Three-year height of green ash not affected by root and top pruning

by R.A. Woessner and Van Hicks, Jr. 1

Hardwood nursery stock is frequently root pruned and top pruned to facilitate planting. How severe a pruning various hardwood species will tolerate without detriment to survival and growth needs to be determined with consideration for the numerous types of planting sites being artifically regenerated. Briscoe (1969) reported that top pruned sycamore lost no ability to survive and grow when the tap root was trimmed to less than 4 inches and all laterals were removed. One year survival of green ash was unaffected by severe root and top pruning treatments even when summer rainfall amounted to less than 2 inches (Woessner 1972).

The study reported here was established on the Texas A&M University farm in Burleson County, Tex. in March 1970 (Woessner 1972). Two hundred and thirty green ash nurseryrun seedlings ranging in root collar diameter from 1/4 to 3/4 of an inch were used. Two hundred of the trees were divided into eight 25-tree lots. One of the eight pruning treatments outlined in Table 1 was applied to each of the eight lots. Each 25-tree lot was separated into five replications of five trees. Thirty of the seedlings, six per replication, were used as a control. The 12- to 18- inch tops of the control seedlings were not pruned. The roots were pruned to 10 inches during the lifting process. Treatments were applied and the seedlings planted on March 1, in a cleanly cultivated Norwood Clay loam soil. The planting design was a randomized complete block. The trees were planted 1 foot apart on 40-inch rows. The trees were subjected to severe weed competition the first growing season and moderate weed competition the second and third growing seasons. Height measurements

1 Woessner, associate geneticist, Texas Forest Service and assistant professor, Texas Agricultural Experiment Station and Hicks, silviculturist, Texas Forest Service, Forest Science Lab, College Station, Texas.

TABLE 1.—*Root and top pruning treatments*

Treatment		Treatment code
6-in. tap root, all laterals removed,	4-in. top	6P4
6-in. tap root, all laterals removed,	8-in. top	6P8
6-in. tap root, laterals moderately pruned,	4-in. top	6NP4
6-in. tap root, laterals moderately pruned,	8-in. top	6NP8
10-in. tap root, all laterals removed,	4-in. top	10P4
10-in. tap root, all laterals removed,	8-in. top	10P8
10-in tap root laterals moderately pruned,	4-in. top	10NP4
10-in. tap root, laterals moderately pruned,	8-in. top	10NP8

TABLE 2.—*First, second and third year height of green ash by root and top pruning treatments*

Treatment code[1]	Green Ash		
	1 year	2 years	3 years
6P4	2.5	5.6	11.1
6P8	2.4	5.4	11.0
6NP4	2.4	5.6	10.9
6NP8	2.6	5.6	11.0
10P4	2.5	5.2	9.6
10P8	2.6	5.5	10.4
10NP4	2.4	5.1	9.8
10NP8	2.9	5.8	10.7
Treatment mean	2.5	5.5	10.6
Control mean	3.1	5.8	10.5
	ns[2]	ns[2]	ns[2]
Std. Error	.12	.24	.50

[1]Treatment codes are explained in Table 1.

[2]ns = not statistically significant at the .05 level

were made after the first, second, and third growing seasons.

Survival at the end of the third growing season (96 percent) was the same as after the first. Analysis of the total height results given in table 2 indicated neither the superiority or inferiority of any of the root pruning and top pruning treatments. Similarly, no meaningful differences exist between the control trees (mean height 10.5 feet) and the mean of the pruned trees (mean height 10.6 feet). These results indicate that green ash performs in much the same manner as Briscoe reported for sycamore.

Literature Cited

Briscoe, C. B.

1969. Establishment and early care of sycamore plantations. USDA Forest Service Research Paper 50-50. USDA Forest Service, So. Forest Experiment Station. 18p.

Woessner. R. A.

1972. Four hardwood species differ in tolerance to pruning. Tree Planters' Notes, February 1972, Vol. 23, No. 1, 28-29.