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*WEED KILLERS OF LIMITED USE
IN REFORESTING SCRUB OAK BARRENS*

Chemical weed killers have been under test for 3 years as a possible means of preparing planting sites in the scrub oak barrens of Pennsylvania.* Here the problem is to kill or set back the competing brush so planted trees can get started without costly release cuttings.

The tests were made at the Delaware-Lehigh Experimental Forest in Monroe County, Pennsylvania, in cooperation with the American Chemical Paint Co., which supplied materials and equipment, and the Pennsylvania Department of Forests and Waters.

The tests

2,4-D, ammate, and atlacide (a sodium chlorate preparation) were tried in several strengths and mixtures on scrub oak and associated species

*FOR TESTS IN NORTHERN HARDWOODS SEE NORTHEASTERN RESEARCH NOTE 1, AUGUST 1950.

in 1948. All treatments were foliage sprays with water solutions.

2,4-D in the strengths used (0.1 and 0.2%) was ineffective on scrub oak and most of the associated species. Atlacide killed the tops, but the root crowns soon resprouted in full vigor.

Ammate showed more promise. At 4 pounds per gallon it killed some oak root crowns and most of the other vegetation. Surviving root crowns of oak and other resistant species (such as red maple) resprouted only very weakly. It did almost as good a job at 2 pounds per gallon, but at 1 pound the kill was markedly less and resprouting was stronger. Applications in August obtained better kills than those tried in June.

Additional trials were made in 1949 to test some of the newer silvicidal developments. These were: (1) the chemical 2,4,5-T, (2) oil solutions, and (3) basal applications. Varying proportions of 2,4-D and 2,4,5-T in diesel oil and in water were applied in August as basal and foliage sprays. Concentrations used were 0.2 and 0.4% acid equivalent.

None of these treatments was successful. Most of them killed back the scrub oak tops to some extent, but the stem bases and root crowns resprouted in full vigor.

In addition to these small-plot tests, about 2 acres were sprayed in strips with a small power outfit. On 1 acre Weedone Brush Killer 32 (a mixture of 2,4-D and 2,4,5-T) at 0.6% concentration was sprayed basally; the other acre was treated with ammate at 2 pounds

per gallon as a foliage spray.

The brush on the Weedone-treated strips was killed back somewhat, but made vigorous recovery during 1950. Competition for the planted trees was reduced only slightly. Brush on the ammate-treated strips was all killed back and the sprouts from surviving root crowns were weak and deformed. Competition was much reduced. Most tree seedlings planted at least 2 feet from such persisting root crowns appear to have a good chance to come through without further help. There was no evidence of residual soil toxicity from the silvicides.

Conclusions

The chemicals 2,4-D and 2,4,5-T, applied as summer sprays at concentrations of 0.6% or less acid equivalent, do not control scrub oak or such common associates as chestnut, red maple, sassafras, chokeberry, and bracken fern.

Ammate at 2 pounds per gallon or stronger will kill or drastically weaken scrub oak and many of the species commonly associated with it. By such treatment the brush competition can be so reduced that planted tree seedlings have a good chance to survive.

Practical considerations

First, ammate is expensive. The chemical and costs of applying it run \$35 to \$50 per acre. Over-all coverage would be necessary. To attempt to cut costs by treating only spots or strips in scrub oak is impractical because planters could not see where they were. Treated areas do not show up until the leaves come out.

Second, to plant trees in standing oak brushkilled by silvicides is slow and difficult. Planters dislike the work and often would do a poor job.

These two problems will tend to rule out widespread general use of silvicides for preparing planting sites in scrub oak barrens. Their use in planting will probably be limited to certain situations such as parts of critical watersheds where soil disturbance could not be tolerated, or occasional small areas where use of heavy power equipment is not practical.

Tests of mechanical methods such as plows and bulldozers will be described in a later note.

--W. E. McQUILKIN

SOME RECENT PUBLICATIONS

Potter, H. S., Weitzman, S., and Trimble, G. R., Jr. *Reforestation of strip-mined lands in West Virginia*. Northeast. Forest Expt. Sta. Paper 43. 28 pp., illus. 1951.

Doverspike, G. E., and Camp, H. W., Jr. *Four test-demonstrations of hardwood log grades in the Northeast*. Northeast. Forest Expt. Sta. Paper 42. 19 pp., illus. 1951.

McGuire, John R., and Wray, Robert D. *Forest statistics for New York Forest District No. 1*. Northeast. Forest Expt. Sta. Forest Statistics Series: N.Y. No. 1. 21 pp. 1951.