



CENTRAL HARDWOOD NOTES

Estimating Bottomland Hardwood Growth And Yield

Most bottomland hardwoods grow on very productive sites-site index 70 or more. A fully stocked immature stand (table 1, fig. 1) requires tending throughout its life. The goal is to attain a stand of approximately 50 high quality trees of commercial species per acre at maturity. Releasing these crop trees can result in the cumulative yield of 2,000-4,000 board feet per acre and 30-35 cords of poletimber and topwood from the thinnings before the final harvest.

Table 1 .-Stocking guide for maintaining maximum growth on good sites

Average d.b.h.	A-level (maximum stocking)	B-level (minimum stocking)
 <i>Numberoftrees</i> -----	
6	475	202
10	202	112
14	112	71
18	71	49
22	49	36
26	36	27

A well managed, fully stocked, mature stand will yield from 15,000 to 18,000 board feet per acre (International 1/4-inch rule) and 5 to 6 cords of topwood from the harvest cut (table 2). You should clearcut for the final harvest. This not only efficiently removes all products, but creates the opening necessary to establish a new stand of intolerant species.

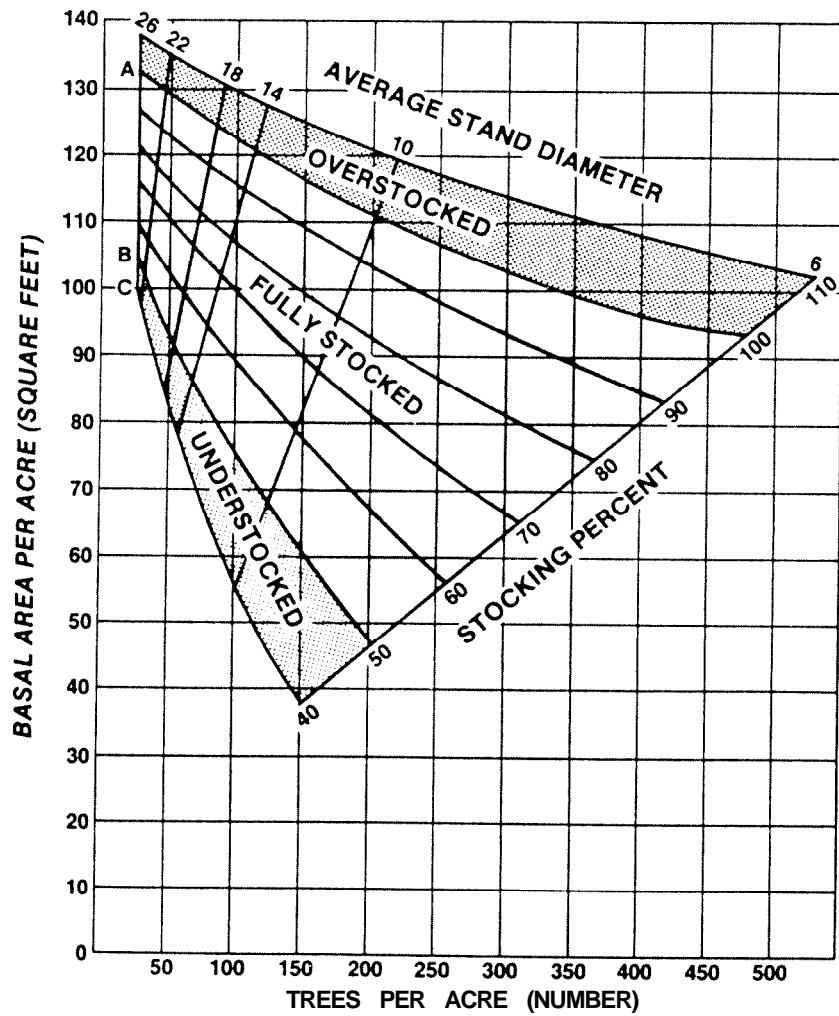


Figure 1 - Stocking guide for bottomland hardwoods.

Table 2.-Cumulative yields per acre for well-managed stands on good sites

Average d.b.h.	Sawtimber		Poletimber	Topwood
	Standing crop	Previous thinnings		
	----- Board feet -----		----- Cords -----	
6	0	0	5.3	0
10	0	0	11.8	0
14	5,196	0	18.8	6.8
18	10,623	0	18.8	12.7
22	14,699	1,705	18.8	18.2
26	18,243	3,876	18.8	23.2

Eastern cottonwood is an important component and cannot be maintained without management or natural disturbance. Eastern cottonwood is included in the Central States version of the computer software called The Woodsman's *Ideal Growth* Projection System (TWIGS). A condensed output from a sample TWIGS run for a pure cottonwood stand, age 20 years, is given in table 3. The stand site index was given as 80 and stand age as 20 years. In addition to projecting growth, TWIGS aids you by providing management and economic analysis.

Table 3.-Eastern cottonwood growth projection from TWIGS ¹

	1985 (age 20)	1995	Mortality
No. trees/acre	200	168	3.2
BA/acre	109.4	129.5	18.1
Ave d.b.h.	10	11.8	—

¹ To obtain TWIGS, write or call: Forest Resources System Institute
 201 North Pine Street, Suite 24
 Florence, AL 35630
 (205) 767-0250

References

- Myers, C.C.; Buchman, R.G. 1984. Manager's handbook for elm-ash-cottonwood in the North Central States. Gen. Tech. Rep. NC-98. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 11 p.
- Miner, Cynthia L.; Walters, Nancy R.; Belli, Monique L. 1989. A guide to the TWIGS program for the North Central U.S. Gen. Tech. Rep. NC-125 St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 105 p.

Charles C. Myers
 Department of Forestry
 Southern Illinois University
 Carbondale, Illinois