [2-cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4(1H,3H)-thione] 90%
INERT INGREDIENTS 10%
TOTAL 100%

EPA Reg. No. 352-378

U.S. Pats. 3,902,887 & 3,963,116

**KEEP OUT OF REACH OF CHILDREN
DANGER**

PELIGRO PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta haya sido explicada ampliamente.

**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. Mixers, loaders and applicators must wear goggles, face shield or safety glasses. Remove and wash contaminated clothing before reuse.

STATEMENT OF PRACTICAL TREATMENT

**ACCEPTED
with COMMENTS
in EPA Letter Dated:**

IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Call a physician if irritation persists.

IF ON SKIN: Wash with plenty of soap and water. Get medical attention if irritation persists.

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

10 MAR 1993

ENVIRONMENTAL HAZARDS

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 352-378

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply where runoff is likely to occur. Do not contaminate water when disposing of equipment washwaters.

IMPORTANT

Wear goggles when use or handling conditions favor eye exposure or if eye discomfort is encountered.

Injury to or loss of desirable trees or other plants may result from failure to observe the following: Do not apply or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of dry powder or spray to desirable plants. Keep from contact with fertilizers, insecticides, fungicides and seeds.

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

GENERAL INFORMATION

Du Pont "Velpar" Herbicide is a water-soluble powder to be mixed in water and applied as a spray for selective weed control in certain crops; Christmas trees, for selective weed and brush control in reforestation areas; and for non-selective weed and brush control on industrial areas. It is non-volatile, non-flammable and non-corrosive to equipment.

"Velpar" is an effective general herbicide providing both contact and residual control of many annual and biennial weeds, woody plants and, except for Johnsongrass, is effective for control of most perennial weeds. It is absorbed through the roots and foliage.

Moisture is required to activate "Velpar" in the soil. Best results are obtained when weeds are less than 2 inches in height or diameter, soil is moist at time of application and 1/4 to 1/2 inch of rainfall occurs within 2 weeks after application. Foliar activity on weeds is most effective under conditions of high temperature (above 80 degrees F), high humidity and good soil moisture. Foliar activity when vegetation is dormant, semi-dormant, or under stress may be reduced.

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

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

The degree of control and duration of effect will vary with the amount of chemical applied, rainfall, temperature, weed species, soil texture and other conditions.

DIRECTIONS FOR USE

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

Du Pont "Velpar" Herbicide should be used only in accordance with recommendations on this label, or in separate published Du Pont recommendations available through local dealers.

Du Pont will not be responsible for losses or damages resulting from use of this product in any manner not specifically recommended by Du Pont. User assumes all risk associated with such non-recommended use.

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Written or oral warnings must be given to farm workers who are expected to be in a treated area or in an area about to be treated with this product. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Warnings must include the following information: "WARNING. Area treated with "Velpar" on (date of application). Do not enter without appropriate protective clothing until sprays have dried. In case of contact, flush skin or eyes with plenty of water; for eyes, get medical attention."

Do not enter or allow entry into treated areas until sprays have dried to perform hand tasks. A person may enter the areas to perform other tasks only if the person is wearing the personal protective eye equipment listed on the label. Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

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

APPLICATION:

"Velpar" may be applied by ground equipment, and where permitted, aerial equipment. Use rates, minimum spray gallonage and other application information are described in the various use categories.

For best results, apply "Velpar" just before or soon after weed emergence. Do not apply to frozen or snow covered soil. Avoid overlapping and shut off spray booms while starting, turning, slowing or stopping, as injury to the crops may result.

Always calibrate equipment prior to use.

RATE SELECTION:

Where a rate range is shown, use the higher levels of the dosage range under the following conditions; on hard-to-control species; on fine-textured soils; on soils containing more than 5% organic matter or carbon. Use the lower levels of the dosage range on coarse-textured soils; on soils low in organic matter. Refer to specific use categories for use rate ranges.

SURFACTANTS:

When emerged seedling weeds are present, the addition of a surfactant improves contact action by increased wetting and absorption by foliage. For forestry and noncrop sites, use a non-ionic surfactant of at least 80% active ingredient (1 qt/100 gals spray). Similarly, use an agricultural surfactant approved for use on growing crops such as X-77 with "Velpar" for treatment of emerged weeds in dormant alfalfa, pineapple and sugarcane. Use of "Velpar" plus surfactant on growing crops (including trees) may cause injury to the crops.

MIXING:

Before spraying, calibrate equipment to determine the quantity of water necessary to uniformly and thoroughly cover the vegetation and soil in a measured area to be treated. Make sure the volume of water is sufficient to completely dissolve the "Velpar" using the Water Temperature/Solubility Table as a guide. Use of concentrations greater than shown in the Water Temperature/Solubility Table may result in nozzle plugging and uneven distribution.

Water Temperature/Solubility Table	
Water Temperature Degrees F.	Solubility Max. Lbs "Velpar" per 100 Gals
75	23
70	20
65	18
60	16
55	14
50	13
40	12

Add the proper amount of "Velpar" into a spray tank filled with the amount of water to be used and dissolve using sufficient agitation to prevent the powder from settling. Continue agitation for approximately 10 minutes or until the powder is dissolved. For application with a handgun sprayer, use sufficient water (50 to 200 gals per acre) for thorough coverage. Where applicable, add surfactant and/or anti-foam agent as last ingredient in the tank.

ALFALFA

Du Pont "Velpar" Herbicide is recommended for control of certain weeds in established hay alfalfa except in the states of Montana, North Dakota, South Dakota and Wyoming. It is also recommended for control of certain weeds in established seed alfalfa in the state of California.

Best results are obtained when 1/2 to 1" 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" tall or across.

Since the effect of "Velpar" on alfalfa varies with soil conditions, uniformity of application and environmental conditions, it is suggested that growers limit their first use to small areas.

Treat only stands of alfalfa established for one year or for one growing season, provided the alfalfa root system is well established and the crop is healthy, vigorous and not under stress from weather conditions, insect or disease damage. Do not use on alfalfa-grass mixtures or on other mixed stands.

At elevations above 3,000 ft. do not use "Velpar" on alfalfa that has been established with a cover or nurse crop until the alfalfa has gone through two summer growing seasons.

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NON-DORMANT AND SEMI-DORMANT VARIETIES

Make a single application of "Velpar" during winter months when alfalfa plants are in the least active stage of growth; see "Use Rates" for dosage.

In states of Connecticut, Delaware, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia and Wisconsin, make a single application of 1/2 to 1 1/2 lbs per acre 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. Severe alfalfa injury may result following an after-cutting application if the regrowth is more than 2 inches high, or significant stubble is left after alfalfa cutting, and/or the air temperature is above 90 degrees F.

DORMANT VARIETIES

Make a single application of "Velpar" after it becomes dormant and before new growth begins in the spring; see "Use Rates" for dosage.

Do not exceed 3.0 lbs per acre on alfalfa less than one year old.

SEED ALFALFA (California Only)

Do not use on fields with sandy loam or loamy sand soils having less than 1% organic matter.

Do not exceed 1/2 lb per acre on fields with sandy loam or loamy sand soils having between 1 and 2% organic matter.

Do not exceed 1/2 lb per acre on seed alfalfa that has been established for only one growing season.

If abnormally dry conditions exist following application, restrict first irrigation to not more than 1/2 acre inch of water. See "Use Rates" for other situations.

Application and Spray Volumes

Apply "Velpar" using a fixed-boom power sprayer or aerial equipment. Before spraying, calibrate equipment to determine the quantity of water necessary to uniformly and thoroughly cover the vegetation. The sprayer must be properly calibrated to a constant speed and rate of delivery. Avoid overlapping and shut off spray booms while starting, turning, slowing or stopping to prevent crop injury.

Add the "Velpar" to a water-filled tank. Agitate for approximately 10 minutes, vigorously enough to prevent settling in order to dissolve the product. Apply in at least 20 gals of water per acre by ground and 5 to 15 gals of water per acre by air, but use at least 10 gals of water for each 1 lb of "Velpar".

Use Rates

Select the appropriate dose for soil texture and organic matter content from table below:

IMPORTANT:

Do not use on gravelly or rocky soils, exposed subsoils, hardpan, sand, poorly drained or alkali soils.

Crop injury, including mortality, may result in fields having restricted root growth due to non-uniform soil profiles such as gravel bases, hardpans, and clay lenses.

Do not add surfactant to "Velpar" when treating non-dormant alfalfa.

For dormant alfalfa, use a surfactant approved for use on growing crops (such as X-77) at 1 qt/100 gals spray solution.

Weeds Controlled:

"Velpar", when applied preemergence or early postemergence to the weeds, will control the following species:

1/4 to 1/2 lb/acre:

Tansy mustard

1/2 to 1 lb/acre:

- Annual bluegrass
- Blue mustard
- Cheatgrass (downy brome)
- Common chickweed
- Common groundsel
- Dogfennel(mayweed)
- English catchfly
- Fiddleneck (tarweed)
- Field pennycress
- Filaree
- Flixweed
- Jim Hill mustard

- London rocket
- Miners lettuce
- Salsify
- Seeding foxtail barley
- Seeding orchardgrass
- Shepherdspurse
- Spurry
- Tansy mustard
(Except Colorado & Kansas)
- Wild radish
- Yellow rocket

1 to 1 1/2 lbs/acre:

- Annual ryegrass
- Henbit
- Common dandelion (spring only)*
- False dandelion*
- Foxtail (Setaria spp.)*
- Mexican tea*
- Perennial bluegrass*
(i.e., Canada bluegrass)
- Lytleaf speedwell
- Purslane speedwell
- Prickly lettuce*
- Quackgrass*
- Seeding alfalfa*
- White cockle*

*Partial control. Observable reduction in weed competition as compared to an untreated area. Degree of partial control can vary with soil type, environmental factors, and size of weeds at the time of application.

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Soil Texture	"Velpar" (Pounds/Acre)		
	Soils With <1% Organic Matter	Soils With 1 to 5% Organic Matter	Soils With >5% Organic ¹ Matter
Coarse Loamy sand, sandy loam	1/2 to 3/4	1/2 to 3/4	1 to 1 1/2
Medium Loam, silt loam, silt, clay loam, sandy clay loam	1/2 to 3/4	3/4 to 1 1/2	1 to 1 1/2
Fine Silty clay loam, sandy clay, silty clay, clay	3/4 to 1 1/2	3/4 to 1 1/2	1 to 1 1/2
¹ On soils high in organic matter (>5%), the effectiveness of "Velpar" can be significantly reduced and weed control may be unsatisfactory.			

Late Spring and between cutting applications of 1/2 to 1 lb/acre will control the following weeds: (For Northeastern and Midwestern States only)

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

REPLANTING: (Following Alfalfa)

Corn may be planted 12 months after the last treatment, except in areas of low rainfall (20 inches or less) where corn may be planted 12 months after the last treatment, provided the use rate did not exceed 3/4 lbs per acre. Do not plant treated areas to any other crop within two years after treatment as crop injury may result.

Do not plant seed alfalfa areas to any other crop within two years after treatment, as crop injury may result.

NOTE: Because crop injury may result, do not apply to actively growing alfalfa nor to stubble between cuttings, except as recommended for Northeastern and Midwestern states. Do not apply to alfalfa-grass mixtures; do not apply to alfalfa growing under stress from insect, disease, or winter injury, or showing symptoms of other stress conditions; do not use on hardpan, alkali or poorly drained soils. Extremely heavy rainfall or more than 1 inch of irrigation after application may result in crop injury or non-performance. Do not apply to snow covered or frozen ground. Do not use in low desert valleys in California or Arizona. Temporary alfalfa yellowing may occur following herbicide applications. Do not use in the states of Montana, North Dakota, South Dakota and Wyoming.

Do not graze or feed treated forage or hay to livestock within 30 days following application.

FORESTRY

Since the effect of "Velpar" on conifers varies with soils, uniformity of application, and environmental conditions, it is suggested that growers limit their first use to small areas.

Because injury (stunting) to conifers may result; do not use in nurseries, seed beds or ornamental plantings; do not use on trees which show poor vigor because of insect, disease or winter injury, or show symptoms of

other stress conditions; do not add surfactant if applied over the top of conifers; do not use on poorly drained soils. In addition, conifer injury may result where severe winter stress, disease, or insect damage follows application, or heavy rains occur soon after application.

NOTE: For broadcast treatments, do not cut for forage or hay nor graze domestic animals on treated areas for 60 days.

CHRISTMAS TREE PLANTATIONS

"Velpar" is recommended for control of certain weeds where the following species are grown:

- | | |
|---------------|--------------|
| Austrian pine | Scotch pine |
| Grand fir | Sitka spruce |
| Noble fir | |

USE RATES: East of the Rocky Mountains (Table 1)
DO NOT USE IN:

- | | |
|---------------|----------------|
| Connecticut | North Carolina |
| Delaware | Pennsylvania |
| Maine | Rhode Island |
| Maryland | Texas |
| New Hampshire | Vermont |
| New Jersey | Virginia |
| New York | West Virginia |

Weeds Controlled:

- | | |
|---------------------------|------------------------|
| Annual bluegrass | Fleabane |
| Barnyardgrass | Foxtail |
| Bentgrass | Oxeye daisy |
| Bromegrass | Pennsylvania smartweed |
| Catsear (False dandelion) | Velvetgrass |
| Common groundsel | Wild carrot |
| Common ragweed | |

TABLE 1 Soil Texture*	Pounds "Velpar" Per Acre ³	
	FIRST YEAR PLANTINGS ¹	ESTABLISHED TREES ²
Gravelly or rocky soils, exposed subsoils, clay knobs, sand, or sandy soil with 85% or more sand	DO NOT USE	DO NOT USE
Loamy sand, sandy loam (50-85% sand)**	1	1 to 1 1/4
Loam, silt loam, silt and sandy clay loam	1 to 1 1/4	1 1/4 to 1 3/4
Silty clay loam, clay loam, sandy clay, silty clay, and clay	1 1/4 to 1 1/2	1 3/4 to 2

Moisture is necessary for full activation of "Velpar". Best results are obtained when weeds are less than 2 inches in height or diameter, soil is moist at time of application and 1/2 to 1 inch of rainfall occurs within 2 weeks after application.

* Do not use on any soil containing less than 1% organic matter; do not use on loamy sand or sandy loam with less than 2% organic matter.

** On soils high in organic matter, 5% or greater, the effectiveness of "Velpar" can be significantly reduced and weed control may be unsatisfactory.

¹ Apply only to transplant stock that is 2 years old or more (1 year old, for loblolly pine). Allow at least two months after transplanting before applying "Velpar", then apply only if rainfall has settled the soil around the base of the transplants.

² Rates recommended are for trees that have been established for 1 year or more.

³ Use rates in excess of those specified for the soil texture may result in injury to the conifers.

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Treatment Provides Partial Control of:

- | | |
|-----------------------|--------------|
| Crabgrass | Goldenrod |
| Curly dock | Horseweed |
| Dandelion | Orchardgrass |
| Fescue | Ryegrass |
| Fireweed (willowweed) | |

See Table 1 for rate selection.

Apply as a broadcast spray in the spring prior to conifer bud break. If application is made after bud break, use directional spray equipment and prevent contact of conifer foliage or injury may result. Rates expressed are for broadcast application. Select a spray volume that will ensure a thorough and uniform application, usually 25 gals per acre (see mixing instructions under Directions For Use). For band application, use proportionately less; for example, use 1/2 of the broadcast rates when treating a 3 ft. band where row spacing is 6 ft.

USE RATES: West of Rocky Mountains

In addition to trees listed above, "Velpar" is recommended for use in Douglas Fir.

Weeds Controlled at 1 to 1 1/2 lbs per acre:

- | | |
|---------------------------|------------------|
| Annual bluegrass | Fleabane |
| Barnyardgrass | Common groundsel |
| Bromegrass | Oxeye daisy |
| False dandelion (catsear) | Velvetgrass |

Treatment at 2 lbs/acre Provides Partial Control Of:

- | | |
|-------------|-----------------------|
| Crabgrass | Orchardgrass |
| Curlydock | Ryegrass |
| Dandelion | Smartweed |
| Fescue | Wild carrot |
| Goldenrod | Willowweed (fireweed) |
| Heath aster | |

"Velpar" may be applied by air or ground equipment. Select a spray volume that will ensure a thorough and uniform application (see mixing instructions under Directions For Use). Use mechanical or by-pass agitation to thoroughly mix the spray solution. After initial mixing, do not use excessive agitation as foaming problems may result. To avoid foaming problems, use anti-foam agents and minimal agitation. Avoid overlapping and shut off spray booms while starting, turning, slowing or stopping, as injury to conifers may result.

Rainbelt (areas of high spring rainfall): For best results, apply in the spring when weeds are actively growing, but prior to bud break on conifers. If application is made after bud break, use directional spray equipment so that spray does not contact new growth as injury may result.

Snowbelt (areas of low spring rainfall): For best results, apply in the fall before soil freezes or in the spring in anticipation of rainfall. Weed control results from spring applications will be dependent on sufficient rainfall following treatment to activate "Velpar". Spring applications should be made after snow cover melts, but before bud break occurs.

Rate selection is based on soil texture. Do not use rates in excess of those listed for a particular soil texture as injury to conifers may result. To determine soil texture and organic matter content, have soil samples classified by a reputable laboratory.

See Table 1 for use rates.

REFORESTATION AREAS

"Velpar" is recommended for use in site preparation and conifer release areas. Refer to use categories for specific recommendations for conifer species, rate, timing and species controlled by geographic area.

SITE PREPARATION: East of Rocky Mountains

"Velpar" is recommended (ground or aerial) in forestry site preparation areas where these species will be grown:

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

Plants Controlled:

When used as directed, "Velpar" provides both contact and residual control of:

- | | |
|------------------|------------------------|
| Annual bluegrass | Fleabane |
| Asters | Foxtail |
| Barnyardgrass | Oxeye daisy |
| Bentgrass | Pennsylvania smartweed |
| Common groundsel | Pinegrass |
| Common ragweed | Velvetgrass |
| Elksedge | Wild carrot |

- | | |
|-------------------------------|-------------|
| Ash | Hazel |
| Aspens (big tooth, trembling) | Hickory |
| Balsam poplar | Oaks |
| Birch | Sweetgum |
| Elm | Willows |
| Hawthorne | Wild Cherry |

Plants Partially Controlled:

- | | |
|---------------------------|--------------------|
| Canada thistle | Goldenrod |
| Crabgrass | Heath aster |
| Curly dock | Perennial ryegrass |
| Dandelion | Honeysuckle |
| False dandelion (catsear) | Horseweed |
| Blackgum | Orchardgrass |
| Fireweed (Willowweed) | Quackgrass |
| Flowering dogwood | Red maple |
| Fescue | Sourwood |

Apply 2 to 6 lbs of "Velpar" per acre. For aerial application use at least 8 gals per acre; for ground application use enough water for thorough coverage, usually 25 gals/acre. On fine textured soils and hard-to kill species use the higher rates of "Velpar"; for coarser soils use a lower rate. To reduce drift, use a precise application spray boom and/or add a spray thickening agent. If a spray thickening agent is used in the tank mixture, follow all label directions.

Add the "Velpar" to a water filled tank and mix thoroughly. A surfactant may then be added. After thorough mixing, a defoaming agent may be added. Agitate thoroughly to disperse the defoaming agent.

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Combination with "Tordon 101"

Apply as a foliar treatment for woody plant control for pine site preparation. In addition to the species listed above, this treatment controls woody plants such as:

Black gum	Sassafras
Pine	Sourwood
Prunus spp.	

Apply 2 to 6 lbs of "Velpar" plus 1 to 2 gals of "Tordon 101" per acre.

Use 1 1/2 to 2 gals of "Tordon 101" per acre when the major components of the hardwood composition to be controlled are species other than elm, oak or sweetgum.

When oak, elm, sweetgum, blackberry and prunus predominate, use 3 to 6 lbs of "Velpar" plus 1 gal of "Tordon 101".

When blackgum, dogwood, sourwood and red maple predominate, use 2 to 6 lbs of "Velpar" plus 1 1/2 to 2 gals of "Tordon 101".

"Velpar", alone or in tank mixture with "Tordon 101", should be applied during the period from late spring to early summer after the trees have reached full leaf, but before leaf tissue hardens; or, in Maine, Michigan, Minnesota, New Hampshire, New York, Vermont and Wisconsin, after bud break. Do not burn treated sites after initial contact (browning) effect on foliage (ten weeks or more). Burn only after brush has completely defoliated at least once from sufficient root uptake of "Velpar", usually 60 to 90 days after adequate rainfall.

¹ Registered trademark of Dow Chemical Company.

NOTE:

In the South, pines planted sooner than six months after treatment with "Tordon 101" may be injured. For all conifers, the waiting period between treatment and planting should be 8 to 9 months in the lake states and the Northeastern U.S.

Do not use on wet or poorly drained sites.

Before using "Tordon 101", read and carefully observe the cautionary statements and all other information appearing on the product label. Note in particular that "Tordon 101" 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 the certified applicators certification.

CONIFER RELEASE

Southern, Northern States:

Recommended for conifer release where the following species are grown:

Balsam fir	Red spruce
Black spruce	Shortleaf Pine
Loblolly pine	Virginia pine
Norway spruce	White spruce
Red pine	

Plants Controlled:

Herbaceous Plants:

Aster	Horseweed
Bracken fern	Fireweed
Common groundsel	Foxtail
Common ragweed	Panicums
Crabgrass	Wild carrot
Dog fennel	Quackgrass*
Goldenrod	Ryegrass*

Woody Plants:

Ash	Hawthorne
Aspen	Hazel
Balsam poplar	Honeysuckle
Birch	Oaks (red, black and white)
Box elder	Red maple*
Brambles	Sumac*
Cherry (black and pin)	Sweetgum*
Dogwood*	Willow
Elm	

*Considered hard-to-kill. Partial control or suppression only.

Apply 1 to 2 lbs of "Velpar" per acre (red pine - 1 to 4 lbs, loblolly pine - 3/4 to 3 lbs, shortleaf pine - 2 lbs) by air or ground. For aerial application use at least 8 gals per acre; for ground application use enough water for thorough coverage, usually 25 gals/acre. Do not use a surfactant.

The preferred pine stage of growth for application is between growth spurts, if more than one occurs. Some conifer needles may be discolored; however, full recovery can be expected the following spring. Mortality of some pine trees may occur. At least 1 to 2 inches of rainfall are needed for soil activation.

Southern States:

"Velpar" should be applied during the period from early Spring (one-half leaf) until early Summer after the hardwood trees have reached full leaf stage, but before leaf tissue has hardened.

Northern States:

Apply from late Spring, at or near conifer bud break, until early summer. For maximum contact activity on woody brush, apply after brush is in 3/4 leaf stage.

NOTE:

Do not apply where conifers are suffering from loss of vigor caused by insects, disease, drought, winter damage, or other stresses, as injury may result.

Excessive injury may result to conifers less than 4 years of age from transplanting on coarse-textured soils, and less than 3 years of age from transplanting on medium and fine-textured soils.

Poor weed and brush control may occur from use on poorly drained or marshy sites.

Poor weed and brush control may occur from applications made when the soil is saturated with water and rain is imminent within 24 hours.

Severe injury may result from use on jack pine, white pine or larch.

Use the lower rates on coarse-textured soils (i.e., sand, loamy sand, sandy loam).

Use the intermediate rates on medium-textured soil (i.e., loam, silt loam, silt).

Use the higher rates on medium-fine and fine-textured soils (i.e., sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay).

Use on gravelly or rocky soils and exposed subsoils may cause conifer injury or mortality.

On tracts of land where various soil types are present and "Velpar" rate selection is difficult, conifer damage or less than expected vegetation suppression may occur due to rate differences required for various soil types.



SITE PREPARATION, CONIFER RELEASE:

West of Rocky Mountains:

"Velpar" is recommended for use in forestry site preparation and conifer release where the following species are grown:

- | | |
|--------------|----------------|
| Douglas fir | Ponderosa pine |
| Grand fir | Sitka spruce |
| Jeffrey pine | White fir |
| Noble fir | |

Plants Controlled:

- | | |
|---------------------------|-------------------------|
| Annual bluegrass | Fleabane |
| Barnyardgrass | Foxtail |
| Bromegrass | Oxeye daisy |
| Catsear (false dandelion) | Velvet grass |
| Common groundsel | Wild carrot |
| Deerbrush ceanothus | Snowbrush ceanothus |
| Greenleaf manzanita | (varnishleaf ceanothus) |
| | Squawcarpet |

Plants partially controlled:

- | | |
|-------------|-----------------------|
| Dandelion | Orchardgrass |
| Fescue | Ryegrass |
| Goldenrod | Smartweed |
| Heath aster | Willowweed (fireweed) |

Apply as a pre-plant or post-plant broadcast or band application. For band applications, use proportionately less; for example, use 1/2 the broadcast rate when treating a 3 ft band where row spacing is 6 ft.

For herbaceous control, use 1 to 2 lbs per acre and 1 1/2 to 3 lbs per acre for brush control. 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.

For brush control, applications should be made to brush seedlings or sprouts when less than 18" in height or diameter. "Velpar" effects may be slow to appear and maximum results will be seen 12 to 24 months following the application.

Weed control is dependent on sufficient rainfall following treatment to activate "Velpar". Apply "Velpar" by air or ground equipment. Select a spray volume that will insure a thorough and uniform application, at least 8 gals. of spray per acre by air and usually 25 gals. of spray per acre by ground (see mixing instructions under Directions For Use). Use mechanical or by-pass agitation to thoroughly mix the spray solution. After initial mixing, do not use excessive agitation as foaming problems may result. To avoid foaming problems, use anti-foam agents and minimal agitation.

Rainbelt (areas of high Spring rainfall): For best results, apply in the late Winter or Spring when weeds are actively growing, but prior to bud break on conifers. If application is made after bud break, use directional spray equipment so spray does not contact new growth, as injury may result.

Snowbelt (areas of low Spring rainfall): For best results, apply in the Fall before soil freezes, or in the Spring in anticipation of rainfall. Weed control results from Spring applications will be dependent on sufficient rainfall following treatment to activate "Velpar". Spring applications should be made after snow cover melts, but before bud break occurs.

NOTE:

Use on gravelly or rocky soils, exposed subsoils, clay knobs, sand or sandy soils with 85% or more sand may cause conifer injury or mortality and poor weed and brush control may occur.

Conifer injury or mortality may occur on any soil containing less than 1% organic matter.

On soils high in organic matter (greater than 5%) effectiveness of "Velpar" is reduced and results may be unsatisfactory.

Use on loamy sand or sandy loam with less than 2% organic matter may cause conifer injury except for Ponderosa and Jeffrey pine.

On first year plantations, "Velpar" may only be applied (either pre-plant or post-plant) to transplant stock that is 2 years old (2-0) or more, except for 1 year old (1-0) for Ponderosa and Jeffrey pine.

When applying "Velpar" after transplanting, wait until rainfall has settled the soil around the base of the transplants before making the treatment.

Damage may occur to Incense cedar, Sugar pine and Giant Sequoia.

Heavy duff or slash present at time of application may result in poor weed or brush control.

INDUSTRIAL WEED AND BRUSH CONTROL

"Velpar" is recommended for general weed and brush control in noncropland areas such as railroads, highways, utility and pipeline right-of-ways, petroleum tank farms, storage areas, industrial-plant sites, the berms of drainage ditches (do not apply to the inside of ditch banks or to the inside of banks along waterways) and other similar areas.

For broadcast treatments (ground equipment only), apply "Velpar" as a spray just before or soon after weed emergence. Do not apply to frozen or snow-covered soil. To improve wetting and contact action, add a non-ionic surfactant at 0.25% by volume.

Use a sprayer properly calibrated to a constant speed and rate of delivery. For application with a handgun sprayer, use sufficient water (50 to 200 gals per acre) for thorough coverage.

NOTE: Do not cut for forage or hay nor graze domestic animals on treated areas for 60 days; for rates above 6 lbs "Velpar" per acre, do not cut for forage or hay nor graze.

WEED CONTROL:

SHORT-TERM CONTROL (up to 3 months):

Apply "Velpar" at the rate of 2 to 5 lbs per acre for control of many annual, biennial and perennial weeds. Species controlled:

- | | |
|-----------------|---------------------|
| Barnyardgrass | Lespedeza |
| Bindweed* | Milkweed* |
| Bouncing bet* | Mustard |
| Bromegrass | Nutsedge* |
| Buffalograss* | Orchardgrass* |
| Burdock | Oxalis |
| Cocklebur | Paragrass |
| Crabgrass | Pigweed |
| Crown vetch | Purslane* |
| Curly dock* | Quackgrass |
| Dandelion* | Ryegrass |
| Dogbane* | Smartweed |
| Fiddleneck | Spurge |
| Filaree | Trifolium, creeper* |
| Fleabane | Wild onion* |
| Goatsbeard vine | Wild parsnip |
| Goldenrod | Wild star thistle |

*Considered hard-to-kill; partial control or suppression only.



SEASON-LONG CONTROL:

Apply "Velpar" at the rate of 6 to 12 lbs per acre.

Controls:

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

*Considered hard-to-kill; partial control or suppression only.

BRUSH CONTROL:

Apply "Velpar" at the rate of 4 to 8 lbs per acre as a broadcast spray in at least 40 gals of spray per acre between late winter and early summer.

Species controlled:

Hawthorne	Poplar
Hickory	Sumac
Maple	Willow
Oak	

SELECTIVE WEED CONTROL—INDUSTRIAL AREAS

BERMUDAGRASS AND BAHIAGRASS IN S.E. AND S.W. STATES:

"Velpar" is recommended for selective weed control in established stands of Bermudagrass and Bahiagrass in industrial areas in the following states:

Alabama	Oklahoma
Arkansas	North Carolina
Florida	South Carolina
Georgia	Tennessee
Louisiana	Texas
Mississippi	

Use on areas such as railroads, highways, utility and pipeline right-of-ways, petroleum tank farms, storage areas, industrial plant sites, drainage ditches and similar areas.

Since the effect of "Velpar" on Bermudagrass and bahiagrass varies with soils, varieties, uniformity of application and environmental conditions, it is suggested that initial applications be limited to small areas.

Use only in stands of Bermudagrass and bahiagrass established for at least one year; do not treat newly sprigged or sodded areas as severe injury to desirable grasses may result. Temporary injury (chlorosis and leaf burn) to Bermudagrass and bahiagrass can be expected after application. Plants will recover from this injury within several weeks if conditions are favorable for growth, while weeds will be killed.

Make a single application per year of 3/4 to 1 1/4 lbs per acre when soil is warm and moist and weeds are actively growing. Use the lower rate on coarse-textured soils (clay loam, clay) and on soils high in organic matter (over 5%). Apply with a fixed boom power sprayer properly calibrated to a constant speed and rate of delivery, using at least 25 gals of spray per acre. Avoid overlapping and shut off spray booms while starting, turning, slowing or stopping, as injury to desirable grasses may result.

Moisture is required to activate "Velpar" in the soil. Best results are obtained when weeds are less than 2 inches in height or diameter and actively growing, soil is moist at time of application, and 1/2 to 1 inch of rainfall occurs within 2 weeks after application. Foliar effects on weeds are most pronounced under conditions of high temperature (above 80 degrees F) and high humidity. Symptoms usually occur within two weeks after application under these conditions, while 4 to 6 weeks may be required when weather is cool. If rainfall after treatment is insufficient to promote root uptake, weeds may recover from foliar effects and continue to grow. Extremely heavy rainfall after treatment may result in poor weed control and/or injury to desirable grass, especially if application is made to dry soil.

NOTE: As injury to Bermudagrass and bahiagrass may result, do not apply or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.

PINEAPPLE:

"Velpar" is recommended for use in pineapple for the control or suppression of the following weeds:

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

*Suppression

Use a sprayer properly calibrated to a constant speed and rate of delivery. Mix the proper amount of "Velpar" in water.

Intercrop Period: Apply as a broadcast spray in 100 to 400 gals of water per acre at the rate of 1/4 to 2 lbs per acre (plus surfactant). For aerial application use at least 10 gals water per acre.

Post mulch preplant: Apply as a broadcast spray in 100 to 400 gals of water per acre at the rate of 1/4 to 2 lbs per acre (plus surfactant).

Post plant but before planting material starts active growth: Apply as a broadcast spray in 100 to 400 gals of water per acre at the rate of 1/4 to 2 lbs per acre (plus surfactant).

Post plant after planting material starts to grow should be made when weed growth has escaped control by other herbicide applications.

Post plant crop harvest but prior to forcing first ratoon: Apply as a broadcast spray in 100 to 400 gals of water per acre at the rate of 1/4 to 2 lbs per acre (plus surfactant).

Directed post-emergence (pineapple and weeds) interspace application: Apply as directed spray 3 to 10 months after planting in 50 to 200 gals of water per acre (broadcast basis), at the rate of 1/4 to 2 lbs per acre (broadcast basis) using a smaller boom or knapsack (plus surfactant).

Directed spot treatments for perennial grasses before floral induction: Spray perennial grasses pre-emergence to wet (50 to 200 gals per acre depending on size) with 1 to 2 lbs per 100 gals of water as a spot treatment (plus surfactant).

Do not exceed 6 lbs "Velpar" per acre per crop cycle.

Apply "Velpar" at 2 to 4 lbs per acre in 100 to 400 gals of water for field edges and roadsides.

NOTE:

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.

Add surfactant at .25% by volume of water.

SUGARCANE

Do not use "Velpar" Herbicide is recommended for selective weed control in sugarcane. Since the effect of "Velpar" on sugarcane varies with soils, uniformity of application, and environmental conditions, it is suggested that growers limit their first use to small areas. Tolerance of new cane varieties to "Velpar" should be determined prior to adoption as field practice.

USE PRECAUTIONS

Because injury to sugarcane may result: Do not use on cane which shows poor vigor because of insect, disease or winter injury, or shows symptoms of other stress conditions such as drought stress; do not add surfactant if applied over the top of cane; do not use on gravelly or rocky soils, thinly covered subsoils, nor on 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. Do not apply over the top of actively growing cane. Applications during active cane growth should be directed to cover the weeds and soil while minimizing crop contact. Do not use on varieties which are known to be susceptible to weed killers. Do not plant any crop other than sugarcane within 18 months of the last application of "Velpar". Do not feed sugarcane forage to livestock.

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

Weeds Controlled:

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

Partial Control:

- | | |
|--------------|-----------|
| Ageratum | Itchgrass |
| Bermudagrass | |

Apply a single treatment per year using a fixed-boom power sprayer and a minimum of 25 gals per acre, unless otherwise directed.

A nonionic surfactant at 0.25% v/v may be used with "Velpar" application in Hawaii only.

Hawaii: Apply "Velpar" pre or post-emergence at the following rates for the indicated soil texture:

Soil Texture	Pounds "Velpar" Per Acre
	(Plus surfactant .25% by volume)
Coarse-Textured Soils (sand, loamy sand, sandy loam)	1/2 to 1
Medium-Textured Soils (loam, silt loam, silty clay loam)	1/2 to 2
Fine-Textured Soils (clay, gray hydromorphic clay)	2 to 4

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 cycle.

For pre-emergence use only, application may be made with aerial equipment using at least 10 gals of spray per acre.

For spot treatments of emerged weeds, "Velpar" may be applied with a knapsack sprayer in concentrations of 1/2 to 2 lbs per 100 gals of water. Apply in sufficient volume to thoroughly wet weed foliage, but do not exceed 100 gals of spray per treated acre. Use the lower concentrations on coarse-textured soils which are low in organic matter and the higher concentrations on fine-textured soils which are high in organic matter.

Do not apply within 180 days of harvest.

Louisiana: Apply 1/2 to 1 lb of "Velpar" per acre broadcast in the fall before sugarcane emerges or in the spring before active cane tillering begins. Use 1/3 of the above broadcast rates when band treating 1/3 of the area. Fall treatments of 1/2 to 3/4 lb per acre may be followed by a spring treatment of 1/2 to 3/4 lb per acre. Do not apply more than 1 1/2 lbs per year. Use the higher levels of the recommended dosage range on fine-textured soils.

Do not apply within 234 days of harvest.

Puerto Rico: Apply 1 to 2 lbs of "Velpar" per acre pre-emergence to the cane or 1/2 to 1 lb per acre post-emergence. Use the lower rates on coarse-textured soils and the higher rates on fine-textured soils (high in clay or organic matter).

For spot treatment of emerged weeds, "Velpar" may be applied with a knapsack sprayer in concentrations of 1/2 to 1 lb per 100 gals of water. Use the lower concentration on coarse-textured soils and the higher concentration on fine-textured soils. Apply a sufficient volume of spray to thoroughly wet weed foliage. Do not exceed 100 gals of spray per treated area.

Do not apply within 288 days of harvest.

Texas: Apply 1/2 to 1 lb of "Velpar" per acre. On plant cane, apply before cane emerges or as a directed layby treatment. On stubble cane, apply pre-emergence (up to the 3 leaf stage) or as a directed layby treatment. A pre or early post-emergence 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 within 234 days of harvest.

Use the following rates for the soil texture:

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Soil Texture	Pounds "Velpar" Per Acre		
	Pre-emergence	+	Layby
Coarse-textured soils* (sandy loam)	1/2	+	1/2
Medium-textured soils (loam, silt loam)	3/4	+	3/4
Fine-textured soils (clay loam)	1	+	1

*With at least 2% organic matter.

On dormant cane, addition of surfactant is permissible and will increase weed control of emerged weeds. In Hawaii, surfactant is recommended for all uses.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage.

PRODUCT DISPOSAL: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

NOTICE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.

NOTICE OF WARRANTY

Du Pont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with the directions under normal use conditions. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Du Pont. In no case shall Du Pont be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. DU PONT MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

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