A SIMPLIFIED GERMINATION TEST FOR AMERICAN SYCAMORE

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As recently as 1951 Putnam (3 p. 37) stated that no seed of bottom land hardwood tree species would germinate under water. A year earlier Baker (1, p.237) had made a similar statement concerning all forest tree seed. In 1957, however, Hosner (2) reported the underwater germination of cottonwood (Populus deltoides and black willow (Salix nigra); the senior author has since confirmed Hosner's work. During recent studies of presowing soaking of sycamore seeds at room temperature (70°-75°F.) underwater germination began after 10 days. Thus another species was added to the list of riverfront species capable of germinating under water when conditions are satisfactory.

Because germination tests in water obviously require less space and equipment than "standard" methods, a study was begun immediately to determine comparability of results. Seed used had been stored approximately 9 months, one lot at 5°F. and the other at 41°. Seed sowed in sand flats was presoaked 48 hours in tap water, our normal presowing treatment. Water used in the underwater tests was tap water, changed at 4-day intervals after germination began. Figures below represent the average of four replications of 100 seed each of American sycamore in sand flats and under water, and give the percent of germination through the thirtieth day after sowing:

Temperature of presowing storage (°F.):	Sowing Medium	
	Sand (percent)	Water (percent)
5.....	7.25	16.00
41.....	9.75	23.00
Average.....	8.50	19.50

Germination tests of sycamore seed in water required less space, less equipment (test tubes instead of bulky seed flats), fewer man-hours (no sterilizing of medium and no daily watering). They yielded a percent of germination highly significantly greater than in sand, providing a more accurate indication of the germination capacity of the seed lot.

LITERATURE CITED

(1) Baker, F. S. Principles of silviculture. McGraw-Hill Publishing Co., Inc., New York. 414 pp. 1950.
(2) Hosner, J. F. Effects of water upon the seed germination of bottom land trees. Forest Science 3(1) 67-70. 1957.
(3) Putnam, J. A. Management of bottomland hardwoods. Southern Forest Experiment Station Occasional Paper 116. 60 pp. 1951.