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CHEMICAL CONTROL OF MESQUITE

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Kinds of Treatment

Kerosene has been the most widely used chemical for mesquite control in recent years. For most effective results it should be applied around the base of the tree in sufficient quantity to penetrate the underground buds on the root. This may take a third of a gallon of oil or more for big trees. Kerosene works best on sandy or gravelly soils. On bottomland or heavy clay soils the amount of oil required is excessive and kills may be poor. Kerosene treatment can still be recommended as probably the cheapest method of control for mesquite on porous open soils where the trees are large and vary from 70-100 trees per acre.

Sodium arsenite will kill mesquite but it is poisonous to both man and animals.

Mechanical treatments using root cutters, chains, and root plows give some immediate relief but are usually expensive. Often the grass turf is torn up and sometimes the infestation from broken off trees soon becomes worse than before.

2,4-D. Experimental results so far show that none of the forms of 2,4-D are effective for mesquite control.

Experimental aerial sprayed plot at Spur Experiment Station 17 months after treatment. Results show 98 per cent top kill and 69 per cent root kill of mesquite - 30 months after treatment show 40 per cent root kill.

2,4,5-T. Work at the Spur Experiment Station and off station ranch trials and test demonstrations conducted by the Texas Agricultural Experiment Station over the state in the past three years show that 2,4,5-T has definite possibilities for mesquite control. 2,4,5-T is *non-poisonous to man and livestock and will not kill grass at the rate given for controlling mesquite.* Aerial application gives the cheapest form of control where adapted.

Methods of Application

Aerial:

1. The low volatile ester of 2,4,5-T (2/3 to 3/4 lb. acid per acre) applied in an emulsion of one gallon No. 2 diesel oil or fuel oil and three gallons of water has given the most effective control.

2. The proper time for application is seven to 11 weeks (50-80 days) after the leaves first appear in the spring. The chemical should not be applied when wind velocities exceed 12 miles per hour due to the danger of drift.

3. Best kills are obtained with good soil moisture and lush growth of mesquite. If drought prevails, *do not* spray - results will likely be disappointing.

4. This chemical is *hazardous* to broad-leafed plants, such as cotton, vegetables and citrus trees. It *should not* be used when there is danger of drift to susceptible plants.

5. Experienced operators with equipment adapted to applying the chemical in coarse droplets at tree-top height should be employed. The equipment must be licensed and approved by the State Department of Agriculture.

6. At the given concentration and rate, this chemical is effective on many species of range weeds as well as mesquite, but it is not effective on other brush species such as blackbrush, whitebrush, granjeno, cedar and oak. In an area of

mixed brush, it is questionable if removing one species is a good policy.

7. *Control* of mesquite rather than eradication will result from this method. Proper stocking and deferred grazing following treatment will lengthen the control period. Livestock prefer sprayed areas and may overgraze them. Rest the treated area during the growing season to give the grasses a chance to reseed and prevent overgrazing. Increased carrying capacity may be expected after the first year. Another spraying may be needed in five to ten years to control the sprouts and new seedlings depending largely on management following. Small many-stemmed brush three to five feet high is more easily killed. Good control of large trees can be secured under favorable conditions.

Ground: 2,4,5-T can be applied to individual mesquite trees with fairly effective results. This method could be used by an operator who had a small acreage to treat, close to susceptible crops or around fields, water lots or corrals. It should not be used within one mile of broad-leafed plants during the growing season. Mix one gallon or four pounds of 2,4,5-T ester in 40 gallons of diesel oil or kerosene. A three to five gallon knapsack sprayer can be used for individual tree treatment.

1. *Cut surface.* Most effective results can be secured by cutting off the trees and applying the above mixture to the cut-off stubs and stumps until runoff occurs. A gallon of the mixture should treat 40-50 average size trees at a cost of about three-fourth cent per tree for material alone.

2. *Trunk treatment.* Reasonably effective results can be secured by thoroughly spraying all the way around the mesquite trunks from ground level up to 18 inches high. If one side of the trunk is missed, it will probably sprout on that side. A gallon of the mixture should treat 20-30 average size mesquite trees at a cost of one and one-half cents each for material alone. More chemical is required with this method but the labor of cutting the trees is saved.

Both cut-surface and trunk treatments can be done at any season of the year, but spring and summer look best. Either of these methods give control of mesquite for one-third to one-half of the cost of kerosene treatment. Sprayers are preferred over pouring of the mixture because too much would be wasted. High pressure is not desired - coarse droplets are preferred. Low volatile esters of 2,4,5-T should be used to reduce hazards to susceptible crops.

3. *Foliage application* with hand sprayers and cattle sprayers look promising for small areas. Leaves and stems should be thoroughly covered with the spray solution. The chemical should be applied in the active growth stage in the spring under favorable moisture conditions. Mix one gallon low volatile ester of 2,4,5-T containing four pounds acid per gallon in 200 gallons of water and spray so as to thoroughly wet the foliage. This kind of treatment can best be used on small areas not adapted for aerial application and on mesquite brush or sprouts up to five feet high. Care must be taken that drift will not harm susceptible plants as provided in the State Herbicide law.

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Control of other species of brush with 2,4,5-T alone and in combination with 2,4-D at higher concentrations than those given for mesquite seem probable. Experimental tests and trial demonstrations are underway by the Texas Agricultural Experiment Station on certain other species on which information will soon become available.

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