

PM 25 241-299 1 of 18

LEAFLET

ARSENAL® herbicide  
APPLICATORS CONCENTRATE

ACCEPTED  
OCT 29 1987  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 241-299

ACTIVE INGREDIENT:

Isopropylamine salt of Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)\*..... 53.1%

INERT INGREDIENT..... 46.9%

TOTAL..... 100.0%

\*Equivalent to 43.3% 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. 241-

EPA Est. No.

KEEP OUT OF REACH OF CHILDREN

CAUTION!

PRECAUCION

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

In case of emergency endangering life or property involving this product, call collect, day or night, Area Code 201-835-3100.

AMERICAN CYANAMID COMPANY  
AGRICULTURAL DIVISION  
VPC VENTURES  
WAYNE, NJ 07470

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7/87

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS

#### CAUTION!

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.

#### FIRST AID

IF ON SKIN: Wash with plenty of soap and water.

IF ON EYES: Flush with plenty of water. Get medical attention if irritation persists.

### PHYSICAL AND CHEMICAL HAZARDS

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

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

### ENVIRONMENTAL HAZARDS

DO NOT apply directly to any body of water. DO NOT contaminate water by cleaning of equipment or disposal of waste.

### STORAGE AND DISPOSAL

PROHIBITIONS: DO NOT store below 10° F. DO NOT contaminate water, food, or feed by storage or disposal.

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

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### IMPORTANT

DO NOT use on food or feed crops. DO NOT apply where runoff water may flow onto agricultural land as injury to crops may result. Keep from contact with fertilizers, insecticides, fungicides, and seeds. DO NOT apply or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. DO NOT use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of spray to desirable plants. DO NOT use in California.

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

### GENERAL INFORMATION

ARSENAL herbicide APPLICATORS CONCENTRATE is an aqueous solution to be mixed in water and applied as a spray for control of most annual and perennial grasses, broadleaf weeds and hardwood trees for site preparation and release of loblolly pine stands.

ARSENAL is readily absorbed through foliage and roots and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into the kills underground storage organs, thus preventing regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until two weeks after application. Complete kill of some plants may not occur for several weeks.

### DISCLAIMER

The label instructions for the use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the use or application of the product contrary to label instructions, all of which are beyond the control of American Cyanamid Company. All such risks shall be assumed by the user.

American Cyanamid Company warrants only that the material contained herein conforms to the chemical description on the label and is reasonably fit for the use therein described when used in accordance with the directions for use, subject to the risks referred to above.

Any damages arising from a breach of this warranty shall be limited to direct damages and shall not include consequential commercial damages such as loss of profits or values or any other special or indirect damages.

American Cyanamid Company makes no other express or implied warranty, including other express or implied warranty of FITNESS or of MERCHANTABILITY.

#### DIRECTIONS FOR USE

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

ARSENAL herbicide APPLICATORS CONCENTRATE should be used only in accordance with recommendations on the leaflet label attached to the container. Keep containers closed to avoid spills and contamination.

A postemergence application of ARSENAL is recommended for control of most annual and perennial grasses and broadleaf weeds, and hardwood trees in release of loblolly pine stands or in site preparation prior to planting loblolly pines. Some pine phytotoxicity and tip-burn may occur after application, but pine survival is excellent. ARSENAL may be applied anytime during the growing season after leaves have emerged and before leaf fall. Pine phytotoxicity may be greater from spring application than from summer or fall application when the candles have hardened off.

#### MIXING AND APPLICATION INSTRUCTIONS

Mix the proper amount of ARSENAL in water in the spray tank with the agitator running. Increased control of herbaceous and hardwood weeds with decreased loblolly pine tolerance can be obtained by adding a nonionic surfactant such as SURFACTANT WK\*\* or Ortho\*\*\* X-77 at the rate of 1 quart per 100 gallons of spray. This provides optimum wetting and/or contact activity. To minimize drift, a drift control agent may be added at the recommended label rate. A foam reducing agent may be added at the recommended label rate, if needed.

#### SPRAYING INSTRUCTIONS

Uniformly apply with properly calibrated aerial or ground equipment in 5 to 60 gallons of water per acre with a spray pressure of 20 to 50 psi.

DO NOT spray under windy or gusty conditions. Maintain adequate buffer zones to insure that drift does not occur off the target area. Thoroughly clean application and mixing equipment immediately after use.

DO NOT make applications by fixed wing aircraft.

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## VINES AND BRAMBLES

Apply 1-1.5 pints per acre

Field bindweed (Convolvulus arvensis)Wild buckweat (Polygonum convolvulus)

Apply 1-1.5 pints per acre

Greenbriar (Smilax spp.)Poison ivy (Rhus radicans)Honeysuckle (Lonicera spp.)Redvine (Brunnichia cirrhosa)Morningglory (Ipomoea spp.)Wildrose (Rosa spp.)

Apply 2-3 pints per acre

Blackberry (Rubus spp.)Trumpet creeper (Campsis radicans)Dewberry (Rubus spp.)

Virginia creeper

Kudzu (Pueraria lobata)(Pathenocissus quinquefolia)Hedge bindweed (Calystegia sepium)Wildgrape (Vitis spp.)

## BRUSH SPECIES

Apply 2-3 pints per acre

Ash (Fraxinus spp.)Poplar (Populus spp.)Cherry (Prunus spp.)Privet (Ligustrum vulgare)Dogwood (Cornus spp.)Red Maple (Acer rubrum)Hawthorn (Crataegus spp.)Sassafras (Sassafras albidum)Hiclory (Carya spp.)Sumac (Rhus spp.)Maple (Acer spp.)

Sweetgum

Mulberry (Morus spp.)(Liquidambar styraciflua)Oak (Quercus spp.)Willow (Salix spp.)

The higher rates should be used where heavy or well established infestations occur. The degree of control is species dependent. Some Rubus species may not be controll at this rate.

# BROADLEAF WEEDS

Apply 1-1.5 pints per acre

Burdock ( <u>Arctium</u> spp.)	Mullein ( <u>Verbascum</u> spp.)
Camphorweed ( <u>Heterotheca subzillaris</u> )	Nettleleaf goosefoot ( <u>Chenopodium murale</u> )
Carpetweed ( <u>Mullugo verticillata</u> )	Oxeye daisy ( <u>Chrysanthemum leucanthemum</u> )
Carolina geranium ( <u>Geranium carolinianum</u> )	Pepperweed ( <u>Lepidium</u> spp.)
Clover ( <u>Trifolium</u> spp.)	Pigweed ( <u>Amaranthus</u> spp.)
Common chickweed ( <u>Stellaria media</u> )	Plantain ( <u>Plantago</u> spp.)
Common ragweed ( <u>Ambrosia artemisiifolia</u> )	Smartweed ( <u>Polygonum</u> spp.)
Dandelion ( <u>Taraxacum officinale</u> )	Sorrel ( <u>Rumex</u> spp.)
Dogfennel ( <u>Eupatorium capillifolium</u> )	Sunflower ( <u>Helianthus</u> spp.)
Filaree ( <u>Erodium</u> spp.)	Sweet clover ( <u>Melilotus</u> spp.)
Fleabane ( <u>Erigeron</u> spp.)	Tansymustard ( <u>Descurainia pinnata</u> )
Hoary vervain ( <u>Verbena stricta</u> )	Western ragweed ( <u>Ambrosia psilostachya</u> )
Horseweed ( <u>Conyza canadensis</u> )	Wild carrot ( <u>Caucus carota</u> )
Indian mustard ( <u>Brassica juncea</u> )	Wild lettuce ( <u>Lactuca</u> spp.)
Kochia ( <u>Kochia scoparia</u> )	Wild parsnip ( <u>Pastinaca sativa</u> )
Lambsquarters ( <u>Chenopodium album</u> )	Wild turnip ( <u>Brassica campestris</u> )
Lespedeza ( <u>Lespedeza</u> spp.)	Wolyleaf bursage ( <u>Ambrosia graminifolia</u> )
Miners lettuce ( <u>Montia perfoliata</u> )	Yellow woodsorrel ( <u>Oxalis stricta</u> )

Apply 1.5-2 pints per acre

Bull thistle ( <u>Cirsium vulgare</u> )	Pokeweed ( <u>Phytolacca americana</u> )
Cocklebur ( <u>Xanthium strumarium</u> )	Purslane ( <u>Portulaca</u> spp.)
Dock ( <u>Rumex</u> spp.)	Yellow starthistle ( <u>Centaurea solstitialis</u> )

Apply 2-3 pints per acre

Canada thistle ( <u>Cirsium arvense</u> )	Primrose ( <u>Oenothera Kunthiana</u> )
Giant ragweed ( <u>Ambrosia trifida</u> )	Silverleaf nightshade ( <u>Solanum elaeagnifolium</u> )
Little mallow ( <u>Malva parviflora</u> )	Sowthistle ( <u>Sonchus</u> spp.)
Milkweed ( <u>Asclepias</u> spp.)	Texas thistle ( <u>Cirsium texanum</u> )

ARSENAL herbicide APPLICATORS CONCENTRATE will provide postemergence control with residue control of the following target vegetation species at the rates listed.

GRASSES

Apply 1-1.5 pints per acre

- |  |  |
|--|--|
| Annual bluegrass ( <u>Poa annua</u> )                  | Lovegrass ( <u>Eragrostis</u> spp.)        |
| Broadleaf signalgrass ( <u>Brachiaria platphylla</u> ) | Orchardgrass ( <u>Cactylis glomerata</u> ) |
| Canada bluegrass ( <u>Poa compressa</u> )              | Paragrass ( <u>Brachiaria mutica</u> )     |
| Downy brome ( <u>Bromus tectorum</u> )                 | Quackgrass ( <u>Agropyron repens</u> )     |
| Fescue ( <u>Festuca</u> spp.)                          | Sandbur ( <u>Cenbchrus</u> spp.)           |
| Foxtail ( <u>Setaria</u> spp.)                         | Smooth brome ( <u>Bromus inermis</u> )     |
| Italian ryegrass ( <u>Lolium multiflorum</u> )         | Vaseygrass ( <u>Paspalum urvillei</u> )    |
| Johnsongrass ( <u>Sorghum halepense</u> )              | Wild oats ( <u>Avena fatua</u> )           |
| Kentucky bluegrass ( <u>Poa pratensis</u> )            | Witchgrass ( <u>Panicum capillare</u> )    |

Apply 1.5-2 pints per acre

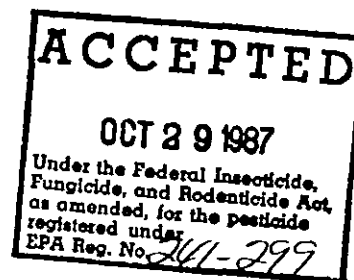
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| Beardgrass ( <u>Andropogon</u> spp.)            | Goosegrass ( <u>Eleusine indica</u> )          |
| Cheat ( <u>Bromus secalinus</u> )               | Prairie threeawn ( <u>Aristida oligantha</u> ) |
| Crabgrass ( <u>Digitaria</u> spp.)              | Torpedograss ( <u>Panicum repens</u> )         |
| Fall panicum ( <u>Panicum dichotomiflorum</u> ) | Wild barley ( <u>Hordeum</u> spp.)             |

Apply 2-3 pints per acre

- |   |   |
|---|---|
| Bahiagrass ( <u>Paspalum notatum</u> )    | Guineagrass ( <u>Panicum maximum</u> )          |
| Bermudagrass ( <u>Cynodon dactylon</u> )  | Prairie cordgrass ( <u>Spartina pectnata</u> )  |
| Big bluestem ( <u>Andropogon geradi</u> ) | Sand dropseed ( <u>Sporobolus cyptandrus</u> )  |
| Cattail ( <u>Typha</u> spp.)              | Timothy ( <u>Phleum pratense</u> )              |
| Dallisgrass ( <u>Paspalum dilatatum</u> ) | Wireterm muhly ( <u>Muhlenbergia frondosa</u> ) |

ARSENAL® herbicide

APPLICATORS CONCENTRATE



## ACTIVE INGREDIENT:

Isopropylamine salt of Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)\*..... 53.1%

INERT INGREDIENT..... 46.9%

TOTAL..... 100.0%

\*Equivalent to 43.3% 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. 241-

EPA Est. No.

KEEP OUT OF REACH OF CHILDREN  
CAUTION!

## PRECAUCION

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

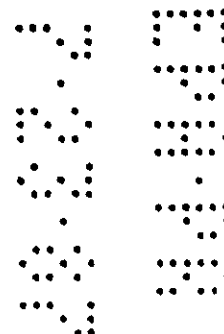
In case of emergency endangering life or property involving this product, call collect, day or night, Area Code 201-835-3100.

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VPC VENTURES  
WAYNE, NJ 07470

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# PRECAUTIONARY STATEMENTS

## HAZARDS TO HUMANS

### CAUTION!

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.

### FIRST AID

IF ON SKIN: Wash with plenty of soap and water.

IF ON EYES: Flush with plenty of water. Get medical attention if irritation persists.

## PHYSICAL AND CHEMICAL HAZARDS

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

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

## ENVIRONMENTAL HAZARDS

DO NOT apply directly to any body of water. DO NOT contaminate water by cleaning of equipment or disposal of waste.

### IMPORTANT

DO NOT use on food or feed crops. Keep from contact with fertilizers, insecticides, fungicides, and seeds. DO NOT apply or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. DO NOT side trim desirable vegetation with this product. Prevent drift of spray to desirable plants. DO NOT USE in California.

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

## GENERAL INFORMATION

ARSENAL herbicide APPLICATORS CONCENTRATE is an aqueous solution to be mixed in water and applied as a spray for control of most annual and perennial grasses, broadleaf weeds, vines and brambles, and hardwood trees for site preparation and release of loblolly pine stands.

ARSENAL is readily absorbed through foliage and roots and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into and kills the underground storage organs, thus preventing resprouting. Chlorosis and tissue necrosis may not be apparent in some plant species for several weeks after application. Complete kill of some brush species may not occur for several months.

## DISCLAIMER

The label instructions for the use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the use or application of the product contrary to label instructions, all of which are beyond the control of American Cyanamid Company. All such risks shall be assumed by the user.

American Cyanamid Company warrants only that the material contained herein conforms to the chemical description on the label and is reasonably fit for the use therein described when used in accordance with the directions for use, subject to the risks referred to above.

Any damages arising from a breach of this warranty shall be limited to direct damages and shall not include consequential commercial damages such as loss of profits or values or any other special or indirect damages.

American Cyanamid Company makes no other express or implied warranty, including other express or implied warranty of FITNESS or of MERCHANTABILITY.

## DIRECTIONS FOR USE

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

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ARSENAL herbicide APPLICATORS CONCENTRATE should be used only in accordance with recommendations on the leaflet label attached to the container. Keep containers closed to avoid spills and contamination.

A postemergence application of ARSENAL is recommended for control of most annual and perennial grasses and broadleaf weeds, vines and brambles, and woody brush and tree species for the site preparation and release of labeled conifer species. ARSENAL may be applied using helicopters, ground operated sprayers, and low-volume hand-operated spray equipment such as back-pack and pump-up sprayers.

#### STORAGE AND DISPOSAL

PROHIBITIONS: DO NOT store below 10 degrees F.  
DO NOT contaminate water, food, or feed by storage or disposal.

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

#### MIXING AND APPLICATION INSTRUCTIONS

##### HELICOPTER SPRAY EQUIPMENT

Thoroughly mix the recommended amount of ARSENAL in 5 to 30 gallons of water per acre and uniformly apply with properly calibrated aerial equipment. A nonionic surfactant must be added to the spray solution to insure proper control of undesirable vegetation. A suitable surfactant such as Ortho X-77\* or Surfactant WK\*\* should be added at the rate of 1 quart per 100 gallons of spray solution. All precautions should be taken to minimize or eliminate spray drift. Applications should not be made under gusty conditions or when wind velocity exceeds 5 mph. Except when applying with a MICROFOIL boom, a drift control agent may be added at the recommended label rate. A foam reducing agent may be added at the recommended label rate, if needed.

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IMPORTANT: DO NOT make applications by fixed wing aircraft. Maintain adequate buffer zones to insure that drift does not occur off the target area. Thoroughly clean application and mixing equipment, including landing gear, immediately after use. Prolonged exposure of this product to uncoated steel (except stainless steel) surfaces may result in corrosion and failure of the exposed part.

#### GROUND OPERATED SPRAY EQUIPMENT

Thoroughly mix and apply the recommended amount of ARSENAL in 15 to 60 gallons of water per acre. A nonionic surfactant must be added to the spray solution to insure proper control of undesirable vegetation. A suitable surfactant such as Ortho X-77\* or Surfactant WK\*\* should be added at the rate of 1 quart per 100 gallons of spray solution. A drift control agent and a foam reducing agent may be added at the recommended label rates, if needed. If desired, a spray pattern indicator may be added at the recommended label rate.

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

IMPORTANT: DO NOT spray under windy or gusty conditions. Maintain adequate buffer zones to insure that drift does not occur off the target area. Clean application and mixing equipment after using this product by thoroughly flushing with water.

#### LOW-VOLUME HAND-OPERATED SPRAY EQUIPMENT

When using back-pack sprayers or similar equipment, thoroughly mix a solution of 1/2 percent ARSENAL herbicide APPLICATORS CONCENTRATE and 1/4 percent of a nonionic surfactant such as Ortho X-77\* or Surfactant WK\*\* in water.

To mix the spray solution, add the volume of ARSENAL herbicide and nonionic surfactant indicated in the table below to the desired amount of water.

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## SPRAY SOLUTION MIXING GUIDE

SOLUTION VOLUME	ARSENAL	SURFACTANT
1 gallon	2/3 oz.	1/3 oz.
5 gallons	3-1/3 oz.	1-2/3 oz.
10 gallons	6-2/3 oz.	3-1/3 oz.
25 gallons	1 pint	8 oz.
100 gallons	4 pints	2 pints

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2 tablespoons = 1 ounce

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

IMPORTANT: DO NOT over apply causing runoff from the treated foliage. Avoid direct application to desired plant species as injury may occur. Clean application and mixing equipment after using this product by thoroughly flushing with water.

## SITE PREPARATION

ARSENAL may be used to control labeled grasses, broadleaf weeds, vines and brambles, and woody brush and trees on forest sites in advance of regenerating with loblolly pine (Pinus taeda). Herbaceous grass and broadleaf weeds are killed and will provide fuel to facilitate a controlled fire, if desired, to control residual pines.

Apply 1 1/2 to 2 1/2 pints of ARSENAL per acre when making helicopter or mechanical ground spray applications. Refer to mixing and application instructions for proper spray volumes and surfactant requirements. Use the higher label rates of ARSENAL and higher spray volumes when controlling particularly dense, multi-layered, canopies of hardwood stands, or difficult to control species.

DO NOT plant loblolly pine seedling on sites treated with ARSENAL for three months following application or injury may occur.

Tank mixes may be necessary for chemical control of residual pines in certain cases.

## CONIFER RELEASE

ARSENAL may be applied as a broadcast or directed spray application for control of labeled weed species in loblolly pine. Some minor conifer growth inhibition may be observed when release treatments are made during periods of active conifer growth. To minimize potential conifer injury, release treatments may be made after formation of final conifer resting buds in the fall.

## FOR RELEASE OF LOBLOLLY PINE:

Apply 1 to 2 pints of ARSENAL per acre when making helicopter or mechanical ground spray applications. Refer to mixing and application instructions for proper spray volumes and surfactant requirements. Use the higher label rates of ARSENAL when controlling particularly dense stands or difficult to control species. Do not make broadcast applications of ARSENAL to loblolly pine stands younger than three years old. Directed spray applications may be made with low-volume hand-operated sprayers in loblolly plantations of all ages by targeting the unwanted vegetation and avoiding direct application to the loblolly pine.

## WEEDS CONTROLLED

ARSENAL herbicide APPLICATORS CONCENTRATE will provide postemergence control and some residual control of the following target vegetation species when applied at the recommended rates. ARSENAL herbicide should be used only in accordance with the recommendation on this label.

## GRASSES

The species of annual and perennial grasses controlled by ARSENAL herbicide include the following:

Annual bluegrass (Poa annua)  
Bahia grass (Paspalum notatum)  
Beardgrass (Andropogon spp.)  
Bermudagrass (Cynodon dactylon)  
Big bluestem (Andropogon gerardi)  
Broadleaf signalgrass (Brachiaria platphylla)  
Canada bluegrass (Poa compressa)  
Cattail (Typha spp.)  
Cheat (Bromus secalinus)  
Crabgrass (Digitaria spp.)  
Dallisgrass (Paspalum dilatatum)  
Downy brome (Bromus tectorum)  
Fall panicum (Panicum dichotomiflorum)

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Feathertop (Pennisetum villosum)  
 Fescue (Festuca spp.)  
 Foxtail (Setaria spp.)  
 Goosegrass (Eleusine indica)  
 Guinea grass (Panicum maximum)  
 Italian ryegrass (Lolium multiflorum)  
 Johnson grass (Sorghum halepense)  
 Kentucky bluegrass (Poa pratensis)  
 Lovegrass (Eragrostis spp.)  
 Orchardgrass (Dactylis glomerata)  
 Paragrass (Brachiaria mutica)  
 Phragmites (Phragmites australis)  
 Prairie cordgrass (Spartina pectinata)  
 Prairie threeawn (Aristida oligantha)  
 Quackgrass (Agropyron repens)  
 Reed canary grass (Phalaris arundinacea)  
 Saltgrass (Distichlis stricta)  
 Sand dropseed (Sporobolus cryptandrus)  
 Sandbur (Cenchrus spp.)  
 Smooth brome (Bromus inermis)  
 Timothy (Phleum pratense)  
 Torpedograss (Panicum repens)  
 Vaseygrass (Paspalum urvillei)  
 Wild barley (Hordeum spp.)  
 Wild oats (Avena fatua)  
 Wirestem muhly (Muhlenbergia frondosa)  
 Witchgrass (Panicum capillare)

#### BROADLEAF WEEDS

The species of annual and perennial broadleaf weeds controlled by ARSENAL herbicide include the following:

Bull thistle (Cirsium vulgare)  
 Burdock (Arctium spp.)  
 Camphorweed (Heterotheca subaxillaris)  
 Canada thistle (Cirsium arvense)  
 Carolina geranium (Geranium carolinianum)  
 Carpetweed (Mullugo verticillata)  
 Clover (Trifolium spp.)  
 Cocklebur (Xanthium strumarium)  
 Common chickweed (Stellaria media)  
 Common ragweed (Ambrosia artemisiifolia)  
 Dandelion (Taraxacum officinale)  
 Dock (Rumex spp.)  
 Dogfennel (Eupatorium capillifolium)  
 Filaree (Erodium spp.)

Fleabane (Erigeron spp.)  
 Giant ragweed (Ambrosia trifida)  
 Goldenrod (Solidago spp.)  
 Hoary vervain (Verbena stricta)  
 Horsetweed (Conyza canadensis)  
 Indian mustard (Brassica juncea)  
 Kochia (Kochia scoparia)  
 Lambsquarters (Chenopodium album)  
 Lespedeza (Lespedeza spp.)  
 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)  
 Purslane (Portulaca spp.)  
 Silverleaf nightshade (Solanum elaeagnifolium)  
 Smartweed (Polygonum spp.)  
 Sorrell (Rumex spp.)  
 Sowthistle (Sonchus spp.)  
 Sunflower (Helianthus spp.)  
 Sweet clover (Melilotus spp.)  
 Tansymustard (Descurainia pinnata)  
 Texas thistle (Cirsium texanum)  
 Western ragweed (Ambrosia psilostachya)  
 Wild carrot (Daucus carota)  
 Wild lettuce (Lactuca spp.)  
 Wild parsnip (Pastinaca sativa)  
 Wild turnip (Brassica campestris)  
 Wollyleaf bursage (Ambrosia grayi)  
 Yellow starthistle (Centaurea solstitialis)  
 Yellow woodsorrel (Oxalis stricta)

#### VINES AND BRAMBLES

The species of vines and brambles controlled by ARSENAL herbicide include the following:

Blackberry (Rubus spp.)\*  
 Dewberry (Rubus spp.)\*  
 Field bindweed (Convolvulus arvensis)  
 Greenbriar (Smilax spp.)



Hedge bindweed (Calystegia sepium)  
Honeysuckle (Lonicera spp.)  
Kudzu (Pueraria lobata)  
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.)  
Including: Multiflora rose (Rosa multiflora)  
Macartney rose (Rosa bracteata)

\*The degree of control may be species dependent. Some Rubus species may not be controlled.

#### WOODY BRUSH AND TREES

The species of woody brush and trees controlled by ARSENAL herbicide include the following:

Ash (Fraxinus spp.)  
Blackgum (Nyssa sylvatica)  
Boxelder (Acer negundo)  
Cherry (Prunus spp.)  
Chinese tallow-tree (Sapium sebiferum)  
Dogwood (Cornus spp.)  
Hawthorn (Crataegus spp.)  
Hickory (Carya spp.)  
Maple (Acer spp.)  
Mulberry (Morus spp.)\*  
Oak (Quercus spp.)  
Persimmon (Diospyros virginiana)  
Poplar (Populus spp.)  
Privet (Ligustrum vulgare)  
Red Maple (Acer rubrum)  
Sassafras (Sassafras albidum)  
Sumac (Rhus spp.)  
Sweetgum (Liquidambar styraciflua)  
Willow (Salix spp.)  
Yellow poplar (Liriodendron tulipifera)

\*The degree of control may be species dependent.

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