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Item ID Number	03698 ☐ **Not Scanned**
Author	Parochetti, J. V.
Corporate Author	Cooperative Extension Service, University of Maryland,
Report/Article Title	Using Chemicals for Brush Control
Journal/Book Title	
Year	1970
Month/Day	
Color	☐
Number of Images	10
Description Notes	

USING CHEMICALS FOR BRUSH CONTROL

COOPERATIVE EXTENSION SERVICE UNIVERSITY OF MARYLAND COLLEGE PARK, MARYLAND

Bulletin 181

Contents

Using Chemicals For Brush Control

Introduction

The growth of woody plants and trees along fence rows and ditches and in pastures has always been a problem. Killing this undesired vegetation is greatly simplified by using chemicals.

Chemicals

The following chemicals can be used for brush control:

2,4-D (2,4 dichlorophenoxyacetic acid) controls some brush species. The two most generally available forms of 2,4-D are the amine salts and the ester formulations. Vapors are released by 2,4-D esters and to some extent from amine salts; they can be injurious to susceptible plants nearby. If ester formulations are used, the "low volatile esters" are less likely to cause damage. In general, the ester forms of 2,4-D must be used with greater care than the amines. Only use 2,4-D on a calm day. Even if you use a non-volatile form of 2,4-D, small droplets may be carried great distances by the wind.

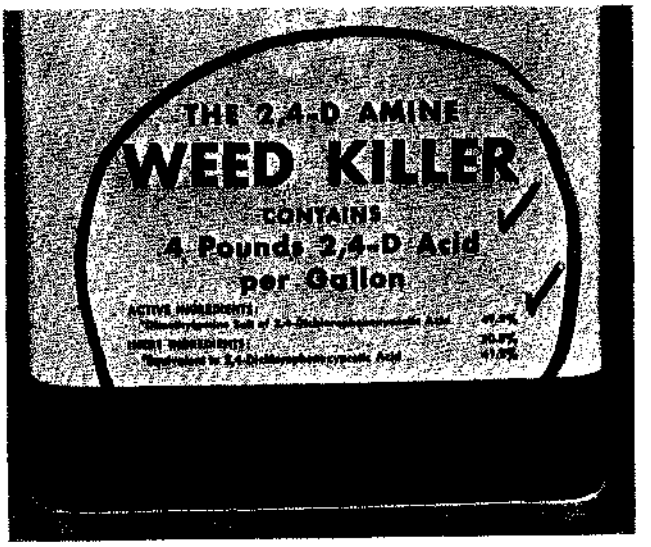
Recommendations are given in pounds of actual acid equivalent. For example, if 1 pound of 2,4-D is recommended and the form that you purchase contains 4 pounds of acid equivalent per gallon, use 1 quart. Different commercial brands vary in the percentage of actual 2,4-D acid content; therefore, read the label on the container to check acid equivalent. 2,4-D is a selective broadleaf herbicide, but it can severely injure or kill grass at high rates. Therefore, follow the recommended rates carefully.

2,4,5-T (2,4,5 trichlorophenoxyacetic acid) is a selective herbicide very similar to 2,4-D. However, it is more effective on many woody species than is 2,4-D and is more widely used for brush control. It is usually sold as the ester form, but amine salts are available. A mixture of 2,4-D and 2,4,5-T is often used to control mixed brush where several species are present. Mixtures such as this are often given the general name of Brushkiller. Precautions that apply to 2,4-D also apply to 2,4,5-T.

2,4-DP (2,4 dichlorophenoxypropionic acid) is a selective herbicide very similar to 2,4,5-T. It can be used as a substitute for 2,4,5-T either alone or in combination with 2,4-D. Precautions that apply to 2,4-D and 2,4,5-T also apply to 2,4-DP.

AMS (ammonium sulfamate sold as Ammate) controls mixed brush and is preferred as a basal or stump treatment. It is a soil sterilant so grass also will be killed.

Amitrole (3 amino-s-triazole) is particularly effective on poison ivy, oaks, and ash species. It should be used only as a foliage-stem spray. Amitrole will kill grasses.



Before using any herbicide, read the label on the can and carefully follow the directions.

Methods of Application

There are five general ways of using brush control chemicals:

Foliage-stem sprays—For plants less than 8 to 10 feet tall, foliage spraying is usually quite satisfactory. The most serious limitation is that the spraying must be done in the spring (May and June are best) when the hazard to sensitive crop plants is the greatest. Apply enough chemical to cover the stems and leaves thoroughly. All the previous chemicals may be used for foliage spraying. Use sufficient pressure to give adequate coverage, but not high enough to cause drift.

Foliage-stem sprays are effective on trees 8 to 10 feet tall.

Basal sprays—For trees taller than 10 feet, 2,4-D, 2,4,5-T, 2,4-DP or combinations may be applied as a basal treatment. Such treatment is most effective on smooth barked trees 6 inches or less in diameter, but will work on trees with a rough bark if a larger volume is used. Apply the spray to the bottom 12 to 18 inches of the trunk and the ground line of the trees. It is essential that enough chemical be applied so that some runs down the trunk into the root crown. This is a successful brushkilling treatment, but high rates of chemicals will kill grasses near the base of the treated plant. Basal sprays can be used the year around. High pressures are not needed;

Basal spray can be used for trees taller than 10 feet. It is most effective on smooth bark trees 6 inches or less in diameter. (The white arrow points to poison ivy.)

adequate coverage is important. If necessary, you can apply the liquid with a paint brush or by some similar means.

Stump Treatment—For trees taller than 10 feet, the best procedure is to cut the trees close to the ground, and then treat with 2,4,5-T or AMS to prevent the resprouting which usually occurs. Stump spraying should be done immediately after cutting.

Stump sprays can be used to prevent larger trees from resprouting. Cut the tree, then spray the stump.

Frill treatment is effective for killing a large, single tree. Spray 2,4,5-T into the frill.

Frill Treatment—For killing an individual tree, cut a series of connected notches (frills) in a ring around the trunk. Then, treat the exposed wood with chemicals.

Injector Treatment—A special tree injector must be used which injects small amounts of the concentrate herbicide through the bark directly into the tree.

Cleaning of Equipment

Weed sprayers should be thoroughly washed and cleaned after each use. Flushing tank, lines, boom and nozzles with water is usually sufficient for most herbicide solutions, except 2,4-D, 2,4,5-T, 2,4-DP and their derivatives. For these materials, first rinse the sprayer with water; then clean it with one of the following materials in 50 gallons of water:

1. 1/2 gallon of household ammonia (let stand in sprayer overnight).
2. 4 pounds trisodium phosphate cleaner (common household detergents).
3. 2-1/2 pounds sal soda.
4. 2 pounds activated charcoal (leave in sprayer and lines 10 minutes).

NOTE: Do not use sprayers used with chemicals to kill weeds when spraying chemicals for insects or disease on tobacco or other susceptible crops. The risk of damage to such crops is too great.

CAUTION

Although most herbicides are relatively non-toxic to humans, like all pesticides, they should be handled with care. Avoid prolonged or repeated contact with the skin; be sure to wash thoroughly after use. Store herbicides away from children, animals and foods.

Dispose of empty containers safely. Do not burn containers which have held herbicides such as 2,4-D and its derivatives. When these herbicides evaporate, the resulting vapor may damage nearby plants, crops and shrubbery.

Be sure to read instructions on the container label carefully. Directions for use, safety precautions and other important information is printed there for your use and safety.

The use of 2,4,5-T is prohibited around homes, on lakes, ponds, or ditch banks. In situations where 2,4,5-T use is prohibited, 2,4-DP can be substituted.

2,4,5-T can be used as recommended for brush control on pastures, fence rows and rights-of-way that are not immediately adjacent to homes, ponds, or other waters.

Recommendations

	Application Technique	Chemical Application Rate	Remarks
BRUSH (up to 3) inches diameter			
	Foliage Treatment	2,4-D or 2,4-D + 2,4,5-T (amine or ester); 4 lb/100 gal water (2.5 tablespoons of a 4 lb/gal herbicide concentrate/1 gal water or 5 tablespoons of a 2 lb/gal herbicide concentrate/1 gal water)	Wet stems and foliage thoroughly. Density of brush will determine rate/acre. Use on all species during June and July. When used at the recommended rate it will not kill grasses. Vapors are injurious to susceptible plants.
		OR	
		Amitrol-T, 4 lb/100 gal water, 5 tablespoons of a 2 lb/gal herbicide concentrate/1 gal water)	Wet stems and foliage thoroughly. Use on black locust, sumac, and ash in June and July. Kills most vegetation including grasses, but Amitrol is not volatile.
		OR	
		AMS (ammonium sulfamate or Ammate) 65 lbs + 6 oz spreader sticker/100 gal water	Wet stems and foliage thoroughly. Use on all species during June and July. May be used near susceptible crops, but the chemical should not be applied in soil where desirable plants may have roots. Kills most vegetation that is treated.
		OR	
		2,4-D and 2,4,5-T (invert emulsion) 12 lb/A/24 gal water	Use aerial application or low volume sprayer with proper attachment. Use on all species during June and July. After January 1, 1971; a restricted use permit for aerial application must be obtained from Maryland State Board of Agriculture, Office of the State Entomologist, Department of Entomology, University of Maryland, College Park, Maryland 20742.
	Basal Treatment	2,4-D or 2,4-D + 2,4,5-T (ester) 12 lb 100 gal oil (1 2 cup of a 4 lb/gal herbicide concentrate 1 gal oil or 1 cup of a 2 lb gal herbicide concentrate/1 gal oil)	Wet thoroughly the lower 12 inches of stem. Density of brush will determine rate/acre. Use on all species any time of year. Poor control of root suckers on black locust, sumac, sassafras and other root suckering species.

	Application Technique	Chemical Application Rate	Remarks
	Dormant Stem Broadcast Treatment	2,4-D and/or 2,4,5-T (ester), 6 lb/100 gal oil (4 tablespoons of a 4 lb/gal herbicide concentrate/1 gal oil or 8 tablespoons of a 2 lb/gal herbicide concentrate/1 gal oil)	Wet thoroughly all of the stems including root collar. Density of brush will determine rate/acre. Use on all species between October and April. Poor control of root suckers on black locust, sumac, sassafras and other root suckering species.
TREES (over 3 inches diameter)			
	Frill Treatment	2,4-D or 2,4-D + 2,4,5-T (ester), 16 lb/100 gal oil (2/3 cup of a 4 lb/gal herbicide concentrate/1 gal oil or 1-1/3 cups of a 2 lb/gal herbicide concentrate/1 gal oil) OR AMS (solution), 8 lb/2 gal water OR 2,4-D or 2,4-D + 2,4,5-T (amine), 1 ml (1/2 teaspoon) of a 4 lb/gal OR Dicamba 1 ml (1/2 teaspoon) from 4 lb/gal diluted 1 to 1 with water	Apply to overflowing in axe frills about waist high that completely girdle the tree. Use on all species any time of the year except maple when dormant. Apply 1 ml (1 teaspoon) in each axe cut about waist high around the tree and spaced 2 inches edge to edge. 2,4-D and/or 2,4,5-T are more effective May to August on all species. Dicamba is effective any time on all species except maple when dormant.
	Frill Treatment with notches	AMS (dry crystal 95% active ingredient), 1 tablespoon per notch	The dry crystals can be placed directly in notches spaced 4 to 6 inches around base of tree. Notches are made by two downward axe cuts, one above the other, prying out the chip. Use on all species any time of the year.
	Spaced Injector Treatment	2,4-D or 2,4-D + 2,4,5-T (amine), 1 ml from 4 lbs/gal OR Dicamba 1 ml from 4 lbs/gal diluted 1 to 1 with water	Use a special tree injector calibrated to deliver 1 ml per cut. Space cuts 2 inches apart (edge to edge) at base of tree. 2,4-D and/or 2,4,5-T are more effective May to August on all species. Dicamba is effective any time on all species except maple when dormant.

	Application Technique	Chemical Application Rate	Remarks
STUMPS OF TREES AND BRUSH			
	Stump Treatment	2,4-D or 2,4-D + 2,4,5-T (ester), 12 lbs/100 gal oil (1/2 cup of a 4 lb/gal herbicide concentrate/1 gal oil or 1 cup of a 2 lb/gal herbicide concentrate/1 gal oil)	Spray to wet thoroughly the cut surface at the junction of the wood and bark, sides, root collar and exposed roots of stumps. For best results, make application soon after cutting. Expect poor root sucker control of black locust, sumac, sassafras and other root suckering species. Use on all species any time of the year.
PINE RELEASE FROM BRUSH			
	Foliage Treatment	2,4,5-T (ester), 2 lbs/A/2 qts oil + 4 gal water	Apply aerially or with mist blower in August. Pines are hardened by August and will be damaged less at this time by the treatment. Use on all hardwood species.
PINE RELEASE FROM HARDWOOD TREES			
	Foliage Treatment	2,4,5-T (ester), 2 lbs/A/2 qts oil + 4 gal water	Apply aerially in June or July. Pines can be planted before spraying since the hardwood canopy will shield them from damage. Use on all hardwood species.
POISON IVY			
	Foliage Spray	Amitrol or 2,4-D or 2,4,5-T or 2,4-D + 2,4,5-T, 2 lb/100 gal (4 teaspoons of a 4 lb/gal herbicide concentrate/1 gal water or 8 teaspoons of a 2 lb/gal herbicide concentrate/1 gal water) OR AMS (ammonium sulfamate), 75 lb/100 gal (4 teaspoons of a 4 lb/gal herbicide concentrate/1 gal water or 8 teaspoons of a 2 lb/gal herbicide concentrate/1 gal water)	Apply in spring or summer when the plants are in full leaf and actively growing. Thoroughly wet all foliage and stems. Density of cover will determine volume of spray per acre. Spot treat growth as required. If plants susceptible to 2,4,5-T or 2,4-D are located nearby, amitrole or AMS would be preferred because these are not volatile like 2,4-D or 2,4,5-T. No chemicals can be sprayed on poison ivy if it is closely associated with ornamental hedges or plants. Retreatment may be necessary.

	Application Technique	Chemical Application Rate	Remarks
HONEY SUCKLE			
	Foliage Spray	2,4-D or 2,4-D + 2,4,5-T, 3 lb/100 gal water (2 tablespoons of a 4 lb/gal herbicide concentrate/1 gal water or 4 tablespoons of a 2 lb/gal herbicide concentrate/1 gal water)	Apply in spring or summer when plants are in full leaf and actively growing. Thoroughly wet all foliage and stems. Density of cover will determine volume of spray per acre. Spot treat regrowth as required. Retreatment may be necessary.
KUDZU			
	Foliage Spray	2,4,5-T (low volatile ester), 6 lb/100 gal water (4 tablespoons of a 4 lb/gal herbicide concentrate/1 gal water or 8 tablespoons of a 2 lb/gal herbicide concentrate/1 gal water)	Apply May 15—June 15. When plants are in full leaf and actively growing, thoroughly wet all foliage and stems. Retreat at approximately 6 week intervals as needed.
	Dormant Cane Spray	2,4,5-T (Low volatile ester), 6 lb/100 gal oil (4 tablespoons of a 4 lb/gal herbicide concentrate/1 gal oil or 8 tablespoons of a 2 lb/gal herbicide concentrate/1 gal oil)	Thoroughly wet all stems to ground line during winter months.

Cooperative Extension Work in Agriculture and Home Economics, Extension Service.
University of Maryland and United States Department of Agriculture Cooperating. Robert E. Wagner, Director.
Distributed in Furtherance of Acts of Congress of May 8 and June 30, 1914.