



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (H7505C)
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg. Number:
74477-5

Date of Issuance:
APR 24 2006

Term of Issuance:
Conditional

Name of Pesticide Product:
Imazapyr 4 SL

NOTICE OF PESTICIDE:
 x Registration
 Reregistration

(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

Vegetation Management, LLC
c/o Mr. Mike Kellog
Pyxis Regulatory Consulting, Inc.
4110 136th St. NW
Gig Harbor, WA 98332

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 sec. 3(c)(7)(A) provided that you:

1. 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.
2. Make the following changes to your labeling:
 - a. Change the registration number to "74477-5"
 - b. Make all of the changes detailed in the document "Summary of Comments on Imazapyr 4 SL".

Signature of Approving Official:

Date:

4-21-06

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3. Submit final labeling for this product **within 30 days** of the date of this letter
4. Submit a study for storage stability (Guideline 830.6317) and corrosion characteristics (Guideline 830.6320) no later than April 15, 2007. The storage stability study must be conducted under warehouse conditions, and it is recommended that observations be made at 0, 3, 6, 9, and 12 month intervals. Submission of both paper and electronic copies is preferred.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

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

If you have any questions about this letter, please contact Tobi Colvin-Snyder at 703-305-7801.

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

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Summary of Comments on Imazapyr ~~240~~ SL Aquatic

Page: 3

Sequence number: 1

Author: tsnyder

Date: 4/13/06 2:50:17 PM

Type: Note

Add "See use directions for stump and cut stem treatments and herbaceous weed control." immediately after this statement to more clearly state the use directions for this use.

Sequence number: 2

Author: tsnyder

Date: 4/13/06 2:51:21 PM

Type: Note

Delete "See ADJUVANT section for recommendations".

Sequence number: 3

Author: tsnyder

Date: 4/13/06 2:52:24 PM

Type: Note

Delete "defined as puddles, potholes, berms of ditches".

Page: 4

Sequence number: 1

Author: tsnyder

Date: 4/13/06 3:02:08 PM

Type: Note

Add the following statement at the end of the first paragraph:

The requirements in this box apply to use on trees being grown for sale or other commercial use, or for commercial seed production, or for production of timber or wood products, or for research purposes.

Sequence number: 2

Author: tsnyder

Date: 4/13/06 3:02:30 PM

Type: Note

Add a NON-AGRICULTURAL USE REQUIREMENTS box.

Page: 16

Sequence number: 1

Author: tsnyder

Date: 4/13/06 3:05:30 PM

Type: Note

Add "To the extent permitted by law," immediately prior to "The exclusive remedy...", "in no event shall...", and "Under no circumstances...."

APR 24 2006

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

74477-5

(Vegetation Manager Logo) Imazapyr 4 SL

Imazapyr 4 SL controls undesirable vegetation in forestry use sites managed for timber production including forest roads, non-irrigation ditchbanks. It may also be applied in areas defined as puddles, potholes, berms of ditches, drainage ditches, intermittent drainage, intermittently flooded low lying sites, seasonally dry flood plains, and transitional areas between upland and lowland sites, except in the states of California and New York. Imazapyr 4 SL can be used to treat marshes, swamps and bogs after water has receded, as well as seasonally dry flood deltas, except in the states of California and New York.

ACTIVE INGREDIENT: Isopropylamine salt of Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)*	52.6%
INERT INGREDIENTS	47.4%
TOTAL	100.0%

*Equivalent to 42.9% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 4 pounds acid per gallon.

EPA Reg. No. 74477- L

EPA Est. No. _____

KEEP OUT OF REACH OF CHILDREN CAUTION!/PRECAUCION!

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	<ul style="list-style-type: none"> • Call a poison control center or doctor for further treatment advice. • Have person sip a glass of water if able to swallow. • DO NOT induce vomiting unless told to by a poison control center or doctor. • DO NOT give anything to an unconscious person.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin	<ul style="list-style-type: none"> • 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 inhaled	<ul style="list-style-type: none"> • 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.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. For medical emergencies involving this product, call 1-800-308-5391.	

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PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION! Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash 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-sleeve shirt and long pants.
- Chemical-resistant gloves made of any waterproof material.
- Shoes plus socks.

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.

User Safety Recommendations:

Users Should:

- Wash hands before eating, 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

For terrestrial uses, **DO NOT** apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwaters. This herbicide is phytotoxic at extremely low concentrations. Non-target plants may be adversely affected from drift.

PHYSICAL AND CHEMICAL HAZARDS

Spray solutions of **Imazapyr 4 SL** should be mixed, stored and applied only in stainless steel, fiberglass, plastic, and plastic-lined steel containers.

DO NOT mix, store or apply **Imazapyr 4 SL** or spray solutions of **Imazapyr 4 SL** in unlined steel (except stainless steel) containers or spray tanks.

DIRECTIONS FOR USE

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

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

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Imazapyr 4 SL should be used only in accordance with recommendations on the booklet label. Keep containers closed to avoid spills and contamination.

Imazapyr 4 SL may be applied using helicopters, ground operated sprayers, low-volume hand-operated spray equipment such as back-pack and pump-up sprayers, and tree injection equipment.

Observe all cautions and limitations in the labels of products used in combination with **Imazapyr 4 SL**.

GENERAL INFORMATION

Imazapyr 4 SL is an aqueous solution intended to be mixed in water and surfactants(s) for control of undesirable vegetation in forestry sites managed for timber production. It can be used along forestry roads, for site preparation and for conifer release from woody and herbaceous competition. **Imazapyr 4 SL** may also be used for stump and cut-stem treatment for control of unwanted woody vegetation.



Imazapyr 4 SL may be applied to forestry areas defined as puddles, potholes, berms of ditches, drainage ditches, intermittent drainage, intermittently flooded low lying sites, seasonally dry flood plains, and transitional areas between upland and lowland sites, **except in the states of California and New York**. Only the edge of drainage ditches that contain water can be treated. **Imazapyr 4 SL** can also be used to treat marshes, swamps and bogs after water has receded, as well as seasonally dry flood deltas, **except in the states of California and New York**.



Imazapyr 4 SL also controls undesirable vegetation along non-irrigation ditchbanks and can be used for establishing and maintaining wildlife openings, except in the state of California.

DO NOT apply to natural or manmade bodies of water such as lakes, reservoirs, ponds, streams, rivers and canals.

When applied postemergence to weeds, **Imazapyr 4 SL** will control most annual and perennial grasses and broadleaf weeds in addition to many brush and vine species. **Imazapyr 4 SL** will provide residual control of labeled weeds which germinate in the treated areas. Postemergence application with a surfactant is the method of choice in most situations, particularly for perennial weeds. For maximum affect, weeds should be growing vigorously at postemergence application and the spray solution should include a surfactant (See **ADJUVANT** Section for recommendations). **Imazapyr 4 SL** solutions may be broadcast by using ground or aerial equipment, or may be applied as a spot treatment by using low-volume techniques. In addition, **Imazapyr 4 SL** may be used for stump and cut stem treatments.



Imazapyr 4 SL controls vegetation by absorption through foliage and roots, from which it is rapidly translocated rapidly throughout the plant, where it accumulates in rapidly-growing meristematic tissue. Treated plants stop growing soon after spray treatment. Chlorosis (yellowing of plant tissue) first appears in the newest leaves and necrosis spreads from this point. In perennials, **Imazapyr 4 SL** is translocated into and kills the roots and underground storage tissues to prevent most regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species for several weeks after application and may take months for various woody plants, brush and trees.

IMPORTANT

DO NOT use on food or feed crops. **DO NOT** use on Christmas trees. **DO NOT** treat irrigation ditches or water used for irrigation of crops or for domestic purposes. Keep away from fertilizers, insecticides, fungicides and seeds. **DO NOT** drain or flush equipment on or near desirable plants, or onto areas where their roots may extend, or in locations where the chemical may be washed or moved within their dripline. **DO NOT** side trim desirable vegetation with this product. Exercise precautions to prevent spray drift onto desirable plants.

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

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 12 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.

SPRAY DRIFT MANAGEMENT

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

Spray drift from applying this product may damage sensitive plants adjacent to the treatment area. Only apply this product when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, or non-target crops) is minimal. **DO NOT** apply when the following conditions exist that increase the likelihood of spray drift from intended targets: high or gusty winds, high temperatures, low humidity, temperature inversions.

The best drift management strategy and most effective way to reduce drift potential are to apply large droplets that provide sufficient coverage and control. 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 TEMPERATURE INVERSIONS**).

Controlling Droplet Size:

- Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure – **DO NOT** exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of Nozzles – use the minimum number of nozzles that provide uniform coverage.
- Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift. **DO NOT** use nozzles producing a mist droplet spray.

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Application Height: Making applications at the lowest possible height (aircraft, ground driven spray boom) that is safe and practical reduces exposure of droplets to evaporation and wind.

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

Wind: Drift potential is lowest between wind speeds of 3-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 3 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

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

Temperature Inversions: Drift potential is high during a temperature inversion. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud, which can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures 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 an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

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.

Aerial Application Methods and Equipment: Use 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.

Managing Spray Drift from Aerial Applications: Applicators must follow these requirements to avoid off-target drift movement: 1) boom length – the distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor, 2) nozzle orientation – nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees, and 3) application height – without compromising aircraft safety, applications should be made at a height of 10 feet or less above the crop canopy or tallest plants. Applicators must follow the most restrictive use cautions to avoid drift hazards, including those found in this labeling as well as applicable state and local regulations and ordinances.

Ground Application (Broadcast): Use 5 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.

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WEEDS CONTROLLED

Imazapyr 4 SL provides postemergence control and some residual control of the following target weed species. The degree of control is both species and rate dependent. **Imazapyr 4 SL** should be used only in accordance with the recommendations on this label.

GRASSES:

The species of annual and perennial grasses controlled by **Imazapyr 4 SL** include the following:

Annual bluegrass (*Poa annua*)
Bahigrass (*Paspalum notatum*)
Barnyardgrass (*Echinochloa crus-galli*)
Beardgrass (*Andropogon* spp.)
Bermudagrass (*Cynodon dactylon*)¹
Big bluestem (*Andropogon gerardii*)
Broadleaf signalgrass (*Brachiaria platyphylla*)
Canada bluegrass (*Poa compressa*)
Cattail (*Typha* spp.)
Cheat (*Bromus secalinus*)
Cogongrass (*Imperata cylindrica*)²
Crabgrass (*Digitaria* spp.)
Crowfootgrass (*Dactyloctenium aegyptium*)
Dallisgrass (*Paspalum dilatatum*)
Downy brome (*Bromus tectorum*)
Fall panicum (*Panicum dichotomiflorum*)
Feathertop (*Pennisetum villosum*)
Fescue (*Festuca* spp.)
Foxtail (*Setaria* spp.)
Giant reed (*Arundo donax*)
Goosegrass (*Eleusine indica*)
Guineagrass (*Panicum maximum*)
Italian ryegrass (*Lolium multiflorum*)
Itchgrass (*Rottboellia exaltata*)
Johnsongrass (*Sorghum halepense*)¹
Junglerice (*Echinochloa colonum*)
Kentucky bluegrass (*Poa pratensis*)
Lovegrass (*Eragrostis* spp.)¹
Orchardgrass (*Dactylis glomerata*)
Panicum spp.
Paragrass (*Brachiaria mutica*)
Phragmites (*Phragmites australis*)
Prairie cordgrass (*Spartina pectinata*)
Prairie threeawn (*Aristida oligantha*)
Quackgrass (*Agropyron repens*)
Reed canarygrass (*Phalaris arundinacea*)
Saltgrass (*Distichlis stricta*)
Sand dropseed (*Sporobolus cryptandrus*)
Sandbur (*Cenchrus* spp.)
Smooth brome (*Bromus inermis*)
Sprangletop (*Leptochloa* spp.)
Timothy (*Phleum pratense*)
Torpedograss (*Panicum repens*)
Vaseygrass (*Paspalum urvillei*)
Wild barley (*Hordeum* spp.)
Wild oats (*Avena fatua*)

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Wirestem muhly (*Muhlenbergia frondosa*)
Witchgrass (*Panicum capillare*)
Woolly cupgrass (*Eriochloa villosa*)

¹ Use higher labeled rates.

² Use minimum of 24 oz. per acre.

BROADLEAF WEEDS:

The species of annual and perennial broadleaf weeds controlled by Imazapyr 4 SL include the following:

Arrowwood (*Pluchea sericea*)
Broom snakeweed (*Gutierrezia sarothrae*)
Bull thistle (*Cirsium vulgare*)
Burclover (*Medicago* spp.)
Burdock (*Arctium* spp.)
Camphorweed (*Heterotheca subaxillaris*)
Canada thistle (*Cirsium arvense*)
Carolina geranium (*Geranium carolinianum*)
Carpetweed (*Mullugo verticillata*)
Chickweed, mouseear (*Cerastium vulgatum*)
Clover (*Trifolium* spp.)
Cocklebur (*Xanthium strumarium*)
Common chickweed (*Stellaria media*)
Common ragweed (*Ambrosia artemisiifolia*)
Cudweed (*Gnaphalium* spp.)
Dandelion (*Taraxacum officinale*)
Desert camelthorn (*Alhagi pseudalhagi*)
Diffuse knapweed (*Centaurea diffusa*)
Dock (*Rumex* spp.)
Dogfennel (*Eupatorium capillifolium*)
Fiddleneck (*Amsinckia intermedia*)
Filaree (*Erodium* spp.)
Fleabane (*Erigeron* spp.)
Giant ragweed (*Ambrosia trifida*)
Goldenrod (*Solidago* spp.)
Gray rabbitbrush (*Chrysothamnus nauseosus*)
Henbit (*Lamium aplexicaule*)
Hoary vervain (*Verbena stricta*)
Horseweed (*Conyza canadensis*)
Indian mustard (*Brassica juncea*)
Japanese bamboo/knotweed (*Polygonum cuspidatum*)
Knotweed, prostrate (*Polygonum aviculare*)
Kochia (*Kochia scoparia*)
Lambsquarters (*Chenopodium album*)
Little mallow (*Malva parviflora*)
Milkweed (*Asclepias* spp.)
Miners lettuce (*Montia perfoliata*)
Mullein (*Verbascum* spp.)
Nettleleaf goosefoot (*Chenopodium murale*)
Oxeye daisy (*Chrysanthemum leucanthemum*)
Pepperweed (*Lepidium* spp.)
Pigweed (*Amaranthus* spp.)
Plantain (*Plantago* spp.)
Pokeweed (*Phytolacca americana*)
Primrose (*Oenothera kunthiana*)

Puncturevine (*Tribulus terrestris*)
 Purple loosestrife (*Lythrum salicaria*)
 Purslane (*Portulaca* spp.)
 Pusley, Florida (*Richardia scabra*)
 Rocket, London (*Sisymbrium irio*)
 Rush skeletonweed (*Chondrilla juncea*)
 Russian knapweed (*Centaurea repens*)
 Russian thistle (*Salsola kali*)
 Saltbush (*Atriplex* spp.)
 Shepherd's purse (*Capsella bursa-pastoris*)
 Silverleaf nightshade (*Solanum elaeagnifolium*)
 Smartweed (*Polygonum* spp.)
 Sorrell (*Rumex* spp.)
 Sowthistle (*Sonchus* spp.)
 Spurge, annual (*Euphorbia* spp.)
 Stinging nettle (*Urtica dioica*)
 Sunflower (*Helianthus* spp.)
 Sweet clover (*Melilotus* spp.)
 Tansymustard (*Descurainia pinnata*)
 Texas thistle (*Cirsium texanum*)
 Velvetleaf (*Abutilon theophrasti*)
 Western ragweed (*Ambrosia psilostachya*)
 Wild carrot (*Daucus carota*)
 Wild lettuce (*Lactuca* spp.)
 Wild parsnip (*Pastinaca sativa*)
 Wild turnip (*Brassica campestris*)
 Woollyleaf bursage (*Ambrosia grayi*)
 Yellow starthistle (*Centaurea solstitialis*)
 Yellow woodsorrel (*Oxalis stricta*)

VINES AND BRAMBLES:

The species of vines and brambles controlled by **Imazapyr 4 SL** include the following:

Field bindweed (*Convolvulus arvensis*)
 Hedge bindweed (*Calystegia sepium*)
 Honeysuckle (*Lonicera* spp.)
 Morningglory (*Ipomoea* spp.)
 Poison ivy (*Rhus radicans*)
 Redvine (*Brunnichia cirrhosa*)
 Trumpet creeper (*Campsis radicans*)
 Virginia creeper (*Parthenocissus quinquefolia*)
 Wild buckwheat (*Polygonum convolvulus*)
 Wild grape (*Vitis* spp.)
 Wild rose (*Rosa* spp.)¹
 Including: Multiflora rose (*Rosa multiflora*)
 Macartney rose (*Rosa bracteata*)

¹ Use higher labeled rates.

WOODY BRUSH AND TREES:

The species of woody brush and trees controlled by **Imazapyr 4 SL** include the following:

Alder (*Alnus* spp.)
 American beech (*Fagus grandifolia*)
 Ash (*Fraxinus* spp.)¹
 Aspen (*Populus* spp.)
 Autumn olive (*Elaeagnus umbellata*)
 Bald cypress (*Taxodium distichum*)

Bigleaf Maple (*Acer macrophyllum*)²
 Birch (*Betula* spp.)¹
 Black oak (*Quercus kelloggii*)
 Blackgum (*Nyssa sylvatica*)³
 Boxelder (*Acer negundo*)
 Brazilian peppertree (*Schinus terebinthifolius*)
 Ceanothis (*Ceanothis* spp.)
 Cherry (*Prunus* spp.)^{1,3} Chinaberry (*Melia azedarach*)
 Chinese tallow-tree (*Sapium sebiferum*)
 Chinquapin (*Castanopsis chrysophylla*)
 Cottonwood (*Populus trichocarpa* and *Populus deltoides*)
 Cypress (*Taxodium* spp.)
 Dogwood (*Cornus* spp.)¹
 Eucalyptus (*Eucalyptus* spp.)
 Hawthorn (*Crataegus* spp.)
 Hickory (*Carya* spp.)¹
 Huckleberry (*Gaylussacia* spp.)
Lyonia spp.
 Including: Fetterbush (*Lyonia lucida*)
 Staggerbush (*Lyonia mariana*)
 Madrone (*Arbutus menziesii*)
 Maple (*Acer* spp.)
 Melaleuca (*Melaleuca quinquenervia*)
 Mulberry (*Morus* spp.)^{1,4}
 Oak (*Quercus* spp.)⁵
 Persimmon (*Diospyros virginiana*)³
 Poison oak (*Rhus diversiloba*)
 Popcorn-tree (*Sapium sebiferum*)
 Poplar (*Populus* spp.)
 Privet (*Ligustrum vulgare*)
 Red Alder (*Alnus rubra*)
 Red Maple (*Acer rubrum*)
 Saltcedar (*Tamarix pentandra*)
 Sassafras (*Sassafras albidum*)
 Sourwood (*Oxydendrum arboreum*)³
 Sumac (*Rhus* spp.)
 Sweetgum (*Liquidambar styraciflua*)
 Sycamore (*Platanus occidentalis*)
 Tanoak (*Lithocarpus densiflorus*)¹
 TiTi (*Cyrilla racemiflora*)¹
 Tree of heaven (*Ailanthus altissima*)
Vaccinium spp.
 Including: Blueberry (*Vaccinium* spp.)
 Sparkleberry (*Vaccinium arboretum*)
 Willow (*Salix* spp.)
 Yellow poplar (*Liriodendron tulipifera*)

¹ Use higher labeled rates.

² Bigleaf Maple requires at least a 5% spray solution concentration.

³ Best control with applications prior to formation of fall leaf color.

⁴ The degree of control may be species dependent.

⁵ For Water oak (*Quercus nigra*), Laurel oak (*Q. lauriflora*), Willow oak (*Q. phellos*) and Live oak (*Q. virginiana*) use higher labeled rates.

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MIXING AND APPLICATION INSTRUCTIONS

HELICOPTER EQUIPMENT:

Thoroughly mix the recommended amount of **Imazapyr 4 SL** in 5 to 30 gallons of water per acre and apply uniformly with properly calibrated helicopter equipment. Use a nonionic surfactant to improve weed control. A drift control agent may be used at its recommended label rate. An anti-foam agent may be added, if needed. Exercise all precautions to minimize or eliminate spray drift. Avoid applications during windy or gusty conditions. Use of a Microfoil™ boom, Thru-Valve™ boom, raindrop nozzles, controlled droplet booms and nozzle configurations is recommended. Maintain adequate buffer zones to minimize potential impacts to desirable vegetation.

IMPORTANT: DO NOT make applications by fixed wing aircraft.

Thoroughly clean mixing and application equipment by thoroughly flushing with water immediately after using this product. Prolonged exposure of uncoated/unpainted steel (except stainless steel) surfaces to this product may result in corrosion and failure of the exposed part. Maintaining painted surfaces may prevent corrosion.

GROUND EQUIPMENT:

Thoroughly mix and apply the recommended amount of **Imazapyr 4 SL** in 5 to 100 gallons of water per acre. Use a nonionic surfactant to enhance weed control. A drift control agent and an anti-foam agent may also be added at the recommended label rates, if needed. If desired, a spray pattern indicator may be used at the recommended label rate. To minimize spray drift, select proper nozzles to avoid spraying a fine mist, use pressures less than 50 psi and **DO NOT** spray under gusty or windy conditions (also refer to **SPRAY DRIFT MANAGEMENT** section). Maintain adequate buffer zones to minimize potential impacts to desirable vegetation.

For best results, apply the spray solution to uniformly cover the foliage of the undesirable vegetation to be controlled.

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

DIRECTED FOLIAR OR SPOT SPRAY EQUIPMENT:

For directed or spot spray applications with helicopter, ground equipment or low-volume hand-operated spray equipment, thoroughly mix 1.0 to 5.0% **Imazapyr 4 SL** by volume (v/v) in water with at least 1/4% nonionic surfactant by volume, according to the table below.

MIXING GUIDE FOR IMAZAPYR 4 SL

SOLUTION VOLUME	Imazapyr 4 SL CONCENTRATION (%)			NONIONIC SURFACTANT
	1.0	2.5	5.0	
1 gallon	1-1/3 oz.	3-1/3 oz.	6-2/3 oz.	1/3 oz.
5 gallons	6-2/3 oz.	1 pint	2 pints	1-2/3 oz.
10 gallons	13-1/3 oz.	2 pints	4 pints	3-1/3 oz.
25 gallons	2 pints	5 pints	10 pints	8 oz.
100 gallons	1 gal.	2.5 gal.	5 gal.	2 pints

2 tablespoons = 1 fluid ounce

For optimum performance and efficacy, apply spray to uniformly cover the target vegetation foliage. Direct spray to avoid contacting desirable conifers. Avoid direct application to desired plant species as injury may occur.

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IMPORTANT: DO NOT over apply to cause run-off from treated foliage. **DO NOT** exceed recommended dosage rate per acre.

STUMP AND CUT STEM TREATMENTS

Imazapyr 4 SL will control undesirable woody vegetation in forest management when applied as a water solution to the cambium area of freshly-cut stump surfaces or to cuts on the stem of the target woody vegetation. Applications can be made at any time of the year except during periods of heavy sap flow in the spring. Tree injection and cut stem treatments are most effective in late summer and early fall. **DO NOT** over-apply to cause run-off or puddling of spray solution.

MIXING:

Mix **Imazapyr 4 SL** as either a concentrate or dilute solution for stump and cut stem treatments. Apply dilute solutions to the surface of the stump or to cuts on the stem of the target woody vegetation. Apply concentrate solutions to cuts on the stem. Use of the concentrate solutions permits application to fewer cuts on the stem, especially for large diameter trees. Follow the application directions below to determine proper application techniques for each type of solution.

To prepare a dilute solution, mix 6 fluid ounces of **Imazapyr 4 SL** with one gallon of water. If temperatures are such that freezing of the spray mixture may occur, antifreeze (ethylene glycol) may be added according to manufacturer's label to prevent freezing. The use of a surfactant or penetrating agent may improve herbicide uptake through partially callused cambium tissue.

To prepare a concentrated solution, mix use undiluted **Imazapyr 4 SL** product or mix up to 75% water, by volume.

APPLICATION WITH DILUTE SOLUTIONS:

For cut stump treatments: Spray or brush the solution onto the cambium area of the freshly cut stump surface. Thoroughly wet the entire cambium area (the wood next to the bark of the stump).

For tree injection treatments: Using standard injection equipment, apply 1 milliliter of solution at each injection site around the tree with no more than one inch intervals between cut edges. Insure that the injector completely penetrates the bark at each injection site.

For frill or girdle treatments: Use a hatchet, machete or similar implement to make cuts through the bark around the tree at intervals no more than two inches between cut edges. Spray or brush **Imazapyr 4 SL** solution into each cut until thoroughly wet.

APPLICATION WITH CONCENTRATED SOLUTIONS:

For tree injection treatments: Using standard injection equipment, apply 1 milliliter of solution at each injection site. Make at least one injection cut for every three inches of Diameter at Breast Height (DBH) on the target tree. For example, a three inch DBH tree will receive 1 injection cut while a six inch DBH tree will receive 2 injection cuts. On trees requiring more than one injection site, place the injection cuts at approximately equal intervals around the tree.

For hack and squirt treatments: Use a hatchet, machete or similar implement to make cuts at a downward angle completely through the bark and cambium at approximately equal intervals around the tree. Make at least one cut for every 3 inches of DBH on the target tree as describer above, using a squirt bottle, syringe, or similar device apply about 1 milliliter of concentrate solution into each cut, ensuring that the solution does not run out of the cut.

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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SITE PREPARATION TREATMENTS

Imazapyr 4 SL will control labeled grass and broadleaf weeds, vines, brambles, woody brush and trees on forest sites when applied before replanting the following conifer crop species:

Crop Species	Rate (fl oz./A)
Loblolly Pine (<i>Pinus taeda</i>)	24 – 40
Loblolly X Pitch Hybrid	24 – 40
Longleaf Pine (<i>Pinus palustris</i>)	24 – 40
Shortleaf Pine (<i>Pinus echinata</i>)	24 – 40
Virginia Pine (<i>Pinus virginiana</i>)	24 – 40
Slash Pine (<i>Pinus elliotii</i>)	20 – 32
Douglas-Fir (<i>Pseudotsuga menziesii</i>)	12 – 24
Coastal Redwood (<i>Sequoia sempervirens</i>)	12 – 24
Western Hemlock (<i>Tsuga heterophylla</i>)	12 – 24
California Red Fir (<i>Abies magnifica</i>)	12 – 20
California White Fir (<i>Abies concolor</i>)	12 – 20
Jack Pine (<i>Pinus banksiana</i>)	12 – 16
Lodgepole Pine (<i>Pinus contorta</i>)	12 – 16
Pitch Pine (<i>Pinus rigida</i>)	12 – 16
Ponderosa Pine (<i>Pinus ponderosa</i>)	12 – 16
Sugar Pine (<i>Pinus lambertiana</i>)	12 – 16
White Pine (<i>Pinus strobus</i>)	12 – 16
Black Spruce (<i>Picea mariana</i>)	12 – 16
Red Spruce (<i>Picea rubens</i>)	12 – 16
White Spruce (<i>Picea glauca</i>)	12 – 16

Apply the recommended rate of **Imazapyr 4 SL** per acre as a broadcast foliar spray for long-term control of labeled woody plants and residual control of herbaceous annual and perennial weeds. Within 4 to 6 weeks of treatment, herbaceous weeds will be controlled and may provide fuel to facilitate a site preparation burn for controlling conifers or other species tolerant to the herbicide.

For helicopter applications, apply the recommended rate of **Imazapyr 4 SL** per acre in 5 to 30 gallons total spray solution. For mechanical ground sprays and backpack applications, apply the recommended rate of **Imazapyr 4 SL** per acre in 5 to 100 gallons total spray solution. Use at least 1/2% percent by volume nonionic surfactant. Use the higher label rates of **Imazapyr 4 SL** and higher spray volumes to control especially dense, multi-layered canopies of hardwood stands or difficult to control species.

Tank mixes may be necessary to control conifers and other species that are tolerant to **Imazapyr 4 SL**. Observe all precautions and restrictions on the tank mix partner label. Always follow the most restrictive label. NOTE that some other products labeled for forest site preparation may kill plants such as legumes and blackberry that are desirable for wildlife habitat.

Where quick initial brown out (deadening of foliage) is desired for burning, apply a tank mixture of 16 to 32 fluid oz. **Imazapyr 4 SL** plus 16 to 64 fluid oz. Accord® or 16 to 48 fluid oz. Garlon 4™ per acre. To control seedling pines, apply 16 to 32 fluid oz. **Imazapyr 4 SL** plus 3 to 4 quarts Accord®. For site preparation, rates less than 24 oz. **Imazapyr 4 SL** will provide suppression of hardwood brush and trees; however, some resprouting may occur.

DO NOT plant seedlings of Black Spruce (*Picea mariana*) or White Spruce (*Picea glauca*) on sites that have been broadcast treated with **Imazapyr 4 SL** or into the treated zone of spot or banded applications for at least three months after treatment or injury may occur.

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HERBACEOUS WEED CONTROL

Use **Imazapyr 4 SL** for selective weed control in the following conifers:

Crop Species	Rate (fl. oz./A)
Loblolly Pine (<i>Pinus taeda</i>)	6 - 10
Loblolly X Pitch Hybrid	6 - 10
Virginia Pine (<i>Pinus virginiana</i>)	6 - 10
Longleaf Pine (<i>Pinus palustris</i>) ¹	4 - 6
Slash Pine (<i>Pinus elliottii</i>) ¹	4 - 6
Douglas-Fir (<i>Pseudotsuga menziesii</i>) ¹	4 - 6

¹ Use of surfactant is not recommended.

Imazapyr 4 SL may be broadcast, banded over tree rows or directed for release of young conifers from herbaceous weeds. To diminish the possibility of conifer injury, **DO NOT** apply **Imazapyr 4 SL** when conifers are under stress from drought, diseases, animal or winter injury, planting shock or other stresses that may reduce conifer vigor. Broadcast applications may be made by helicopter, ground or backpack sprayer. For best results, apply **Imazapyr 4 SL** to newly emerged weeds. Use the higher labeled rates for hard-to-control weeds. Where herbaceous weeds have over-topped conifer seedlings, add a nonionic surfactant at up to 1/4% of the spray solution volume to improve weed control (except for Slash Pine, Longleaf Pine, and Douglas-fir). Conifers in the treated area may exhibit minor growth inhibition, especially treatments are applied during periods of active conifer growth.

Imazapyr 4 SL may also be applied by backpack or hand-held sprayers to control herbaceous weeds around individual conifer seedlings. Mix 0.4 to 0.6 fluid oz. **Imazapyr 4 SL** and 0.2 fluid oz. nonionic surfactant per gallon of water. Direct the spray to the weeds and minimize spray contact with conifer seedlings to avoid seedling damage. **DO NOT** exceed the maximum labeled rates listed above.

Imazapyr 4 SL can also be tank mixed with Oust® to broaden the weed control spectrum. For loblolly pine only, apply 4 to 6 fluid oz. **Imazapyr 4 SL** plus 1-2 fluid oz. Oust® (product) per acre. Application of **Imazapyr 4 SL** plus Oust® to other conifer species, however, may cause growth suppression.

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CONIFER RELEASE TREATMENTS

Imazapyr 4 SL may be applied as a broadcast or directed spray to suppress the labeled brush, tree and herbaceous weed species. In conifer stands of all ages, use directed low-volume sprays onto unwanted vegetation and avoid direct contact to the conifers. **DO NOT** exceed the maximum labeled rates listed below.

Use broadcast applications of **Imazapyr 4 SL** for release of the following conifers from hardwood competition:

Crop Species	Rate (fl. oz./A)
Loblolly Pine (<i>Pinus taeda</i>) ³	12 - 20
Loblolly X Pitch Hybrid ³	12 - 20
Virginia Pine (<i>Pinus virginiana</i>) ^{3,4}	12 - 20
Longleaf Pine (<i>Pinus palustris</i>) ⁵	12 - 16
Pitch Pine (<i>Pinus rigida</i>)	12 - 16
Shortleaf Pine (<i>Pinus echinata</i>)	12 - 16
Slash Pine (<i>Pinus elliotii</i>) ⁵	12 - 16
White Pine (<i>Pinus strobus</i>) ¹	8 - 16
California Red Fir (<i>Abies magnifica</i>)	8 - 12
California White Fir (<i>Abies concolor</i>)	8 - 12
Lodgepole Pine (<i>Pinus contorta</i>) ²	8 - 12
Douglas-Fir (<i>Pseudotsuga menziesii</i>) ²	8 - 12
Jack Pine (<i>Pinus banksiana</i>) ^{2,6}	6 - 12
Black Spruce (<i>Picea mariana</i>) ^{2,6}	6 - 12
Red Spruce (<i>Picea rubens</i>) ^{2,6}	6 - 12
White Spruce (<i>Picea glauca</i>) ^{2,6}	6 - 12

¹ **DO NOT** make applications to white pine stands younger than three years old. To minimize potential injury to White Pine, release treatments should not be made prior to July 15.

² Applications should be made after formation of final conifer resting buds in the fall or height growth inhibition may occur.

³ Mid-rotation release: For broadcast applications below the pine canopy in established stands of Loblolly Pine, Loblolly X pitch hybrid, and Virginia Pine use 16-32 oz. product per acre. For mid-rotation release of other species use rates listed above.

⁴ See specific directions below for release of Loblolly Pine seedlings during the first growing season.

⁵ See specific directions below or release of 2-to-5 year old Slash Pine and Longleaf Pine.

⁶ See specific directions below for use **ONLY** in Maine for release of Jack Pine, Black Spruce, Red Spruce and White Spruce.

Apply the recommended rate of **Imazapyr 4 SL** per acre when applying broadcast sprays by helicopter or ground spray equipment. Refer to mixing and application instructions for proper spray volumes. A nonionic surfactant may be added but at no more than 1/4% by volume of the finished spray. Use the higher label rates of **Imazapyr 4 SL** when controlling especially dense stands or hard to control species.

Conifers may exhibit some minor growth inhibition when release treatments are made during periods of active conifer growth. To minimize potential growth inhibition, **DO NOT** make broadcast applications to conifer stands, except loblolly pine, before the end of the second growing season and, then, not until late in the growing season. To reduce the possibility of conifer injury, **DO NOT** apply **Imazapyr 4 SL** when conifers are under stress from drought, diseases, animal or winter injury, or other stresses that reduce conifer vigor.

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For release of loblolly pine seedlings during the first growing season following planting or for one-year-old natural loblolly pine regeneration: For one-year-old loblolly pine release, apply 12-20 fluid oz./A **Imazapyr 4 SL** after July 15. Use rates below 16 fluid oz./A for growth suppression of hardwoods; however, some hardwood resprouting should be expected.

For release of 2-to-5 year old slash pine and longleaf pine from undesirable woody plants: Broadcast release treatments over the top of pines after August 15 and only in stands 2 to 5 years old. **DO NOT** add surfactant to the spray solution and use the lower labeled rates on areas with sandy soils.

For release of slash pine over 5 years old by aerial application: Apply **ONLY** after September 15 after height growth has stopped and buds have set, Use 12 to 14 fluid oz **Imazapyr 4 SL** per acre but only 12 fluid oz on areas with sandy soils. **DO NOT** add surfactant to the spray solution. **DO NOT** over apply by overlapping the spray pattern or dressing up around the edges of a tract. Since this treatment may cause some inhibition in height growth or terminal dieback, it should not be used if such affects are unacceptable.

For use ONLY in Maine for release of Jack Pine, Black Spruce, Red Spruce and White Spruce: For hardwood growth suppression, apply **Imazapyr 4 SL** at rates less than 6 fluid oz. per acre when tank mixed with glyphosate. Use a nonionic surfactant at rates greater than 0.25% v/v. The use of **Imazapyr 4 SL** with more than 0.25% v/v nonionic surfactant can result in conifer growth inhibition or mortality, and should not be used if this type of conifer injury is unacceptable.

The use of **Imazapyr 4 SL** rates below 6 oz./A are intended for hardwood brush growth suppression and hardwood brush resprouting should be expected.

For spot treatment of undesirable brush and hardwood vegetation: Apply **Imazapyr 4 SL** as a directed foliar or cut stem application in conifer stands of all ages for the conifer species listed above. Mix and apply as described above for directed foliar or cut stem applications. **DO NOT** exceed the maximum labeled rates listed above. Cut stem applications may be used for spot treatment of undesirable hardwoods in Ponderosa Pine stands using 12 oz. or less of product per acre.

Avoid direct spray contact to desired plant species as injury may occur. Injury may occur to non-target or desirable hardwoods or conifers if they extend from the same root system or their root systems are grafted to those of the treated tree or if their roots extend into the treated zone.

STORAGE AND DISPOSAL

DO NOT contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: **DO NOT** store below 10°F.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL FOR 2.5 GALLON AND 30 GALLON: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in an approved sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CONTAINER DISPOSAL FOR BULK: 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. This container must only be refilled with the 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 transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling. Disposal of container must be in compliance with state and local regulations.

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IMPORTANT: Read the entire **DIRECTIONS FOR USE** and the **CONDITIONS OF SALE AND WARRANTY** before using this product. If terms are not acceptable, return the unopened product container at once.

CONDITIONS OF SALE AND WARRANTY

Upon purchase or use of this product, purchaser and user agree to the following terms:

Warranty: Vegetation Management, LLC (the Company) warrants that this product conforms to the chemical description on the label in all material respects and is reasonably fit for the purpose referred to in the directions for use, subject to the exceptions noted below, which are beyond the Company's control. The Company makes no other representation or warranty, express or implied, concerning the product, including no implied warranty of merchantability or fitness for a particular purpose. No such warranty shall be implied by law, and no agent or representative is authorized to make any such warranty on the Company's behalf.

Terms of Sale: The Company's directions for use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, and the manner of use or application (including failure to adhere to label directions), all of which are beyond the Company's control. All such risks are assumed by the user.



Limitation of Liability: The exclusive remedy against the Company for any cause of action relating to the handling or use of this product is a claim for damages, and in no event shall damages or any other recovery of any kind exceed the price of the product which caused the alleged loss, damage, injury or other claim. Under no circumstances shall the Company be liable for any special, indirect, incidental or consequential damages of any kind, including loss of profits or income, and any such claims are hereby waived. Some states do not allow the exclusion or limitation of incidental or consequential damages.

The Company and the seller offer this product, and the purchaser and user accept this product, subject to the foregoing warranty, terms of sale and limitation of liability, which may be varied or modified only by an agreement in writing signed on behalf of the Company by an authorized representative.

Microfoil is a trademark of Rhone Poulenc Ag. Company.

Thru-Valve is a trademark of Waldrum Specialties.

Accord is a registered trademark of Monsanto Company

Oust is a registered trademark of E.I. DuPont de Nemours and Company.

Garlon is a trademark of Dow AgroSciences Company.

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