

Specimen Label



Sendero™

Specialty Herbicide

™Trademark of Dow AgroSciences LLC

- For control of mesquite, associated brush species, and susceptible weeds, including invasive and noxious weeds, on rangeland, permanent grass pastures, Conservation Reserve Program (CRP) acres, non-cropland areas, non-irrigation ditch banks, natural areas (such as wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads and trails), and grazed areas in and around these sites.

Hay from grass treated with Sendero within the preceding 18-months can only be used on the farm or ranch where the product is applied unless allowed by supplemental labeling

IMPORTANT USE PRECAUTIONS AND RESTRICTIONS TO PREVENT INJURY TO DESIRABLE PLANTS

- Carefully read the section **"Restrictions in Hay or Manure Use ."**
- It is mandatory to follow the **"Use Precautions and Restrictions"** section of this label.
- Manure and urine from animals consuming grass or hay treated with this product may contain enough aminopyralid to cause injury to sensitive broadleaf plants.
- Hay can only be used on the farm or ranch where product is applied unless allowed by supplemental labeling.
- Consult with a Dow AgroSciences representative if you do not understand the "Use Precautions and Restrictions". **Call [1-(800) 263-1196] Customer Information Group.**

Forage and Manure Management

Rangeland, Pasture, Hayfield, CRP

Manure, Hay, Bedding

Compost

Rangeland, Pasture, Wheat, CRP, Corn

Potato, Lettuce, Beans, Tomato, etc.

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Not For Sale, Distribution, or Use in New York State.

GROUP	4	HERBICIDE
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Active Ingredient:

Potassium salt of 2-pyridine carboxylic acid, 4-amino-3,6-dichloro-.....	6.02%
Monoethanolamine salt of 3,6-dichloro-2-pyridinecarboxylic acid	30.82%
Other Ingredients	63.16%
Total	100.00%

Acid Equivalent:
 clopyralid (3,6-dichloro-2-pyridinecarboxylic acid) – 23.4% - 2.3 lb/gal
 aminopyralid (2-pyridine carboxylic acid, 4-amino-3,6-dichloro-) – 5.08% - 0.5 lb/gal
 EPA Reg. No. 62719-645

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Causes Moderate Eye Irritation • Harmful If Inhaled Or Absorbed Through Skin

Avoid contact with eyes, skin or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Protective eyewear

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.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

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

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

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards

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 disposing of equipment washwater or rinsate.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Clopyralid is a chemical which can travel (seep or leach) through soil and under certain conditions contaminate groundwater which may be used for irrigation or drinking purposes. Users are advised not to apply clopyralid where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow, or to soils containing sinkholes over limestone bedrock, severely fractured surfaces, and substrates which would allow direct introduction into an aquifer. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

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.

Not For Sale, Distribution, or Use in New York State.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material as polyethylene or polyvinyl chloride
- 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 does not pertain to non-agricultural use on sites, such as, rangeland, permanent grass pastures, or non-cropland. See the Agricultural Use Requirements section below for information where the WPS applies.

Entry Restrictions for Non-WPS Uses: For applications on rangeland and permanent grass pastures (not harvested for hay) and non-cropland areas, do not enter or allow worker entry into treated areas until sprays have dried.

Storage and Disposal

Do not contaminate water, food, feed or fertilizer by storage or disposal. Open dumping is prohibited.

Pesticide Storage: If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized active ingredient prior to use.

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

Nonrefillable containers 5 gallons or less:

Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

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 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 Handling: 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. 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.

Storage and Disposal (Cont.)

Nonrefillable containers larger than 5 gallons:

Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

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 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.

Resistance Management Guidelines

- Development of plant populations resistant to this herbicide mode of action is usually not a problem on rangeland, permanent grass pastures, Conservation Reserve Program (CRP), or non-cropland sites since these sites receive infrequent pesticide applications.
- In croplands, use an effective integrated pest management (IPM) program, integrating tillage or other mechanical methods, crop rotation or other cultural control methods into weed control programs whenever practical.
- Similar looking biotypes of a given weed species occurring in a treated area may vary in their susceptibility to a herbicide. Application of a herbicide below its labeled rate may allow more tolerant weeds to survive and a shift to more tolerant biotypes within the treated area.
- Where identified, spreading of resistant weeds to other fields may be prevented by cleaning harvesting and tillage equipment before moving to other areas and by planting weed-free seed.
- Contact your extension specialist, certified crop consultant, or Dow AgroSciences representative for the latest resistance management information.

Sendero™ specialty herbicide may be used for control of mesquite, associated brush species, and susceptible weeds, including invasive and noxious weeds, on rangeland, permanent grass pastures, Conservation Reserve Program (CRP) acres, non-cropland areas, non-irrigation ditch banks, natural areas (such as wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads and trails), and grazed areas in and around these sites.

Hay from grass treated with Sendero within the preceding 18-months can only be used on the farm or ranch where the product is applied unless allowed by supplemental labeling.

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands (such as flood plains, deltas, marshes, swamps, or bogs) and transitional areas between upland and lowland sites. Sendero can be used to the waters edge. Do not apply directly to water and take precautions to minimize spray drift onto water.

Use Precautions and Restrictions

Consult with a Dow AgroSciences representative if you do not understand the "Use Precautions and Restrictions." Call (1-800-263-1196) for more information.

Pasture and Rangeland Restrictions

- **Do not use grasses treated with Sendero in the preceding 18-months for hay intended for export outside the United States.**
- **Hay from areas treated with Sendero in the preceding 18-months CANNOT be distributed or made available for sale off the farm or ranch where harvested unless allowed by supplemental labeling.**

- **Hay from areas treated with Sendero in the preceding 18-months CANNOT be used for silage, haylage, baylage and green chop unless allowed by supplemental labeling.**
- **Do not move hay made from grass treated with Sendero within the preceding 18-months off farm unless allowed by supplemental labeling.**
- **Do not use hay or straw from areas treated with Sendero within the preceding 18-months or manure from animals feeding on hay treated with Sendero in compost.**
- **Do not use grasses treated with Sendero in the preceding 18-months for seed production.**

Maximum Application Rate: On all labeled use sites do not broadcast apply more than 1.75 pints per acre of Sendero per year. The total amount of Sendero applied broadcast, as a re-treatment, and/or spot treatment cannot exceed 1.75 pints per acre per year.

- **Avoiding Injury to Non-Target Plants:** Do not aerially apply Sendero within 50 feet of a border downwind (in the direction of wind movement), or allow spray drift to come in contact with, any broadleaf crop or other desirable broadleaf plants, including, but not limited to, alfalfa, cotton, dry beans, flowers, grapes, lettuce, potatoes, radishes, soybeans, sugar beets, sunflowers, tobacco, tomatoes or other broadleaf or vegetable crop, fruit trees, ornamental plants, or soil where sensitive crops are growing or will be planted. Avoid application under conditions that may allow spray drift because very small quantities of spray may seriously injure susceptible crops. Read and consider the "Precautions for Avoiding Spray Drift and Spray Drift Advisory" at the end of this label to help minimize the potential for spray drift.
- **Sendero is highly active against certain broadleaf plant species.** Do not use this product on areas where loss of broadleaf plants, including legumes, cannot be tolerated.
- **Chemigation:** Do not apply this product through any type of irrigation system.
- **Do not contaminate water intended for irrigation or domestic purposes.** Do not treat inside 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 this product to lawns, turf, ornamental plantings, urban walkways, driveways, tennis courts, golf courses, athletic fields, commercial sod operations, or other high-maintenance, fine turfgrass areas, or similar areas.
- Trees adjacent to or in a treated area can occasionally be affected by root uptake of Sendero. Do not apply Sendero within the root zone of desirable trees unless such injury can be tolerated. Use special caution near roses, and leguminous trees such as locusts, redbud, mimosa, and caragana.
- Applications made during periods of intense rainfall, to soils saturated with water, surfaces paved with materials such as asphalt or concrete, or soils through which rainfall will not readily penetrate may result in runoff and movement of Sendero. Injury to crops may result if treated soil and/or runoff water containing Sendero is washed, or moved onto land used to produce crops. Exposure to Sendero may injure or kill susceptible crops and other plants, such as grapes, soybeans, tobacco, sensitive ornamentals. Do not treat frozen soil where runoff could damage sensitive plants.
- **Grass revegetation:**
 - Sendero can be used to control broadleaf plants in grass revegetation programs where desirable rangeland or reclamation grass species are being established in rangeland, permanent grass pastures, CRP, non-cropland, or other areas. Consult Dow AgroSciences' literature for more details about Sendero applications and grass stand establishment.
- **Application before seeding grasses**
 - Sendero can be applied in the spring through fall to control broadleaf weeds prior to grass planting. Grasses can be seeded as a dormant planting (in the late fall or early winter) in the year of application or grasses can be seeded the following spring. The grasses should be planted when soil temperatures are low enough to ensure that the seeds will not germinate and emerge until the following spring.
- **Postemergence applications on grass:** During the season of establishment, Sendero should be applied only after perennial grasses are well established (have developed a good secondary root system and show good vigor. Most perennial grasses are tolerant to Sendero at this stage of development. Sendero may suppress certain established grasses, such as smooth bromegrass (*Bromus*

inermis), especially when plants are stressed by adverse environmental conditions. Plants should recover from this transient suppression with the onset of environmental conditions favorable to grass growth and upon release from weed competition.

- Grass seed germination and seedling development can be adversely effected by many factors such as seed viability and seedling vigor, soil condition (sub-optimal soil temperatures or soil water content), weather after planting, seedbed preparation and seed placement, disease, insects, or animals. Sendero applications will help to reduce competition from weeds and improve the chance for successful grass stand establishment. Some grass species are more sensitive to Sendero; consult Dow AgroSciences' literature for more details.

- **Seeding Legumes:** Do not plant forage legumes until a soil bioassay has been conducted to determine if aminopyralid concentration remaining in the soil will adversely affect the legume establishment.

- **Grazing and Haying Restrictions:** There are no restrictions on grazing or grass hay harvest following application of Sendero at labeled rates. Cutting hay too soon after spraying weeds will reduce weed control. Wait 14 days after herbicide application to cut grass hay to allow herbicide to work. Do not transfer grazing animals from areas treated with Sendero to areas where sensitive broadleaf crops occur without first allowing 3 days of grazing on an untreated pasture. Otherwise, urine and manure may contain enough aminopyralid to cause injury to sensitive broadleaf plants.

- **Grazing Poisonous Plants:** Herbicide application may increase palatability of certain poisonous plants. Do not graze treated areas until poisonous plants are dry and no longer palatable to livestock.

- **Restrictions in Hay or Manure Use:**

- ◆ Do not use treated plant residues, including hay or straw from areas treated within the preceding 18-months, in compost, mulch or mushroom spawn.

- ◆ Do not use manure from animals that have grazed forage or eaten hay harvested from treated areas within the previous 3 days, in compost, mulch or mushroom spawn.

- ◆ Do not spread manure from animals that have grazed or consumed forage or eaten hay from treated areas within the previous 3 days on land used for growing susceptible broadleaf crops.

- ◆ Manure from animals that have grazed forage or eaten hay harvested from aminopyralid-treated areas within the previous 3 days may only be used on pasture grasses, grass grown for seed, wheat and corn.

- ◆ Do not plant a broadleaf crop (including soybeans, sunflower, tobacco, vegetables, field beans, peanuts, and potatoes) in fields treated with manure from animals that have grazed forage or eaten hay harvested from aminopyralid-treated areas until an adequately sensitive field bioassay is conducted to determine that the aminopyralid concentration in the soil is at level that is not injurious to the crop to be planted.

- ◆ Do not plant a broadleaf crop in fields treated in the previous year with manure from animals that have grazed forage or eaten hay harvested from aminopyralid-treated areas until an adequately sensitive field bioassay is conducted to determine that the aminopyralid concentration in the soil is at level that is not injurious to the crop to be planted.

- ◆ To promote herbicide decomposition, plant residues should be evenly incorporated in the surface soil or burned. Breakdown of aminopyralid in plant residues or manure is more rapid under warm, moist soil conditions and may be enhanced by supplemental irrigation.

- **Crop Rotation:** Do not rotate to any crop from rangeland, permanent pasture or CRP acres within one year following treatment. Cereals and corn can be planted one year after treatment. Most broadleaf crops are more sensitive and can require **at least 2 years** depending on the crop and environmental conditions. Do not plant a broadleaf crop until an adequately sensitive field bioassay shows that the level of aminopyralid present in the soil will not adversely affect that broadleaf crop.

Field Bioassay Instructions: In fields previously treated with this product, plant short test rows of the intended rotational crop across the original direction of application in a manner to sample variability in field conditions such as soil texture, soil organic matter, soil pH, rainfall

pattern or drainage. The field bioassay can be initiated at any time between harvest of the treated crop and the planting of the intended rotational crop. Observe the test crop for symptoms of herbicidal activity, such as poor stand (effect on seed germination), chlorosis (yellowing), and necrosis (dead leaves or shoots), or stunting (reduced growth). If herbicidal symptoms do not occur, the test crop can be grown. If there is apparent herbicidal activity, do not plant the field to the intended rotational crop; plant only to wheat, forage grasses, native grasses or grasses grown for hay.

Sprayer Clean-Out Instructions

It is recommended to use separate spray equipment on highly sensitive crops such as tobacco, soybeans, peanuts and tomatoes.

Do not use spray equipment used to apply Sendero for other applications to land planted to, or to be planted to, broadleaf plants unless it has been determined that all residues of this herbicide have been removed by thorough cleaning of equipment.

Equipment used to apply Sendero should be thoroughly cleaned before reusing to apply any other chemicals as follows:

1. Rinse and flush application equipment thoroughly after use. Dispose of rinse water in non-cropland area away from water supplies.
2. Rinse a second time, adding 1 quart of household ammonia or tank cleaning agent for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 minutes). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Spray nozzles and screens should be removed and cleaned separately.

- Do not apply this product with mist blower systems that deliver very fine spray droplets. Use of mist blower equipment can reduce control achieved with the herbicide and increase spray drift potential.

Application Methods

Apply the specified rate of Sendero as a coarse low-pressure spray. Do not apply this product with mist blower systems that deliver very fine spray droplets. Spray volume should be sufficient to uniformly cover foliage. Increase spray volume to ensure thorough and uniform coverage when target vegetation is tall and/or dense. To enhance foliage wetting and coverage, an approved non-ionic agricultural surfactant may be added to the spray mixture as specified by the surfactant label.

Ground Broadcast Application: Higher spray volumes (greater than 10 gallons per acre) generally provide better coverage and better control, particularly in dense and/or tall foliage.

Aerial Broadcast Application: Do not apply less than 2 gallons per acre total spray volume. Five gallons per acre or greater will generally provide better coverage and better control, particularly in dense and/or tall foliage.

High-Volume Foliar Application: High volume foliar treatments may be applied at rates equivalent to a maximum of 1.75 pints per acre per annual growing season. Use sufficient spray volume to thoroughly and uniformly wet foliage and stems.

Spot Application: Spot treatments may be applied at an equivalent broadcast rate of up to 0.61 lb acid equivalent (1.75 pints of Sendero) per acre per annual growing season. Do not apply more than a total of 0.61 lb acid equivalent (1.75 pints) per acre of Sendero per annual growing season as a result of broadcast, spot or repeat applications. Spray volume should be sufficient to thoroughly and uniformly wet weed foliage, but not to the point of runoff. Repeat treatments may be made, but the total amount of Sendero applied must not exceed 1.75 pints per acre per year. To prevent misapplication, spot treatments should be applied with a calibrated sprayer.

Note: Table 1 below shows mixes for various sprayer outputs in gallons per acre (GPA).

Table 1: Amount of Sendero (in mL) to mix in 1 gallon of water

Gallons per acre	Sendero amount (in mL) to mix with various application rates
GPA	1.75 pints/a
15	28.4
30	14.2
40	10.6

Use a syringe to measure cc

Conversions:

1 tsp = 5 mL 30 ml = 1 fluid ounce 1 cc = 1 mL
 3 tsp = 1 Tbsp 2 Tbsp = 1 fluid ounce

Table 2: Application rates in the table below are based on treating an area of 1000 sq ft. An area of 1000 sq ft is about 10.5 by 10.5 yards in size. Mix the amount of Sendero (fl oz or milliliters) corresponding to the desired broadcast rate in 0.5 to 2.5 gallons of water, depending upon the spray volume required to treat 1000 sq ft. A delivery volume of 0.5 to 2.5 gallons per 1000 sq ft is equivalent to 22 to 109 gallons per acre.

Table 2: Amount of Sendero per 1000 sq ft to Equal Broadcast Rate

Amount of Sendero per 1000 sq ft to Equal Broadcast Rate		
Broadcast Rate (pints/acre)	Amount of Sendero per 1000 sq ft	
	(fl oz)	(Milliliters)
0.75	0.27	8
1	0.36	10.7
1.75	0.63	18.7

Note: 1 fluid ounce (fl oz) = 29.6 milliliters (mL) = 2 tablespoons = 6 teaspoons

To calculate the amount of Sendero for areas larger than 1000 sq ft: Multiply the table value (fl oz or milliliters) by the area to be treated in "thousands" of square feet. For example, if the area to be treated is 3500 sq ft, multiply the table value by 3.5 (3500 sq ft divided by 1000 sq ft = 3.5).

Mixing Instructions

Mixing with Water: To prepare the spray, add about half the required amount of water in the spray tank. Then, with agitation, add the specified amount of Sendero and other registered tank mix herbicides. Finally, with continued agitation, add the rest of the water and additives such as surfactants or drift control and deposition aids.

Addition of Surfactants or Adjuvants on All Labeled Use Sites

(Excluding Mesquite and Associated Woody Plants): The addition of a high quality non-ionic surfactant (of at least 80% active ingredient) at 0.25 to 0.5 % volume per volume (1 to 2 quarts per 100 gallons of spray) is recommended to enhance herbicide activity under adverse environmental conditions (such as, high temperature, low relative humidity, drought conditions, dusty plant surfaces) or when weeds are heavily pubescent or more mature.

Addition of Surfactants or Adjuvants on Mesquite and Associated Woody Plants:

Suggested surfactants for ground or aerial applications of Sendero for the control of mesquite and associated woody plants include water plus non-ionic surfactant with at least 80% active ingredient, crop oil concentrate, or methylated seed oil at the manufacturers specified rates.

Tank Mixing with Other Herbicides: Sendero at rates of up to 1.75 pints per acre may be mixed with labeled rates of other herbicides registered for application on all labeled use sites. Sendero 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) mixing is not prohibited by the label of the registered tank mixed products, and (3) that the tank mix combination is physically compatible (see tank mix compatibility testing below). When tank mixing, use only in accordance with the restrictions, precautions and limitations on the respective product labels.

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed specified application rates. If products containing the same active ingredient are 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: Perform a jar test prior to mixing in a spray tank to ensure compatibility of Sendero and other pesticides or carriers. Use a clear glass jar with lid and mix ingredients in the same order and proportions as will be used in the spray tank. The mixture is compatible if the materials mix readily when the jar is inverted several

times. The mixture should remain stable after standing for 1/2 hour or, if separation occurs, should readily remix if agitated. An incompatible mixture is indicated by separation into distinct layers that do not readily remix when agitated and/or the presence of flakes, precipitates, gels, or heavy oily film in the jar. Use of an appropriate compatibility aid may resolve mix incompatibility. If the mixture is incompatible do not use that tank mix partner in tank mixtures.

Mixing with Sprayable Liquid Fertilizer Solutions: Sendero is usually compatible with liquid fertilizer solutions. It is anticipated that Sendero will not require a compatibility agent for mixing with fertilizers; however, a compatibility test (jar test) should be made prior to mixing. Jar tests are particularly important when a new batch of fertilizer or pesticide is used, when water sources change, or when tank mixture ingredients or concentrations are changed. Compatibility may be determined by mixing the spray components in the desired order and proportions in a clear glass jar before large scale mixing of spray components in the spray tank.

Note: The lower the temperature of the liquid fertilizer, the greater the likelihood of mixing problems. Use of a compatibility aid may be required if Sendero is mixed with a 2,4-D-containing product and liquid fertilizer. **Mixing Sendero and 2,4-D in N-P or N-P-K liquid fertilizer solutions is more difficult than mixing with straight nitrogen fertilizer and should not be attempted without first conducting a successful compatibility jar test.** Agitation in the spray tank must be vigorous to be comparable with jar test agitation. Apply the spray mixture the same day it is prepared while maintaining continuous agitation. Rinse the spray tank thoroughly after use.

Note: Foliar-applied liquid fertilizers themselves can cause yellowing of the foliage of forage grasses and other vegetation.

Use Rates and Timing

Sendero may be applied post emergence as a broadcast spray or as a spot application to control mesquite, associated brush species, and weeds including, but not limited to, those listed on this label. When a rate range is given use the higher rate to control weeds at advanced growth stages, or under less than favorable growing conditions, or for longer residual control. Best results are obtained when spray volume is sufficient to provide uniform coverage of treated weeds. For optimum uptake and translocation of Sendero, avoid mowing, haying, shredding, burning or soil disturbance in treated areas for at least 14 days following application.

Sendero also provides preemergence control of emerging seedlings of susceptible weeds, and re-growth of certain perennial weeds following application. Preventing establishment of weeds will depend upon application rate, season of application, and environmental conditions after application.

Sendero can provide long-term control of susceptible weeds. The length of control is dependent upon the application rate, condition and growth stage of target weeds, environmental conditions at and following application, and the density and vigor of competing desirable vegetation. Long-term weed control is most effective where grass vegetation is allowed to recover from overgrazing, drought, etc., and compete with weeds.

Sendero can be an important component of integrated vegetation management programs designed to renovate or restore desired plant communities. To maximize and extend the benefits of weed control provided by Sendero, it is important that other vegetation management practices, including proper grazing management, biological control agents, replanting, fertilization, prescribed fire, etc., be used in appropriate sequences and combinations to further alleviate the adverse effects of weeds on desirable plant species and to promote development of desired plant communities. Agricultural and natural resources specialists with federal and state government agencies can provide guidance on best management practices and development of integrated vegetation management programs.

Weeds, Woody Plants, and Mesquite Controlled

The following weed species will be controlled with the rates of Sendero indicated below (table 3). Woody plants that will be controlled with the rates of Sendero are indicated below (table 4). Mesquite control rates and tank mixes for Sendero are located in table 5. For best results, most weeds should be treated when they are actively growing and under conditions favorable for growth. Use a higher rate in the rate range when growing conditions are less than favorable or when weed foliage is tall and dense, or when residual control is desired. Sendero also provides preemergence control of germinating seeds or seedlings of susceptible weeds following application.

Table 3: Weeds Controlled**Note:** Numbers in parentheses (-) refer to specific use directions for a particular weeds species.

Common Name	Scientific Name	Rate Range (pint/acre)	Life Cycle	Plant Family
amaranth, spiny	<i>Amaranthus spinosus</i>	1 to 1.25	annual	Amaranthaceae
beggarticks	<i>Bidens spp.</i>	1 to 1.25	annual	Asteraceae
broomweed, annual	<i>Amphichyris dracunculoides</i>	0.75 to 1.25	annual	Asteraceae
buffalobur	<i>Solanum rostratum</i>	0.75 to 1.25	annual	Solanaceae
burdock, common*, **	<i>Arctium minus</i>	0.75 to 1.25	biennial	Asteraceae
buttercup, hairy*	<i>Ranunculus sardous</i>	1 to 1.25	annual	Ranunculaceae
chickweed	<i>Stellaria media</i>	1.25 to 1.5	annual	Caryophyllaceae
cocklebur	<i>Xanthium strumarium</i>	0.75 to 1.25	annual	Asteraceae
coffeeweed	<i>Daubentonia texana</i>	0.75 to 1.25	annual	Asteraceae
clover	<i>Trifolium spp.</i>	0.75 to 1.25	perennial	Fabaceae
croton, tropic	<i>Croton glandulosus</i>	0.75 to 1.25	annual	Euphorbiaceae
crownvetch	<i>Securigera varia</i>	1 to 1.25	perennial	Fabaceae
cudweed, purple	<i>Gamochaeta purpurea</i>	1 to 1.25	annual	Asteraceae
dock, curly*	<i>Rumex crispus</i>	1 to 1.25	perennial	Polygonaceae
groundsel, common	<i>Senecio vulgaris</i>	0.75 to 1.25	annual/biennial	Asteraceae
hawksbeard, narrowleaf	<i>Crepis tectorum</i>	0.75 to 1.25	annual	Asteraceae
horsenettle, Carolina**	<i>Solanum carolinense</i>	1 to 1.5	perennial	Solanaceae
horsetweed (marestail)	<i>Conyza canadensis</i>	0.75 to 1.25	annual	Asteraceae
jimsonweed	<i>Datura stramonium</i>	1 to 1.5	perennial	Solanaceae
lady's thumb*	<i>Polygonum persicaria</i>	0.5 to 1	annual	Polygonaceae
locoweed, woolly	<i>Astragalus mollissimus</i>	1 to 1.5	perennial	Fabaceae
locoweed, lambert	<i>Oxtropis lambertii</i>	1 to 1.5	perennial	Fabaceae
marshelder	<i>Iva annua</i>	1 to 1.5	annual	Asteraceae
nightshade, hairy	<i>Solanum chenopodioides</i>	0.75 to 1.25	annual/biennial	Solanaceae
nightshade, silverleaf	<i>Solanum elaeagnifolium</i>	0.75 to 1.25	perennial	Solanaceae
oxtongue, bristly	<i>Picris echioides</i>	1 to 1.5	biennial	Asteraceae
povertyweed	<i>Iva axillaris</i>	1 to 1.5	perennial	Asteraceae
ragweed, common**	<i>Ambrosia artemisiifolia</i>	0.75 to 1.25	annual	Asteraceae
ragweed, western	<i>Ambrosia psilostachya</i>	0.75 to 1.25	perennial	Asteraceae
sneezeweed, bitter	<i>Helenium amarum</i>	0.5 to 1	annual	Asteraceae
sunflower, common	<i>Helianthus annuus</i>	0.75 to 1	annual	Asteraceae
thistle, bull (1)*, **	<i>Cirsium vulgare</i>	0.75 to 1.25	biennial	Asteraceae
thistle, Canada (2)*, **	<i>Cirsium arvense</i>	0.75 to 1.25	perennial	Asteraceae
thistle, woolly distaff	<i>Carthamus lanatus</i>	1 to 1.5	annual	Asteraceae
thistle, musk (1)*, **	<i>Carduus nutans</i>	0.5 to 1	biennial	Asteraceae
thistle, plumeless (1)*, **	<i>Carduus acanthoides</i>	0.5 to 1	biennial	Asteraceae
thistle, Scotch*, **	<i>Onopordum acanthium</i>	0.75 to 1.25	biennial	Asteraceae
vetch	<i>Vicia spp.</i>	0.5 to 1	perennial	Fabaceae
yarrow, common	<i>Achillea millefolium</i>	1 to 1.5	perennial	Asteraceae

(1) **Bull, musk, and plumeless thistles:** Apply Sendero at 0.5 to 1 pints per acre in the spring and early summer to rosette or bolting plants or in the fall to seedlings and rosettes. Apply at 1 to 1.25 pints when plants are at the late bolt through early flowering growth stages. 2,4-D at 1 lb ae/acre should be tank-mixed with Sendero starting at the late bud stages

(2) **Canada thistle:** Apply Sendero at 0.75 to 1.25 pints per acre either in the spring after all plants have fully emerged (some may be budding) until the oldest plants are in full flower stage. Use the higher rate when applying to the flower stage. Applications are also effective in the fall before a killing frost.

*Invasive plants are introduced species that are indicated to be invasive in the USDA-NRCS, PLANTS Database (<http://plants.usda.gov/index.html>).

**Plants designated as noxious weeds in at least one state (PLANTS Database, USDA-NRCS, <http://plants.usda.gov/index.html>).

Table 4: Woody Plants Controlled (Excluding Mesquite)

Common Name	Scientific Name	Rate (pt/acre)	Life Cycle	Plant Family
acacias (see huisache below)	<i>Acacia</i> spp.	1.75	woody perennial	Fabaceae
mimosa	<i>Albizia julibrissin</i>	1.75	woody perennial	Fabaceae
redbud	<i>Cercis Canadensis</i>	1.75	woody perennial	Fabaceae
wisteria	<i>Wisteria brachybotris</i>	1.75	woody perennial	Fabaceae
locust, black	<i>Robinia pseudoacacia</i>	1.75	woody perennial	Fabaceae
locust, honey	<i>Gleditsia triacanthos</i>	1.75	woody perennial	Fabaceae
kudzu*, **	<i>Pueraria montana</i>	1.75	perennial	Fabaceae

*Invasive plants are introduced species that are indicated to be invasive in the USDA-NRCS, PLANTS Database (<http://plants.usda.gov/index.html>).

**Plants designated as noxious weeds in at least one state (PLANTS Database, USDA-NRCS, <http://plants.usda.gov/index.html>).

Mesquite Control

Timing and Factors in Control: The herbicidal response of mesquite is strongly influenced by foliage condition, stage of growth and environmental conditions. For best results, apply when new growth foliage has turned from light to dark green, when the soil temperature is above 75°F at a depth of 12 to 18 inches, and soil moisture is adequate for plant growth. Application should be made within 60 days after the 75°F minimum soil temperature at the 12- to 18-inch depth has been reached. Product performance may be adversely affected if application is made before mesquite foliage has turned from light to dark green or if foliage has been injured or removed by late frost, insects, hail or plant diseases. Do not treat if mesquite exhibits new (light green) terminal growth in response to recent heavy rainfall during the growing season. Rate of soil warm-up at the 12- to 18-inch depth may vary with soil texture and drainage. Coarse-textured (sandy) soils warm up sooner than fine-textured (clay) soils and dry soils warm up more quickly than wet soils.

The herbicidal symptoms of mesquite treated with Sendero are often different from those resulting from application of other herbicides. In some years, complete brownout and leaf drop of treated mesquite may be delayed and not occur before the first frost. Other herbicidal symptoms often observed could include discoloration and rupture and/or "bleeding" of bark on branches and trunks.

Reapplication during the same growing season is not recommended. Re-treatment will not be effective until woody plants have developed sufficient new foliage to intercept the spray and provide uptake adequate to control the plant when translocated to the root system. Following mechanical removal, regrowth mesquite should be at least 4 feet tall before application of this product.

Control of rangeland brush or weeds may be unsatisfactory under adverse growing conditions such as severe drought stress.

Mesquite control rates for Sendero and associated tank mixes follow in Table 5.

Table 5: Mesquite and Associated Woody Plant Control

Note: Numbers in parentheses (-) refer to specific use directions for a particular weeds species.

Common Name	Scientific Name	Rates (pt/acre)	Life Cycle	Plant Family
mesquite ¹	<i>Prosopis glandulosa</i>	1.75 pt Sendero	woody perennial	Fabaceae
Texas mixed brush, including ² :				
mesquite	<i>Prosopis glandulosa</i>	1.75 pt Sendero + 2 pt of Tordon 22K or 1.75 pt Sendero + 0.5 to 1 pt of Remedy Ultra	woody perennial	Fabaceae
pricklypear	<i>Opuntia</i> spp.		woody perennial	Cactaceae
blackbrush	<i>Acacia rigidula</i>		woody perennial	Fabaceae
twisted acacia	<i>Acacia tortuosa</i>		woody perennial	Fabaceae
catclaw acacia	<i>Acacia greggii</i>		woody perennial	Fabaceae
granjeno (spiny hackberry)	<i>Celtis ehrenbergiana</i>		woody perennial	Ulmaceae
guajillo	<i>Acacia berlandieri</i>		woody perennial	Fabaceae
huisache (S) ³ Suppression only	<i>Acacia farnesiana</i>	1.75 pt	woody perennial	Fabaceae

¹ See Timing and Factors in Control section for information on treatment of mesquite. Apply as a water spray or oil-water emulsion (see Mixing Instructions) in a total spray volume of 4 gallons or more per acre by air or 10 gallons or more per acre by ground application using higher spray volumes with increasing brush density and height. **Note:** Where control of pricklypear cactus is desired, the tank mixture of Sendero and Tordon 22K should be used.

² See Timing and Factors in Control section of the label for information on treatment of mesquite. Apply in a spray volume of 4 gallons or more per acre by air or 20 gallons or more per acre by ground application using higher spray volumes with increasing brush density and height. For best results, apply as an oil-water emulsion. **Note:** Where non-legume species such as granjeno, oaks and hackberry predominate, Remedy Ultra at 1 to 2 pt/acre may be substituted for Sendero in the tank mixture with Tordon 22K to improve control (see label for Remedy Ultra.)

³ Huisache can be suppressed with the maximum rate of Sendero applied aerially or by ground in at least 4 GPA application spray volume, by ground or 10 GPA by ground. Results may vary due to environmental conditions. See timing and factors in control section of the label for information on mesquite and associated woody plants.

Mesquite Control in Stands of Live Oak: For the control of mesquite growing within stands of live oak, apply Sendero at 1.75 pints per acre. Apply only as a water dilution containing surfactant (0.25% v/v) at a total spray volume of 4 gallons or more per acre aerially. Live oak over-sprayed with Sendero may show a minor to moderate canopy reduction the year of treatment but will recover. Application of Sendero in tank mix combination with other herbicides may result in increased injury to live oak.

Individual Plant Treatment - Leaf Spray Method: For control of mesquite infestations of low to moderate density, Sendero may be applied to individual plants with backpack or hand-held sprayers or a vehicle-mounted sprayer with hand-held spray wand or spray gun. For individual plant treatment, use 2 quarts of Sendero in combination with 2 quarts of Remedy Ultra per 100 gallons of total spray solution (1/2% v/v of each product), or use Sendero alone at 3 quarts per 100 gallons of total spray solution. Apply in water or as an oil-water emulsion as described in Mixing Instructions. If using an oil-water emulsion, add the oil at a rate

of 5% of the total spray volume. Apply as a complete spray-to-wet foliar application, including all leaves. Thorough coverage is necessary for good results, but it is not necessary to spray to the point of runoff. The total amount of Sendero applied should not exceed 1 1/3 pints per acre. For best results, follow information given in Timing and Factors in Control section and do not spray when mesquite foliage is wet. This application method works best for brush less than 8 feet tall since efficient treatment and thorough coverage of taller brush is difficult to achieve with this method. To minimize drift, select a spray nozzle and pressure that will provide good coverage while forming a coarse spray. Additionally, drift may be reduced by using the minimum pressure necessary to obtain plant coverage without forming a mist and by directing sprays no higher than tops of target plants. If desired, a spray dye may be added to the spray mixture to mark the treated plants.

(S) Indicates suppression of the woody plant species with Sendero.

Precautions for Avoiding Spray Drift

Avoid application under conditions that may allow spray drift because very small quantities of spray, which may not be visible, may injure susceptible crops. This product should be applied only when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, non-target crops and other plants) is minimal (e.g., when wind is blowing away from the sensitive areas. A drift control aid may be added to the spray solution to further reduce the potential for drift. If a drift control aid is used, follow the use directions and precautions on the manufacturer's label. Do not use a thickening agent with Microfoil, Thru-Valve booms, or other spray delivery systems that cannot accommodate thickened spray solutions.

Ground Equipment: With ground equipment spray drift can be lessened by keeping the spray boom as low as possible; by applying 10 gallons or more of spray per acre; by keeping the operating spray pressures at the manufacturer's specified minimum pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when the wind velocity is low (follow state regulations). Avoid calm conditions which may be conducive to thermal inversions. Direct sprays no higher than the tops of target vegetation and keep spray pressures low enough to provide coarse spray droplets to minimize drift.

Aerial Application: Avoid spray drift at the application site. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users 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:

1. The distance of the outer most operating nozzles on the boom must not exceed 75% of wingspan or 85% of rotor diameter.
2. Nozzles should be pointed backward parallel with the air stream or not pointed downwards more than 45 degrees.

State regulations must be followed.

The applicator should be familiar with and take into account the information covered in the following **Aerial Drift Reduction Advisory**. This information is advisory in nature and does not supersede mandatory label requirements.

Aerial Drift Reduction Advisory

Information on 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 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 specified 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 will provide uniform coverage.
- **Nozzle Orientation** - Orient nozzles so that the spray is released parallel to the airstream to produce larger droplets than other orientations. 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: The distance of the outer most operating nozzles on the boom must not exceed 75% of wingspan or 85% of rotor diameter.

Application Height: 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 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 inversion

potential. **Note:** Local terrain such as valleys and ravines 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: Applications should not occur during a local, low level 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 the 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.

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