

Honey mesquite (*Prosopis glandulosa* Torr.) is a shrub or small tree 3 to 12 feet tall. Mesquite has always been a part of the plant community in New Mexico, but historically mesquite was confined primarily to watercourses and other moist sites. The introduction of domestic livestock, increased control of wildfire, and droughts all gave woody plants a competitive advantage and resulted in changes in rangeland plant composition.

Efforts to control mesquite will not produce lasting results without a commitment to sound grazing management. If overgrazing occurs, mesquite or other undesirable vegetation will return to dominate the site.

When selecting a mesquite control method, consider the presence of other undesirable plants. Removal of one species can result in the rapid increase of another. As a result, soil moisture does not become available for desirable species. Follow-up treatments on the other undesirable plants may be necessary after mesquite control.

AERIAL BROADCAST APPLICATION

Aerial application is an effective method of applying herbicides to mesquite and other plant species that are susceptible to foliar-applied herbicides. Foliar application places the spray mixture on the leaf surface, where the herbicide enters the plant and is translocated to the root system to kill the plant.

Aerial application is well suited to uneven, rough terrain. Aerial spraying is the only practical method of brush control in dense infestations where target plants vary in age and size (Figure 1).



Figure 1. Aerial spraying is the only practical method of mesquite control in dense infestations where target plants vary in age and size.

GENERAL CONSIDERATIONS

Weather conditions at the time of spraying are extremely important to successful aerial application. Coverage is best with low wind speeds and cool temperatures. High wind speeds distort the spray pattern and increase the drift hazard; high air temperatures increase the spray solution volatility and drift hazard. Optimum wind velocity is 3 to 8 mph and air temperature should not exceed 90°F. Do not spray if a rain storm is expected within 6 hours after application.

The plant condition and growth stage also affect the success of the application. Vigorously growing plants in good physical condition are most susceptible to foliar application. Do not spray mesquite that is under stress from drought, disease, insect, frost, or wind damage. Do not spray when rains have

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Table 1. Recommended Spray Mixtures for Aerial Broadcast Application on Mesquite

| Trade name | Active ingredient | Rate/acre product | Rate/acre active ingredient |
|--------------------|-------------------|----------------------|-----------------------------|
| Remedy | Triclopyr | ½ to 1 pt | ¼ to ½ lb |
| Reclaim | Clopyralid | ⅔ pt to ⅔ qt | ¼ to ½ lb |
| *Remedy | Triclopyr | ¼ pt to ¾ pt | ⅛ lb to ⅜ lb |
| + | + | + | + |
| Reclaim | Clopyralid | ⅓ pt to 1 pt | ⅛ lb to ⅜ lb |
| Remedy | Triclopyr | ¼ to ¾ pt | ⅛ to ⅜ lb |
| + | + | + | + |
| Tordon 22K | Picloram | ½ to 1 pt | ⅛ to ¼ lb |
| Reclaim | Clopyralid | ⅓ to 1 pt | ⅛ to ⅜ lb |
| + | + | + | + |
| Tordon 22K | Picloram | ½ to 1 pt | ⅛ to ¼ lb |
| Remedy | Triclopyr | ½ to 1 pt | ¼ to ½ lb |
| + | + | + | + |
| Banvel | Dicamba | ½ to 1 pt | ¼ to ½ lb |
| **Spike 20P | Tebuthiuron | 3 ¾ to 7 ½ lb | ¾ to 1 ½ lb |

*Highlighted selection provides best control under most New Mexico conditions.

**Apply only to mixed brush stands on sandy soils.

stimulated growth of light green, new foliage, which creates uneven growth in the canopy.

Consider other undesirable plant species growing near the target mesquite. Often, these plants require a different herbicide for control. When mesquite is removed, the associated species may become dominant, resulting in degradation of the range.

Pasture management before and after spraying determines the degree of rangeland improvement resulting from mesquite control. It is very important to defer a pasture for one to two growing seasons after spraying to improve grass vigor and to allow the establishment of perennial grasses.

SPECIFIC GUIDELINES

The proper time to foliar spray mesquite varies from year to year because of specific weather conditions. The amount of winter and spring moisture before spraying is particularly important in determining if or when to treat. In southwestern New Mexico, a minimum of 2 inches of precipitation

between January 1 and June 1 is recommended prior to spraying in June or July. In eastern New Mexico, a minimum of 3 inches of precipitation between January 1 and June 1 is recommended before spraying.

The soil temperature at a 12- to 18-inch depth should be between 80 and 86°F at spraying for best results. Heavy, moist clay soils warm slower than light, sandy soils. In treatment areas of mixed soil types, the soil that makes up the majority of the area should govern temperature requirements. However, do not delay spraying while waiting for soil temperature to rise if the mesquite is becoming stressed. In most years, the application will be made around June 20, plus or minus 15 to 20 days.

The phenological stage of mesquite is critical in determining the proper spray period. For best results, mesquite pods should be elongated but not filled or swollen. Twig elongation should have stopped, and the foliage should have changed from a light pea-green to dark green with vigorous growth.

HERBICIDES AND RATES OF APPLICATION

A number of different herbicides, herbicide combinations, and application rates may be used for mesquite control (Table 1). The specific mixture may be determined by herbicide availability, herbicide cost, and land manager preference.

Tank mixes of triclopyr + clopyralid have consistently provided the best mesquite control in New Mexico. The proper rate of triclopyr + clopyralid tank mix depends on the mesquite habitat type. Upright, few-stemmed mesquite may be controlled at the lower rate. Short, many-stemmed, “duney” mesquite requires the higher rate for acceptable control.

Picloram or dicamba may be mixed with triclopyr or clopyralid to control mesquite/mixed brush stands. Prickly pear, cholla, catclaw, whitethorn, tarbush, and wolfberry require the tank mixes with picloram or dicamba for acceptable control.

Mixed stands of mesquite, shinnery oak, sand sagebrush, wolfberry, skunkbrush, catclaw, and whitethorn on sandy soils are best controlled with tebuthiuron. Tebuthiuron should not be used on soils with greater than 20% clay content.

Liquid herbicide sprays should be applied at 2 to 4 gallons total solution per acre. For best results, use an oil-in-water emulsion utilizing 1 pint to 1 quart diesel fuel oil or crop oil with an emulsifier such as Triton X-100. A drift suppressant is recommended at label rates to reduce the chance of drift.

Do not make aerial foliar applications

When plants are not vigorously growing or have poor leaf cover.

- In drought years when January 1 to June 1 precipitation is appreciably low.
- After late frost, hail, insect, or wind damage.
- When recent rains have resulted in light green, new growth at tops of plants.
- During high winds (greater than 8 mph) or high air temperatures (greater than 90°F).
- Near susceptible crops or other vegetation.

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