

SYCAMORE PRODUCES VIABLE SEED AFTER SIX YEARS

In the early stages of any tree improvement program it is desirable to know how soon progenies of selected parents can themselves be included in a breeding program. How soon will they produce viable pollen and seed? In the case of sycamore (*Platanus occidentalis* L.), the information is meager: the Woody-Plant Seed Manual lists the minimum commercial seed-bearing age for sycamore as 25 years.¹ Four open-grown trees at Athens, Georgia, however, have produced viable seed during their sixth growing season.

In January 1961, 1-year-old sycamore seedlings were hand-planted on a moist bottomland pasture in Greene County, Georgia, as part of an N-P-K factorial fertilization experiment. Seedlings from the same seed source (Greene County), and grown under the same nursery conditions, were subsequently made available to the public by the Georgia Forestry Commission for shade tree plantings. I planted five of these seedlings in my yard in Athens, Georgia, in February.

During the 1965 growing season--their sixth from seed--three of these five trees produced seed. The plantation-grown trees during this time had done very well (4 to 10 feet in height per year) following fertilization the first growing season. Yet none of these trees produced seed. Nearly $\frac{1}{4}$ bushel of seed balls were collected from two of the yard trees, and about one-half that quantity from the third.

Germination tests were run by the Eastern Tree Seed Laboratory in Macon, Georgia (table 1). According to the Seed Manual, these germination percentages would fall in the low-to-average range for sycamore. It is also interesting that, in general, all filled seed germinated.

One should not infer from these results that all open-grown sycamore can be counted on to produce seed within 6 years, because these individuals were fertilized annually and watered during dry spells. It is also doubtful that these sycamores represent early-flowering genotypes. Seed collected in March 1966 from a wild 6-year-old sapling found growing in the open on a pasture creek bank near Athens had a germination percentage which,

¹U. S. Forest Service. Woody-plant seed manual. U. S. Dep. Agr. Misc. Pub. 654, 416 pp., illus. 1948.

although low (7.3%), indicates that this tendency for early pollen and seed production is not necessarily a rare trait for sycamore. These observations do indicate, however, that by growing at wide spacings with abundant water and fertilization, we may be able to stimulate sycamore to produce seed at relatively early ages.

Table 1. --Germination of test seed under various treatments

Treatment	Test length	Tree 1	Tree 2	Tree 3
	Days			
Unstratified; no pretreatment	7	16	22	13
	14	16	22	13
	21	16	22	13
Unstratified; 24-hour water soak	7	15	29	12
	14	15	30	15
	21	15	30	15
Stratified 30 days in plastic bag at 38° F.	7	16	27	15
	14	16	28	15
	21	16	28	15

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