

Killing Bitter Pecan With Undiluted Herbicides

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Undiluted amines of 2,4-D and 2,4,5-T, applied during spring with a metered tree injector, will kill bitter pecan culls on slackwater sites.

This is an early conclusion from tests being run by the Southern Hardwoods Laboratory, Stoneville, Mississippi. Undiluted herbicides have already been proved effective and economical on upland hardwoods.² The aim of the Stoneville research is to develop prescriptions for applying them in bottom-land forests, where deadening of weed trees and culls is one of the most urgent needs of timber management.

Bitter pecan (*Carya aquatica*) was chosen for the first trials because it had been found hard to kill in other tests. The two amines were applied within the bottom foot of the stem at spacings of two to five inches from the edge of one jab to the edge of the next. Tests were made in May 1963 and January 1964, on trees of two size classes: one to 6.9 inches in diameter at breast height, and seven to 12.9 inches. Dosage per jab was either one half or one milliliter (ml.) of undiluted amine (four pounds acid equivalent per gallon) per injection. Sixty trees were injected for every combination of season, chemical, volume per injection, and spacing of injections.

Results

In August 1963, or 10 weeks after application, the best spring treatment—1 ml. of 2,4-D at both the two- and five-inch spacings—had caused total crown kill on about three-fourths of the trees. By May 1964, 90 per cent or more of all trees jabbed in spring were dead, with no evidence of sprouting. Among the small trees, there was only one survivor out of 480. The large diameter class had 17 survivors—three treated with 2,4-D and 14 with 2,4,5-T.

Winter applications were much less successful. After one full growing season, no more than 10 per cent of the larger trees were dead, regardless of the amount or kind of chemical and spacing of jabs. Of the small trees, the winter application of 2,4-D killed 36 to 83 per cent and the 2,4,5-T killed 42 to 64 per cent. After two full growing seasons, less than 70 per cent of all trees in the winter treatments were dead.

A few bitter pecans larger than 13

inches in diameter were also jabbed. They responded about the same as the other trees. Spring applications of 2,4-D killed 86 per cent in one year, while 2,4,5-T killed 71 per cent.

In summary, it appears that spring applications of undiluted 2,4-D, in jabs five inches apart at the rate of one-half ml. per jab, will kill bitter pecans up to about 13 inches in diameter. At the same spacing, one ml. per jab will probably deaden larger trees. Winter applications cannot be recommended at this time, even at two-inch spacing and one-ml. dosages.

As a guess, the same treatments may be effective, but perhaps slower to act, on Nuttall oak, water oak, overcup oak, hackberry, soft elm, cedar elm, hawthorn, and green ash. Trials on box-elder are only one year old, but so far the kill has not been satisfactory.

The 2,4-D amine appears at least equal to the 2,4,5-T in potency, and costs much less. For two-inch spacing of one-ml. injections, 2,4-D to kill a tree six inches in diameter was 0.64 cent; for a 12-inch tree, the cost was 1.32 cents. Costs at the five-inch spacing were 0.46 cent and 0.95 cent. With ½- ml. dosages, these costs would be 50 per cent less.



Cull trees of bitter pecan can be killed with undiluted amines of 2,4-D and 2,4,5-T applied during the spring with a metered tree injector.

¹The authors are stationed at the Southern Hardwoods Laboratory, which is maintained at Stoneville, Mississippi, by the Southern Forest Experiment Station in cooperation with the Mississippi Agricultural Experiment Station and the Southern Hardwood Forest Research Group.
²Fred A. Peavy. Killing upland hardwoods with silvicides. Forest Farmer 22 (6): 14-16. 1963.