Reprinted from: PROCEEDINGS: SYMPOSIUM ON EASTERN COTTONWOOD AND RELATED SPECIES, p. 428-431. 1976.

SUMMARY OF THE 1976 COTTONWOOD PLANTATION SURVEY

Silviculture and Planting Committee
Poplar Council of North America

E. C. Burkhardt, Chairman
R. M. Krinard, Co-Chairman

In 1976 the Silviculture and Planting Committee of the Poplar Council conducted a mail survey in an attempt to gather information on cottonwood plantations. Letters went to known planters, most of the larger timber and pulpwood companies, and to one or more knowledgeable persons in 24 States and Canada. A total of 56 people were contacted, and 33 replies were received.

Several different types of inquiries were made. One type, containing several forms, went to landowners who had or might have cottonwood plantations or to people who might know of plantations, asking for acreages of plantations by ages and States where located, intended products, source of planting stock, cultural techniques, and an opinion of research needs for cottonwood. Another type inquiry was a "who do you know" letter--who do you know in your area, or State, or region who has cottonwood plantings, and addresses if known, so that the planting committee could contact them? A third type of inquiry to small landowners asked only for acreages, ages, and spacings. The survey asked for information of Populus species planted for commercial use--wood and fiber production--rather than plantings for spoil bank-land reclamation and windbreaks.

Cottonwood plantations are concentrated in States bordering the Mississippi River, starting with Illinois and Missouri and continuing south. Small experimental plantings have been tried in most southern States, and cottonwood has been used in windbreaks in the plains States, and in strip-mining reclamation in the mid-West and east into Pennsylvania. In the Northwest there are plantings in the experimental stage, although one possible commercial operation did not reply. No replies were received from the Northeast.

For Canada, a copy of the report on poplar submitted to the 15th Session of the International Poplar Commission of FAO, 1975, was received. Their estimate was 5,300 ha. (13,100 acres) in planted poplar stands in Canada, with the prospect of an increase in plantings.

Acreage in cottonwood plantations, to the nearest 50 acres, by States in the Mississippi River Valley are as follow:

State	Acres
Illinois	300
Missouri	300
Kentucky	250
Tennessee	350
Arkansas	5,000
Mississippi	22,400
Louisiana	11,800
TOTAL	40,400

Pulpwood is the intended product on 69 percent of the area and sawlogs/veneer on 31 percent. Of the above total acreage, 17 percent is in the second rotation.

Percentage of acreage and acreage to nearest 50 acres by age classes are as follow:

Age in years	Percent	Acres
1 - 5	41.6	16,800
6 - 10	40.7	16,450
11 - 15	15.9	6,400
16 - 25	1.6	650
> 25	0.2	100

Seventy percent of the respondents with cottonwood acreage said they plan to increase the amount of acreage planted during the next 5 years as compared to the previous 5 years. The main deterrent to greater increases in acreage planted were, by a large margin, establishment costs as compared to present or future utilization or markets or the nation's general economy.

Current thinking of plantation spacing was sampled by asking for spacing used in the 1975-76 plantings. Half of the respondents used 12 by 12 feet on at least part of their plantings. Other spacings used were 10 by 10 feet, 11 by 11 feet, 14 by 14 feet, 15 by 15 feet, 20 by 20 feet and two rows 10 feet apart with 10-foot spacing within the rows and 18 feet to the next row to allow for crop interplanting. Sawlog producers tend to use wider spacings than pulpwood producers, but not always.

In the 1975-76 planting all cuttings were nursery grown, with no "bar run" (unselected) stock used. All planters used some superior clones. Half the planters grew all their own planting stock; the other planters obtained from a portion to all their cuttings from State nurseries. A fourth of the planters planted some seedlings.

For site preparation a majority of the planters used crawler tractors in the D-5 to D-8 range on new ground and generally 95 to 120 horsepower wheel tractors on old fields, and offset disks were most frequently mentioned. Nearly all planters start mechanical weed control with front end-mounted cultivators in their plantations.

Prior to planting, the minimum number of times the land is gone over with site preparation implements varied from 1 to 3 times for old fields and 1 to 2 times for both new ground and replanting land previously in plantation. Maximum number of times to go over the land varied from 2 to 6 for old fields, and 2 to 4 for both new ground and replanting.

Number of times cottonwood plantations are cultivated the first year varies considerably by sites and types of growing seasons. Minimum number of cultivations on old fields varied from 2 to 8 and maximum number from 4 to 12. Minimum number of cultivations on new ground varied from 2 to 6 and maximum from 4 to 12. If averages have any meaning in this situation, minimum number of cultivations are slightly more than 4 and maximum number 7 on both sites.

Half the respondents said they did second-year cultivation as a matter of course, and the other half did second-year cultivation where they thought it necessary, such as poor or unsatisfactory first-year growth or a bad weed situation or site conditions. A disk was always used in second-year cultivation. Where necessary, a majority of the planters will hand hoe their plantations.

Only two planters, both desiring sawlogs or veneer, prune their plantations. One uses pruning saws from the ground, and the other chainsaws from tractor-mounted platforms.

Respondents were asked to rate research needs for cottonwood, both in plantations and natural stands, in order of importance. Replies were sorted for those with less than 500 acres in cottonwood plantations and those with more than 500 acres. For those with more than 500 acres, replies were sorted by ultimate product--either pulpwood or sawlogs/ veneer. Results of top five priorities for cottonwood plantations, with priorities listed in descending order, are:

	>500 acres		<500 acres
	Pulpwood	Sawlog	
1.	Cost cutting practices	Cost cutting practices	Superior stock
2.	Site-yield relations	Superior stock	Cost cutting practices
3.	Superior stock	Utilization	Site-yield relations
4.	Thinning-yield relations	Thinning-yield relations	Nursery practice
5.	Utilization	Pruning	Insect and disease

Rated very low by pulpwood respondents were nursery practice, pruning, and deer protection. Rated very low by sawlog respondents were nursery practice, fertilization, and deer protection.

Results of top three priorities for natural stands of cottonwood, with priorities listed in descending order, are:

	>500 acres		<500 acres
	Pulpwood	Sawlog	
1.	Site-yield relations	Utilization	Natural regeneration
2.	Thinning-yield relations	Natural regeneration	Site-yield relations
3.	Utilization and natural regeneration (tie)	Site-yield relations thinning-yield relations (tie)	Utilization

Fertilization and insect and disease were low priorities for natural stands for all groups.

In summary, there are now slightly more than 40,000 acres in cottonwood plantations with good prospects of adding more acreage over the next 5 years. The main drawback to cottonwood plantations is the initial cost. Reducing costs, developing faster growing trees, better utilization, and determining site-thinning-yield relations would improve the cottonwood planting picture. Plantation spacing is dependent on the site and final product, but is in a state of change and additional yield data are needed. Cultural practices are fairly standardized, with the important item being to restrict weed competition through at least the first year.