

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G10.361.3
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BRUSH SPRAYING

BASAL AND STUMP SPRAYING

2,4-D—2,4,5-T

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1. GENERAL

1.01 This section covers the application of basal and stump sprays to control roadside and right-of-way brush using 2,4-D and 2,4,5-T. The materials and equipment employed are described in G10.361.1.

1.02 In basal spraying, the chemicals are applied in much higher concentration than for foliage spraying and usually only to the lower portions of the stems, trunks and crowns of the plants. Also, as entrance of the chemical into the plant is through the bark, generally oil, rather than water, is used for its ability to carry the chemical more readily into the plant tissues. Stumps are treated to prevent resprouting by applying a high strength solution to the cut surfaces and the bark.

1.03 Foliage spraying, which by its nature must be used only during the growing season and under conditions suitable for transportation of the large volumes of solution used, is described in G10.361.2.

2. BASAL SPRAYING

2.01 Basal spraying may be carried out at two different periods of the year; (1) in the summer when the brush is in leaf or (2) when the leaves are dead or have fallen.

Summer Basal Spraying

2.02 **Time of Application:** Summer basal spraying is done during the growing season from the time the first signs of growth activity appear up to the time the leaves begin to fall. Since summer basal spraying may follow an earlier spray, it is best to spray only while the plants are in leaf. The presence of leaves will show that the plants are alive and will aid in identifying species requiring special attention.

2.03 **Conditions Adaptable to Summer Basal Spraying:** Late spring and summer basal spraying, in which a low volume solution of relatively high concentration is applied by means of knapsack tanks is useful under the following conditions:

(a) As a follow-up to a foliage or dormant spray by which the brush has been thinned out, leaving only a few of the more resistant species or plants that were missed. The remaining growth is too sparse to justify a second foliage spray and only spot-spraying of the surviving plants is required.

(b) On hilly or mountainous terrain where access by power equipment is difficult, the high concentration of the solution and low operating pressure of the knapsack tank make it practicable to treat large areas on foot carrying a relatively small amount of material.

(c) For treating occasional growth which is too tall to be handled with a foliage spray.

2.04 **Method of Application:** The chemical in oil is applied only to the trunk or stems from the ground line up to about 2 or 3 feet, according to height. In treating brush sprouts, projecting portions of the live stump should also be sprayed.

2.05 Basal spraying is most effective on stalks ranging from $\frac{3}{4}$ to 2 inches in diameter but it can be used successfully on trees of any size likely to be found growing on a right-of-way. Larger trees usually have heavier bark and the chemical penetrates less readily than through the relatively thin bark of young plants or shoots. Because of this, it may be better to cut the larger trees and to treat the stumps rather than to attempt control with basal spray.

2.06 As with foliage spraying, success depends largely on the thoroughness with which the solution is applied. **The material must be applied all around each stem and run down to the ground line.** While the solution should not, of course, be applied so as to be wasteful, it should be kept in mind that, in contrast to foliage spraying, there is no danger of an overdose when spraying bark and crowns.

Dormant Spraying

2.07 **Time of Application:** Dormant spraying is similar to summer basal spraying, except that it is applied when the plants are not in leaf or, in the case of plants which go through dormancy without losing their leaves, when growth is suspended. This is usually during the winter months.

2.08 **Conditions Suitable for Dormant Spraying:** Dormant treatment is most practicable on rights-of-way that have not recently been treated by any chemical method. The application of a dormant spray to an area on which any considerable amount of standing brush has been affected or killed by a previous spray would mean that much of the growth would require close examination to determine its condition in order to avoid waste of material.

2.09 After a right-of-way has had most of the brush removed by previous treatments and the only standing brush is new seedlings or sprouts from surviving stumps, dormant treatment can be used as a spot spray to maintain the right-of-way in condition.

2.10 **Red maple** responds to dormant spraying more readily than to either summer basal or foliage spraying. Where a high percentage of the growth in a given section is of this variety, particularly if in company with other species of Group III, consideration should be given to treatment solely by the dormant method.

2.11 **Method of Application:** For dormant spraying, the solution is applied in the same manner as for summer basal spraying, except that growth under about 3 feet in height, particularly if bushy, should be covered entirely.

3. STUMP TREATMENT

3.01 Treatment of freshly cut stumps to prevent sprouting is done by applying the chemical in oil. This treatment can be employed at any season of the year provided it is done immediately following cutting. For best results, not more than 3 days should elapse from the time of cutting until the spray is applied. Usually it will be practicable to carry a tank of solution for use at the time of cutting.

**BRUSH SPRAYING
BASAL AND
STUMP**

G10.361.3

**SPRAYING
2,4-D—
2,4,5-T**

3.02 The treatment can be applied to stumps of any diameter, but is most effective on stumps 3 inches and over. Smaller stumps and stubble left from cutting the sprouts from old stumps are better left to resprout for treatment by another method. The same applies to stumps of species like willow, sumac and poplar which sprout from buds on lateral roots some distance from the stump.

3.03 The oil solution should be applied by knapsack tank to the actively growing layer immediately under the bark and to all remaining bark down to ground level. Any lateral roots showing above ground should also be wet thoroughly. For lack of a spray tank, the solution can be applied by brushing, but the application will not be as thorough, particularly on the rough, shaggy bark of older trees.

4. MATERIALS AND SOLUTIONS

4.01 The chemicals used in basal and stump spraying are the same as those used for foliage spraying with 2,4-D and 2,4,5-T. Because oil more readily penetrates the covering of woody stems, however, it is used in place of water as the carrier in this type of work. Solutions of chemicals are higher in concentration to make it possible to get absorption of the necessary amounts of active material through the relatively small areas of plant surface treated.

4.02 For **summer basal** and **dormant** sprays the oil solutions recommended are as follows:

(a) Where 75 per cent or more of the brush consists of plants in Groups I and II, use the 50-50 mixture of 2,4-D and 2,4,5-T in the proportion of 1 quart to 13 quarts of oil. Where the plants are mostly those of Group I, the concentration can be reduced, but in no case to less than 1 quart of chemical to 25 quarts of oil.

(b) Where 75 per cent or more of the brush consists of plants in Group III, use straight 2,4,5-T in the proportion of 1 quart to 10 quarts of oil.

4.03 For **stump** treatment, use the solution recommended in (b) above, regardless of species.

4.04 In preparing the spray solution, add the required amount of chemical directly to the oil and mix thoroughly. No change in appearance takes place in mixing oil solutions, and continuous agitation is unnecessary. For convenience, it may be desirable to make a permanent mark at the proper level in the knapsack tank and always fill with oil to that point before adding the chemical.