
Planting Season for Cottonwood Can Be Extended

Harvey E. Kennedy, Jr.

ABSTRACT. Cottonwood cuttings planted as early as November and as late as May survive and grow well if sufficient soil moisture is available and cuttings are properly handled. About 6 inches or more of well distributed rainfall is needed in September and October to recharge Commerce soil. If these two months are dry, planting should be delayed. In March or later, cuttings should not be planted during dry spells of two weeks or longer. Early planting does not significantly improve root development but does give the trees a growth advantage in the first year.

Interest in planting cottonwood (*Populus deltoides* Bartr.) increases each year because of its value for pulp, veneer, and furniture stock. As labor becomes more scarce, forest managers are hard pressed to complete planting in what is regarded as the normal planting season, January to mid-March. This paper reports results of early (before January) and late (after mid-March) planting of four select cottonwood clones.

The study was established at Catfish Point in 1971-72 and at Huntington Point in 1973-74 and 1974-75. Huntington Point is about 15 miles north of Greenville, Mississippi, and Catfish Point is about 5 miles north of Huntington. Soil type is Commerce silt loam; site index for cottonwood is 120+ feet at age 30 (Broadfoot 1976). A randomized complete block design with three replications was used. Ten 20-inch cuttings of each clone were hand-planted in randomly assigned rows on each planting date. There were 13 planting dates from November 1 through May 1 for each year.

For the November 1 through January 3 plantings, cuttings were made on the morning they were planted. Cuttings for the remainder of the planting dates were made between January 4 and January 16, wrapped with damp peat moss and plastic, and stored in a cooler at 35°-40° F until planting.

Each location was clean cultivated during the first and second growing seasons. Survival, height, and d.b.h. were measured at the end of the first and second growing seasons at each location. Arcsin transformations of survival percentages were made, and analysis of each variable after one year was at the 0.05 level.

Extra cuttings were planted on each planting date in 1/2-gallon milk cartons for root sampling. Holes were drilled near the bottom of each carton to facilitate drainage. Cartons were filled with soil and placed in a trench in which the top was level with the soil surface. Soil temperatures in the cartons and field were checked at lifting time. Cuttings were lifted the first of each month from December through June. After lifting, soil was removed from roots by gently washing with water, and root development studied.

RESULTS AND DISCUSSION

Survival rates for 1974 and 1975 were significantly better than that for 1972. These differences were mainly related to rainfall amounts and distribution, particularly with the early planting dates, but also

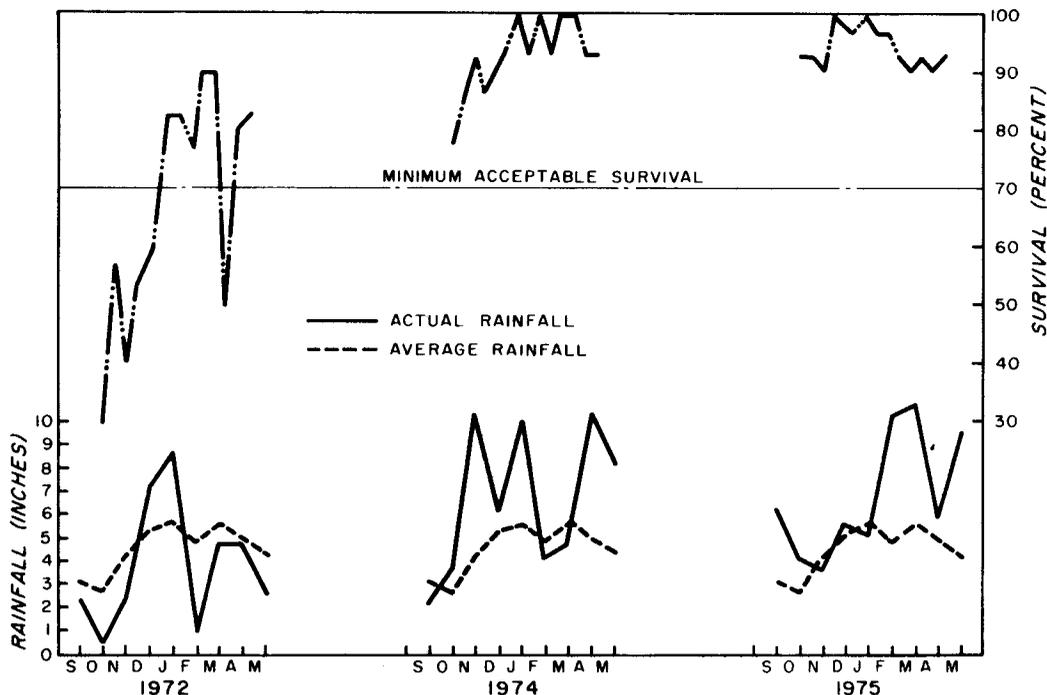


Figure 1. Relationship of actual and average rainfall from 1972 to 1975 to percent survival of cottonwood.

during the growing season. Rainfall in September, October, and November of 1972, was about half the 50-year average for these three months (Figure 1). Survival was low (30 to 50 percent) for the November and December planting dates and increased only after rains in December and early January recharged the soil. Also in 1972, a drought occurred in February and March. The soil dried during this period, resulting in low survival for the April 3 planting. In 1974 and 1975 planting seasons, rainfall was average or above during September, October, and November, and survival was high (78 to 93 percent) even in the early plantings (Figure 1).

Planting dates significantly affected growth. After one growing season, trees planted in April and May averaged 78 percent (6 to 8 feet) the height of those planted earlier (10 to 11 feet). However, after two growing seasons, late-planted trees were 93 percent as tall as ones planted earlier and in a good competitive position. Diameters followed the same trends as heights.

Cuttings planted in milk cartons were examined monthly for root initiation and development. Some cuttings planted in milk cartons in November initiated roots shortly after planting. Data showed they would initiate roots until the soil temperature dropped to about 50 to 55°F. At lower temperatures rooting stopped. Roots that had already started grew slowly during winter. Root initiation in the spring began again as soil warmed up, and nearly all cuttings had rooted by May 1. When cuttings were lifted on June 1, those that had been planted only one month had as extensive a root system as those planted in November and December.

SUMMARY AND CONCLUSIONS

In the Mississippi Delta, there is a high probability (6 to 7 years in 10) of dry weather in early September, mid-October, early March, and late April. If rainfall is less than 6 inches in September and October, planting should be delayed until there is enough rain to recharge the soil. About 6 inches or more of well distributed rainfall is needed during this period to recharge Commerce or similar soil. Also, if a two- to three-week period without rainfall occurs at any time during the planting season, planting should be delayed until there is at least 1 to 2 inches of rainfall.

Early planting does not necessarily help root development. It does give the trees a growth advantage the first year, probably because late-planted trees lose about a month of their growing season. However, the growth loss from late planting is only temporary as late-planted trees were in as good a competitive position after two growing seasons as those planted early.

Literature Cited

BROADFOOT, W. M. 1976. Hardwood suitability for and properties of important Midsouth soils. U.S. Dep. Agric. For. Serv. Res. Pap. SO-127, 84 p. South. For. Exp. Stn., New Orleans, La.

Harvey E. Kennedy, Jr., is principal silviculturist, Southern Hardwoods Laboratory, Southern Forest Experiment Station, USDA Forest Service, Stoneville, Mississippi, in cooperation with the Mississippi Agricultural and Forestry Experiment Station and the Southern Hardwood Forest Research Group.