



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (7505C)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

EPA Reg. Number:

352-719

Date of Issuance:

SEP 29 2006

NOTICE OF PESTICIDE:

Registration
 Reregistration

(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

DuPont Lineage Herbicide

Name and Address of Registrant (include ZIP Code):

E.I. DuPont de Nemours and Company
DuPont Crop Protection
Stine-Haskell Research Center
P. O. Box 30
Newark, DE 19714

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A) provided that you:

1. Submit the results of the one-year storage stability (830.6317) and corrosion characteristics (830.6320) studies when they are available.
2. Submit and/or cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.
3. Make the labeling changes listed below before you release the product for shipment:

Signature of Approving Official:

James A. Tompkins, Product Manager (25)
Herbicide Branch, Registration Division (7505P)

Date:

9-29-06

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- a. Add the phrase "EPA Registration No. 352-719"
- b. Revise the last sentence of the Environmental Hazards section to read "Do not contaminate water when **cleaning equipment or** disposing of equipment washwaters or rinsate."
- c. Revise your Limitation of Warranty and Liability as per recent guidance entitled "Warranty Disclaimers on FIFRA Labels Issue Paper", previously provided.
4. Submit one (1) copy of your final printed label before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 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.

Enclosure

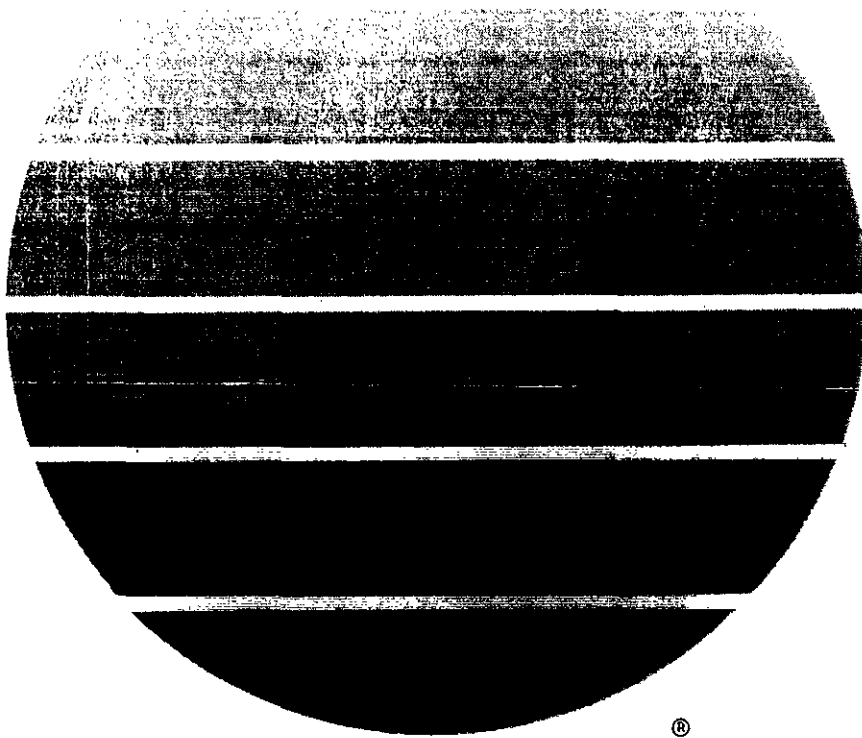
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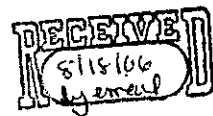
DuPont™ Lineage™

herbicide

DRAFT LABEL



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



ACCEPTED
with COMMENTS
In EPA Letter Dated:

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SEP 29 2006

DuPontTM
LineageTM

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.
352-719

herbicide

<i>Active Ingredient</i>	<i>By Weight</i>
Isopropylamine salt of Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)- 5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)*	28.7%
<i>Inert Ingredients</i>	71.3%
TOTAL	100.0%

*Equivalent to 22.6% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 2 pounds acid per gallon.

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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 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 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 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.

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.

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! Harmful if inhaled, swallowed or absorbed through the skin. Causes moderate eye irritation. 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 listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistant category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Shoes plus socks.
- Chemical resistant gloves made of any waterproof material.

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

Engineering Control Statement: 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 clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply to water except as specified in this label. Treatment of aquatic weeds may result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss may cause the suffocation of some aquatic organisms. Do not treat more than one half of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

This pesticide is toxic to vascular plants and should be used strictly in accordance with the drift precautions on the label.

PHYSICAL AND CHEMICAL HAZARDS

Spray solutions of LINEAGETM should be mixed, stored, and applied only in stainless steel, fiberglass, plastic, and plastic-lined steel containers.

Do not mix, store, or apply LINEAGETM or spray solutions of LINEAGETM in unlined steel (except stainless steel) containers or spray tanks.

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GENERAL INFORMATION

DuPont™ LINEAGE™ 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 aquatic and terrestrial non-crop sites, unimproved turf, pastures, and rangeland.

LINEAGE™ herbicide is recommended for the control of emerged and floating weeds in or near flowing, transient, or nonflowing bodies of water.

LINEAGE™ is recommended for general weed and brush control on private, public and military lands as follows: uncultivated 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, non-irrigation ditchbanks, barrier strips, etc.); industrial sites - outdoor (such as lumberyards, pipeline and tank farms, etc.) including grazed or hayed areas on these sites. LINEAGE™ is recommended for the establishment and maintenance of wildlife openings. LINEAGE™ may be used for the release of unimproved bermudagrass and for use under certain paved surfaces.

This product may be applied to terrestrial non-crop sites, unimproved turf sites and range and pasture 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. Do not apply LINEAGE™ to dry irrigation canals/ditches.

LINEAGE™ may be applied to aquatic sites, such as, drainage ditches, canals, reservoirs, lakes, streams, rivers, marshes, bogs, estuaries, brackish water, bays and transitional areas between seasonally wet sites and aquatic and terrestrial areas.

LINEAGE™ provides preemergence and postemergence control of the broadleaf weeds, perennial and annual grasses, vines and brush species found on the label. For perennial species on the label, a postemergence application should be used. For best performance, a surfactant should be included to the spray solution (see **Adjuvants** section for specific recommendations).

Good spray coverage of the target plant is desired. Excessive wetting which causes the spray to run off target plants should be avoided.

LINEAGE™ may be applied by either ground or aerial spray equipment.

Note: Injury or loss of desirable trees or other plants may result if LINEAGE™ 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.

BIOLOGICAL ACTIVITY

LINEAGE™ is quickly taken up by the leaves, stems and roots of plants with accumulations occurring 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. LINEAGE™ is rain-fast at one hour after application.

TANK MIXTURES

LINEAGE™ 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(s) 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™.

ADJUVANTS

For best performance, include a spray adjuvant when making postemergence applications of LINEAGE™.

Nonionic 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 LINEAGE™. 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 non-ionic surfactants. In some cases, the silicone adjuvant may dry to quickly limiting uptake. Refer to the manufacturers recommendations for use rates.

Ammonium Nitrogen Fertilizer

In addition to a non-ionic surfactant or seed oil concentrate, ammonium nitrogen fertilizer may be added to the LINEAGE™ spray solution.

Use 32 to 48 ounces per acre of a high-quality urea ammonium nitrate (UAN), such as 28% N or 32% N, or a spray-grade ammonium sulfate (AMS).

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RESISTANCE

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

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

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

INTEGRATED PEST MANAGEMENT

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

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

DuPont™ LINEAGE™ should be used only in accordance with recommendations on the label.

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.

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.

Aquatic and 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 terrestrial/non-crop treated areas without protective clothing until sprays have dried.

AQUATIC SITES

Application of LINEAGE™ can only be made by federal or state agencies, such as Water Management District personnel, municipal officials and the U.S. Army Corps of Engineers, or those applicators that are licensed or certified as aquatic pest control applicators and are authorized by the state or local government. Treatment to other than nonnative invasive species is limited to only those plants that have been determined to be a nuisance by a federal or state government entity.

LINEAGE™ has little to no activity to submerged vegetation. Direct applications to water should not be expected to control target vegetation. The application of LINEAGE™ should totally cover the emerged foliage of target plants. Include a surfactant (see Adjuvants section for specific recommendations) with all applications.

Apply DuPont™ LINEAGE™ at 0.5 to 6 pints per acre. Use the higher rates for higher weed infestations and harder to control species. Do not apply more than 6 pints per acre per year (1.5 pounds of active ingredient). See **Weeds Controlled - Aquatic** section for specific use rate recommendations.

LINEAGE™ may be applied broadcast using ground spray equipment, watercraft or by helicopter. When applying by helicopter, follow directions under the **Aerial Applications** section of this label otherwise refer to the section on **Ground Applications** when using surface equipment.

It may also be applied using low-volume application spray equipment. Within aquatic sites, LINEAGE™ may also be used for cut stem, cut stump, and frill and girdle applications.

In moving bodies of water, applications should be made while traveling upstream to prevent concentration of the herbicide in the water. Do not apply to water where floating or emerged weeds do not exist.

Oxygen depletion may occur from decaying vegetation after application. To reduce the potential for oxygen depletion when treating large areas of impounded bodies of water, apply LINEAGE™ in strips across the site. Start treatments along the shore and move outward in strips to provide untreated areas for aquatic organisms to move into. Wait at least 10 days to 2 weeks between strip treatments. Do not treat more than one-half the surface area of the site in a single operation.

LINEAGE™ may be applied as a draw down treatment in the areas described above. Apply LINEAGE™ to weeds after water has been drained and allow 14 days before reintroduction of water.

Along shorelines where desirable plants may be present, applications should avoid contact with their foliage or the soil in which these plants are rooted. Shoreline plants with roots that extend into the water of a treated area generally are not adversely affected.

If treated plants are removed from the application site, do not use these plants as compost or mulch around desirable plants.

There are no restrictions to **Livestock Use of Water** from the treated area.

Do not apply LINEAGE™ directly to water one-half mile upstream of an active **Potable Water Intake** in flowing water (river, stream, etc.) or a standing body of water (lake, pond, reservoir, etc.). To make applications within one-half mile of an active potable water intake, the intake must be turned off during application and for a minimum of 48 hours following application. These types of applications can only be made if an alternative water source is available to allow the potable water intake to be turned off for a minimum of 48 hours.

Existing potable water intakes that have been replaced by well connections or a municipal water system, and are no longer in use, are not considered to be active water intakes.

This restriction does not apply to intermittent, inadvertent over spray of water in terrestrial use sites.

Application may be made to **Private waters** that are non-flowing (still) where there is little to no outflow to public waters. Private non-flowing waters which may include ponds, lakes and drainage ditches.

Applications may be made to **Public waters** such as ponds, lakes, reservoirs, marshes, drainage ditches, canals, streams, rivers, bayous, and other slow-moving or quiescent bodies of water for control of aquatic weeds or for control of riparian and wetland weed species. Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.

Applications may be made to **Recreational Waters**. There are no restrictions on the use of water in the treatment area for recreational purposes. Permits may be required to treat waters in these sites.

IRRIGATION WATERS

Water treated with LINEAGE™ may not be used for irrigation purposes for 120 days after application or until LINEAGE™ residue levels are determined by laboratory analysis, or other appropriate means of analysis, to be 1.0 ppb or less.

For **Seasonal Irrigation** waters, LINEAGE™ may be applied during the off-season to surface waters that are used for irrigation on a seasonable basis, provided that there is a minimum of 120 days between LINEAGE™ application and the first use of treated water for irrigation purposes or until LINEAGE™ residue levels are determined by laboratory analysis, or other appropriate means of analysis, to be 1.0 ppb or less.

Do not apply LINEAGE™ to **Irrigation Canals/Ditches** unless the 120-day restriction of irrigation water usage can be observed or LINEAGE™ residue levels are determined by laboratory analysis, or other appropriate means of analysis, to be 1.0 ppb or less. Do not apply LINEAGE™ to dry irrigation canals/ditches.

In lakes and reservoirs, **Slow Moving or Still Waters**, do not apply LINEAGE™ within one mile of an active irrigation water intake during the irrigation season. Applications less than one mile from an inactive irrigation water intake may be made during the off-season, provided that the irrigation intake will remain inactive for a minimum 120 days after application or until LINEAGE™ residue levels are determined by laboratory analysis, or other appropriate means of analysis, to be 1.0 ppb or less.

Moving Water: Do not apply within one-half mile downstream of an active irrigation water intake. When making applications upstream from an active irrigation water intake, the intake must be turned off for a period of time sufficient to allow the upstream portion of treated water to completely flow past the irrigation intake before use can resume. Shut off time will be determined by the speed of water flow and the distance and length of water treated upstream from the intake. Consult local, state and/or

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federal authorities before making any applications upstream from an active irrigation water intake.

APPLICATION INFORMATION

Aquatic, Bareground, Non-crop, Pasture/Range, Unimproved turf sites

AERIAL APPLICATIONS

DuPont™ LINEAGE™ may be applied by either fixed wing aircraft or helicopter spray equipment.

Aerial application is restricted to helicopter only for aquatic weed control sites. For aquatic sites, use a spray volume of 2 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

For brush sites, uniformly apply the recommended amount of LINEAGE™ in 5 to 30 gallons of water per acre. Include a nonionic surfactant or methylated seed oil or a silicone based surfactant in the spray solution. A foam reducing agent may be added at the recommended label rate, if needed.

Side trimming is not recommended with LINEAGE™ unless death of the treated tree can be tolerated.

All precautions should be taken to minimize or eliminate spray drift. Helicopters can be used to apply LINEAGE™ in aquatic sites; however, do not make applications by helicopter unless appropriate buffer zones can be maintained to prevent spray drift out of the target area, or when spray drift as a result of helicopter application can be tolerated.

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

Apply LINEAGE™ in a minimum of 5 gallons of spray solution per acre. Good plant coverage is necessary for best results. The spray solution should cover the crown and at least 75% of the plant. Even flat fan tips such as 4004E or 1504E spraying at a 40 degree angle or less may aid proper deposition of the spray solution. 5500 X3 or 5500 X4 adjustable cone nozzles may also be used. Use adequate spray volume to help provide uniform distribution of spray particles over the treated area and to avoid spray drift.

For low volume applications, mix 0.5 to 5% LINEAGE™ in water. Add a foam reducing agent if needed. Use the higher concentration rates for hard to control brush species. Do not apply more than 3 quarts of LINEAGE™ per acre.

Use 16 to 48 ounces LINEAGE™ per acre in combination with other recommended tank mixes when treating rights-of-way corridors that may have roots of desired trees

extending into the treated area. Do not use more than 48 ounces per acre of LINEAGE™ in these areas as death to desired trees may occur.

Important: Add a spray pattern indicator, if desired, at the recommended label rates.

Clean application equipment after using this product by thoroughly flushing with water.

Side Trimming: Side trimming with LINEAGE™ can cause severe injury or death to the treated tree. Do not make side trimming applications unless death of the tree is acceptable. **SUGGESTED TANK MIXES AND APPLICATION RATES***

Target Vegetation	Rate - LINEAGE™	Tank Mix
Hardwoods without elm, locust or pine	1 to 1.5% by volume	Surfactant
Hardwoods containing elm, locust and pine	0.5 to 1% by volume	Glyphosate** at 2 to 3% by volume plus surfactant
Hardwoods with locust and pine but no elm	0.5 to 1% by volume	DuPont™ KRENITE® S at 2 to 5% by volume plus surfactant
Hardwoods with locust and elm but no pine	0.5 to 1% by volume	DuPont™ ESCORT® XP at 2 oz/A or 2.3 grams/gallon plus surfactant

*Tank mixtures with 2,4-D or products containing 2,4-D have resulted in reduced efficacy with LINEAGE™.

**4 pounds glyphosate acid per gallon.

MIXING CHART

% Solution	Amount LINEAGE™ per gallon of mix	Amount LINEAGE™ per 4 gal backpack
0.5 %	0.6 ounce	2.6 ounces
1.0 %	1.3 ounces	5.1 ounces
2.0 %	2.6 ounces	10.2 ounces
3.0 %	3.8 ounces	15.4 ounces
5.0 %	6.4 ounces	25.6 ounces

Backpack Sprayers

For backpack manual sprayer applications, spray down on the crown and ensure coverage of 70% of the brush plant for plants up to 4 feet tall.

When the plants are up to 8 feet tall, treat at least two sides of the plant. Make swipes vertically from the crown to the base of the plant, covering the crown.

If brush plants are over 8 feet tall, lace at least two sides of the plants with back and forth movements starting at crown and moving downward to base.

Hydraulic Handgun Equipment

When making broadcast applications, apply near the tops of the brush plants in a light drizzle pattern. The spray solution should reach the crown of the plants and trickle down into the canopy but not reach the under-story plant growth as severe injury or death of the under-story plants could occur.

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SPRAY SOLUTION MIXING GUIDE FOR LOW VOLUME APPLICATIONS

AMOUNT OF SPRAY SOLUTION BEING DESIRED CONCENTRATION (FLUID VOLUME)

PREPARED	0.5%	0.75%	1%	1.5%	5%
Amount of DuPont™ LINEAGE™ herbicide to Use					
1 gallon	0.6 oz	0.9 oz	1.3 oz	1.9 oz	6.5 oz
3 gallons	1.9 oz	2.8 oz	3.8 oz	5.8 oz	1.2 pints
4 gallons	2.5 oz	3.8 oz	5.1 oz	7.7 oz	1.6 pints
5 gallons	3.2 oz	4.8 oz	6.5 oz	9.6 oz	2.0 pints
50 gallons	2 pints	3 pints	4 pints	6 pints	10 quarts
100 gallons	4 pints	6 pints	8 pints	6 quarts	5 gallons

2 tablespoons = 1 fluid ounce

HIGH VOLUME APPLICATIONS

When treating medium to high infestations of brush, apply LINEAGE™ at up to 100 gallons of spray solution per acre (GPA). Note, spray applications exceeding 100 GPA may cause injury to the understory or ground cover due to spray run-off. Mix LINEAGE™ at 1 to 3 quarts per acre plus a surfactant. Add a foam reducing agent if needed. Use the higher rate for hard to control brush species but do not apply more than 3 quarts per acre. Apply evenly to cover brush foliage but don't over apply causing run-off.

INVERT EMULSION APPLICATIONS

LINEAGE™ can be applied as an invert emulsion (water in oil). This can be done in a batch mixing (single tank) or in-line-mixing (injected) process. Follow the directions on the invert chemical guide.

CUT STUBBLE APPLICATIONS

To control or suppress re-sprouting, an application of LINEAGE™ should be applied within 2 weeks after mechanical cutting or mowing of brush. Apply LINEAGE™ to the cut surface of the brush at a rate of 1 to 2 pints per acre. To aid stem or exposed root absorption of the LINEAGE™, include a penetrating agent at the rate of 5% v/v. Picloram may be tank mixed with LINEAGE™ to aid the control of brush and blackberry species. Make applications to the cut brush, the stumps and to the soil. Applications to the soil may allow nearby desirable tree roots to contact the treated area causing injury or death to desirable trees.

Waiting to treat re-sprouted brush foliage can be more efficacious to the brush and less injurious to desirable trees as less spray solution contacts the soil.

STUMP AND CUT STEM APPLICATIONS

To control recently cut target brush, apply LINEAGE™ solution to the newly cut stump or stem surfaces (cambium area). Do not make applications during the early spring period when sap flow is heaviest. Excess application may cause puddling or run-off.

Desirable trees whose roots may share the same root system or may have become grafted to the treated tree/brush may be severely injured.

Note: LINEAGE™ may be applied as either a dilute or concentrated solution for this type of application. For cut stem or stump surfaces, a dilute solution may be used. For applications to cuts made to the stems, apply LINEAGE™ as a concentrated solution. For larger diameter trees, using the concentrated solution allows fewer cuts to the stems.

For dilute solutions, add 8 to 12 ounces of LINEAGE™ to one gallon of water. If temperatures are cold enough that the spray solution might freeze, add ethylene glycol (antifreeze) per manufacturers product recommendations. When cut areas have become partially callused, adding an adjuvant or penetrating agent may aid absorption into the stem or stump.

For concentrated solutions, add 2 quarts of LINEAGE™ to a maximum of 1 quart of water.

DILUTE SOLUTION APPLICATIONS

Cut Stump treatments: Brush or spray the dilute solution onto the newly cut stem or stump surface - apply to the cambium area (the wood surface next to the bark of the stump). Make sure the entire cambium area is thoroughly covered with the solution.

Tree Injection treatments: Apply 1 milliliter of dilute solution through commercial injection equipment into each injection site around the tree. Allow no more than one inch intervals between cut edges. Make sure that the injector penetrates the tree bark at each site.

Frill or Girdle treatments: With no more than two inch intervals between cut edges, use a machete, hatchet, or similar equipment to make cuts through the bark around the tree. Brush or spray the dilute solution directly into each cut - thoroughly wet each cut with the solution.

CONCENTRATED SOLUTION APPLICATIONS

Tree Injection treatments: With commercial injection equipment, apply 1 milliliter of concentrated LINEAGE™ solution into each injection site around the tree. For each 3 inches of Diameter at Breast Height (DBH) of the target tree, make at least one injection cut. Using this method, a 6 inch DBH tree would get at least two injection cuts. For larger trees that require more than one injection site, make the injection cuts at equal distances around the tree.

Frill or Girdle treatments: With a machete, hatchet, or similar equipment, make cuts through the bark at equal distances around the tree. For each 3 inches of Diameter at Breast Height (DBH) of the target tree, make at least one injection cut. Using this method, a 6 inch DBH tree would get at least two injection cuts. For larger trees that require more than one injection site, make the injection cuts at equal distances around the tree.

Note: Injury may occur to desirable woody plants if the shoots extend from the same root system or their root systems are grafted to those of the treated tree.

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UNDER PAVED SURFACES APPLICATIONS

In industrial sites or where the pavement perimeter has a suitable barrier that prevents roots of desirable plants from encroaching into the treated area, DuPont™ LINEAGE™ may be used to control weeds under pond liners, asphalt and other paved areas.

The area to be treated must have been prepared in accordance with good construction practices or do not apply LINEAGE™. All vegetative plant parts including roots, tubers, stolons or rhizomes should be completely removed prior to application. A grader blade may be used to "scalp" the site to aid the removal of these plant parts.

LINEAGE™ is not to be used under pavement in residential or recreational areas. Do not use LINEAGE™ under paved areas such as driveways, parking lots, bike or jogging paths, golf cart paths, tennis courts or when landscape planting could be anticipated. Where roots of desirable plants are present or may extend into the treated area, injury or death of these plants may result. Shrub or tree roots may extend well beyond the branch/limb extremities or drip line.

LINEAGE™ should only be applied following the final grading of the site to be paved. After the LINEAGE™ application, the soil should not be disturbed or moved.

On a per acre basis, add 3 quarts of LINEAGE™ to a minimum of 100 gallons of water (2.2 ounces per 1000 square feet) to help ensure a uniform and thorough coverage of the site surface and shoulder areas.

For proper activation of LINEAGE™, it should be incorporated by rainfall (minimum of 1 inch) or mechanical equipment. If no rainfall or irrigation occurs, use a rototiller or disc and incorporate LINEAGE™ 4 to 6 inches deep into the soil.

Do not allow soil from the treated site to move or wash into untreated areas.

Important: Paving should follow LINEAGE™ applications as soon as possible.

UNIMPROVED BERMUDAGRASS AND BAHIAGRASS TURF APPLICATIONS

LINEAGE™ may be used in non-crop industrial sites, such as, utility rights-of-way and roadsides, for general weed control where either bahiagrass or common bermudagrass or coastal bermudagrass is the established turf. Applications to bermudagrass will cause stunting and seed head inhibition.

Apply LINEAGE™ by ground equipment only. Use a minimum of 10 gallons of water per acre and a spray pressure of 20 to 50 pounds per square inch (psi).

Important: A temporary chlorosis (yellowing) may occur if applications are made after growth begins.

Do not include surfactants at a rate greater than 1 ounce per 25 gallons of spray solution.

Do not apply in the first growing season of either bahiagrass or bermudagrass.

Do not apply LINEAGE™ to grass under stress from disease, insects, drought, or other causes.

RATES AND TIMINGS

BERMUDAGRASS – In dormant bermudagrass, LINEAGE™ may be applied at 6 to 12 ounces per acre. When bermudagrass has attained the full green-up stage of growth, LINEAGE™ may be applied at 6 to 8 ounces per acre. Treatments made prior to the full green-up stage will delay green-up.

For broader spectrum preemergence control of grasses and broadleaf weeds, LINEAGE™ may be tank mixed with pendimethalin. See the pendimethalin label for use rates and any other application information.

For Johnsongrass control in bermudagrass, apply a tank mixture of LINEAGE™ at 8 ounces per acre plus glyphosate at 12 ounces per acre (4 pound active per gallon) plus a surfactant.

For additional control of broadleaf weeds and vines, triclopyr (3 pounds active per gallon) may be added to the above mixture at the rate of 1 to 2 pints per acre. Observe all precautions and restrictions on the tank mixture partner label(s).

BAHIAGRASS – For bahiagrass in the dormant to early green-up stage of growth, LINEAGE™ may be applied at the rate of 4 to 8 ounces per acre. **Caution:** Do not apply LINEAGE™ to bahiagrass beyond the 25% green-up stage of growth. Include a surfactant in the spray solution.

WEEDS CONTROLLED

Bedstraw (*Galium spp*)
Bishopweed (*Ptilimium capillaceum*)
Buttercup (*Ranunculus parviflorus*)
Carolina geranium (*Geranium carolinianum*)
Fescue (*Festuca spp*)
Foxtail (*Setaria spp*)
Johnsongrass, seedling (*Sorghum halepense*)
Little barley (*Hordeum pusillum*)
Wild carrot (*Daucus carota*)
White clover (*Trifolium repens*)
Yellow woodsorrel (*Oxalis stricta*)

GRASS GROWTH AND SEED-HEAD SUPPRESSION

For areas of unimproved turf grass, LINEAGE™ may be used for the suppression of grass growth and seed-head development. Depending on the environmental conditions at time of treatment, applications to desirable turf grass may cause discoloration or injury.

For best results, all applications should be made before stem (culm) elongation.

LINEAGE™ applications may be made prior to or after mowing. For applications before mowing, the grass should have had a least 3 days of active growth. Applications made after mowing should also allow time for the grass to recover. LINEAGE™ applications made too soon before or after mowing could result in increased grass injury.

Check turf grass conditions first before making DuPont™ LINEAGE™ applications. Do not apply to grass under stress from cold, insects, diseases, drought, damage, etc. or severe injury or death may occur.

For cool season unimproved turf, apply at a rate of 2 ounces per acre plus 0.25% v/v non-ionic surfactant. For increased suppression, tank mix with glyphosate (1.2 pounds active per gallon) at 24 ounces per acre or mefluidide (2 pound active per gallon) at 8 ounces per acre.

Note: Tank mixtures may increase injury to desired turf. Consult each product label for recommended turf species and other use directions and precautions. Tank mixes with 2,4-D or products containing 2,4-D may decrease the effectiveness of LINEAGE™.

SPOT APPLICATIONS PASTURE AND RANGELAND

LINEAGE™ may be used as a spot treatment for weed control in rangelands and grass pastures. Apply with ground equipment at the rate of 2 to 48 ounces per acre. Do not treat more than one tenth of the area to be cut for hay or grazed. Do not apply more than 48 ounces per acre per year.

Do not cut forage grass until 7 days after an LINEAGE™ application. There are no restrictions for grazing.

For rangeland areas, LINEAGE™ should only be applied to control specific problem weeds. The successful weed management program depends on land management practices that promote the growth and development of desirable plant species.

LINEAGE™ herbicide controls non-native, invasive and noxious weeds in rangeland to aid in maintaining or establishing desirable plant species during normal conditions and following a fire. It is also used to control vegetation that could fuel wildfires or to help wildlife habitat improvement by suppressing/controlling undesirable vegetation or to release existing desirable rangeland plant communities from competing undesirable plants.

Caution should be used to protect threatened and endangered plants when applying LINEAGE™ in rangeland. To identify endangered plants in your area, work with the Fish and Wildlife Service or state conservation agencies to ensure protection of threatened or endangered plants. Federal agencies follow NEPA regulations but other organizations or people must operate under a Habitat Conservation Plan to ensure the protection of threatened and endangered plants.

Rotational Crop Guidelines

When used at the recommended rangeland and pasture rates, rotational crops may be planted 12 months after applications of LINEAGE™. Prior to planting any crop a successful field bioassay must be completed -- field bioassay to be completed after the 12 month interval.

The field bioassay consists of a test strip of the intended rotational crop planted in the previously treated area in the grass pasture/rangeland sites and grown to maturity. The test strip should include low areas and knolls, and include variations in

soil type and pH within the treated area. If no crop injury is evident in the test strip, the intended rotational crop may be planted the following year.

LINEAGE™ used in recommended label directions can allow for normal growth of rotational crops but environmental and agronomic factors may vary resulting in injury to rotational crops at times.

TOTAL VEGETATION CONTROL BAREGROUND

LINEAGE™ may be used in sites for bareground (total vegetation control) weed control. Preemergence or postemergence applications of LINEAGE™ provides control of many annual and perennial broadleaf and grass weeds. It may be used alone at 24 to 96 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.

Apply at any time of the year. Make a thorough and uniform application with calibrated spray equipment per label recommendations. Use the higher rates of LINEAGE™ 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. Tank mixes with 2,4-D or 2,4-D containing products have reduced the effectiveness of LINEAGE™. Make applications using a spray volume of up to 100 gallons per acre.

When using spot treatments to control weed escapes in bareground sites, mix 0.5 to 5% v/v of LINEAGE™ in each gallon of water and include an adjuvant. As above for postemergence applications, the addition of glyphosate or similar products may be added for faster brown-out or burndown of the escaped weeds.

For added residual weed control or to increase the weed spectrum add products, such as DuPont™ KARMEX® XP.

The level and length of control will depend on the herbicide(s) rate applied, amount of rainfall, the soil texture and other environmental and applications conditions.

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WEEDS CONTROLLED

DuPont™ LINEAGE™ provides preemergence or postemergence control of the annual weeds in the following tables. Postemergence applications generally provide best control of established biennials and perennial weeds. Germinating seedlings of both annuals and perennials will be controlled by the residual activity of LINEAGE™.

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.

GRASSES

Apply 2-3 pints per acre¹

Bluegrass, annual	(<i>Poa annua</i>)
Broadleaf signalgrass	(<i>Brachiaria platyphylla</i>)
Canada bluegrass	(<i>Poa compressa</i>)
Downy brome	(<i>Bromus tectorum</i>)
Fescue	(<i>Festuca</i> spp)
Foxtail	(<i>Setaria</i> spp)
Italian ryegrass	(<i>Lolium multiflorum</i>)
Johnsongrass	(<i>Sorghum halepense</i>)
Kentucky bluegrass	(<i>Poa pratensis</i>)
Lovegrass	(<i>Eragrostis</i> spp)
Napiergrass*	(<i>Pennisetum purpureum</i>)
Orchardgrass	(<i>Dactylis glomerata</i>)
Paragrass	(<i>Brachiaria mutica</i>)
Quackgrass	(<i>Agropyron repens</i>)
Sandbur	(<i>Cenchrus</i> spp)
Sand dropseed	(<i>Sporobolus cryptandrus</i>)
Smooth brome	(<i>Bromus inermis</i>)
Vaseygrass	(<i>Paspalum urvillei</i>)
Wild oats	(<i>Avena fatua</i>)
Witchgrass	(<i>Panicum capillare</i>)

Apply 3-4 pints per acre¹

Barnyardgrass	(<i>Echinochloa crus-gali</i>)
Beardgrass	(<i>Andropogon</i> spp)
Bluegrass, annual	(<i>Poa annua</i>)
Bulrush*	(<i>Scirpus validus</i>)
Cheat	(<i>Bromus secalinus</i>)
Crabgrass	(<i>Digitaria</i> spp)
Crowfootgrass	(<i>Dactyloctenium aegyptium</i>)
Fall panicum	(<i>Panicum dichotomiflorum</i>)
Goosegrass	(<i>Eleusine indica</i>)
Itchgrass	(<i>Rottboellia exaltata</i>)
Lovegrass	(<i>Eragrostis</i> spp)
Maidencane*	(<i>Panicum hemitomon</i>)
Panicum, browntop	(<i>Panicum fasciculatum</i>)
Panicum, Texas	(<i>Panicum texanum</i>)
Prairie threeawn	(<i>Aristida oligantha</i>)
Sandbur, field	(<i>Cenchrus incertus</i>)
Signalgrass	(<i>Brachiaria platyphylla</i>)
Wild barley	(<i>Hordeum</i> spp)
Wooly cupgrass	(<i>Eriochloa villosa</i>)

Apply 4-6 pints per acre¹

Bahiagrass	(<i>Paspalum notatum</i>)
Bernudagrass²	(<i>Cynodon dactylon</i>)
Big bluestem	(<i>Andropogon gerardii</i>)
Dallisgrass	(<i>Paspalum dilatatum</i>)
Feathertop	(<i>Pennisetum villosum</i>)
Guineagrass	(<i>Panicum maximum</i>)
Salgrass²	(<i>Distichlis stricta</i>)
Sand dropseed	(<i>Sporobolus cryptandrus</i>)
Sprangletop	(<i>Leptochloa</i> spp)
Timothy	(<i>Phleum pratense</i>)
Wirestem muhly	(<i>Muhlenbergia frondosa</i>)

BROADLEAF WEEDS

Apply 2-3 pints per acre¹

Burdock	(<i>Arctium</i> spp)
Carpetweed	(<i>Mollugo verticillata</i>)
Carolina geranium	(<i>Geranium carolinianum</i>)
Clover	(<i>Trifolium</i> spp)
Common chickweed	(<i>Stellaria media</i>)
Common ragweed	(<i>Ambrosia artemisiifolia</i>)
Dandelion	(<i>Taraxacum officinale</i>)
Dogfennel	(<i>Eupatorium capillifolium</i>)
Filaree	(<i>Erodium</i> spp)
Fleabane	(<i>Erigeron</i> spp)
Hoary vervain	(<i>Verbena stricta</i>)
Indian mustard	(<i>Brassica juncea</i>)
Kochia	(<i>Kochia scoparia</i>)
Lambsquarters	(<i>Chenopodium album</i>)
Lespedeza*	(<i>Lespedeza</i> spp)
Miners lettuce	(<i>Montia perfoliata</i>)
Mullein	(<i>Verbascum</i> spp)
Nettleleaf goosefoot	(<i>Chenopodium murale</i>)
Oxeye daisy	(<i>Chrysanthemum leucanthemum</i>)
Pepperweed	(<i>Lepidium</i> spp)
Pigweed	(<i>Amaranthus</i> spp)
Puncturevine	(<i>Tribulus terrestris</i>)
Russian thistle	(<i>Salsola kali</i>)
Smartweed	(<i>Polygonum</i> spp)
Sorrell	(<i>Rumex</i> spp)
Sunflower	(<i>Helianthus</i> spp)
Sweet clover	(<i>Melilotus</i> spp)
Tansymustard	(<i>Descurainia pinnata</i>)
Western ragweed	(<i>Ambrosia psilostachya</i>)
Wild carrot	(<i>Daucus carota</i>)
Wild lettuce	(<i>Lactuca</i> spp)
Wild parsnip	(<i>Pastinaca sativa</i>)
Wild turnip	(<i>Brassica campestris</i>)
Woollyleaf bursage	(<i>Franseria tomentosa</i>)
Yellow woodsorrel	(<i>Oxalis stricta</i>)

Apply 3-4 pints per acre¹

Broom snakeweed¹	(<i>Gutierrezia sarothrae</i>)
Bull thistle	(<i>Cirsium vulgare</i>)
Burclover	(<i>Medicago</i> spp)
Chickweed, mouseear	(<i>Cerastium vulgatum</i>)
Clover, hop	(<i>Trifolium procumbens</i>)
Cocklebur	(<i>Xanthium strumarium</i>)
Cudweed	(<i>Gnaphalium</i> spp)
Desert camellthor	(<i>Alhagi pseudalhagi</i>)
Dock	(<i>Rumex</i> spp)
Fiddleneck	(<i>Amsinckia intermedia</i>)
Goldenrod	(<i>Solidago</i> spp)
Henbit	(<i>Lamium alexicaule</i>)
Knotweed, prostrate	(<i>Polygonum aviculare</i>)
Pokeweed	(<i>Phytolacca americana</i>)
Purslane	(<i>Portulaca</i> spp)
Pusley, Florida	(<i>Richardia scabra</i>)
Rocket, London	(<i>Sisymbrium irio</i>)
Rush skeletonweed¹	(<i>Chondrilla juncea</i>)
Saltbush	(<i>Atriplex</i> spp)
Shepherd's-purse	(<i>Capsella bursa-pastoris</i>)
Spurge, annual	(<i>Euphorbia</i> spp)
Stinging nettle¹	(<i>Urtica dioica</i>)
Velvetleaf	(<i>Abutilon theophrasti</i>)
Yellow starthistle	(<i>Centaurea solstitialis</i>)

Apply 4-6 pints per acre¹

Arrowwood	(<i>Pluchea sericea</i>)
Canada thistle	(<i>Cirsium arvense</i>)
Giant ragweed	(<i>Ambrosia trifida</i>)
Grey rabbitbrush	(<i>Chrysothamnus nauseosus</i>)
Mallow, little	(<i>Malva parviflora</i>)
Milkweed	(<i>Asclepias</i> spp)
Primrose	(<i>Oenothera kunthiana</i>)
Silverleaf nightshade	(<i>Solanum eleagnifolium</i>)
Sowthistle	(<i>Sonchus</i> spp)
Texas thistle	(<i>Cirsium texanum</i>)

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VINES AND BRAMBLES

Apply 1 pint per acre

Field bindweed	(<i>Convolvulus arvensis</i>)
Hedge bindweed	(<i>Calystegia sepium</i>)

Apply 2-3 pints per acre¹

Wild buckwheat	(<i>Polygonum convolvulus</i>)
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Apply 3-4 pints per acre¹

Greenbriar	(<i>Smilax spp</i>)
Honeysuckle	(<i>Lonicera spp</i>)
Morningglory	(<i>Ipomoea spp</i>)
Poison ivy	(<i>Rhus radicans</i>)
Redvine	(<i>Brunnichia cirrhosa</i>)
Wild rose	(<i>Rosa spp</i>)
Including:	
Multiflora rose	(<i>Rosa multiflora</i>)
McCartney rose	(<i>Rosa bracteata</i>)

Apply 4-6 pints per acre¹

Kudzu* ²	(<i>Pueraria lobata</i>)
Trumpet creeper	(<i>Campsis radicans</i>)
Virginia creeper	(<i>Parthenocissus quinquefolia</i>)
Wild grape	(<i>Vitis spp</i>)

BRUSH SPECIES

Apply 4-6 pints per acre¹

American beech	(<i>Fagus grandifolia</i>)
Ash	(<i>Fraxinus spp</i>)
Bald cypress	(<i>Taxodium distichum</i>)
Bigleaf maple	(<i>Acer macrophyllum</i>)
Black locust ⁶	(<i>Robinia pseudoacacia</i>)
Black gum	(<i>Nyssa sylvatica</i>)
Box elder	(<i>Acer negundo</i>)
Cherry	(<i>Prunus spp</i>)
Chinaberry	(<i>Melia azadarach</i>)
Dogwood	(<i>Cornus spp</i>)
Elm ⁴	(<i>Ulmus spp</i>)
Hawthorn	(<i>Crataegus spp</i>)
Hickory	(<i>Carya spp</i>)
Honey locust ⁴	(<i>Gleditsia triacanthos</i>)
Maple	(<i>Acer spp</i>)
Mulberry	(<i>Morus spp</i>)
Oak	(<i>Quercus spp</i>)
Persimmon	(<i>Diospyros virginiana</i>)
Pine* ⁴	(<i>Pinus spp</i>)
Poplar	(<i>Populus spp</i>)
Privet	(<i>Ligustrum vulgare</i>)
Red alder	(<i>Alnus rubra</i>)
Red maple	(<i>Acer rubrum</i>)
Russian olive	(<i>Eleagnus angustifolia</i>)
Sassafras	(<i>Sassafras albidum</i>)
Sourwood	(<i>Oxydendrum arboretum</i>)
Sweetgum	(<i>Liquidambar styraciflua</i>)
Water willow*	(<i>Justica americana</i>)
Willow	(<i>Salix spp</i>)
Yellow poplar	(<i>Liriodendron tulipifera</i>)

- 1 The higher rates should be used where heavy or well-established infestations occur.
- 2 Use a minimum of 75 GPA – control of established stands may require repeat applications.
- 3 For best results early postemergence applications are required.
- 4 Tank mix with DuPont™ KRENITE®, glyphosate, triclopyr, or picloram
- 5 Tank mix with DuPont™ ESCORT® XP or glyphosate
- 6 Tank mix with ESCORT® XP, KRENITE®, glyphosate, picloram or triclopyr

*Not approved for use in California

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WEEDS CONTROLLED - AQUATIC

DuPont™ LINEAGE™ controls the following weeds. Rate information is expressed in both broadcast (pints per acre) and spot or directed application [% solution (v/v)] volumes. For either application method, do not apply than 6 pints per acre.

FLOATING WEEDS

RATE

*Duckweed	<i>Lemna minor</i>	2-3 pints/acre (1% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Duckweed, giant	<i>Spirodela polyrriza</i>	2-3 pints/acre (1% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Frogbit	<i>Limnobium spongia</i>	1-2 pints/acre (0.5% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Spatterdock	<i>Nuphar luteum</i>	Apply a tank-mix of 2-4 pints/acre LINEAGE™ + 4 to 6 pints/acre glyphosate (0.5% LINEAGE™ + 1.5% glyphosate) in 100 GPA water for best control. Ensure total coverage of actively growing, emerged foliage.
*Water hyacinth	<i>Eichhornia crassipes</i>	1-2 pints/acre (0.5% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Water Lettuce	<i>Pistia stratiotes</i>	1-2 pints/acre (0.5% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.

EMERGED WEEDS

*Alligatorweed	<i>Alternanthera philoxeroides</i>	1-4 pints/acre (0.5% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing emerged foliage. Tank-mix with glyphosate is not recommended, and may reduce alligatorweed control, requiring higher LINEAGE™ rates.
*Arrowhead	<i>Sagittaria spp</i>	1-2 pints/acre (0.5% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Bacopa, lemon	<i>Bacopa spp</i>	1-2 pints/acre (0.5% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Parrot feather	<i>Myriophyllum aquaticum</i>	Must be foliage above water for sufficient LINEAGE™ uptake. Apply 2-4 pints/acre to actively growing, emerged foliage.
*Pennywort	<i>Hydrocotyle spp</i>	1-2 pints/acre (0.5% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Pickerelweed	<i>Pontederia cordata</i>	2-3 pints/acre (1% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Taro, wild; Upright Elephant ear	<i>Colocasia esculentum</i>	4-6 pints/acre (1.5% solution) apply in 100 GPA with a high quality sticker adjuvant. Ensure good coverage of actively growing, emerged foliage.
*Water lily	<i>Nymphaea odorata</i>	2-3 pints/acre (1% solution) apply in 100 GPA water mix. Ensure total coverage of actively growing, emerged foliage.
*Water primrose	<i>Ludwigia uruguayensis</i>	4-6 pints/acre (1.5% solution), ensure total coverage of actively growing, emergent foliage. Tank-mix with glyphosate is not recommended and may reduce water primrose control.

MARGINAL AQUATIC/TERRESTRIAL

*Soda apple, aquatic;	<i>Solanum tampicense</i>	2 pints/acre apply to foliage
*Bamboo, Japanese	<i>Phyllostachys spp</i>	3-4 pints/acre apply to the foliage when plant is actively growing; before setting seed head. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Brazilian pepper:	<i>Schinus terebinthifolius</i>	2-4 pints/acre apply to foliage
Cattail	<i>Typha spp</i>	2-4 pints/acre (1% solution) apply to actively growing, green foliage after full leaf elongation. Lower rates will control cattail in the north; higher rates are needed in the south
Chinese tallow tree	<i>Sapium sebiferum</i>	1 - 1.5 pints/acre apply to foliage
Cogongrass	<i>Imperata cylindrica</i>	Burn foliage, till area, that fall spray 2 quarts/acre LINEAGE™ + MSO apply to new growth.
Cordgrass, prairie	<i>Spartina spp</i>	4-6 pints/acre apply to actively growing foliage
*Cutgrass	<i>Zizaniopsis miliacea</i>	4-6 pints/acre apply to actively growing foliage
*Napiergrass	<i>Pennisetum purpureum</i>	3 pints/acre apply to actively growing foliage
*Flowering rush	<i>Butumu rypla</i>	2-3 pints/acre apply to actively growing foliage
Giant Reed (wild cane)	<i>Arundo donax</i>	4-6 pints/acre apply in spring to actively growing foliage
*Golden bamboo	<i>Phyllostachys aurea</i>	3-4 pints/acre apply to the foliage when plant in actively growing; before setting seed head. More foliage will result in greater herbicide uptake, resulting in greater root kill
Junglerice	<i>Echinochloa colonum</i>	3-4 pints apply to actively growing foliage

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Knapweed	<i>Centaurea spp</i>	Russian Knapweed: 2-3 pints/acre + 1 quart/acre MSO fall apply after senescence begins
Knotweed, Japanese	<i>Polygonum cuspidatum</i>	3-4 pints/acre apply post-emergence to (see Fallopia japonica) actively growing foliage
Melaleuca (paperbark tree)	<i>Melaleuca quinquenervia</i>	For established stands, apply 6 pints/acre DuPont™ LINEAGE™ + 6 pints/acre glyphosate + spray adjuvant. For best results use 4 quarts/A methylated seed oil as an adjuvant. For ground foliar application, uniformly apply to ensure total coverage. For broadcast foliar control, apply aerially in a minimum of two passes at 10 gallons/acre apply cross treatment. For spot treatment use a 25% LINEAGE™ + 25% solution of + glyphosate 1.25% MSO in water apply as a frill or stump treatment.
*Nutgrass: Kili'p'opu	<i>Cyperus rotundus</i>	2 pints/acre LINEAGE™ + 1 quart/acre MSO apply early post-emergence
*Nutsedge	<i>Cyperus spp</i>	2-3 pints/acre post-emergence to foliage or pre-emergence incorporated, non-incorporated pre-emergence applications will not provide control.
Common reed	<i>Phragmites australis</i>	4-6 pints/acre apply to actively growing, green foliage after full leaf elongation, ensure total coverage. If stand has a substantial amount of old stem tissue, mow or burn, allow to regrow to approximately 5' tall before treatment. Lower rates will control phragmites in the north; higher rates are needed in the south.
*Poison hemlock	<i>Conium maculatum</i>	2 pints/acre LINEAGE™ + 1 quart/acre MSO apply pre-emergence to early post-emergence to rosette, prior to flowering
Purple loosestrife	<i>Lythrum salicaria</i>	1 pint/acre apply to actively growing foliage
Reed canarygrass	<i>Phalaris arundinacea</i>	3-4 pints/acre apply to actively growing foliage
Rose, swamp	<i>Rosa palustris</i>	2-3 pints/acre apply to actively growing foliage
Russian olive	<i>Elaeagnus angustifolia</i>	2-4 pints/acre or a 1% solution, apply to foliage
Saltcedar (tamarisk)	<i>Tamarix spp</i>	Aerial: 2 quarts/acre LINEAGE™ + 0.25% v/v NIS apply to actively growing foliage during flowering. For spot spraying use 1% solution of LINEAGE™ + 0.25% v/v NIS and spray to wet foliage. After application wait at least two years before disturbing treated Saltcedar. Earlier disturbance can reduce overall control.
Smartweed	<i>Polygonum spp</i>	2 pints/acre apply early post-emergence
Sumac	<i>Rhus spp</i>	2-3 pints/acre apply to foliage
Swamp Morningglory	<i>Ipomoea aquatica</i>	1-2 pints/acre LINEAGE™ + 1 quart/acre MSO apply early post-emergence
Torpedograss	<i>Panicum repens</i>	4 pints/acre (1 - 1.5% solution), ensure good coverage to actively growing foliage
*White top (hoary cress)	<i>Cardaria draba</i>	1-2 pints/acre apply in spring, to foliage, during flowering
Willow	<i>Salix spp</i>	2-3 pints/acre LINEAGE™ apply to actively growing foliage, ensure good coverage

*Not approved for use in California

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SPRAY DRIFT MANAGEMENT

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions. **AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.**

IMPORTANCE OF DROPLET SIZE

The most effective way to reduce drift potential is to apply large droplets (>150 - 200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. **APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS!** See Wind, Temperature and Humidity, and Surface Temperature Inversions sections of this label.

Controlling Droplet Size - General Techniques

- **Volume** - - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. **WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.**
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using lowdrift nozzles.

Controlling Droplet Size - Aircraft

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

BOOM LENGTH AND HEIGHT

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

WIND

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

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

TEMPERATURE AND HUMIDITY

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

SURFACE TEMPERATURE INVERSIONS

Drift potential is high during a surface temperature inversion. Surface inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Surface inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates a surface inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SHIELDED SPRAYERS

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

SENSITIVE AREAS

The pesticide should only be applied 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).

ADDITIONAL USE PRECAUTIONS

DRIFT CONTROL ADDITIVES

Drift control additives may be used with all spray equipment with the exception of controlled droplet applicators. When a drift control additive is used, read and carefully observe cautionary statements and all other information on the label. It is recommended that drift control additives be certified by the Chemical Producers and Distributors Association (CPDA).

WIND EROSION

Avoid treating powdery dry or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.

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STORAGE AND DISPOSAL

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

Pesticide Storage: Do not store below 10°F. Store product in original container only. Store in a cool, dry place.

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

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

Container Refilling and Disposal (For Containers up to 250 gal): This is a refillable container. If the container is to be refilled, do not rinse with any material or introduce any pesticide other than DuPont™ LINEAGE™. Reseal and return the container to any authorized DuPont refilling facility. If the container is not to be refilled, triple rinse (or equivalent) and offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or by open burning, if allowed by state and local authorities. If burned, keep out of smoke. For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night. **Container Disposal for Bulk Containers:** When this container is empty, replace the cap and seal all openings that have been opened during use, and return the container to the point of purchase or to a designated location named at time of purchase of this product. The container must only be refilled with this pesticide product. DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transporting. Do not transport if this container is damaged or leaking. If the container is damaged, leaking or obsolete, contact DuPont at 1-800-441-3637. If not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling. Disposal of this container must be in compliance with state and local regulations. For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

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