AgriLIFE EXTENSION
Texas A&M System

Brush Control for Small Acreages

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Many families in Texas own and live on small, semi-rural tracts of land. The property values of these tracts usually exceed those of adjacent, undeveloped native rangeland by 10 times or more. By controlling selected brush species, owners often increase land value, general aesthetics of the property and carrying capacity for livestock. Unfortunately, a lack of herbicide knowledge and/or proper techniques for controlling different brush species often results in poor control or damage to adjacent, desirable shrubs and trees.

Most brush species are crown or root sprouters. Thus, cutting down one of these species with an axe or chainsaw results in regrowth from the remaining roots or crown. Brush plants that have resprouted after top removal are generally more difficult to kill later. Mechanical and chemical methods are available for effectively and safely controlling these plants.

Mechanical Methods

Mechanical control methods include hand grubbing and the use of tractors (crawler and rubber tired) equipped with special grubbing attachments. Small acreage owners may prefer hand grubbing because contracting large equipment is expensive.

Hand grubbing is an excellent method to control small brush plants when the number of plants per acre is small. Use this method to maintain control during early brush invasion or after herbicide treatment. Hand grubbing provides a high degree of control if all plant tissue is removed to below the root crown so that sprouting buds are eliminated. Depth of removal varies from 4 to 14 inches, depending on soil conditions and the brush species involved. Hand grubbing is easier when the soil is moist. When plants are taller than 4 feet and/or number more than 50 plants per acre, the use of herbicides may be better than grubbing.

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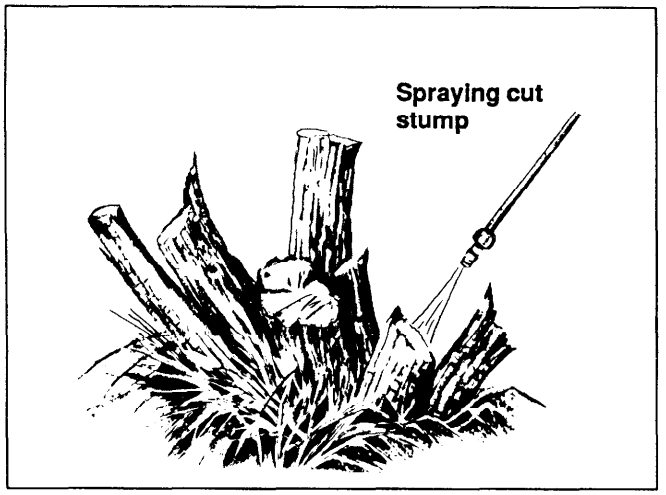
Cut-Stump and Basal Treatments

Diesel fuel oil (and/or kerosene) used alone or in combination with herbicides effectively control most woody species with minimal damage to adjacent desirable plants. Applications may be made to cut stumps, or basal techniques may be used.

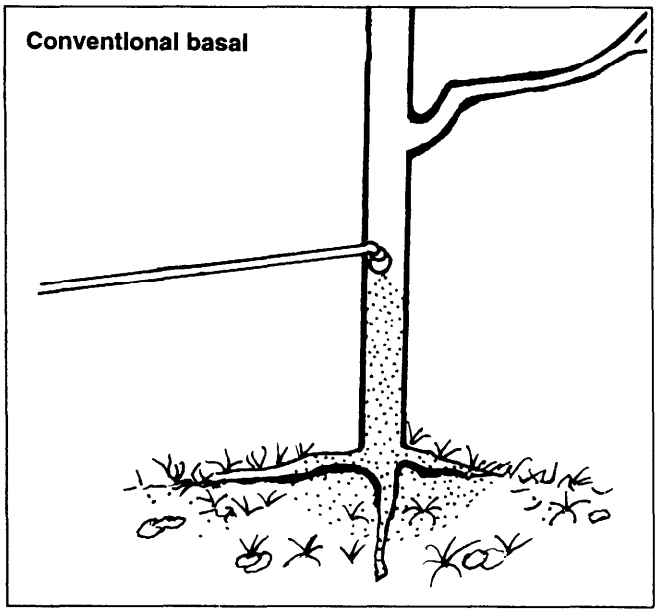
Cut-Stump Treatment

Diesel fuel oil is applied to freshly cut stump surfaces with this method. A herbicide can be added to the diesel (2 percent by volume) if desired. The addition of herbicide generally improves control following treatment. Apply treatment to the cut stump by pouring from a can or spraying with a small "pump-up" type sprayer. The diesel or diesel plus herbicide mixture should be applied to the cut surface and basal plant parts below the cut. Continue until runoff occurs and the liquid begins to collect on the soil surface. This method provides excellent control while removing brush plants from view. The cut-stump method can be effective during any season but best results are generally obtained when the soil is dry. Always treat the stump immediately after cutting.



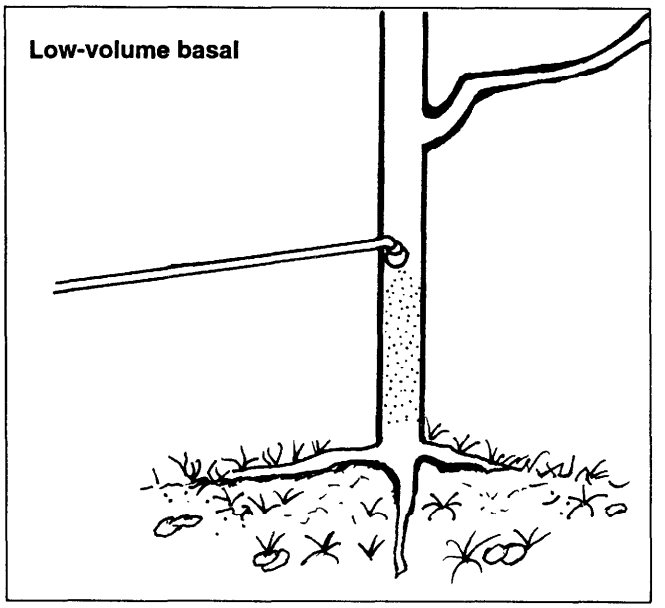
Conventional Basal Treatments

The application of diesel fuel by the basal spray or pour method is also effective. This technique eliminates the labor required to cut down noxious brush plants before treatment. Thoroughly wet the base of the plant trunk with diesel fuel oil from a height of 12 inches to the groundline. Use a sufficient quantity of diesel to form a puddle on the soil surface. This treatment can be effective any season, but best when conditions are dry. The equipment used to apply the diesel is the same as for the cut-stump method. Plants with single-stems or few stems having trunk diameters of 5 inches or less on sandy, rocky or porous soil are most easily controlled with basal sprays and pours. Conventional basal treatment is generally not as effective if used on plants with multiple stems arising from an inconspicuous trunk. As with the cut-stump method, herbicides can be added to the diesel fuel oil (2 percent by volume) to increase control when using this application technique.



Low-Volume Basal Treatments

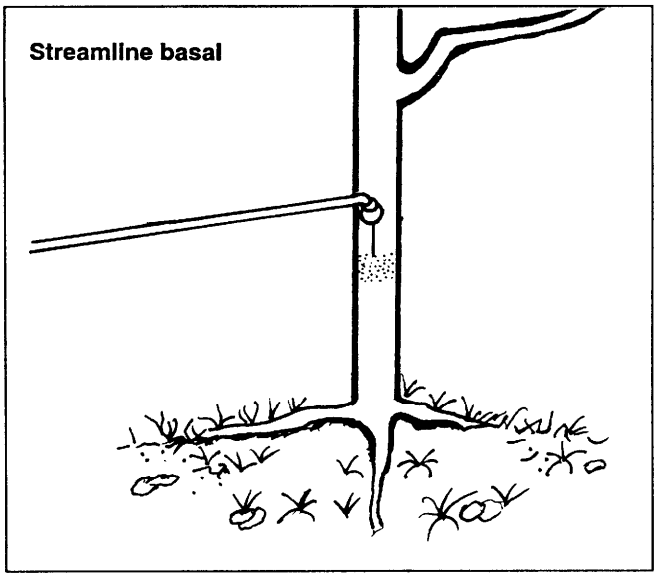
The diesel/herbicide mixture may be applied to the stem base of brush plants by using the low-volume basal technique. The mixture includes 25 percent herbicide and 75 percent diesel fuel oil. A "pump-up" garden or backpack sprayer with a fan or cone nozzle is used to lightly, but evenly, wet the trunk from the groundline to a height of 12 to 16 inches. The diesel/herbicide mixture should be applied to all sides of the trunk. The trunk should **not** be wetted to the extent that runoff and puddling occurs. Application may be made anytime the plant is actively growing.



Streamline Basal Treatments

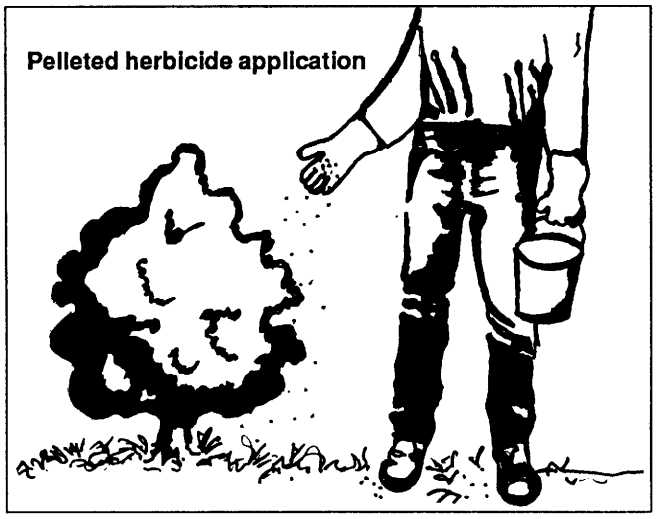
Streamline basal applications are similar to low-volume treatments because of the application equipment used and timing of treatments. However, the "pump-up" garden or backpack sprayer should be equipped with a straight stream nozzle. Herbicide concentration is maintained at 25 percent while diesel fuel oil is reduced to 65 percent, and a penetrant is added at a concentration of 10 percent. The mixture is lightly sprayed in a narrow band (2 to 3 inches wide) around the base of the target plant. This band must encircle the stem base. This technique works best on plants with smooth bark.

Control with basal applications, will generally decrease as plant size increases regardless of method used. When a 6-inch or greater basal diameter exists, frilling (overlapping axe cuts near the groundline all around the plant trunk) may be necessary followed by the application of a herbicide/diesel mixture into the cuts.

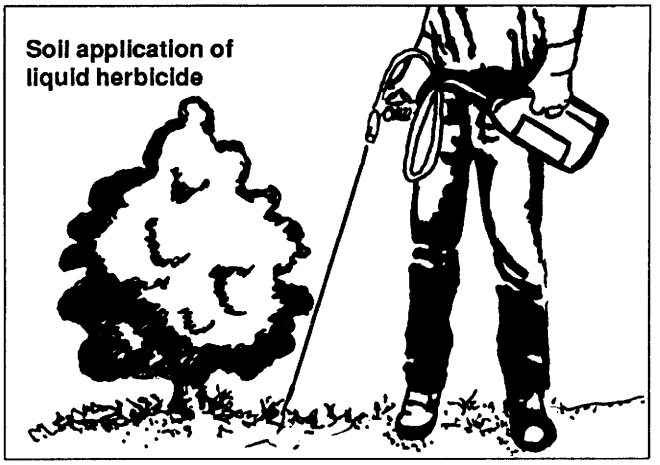


Soil-Applied Herbicides

Both liquid and pelleted herbicides are available for soil applications on rangeland. Apply pelleted herbicides to individual brush plants by distributing the quantity of herbicide defined on label to the ground under the plant canopy. This quantity is based on plant size, species and soil type. No special application equipment is required. Rainfall is necessary to dissolve the pellets and move the herbicide into the soil root zone. This can be a disadvantage if applications are made on slopes and followed by high intensity rains. Under these conditions the herbicide pellets may move a considerable distance from the initial treatment area and result in off site damage to desirable vegetation.

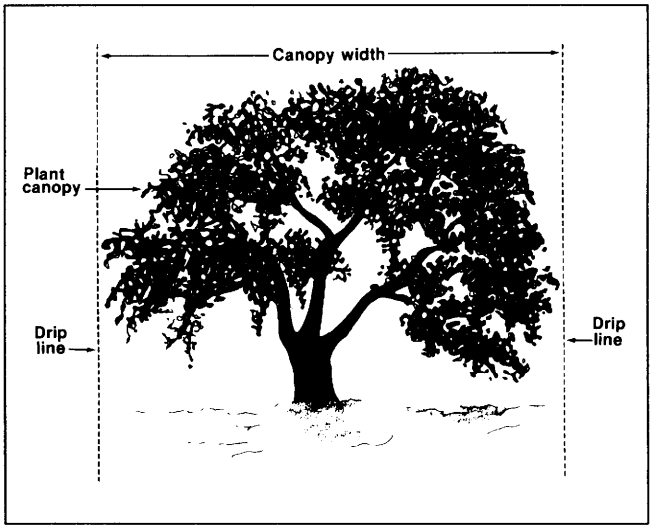


Liquid herbicides labeled for soil application are generally applied undiluted in measured quantities to the soil under the target plant. Liquid, soil-applied herbicides require some type of metering device to dispense the herbicide. This device (which resembles a livestock drench gun) may be purchased, or a disposable syringe may be used if only a small number of plants are to be treated. Since these herbicides are liquid, they soak into the soil upon application and are not as susceptible to movement from the target area as pelleted herbicides. However, rainfall is still necessary to move the herbicide into the plant's root zone.



When using soil-applied herbicides (pelleted or liquid), apply the herbicide to the soil under the dripline of the plant at the rate specified on the label. The dripline is that area of ground covered by the canopy of the plant. After the herbicide has moved into a plant's root zone, it is taken up by the roots with soil water. Death (or killing of the target species) occurs slowly over one to three years. The treated plant may defoliate and releaf several times before final kill is obtained. Grass under each treated plant may be killed for several years.

Always use the application rates provided on the herbicide label. When a range of rates are given, use the higher rates for deep soils with high clay and organic matter contents, and the lower rates for shallower soils



with a high percentage of sand and low organic matter. Although there is no aerial drift hazard in using soil-applied herbicides, care must still be taken to avoid treating in the vicinity of desirable shrubs or trees. Do not use soil-applied herbicides any closer to desirable plants than a distance equal to three to five times the width of the canopy of that plant. Also, avoid treating areas where intense rainfall runoff allows herbicide movement to low lying areas supporting desirable plants. Apply soil-applied herbicides before periods of expected rainfall. As with any herbicide, follow label directions.

Foliar-Applied Herbicides

Only herbicides formulated as liquids, wettable powders or dry flowable granules may be applied to the foliage of brush plants. Foliar-applied herbicides generally give effective control of brush species although not at a level equal to that obtained with soil-applied herbicides. The season and plant stage at treatment are much more critical with foliar-applied herbicides as compared to soil applied. Use of foliar-applied herbicides on large areas generally requires special spray equipment, although excellent control on small areas may be obtained with a small "pump-up" garden or backpack sprayer.

In general, do not use foliar herbicides for brush control under small acreage conditions. Under such situations there is great potential for damage to adjacent, desirable landscape or garden plants from herbicide drift. When using foliar-applied herbicides with too much pressure, or with high winds and/or high temperatures, the herbicide can move thousands of yards from the target area. Even under the most ideal conditions, certain herbicide formulations can move considerable distances.

Before using herbicides, every landowner should become familiar with state and federal laws and regulations governing herbicides and their use. For example, some counties have regulations prohibiting the use of certain foliar-applied herbicides during certain times of the year. These regulations, which are strictly enforced by the Texas Department of Agriculture, are intended to prevent herbicide drift damage to susceptible row crops grown in the county.

Backpack/high-volume application

For specific information on the correct herbicide and application technique to use for a particular plant species, consult your local county Extension agent. A helpful Texas Agricultural Extension Service Publication, B-1466 *Suggestions For Chemical Weed And Brush Control On Rangeland*, is available at your local county Extension office.

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