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How to Control Undesirable Trees and Shrubs With Chemicals

Michigan State University Cooperative Extension Service

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**HOW TO CONTROL**

**Undesirable Trees**

**and Shrubs**

***WITH CHEMICALS***

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**By MAURICE W. DAY**

***Dunbar Forest Experiment Station***

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**MICHIGAN STATE COLLEGE**  
**COOPERATIVE EXTENSION SERVICE**  
**EAST LANSING**

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## WHERE TO USE

The chemical control of woody plants is a new development. It offers a cheaper and better method of controlling or eradicating woody growth when it interferes with some other more desirable land use. Chemical control is adapted for use in road and utility line right-of-way maintenance, in the maintenance of ditches and fence rows, and in the improvement and maintenance of permanent pastures. In forestry, chemical control methods are useful in the preparation of areas for planting, and in the improvement of existing forest stands.

## METHODS TO USE

1. *Foliage spraying* is used for low brush and tree sprouts. However, if the brush is over about 5 feet tall it usually is not convenient to use foliage spraying.

2. *Basal stem sprays* are used for killing larger brush and small trees. They are very effective on all species. The spray is applied all around the base of the tree from the ground line to a height of about 2 feet. Sufficient solution is applied to wet the bark thoroughly to the point of runoff.

3. *Stump sprays* are applied to prevent re-growth where trees and shrubs have been removed. The spray solution is applied to freshly cut stumps in such a way that the entire stump and upper part of the exposed roots are wet thoroughly.

4. *The frill treatment* is best used on large trees. The solution is poured into a frill girdle (a single line of overlapping downward ax cuts, leaving a frill-cut or notch through the bark and cambium, completely encircling the tree). This method requires less solution than basal stem sprays.

## WHAT TO USE

The ester forms of 2,4-D and 2,4,5-T are superior for woody plant work. The 2,4,5-T ester is more effective on many woody plants, but is also more expensive. For most farm spraying and other small-

scale operations, a combination containing both 2,4-D and 2,4,5-T—sold by a number of chemical companies as “brushkiller”—is recommended. This product is used as a water spray for foliage application. When basal sprays and stump treatments are to be applied, the “brushkiller” should be mixed in diesel oil or kerosene.

Species such as oak and maple are resistant to 2,4-D foliage spray. Better results may be obtained with ammonium sulfamate (Ammate) in a water solution, instead of a 2,4-D product.

Killing large trees by the frill girdle method can be accomplished by the use of several compounds. 2,4-D, 2,4,5-T, “brushkiller,” and ammonium sulfamate are commonly used. These are readily available, and are not poisonous to man and domestic animals.

## HOW TO MIX SOLUTIONS

Solutions are easily prepared by following the directions found on the manufacturer's label. The strength of the solution varies with the method of treatment and with the species to be treated. Strength of solutions of 2,4-D and 2,4,5-T formulations is based on the acid-equivalent content of the formulation. Most of these products contain about 4 pounds acid-equivalent per gallon, and the exact amount can be found on the label. Spray solution strength is expressed as “pounds acid-equivalent per hundred gallons.” (*a.h.g.*).

### Foliage Sprays

1. Mixtures (2,4-D, 2,4,5-T, or “brushkiller”) for foliage application should contain 2 pounds a.h.g. Thus,  $\frac{1}{2}$  gallon of the formulation is mixed in 100 gallons of water. (For small quantities 1 tablespoon of chemical per gallon of water is a satisfactory mixture.)

2. Ammonium sulfamate is usually mixed at the rate of 1 pound of the dry crystals per gallon of water.

## **Solutions for basal stem and stump treatment**

2,4-D, 2,4,5-T, and "brushkiller." Oil is required for penetration and a fairly strong solution gives better results. A range of 8-16 pounds a.h.g. is used, but for mixed species 12 pounds is a reasonable rate. To secure this quantity 3 gallons of the formulated chemical are mixed in 100 gallons of diesel oil. (For small amounts mix 5 tablespoons in 1 gallon of oil.)

## **Frill treatments**

The same type of mixture as for basal sprays should be used, but the strength can be reduced by one-half, i.e., 1½ gallons of chemical in 100 gallons of oil. Dry ammonium sulfamate crystals at the rate of 1 ounce for each inch of tree diameter may also be applied to the ax frills.

## **WHEN TO SPRAY**

Foliage spraying is best done between the time the leaves are full size and early August. It is most effective early in the season.

Basal stem and cut-stump spraying can be done during any season.

## **SPRAYER EQUIPMENT**

For most farm spray operations, a knapsack sprayer is all that is necessary. On large jobs it will pay to invest in power equipment.

## **WARNING**

Never use a sprayer that has been used for 2,4-D or 2,4,5-T for any other purpose. It is very difficult to remove all traces of these chemicals from the sprayer, and very minute amounts will cause injury to some kinds of plants.

Anyone planning to use ammonium sulfamate (Ammate) as a foliage spray should be warned also that the substance is corrosive to certain

metals. Stainless steel or copper are satisfactory for use with it.

## RESULTS TO EXPECT

Foliage spraying, where possible, gives good results with most species. Usually it will be necessary to repeat the next year to get good control. The second spraying, however, will be much easier and cheaper.

Basal stem and stump sprays are more effective on all species. Probably the greatest returns are realized from this type of treatment but here, also, it may be necessary to go over the area again the next year to treat those stumps missed or not treated properly at the time of the first treatment.

## COSTS

Costs for this kind of work vary greatly, because of the great variation in site, density of brush, and other factors. However, chemical treatment will cost much less than hand cutting, and it is more likely to give permanent results. Some utility companies have found that chemical control methods reduce their right-of-way maintenance costs by nearly one-half.

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