



# DuPont™ Lineage® Prep

HERBICIDE



LICENSED

PERIOD 2014-2016 LIC. NO. 9200.190

### Dispersible Granules

#### Active Ingredient

By Weight

Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)	54.5%
Sulfometuron methyl {Methyl 2-[[[(4,6-dimethyl-2-pyrimidinyl)amino]-carbonyl]amino]sulfonyl]benzoate }	15.3%
Metsulfuron methyl Methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]-carbonyl]amino]sulfonyl]benzoate	4.1%
<b>Other Ingredients</b>	26.1%
<b>TOTAL</b>	100.0%

EPA Reg. No. 352-767

EPA Est. No. \_\_\_\_\_

#### Nonrefillable Container

Net: \_\_\_\_\_

OR

#### Refillable Container

Net: \_\_\_\_\_

## KEEP OUT OF REACH OF CHILDREN

## CAUTION

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

### FIRST AID

**If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**If swallowed:** 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 to an unconscious person. Call a poison control center or doctor for further treatment advice.

**If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

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

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION! Causes moderate eye irritation. Harmful if absorbed through skin, swallowed, or inhaled. Avoid contact with skin, eyes, or clothing.

Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are made of any waterproof material. If you want more options, follow the instructions for category A on an EPA chemical-resistant category selection chart.

**All mixers, loaders, applicators and other handlers must wear:**

Long-sleeved shirt and long pants.

Shoes plus socks.

Chemical resistant gloves (except for pilots) made of any waterproof material, such as polyethylene or polyvinylchloride.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

See Engineering Controls for more requirements.

**Engineering Control Statement:** Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

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

## USER SAFETY RECOMMENDATIONS

**USERS SHOULD:** Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

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

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

## ENVIRONMENTAL HAZARDS

For terrestrial uses, except for uses under the forest canopy, 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.

Exposure to DuPont™ LINEAGE® PREP can injure or kill plants. Damage to susceptible plants can occur when soil particles are blown or washed off target onto cropland.

This product is toxic to plants. Drift and runoff may be hazardous to plants in water adjacent to treated areas.

## PHYSICAL AND CHEMICAL HAZARDS

Spray solutions of LINEAGE® PREP must be mixed, stored, and applied only in stainless steel, fiberglass, plastic, and plastic-lined steel containers. Do not mix, store, or apply LINEAGE® PREP or spray solutions of LINEAGE® PREP in unlined steel (except stainless steel) containers or spray tanks.

## DIRECTIONS FOR USE

LINEAGE® PREP must be used only in accordance with instructions on this label or in separately published DuPont labeling.

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

Do not apply more than 6.0 ounces (0.375 pounds active) active ingredient sulfometuron methyl per acre per year when using this product or any other product containing sulfometuron methyl.

Do not apply more than 3.18 ounces active ingredient (0.199 pounds active) sulfometuron methyl per acre per single application to an Agricultural site when using this product alone or in combination with any other product containing sulfometuron methyl.

Do not apply more than 4.5 ounces active ingredient (0.281 pounds active) sulfometuron methyl per acre per single application to a Non-Agricultural site when using this product alone or in combination with any other product containing sulfometuron methyl.

Do not use on food or feed crops.

Do not use on sod farms.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency in your State responsible for pesticide regulation.

## BIOLOGICAL ACTIVITY

LINEAGE® PREP is quickly taken up by the leaves, stems and roots of plants and accumulates in the growing points of the plant. Growth of treated plants stop soon after treatment. Within one to three weeks after application, the leaves begin to

turn yellow (chlorosis) and then gradually become necrotic. Death of the plants may require several more weeks. DuPont™ LINEAGE® PREP is rain-fast one hour after application.

Warm, moist conditions following application accelerate the herbicidal activity of LINEAGE® PREP; cold, dry conditions delay the herbicidal activity. In addition, undesirable hardwoods, vines and weeds hardened-off by drought stress are less susceptible to LINEAGE® PREP. Moisture is needed to move LINEAGE® PREP 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 systems in your area.

## **INVASIVE SPECIES MANAGEMENT**

This product may be considered for use on public, private, and tribal lands to treat certain weed species infestations that have been determined to be invasive, consistent with the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW) National Early Detection and Rapid Response (EDRR) System for invasive plants.

Effective EDRR systems address invasions by eradicating the invader where possible, and controlling them when the invasive species is too established to be feasibly eradicated. Once an EDRR assessment has been completed and action is recommended, a Rapid Response needs to be taken to quickly contain, deny reproduction, and if possible eliminate the invader. Consult your appropriate state extension service, forest service, or regional multidisciplinary invasive species management coordination team to determine the appropriate Rapid Response provisions and allowed treatments in your area.

## **PREPARING FOR USE - Site Specific Considerations**

Understanding the risks associated with the application of LINEAGE® PREP is essential to aid in preventing off-site injury to desirable vegetation and agricultural crops. The risk of off-site movement both during and after application may be affected by a number of site specific factors such as the nature, texture and stability of the soil, the intensity and direction of prevailing winds, vegetative cover, site slope, rainfall, drainage patterns, and other local physical and environmental conditions. A careful evaluation of the potential for off-site movement from the intended application site, including movement of treated soil by wind or water erosion, must be made prior to using LINEAGE® PREP. This evaluation is particularly critical where desirable vegetation or crops are grown on neighboring land for which the use of LINEAGE® PREP is not labeled. If prevailing local conditions may be expected to result in off-site movement and cause damage to neighboring desirable vegetation or agricultural crops, do not apply LINEAGE® PREP.

Before applying LINEAGE® PREP the user must read and understand all label directions, precautions and restrictions completely, including these requirements for a site specific evaluation. If you do not understand any of the instructions or precautions on the label, or are unable to make a site specific evaluation yourself, consult your local agricultural dealer, cooperative extension service, land managers, professional consultants, or other qualified authorities familiar with the area to be treated. If you still have questions regarding the need for site specific considerations, please call 1-888-6-DUPONT.

## AGRICULTURAL USES

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours. PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Shoes plus socks
- Chemical resistant gloves made of any waterproof material
- Protective eyewear

### APPLICATION INFORMATION

DuPont™ LINEAGE® PREP herbicide is a water soluble granule to be mixed with water and generally applied as a postemergent spray for the control of many broadleaf weeds, annual and perennial grasses, brush, vines and brambles in conifer plantations (site preparation, herbaceous weed control and release), and wildlife management areas. In certain natural regeneration conifer sites, it may be used for selective herbaceous and woody weed control. LINEAGE® PREP can also be used for cut stem and stump treatments, for the control of woody vegetation along forest roads and for establishing and maintaining wildlife openings. It may also be used to control weeds along the banks of drainage canals or ditches. Only treat up to the outer edge of a drainage ditch or canal when it contains water.

The use of LINEAGE® PREP at rates less than or equal to 14 ounces per acre are intended for hardwood growth suppression, and some hardwood resprouting should be expected.

LINEAGE® PREP may be applied on conifer plantations and wildlife management areas that contain areas of temporary surface water caused by the collection of water between planting beds, in equipment ruts, or in other depressions created by management activities in these sites, except in the state of New York. It is permissible to treat drainage ditches, intermittent drainage sites, intermittently flooded low lying sites, seasonally dry flood plains, and transitional areas between upland and low land sites when no water is present, except in the state of New York. It is also permissible to treat marshes, swamps, and bogs after water has receded, as well as seasonally dry flood deltas, except in the state of New York. Do not apply LINEAGE® PREP on irrigation ditches or canals. Do not apply LINEAGE® PREP on dry irrigation canals or dry irrigation ditches.

LINEAGE® PREP may be applied by ground spray equipment (boom sprayers, backpack sprayers, tree injection, etc.) and by helicopter.

### CONIFER PLANTATIONS – SITE PREPARATION

A LINEAGE® PREP application controls the labeled weed species prior to planting conifer species. Allow 4 to 6 weeks after application for control of most herbaceous and grass weeds. The dead or dying plants may aid a site preparation burn, if needed. The residual activity of LINEAGE® PREP will aid in the control of herbaceous weeds.

In sites where tolerant wildling conifers, brush or weed species exist, tank mix LINEAGE® PREP with other registered herbicides affecting a different site of action.

### APPLICATION RATES

Apply LINEAGE® PREP at the rates indicated by conifer species. Use a lower rate on coarse-textured soils (i.e., loamy sands, sandy loams) and a higher rate on fine textured soils (i.e. sandy clay loams and silty clay loams).

<u>Conifer Species</u>		<u>Rate (ounces per acre)</u>
Loblolly pine	( <i>Pinus taeda</i> )	11 - 15
Longleaf pine	( <i>Pinus palustris</i> )	11 - 15
Slash pine	( <i>Pinus elliotii</i> )	10
Douglas fir	( <i>Pseudotsuga menziesii</i> )	10 - 19
Western hemlock	( <i>Tsuga heterophylla</i> )	10 - 19
Ponderosa pine	( <i>Pinus ponderosa</i> )	10 - 19
Black spruce	( <i>Picea mariana</i> )	10 - 19

For ground boom application equipment, apply LINEAGE® PREP in a minimum spray volume of 10 gallons per acre. For helicopter applications, use a total spray volume of 5 to 30 gallons per acre. Include a spray adjuvant with all

postemergence applications. Use the higher spray volumes and herbicide rates for heavy weed/brush infestations, hard to control species and dense hardwood canopies.

**Note:** To reduce the potential for injury, do not plant Black Spruce seedlings for 3 months following a banded or broadcast application of DuPont™ LINEAGE® PREP.

Other conifer species may be planted providing the user has experience indicating acceptable tolerance to LINEAGE® PREP. Without prior experience, it is advised that small area plantings be tested for tolerance to LINEAGE® PREP soil residues before large scale plantings are made. The user accepts all responsibility for injury on any conifer species not listed above.

## TANK MIXTURES

LINEAGE® PREP herbicide may be tank mixed with other herbicides and /or adjuvants registered for the uses specified in the product label.

### SOUTH/SOUTHEAST US

LINEAGE® PREP may be tank mixed with site preparation treatments applied in the late summer to broaden the spectrum of undesirable hardwoods and/or wildling pines controlled and provide herbaceous weed control in the year following transplanting.

For quick brown out of foliage to aid burning, add 1 to 4 pints per acre of glyphosate (4 pounds active per gallon) or 1 to 3 pints per acre of triclopyr (4 pound active per gallon) to 15 ounces per acre of LINEAGE® PREP. In site preparation areas with seedling pines (other than where Slash pines are to be planted), apply a tank mix of LINEAGE® PREP at 15 ounces per acre plus glyphosate (4 pound active per gallon) at 3 to 4 quarts per acre.

Where burning is desired, burn only after adequate rainfall has occurred to move LINEAGE® PREP into the soil. Soil disturbance from bedding or plowing may reduce spring herbaceous weed control.

### LINEAGE® PREP plus KRENITE® S

#### Pine and Hardwood seedlings and saplings

To control a combination of pine and hardwood seedlings and saplings, apply a tank mixture of LINEAGE® PREP at the rates specified for the conifer plantation species plus KRENITE® S at 4 to 6 quarts per acre.

Use the higher rates when either pine saplings predominate or when high infestations of seedling pines are in the area to be sprayed. Along with seedling and sapling pines and herbaceous weeds, this tank mix also provides control of Ash, Blackberry, Blackgum, Black locust, Box elder, Cherry, Dogwood, Elms (winged, slippery), Oaks (red, white), Red maple, Sassafras, Sweetgum and Sourwood brush species.

## CONIFER PLANTATIONS - RELEASE

Apply LINEAGE® PREP after transplanting to control certain species of hardwoods, broadleaf weeds and grasses. A broadcast or directed application of LINEAGE® PREP may be used to control or suppress herbaceous, tree or brush species. In all ages of conifer stands, a low volume, directed spray application may be made to the targeted weed species while avoiding contact with the conifer foliage. Make sure to not apply more than the specified rate as conifer injury may occur.

Do not apply LINEAGE® PREP when conifers are under stress from diseases, drought, animal or winter injury or other environmental or mechanical stresses as injury may occur.

## APPLICATION RATES

Where infestations of hardwood brush species are competing with the conifers, make a broadcast application of LINEAGE® PREP at the rate specified for the conifer plantation species. Use the higher herbicide rates for heavy weed/brush infestations, hard to control species and dense hardwood canopies.

<u>Conifer Species</u>	<u>Rate (ounces/acre)</u>
Loblolly Pine	10 to 15
Slash Pine	10 to 11

**Note:** Other conifer species may get a release treatment providing the user has experience indicating acceptable tolerance to LINEAGE® PREP. Without prior experience, it is advised that small areas be tested for tolerance to LINEAGE® PREP. The user accepts all responsibility for injury on any conifer species not listed above.

**Slash Pines** - to control woody brush, make broadcast over-the-top release applications after September 15th. Only make applications to Slash pines that are at least 5 years old. Do not include an adjuvant and use the lower release rates on sandy soils. When release applications are made during periods of active conifer growth, minor stunting (slowing of growth) may occur. To reduce the potential for minor stunting, make broadcast release applications late in the growing season.

**Loblolly Pines** - In the first growing season after planting or in one year old naturally regenerated loblolly pine sites, DuPont™ LINEAGE® PREP may be used for release treatments. For release of Loblolly Pines that are one year old apply LINEAGE® PREP at 10 to 15 ounces per acre. These applications should only be made after July 15th. A non-ionic surfactant at 0.25% v/v may be included with this treatment.

Do not apply LINEAGE® PREP when conifers are under stress from diseases, drought, animal or winter injury or other environmental or mechanical stresses as injury may occur.

**MID ROTATION RELEASE**

For broadcast applications underneath the pine canopy in established stands of Loblolly pine use 12 to 20 ounces per acre. For mid rotation release of Slash pine, use 10 to 11 ounces per acre. Avoid contact with the conifer foliage when making mid rotation release applications.

**SPOT TREATMENT – RELEASE**

In all ages of Loblolly and Slash pines, a directed postemergence or cut stem application of LINEAGE® PREP may be applied to control unwanted hardwoods or other brush. Care should be taken to not make direct applications to desired conifers as injury may occur. Injury may also occur to adjacent hardwoods or conifers where their roots extend into the treated area or if they share the same root system, or their roots have become grafted to those in the treated area.

LINEAGE® PREP herbicide may be applied at the following use rates depending upon the vegetation to be controlled and the type of application being made. Use the higher spray volumes and herbicide rates for heavy weed/brush infestations, hard to control species and dense hardwood canopies.

<u>Vegetation</u>	<u>Application</u>	<u>Use Rate</u>
Hardwood trees brush	Directed foliar, or spot spray	3 to 6 ounces per 3 gallons of water
Stump or cut stem	6 ounces per	gallon of water

**WILDLIFE HABITAT MANAGEMENT**

LINEAGE® PREP herbicide may be used to control exotic and other undesirable vegetation for purposes of wildlife habitat management and enhancement within forests as well as terrestrial non-agricultural sites. Applications can be made to control undesirable vegetation prior to planting desirable vegetation species. LINEAGE® PREP may be applied either as a spot treatment, directed foliar treatment or a cut stump/stem treatment to selectively control unwanted plants for wildlife habitat management and enhancement. See WEEDS CONTROLLED and SPOT TREATMENT - RELEASE charts of this label for use rates.

**UNDESIRABLE HARDWOOD CONTROL**

For loblolly pine, apply 15 ounces per acre of LINEAGE® PREP to control herbaceous weeds, grasses and undesirable hardwoods. Some minor conifer growth inhibition may be observed when release treatments are made during periods of active conifer growth. To minimize potential conifer height growth inhibition, broadcast release treatments may be made late in the growing season. A registered conifer release surfactant may be added at the rate recommended on the surfactant label.

For Slash Pine, over the top broadcast release treatments must be made after mid-August and only in stands 2 to 5 years old. For over the top applications to slash pine do not add a surfactant.

This treatment provides control or suppression of the following brush species:

- |             |               |            |
|-------------|---------------|------------|
| Ash         | Hickory*      | Persimmon* |
| Black gum   | Honeysuckle   | Red maple* |
| Blackberry* | Hophornbeam   | Sassafrass |
| Cherry      | Myrtle dahoon | Sweetgum   |
| Dogwood*    | Oak, red      | Vaccinium  |
| Elm*        | Oak, white    |            |
| Hawthorn    | Oak, water    |            |

\*Suppression - a visible reduction in plant population and/or plant vigor as compared to an untreated area and generally not accepted as control.

## PRECAUTIONS AND RESTRICTIONS – AGRICULTURAL USE

- Applications of DuPont™ LINEAGE® PREP made to conifers that are suffering from loss of vigor caused by insects, diseases, drought, winter damage, animal damage, excessive soil moisture, planting shock, previous agricultural practices, or other stresses, may injure or kill the trees.
- Applications of LINEAGE® PREP made after transplanting must only be made after adequate rainfall has closed the planting slit and settled the soil around the roots.
- Do not apply LINEAGE® PREP to conifers grown for Christmas trees or ornamentals.
- Do not use a surfactant with LINEAGE® PREP for herbaceous weed control when making over the top applications to conifer seedlings in the spring after transplanting. A surfactant specifically registered for conifer release may be used when targeting specific weed problems, such as, undesirable hardwoods.
- LINEAGE® PREP applications may result in damage and mortality to other species of trees when they are present on sites with those listed in the preceding directions for conifer plantations uses.
- Injury or loss of desirable trees or other plants may result if LINEAGE® PREP is applied on or near desirable trees or other plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots.
- Do not treat frozen soil.
- Leave treated soil undisturbed to reduce the potential for LINEAGE® PREP movement by soil erosion due to wind or water.
- Do not use on lawns, walks, driveways, tennis courts, or similar areas.
- Do not apply in or on irrigation ditches or canals including their outer banks or to water used for crop irrigation or for domestic uses.
- Do not apply through any type of irrigation system.
- Do not use this product in the following counties of Colorado: Saguache, Rio Grande, Alamosa, Costilla and Conejos.

## NON-AGRICULTURAL USES

### NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are not within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Terrestrial non-crop weed control is not within the scope of the Worker Protection Standard. See the General Information section of this label for a description of non-crop sites.

Do not enter or allow worker entry into treated areas until sprays have dried.

## PRODUCT INFORMATION

LINEAGE® PREP herbicide is to be mixed with water and a surfactant, unless otherwise directed, and applied as a spray for the control of undesirable vegetation in terrestrial non-agricultural sites. LINEAGE® PREP herbicide is to be used for general weed and brush control on private, public and military lands as follows: uncultivated non-agricultural areas (including airports, highway, railroad and utility rights-of-way (ROW), sewage disposal areas); uncultivated agricultural areas - non-agricultural producing (including farmyards, fuel storage areas, fence rows, non-irrigation ditch banks, barrier strips); industrial sites - outdoor (including lumberyards, pipeline and tank farms). For best results, uniformly cover the foliage of the vegetation to be controlled with the spray solution.

This product may be applied to terrestrial non-agricultural 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 intermittently flooded low lying sites, seasonally 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. It may also be used to control weeds along the banks of drainage canals or ditches. Only treat up to the outer edge of a drainage ditch or canal when it contains water. Do not apply LINEAGE® PREP on irrigation ditches or canals. Do not apply LINEAGE® PREP on dry irrigation canals or dry irrigation ditches.

LINEAGE® PREP provides preemergence and postemergence control of the broadleaf weeds, perennial and annual grasses, vines and brush species listed on in the Weeds Controlled section of this label. For listed perennial species, a postemergence application should be used. For best postemergence performance, an adjuvant may be included to the spray solution (See the ADJUVANTS section of this label). Good spray coverage of the target plant is desired. Excessive wetting which causes the spray to run off target plants should be avoided. LINEAGE® PREP may be applied by either ground or aerial spray equipment.

Note: Injury or loss of desirable trees or other plants may result if DuPont™ LINEAGE® PREP is applied on or near desirable trees or other plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots.

## **TOTAL VEGETATION CONTROL - BAREGROUND**

LINEAGE® PREP may be used in sites for bareground (total vegetation control) weed control. Preemergence or postemergence applications of LINEAGE® PREP provides control of many annual and perennial broadleaf and grass weeds. It may be used alone at 11 to 29 ounces per acre or in tank mixes with other products registered for use on bareground sites. Consult the manufacturer's labels for specific rates, weeds controlled and use restrictions. Make applications using a sufficient spray volume to ensure thorough coverage of the target site. Use the higher rates of LINEAGE® PREP for fall applications and in previously untreated areas or areas with high weed infestations. For postemergence applications always include a spray adjuvant. For faster brown-out or burn down results, add glyphosate or similar products to the tank. For added residual weed control or to broaden the weed control spectrum, tank mix with other products registered for use on bareground sites. The degree and length of control will depend on the herbicide rate applied, amount of rainfall, the soil texture and other environmental and applications conditions.

## **SPECIFIC WEED PROBLEMS - KUDZU**

LINEAGE® PREP may be used as part of a kudzu abatement program. Apply at a rate of 29 ounces per acre. Retreatment of any re-sprouting kudzu crowns following the initial treatment is necessary to fully control kudzu. Make applications to kudzu after leaves are fully mature and the plant has begun to bloom. Applications may continue until first frost. Apply LINEAGE® PREP as a broadcast treatment for the initial application. Use spot-spray or broadcast followup applications as needed for thorough coverage. Thoroughly treat foliage and stems (spray-to-wet) without excess runoff. For handgun applications use a minimum of 100 gallons per acre. Boom or boom-less sprayer applications made by ground or air (helicopter only) equipment should use a minimum of 30 gallons per acre per application pass. Double pass applications from different directions can improve spray coverage. Do not apply more than 39 ounces per acre per year on a broadcast basis.

## **APPLICATION INFORMATION**

See the Spray Drift Management and Spray Drift Restrictions sections of this label for additional instructions, precautions and restrictions when making aerial or ground applications.

### **AERIAL APPLICATIONS**

Uniformly apply the required amount of LINEAGE® PREP, as listed in the WEEDS CONTROLLED section of this label, in a minimum of 5 gallons of water per acre. Use adequate spray volume to provide an accurate and uniform spray droplet distribution over the treated area and to avoid spray drift. Include a nonionic surfactant or methylated seed oil or a silicone based surfactant in the spray solution (see Adjuvant section). A foam reducing agent may be added at the manufacturers labeled rate, if needed.

**Important:** Thoroughly clean application equipment, including landing gear, immediately after use of this product. Prolonged exposure of this product to uncoated steel (except stainless steel) surfaces may result in corrosion and failure of the exposed part. The maintenance of an organic coating (paint) may prevent corrosion.

### **GROUND APPLICATIONS**

#### **LOW VOLUME APPLICATIONS**

Uniformly apply the required amount of LINEAGE® PREP, as listed in the WEEDS CONTROLLED section of this label, in a minimum of 5 gallons of water. Prepare the spray solution by thoroughly mixing in water a sufficient quantity of LINEAGE® PREP plus an adjuvant.

Good plant coverage is necessary for best results. Best results are achieved when the spray covers at least 75 percent of the target plant. Use adequate spray volume to help provide uniform distribution of spray droplets over the treated area and to avoid spray drift.

**Side Trimming:** Side trimming with LINEAGE® PREP can cause severe injury or death to the treated tree. Do not make side trimming applications unless death of the tree is acceptable.

#### **HIGH VOLUME APPLICATIONS**

When treating medium to high infestations of weeds, apply LINEAGE® PREP at the rate specified in this label. Mix LINEAGE® PREP in a sufficient volume of water to ensure uniform coverage of the site to be treated. Include a surfactant and a foam reducing agent if needed.

#### **DIRECTED FOLIAR OR SPOT SPRAY APPLICATIONS**

When making directed or spot spray applications with ground spray equipment, or low-volume hand-operated spray equipment, thoroughly mix a solution of LINEAGE® PREP and include a nonionic surfactant at a minimum of 0.25% by

volume. To mix the spray solution, add the volume of DuPont™ LINEAGE® PREP herbicide and nonionic surfactant indicated in the table below to the desired amount of water. Use the higher spray volumes and herbicide rates for heavy weed infestations and hard to control weed species.

<b>SPRAY SOLUTION VOLUME</b>	<b>LINEAGE®PREP</b>	<b>SURFACTANT (fluid ounce)</b>
3 gallons	3 to 6 ounces	1.0
4 gallons	4 to 8 ounces	1.5
5 gallons	9 to 12 ounces	1.6
10 gallons	12 to 24 ounces	3.2
20 gallons	24 to 29 ounces	6.4

## **PRECAUTIONS AND RESTRICTIONS - NON-AGRICULTURAL USE**

- Injury or loss of desirable trees or other plants may result if LINEAGE® PREP is applied on or near desirable trees or other plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots.
- Injury to or loss of desirable trees or other plants may result 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.
- Avoid overlapping applications and shut off spray booms while starting, turning, slowing or stopping to avoid injury to desired plants.
- 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 LINEAGE® PREP may injure or kill most crops. Injury may be more severe when the crops are irrigated. Do not apply LINEAGE® PREP 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 may not be made to soil that is subject to wind erosion when less than a 60% chance of rainfall is predicted to occur in the treatment area within 48 hours. Soils that are subject to wind erosion usually have a high silt and/or fine to very fine sand fractions. Soils with low organic matter also tend to be prone to wind erosion.
- 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 LINEAGE® PREP.
- Do not treat frozen or snow covered soil.
- Leave treated soil undisturbed to reduce the potential for LINEAGE® PREP movement by soil erosion due to wind or water.
- Do not use on lawns, walks, driveways, tennis courts, or similar areas.
- Do not apply in or on irrigation ditches or canals including their outer banks or to water used for crop irrigation or for domestic uses.
- Do not apply through any type of irrigation system.
- If non-agricultural sites treated with LINEAGE® PREP 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 two years after the LINEAGE® PREP 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 you plan to grow the following year. The test strips must cross the entire field including knolls and low areas. Crop response to the bioassay will indicate whether or not to plant the crops grown in the test strips. In the case of suspected off-site movement of LINEAGE® PREP to cropland, soil samples should be quantitatively analyzed for LINEAGE® PREP 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.

# ADDITIONAL INSTRUCTIONS, PRECAUTIONS, AND RESTRICTIONS FOR AGRICULTURAL AND NON-AGRICULTURAL USES

## WEEDS CONTROLLED

DuPont™ LINEAGE® PREP provides postemergence control and some residual control of the annual weeds in the following tables. The degree of control is both rate and species dependent. Postemergence applications generally provide best control of established biennials and perennial weeds. All rates in the Weeds Controlled table are expressed in the amount of herbicide required for broadcast applications. Review the weed lists and foot notes for additional application information prior to treating. Apply LINEAGE® PREP at the rates indicated by weed type. When applied at lower rates, LINEAGE® PREP provides short term control of weeds listed; when applied at higher rates, weed control is extended.

### GRASSES

#### Apply 11 ounces per acre

Arrowgrass, seaside  
Bluegrass, annual  
Bahigrass  
Barnyardgrass  
Barley, foxtail  
Barley, little  
Barley, wild  
Brome, downy  
Brome, red  
Brome, ripgut  
Canarygrass, reed  
Crabgrass  
Fescue  
Foxtail, fescue  
Foxtail, green  
Fescue, red  
Goatgrass, jointed  
Johnsongrass  
Medusahead  
Oat, wild  
Panicum (annual)  
Panicum, browntop  
Panicum, fall  
Panicum, Texas  
Rye  
Ryegrass, Italian  
Saltgrass, seashore  
Sandbur, field  
Sandbur, southern  
Signalgrass, broadleaf  
Sprangletop, bearded  
Stiltgrass, Japanese  
Wheat

*Triglochin maritimum*  
*Poa annua*  
*Paspalum notatum*  
*Echinochloa crus-gali*  
*Hordeum jubatum*  
*Hordeum pusillum*  
*Hordeum spp.*  
*Bromus tectorum*  
*Bromus rubens*  
*Bromus diandrus*  
*Phalaris arundinacea*  
*Digitaria spp.*  
*Festuca spp.*  
*Vulpia megalura*  
*Setaria viridis*  
*Festuca rubra*  
*Aegilops cylindrica*  
*Sorghum halepense*  
*Taeniatherum caput-medusae*  
*Avena fatua*  
*Panicum spp.*  
*Panicum fasciculatum*  
*Panicum dichotomiflorum*  
*Panicum texanum*  
*Secale cereale*  
*Lolium multiflorum*  
*Distichlis stricta*  
*Cenchrus incertus*  
*Cenchrus echinatus*  
*Brachiaria platyphylla*  
*Leptochloa fascicularis*  
*Microstegium vimineum*  
*Triticum aestivum*

#### Apply 15 ounces per acre

Bluegrass, Canada  
Bluegrass, Kentucky  
Brome, fescue  
Brome, smooth  
Dropseed, sand  
Foxtail  
Lovegrass  
Orchardgrass  
Paragrass  
Quackgrass  
Sprangletop, bearded  
Vaseygrass  
Witchgrass

*Poa compressa*  
*Poa pratensis*  
*Vulpia bromoides*  
*Bromus inermis*  
*Sporobolus cryptandrus*  
*Setaria spp.*  
*Eragrostis spp.*  
*Dactylis glomerata*  
*Brachiaria mutica*  
*Agropyron repens*  
*Leptochloa fusca*  
*Paspalum urvillei*  
*Panicum capillare*

#### Apply 22 ounces per acre

Beardgrass  
Cheat  
Crowfootgrass  
Cupgrass, woolly  
Goosegrass  
Itchgrass  
Junglerice  
Maidencane  
Reed, giant  
Threawn, prairie  
Torpedograss

*Andropogon spp.*  
*Bromus secalinus*  
*Dactyloctenium aegyptium*  
*Eriochloa villosa*  
*Eleusine indica*  
*Rotthoellia exaltata*  
*Echinochloa colonum*  
*Panicum hemitomon*  
*Arundo donax*  
*Aristida oligantha*  
*Panicum repens*

## Apply 27 ounces per acre

Bermudagrass  
Bluestem, big  
Cattail  
Cogongrass  
Cordgrass, prairie  
Dallisgrass  
Feathertop  
Guineagrass  
Muhly, wirestem  
Phragmites  
Sprangletop  
Timothy

## BROADLEAF WEEDS

### Apply 11 ounces per acre

Aster  
Beebalm  
Beakchervil, bur  
Beakchervil, woodland  
Blackeyed-susan  
Bouncingbet  
Burclover  
Buttercup, bur  
Carrot, wild  
Catchfly, conical  
Chamomile, false  
Chickweed, common  
Chickweed, mouseear  
Chicory  
Clover, crimson  
Clover, hop  
Cockle, cow  
Cocklebur  
Corncockle, common  
Coreopsis, plains  
Crazyweed, silky  
Croton, woolly  
Daisy, oxeye  
Dandelion  
Falseflax, smallseed  
Fiddleneck (tarweed)  
Flixweed  
Garlic, wild  
Geranium, Carolina  
Goldenrod  
Groundsel, common  
Heliotrope, seaside  
Hemlock, poison  
Horseweed/marestail<sup>3</sup>  
Houndstongue  
Lambsquarters  
Lettuce, miners  
Lettuce, wild  
Mallow, common  
Mallow, little  
Miners lettuce  
Mustard, black  
Mustard, blue  
Mustard, treacle  
Mustard, tumble  
Mustard, wild  
Orach, spreading  
Pennycress, field  
Pepperweed  
Plantain  
Pokeweed  
Purslane, common  
Pusley, Florida  
Ragweed, common  
Ragweed, giant  
Ragwort, tansy  
Salsify  
Shepherd's-purse  
Sneezeweed, bitter  
Sowthistle, annual  
Speedwell, common  
Sunflower, maximilian

*Cynodon dactylon*  
*Andropogon gerardii*  
*Typha* spp.  
*Imperata cylindrical*  
*Spartina pectinata*  
*Paspalum dilatatum*  
*Pennisetum villosum*  
*Panicum maximum*  
*Muhlenbergia frondosa*  
*Phragmites australis*  
*Leptochloa* spp.  
*Phleum pretense*

*Aster* spp.  
*Monarda didyma*  
*Anthriscus caucalis*  
*Anthriscus sylvestris*  
*Rudbeckia hirta*  
*Saponaria officinalis*  
*Medicago polymorpha*  
*Ranunculus testiculatus*  
*Daucus carota*  
*Silene conica*  
*Matricaria maritima*  
*Stellaria media*  
*Cerastium vulgatum*  
*Cichorium intybus*  
*Trifolium incarnatum*  
*Trifolium procumbens*  
*Saponaria vaccaria*  
*Xanthium strumarium*  
*Agrostemma githago*  
*Coreopsis tinctoria*  
*Oxytropis sericea*  
*Croton capitatus*  
*Leucanthemum vulgare*  
*Taraxacum officinale*  
*Camelina microcarpa*  
*Amsinckia micrantha*  
*Descurainia sophia*  
*Allium vineale*  
*Geranium carolinianum*  
*Solidago* spp.  
*Senecio vulgari*  
*Heliotropium curassavicum*  
*Conium maculatum*  
*Conyza Canadensis*  
*Cynoglossum officinale*  
*Chenopodium album*  
*Claytonia perfoliata*  
*Lactuca* spp.  
*Malva neglecta*  
*Malva parviflora*  
*Montia perfoliata*  
*Brassica nigra*  
*Chorispora tenella*  
*Erysimum repandum*  
*Sisymbrium altissimum*  
*Sinapis arvensis*  
*Atriplex patula*  
*Thlaspi arvense*  
*Lepidium* spp.  
*Plantago* spp.  
*Phytolacca Americana*  
*Portulaca* spp.  
*Richardia scabra*  
*Ambrosia artemisiifolia*  
*Ambrosia trifida*  
*Senecio jacobaea*  
*Tragopogon* spp.  
*Capsela bursa-pastoris*  
*Helenium amarum*  
*Sonchus oleraceus*  
*Veronica officinalis*  
*Helianthus maximiliani*

Tansy, common  
Tansymustard  
Vetch, common  
Vetch, crown  
Vetch, hairy  
Yankee weed

**Apply 15 ounces per acre**

Alligatorweed  
Blackberry  
Burdock  
Bursage, woollyleaf  
Camphorweed  
Caraway, wild  
Carpetweed  
Clover  
Crupina, common  
Dewberry  
Dock  
Dogfennel  
Dyer's woad  
Filaree  
Fireweed  
Fleabane  
Gaillardia, rose-ring  
Goosefoot, nettleleaf  
Gorse  
Gumweed, curlycup  
Henbane, black  
Halogeton  
Henbit  
Mustard, Indian  
Knotweed, prostrate  
Kochia<sup>3</sup>  
Lespedeza  
Mullein  
Parsnip, wild  
Pigweed  
Poorjoe (buttonweed)  
Puncturevine  
Ragweed, western  
Rose, wild  
Including: Multiflora rose  
Macartney rose  
Smartweed  
Snakeroot, white  
Snakeweed, broom  
Snowberry, common  
Snowberry, western  
Sorrel  
St. John's wort  
Sunflower  
Sweet-clover  
Teasel  
Thistle, bull  
Thistle, musk  
Thistle, plumeless  
Thistle, Russian<sup>3</sup>  
Thistle, Scotch  
Turnip, wild  
Vervain, hoary  
Whiteweed, hairy  
Woodsorrel, yellow

**Apply 22 ounces per acre**

Camelthorn, desert  
Cudweed  
Fiddleneck  
Knapweed, diffuse  
Loosestrife, purple  
Nettle, stinging  
Nutsedge, yellow  
Pepperweed, perennial  
Rocket, London  
Rocket, yellow  
Rush  
Saltbush  
Skeletonweed, rush  
Spurge, annual

*Tanacetum vulgare*  
*Descurainia pinnata*  
*Vicia sativa*  
*Coronilla varia*  
*Vicia villosa*  
*Eupatorium compositifolium*

*Alternanthera philoxeroides*  
*Rubus* spp.  
*Arctium* spp.  
*Franseria tomentosa*  
*Heterotheca subaxillaris*  
*Carum carvi*  
*Mollugo verticillata*  
*Trifolium* spp.  
*Crupina vulgaris*  
*Rubus trivialis*  
*Rumex* spp.  
*Eupatorium capillifolium*  
*Isatis tinctoria*  
*Erodium* spp.  
*Epilobium angustifolium*  
*Erigeron* spp.  
*Grindelia squarrosa*  
*Chenopodium murale*  
*Ulex europaeus*  
*Grindelia squarrosa*  
*Hyoscyamus niger*  
*Halogeton glomeratus*  
*Lamium aplexicaule*  
*Brassica juncea*  
*Polygonum aviculare*  
*Kochia scoparia*  
*Lezpedeza* spp.  
*Verbascum* spp.  
*Pastinaca sativa*  
*Amaranthus* spp.  
*Diodia teres*  
*Tribulus terrestris*  
*Ambrosia psilostachya*  
*Rosa* spp.  
*Rosa multiflora*  
*Rosa bracteata*  
*Polygonum* spp.  
*Ageratina altissima*  
*Gutierrezia sarothrae*  
*Symphoricarpos albus*  
*Symphoricarpos occidentalis*  
*Rumex* spp.  
*Hypericum perforatum*  
*Helianthus* spp.  
*Melilotus* spp.  
*Dipsacus* spp.  
*Cirsium vulgare*  
*Carduus nutans*  
*Carduus acanthoides*  
*Salsola kali*  
*Onopordum acanthium*  
*Brassica campestris*  
*Verbena stricta*  
*Lepidium pubescens*  
*Oxalis stricta*

*Alhagi pseudalhagi*  
*Gnaphalium* spp.  
*Amsinckia intermedia*  
*Centaurea diffusa*  
*Lythum salicaria*  
*Urtica dioica*  
*Cyperus esculentus*  
*Lepidium latifolium*  
*Sisymbrium irio*  
*Barbarea vulgaris*  
*Juncus* spp.  
*Atriplex* spp.  
*Chondrilla juncea*  
*Euphorbia* spp.

Starthistle, purple  
Starthistle, yellow  
Velvetleaf

**Apply 27 ounces per acre**

Arrowwood  
Knapweed, Russian  
Knotweed, Japanese  
Mallow, little  
Milkweed  
Nightshade, silverleaf  
Primrose  
Rabbitbrush, gray  
Ragweed, giant  
Thistle, Canada  
Thistle, Texas

**VINES AND BRAMBLES**

**Apply 15 ounces per acre**

Bindweed, field  
Bindweed, hedge  
Buckwheat, wild

**Apply 25 ounces per acre**

Greenbriar  
Morningglory  
Poison ivy  
Redvine

**Apply 29 ounces per acre**

Kudzu<sup>4</sup>  
Trumpet creeper  
Virginia creeper  
Wild grape

**BRUSH SPECIES**

**Apply 15 ounces per acre**

Ash  
Black gum  
Cherry  
Hawthorn  
Honeysuckle  
Hophornbeam  
Myrtle dahoon  
Oak, red  
Oak, white  
Oak, water  
Sassafras  
Sweetgum  
Vaccinium spp.  
Including: Blueberry  
Sparkleberry

**Apply 29 ounces per acre**

Alder  
American beech  
Aspen  
Autumn olive  
Bald cypress  
Birch  
Boxelder  
Black oak  
Ceanothis  
Chinaberry  
Chinese tallow-tree  
Chinquapin  
Cottonwood  
Cypress  
Dogwood  
Eucalyptus  
Hickory  
Huckleberry  
Lyonia spp.  
Including: Fetterbush  
Staggerbush  
Madrone  
Maple  
Maple, red  
Maple, bigleaf

*Centaurea calcitrapa*  
*Centaurea solstitialis*  
*Abutilon theophrasti*

*Pluchea sericea*  
*Centaurea repens*  
*Polygonum cuspidatum*  
*Malva parvilora*  
*Asclepias* spp.  
*Solanum elaeagnifolium*  
*Oenothera kunthiana*  
*Chrysothamnus nauseosus*  
*Ambrosia trifida*  
*Cirsium arvense*  
*Cirsium texanum*

*Convolvulus arvensis*  
*Calystegia sepium*  
*Polygonum convolvulus*

*Smilax* spp.  
*Ipomoea* spp.  
*Rhus radicans*  
*Brunnichia cirrhosa*

*Pueraria lobata*  
*Campsis radicans*  
*Parthenocissus quinquefolia*  
*Vitis* spp.

*Fraxinus* spp.  
*Nyssa sylvatica*  
*Prunus* spp.  
*Crataegus* spp.  
*Lonicera* spp.  
*Ostrya virginiana*  
*Ilex myrtifolia*  
*Quercus rubra*  
*Quercus alba*  
*Quercus nigra*  
*Sassafras albidum*  
*Liquidambar styraciflua*

*Vaccinium* spp.  
*Vaccinium arboreum*

*Alnus* spp.  
*Fagus grandifolia*  
*Populus* spp.  
*Elaeagnus umbellata*  
*Taxodium distichum*  
*Betula* spp.  
*Acer negundo*  
*Quercus kelloggii*  
*Ceanothis* spp.  
*Melia azadarach*  
*Sapium sebiferum*  
*Castanopsis chrysophylla*  
*Populus trichocarpa* and *P. deltoides*  
*Taxodium* spp.  
*Cornus* spp.  
*Eucalyptus* spp.  
*Carya* spp.  
*Gaylussacia* spp.

*Lyonia lucida*  
*Lyonia mariana*  
*Arbutus menziesii*  
*Acer* spp.  
*Acer rubrum*  
*Acer macrophyllum*

Melaleuca  
Mulberry<sup>2</sup>  
Oak  
Olive, Russian  
Persimmon<sup>1</sup>  
Poison oak  
Popcorn tree  
Poplar  
Poplar, yellow  
Privet  
Saltcedar  
Sourwood<sup>1</sup>  
Sumac  
Sycamore  
Tanoak  
TiTi  
Tree of heaven  
Willow

*Melaleuca quinquenervia*  
*Morus spp.*  
*Quercus spp.*  
*Elaeagnus angustifolia*  
*Diospyros virginiana*  
*Rhus diversiloba*  
*Sapinum sebiferum*  
*Populus spp.*  
*Liriodendron tulipifera*  
*Ligustrum vulgare*  
*Tamarix ramosissima*  
*Oxydendrum arboreum*  
*Rhus spp.*  
*Platanus occidentalis*  
*Lithocarpus densiflorus*  
*Cyrilla racemiflora*  
*Ailanthus altissima*  
*Salix spp.*

1 Best control prior to formation of fall leaf color.

2 Degree of control may be species dependent.

3 Certain biotypes of Horseweed/marestail, Kochia and Russian thistle are less sensitive to DuPont™ LINEAGE® PREP and may be controlled by tank mixes with herbicides with a different mode of action.

4 Use a minimum of 75 GPA – control of established stands may require repeat applications.

## SPRAY EQUIPMENT

Thoroughly mix the required amount of LINEAGE® PREP herbicide in a spray tank or nurse tank. A drift control agent and a foam reducing agent may be added at the recommended label rates, if needed. If desired, a spray pattern indicator may be added at the recommended label rate.

Following an LINEAGE® PREP application, the use of spray equipment to apply other pesticides to crops on which LINEAGE® PREP is not registered may result in their damage. Low rates of LINEAGE® PREP can kill or severely injure most crops. The most effective way to reduce this crop damage potential is to use dedicated mixing and application equipment. The selected sprayer should be equipped with an agitation system to keep LINEAGE® PREP suspended in the spray tank.

## MIXING INSTRUCTIONS

1. Fill the tank 1/3 to 1/2 full of water.
2. While agitating, add the required amount of LINEAGE® PREP.
3. Continue agitation until the LINEAGE® PREP is fully dispersed, at least 5 minutes.
4. Once the LINEAGE® PREP is fully dispersed, maintain agitation and continue filling tank with water. LINEAGE® PREP should be thoroughly mixed with water before adding any other material.
5. As the tank is filling, add tank mix partners (if desired) then add the necessary adjuvant. Always add the adjuvant last.
6. If the mixture is not continuously agitated, settling will occur. If settling occurs, thoroughly re-agitate before using.
7. LINEAGE® PREP spray preparations are stable if they are pH neutral or alkaline and stored at or below 100° F.
8. If LINEAGE® PREP and a tank mix partner are to be applied in multiple loads, pre-slurry the LINEAGE® PREP in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the LINEAGE® PREP.

## TANK MIXTURES

LINEAGE® PREP herbicide may be tank mixed with other herbicides and /or adjuvants registered for the uses specified in the product label. Refer to the label of the tank mix partner for any additional instructions or use restrictions. Tank mixing with 2,4 -D or products which contain 2,4-D have resulted in reduced performance of LINEAGE® PREP. An anti-foaming agent, spray pattern indicator or drift reducing agent may be applied at the product labeled rate if needed. When tank mixing, use the most restrictive label limitations for each of the products used in the tank mix.

## ADJUVANTS

For best postemergence performance in selected conifer plantation applications, wildlife habitat management and non-agricultural uses include a spray adjuvant when making applications of LINEAGE® PREP.

**Non-ionic Surfactants:** Use a non-ionic surfactant at a minimum rate of 0.25% v/v (1 quart surfactant per 100 gallons of spray solution). Surfactant products must contain at least 70% non-ionic surfactant with a hydrophilic/lipophilic balance (HLB) of 12 to 17.

**Methylated Seed Oils or Vegetable Oils:** Under temperature or moisture stress conditions, a methylated seed oil (MSO) or vegetable oil based adjuvant may provide increased leaf absorption of DuPont™ LINEAGE® PREP. For spray volumes of less than 30 gallons per acre use a rate of 1.5 to 2 pints per acre. For higher volume applications, spray volumes greater than 30 gallons per acre, include the MSO or vegetable oil adjuvant at 1% v/v (1 gallon per 100 gallons of spray solution).

**Silicone Based Surfactants:** Silicone based adjuvants reduce the surface tension of the spray droplet allowing better coverage of the leaf surface compared to some nonionic surfactants. In some cases, the silicone adjuvant may dry quickly and limit uptake. Refer to the manufacturers instructions for appropriate use rates.

**Invert Emulsions:** LINEAGE® PREP may be applied as an invert emulsion. The spray solution results in an invert (water-in-oil) spray emulsion designed to minimize spray drift and spray run-off, resulting in more herbicide on the target foliage. The spray emulsion may be formed in a single tank (batch mixing) or injected (in-line mixing). Consult the invert chemical label for proper mixing directions.

## **SPRAYER CLEANUP**

Spray equipment must be cleaned before LINEAGE® PREP is sprayed. Follow the cleanup procedures specified on the labels of previously applied products. If no directions are provided, follow the sprayer clean up directions on this label.

When multiple loads of LINEAGE® PREP herbicide are applied, it is recommended that at the end of each day of spraying, the interior of the tank be rinsed with fresh water and then partially filled, and the boom and hoses flushed. This will prevent the buildup of dried pesticide deposits that can accumulate in the application equipment.

### **AT THE END OF THE DAY**

1. Drain tank; thoroughly rinse spray tanks, boom, and hoses with clean water. Loosen and physically remove any visible deposits.
2. Fill the tank with clean water and add 1 gallon of household ammonia (contains 3% active) for every 100 gallons of water. Equivalent amounts of an alternate-strength ammonia solution or a DuPont-approved cleaner can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions. Consult your agricultural dealer, applicator, or DuPont representative for a listing of approved cleaners. 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 minutes. Flush the hoses, boom, and nozzles again with the cleaning solution, and then drain the tank.
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. 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 prior to performing the above cleanout procedure to facilitate the removal of any caked deposits.
3. When LINEAGE® PREP is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.
4. In addition to this cleanout procedure, all pre-cleanout guidelines on subsequently applied products must be followed as per the individual labels.

## **SPRAY DRIFT MANAGEMENT**

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

### **IMPORTANCE OF DROPLET SIZE**

The most effective drift management strategy is to apply the largest droplets which are consistent with pest control objectives. 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.

A droplet size classification system describes the range of droplet sizes produced by spray nozzles. The American Society of Agricultural and Biological Engineers (ASABE) provide a Standard that describes droplet size spectrum categories defined by

a number of reference nozzles (fine, coarse, etc.). Droplet spectra resulting from the use of a specific nozzle may also be described in terms of volume mean diameter (VMD). Coarser droplet size spectra have larger VMD's and lower drift potential.

### **CONTROLLING DROPLET SIZE - GROUND TECHNIQUES**

- **Nozzle Type** - Select a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. The use of low-drift nozzles will reduce drift potential.
- **Pressure** - The lowest spray pressures recommended for the nozzle produce the largest droplets. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, using a higher-capacity nozzle instead of increasing pressure results in the coarsest droplet spectrum.
- **Flow Rate/Orifice Size** - Using the highest flow rate nozzles (largest orifice) that are consistent with pest control objectives reduces the potential for spray drift. Nozzles with higher rated flows produce coarser droplet spectra.

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

- **Nozzle Type** - Solid stream, or other low drift nozzles produce the coarsest droplet spectra.
- **Number of Nozzles** - Using the minimum number of nozzles with the highest flow rate that provide uniform coverage will produce a coarser droplet spectrum
- **Nozzle Orientation** - Orienting nozzles in a manner that minimizes the effects of air shear will produce the coarsest droplet spectra. For some nozzles such as solid stream, pointing the nozzles straight back parallel to the airstream will produce a coarser droplet spectrum than other orientations.
- **Pressure** - Selecting the pressure that produces the coarsest droplet spectrum for a particular nozzle and airspeed reduces spray drift potential. For some nozzle types such as solid streams, lower pressures can produce finer droplet spectra and increase drift potential

### **BOOM LENGTH (AIRCRAFT) AND APPLICATION HEIGHT**

- **Boom Length (aircraft)** - Using shorter booms decreases drift potential. Boom lengths are expressed as a percentage of an aircraft's wingspan or a helicopter's rotor blade diameter. Shorter boom length and proper positioning can minimize drift caused by wingtip or rotor vortices.
- **Application Height (aircraft)** - Applications made at the lowest height that are consistent with pest control objectives and the safe operation of the aircraft will reduce the potential for spray drift.
- **Application Height (ground)** - Applications made at the lowest height consistent with pest control objectives, and that allow the applicator to keep the boom level with the application site and minimize bounce, will reduce the exposure of spray droplets to evaporation and wind, and reduce spray drift potential.

### **WIND**

Drift potential is lowest when applications are made in light to gentle sustained winds (2-10 mph), which are blowing in a constant direction. Many factors, including droplet size and equipment type also determine drift potential at any given wind speed. AVOID GUSTY OR WINDLESS CONDITIONS.

Local terrain can also influence wind patterns. Every applicator is expected to be familiar with local wind patterns and how they affect spray drift.

### **TEMPERATURE AND HUMIDITY**

Setting up equipment to produce larger droplets to compensate for droplet evaporation can reduce spray drift potential. Droplet evaporation is most severe when conditions are both hot and dry.

### **SURFACE TEMPERATURE INVERSIONS**

Drift potential is high during a surface temperature inversion. Surface inversions restrict vertical air mixing, which may cause small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Surface inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Mist or fog may indicate the presence of an inversion in humid areas. Inversions may also be identified by producing smoke and observing its behavior. Smoke that remains close to the ground, or moves laterally in a concentrated cloud under low wind conditions indicates a surface inversion. Smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

### **SHIELDED SPRAYERS**

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

### **AIR ASSISTED (AIR BLAST) FIELD CROP SPRAYERS**

Air assisted field crop sprayers carry droplets to the target via a downward directed air stream. Some may reduce the potential for drift, but if a sprayer is unsuitable for the application and/or set up improperly, high drift potential can result. It is the responsibility of the applicator to determine that a sprayer is suitable for the intended application, that it is configured properly, and that drift potential has been minimized.

Note: Air assisted field sprayers can affect product performance by affecting spray coverage and canopy penetration. Read the specific crop use and application equipment instructions to determine if an air assisted field crop sprayer can be used.

## **SENSITIVE AREAS**

Making applications when there is a sustained wind moving away from adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is an effective way to minimize the effect of spray drift.

## **DRIFT CONTROL ADDITIVES**

Using product compatible drift control additives can reduce drift potential. When a drift control additive is used, read and carefully observe cautionary statements and all other information on the additive's label. If using an additive that increases viscosity, ensure that the nozzles and other application equipment will function properly with a viscous spray solution. Preferred drift control additives have been certified by the Chemical Producers and Distributors Association (CPDA).

## **UPWIND SWATH DISPLACEMENT**

When applications are made with a crosswind the swath will be displaced downwind. An adjustment for swath displacement is made on the downwind edge of the application site by shifting the path of the application equipment upwind.

## **SPRAY DRIFT RESTRICTIONS**

- Where states have more stringent regulations they must be observed.

## **AERIAL APPLICATIONS**

- Applicators are required to use upwind swath displacement, and displacement distance must increase with increasing drift potential.
- The boom length must not exceed 60% of the wing span or 80% of the rotor blade diameter.
- Applications with wind speeds less than 3 miles per hour or greater than 10 miles per hour are prohibited.
- Applications into temperature inversions are prohibited.
- Liquid sprays must only be applied using rotary aircraft.
- Spray must be released at the lowest height consistent with pest control objectives and flight safety.
- When applying liquid sprays the following directional buffers are required to protect aquatic vegetation in sites (including lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, commercial fish ponds), or water used as an irrigation source, or crops.  
75 feet - All aerial applications.
- Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size spectrum.
- Applications must be made using equipment delivering an extremely coarse or coarser droplet size spectrum as defined by ASABE S572.1.

## **GROUND APPLICATIONS**

- Applications with wind speeds greater than 10 miles per hour are prohibited.
- Applications into temperature inversions are prohibited.
- Apply spray at the lowest height that is consistent with pest control objectives.
- When applying liquid sprays the following directional buffers are required to protect aquatic vegetation in sites (including lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, commercial fish ponds), or water used as an irrigation source, or crops.  
50 feet - All broadcast applications other than railroad and roadside rights-of-way.  
25 feet - Broadcast applications to railroad and roadside rights-of-way.  
15 feet - All handheld spot treatment applications.
- Applications must be made using equipment delivering an extremely coarse or coarser droplet size spectrum as defined by ASABE S572.1.

## 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 must be disposed of on site or at an approved waste disposal facility.

**CONTAINER HANDLING:** Refer to the Net Contents section of this product's labeling for the applicable "Nonrefillable Container" or "Refillable Container" designation.

**Nonrefillable Plastic and Metal Containers (Capacity Equal to or Less Than 50 Pounds): Nonrefillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Nonrefillable Plastic and Metal Containers (Capacity Greater Than 50 Pounds): Nonrefillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Nonrefillable Plastic and Metal Containers, e.g., Intermediate Bulk Containers [IBC] (Size or Shape Too Large to be Tipped, Rolled or Turned Upside Down): Nonrefillable container.** Do not reuse or refill this container. Clean container promptly after emptying the contents from this container into application equipment or mix tank and before final disposal using the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. For Metal Containers, offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Nonrefillable Paper or Plastic Bags, Fiber Sacks including Flexible Intermediate Bulk Containers (FIBC) or Fiber Drums With Liners: Nonrefillable container.** Do not reuse or refill this container. Completely empty paper or plastic bag, fiber sack or drum liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application or manufacturing equipment. Then offer for recycling if available or dispose of empty paper or plastic bag, fiber sack or fiber drum and liner in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances.

**Refillable Fiber Drums With Liners: Refillable container (fiber drum only). Refilling Fiber Drum:** Refill this fiber drum with DuPont™ LINEAGE® PREP containing sulfometuron methyl and chlorsulfuron only. Do not reuse this fiber drum for any other purpose. Cleaning before refilling is the responsibility of the refiller. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application or manufacturing equipment.

**Disposing of Fiber Drum and/or Liner:** Do not reuse this fiber drum for any other purpose other than refilling (see preceding). Cleaning the container (liner and/or fiber drum) before final disposal is the responsibility of the person disposing of the container. Offer the liner for recycling if available or dispose of liner in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. If drum is contaminated and cannot be reused, dispose of it in the manner required for its liner. To clean the fiber drum before final disposal, completely empty the fiber drum by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application or manufacturing equipment. Then offer the fiber drum for recycling if available or dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances.

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