

# DO IT YOURSELF BRUSH AND WEED CONTROL

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Land owners and managers in Texas are faced with a series of growing problems: Brush is increasing; herbicide costs and regulations are escalating; ranch size is decreasing, reducing brush control options; pressure from urban encroachment is reducing control options, especially the broadcast aerial application of herbicides; and, finally, landownership patterns are changing.

In response to these problems the **Brush Busters** program was developed. **Brush Busters** is best described as an effective, *user friendly, do-it-yourself* approach to brush control on rangeland that stresses the use of individual plant treatments to reduce treatment costs, improve control effectiveness, limit damage to desirable plants, and lengthen treatment life.

The success of the **Brush Busters** program led to the development of a similar program for weed control. The **Weed Busters** program chooses the most effective herbicides and application methods for selected species. Both Brush Busters and Weed Busters recommendations for the major problem species east of I-35 are described in this paper.

## Equipment and Procedures

### Stem Sprays/Cut Stump Treatments

Almost any type of pump-up hand sprayer can be used, but the most efficient way to apply the stem spray to many trees is with a backpack sprayer. Make sure the sprayer's nozzle has a small orifice; such as the Conejet™ 5500-X1. Compared to standard nozzles, this nozzle can reduce the amount of spray applied by 80 %-making the use of chemicals much more cost-effective.

### Leaf Sprays

Small pump-up garden sprayers, backpack sprays, cattle sprayers, or sprayers mounted on 4-wheel all-terrain vehicles (ATV) work well. Garden sprayers are best for small acreages; backpack sprayers are usually the most efficient in dense stands; and ATV sprayers become more efficient in large acreages or as the distance between plants increases. Make sure the sprayer has an adjustable nozzle that can deliver a coarse spray (large droplets) to the top of an 8-foot tree. Conejet™ 5500 X-6 or X-8 adjustable cone nozzles work well.

## How To Avoid Lumps when Treating Cut Stumps

Most species of woody plants resprout profusely from belowground crowns or roots if the aboveground growth is damaged or removed. Because these sprouts grow very rapidly, removing the aboveground growth of these plants with pruning shears, chain saws, axes, hydraulic shears, shredding, fire, etc., often intensifies woody plant problems. A high percentage of these plants can be killed, however, if you spray the stump with a specific herbicide treatment immediately after cutting it.

**Works Best:** Although specific cut stump data is not available on all the species above, most hardwood plants can be controlled with basal stem and cut stump treatments.

**When to Apply:** Any time of the year, although the best results occur during the spring-summer growing season.

**Prepare Equipment:** Remove the top growth using pruning shears, a sharp ax, chain saw, machete, hydraulic shears, etc. and apply the herbicide spray. To make sure that you cover the stump adequately when using a sprayer attached to hydraulic shears (skid/steer loader), use an adjustable cone nozzle with a relatively large orifice (such as a ConeJet™ 5500-X12 nozzle). For hand-held spray guns, an adjustable cone nozzle with a small orifice nozzle (such as a ConeJet™ 5500-X1 or X3) is recommended.

**Mix the Herbicide with Diesel or Vegetable Oil:** A mixture of Remedy Ultra™ herbicide and diesel fuel oil or vegetable oil is recommended. Diesel fuel or vegetable oil act as coating agents and penetrants to ensure good coverage and absorption of the herbicide. The recommended mixture is 15 % Remedy™ and 85 % diesel fuel oil or vegetable oil (see mixing table below). Using vegetable oil instead of diesel fuel oil increases the cost but may be desirable in some situations. One vegetable oil known to mix well with Remedy Ultra™ is JLB Oil Plus™.

**Mixing Table for Cut Stumps and Basal Treatments**

Herbicide	% Herbicide	Amount of Remedy™/Gallon(s) Mixed*		
		1 gal	5 gal	10 gal
Remedy™	15%	19 oz.	3 qt.	1.5 ga.

\* The herbicide is mixed with diesel fuel or vegetable oil.

For those who wish to avoid the work or mess of mixing Remedy Ultra™ with diesel fuel oil or vegetable oil, a “pre-mix” of Remedy Ultra™ and vegetable oil is available. This

“pre-mix” is called Remedy RTU™. To use this product, simply pour Remedy RTU™ from the container into the sprayer and apply to cut stumps.

When mixing Remedy Ultra™ with diesel fuel oil or vegetable oil, pour the required quantity of Remedy™ into a mixing container or spray tank, then bring to the total volume desired with the diesel fuel oil or vegetable oil. Vigorously shake or agitate to ensure thorough mixing. One ounce of Hi-™ blue spray-marking dye can be added for each gallon of spray mix or to each gallon of Remedy RTU™ to help identify treated plants.

**Cut and Spray the Stump:** Cut every stem of the plant as close as possible to, but not below, the soil surface. Avoid leaving soil on the cut surface. Spray the stump immediately after cutting it. Adjust the spray nozzle so that it delivers a coarse mist in a cone-shaped pattern. Hold the spray wand so that the nozzle is within 1 or 2 inches of the stump and spray the entire cut surface until it is wet, especially the outer edges. Spray the sides of the stump and root collar also, almost to the point of runoff. If you use a spray system attached to hydraulic shears, position the spray nozzle directly over the cut stump high enough to ensure that all of the stump is within the spray pattern. Using the dye as an indicator, spray the entire cut surface of the stump almost to the point of runoff.

### **How To Control Huisache**

Huisache is a common plant on rangeland and pasture in the eastern half of Texas. It is a tough, aggressive invasive species that limits forage production and decreases the value of the wildlife habitat.

#### **Leaf Spray Method**

**Works Best:** On huisache that are bushy, have many stems at ground level, and are less than 8 feet tall. This method is also known as high-volume foliar spraying.

**When to Apply:** Begin in September after any late-summer growth has stopped; then continue through November or until soil temperature drops below 75 degrees.

**Mix Herbicide Spray:** You can achieve 76 to 100 % rootkill by spraying with Grazon P+D™, which is a restricted use pesticide. A certified applicators license is needed to buy or apply the product. To prepare the spray mix, add Grazon P+D™ at a concentration of 1% to water. To make sure the foliage is coated thoroughly, add either liquid dishwashing detergent or a surfactant to the spray mix (see table below). It may be helpful to add a dye, such as Hi-Lite™ Blue Dye, to mark the plants that have been sprayed.

**Spray the Huisache:** The best time to begin spraying is in the fall and spraying can be continued until the soil temperature drops below 75 degrees. The spray period may last through November.

Wet the foliage of each huisache plant until the leaves glisten, but not to the point of dripping.

### Mixing Table for Huisache Leaf Sprays

	Concentration in	Tank size		
		3 gal.	14 gal.	25 gal.
Grazon P+D™	1%	4 oz.	18 oz.	1 qt.
Surfactant	1/4%	1 oz.	3 oz.	8 oz.
Hi-Light™ Blue Dye	1/4-1/2%	1 -2 oz.	3-6 oz.	8-16 oz.

\* All spray solutions are mixed in water.

### Stem Spray Method

The same equipment, methods, and herbicide - diesel mix for cut stumps works for intact stems as well. The method has been known for years as the low-volume, basal-stem treatment technique. Research and demonstrations have shown excellent results using minimum amounts of herbicide.

**Works Best:** For controlling relatively young trees or older ones with few basal stems.

### How to Beat Mesquite

The mesquite tree is one of the toughest, most invasive species of brush in Texas. It thrives across the western two-thirds of the State, both in rural pastures and on urban lots.

### Leaf Spray Method

**Works Best:** On mesquite that are bushy, have many stems at ground level, and are less than 8 feet tall. This method has also been known as high-volume foliar spraying.

**When to Apply:** Begin in spring, after soil temperatures at 12 to 18 inches deep has reached 75 degrees and after mesquite leaves change color from a light pea or lime green to a uniform dark green, and continue through July. Allow mesquite that has been topkilled by hand cutting, fire, mechanical methods or herbicide treatments to grow for two full growing seasons before using the Brush Busters leaf spray.

**Mix Herbicides:** You can usually achieve 76 to 100% root kill by spraying with a mixture of the herbicides Reclaim™ and Remedy Ultra™. To prepare the spray mix, add Remedy Ultra™ and Reclaim™ at concentrations of ½ % each to water. Add either liquid dishwashing detergent or a non-ionic surfactant to the spray mix (see table) and it may be helpful to add a dye such as Hi-

Lite™ Blue Dye to mark plants that have been sprayed.

### Mixing Table for Mesquite Leaf Sprays

Ingredient	Concentration in spray solution	Tank size		
		3 gal.	14 gal.	25 gal.
Reclaim™	½%	2 oz.	9 oz.	16 oz.
Remedy™	½%	2 oz.	9 oz.	16 oz.
Surfactant	¼%	1 oz.	5 oz.	8 oz.
Hi-Lite™ Blue Dye	¼-½%	1-2 oz.	5-9 oz.	8-16 oz.

\* All spray solutions are mixed in water.

**Spray the Mesquite:** Wet all the foliage of each mesquite plant until the leaves are almost to the point of dripping.

### How to Take Out Tallowtrees

Chinese tallowtrees have invaded and become dense on many upland and wetland sites in prairie and woodland communities of the Texas Coastal Prairie. Introduced from the Orient, this plant now infests more than 234,000 acres in southeast Texas. Tallowtree infestations are a problem in rice canals, irrigation systems, drainage ditches, rights-of-way, vacant lots, fence lines, pastures and rangelands. They establish easily, grow quickly, and produce large quantities of seed. They also resprout quickly from crown and root buds when topgrowth is mechanically removed.

### Leaf Spray Method

**Works Best:** On tallowtrees that have many stems at ground level and are less than 8 feet tall.

**When to Apply:** Begin in April or May after tallowtree leaves mature, and continue through September or until leaves begin to turn yellow to red.

**Mix Herbicide Spray:** You can kill 76 to 100 % of roots by spraying with Grazon P+D™. To prepare the spray mix, add Grazon P+D™ at a concentration of 1% to water (see mixing table below).

### Recommended Leaf Spray Mixture for Tallowtrees

Ingredient	Concentration in spray solution	Tank Size		
		3-gallon	14-gallon	25-gallon
Grazon P+D™	1%	4 oz.	18 oz.	1 qt.
Surfactant	1/4%	1 oz.	4-6 oz.	8 oz.
Hi-Light™ Blue Dye	1/4-1/2%	1-2 oz.	4-9 oz.	8-16 oz.

\* All spray solutions are mixed in water.

**Spray the Tallowtree:** For effective control, each plant must be thoroughly sprayed, almost to the point of dripping. Be sure to wet the terminal ends of all branches.

### How To Manage Macartney Rose

Macartney rose, also known as “Cherokee rose,” “hedge” and “rose hedge”, presents severe management problems for livestock producers in Southeast Texas to the Middle Coastal Prairie. Imported from the Orient in the late 1800s as a hedge for fencing purposes, the plant has escaped and naturalized. It now occupies more than 500,000 acres of Texas rangeland. This rose species forms dense stands that eliminate forage production and hinder livestock management.

The most successful approach to control Macartney rose is to implement an integrated system using several methods applied sequentially. The plant is easiest to manage when there are low densities of single, small plants (disturbed or undisturbed).

### Leaf Spray Method

**Works Best:** On individual disturbed or undisturbed Macartney rose clumps:

- **Undisturbed** - Undisturbed plants that are 5 feet or less in height and diameter.
- **Disturbed** - Mowed or otherwise disturbed plants should be treated within 3 years of disturbance. However, avoid spraying them earlier than 9 to 12 months after mowing or when the plants have a higher %age of new growth. Expect poor control if plants are less than 3 feet. tall when sprayed.

**When to Apply:** Begin in the spring under good growing conditions when the soil temperature

reaches 75 degrees F at 12 to 18 inches deep. Stop in late spring during flowering and hip (“apple” or fruit) formation. Begin again in late summer or early fall under good growing conditions, and continue until soil temperatures drop below 75 degrees F.

**Mix Herbicide Sprays:** You can achieve 76 to 100% rootkill by spraying Macartney rose with Grazon P+D™. To prepare the spray mix, add Grazon P+D™ at a concentration of 1% to water.

**Recommended Leaf Spray for Macartney Rose**

Ingredient	Concentration in spray solution	Gallons Mixed		
		3 gal.	14 gal.	25 gal.
Grazon P+D™	1%	4 oz.	18 oz.	1 qt.
Surfactant	1/4%	1 oz.	3 oz.	8 oz.
Hi-™ Blue Dye	1/4-1/2%	1-2 oz.	3-6 oz.	8-16 oz.

\* All spray solutions are mixed in water.

**Spray the Macartney Rose:** Wet the entire foliage in the canopy of each Macartney rose plant until the leaves glisten, but not to the point of dripping. The spray pressures may need to be high to penetrate larger plants with heavier canopies (300 psi or higher).

**How To Take The Green Out of Greenbriar**

Greenbriar is a native, perennial, woody vine of the Smilax family. It may have underground stems and/or tubers. The canes or aboveground stems are soft and fleshy in early stages of growth, but quickly mature into stout, woody vines with tendrils for climbing trees, fences and other structures. The small flowers are borne from April through June and produce many small clusters of reddish to purplish to black berries.

Keep in mind that controlling greenbriar is not a one-time job. The plant produces many seeds that, along with the hard-to-kill tubers, will eventually produce new plants. New plants also must be treated.

**Basal Stem Spray**

**Works Best:** On greenbriar that is growing on fencelines or where the basal stems are easy to access for spraying. Use methods, applications and herbicides - diesel mixes as desired earlier. Use a mix of 25% Remedy Ultra and 75% diesel.

**When to Apply:** This method works best during the winter when most of the leaves are gone and the basal stems can be covered more readily with the spray mix.

## Control of Dewberry

**When to Apply:** Herbicide application timing is important for effective dewberry control. Dewberry is most sensitive to herbicides when blooming in late spring and in the fall prior to frost. It is important that the plants are not drought-stressed at the time of herbicide application. Therefore, applications made during the spring or summer months, when regular rainfall is common, are often the most effective times to spray.

Mowing is an effective practice if the goal is to keep dewberry at a manageable size until herbicide treatment is warranted. However, controlling dewberry by mowing alone is often ineffective. Mowing can be an effective component when combined with herbicides. Mowing will reduce the size of the thicket and make herbicide application easier. Herbicides should not be applied in the same growing season as mowing. The most effective strategy is mowing followed by 6 months of active dewberry regrowth before herbicide treatment. It is best to allow the herbicide to work for approximately 6 weeks before the dead canes are mowed and removed. Another factor to consider is herbicide application volume, since thorough spray coverage of the foliage is essential. To achieve proper coverage, sprayer output should be calibrated to deliver between 30 and 40 gallons of spray solution per acre.

### Mix Herbicide Sprays

Currently, several herbicides list dewberry on their label. The most effective herbicides are Banvel™, Cimarron™, Remedy Ultra™, and PastureGard™. Velpar™ is a less effective herbicide option. Weedmaster™ and 2,4-D will reduce the growth for a period of weeks, but individual plants rarely die and thicket density will not be reduced.

PastureGard (Triclopyr + Fluroxypyr) and Remedy Ultra (Triclopyr) can safely be applied to bermudagrass and bahiagrass. Remedy at 2 pints per acre or Pasturegard at 4 pints per acre applied when blooming is effective, but retreatment the following year may be required to achieve 100% control. These herbicides will cause rapid dewberry death (relative to Cimarron which are more slow acting) while controlling many other broadleaf species. Pasturegard and Remedy Ultra can be effective when applied in the Spring or Fall. However Fall applications are generally more effective than when applied in the Spring.

Cimarron Plus (0.75 oz/A) or Cimarron Xtra (2 oz/A) is currently labeled for use only in bermudagrass pastures. Cimarron cannot be applied to bahiagrass or severe injury or death of the forage will occur. Cimarron products are the most consistent herbicides for control of dewberry. Applications made in Spring or Fall have proven to be equally effective. However, activity is slow and may take 2 or 3 months to show significant control. Banvel™ must be applied at a rate of 2 quarts per acre to effectively control dewberry so, Banvel is rarely the most economical option.

## How to Control Common (Annual) Broomweed

Common broomweed, also called annual broomweed, is a native, warm-season, broad-leaved plant of the sunflower family. It usually produces one erect stem that grows to a height of 1 to 4 feet. It also makes a bushy head (the “broom”) which produces small yellow flowers. It can readily grow into thick stands that completely shade the ground.

### Ground Broadcast Spray Method

**Works Best:** When you wish to control common broomweed on larger or heavily infested areas.

**When to Apply:** For best results, apply during early through late spring (late March through May) when common broomweed plants are actively growing but less than 6 inches tall.

**Prepare the Equipment:** The herbicide can be applied with a boom or boomless broadcast sprayer able to deliver at least 10 gallons per acre total spray volume. Trailer-mounted sprayers or 4-wheel all-terrain vehicles (ATVs) may be used. For step-by-step instructions on how to calibrate a ground broadcast sprayer, see Extension publication L-5465, *Weed Busters: Sprayer Calibration Guide*.

**Prepare the Herbicide Mix:** Several herbicide mixtures may be used to effectively control common broomweed with the ground broadcast method (see table below). The rates of application are typically lower when treating earlier in the season when plants are immature; the rates increase as plants mature later in the spring.

**To mix:** First, fill the spray tank half-full with water, then add the recommended amount of herbicide and surfactant to the spray tank. Finally, fill the spray tank with water to the desired volume, using agitation to mix.

### Herbicide rates for ground broadcast applications for Common Broomweed

Herbicide	Herbicide/Acre	
	Early (< 6 inch tall)	Late (< 6 inch tall)
2,4-D	1 pint	2 pints
Weedmaster™ or Range Star™	1 pint	2 pints
Grazon P+D™	1 pint	3 pints
Cimarron™, Ally™ or Escort™	0.1 ounce	no late rate

**Important:** Add 1/3 to 1/2% surfactant to the spray tank when using any of the above treatments.

**Spray the Common Broomweed:** If you are using a spray boom, use flat fan nozzles and elevate the boom at least 18 inches higher than the weeds being treated.

**Individual Plant Leaf Spray**

**Works Best:** If you have only a few or scattered common broomweed plants to control or when you do not have a ground broadcast sprayer.

**When to Apply:** This treatment works best if used during spring to early summer while the plants are actively growing and before they have matured.

**Prepare the Equipment:** The only equipment you will need is a sprayer. If you have many plants to spray, backpack sprayers and ATV sprayers are more efficient. Make sure your sprayer has an adjustable cone nozzle (X6 to X8 orifice size) that can deliver a coarse spray (large droplets).

**Prepare the Herbicide Mixture:** You can expect very high (76 to 100%) control of common broomweed using 2,4-D, Grazon P+D™, Weedmaster™ or Range Star™. All herbicides are mixed with water at a 1% concentration (see mixing table).

**To mix:** Fill the spray tank half full of water, add the required amount of herbicide, surfactant and dye, then continue to fill the tank to the desired level with water. Be sure to add a spray marking dye and add the surfactant at 1/4 to 1/2%.

**Herbicide rates for individual plant sprays for Common Broomweed**

Ingredient	Concentration in Spray Solution	Amount of ingredient for varying spray tank sizes (gallons)		
		3	14	25
Herbicide	1%	4 ounces	18 ounces	32 pints
Surfactant	1/4%	1 ounce	5 ounces	8 ounces
Dye	1/4%	1 ounce	5 ounces	8 ounces

All spray solutions are mixed in water.

**Spray the Common Broomweed:** Spray individual plants in the spring or early summer before the plants have completed brooming. Do not spray when the wind is higher than 10 mph, the temperature is above 90 degrees F or the humidity is below 10 %. Thoroughly wet all foliage of the plant until the leaves glisten but not to the point of dripping.

Do not mow or disturb the plants during the growing season in which they have been treated.

### How to Neutralize Silverleaf Nightshade

Silverleaf nightshade can be a serious weed problem in prairies, open woods and disturbed soils throughout Texas. It is a perennial in the potato family, grows upright to 1 to 3 feet tall, it is usually prickly, and has tiny, densely matted, starlike hairs covering the whole plant. The leaves and fruit are toxic to cattle, sheep, goats, and horses at all stages of growth, with the ripe fruit being the most toxic.

#### Ground Broadcast Spray Method

**Works Best:** On larger or heavily infested areas.

**When to Apply:** Silverleaf nightshade should be sprayed in the spring when the plants begin to flower.

**Prepare the Equipment:** The herbicide can be applied with a boom or boomless broadcast sprayer able to deliver a total spray volume of 10 to 30 gallons per acre. Many types of broadcast sprayers are available, including those mounted on trailers or on four-wheel all-terrain vehicles (ATVs). Check your sprayer for consistency of application, and calibrate it properly for the application. For step-by-step instructions on calibrating ground broadcast sprayers, see Extension publication L-5465, *Weed Busters Sprayer Calibration Guide*.

**Prepare the Herbicide Mix:** A mixture of either Grazon P+D™, Weedmaster™, or Range Star™ is recommended to control silverleaf nightshade. Weedmaster™ and Range Star™ both contain dicamba and 2,4-D. Weedmaster™, however, contains 2,4-D in the amine formulation; Range Star™ contains 2,4-D in the ester formulation, which generally is considered slightly more effective. For broadcast treatments, it is recommended that you use a 90% active ingredient, non-ionic surfactant in the mixture. To mix, first fill the spray tank half full of water, then measure and add appropriate amounts of herbicide and surfactant. Continue filling the spray tank with water to the proper level with agitation.

**Broadcast herbicide rate table for Silverleaf Nightshade**

Herbicide options	Rate/Acre	Surfactant	Spray volume
Grazon P+D™	1-1.5 quarts	1-2 quarts per 100 gallons of water	10-30 gallons/acre
Weedmaster™	1 quart		
Range Star™	1 quart		

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**Spray the Silverleaf Nightshade:** Spray silverleaf nightshade in the spring when the plants begin to flower. Apply the spray mix with a sprayer calibrated to deliver 10 to 30 gallons of spray mix per acre. Apply as a coarse spray. The sprayer should be equipped with flat fan spray nozzles, with the boom elevated a minimum of 18 inches higher than the silverleaf nightshade being treated.

**Individual Plant Leaf Spray Method**

**Works Best:** If there is only a few or scattered silverleaf nightshade plants to control or a ground broadcast sprayer is not available.

**When to Apply:** Silverleaf nightshade should be sprayed in the spring when then plants begin to flower.

**Prepare the Equipment:** To properly apply the herbicide using this method, all you will need is a sprayer. If there are many plants to spray, backpack and ATV sprayers are more efficient. Make sure that your sprayer has an adjustable cone nozzle (X6 to X8 orifice size) or a flat fan nozzle that can deliver a coarse spray (large droplets).

**Prepare the Herbicide Mixture:** You can expect 76 to 100% control of silverleaf nightshade by spraying with a mixture of 1% Grazon P+D™, Weedmaster™, or Range Star™ in water. To prepare the spray mixture, fill the spray tank half full of water and add the desired amount of herbicide and surfactant. Then continue to fill the tank with water to the desired level. It is also advisable to add a color dye to the mixture to mark the plants that have been sprayed. The following table of recommended spray mixtures shows the amounts of ingredients for typical tank sizes.

**Mixing table for foliar leaf sprays of Silverleaf Night Shade**

Ingredient	Concentration in Spray Solution	Amount of ingredient for varying spray tank sizes (gallons)		
		3	15	25
Grazon P+D™ or Weedmaster™ or Range Star™	1%	4 ounces	19 ounces	32 ounces
Surfactant	1/4%	1 ounce	5 ounces	8 ounces

Dye	1/4%	1 ounce	5 ounces	8 ounces
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**Spray the Silverleaf Nightshade:** Spray individual silverleaf nightshade plants when they begin to flower in the spring. Wet all foliage of the plant thoroughly until the leaves glisten, but not to the point of dripping.

### **Keep These Points in Mind For Foliar Sprays**

- Follow herbicide label directions.
- For best results, don't spray when:
  - rains have stimulated new growth in tree tops.
  - leaves are wet.
  - foliage shows damage from hail, insects or disease.
  - you are working upwind of desirable trees, shrubs or crops.
- The cost of treatment rises rapidly as the brush becomes taller and more dense. Also, controlling brush is not a one-time job. You'll need to go over your land regularly to locate and treat unwanted seedlings and plants that are missed or only partially damaged by the initial spray treatment.

### **Keep These Point in Mind For Stem or Cut Stump Treatments**

- Follow herbicide label directions.
- The cost of treatment escalates rapidly as the brush becomes more dense or the number of basal stems per plant increases.
- Multiple-stemmed plants and rough-barked plants are more difficult to control with this method.
- Do not spray when the basal stems are wet.
- After mixing the herbicide with diesel, shake or agitate the solution vigorously.
- This method is less efficient if there is dense grass around basal stems.