

waiting for commercially-grown trees to reach us before starting the planting operation. Another important use for a city nursery is to grow trees for tree-spade planting in the 3-4" caliper range. Their high value and low planting cost can make them worthwhile to grow.

If you have a nursery now or are considering creating one in the future, you would be wise to analyze all of the factors mentioned, and look at

these costs critically. It may be that having your own nursery even though it is expensive is right for your needs or some combination of growing your own and buying from commercial nurseries is best.

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## FIELD TRIAL COMPARISON OF TECHNIQUES OF ROOT KILL ON PROBLEM SPECIES<sup>1</sup>

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### Abstract

Three basic methods of brush control were compared for their control of black locust (*Robinia pseudoacacia* L.) root suckers and stump sprouts found on the right-of-way. The selective basal method showed the best control of the black locust root suckers. Where the brush was cut, the pre cut basal method showed better control than the stump treatment method.

It has been a standard practice for tree trimming and brush cutting crews on Pennsylvania Electric Company property to cut the tall standing brush and then chemically treat the stumps. This method of brush control has worked relatively well for the control of stump sprouts for the majority of tree species treated. The problem with this type of chemical treatment is not so much in the lack of control of the stump sprouts of the treated stumps, but in the lack of control from untreated stumps and the erratic control of the root suckers of the black locust.

The possible reasons for the poor results with the stump treatment method can be listed under two categories:

1. *Untreated Stumps.* When a cutter is cutting the brush on the right-of-way, he is cutting trees from 6 inches in diameter to 1/2 inch in diameter and he is making his cuts as close to the ground as possible. After the brush is cut, it is either dragged to a chipper and chipped, or to the edge of the right-of-way and

piled. During this dragging of brush, some of the stumps will be covered over with debris. These covered stumps will not be chemically treated because they cannot be seen. Also, there will be stumps missed because of human error.

2. *Insufficient amount of chemical solution applied.* So many times, the man spraying the stumps only puts enough chemical down to just dampen the exposed stump. Without a tall stem present to permit the chemical to run down and puddle at the base, many stumps do not receive enough chemical solution to control the stump sprouts, let alone the root suckers. Also, a common problem with inexperienced men is the application of the chemical solution to only the cut surface of the stump. This puts very little, if any solution, where it is needed.

The solution to the problems with stump treatment can be found in the basal spray methods employed during the chemical spray program. With a basal spray, the stem to be removed is treated from 12 inches to 18 inches from the ground and the chemical solution is permitted to run down the stem and puddle at the base. This method of treatment assures a sufficient amount of chemical solution on the plant. Also, because

<sup>1</sup> Presented at the Northeastern Weed Science Society Meeting in January 1977.

the stems are standing and the oil carrier in the chemical solution leaves a stain on the treated stems; there is little chance, other than human error, of not treating all of the stems.

### Methods and Materials

With these possible solutions to the problem in mind, a small test area was chosen to compare the results of the three basic methods of brush control on the control of stump sprouts from all species found on the right-of-way and the root suckers of the black locust.

The location of the test area is on a distribution right-of-way that parallels U.S. Route 36 one mile south of Newburg, in Clearfield County, Pennsylvania.

The right-of-way was initially cut in 1970. At this time, there was no chemical applied. As a result of no chemical being applied, the right-of-way im-

3. *Pre Cut Basal*. This method involves the chemical treatment of the brush using the selective basal method followed by the cutting of the treated stem.

The chemical used was picloram plus 2,4,5-T containing 1 lb. picloram plus 4 lb. 2,4,5-T per gallon as the isooctyl (#1) and propylene glycol butyl (#2) ether esters respectively. This chemical was mixed at the rate of one gallon of chemical per 100 gallons of fuel oil. This solution was mixed at crew headquarters in 55 gallon drums. The chemical was applied with back pack sprayers.

The test was conducted on October 20, 1975 using a four man brush cutting crew. The result of this test was taken on July 15, 1976.

Upon review of the results (Table 1), the selective basal method showed the best control of the black locust sprouts, and also showed the lowest

### Results

Table 1

Treatment	% Black locust	No. locust sprouts	Untreated stumps or stems all species
Chemical Stump # 1	95%	307	39
Chemical Stump # 2	50%	536	41
Selective Basal	50%	66	5
Pre Cut Basal	95%	158	24

mediately resprouted, and by 1975, the regrowth had reached the conductors at many points. What made this section of right-of-way ideal for the type of test to be conducted, was that about 75% of the regrowth was black locust.

The methods of brush control to be compared were:

1. *Chemical Stump Treatment*. This method involves the removal of the brush from the right-of-way and then the chemical treatment of the stumps.
2. *Selective Basal Treatment*. This method involves the spraying of the brush from the ground up to about 18" high, depending on the diameter of the stem to be removed.

number of untreated stems. This method of brush control is best suited for lines that are in areas where the dead stems may be left standing. For the areas that must have the brush removed because of location, i.e., road crossings, lines paralleling the roads and residential areas, the pre cut basal method shows a marked improvement in prolonged brush control over the stump treatment method.

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