

Specimen Label

RESTRICTED USE PESTICIDE

May Injure (Phytotoxic) Susceptible, Non-Target Plants. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Commercial certified applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.



Surmount[®]

Herbicide

®Trademark of Dow AgroSciences LLC

For the control of woody plants and annual and perennial broadleaf weeds in rangeland and permanent grass pastures, fencerows, non-irrigation ditchbanks, and around farm buildings.

Active Ingredients:

picloram: 4-amino-3,5,6-trichloropicolinic acid triisopropanolamine salt	13.24%
fluroxypyr 1-methylheptyl ester: [(4-amino-3,5-dichloro-6-fluoropyridin-2-yl)oxy]acetic acid	10.64%
Other Ingredients	76.12%
Total	100.00%

Picloram triisopropanolamine salt - 1.19 lb/gal (0.67 lb ae/gal)
Fluroxypyr 1-methylheptyl ester - 0.96 lb/gal (0.67 lb ae/gal)

Contains petroleum distillates.

EPA Reg. No. 62719-480

Keep Out of Reach of Children

DANGER PELIGRO

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

Precautionary Statements

Hazards to Humans and Domestic Animals

Corrosive • Causes Irreversible Eye Damage

Avoid contact with skin. Do not get in eyes or on clothing.

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 F or G on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Barrier Laminate or Viton
- Shoes plus socks
- Protective eyewear (Goggles, face shield or safety glasses)

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (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.
- Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for 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 contact 1-800-992-5994 for emergency medical treatment information.

Note to Physician: May pose an aspiration pneumonia hazard. Contains petroleum distillate. Probable mucosal damage may contraindicate the use of gastric lavage.

Environmental Hazards

Fluroxypyr is toxic to fish, and both picloram and fluroxypyr are toxic to some plants at very low concentrations. Non-target aquatic organisms and plants may be adversely affected if this product is allowed to drift from areas of application. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Do not contaminate water used for irrigation or domestic purposes by cleaning of equipment or disposal of wastes. Do not allow run-off or spray to contaminate wells, irrigation ditches, or any body of water used for irrigation or domestic purposes. Do not make application when circumstances favor movement from treatment site.

Picloram is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Picloram can contaminate surface water through spray drift. Under some conditions, picloram may also have a high potential for runoff into surface water (primarily via dissolution in runoff water). These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies elsewhere on this label. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

Directions for Use

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

Read all Directions for Use carefully before applying.

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.

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
- Chemical-resistant gloves such as Barrier Laminate or Viton
- Shoes plus socks
- Protective eyewear

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 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.

Entry Restrictions for Non-WPS Uses: Do not allow worker entry into treated areas until sprays have dried.

Storage and Disposal

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

Pesticide Storage: If exposed to subfreezing temperatures (below 32° F), the product should be warmed to at least 40° F and agitated thoroughly before using.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

Nonrefillable containers 5 gallons or less:

Container Reuse: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers larger than 5 gallons:

Container Reuse: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Nonrefillable containers larger than 5 gallons:

Container Reuse: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

General Information

Surmount® herbicide, an emulsifiable liquid product containing picloram and fluroxypyr herbicides, is recommended for the control of woody plants and annual and perennial broadleaf weeds in rangeland and permanent grass pastures, fencerows, non-irrigation ditchbanks, and around farm buildings. Surmount may be applied broadcast as a foliar spray or using individual plant treatment methods. Surmount provides both knockdown of emerged plants and residual soil activity to newly emerging susceptible plants. The duration of this soil activity depends on the species and the applied rate.

Use Precautions and Restrictions

Maximum Application Rate: Do not apply more than 3 quarts per acre of Surmount per acre per year (0.5 lb ae fluroxypyr + 0.5 lb ae picloram). When applying this product sequentially with other products containing fluroxypyr and/or picloram, do not apply more than 0.5 lb ae fluroxypyr per acre per year or more than 0.5 lb ae per acre picloram per year.

Chemigation: Do not apply this product through any type of irrigation system.

Every 2 years starting January 1, 2008, the registrant will offer training to applicators which will cover application techniques and product stewardship particular to their use(s) of this product (Surmount, EPA Registration No. 62719-480). Applicators of this product must be able to provide certification of such training on demand to the State, Tribal or Federal enforcement agent.

Grass, Forage and Tree Tolerance

- **Established grasses are tolerant to this product.**
- Do not use on bentgrass or limpo grass (*Hemarthria*), unless injury or loss of such plants can be tolerated.
- Do not use on alfalfa, or other desirable forbs, especially legumes such as clover, unless injury or loss of such plants can be tolerated. Seeding of some legumes may not be successful if done within one year of application.
- Many woody species are susceptible to this product. Trees can be affected by root uptake of the herbicide from surface soil or by excretion of the herbicide from the roots of nearby treated trees. Do not apply Surmount within the area occupied by roots of desirable trees, unless such injury can be tolerated.
- **When Reseeding Grasses:**
 - When Surmount is applied *before reseeding*, do not reseed treated areas for a minimum of three weeks after application.
 - When Surmount is applied *following reseeding*, to avoid grass injury, do not apply until grass seedlings are well established as indicated by tillering (usually after 4 true leaves have emerged), development of a secondary root system and vigorous growth.
 - Sprigged bermudagrass. Do not apply Surmount until runners (stolons) have reached at least 6 inches in length. Apply only during favorable growing conditions.

Crop Rotation

- **Within 12 months of application, do not rotate to crops other than the following:** range or pasture grasses, grasses for hay or silage, barley, oats, wheat or grain sorghum. Thereafter, other crops may be planted on treated land after an adequately sensitive bioassay shows that the risk of crop injury is within acceptable limits.

Grazing Restrictions

Grazing or harvesting green forage:

- 1) **Lactating dairy animals:** Do not allow lactating dairy animals to graze treated areas and do not harvest forage for consumption by lactating dairy animals within 14 days after application.
 - 2) **Other Livestock:** There are no grazing restrictions for non-lactating dairy animals or other livestock **including horses, sheep, goats, and other animals in the treatment area.**
- **Slaughter Restrictions:** Withdraw livestock from grazing treated grass or consumption of treated hay at least 3 days before slaughter. This restriction is applicable to grazing harvested from treated areas during the same growing season following application.

Residues in Mulch, Manure and Soil

- **Do not transfer livestock** from treated grazing areas onto broadleaf crop areas without first allowing 7 days of grazing on untreated grass pasture. Otherwise, urine and/or manure from grazing animals may contain enough picloram to cause injury to sensitive broadleaf plants.
- **Do not move treated soil, or use treated soil for growing other plants** until soil residues of picloram are no longer detectable as indicated by an adequately sensitive bioassay or chemical test.
- **Do not use grass from treated areas or manure from animals being fed treated forage for composting or mulching of desirable, susceptible broadleaf plants.**

Other Precautions and Restrictions

- **Grazing of Areas Known to Contain Poisonous Plants:** Herbicide application may increase the palatability of certain plants that are poisonous to livestock. Deferment of grazing in treated areas is recommended until such plants are dry and no longer attractive to livestock.
- **Do not mix or apply this product with dry fertilizer.**
- **Do not apply this product to areas that are sub-irrigated by a shallow water table.**
- Do not apply directly to the banks of ditches used for irrigation or domestic purposes. Do not apply directly to water (see Environmental Hazards section).

Avoiding Spray Drift and Run-off to Surface Water or Adjacent Land

This product should be used strictly in accordance with the run-off and drift precautions on this label in order to minimize off-site exposure and potential effects on aquatic organisms and non-target plants.

- **Avoiding Runoff:** Under certain conditions, this product may have a potential to run-off to surface water or adjacent land. Use of vegetation filter strips or treatment setbacks is recommended along rivers, creeks, streams, wetlands, etc or on the downhill side of treated areas where run-off could occur to minimize water runoff.
- **Do not contaminate water intended for irrigation or domestic purposes.** To avoid injury to crops or other desirable plants, do not treat or allow spray drift or run-off to fall onto banks or bottoms of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation or domestic purposes. Do not apply to snow or frozen ground. In particular, application of this product is not recommended to areas where surface runoff following heavy rainfall events soon after application would flow directly into ponds used for irrigation of sensitive broadleaf crops such as tobacco or vegetables. In such situations, it is recommended that this product be applied before the sensitive crop is planted or after it is harvested.

- **Do not use manure** from animals grazing treated areas on land used for growing broadleaf crops, ornamentals, orchards or other susceptible, desirable plants. Manure may contain enough picloram to cause injury to susceptible plants.
- **This product should not be applied in residential areas or near vegetables, fruit production, or ornamental trees and shrubs.** Untreated plants may be affected by root uptake of the herbicide following movement into the topsoil or excretion of the herbicide from the roots of nearby treated plants. Do not apply Surmount within the area occupied by roots of desirable plants, unless such injury can be tolerated.

Spray Drift: Spray drift produced during application is the responsibility of the applicator and care should be taken to minimize off-target movement of spray during application. A drift control agent suitable for agricultural use may be used with this product to aid in reducing spray drift, but the first choice should be a coarser spray category nozzle set-up. If used, follow applicable use directions and precautions on the manufacturer's label.

Do not apply where drift may be a problem due to proximity to susceptible crops or other desirable broadleaf plants. Do not apply or otherwise permit this product or sprays containing this product to contact crops or other desirable broadleaf plants, including but not limited to alfalfa, beans, cotton, grapes, melons, peas, potatoes, safflower, soybeans, sugar beets, sunflower, tobacco, tomatoes, and other vegetable crops, flowers, fruit trees, ornamentals, shade trees or other susceptible broadleaf plants. Do not permit spray mist or drift containing this product to contact susceptible plants because even very small quantities of the spray, that may not be visible, can cause severe injury during either active or dormant periods. Do not use in or around greenhouses.

Ground Application: To minimize spray drift, apply Surmount in a total spray volume of 5 or more gallons per acre using spray equipment designed to produce coarse or larger droplets per ASAE S-572 standard. Refer to the spray equipment manufacturer's recommendations for detailed information on nozzle types, arrangement, spacing and operating height and pressure. Spot treatments should be applied only with a calibrated boom to prevent over application. Operate equipment at spray pressures no greater than is necessary to produce a uniform spray pattern. Operate the spray boom no higher than is necessary to produce a uniformly overlapping pattern between spray nozzles. Do not apply with hollow cone-type insecticide nozzles or other nozzles that produce a fine-droplet spray.

Aerial Application

Rangeland and Permanent Pastures: Both fixed wing and helicopter equipment may be used to apply this product on rangeland, permanent pastures and pine plantations, but fixed wing aircraft require additional drift mitigation measures.

To minimize spray drift, apply Surmount in a total spray volume of 3 or more gallons per acre using spray. Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high potential for temperature inversion. Spray drift from aerial application can be minimized by applying a coarse spray at per USDA-ARS/PAASS or nozzle manufacturer's guidelines or by using straight-stream nozzles directed straight back. Do not operate using a spray boom no longer than 75% of wing span or 85% of rotor width. For fixed wing aircraft, maximum speed during application is limited to 140 mph and application height above the vegetation canopy should not exceed 10 ft.

Do not store or handle other agricultural chemicals with the same containers used for this product. Do not apply other agricultural chemicals or pesticides with equipment used to apply this product unless equipment has been thoroughly cleaned.

Spray Drift Management (Aerial Application)

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. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops.

1. The distance of the outer most nozzles on the boom must not exceed 75% the length of the wingspan or 85% of rotor width.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they shall be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Advisory Information section.

Aerial Spray Drift Advisory Information

Importance of Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest 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 Inversion section of this label).

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 produced larger droplets than other orientations and is the recommended practice. Significant deflection from 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.
- **Boom Length** - For some use patterns, reducing the effective boom length to less than 65% of the wingspan or rotor length may further reduce drift without significantly reducing swath width.
- **Application** - Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

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 aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 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 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: Applications should not occur during a local temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds 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 connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

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).

Application Directions

Agricultural Use Requirements: Follow PPE and Reentry instructions in the "Agricultural Use Requirements" section of this label when applying this product to pastures. Otherwise follow requirements in Non-agricultural Use Requirements section.

Woody Plant Control

Applied as directed, Surmount controls or suppresses the following woody plants and vines:

acacia, twisted	locust, black	rose, Macartney
aspen	locust, honey	rose, multiflora
blackberry	maple	rose, wild
cactus species	mulberry	sage
cedar, Eastern red [†]	myrtle, wax	sagebrush, sand
cholla	Osage-orange (Bois d'arc or hedge)	sumac, flameleaf
cottonwood		sumac, skunkbush
dogwood	persimmon, eastern	sumac, smooth
elms	persimmon, Texas	tallowtree, Chinese
hackberry	plum, wild	tasajillo
hawthorn	poplars	
hickory	pricklyash	
honeysuckle	pricklypear,	
huisache	lindheimer	
juniper, ashe	pricklypear, plains	

[†] Plants greater than 3 feet tall will not be controlled.

Broadcast Application

General Woody Plant Control: Apply Surmount when conditions are favorable for active growth, but only after leaves are fully expanded and terminal growth has slowed. Application to immature foliage during periods of rapid terminal growth will result in rapid defoliation, but translocation of the herbicide and woody plant control may be reduced. If brush has been mowed, best results are obtained when at least 9 to 12 months regrowth following mowing is allowed before herbicide application (12 months is recommended in areas where growth conditions such as low rainfall have limited brush regrowth following mowing). Adequate soil moisture before and after treatment as well as healthy foliage at the time of application is important for optimal effectiveness. Surmount will control broadleaf plants that are emerged at the time of application, and may also suppress or control emerging seedlings.

Apply at the specified rate (3 – 6 pints per acre, unless otherwise specified) in 5 or more gallons of water per acre by air or 10 or more gallons per acre by ground equipment. Use higher spray volumes to ensure adequate foliar coverage where brush canopy is dense. If applied in tank mix, follow applicable use directions, precautions and limitations on the respective labels (See instructions for tank mixing under "Mixing Directions"). The optimal rate of Surmount will depend on brush size as well the species. For smaller brush (less than about 6 feet tall), 3-4 pints/acre will be sufficient. For larger brush and mixed brush canopies, apply 4-6 pints/acre.

Use of Surfactant: A nonionic surfactant or liquid fertilizer at 1-2 quarts per 100 gallons spray solution (0.25% – 0.5% v/v) may improve woody plant control for either broadcast or spot application, especially if plants are drought-stressed. To minimize spray drift, a drift control and deposition aid cleared for application to growing crops is also recommended.

Instructions for Specific Woody Plants:

Woody Plants Controlled	Broadcast Rate (pt/acre)	Application Timing:
Blackberry	3 – 4 [†]	Apply when leaves are fully expanded and the foliage is dark green, either before first flower or after fruit drop. Application after fruit drop is preferred. Do not treat blackberries in the same year after mowing, shredding, or burning. Even one year after removal of top growth, blackberry stands will be more difficult to control than undisturbed stands and will require retreatment.
Chinese tallowtree	3 – 6	Apply in spring or fall when conditions are favorable for plant growth. Thorough and uniform spray coverage is required. Use a spray volume of 20-25 gallons per acre for ground or 5 or more gallons per acre for aerial equipment.
Cholla, other cactus species	3 – 6	Apply in the spring or early summer using ground broadcast equipment.
Locust, black	3 – 6	Apply in spring when leaves are fully expanded and foliage is mature.
Locust, honey	3 – 4 [†]	Apply in spring when leaves are fully expanded and foliage is mature.
Osage-orange (Bois d'arc or Hedge)	3 – 4 [†]	Apply in late spring through summer to mature foliage

Instructions for Specific Woody Plants: (Cont.)

Woody Plants Controlled	Broadcast Rate (pt/acre)	Application Timing:
Persimmon	3 – 6	Apply in late summer through fall under favorable growing conditions
Prickly pear	3 – 4 [†]	Avoid application in extremely cold weather. Fall application usually most effective. Do not spray when pads or stems are wet. Mechanical injury that punctures the surface of prickly pear pads or stems immediately before application may improve control. Die back of prickly pear will be slow, and can take up to 2 to 3 years.

[†]Increase the rate to 6 pints per acre if brush is large and/or dense.

Individual Plant Treatment Methods

Individual Plant Treatment Method and Target Woody Plant(s)	Application Rate
High-Volume Foliar Treatment of Individual Plants Using Ground Equipment (Not recommended for brush greater than 8 feet tall): All listed woody plants except as noted in Control of Specific Perennial Plants below	1 to 2 gallons of Surmount/100 gallons of spray (1-2 % v/v) plus 1 to 2 quarts of non-ionic surfactant

Specific Use Instructions:

General Information for Woody Plant Control: Optimum timing period is late spring, after leaves are fully expanded and terminal growth has slowed, through early fall. Application to immature foliage during periods of rapid terminal growth will result in rapid defoliation, but translocation of the herbicide and woody plant control may be reduced. Adequate soil moisture before and after treatment as well as healthy foliage (not reduced by insect or storm damage) at the time of application is important for optimal effectiveness. Avoid application during cold weather. Application is recommended when daily maximum air temperature has exceeded 50°F for three consecutive days.

For control of brush regrowth, apply only after regrowth is at least 4 ft tall to insure adequate foliage for herbicide absorption. Follow instructions for General Information for woody Plant Control above.

Application: Apply with a backpack or power sprayer using sufficient spray pressure to provide uniform plant coverage without forming a mist and direct spray no higher than tops of target woody plants. Use sufficient spray volume to uniformly wet all leaves, stems, and root collars (pad surfaces and stems in the case of prickly pear or other cactus), but avoid runoff. To minimize spray drift, a drift control additive approved for growing crops is recommended. A dye marker may be added to the spray mixture as a means of marking treated plants.

Use of a nonionic surfactant at the recommended rate (usually 0.25% to 0.5% v/v) may improve herbicidal efficacy and is recommended.

Control of Specific Woody Plants or Cactus:

Chinese tallowtree: Best results may be expected on trees under 8 feet tall. Use 0.5% to 1% (volume/volume) spray solution of Surmount. Spray between July and September, before leaves have begun to turn yellow. Wet all leaves thoroughly, especially the terminal buds of each branch. Avoid treatment when leaves are wet or during periods of rapid new growth.

Huisache: Use a 1.0% v/v solution in water. Fall application works best. Wet all leaves thoroughly, especially the terminal buds of each branch. Avoid spray when leaves are wet or during periods of rapid new growth.

Locust (black or honey): Use a 0.5% to 1.0% v/v solution of Surmount in water. Apply in spring, when leaves are mature.

Prickly pear: Use a 0.5% to 1.0% v/v solution of Surmount in water. A coarse droplet size applied with an adjustable cone nozzle is recommended. Application may be made any time of year, but fall application may be most effective. Treatment effects are slow to appear and total plant kill may require 2 to 3 years. Do not spray when the plants are wet. Mechanical injury such as bruising or puncturing of the pricklypear pad surfaces may speed up and improve control.

Macartney rose: Use a 0.5% to 1.0% v/v solution of Surmount in water. Delay treatment for 9-12 months after mowing. Apply in spring or fall to Macartney rose plants greater than 3 feet tall.

Multiflora rose: Use a 1% to 1.5% v/v solution of Surmount in water. Apply from budding through flowering. Delay treatment for 9-12 months after mowing.

Maximum Use Rate: For individual plant treatment with high-volume foliar sprays, do not apply more than 3 pints of Surmount per acre per year. This is equivalent to 37 gallons of total spray mixture per acre at the 1 gallon Surmount /100 gallons rate or 18.5 gallons of total spray mixture per acre at the 2 gallons Surmount/100 gallons rate.

Mixing Chart for High-Volume Foliar Spray (Label rate range is 1 to 2 gallons per 100 gallons or 1-2% v/v)			
Total Volume of Spray Mixture (gallons)	Amount of Herbicide Required at Specified Rate		Amount of Surfactant (0.25% v/v)
	1 gal/ 100 gal (1% v/v)	2 gal/ 100 gal (2% v/v)	
400	4 gal	8 gal	1 gallon
100	4 qt	8 qt	1 qt
50	4 pt	8 pt	1 pt
25	2 pt	4 pt	8 fl oz
14	18 fl oz	36 fl oz	4.5 fl oz
10	12.8 fl oz	25.6 fl oz	3.2 oz
5	6.4 fl oz	12.8 fl oz	1.6 fl oz
3	4 fl oz	8 fl oz	1 fl oz

Broadleaf Weed Control

General: For best results, use 1.5 pt/acre and apply when weeds are small and actively growing, but before bud stage of growth. Use 2 pt/acre when weed density is high, weed growth is mature, or conditions for plant growth are less than optimum.

Broadleaf Weeds Controlled

bedstraw (cleavers)	grape species	purslane, common
bindweed, field	groundsel	ragweed, common
blackberry	(<i>Senecio</i> spp.)	ragweed, giant
buckwheat, wild	hemp dogbane	ragweed, lanceleaf
buffalobur	horsenettle,	ragweed, western
bullnettle	Carolina (1)	smartweed
bursage	horsenettle, western	sneezeweed, bitter
(bur ragweed)	horsetail, field	soda apple, tropical
camphorweed	horseweed	sunflower
chickweed	ironweed,	thistle, bull
clover, white	western (2)	thistle, musk (5)
cockle, white	knotweed	thistle, plumeless (5)
cocklebur	kochia (3)	thistle, Russian
coffeeweed	lambsquarters,	thistle, scotch
coneflower,	common	thistles, biennial
upright prairie	lespedeza,	thistle, yellow spine
croton species	sericea (4)	velvetleaf
dock, curly	loco, Woolly	venice mallow
dogfennel	locoweeds	vervain, blue
(cypressweed)	mallow, common	vervain, hoary
garbancillo	marestail	wormwood, absinth
(Wooton loco)	marshelder	yankeeweed
goldenrod	(sumpweed)	yarrow
goldenweed,	morningglory	
common	nightshade species	
goldenweed,	pennycress, field	
Drummond's	pigweed	
(<i>Isocoma</i> spp.)	puncturevine	

Numbers in parentheses (-) refer to specific use directions.

Specific Use Directions:

- (1) **Horsenettle, Carolina:** Apply 1.5 to 2 pints/acre after emergence, during active growth before flowering.
- (2) **Ironweed, western:** Apply at the rate of 2 - 2.5 pints per acre to fully emerged ironweed that is actively growing.
- (3) **Kochia:** Apply at the rate of 2 - 2.5 pints per acre when kochia is less than 18 inches tall.
- (4) **Lespedeza, sericea:** For best results, apply at the rate of 2 pints per acre in late spring to early summer after maximum foliage development, when plants are 12 - 15 inches tall, but prior to bloom stage. Increase rate to 2.5 pints per acre for dense stands or later stages of growth.
- (5) **Thistle, musk and plumeless (Spring application):** Apply 1.5 to 2 pints/acre at rosette to early bolting stage. **Fall application:** Apply 2 to 2.5 pints/acre after emergence while active growth continues. (Fall application will provide some residual control into the following spring).

Application to Small Areas

Treatments may be applied with a calibrated boom or with hand-held sprayers according to directions provided below.

Hand-Held Sprayers: Hand-held sprayers may be used for applications to small areas where use of a power-operated boom sprayer is not practical. Care should be taken to apply the spray uniformly and at a rate equivalent to a broadcast application. Application rates in the table are based on a treatment area of 1,000 sq ft. Mix the amount of Surmount (fl oz or ml) corresponding to the specified broadcast rate in the spray volume needed to cover 1000 sq ft. To calculate the amount of Surmount required for larger areas, multiply the table value (fl oz or ml) by the number of thousands of sq ft of area to be treated. An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size.

Rate Conversion Table for Small Area Treatment:

1.5 pt/acre	2.0 pt/acre	2.5 pt/acre	3.0 pt/acre
0.6 fl oz (17 ml)	0.75 fl oz (22 ml)	0.9 fl oz (27.5 ml)	1.1 fl oz (33 ml)

Conversion factors: 1 pt = 16 fl oz; 1fl oz = 29.6 (30) ml

Mixing Directions

Surmount may be foliar applied by diluting with water or by preparing an oil-water emulsion. For woody plant control, an oil-water emulsion will perform more dependably under a broader range of conditions than mixing with water alone and is especially recommended for aerial applications.

Ground Application: Add oil to the spray mix at a rate of 5 to 10% of the total mix, up to a maximum of 1 gallon of oil per acre, using agricultural spray emulsifiers according to mixing instructions below.

Aerial Application: Use oil and water in the spray mixture in a 1:5 ratio (1 part oil to 5 parts water), up to a maximum of 1 gallon of oil per acre according to mixing instructions below.

Dilution with Water: For water dilutions, use of an agricultural surfactant at a minimum of 0.25% (1 quart per 100 gallons) of the total spray mix volume may be added to the spray mixture to improve wetting of foliage. A drift control and deposition aid cleared for application to growing crops is recommended to minimize spray drift.

Oil-Water Emulsion: An oil-water emulsion may be prepared using diesel fuel, fuel oil, or kerosene plus an emulsifier such as Sponto 712 or Triton X-100. Follow mixing instructions on the label for the emulsifier. To avoid mixing compatibility problems, use the jar test described below verify the compatibility of the spray mixture.

Tank Mixing

Surmount may be applied in tank mix combination with labeled rates of other herbicides provided (1) the tank mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank mix product.

Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed recommended application rates. If products containing the same active ingredient are tank mixed, do not exceed the maximum allowable active ingredient use rates.
- For direct injection or other spray equipment where the product formulations will be mixed in undiluted form, special care should be taken to ensure tank mix compatibility.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

Tank Mix Compatibility Testing: A jar test is recommended prior to tank mixing to ensure compatibility of Surmount and other herbicides or spray carriers. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludges, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

Mixing Order:

1. Add half the needed water to the mixing tank and start agitation.
2. Add water soluble herbicide (if used).
3. Prepare a premix of oil, emulsifier (if oil-water emulsion), and Surmount plus other oil-soluble herbicide (if used), e.g. 2,4-D ester. Continue agitation and add premix to the spray tank. **Note:** Do not allow water or mixtures containing water to get into the premix or Surmount since a thick "invert" (water in oil) emulsion may be formed that will be difficult to break. Such an emulsion may also be formed if the premix or Surmount is put in the mixing tank before the addition of water.
4. Add the remaining water. Also during final filling of the tank add a drift control and deposition aid cleared for application to growing crops (if used), plus an agricultural surfactant (if a water dilution rather than an oil-water emulsion spray is used).

Continuous agitation of the spray mixture during both mixing and application is necessary to ensure spray uniformity.

Mixing with Liquid Fertilizer for Broadleaf Weed Control

Surmount may be combined with liquid nitrogen fertilizer suitable for foliar application to accomplish weed control and fertilization of grass pastures in one operation. Use Surmount in accordance with recommendations for weed control in grass pastures as given on this label. Use liquid fertilizer at rates recommended by supplier or Extension Service Specialist. **Note:** Surmount is not recommended for use with liquid fertilizer on woody plants (brush). Foliage burn caused by liquid fertilizer may reduce herbicide effectiveness on woody plants.

Compatibility with Liquid Fertilizer: Prior to mixing in spray tank, conduct a "jar test" for spray mixture compatibility by mixing each component in the required order and proportion in a clear glass jar. See procedure for Tank Mixing Compatibility Testing, above. A compatibility aid such as Unite or Compex may be needed in some situations. **Compatibility is best with straight liquid nitrogen fertilizer solutions. Mixing with N-P-K solutions or suspensions may not be satisfactory even with the addition of compatibility aid.** Premixing Surmount with 1 to 4 parts water may help in difficult situations.

Fill in the spray tank about half-full with the liquid fertilizer, then add the herbicide with agitation and complete filling the tank with fertilizer. Apply immediately and continue agitation in the spray tank during application.

Precautions: Do not store liquid fertilizer spray mixtures. Application with liquid fertilizer during very cold weather (near freezing) is not advisable. The likelihood of mixing or compatibility problems with liquid fertilizer increases under cold conditions.

Note: Do not use broadcast spray equipment used for application of Surmount for other applications to susceptible crops or desirable plants, or land planted to such plants, **unless** it has been determined that all herbicide residues have been removed by thorough cleaning of the equipment.

Cleaning Instructions for Spray Equipment

To avoid injury to desirable plants, equipment used to apply Surmount should be thoroughly cleaned before reusing to apply any other chemicals.

1. Rinse and flush application equipment thoroughly after use. Flush the entire system at least three times with water, and dispose of rinse water in non-cropland area away from water supplies.
2. During the second rinse, add 1 qt of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 min.). Let the solution stand for several hours, preferable overnight.
3. Flush the solution out the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Nozzles and screens should be removed separately.

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