01/26/2009



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460

> OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

E.I. du Pont de Nemours & Co. DuPont Agricultural Products Stine-Haskell Research Center 109 Elkton Road PO Box 30 Newark, Delaware 19714-0030

1-26-09

Subject: EPA Reg. 352-620 / Dupont Landmark II MP / RED Label Amendment: Chlorsulfuron

The labeling referred to above is in compliance with the Chlorsulfuron RED and is amended under the RED provided that you:

1) Submit and/or cite all data required for registration/reregistration review of your product when the Agency requires all registrants of similar products to submit data.

2) Please note: Final product reregistration can't be considered until after all active ingredients in this product are eligible for reregistration.

3) To label add "Not for use on Sod Farms".

4) Per the acute toxicity review and the RED, the following PPE must be added to the label: "Personal Protective Equipment (PPE)

Mixers, loaders, applicators and other handlers must wear:

Long-sleeved shirt and long pants,

Shoes plus socks."

5) Per the RED, the following User Safety Requirements text must be added to the label: "Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry."

6) Per the RED, the User Safety Recommendations must be revised to read as specified below. Note: Revision/additions appear in **bold** type.

"User Safety Recommendations

User should wash hands before, eating, drinking, chewing gum, tobacco, of using the toilet.

User should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly

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and put on clean clothing.

**Users should remove PPE immediately after handling this product.** As soon as possible, wash thoroughly and change into clean clothing."

7) Revisions are needed to the Storage and Disposal section per PR Notice 2007-4.

8) Per the RED, the following General Precautions and Restrictions text must be added to the label: "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."

9) The text "Do not apply more than 2.25 ounces active ingredient (0.14 lbs ai) Chlorsulfuron per acre per year" on Page 2 of the label conflicts with:

-the text "Do not exceed a rate of a 20 ounce Landmark II MP unit pack per 2 acres per year (10.0 ounces of product [0.117 lbs ai] per acre per year)," also on Page 2 of the label -and with the text "For broadcast applications, do not exceed a 20 ounce unit pack per 10 acres (2.0 ounces of product [0.023 lbs ai] per acre) Landmark II MP within a 12 month period" on Page 5 of the label. The label must be revised/clarified.

Additionally, the rate of 2.25 ounces active ingredient Chlorsulfuron per acre per year noted above exceeds the allowable rate of 0.125 lbs ai per acre per year for use on industrial sites (including rights-of-way). The label must be revised.

10) Per the RED, the text "Do not apply more than three times per year. Do not apply more than 0.125 lbs ai per acre per year" must be added to the section of the label that contains directions for use for "Industrial Use Sites (including rights-of-way)."

11) Delete "DuPont will not be responsible for losses... with such nonrecommended use" from page 2 as this type of language belongs in the Warranty section.

12) On page 6 change "recommended intervals" and "intervals recommended" to "specified intervals". On page 5 change "recommended rate" to "specified rate" and anywhere else it might occur on the label.

13) To the Warranty section, add "to the extent consistent with applicable law" in front of "Dupont makes no other", "In no event shall DuPont", and "The exclusive remedy".

Submit one copy of the revised final printed label for the record. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. If you have any questions please call Erik

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Kraft at 703-308-9358 or email at Kraft.Erik@epa.gov.

Sincerely,

Ciks for

5/15

Jim Tompkins Product Manager 25 Herbicide Branch Registration Division (7505P)



# **DuPont<sup>TM</sup> Landmark<sup>TM</sup> II MP**

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herbicide



ACCEPTED with COMMENTS In EPA Letter Dated:

 $1 - U_{4} - \delta^{-1}$ Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No.

352.620

"...... A Growing Partnership With Nature"

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# DuPont<sup>™</sup> Landmark<sup>™</sup> II MP

herbicide

## Dispersible Granules

Active Ingredient	By Weight
Sulfometuron methyl	
{Methyl 2-[[[((4,6-dimethyl-2-	
pyrimidinyl)amino]-carbonyl]amino]	
sulfonyl]benzoate}	56.25%
Chlorsulfuron	
2-Chloro-N-[(4-methoxy-6-methyl-	
1,3,5-triazin-2-yl)aminocarbonyl]	
benzenesulfonamide	18.75%
Inert Ingredients	25%
TOTAL	100%

EPA Reg. No. 352-620

## KEEP OUT OF REACH OF CHILDREN CAUTION 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 five minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**IF SWALLOWED:** Call a poison control center or doctor immediately for treatment advise. 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.

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

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

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS

## AND DOMESTIC ANIMALS CAUTION! Harmful if swallowed or absorbed through

skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

## **USER SAFETY RECOMMENDATIONS**

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet, , , , Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and part, on clean clothing. As soon as possible, wash thoroughly and change into clean clothing.

## 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 washwater or rinsate.

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## DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. DuPont<sup>TM</sup> LANDMARK<sup>TM</sup> II MP should be used only in accordance with recommendations on this label or in separately published DuPont recommendations.

DuPont will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by DuPont. User assumes all risks associated with such nonrecommended use.

## **GENERAL INFORMATION**

LANDMARK<sup>TM</sup> II MP herbicide is a convenient unit pack that is mixed in water and applied as a spray. Open package and empty entire contents of both compartments into spray tank. LANDMARK<sup>TM</sup> II MP controls many annual and perennial grasses and broadleaf weeds in non-crop sites. LANDMARK<sup>TM</sup> II MP may be used for general weed control on terrestrial non-crop sites and for selective weed control in certain types of unimproved turf grasses on these same sites. LANDMARK<sup>TM</sup> II MP can be tank mixed with other herbicides registered for use in non-crop sites; when tank mixing, use the most restrictive limitations from the labeling of both products.

Do not apply more than 6.0 ounces active ingredient Sulfometuron methyl per acre per year when using this product or any other product containing Sulfometuron methyl.

Do not apply more than 2.25 ounces active ingredient Chlorsulfuron per acre per year when using this product or any other product containing Chlorsulfuron.

LANDMARK<sup>™</sup> II MP controls weeds by both preemergence and postemergence activity. The best results are obtained when the application is made at or before the early stages of weed growth; before weeds develop an established root system. Moisture is required to move LANDMARK<sup>™</sup> II MP into the root zone of weeds for preemergence control.

This product may be applied on non-crop sites that contain areas of temporary surface water caused by collection of water in equipment ruts, or in other depressions created by management activities. It is permissible to treat intermittent drainage, intermittently flooded low lying sites, seasonal dry flood plains and transitional areas between upland and lowland sites when no water is present. It is also permissible to treat marshes, swamps and bogs after water has receded, as well as seasonally dry flood deltas. DO NOT make applications to natural or man-made bodies of water such as lakes, reservoirs, ponds, streams and canals.

A drift control agent may be used at the manufacturer's recommended rate in the application of LANDMARK<sup>TM</sup> II MP.

LANDMARK<sup>TM</sup> II MP is noncorrosive, nonflammable, nonvolatile and does not freeze.

For best postemergence results, apply LANDMARK<sup>TM</sup> II MP to young, actively growing weeds. The degree and

duration of control may depend on the following:

- weed spectrum and infestation intensity
- weed size at application
- environmental conditions at and following treatment
- soil pH, soil moisture, and soil organic matter Note-

Do not exceed a rate of a 20 ounce LANDMARK<sup>™</sup> II MP unit pack per 2 acres per year (10.0 ounces of product per acre per year).

Do not use on food or feed crops.

Do not enter or allow others to enter the treated area until sprays have dried.

#### ENVIRONMENTAL CONDITIONS AND BIOLOGICAL ACTIVITY

When applied as a spray, LANDMARK<sup>™</sup> II MP is absorbed by both the roots and foliage of plants, rapidly inhibiting the growth of susceptible weeds. When applied on dry fertilizer, LANDMARK<sup>™</sup> II MP is absorbed primarily by the roots. Two to three weeks after application to weeds, plant growth slows, and the growing points turn reddishpurple. Within 4 to 6 weeks of application, leaf veins and leaves become discolored, and the growing points subsequently die.

Warm, moist conditions following application accelerate the herbicidal activity of LANDMARK<sup>TM</sup> II MP; cold, dry conditions delay the herbicidal activity. In addition, weeds hardened-off by drought stress are less susceptible to LANDMARK<sup>TM</sup> II MP. Moisture is needed to move LANDMARK<sup>TM</sup> II MP into the soil for preemergence weed control.

## 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.

## NON-AGRICULTURAL USES

## **NON-CROP SITES**

#### **Application Information**

DuPont<sup>™</sup> LANDMARK<sup>™</sup> II MP is recommended for general weed control on private, public and military lands as follows: non-agricultural areas (such as airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas--non-crop producing (such as farmyards, fuel storage areas, fence rows, soil bank land, barrier strips, etc.); industrial sites--outdoor (such as lumberyards, pipeline and tank farms, etc.)

LANDMARK<sup>™</sup> II MP is not recommended for use on recreation areas or for direct application to paved areas (surfaces).

Application to non-crop (industrial) sites, except rights-ofway, is restricted to ground application only. Rights-of-way may also be treated by helicopter. Refer also to any applicable Supplemental or Special Local Need labeling for additional information or use directions.

#### Application Timing

Apply LANDMARK<sup>™</sup> II MP as a preemergence or early postemergence spray before or during the rainy season when weeds are actively germinating or growing.

#### **Application Rates**

Apply LANDMARK<sup>™</sup> II MP at a 20 ounce unit pack per 2 to 7.5 acres (10.0 to 2.66 ounces of product per acre). When applied at lower rates, LANDMARK<sup>™</sup> II MP provides short-term control of weeds listed; when applied at higher rates, weed control is extended.

#### Weeds Controlled

LANDMARK<sup>™</sup> II MP effectively controls the following broadleaf weeds and grasses when applied at the rates shown.

When applied at a 20 ounce unit pack per 7.5 acres (2.66 ounces of product per acre), LANDMARK<sup>TM</sup> II MP controls the following weeds:

#### **Broadleaf Weeds**

Annual sowthistle Black medic Black mustard Blue mustard Buckhorn plantain Burclover Buttercup Carolina geranium Clover Cocklebur Common chickweed Common groundsel Common lambsquarter Common mallow Common purslane Common speedwell Common spikeweed Common sunflower Common tarweed Common vetch Common yarrow Cow cockle Crimson clover Curly dock Cutleaf eveningprimrose Dandelion Dogfennel Dver's woad False chamomile Fiddleneck Field pennycress Fleabane Flixweed

Goldenrod Hairy vetch Hemp Hemp sesbania Henbit Hill mustard London rocket Marestail/horseweed\* Morningglory Musk thistle Prairie groundsel Prickly coontail Prickly sida Prostrate knotweed Redroot pigweed Shepherd's purse Sicklepod Smallseed falseflax Spanish needles Spiny pigweed Spreading orach Sweet clover Tansymustard Tansy ragwort Tumble mustard (Jim Hill) Tumble pigweed Velvetleaf Whitestem filaree Wild buckwheat Wild carrot Wild mustard Wild teasel

\* Certain biotypes of marestail are less sensitive to LANDMARK<sup>™</sup> II MP and may be controlled with a tank mixture of diuron, DuPont<sup>™</sup> HYVAR® X or KROVAR® I DF.

#### Grasses (up to 6-12" tall)

Alta fescue Annual bluegrass Annual ryegrass Bahiagrass Barnyardgrass Bulbous bluegrass Cheat Crabgrass Downy brome Foxtails (except green) Foxtail barley Foxtail fescue Italian ryegrass Japanese brome Jointed goatgrass Little barley Medusahead Red brome Red fescue Ripgut brome Rye (volunteer) Signalgrass Wheat (volunteer) Wild oats Witchgrass

When applied at a 20 ounce unit pack per 5 acres, (4.0 ounces of product per acre), LANDMARK<sup>TM</sup> II MP controls the following additional weeds:

#### **Broadleaf Weeds**

Bouncingbet Common ragweed Fireweed Hoary cress (whitetop) Ox-eye daisy Pepperweed Perennial pepperweed Prostrate knotweed Redstem filaree Seaside heliotrope Whitetop Wild garlic

#### Grasses

Itchgrass Seashore saltgrass Sprangletop (annual)

When applied at a 20 ounce unit pack per 2 acres (10.0 ounces of product per acre), DuPont<sup>TM</sup> LANDMARK<sup>TM</sup> II MP also controls the following weeds:

#### **Broadleaf Weeds**

Aster Bedstraw Canada thistle Catsear Common cinquefoil Common knapweed Common mullein Houndstongue Puncturevine Russian knapweed Salsify Scotch thistle St. Johnswort Turkey mullein White snakeroot Yellow rocket Yellow starthistle

#### Grasses

Broadleaf panicum Green foxtail Johnsongrass Junglerice

**Note**: Use the higher level of recommended dosage ranges under the following conditions:

- · heavy weed growth
- soils with high organic matter
- high soil moisture areas, such as along road edges or railroad shoulders

For replanting areas treated with LANDMARK<sup>TM</sup> II MP refer to the GRASS REPLANT INTERVALS section of this label.

#### Specific Weed Problems —Non-crop Sites

#### Kochia, Russian Thistle, and Prickly Lettuce

Since biotypes of kochia, Russian thistle, and prickly lettuce are known to be resistant to LANDMARK<sup>TM</sup> II MP, tank mixture combinations with herbicides having different modes of action, such as DuPont<sup>TM</sup> KARMEX® DF, DuPont<sup>TM</sup> HYVAR® X or KROVAR® I DF, must be used. In areas where resistance is known to exist, these weeds should be treated postemergence with other herbicides registered for their control, such as 2,4-D or dicamba.

Kochia and Russian Thistle - Apply a tank mixture of LANDMARK<sup>TM</sup> II MP herbicide at a 20 ounce unit pack per 5 acres (4.0 ounces of product per acre) plus diuron at 8 pounds per acre active ingredient (10 pounds of an 80% dry formulation or 2 gallons of a 4 pound active ingredient liquid formulation).

Do not tank mix LANDMARK<sup>™</sup> II MP with HYVAR® X-L herbicide.

## UNDER ASPHALT AND CONCRETE PAVEMENT

#### Application Information

LANDMARK<sup>TM</sup> II MP may be used to control weeds under asphalt and concrete pavement, such as that used in parking lots, highway shoulders, median strips, roadways, and other industrial sites. LANDMARK<sup>TM</sup> II MP will not control tubers, rhizomes, woody vegetation such as small trees, brush or woody vines.

LANDMARK<sup>TM</sup> II MP should only be used in an area that has been prepared according to good construction practices. Use sufficient water to ensure uniform coverage, generally 100 gal per acre. Agitate the tank continuously to keep LANDMARK<sup>TM</sup> II MP in suspension.

#### **Application Timing**

LANDMARK<sup>TM</sup> II MP should be applied immediately before paving to avoid lateral movement of the herbicide as a result of soil movement due to rainfall or mechanical means.

#### Application Rate

Apply LANDMARK<sup>™</sup> II MP at a 20 ounce unit pack per 2 acres (10.0 ounces of product per acre).

#### IMPORTANT PRECAUTIONS—UNDER ASPHALT ONLY

• Do not use LANDMARK<sup>™</sup> II MP under pavement in residential properties such as driveways, or in recreational areas, including jogging or bike paths, tennis courts, or golf cart paths.

## TURF (UNIMPROVED ONLY)

#### Bermudagrass and Centipedegrass Release

#### **Application Information**

LANDMARK<sup>TM</sup> II MP is recommended to control weeds in unimproved turf, roadsides, or other non-crop sites where the turf is well established as a ground cover. Applications may temporarily suppress grass growth and inhibit seedhead formation (chemical mowing).

#### Application Timing and Rate

Apply LANDMARK<sup>TM</sup> II MP at a 20 ounce unit pack per 20 acres (1.0 ounce of product per acre) to established grasses after they have broken dormancy, usually 30 days after initial spring flush.

If an additional application is necessary, apply LANDMARK<sup>TM</sup> II MP again at a 20 ounce unit pack per 20 acres (1.0 ounce product per acre) during late spring to early summer. On established weeds, apply LANDMARK<sup>TM</sup> II MP one to two weeks after mowing for the best results. LANDMARK<sup>TM</sup> II MP may also be applied in late fall or early winter.

#### Weeds Controlled

When applied at a 20 ounce unit pack per 20 acres (1.0 ounce of product per acre), DuPont<sup>™</sup> LANDMARK<sup>™</sup> II MP controls the following weeds:

Annual bluegrass Blue mustard Bulbous bluegrass Cheat Cocklebur Common chickweed Common lambsquarter Common purslane Common sunflower Common tarweed Common yarrow Dandelion False chamomile Field pennycress Fleabane Flixweed Foxtail barley Foxtails (except green) Hill mustard

Japanese brome Jointed goatgrass London rocket Marestail/horseweed\* Redroot pigweed Rye (volunteer) Shepherd's purse Signalgrass Smallseed falseflax Tansy mustard Tumble mustard (Jim Hill) Velvetleaf Wheat (volunteer) Wild carrot Wild mustard Wild oats Witchgrass

#### **IMPORTANT PRECAUTIONS—UNIMPROVED TURF**

- Excessive injury to turf may result if a surfactant is used with LANDMARK<sup>TM</sup> II MP applications made to actively growing turf. The user assumes all responsibility for turf injury if a surfactant is used with LANDMARK<sup>TM</sup> II MP treatments applied to actively growing turf.
- LANDMARK<sup>™</sup> II MP may temporarily discolor or cause top kill of turf grasses. Applications made while turf is dormant may delay green-up in the spring.
- Annual retreatments may reduce vigor, particularly at the higher recommended rates, where bahiagrass, crested wheatgrass and smooth brome are grown.
- LANDMARK<sup>™</sup> II MP application on turf that is under stress from drought, insects, disease, cold temperatures or late spring frost, may result in injury.
- Application of LANDMARK<sup>TM</sup> II MP to turf less than 1 year old may cause unacceptable turf injury.
- For broadcast applications, do not exceed a 20 ounce unit pack per 10 acre (2.0 ounces of product per acre) LANDMARK<sup>™</sup> II MP within a 12 month period.
- \* Annual retreatments may reduce turf vigor.

#### NON-CROPLAND RESTORATION

#### **Application Information**

LANDMARK<sup>TM</sup> II MP is recommended for the control of downy brome, cheat, jointed goatgrass, medusahead and certain broadleaf weeds in unimproved industrial turf, on roadsides, airports, industrial sites or on other similar noncropland sites. In order to release desirable, perennial grass species for site stabilization, LANDMARK<sup>TM</sup> II MP may be used to control the following winter annual grasses and broadleaf weeds.

Aerial application (helicopter only) may be made to noncropland restoration sites. Apply LANDMARK<sup>TM</sup> II MP at the rates listed below in the fall, within 6 weeks before the expected date when the soil freezes, or in the spring within 6 weeks after after the soil thaws. Best results are obtained on winter annuals when applied in the fall. Spring applications require a higher rate.

Do not apply when the soil is frozen.

Do not apply to unstable soil conditions.

When applied at a 20 ounce unit pack per 15 acres (1.33 ounces of product per acre), LANDMARK<sup>™</sup> II MP controls the following weeds:

#### Broadleaf Weeds

Annual sowthistle Blue mustard Buckhorn plantain Carolina geranium Clover Cocklebur Common chickweed Common groundsel Common lambsquarter Common purslane Common speedwell Common sunflower Common tarweed Common yarrow Cow cockle Dandelion Dyer's woad False chamomile Field pennycress Fleabane Flixweed Goldenrod

#### Grasses

Annual bluegrass Annual ryegrass Barnyardgrass Bulbous bluegrass Cheat Downy brome Foxtails (except green) Foxtail barley Japanese brome Hairy vetch Hemp sesbania Henbit Hill mustard London rocket Marestail/horseweed\* Morningglory Prickly coontail Prickly sida Redroot pigweed Shepherd's purse Sicklepod Smallseed falseflax Spiny pigweed Tansy mustard Tumble mustard Velvetleaf Whitestem filaree Wild carrot Wild mustard Wild teasel

Jointed goatgrass Little barley Medusahead Rye (volunteer) Signalgrass Wheat (volunteer) Wild oats Witchgrass

When applied at a 20 ounce unit pack per 10 acres (2.0 ounces of product per acre), LANDMARK<sup>™</sup> II MP also controls the following weeds:

#### **Broadleaf Weeds**

Bedstraw Buttercup Common spikeweed Common vetch Cutleaf eveningprimrose Erect knotweed

#### Grasses

Crabgrass Foxtail fescue Green foxtail Musk thistle Prairie groundsel Spanish needles Sweet clover Tansy ragwort Wild buckwheat

Red brome Ripgut brome

## **GRASS REPLANT INTERVALS**

Following a treatment with DuPont<sup>™</sup> LANDMARK<sup>™</sup> II MP at use rates up to a 20 ounce unit pack per 10 acres (2.0 ounces of product per acre), the following grasses may be replanted at least 3 months after a spring application:

Green needlegrass	Russian wild rye
Meadow brome	Switchgrass

The following grasses may be replanted at least 6 months after a spring application:

Alta fescue	Smooth brome
Meadow foxtail	Sheep fescue
Orchardgrass	Western wheatgrass

The intervals recommended are for soils with a pH of less 7.5. Soils having a pH greater than 7.5 will require longer intervals. The recommended intervals are for applications made in the spring. Because LANDMARK<sup>TM</sup> II MP degradation is slowed by cold or frozen soils, applications made in the fall should consider the intervals as beginning in the spring following treatment.

Testing has indicated that there is considerable variation in response among species and types of grasses when seeded into areas treated with LANDMARK<sup>™</sup> II MP. If species other than those listed above are to be planted into areas treated with LANDMARK<sup>™</sup> II MP a field bioassay should be performed, or previous experience may be used to determine the feasibility of replanting treated areas.

To conduct a field bioassay, grow to maturity test strips of the crop(s) you plan to grow the following year. The test strips should cross the entire field including knolls and low areas. Crop response to the bioassay will indicate whether or not to plant the crop(s) grown in the test strips.

## ADDITIONAL USE INSTRUCTIONS FOR ALL NON-AGRICULTURAL USES

## TANK MIX COMBINATIONS

Combination with other herbicides broadens the spectrum of weeds controlled. In addition, total vegetation control can be achieved with higher rates of LANDMARK<sup>™</sup> II MP plus residual type companion herbicides. To improve the control of weeds, add surfactant at 0.25% by volume or at the manufacturer's recommended rate based on spray area.

LANDMARK<sup>TM</sup> II MP may be applied with the recommended rates of other herbicides registered for this use. For application method and other use specifications, use the most restrictive directions for the intended combination.

Do not tank mix LANDMARK<sup>™</sup> II MP and DuPont<sup>™</sup> HYVAR® X-L herbicide.

## SPRAY EQUIPMENT

Following an LANDMARK<sup>™</sup> II MP application, do not use this spray equipment for application to agricultural or ornamental crops. The mixing and application equipment must be used for forestry and non-crop applications only, unless directed otherwise by supplemental labeling. This is extremely important as low rates of LANDMARK<sup>TM</sup> II MP can kill or severely injure most crops.

#### APPLICATION

Use a sufficient volume of water to ensure thorough coverage when applying LANDMARK<sup>TM</sup> II MP as a broadcast or directed spray. Select a spray volume and delivery system that will ensure thorough coverage and a uniform spray pattern. Be sure the sprayer is calibrated before use. Avoid overlapping and shut off spray booms while starting, turning, slowing, or stoping to avoid injury to desired species.

## **MIXING INSTRUCTIONS**

1. Fill spray tank 1/2 full of water.

- 2. With the agitator running, add the proper amount of LANDMARK<sup>™</sup> II MP.
- 3. If using a companion product, add the recommended amount.
- 4. For postemergent applications, add the proper amount of spray adjuvants.
- 5. Add the remaining water.
- 6. Agitate the spray tank thoroughly.

LANDMARK<sup>TM</sup> II MP spray preparations are stable if they are pH neutral or alkaline and stored at or below  $100^{\circ}$  F.

## SPRAYER CLEANUP

Thoroughly clean all mixing and spray equipment following applications of LANDMARK<sup>™</sup> II MP as follows:

- 1. Drain tank; thoroughly rinse spray tanks, boom, and hoses with clean water.
- 2. Fill the tank with clean water and 1 gal of household ammonia (contains 3% active) for every 100 gal of water. Flush the hoses, boom, and nozzles with the cleaning solution. Then add more water to completely fill the tank. Circulate the cleaning solution through the tank and hoses for at least 15 min. Flush the hoses, boom, and nozzles again with the cleaning solution, and then drain the tank.

Equivalent amounts of an alternate-strength ammonia solution or a commercial cleaner can be used in the cleanout procedure. If a commercial cleaner is used, carefully read and follow the individual cleaner instructions.

- 3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
- 4. Repeat step 2.
- 5. Rinse the tank, boom, and hoses with clean water.
- 6. Dispose of the rinsate on a labeled site or at an approved waste disposal facility. If a commercial cleaner is used follow the directions for rinsate disposal on the label.

#### Notes:

1. Caution: Do not use chlorine bleach with ammonia as dangerous gases will form. Do not clean equipment in an enclosed area.

- 2. Steam-cleaning aerial spray tanks is recommended before performing the above cleanout procedure to facilitate the removal of any caked deposits.
- 3. When DuPont<sup>™</sup> LANDMARK<sup>™</sup> II MP is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.

## IMPORTANT PRECAUTIONS ALL NON-AGRICULTURAL USES

Injury to or loss of desirable trees or other plants may result from failure to observe the following:

- If equipment is drained or flushed 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.
- Treatment of powdery, dry soil or light, sandy soil when there is little likelihood of rainfall soon after treatment may result in off target movement and possible damage to susceptible crops when soil particles are moved by wind or water. Injury to crops may result if treated soil is washed, blown, or moved onto land used to produce crops. Exposure to LANDMARK<sup>TM</sup> II MP may injure or kill most crops. Injury may be more severe when the crops are irrigated. Do not apply LANDMARK<sup>TM</sup> II MP when these conditions are identified and powdery, dry soil or light or sandy soil are known to be prevalent in the area to be treated.
- Applications made where runoff water flows onto agricultural land may injure crops. Applications made during periods of intense rainfall, to soils saturated with water, surfaces paved with materials such as asphalt or concrete, or soils through which rainfall will not readily penetrate may result in runoff and movement of LANDMARK<sup>™</sup> II MP. Do not treat frozen soil. Treated soil should be left undisturbed to reduce the potential for LANDMARK<sup>™</sup> II MP movement by soil erosion due to wind or water.

Do not use on lawns, walks, driveways, tennis courts, or similar areas.

Keep from contact with fertilizers, insecticides, fungicides, and seeds.

Do not apply in or on irrigation ditches or canals including their outer banks.

Do not apply through any type of irrigation system.

Do not use the equipment used to mix or apply LANDMARK<sup>TM</sup> II MP on crops unless specifically directed by supplemental labeling. When applied on fertilizer, do not use the impregnation, transport or application equipment to make subsequent applications to crops. The mixing and application equipment may be used for forestry and non-crop applications only.

If non-crop sites treated with LANDMARK<sup>™</sup> II MP are to be converted to a food, feed, or fiber agricultural crop, or to a horticultural crop, do not plant the treated sites for at least one year after the LANDMARK<sup>™</sup> II MP application. A field bioassay must then be completed before planting to crops. To conduct a field bioassay, grow to maturity test strips of the crop(s) you plan to grow the following year. The test strips should cross the entire field including knolls and low areas. Crop response to the bioassay will indicate whether or not to plant the crops(s) grown in the test strips. In the case of suspected off-site movement of LANDMARK<sup>TM</sup> II MP to cropland, soil samples should be quantitatively analyzed for LANDMARK<sup>TM</sup> II MP or any other herbicide which could be having an adverse effect on the crop, in addition to conducting the above-described bioassay.

Do not use this product in the following counties of Colorado: Saguache, Rio Grande, Alamosa, Costilla and Conejos.

#### SPRAY DRIFT MANAGEMENT

The interaction of many equipment and weather-related factors determines the potential for spray drift. The user is responsible for considering all these factors when making application decisions. Follow the additional precautions below to minimize the potential for spray drift.

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers.

AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

#### **Drift Control Adjuvants**

A drift control adjuvant may be used to reduce the potential for drift. However, because it is the combined physicalchemical properties of all the ingredients in the spray mix that can determine drift potential, the applicator must confirm that the drift control adjuvant used is having the desired effect with the tank mix that is being applied. If a drift control adjuvant is used, follow the use directions and precautions on the manufacturer's label. Do not use an adjuvant which increases viscosity with application systems that cannot accommodate viscous sprays.

**Ground Application**: With ground equipment, spray drift can be lessened by keeping the spray boom as low as possible (i.e., a release height of 4 feet or less above the application target); by applying 10 gallons or more of spray per acre; by keeping the operating spray pressures at the manufacturer's recommended minimum pressures for the specific nozzle type used; and by spraying when the wind velocity is low (follow all applicable state regulations).

Do not make ground applications within a surface temperature inversion when applying near an area requiring protection to avoid an unreasonable adverse effect. Applicators may determine presence of an inversion by noting the presence of ground fog, light variable wind, or layering of smoke and dust. Be particularly alert to the potential for a surface temperature inversion when winds are calm.

Direct the sprays no higher than the tops of target vegetation, and maintain spray pressures at levels which provide coarse to very coarse spray droplets to minimize drift.

Aerial Application: The following drift management requirements must be followed to avoid off-target drift movement from aerial applications: 1. For helicopters, use a boom length and position that prevents droplets from entering the rotor vortices.

2. Nozzles should always point backward parallel with the air stream.

Where states have more stringent regulations, they must be observed. The applicator should be familiar with and take into account the information presented below.

#### IMPORTANCE OF DROPLET SIZE

Since the most effective way to reduce drift potential is to apply large droplets, equipment producing a coarse to very coarse droplet spectrum must be used when applying this product. The best drift management strategy is to apply the coarsest drop size spectrum that provides 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 "WIND", "TEMPERATURE AND HUMIDITY", and "SURFACE TEMPERATURE INVERSIONS" sections of this label.

#### **Controlling Droplet Size – Ground Application**

- Volume Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** Do not exceed the manufacturer's recommended pressures. Use the lower spray pressures recommended for the nozzle. Higher pressure generally 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 according to manufacturer's specifications which is designed for the intended application, and that produces a coarse to very coarse droplet size spectrum. With most nozzle types, narrower spray angles produce larger droplets. To further reduce drift, low-drift or drift reducing nozzles should be used.

#### Controlling Droplet Size - Aircraft

**Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.

**Nozzle Orientation** - For some nozzle types, such as solid streams, orienting nozzles so that the spray is emitted backwards, parallel to the air stream minimizes the effects of air shear and will produce a coarser droplet spectrum than other orientations. For applications of this product, nozzles must be oriented in a manner that results in the application of a coarse to very coarse droplet size spectrum.

**Nozzle Type** - Use a nozzle type according to manufacturer's specifications which is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Solid stream and other drift reducing nozzles should be used.

## Boom Length and Height

**Boom Height (ground)** - Setting the boom at the lowest referenced 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. Apply at a height no greater than 4 feet above the top of the largest plants.

**Application Height (helicopters)** - Apply at a height no greater than 10 feet above the top of the largest plants, unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Boom Length (helicopters)** - For helicopters, use a boom length and position that prevents droplets from entering the rotor vortices.

#### SWATH ADJUSTMENT

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the application equipment upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

#### WIND (GROUND AND AERIAL APPLICATION)

Drift potential is lowest with a sustained wind of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given wind speed. Application should be avoided during gusty conditions, and when winds are below 2 mph due to variable wind direction and high potential for a temperature inversion. Avoid applying during calm conditions which may be conducive to air inversions.

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

#### TEMPERATURE AND HUMIDITY (GROUND AND AERIAL APPLICATIONS)

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

## SURFACE TEMPERATURE INVERSIONS (GROUND AND AERIAL APPLICATIONS)

Applications must not occur during a local, surface temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds which are common during inversions. Temperature inversions are characterized by increasing temperatures with height 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 the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

#### SHIELDED SPRAYERS (ground application)

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.

Do not apply this product in a way that will contact workers or other people, either directly or through drift. Only protected handlers may be in the area during application.

#### SENSITIVE AREAS

This product should be applied only when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Small quantities of spray may seriously injure susceptible crops either during active growth periods or dormancy.

#### STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store product in original container only.

**PESTICIDE DISPOSAL:** Wastes 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 Fiber Sacks: Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by incineration if allowed by State and local authorities. For Fiber Drums With Liners: Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner. For Paper and Plastic Bags: 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.

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