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COTTONWOOD—A PROMISING TREE FOR INTENSIVE MANAGEMENT

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Eastern cottonwood is by far the most important of ten closely related native species of cottonwood—most of which have numerous varieties and apparently hybridize frequently. It is one of our fastest-growing native trees and the wood is widely used in many different products. Because of exceptionally fast growth and relatively high value, eastern cottonwood is a very promising tree to grow in plantations under intensive management.

Eastern cottonwood ranges from western New England to North Dakota and south to Florida and Texas. It is most abundant in the lower Mississippi River valley, especially in Arkansas, Mississippi, and Louisiana. These three states are estimated to contain about 30 percent of the total sawtimber stand of about 6 billion bd. ft. of all species of cottonwood in the United States. The remaining 70 percent is scattered through 40 or more states. Since only eastern cottonwood will be discussed here, it will be referred to hereafter simply as cottonwood.

Character and Uses of the Wood

The wood is light in weight and color, comparatively uniform in texture, and usually straight-grained. It is suitable for industrial lumber, veneer, and excelsior, and—in the form of pulp—for high-grade book paper and fiberboard. Cottonwood yields an unusually high proportion of clear wide boards, and generally contains little defect. About 85 percent of all cottonwood used in the manufacture of wooden products goes into boxes and crates. It is particularly desirable for containers because of its light weight, lack of odor, ability to take nails without splitting, and good color for stenciling.

In 1939 cottonwood ranked fifth among native veneer woods in amount consumed, although it represented only 4.5 percent of the total. Used mainly in containers, cottonwood veneer is also used for the interior parts of furniture and for a multitude of other products. Pulpwood is a distinctly minor product, representing less than 1 percent of total domestic cottonwood consumption in 1940, but would undoubtedly become more important if large permanent supplies could be assured.

Eastern cottonwood is grouped with swamp and black cottonwoods, aspens, and balsam poplar under the term "cottonwood" in lumber production statistics of the Bureau of the Census, so the annual commercial production of eastern cottonwood alone can only be estimated. Average production of cottonwood lumber in the South from 1931 to 1940, however, averaged about 60 million bd. ft., and most of this came from eastern cottonwood in Mississippi, Arkansas, and Louisiana. The recent and current rates of production are much greater because of the huge demand for wood during the war.

Growth and Yield

Cottonwood is relatively short-lived but grows so rapidly that it reaches a large size when still relatively young. Annual growth in natural stands and plantations on good sites averages ⅔ to 1 inch in diameter and 5 feet in height up to 10 or 15 years of age. Later growth is somewhat slower, but well-stocked natural stands have been found to contain trees averaging 20 inches in diameter breast high and 120 feet high when 35 years old. Fully stocked natural stands on good sites yield about 50 cords at 15 years and 27,000 bd. ft. at 35 years. Yields from well-stocked and regularly thinned plantations on similar sites will exceed those from unthinned natural stands. The prospect of such

Planted cottonwood 5 years old on Delta Experimental Forest, Stoneville, Mississippi. Spacing — 6'x6'; survival — 43 percent; average D.B.H. — 3.2" average height—26.2'.

tremendous yields makes cottonwood a promising tree for intensive management.

Site Requirements and Natural Reproduction

Cottonwood grows mainly on stream banks and other moist but relatively well-drained sites. The most extensive pure stands grow on islands in the Mississippi River and on "batture" land, or land between the Mississippi and its levees and therefore subject to annual or frequent overflow. Cottonwood stands originate only on bare soil that is saturated but not covered with water for long periods during seedfall. Freshly deposited alluvial soil is therefore the principal and only important site suitable for cottonwood reproduction. Mature stands always contain an understory or ground cover of other hardwoods, vines, and shrubs. When these stands are cut this other vegetation keeps out cottonwood reproduction even where moisture conditions seem favorable. Since the requirements for natural reproduction are so exacting and seldom attained, cottonwood must be planted to insure its establishment.

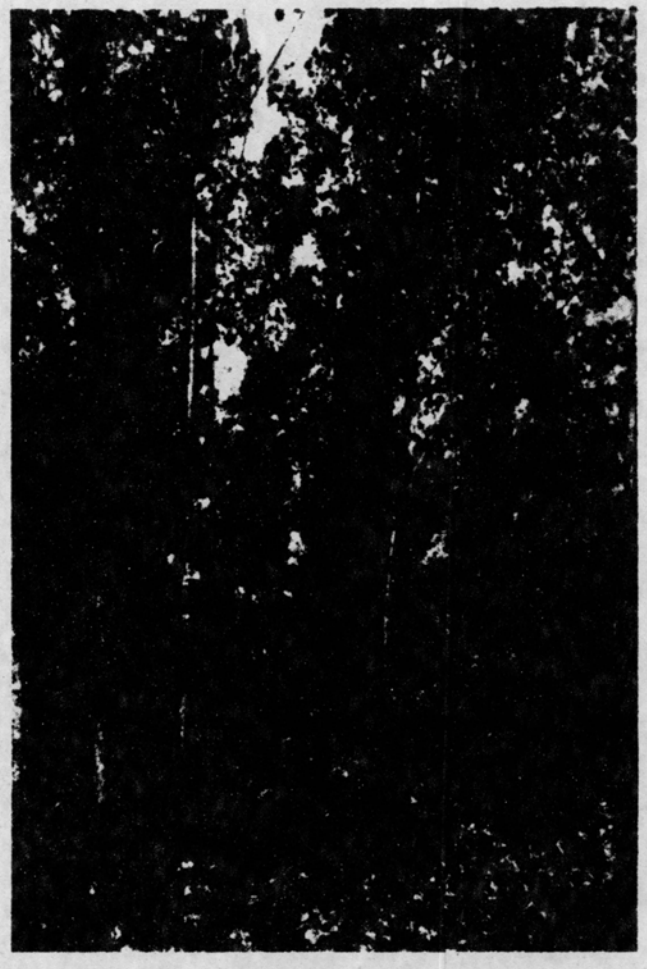
Planting Sites

Although cottonwood grows best on moist well-drained sandy loam or silty soils close to a stream, satisfactory growth also occurs on heavy clay soils near ditches and on the borders of swamps and sloughs. Soils that dry out badly and crack open deeply in the late summer and fall are unfavorable. Coarse sandy ridges or former sand bars that are so dry and sterile that there is little or no vegetation of any kind are entirely unsuitable. Low swampy sites and those subject to deep or prolonged overflow are equally bad. This latter condition poses one of the tough problems in cottonwood planting. Opportunities are numerous, and it is especially desirable, to grow cottonwood on land that is not protected from overflow and that often was formerly occupied by cottonwood. At the time cottonwood has to be planted, in February or March before the buds open, it is usually impossible to tell whether or not there will be enough overflow (or backwater in the case of some sloughs and low areas protected by levees) to wipe out the plantation. In most cases the inundation that kills young cottonwood would also kill baldcypress, water tupelo, or any other species of similar size.

Planting Stock and Release from Competition

Cottonwood planting experiments are being conducted by the Southern Forest Experiment Station at Stoneville, Mississippi, in the heart of the Yazoo-Mississippi Delta, in cooperation with the Delta Experiment Station. Studies were started in 1940 as part of a Norris-Doxey Farm Forestry Research Project. It has been found that 1- or 2-year-old seedlings, and 20-inch cuttings made from the tops of such seedlings, make the best planting stock. Seedlings may be collected from natural stands on river banks and islands, borrow pits, or ditches, or they may be grown in nurseries. Cuttings from trees more than 2 years old show a very low percentage of survival and are therefore unsatisfactory. Both seedlings and cuttings are readily planted in holes made by a rod ½ inch in diameter. The rod should be bent 15 inches from the lower end to form a step which is needed in hard clay soils and also serves to regulate the depth of planting.

The most important finding about cottonwood propagation is that planted trees must be released at least once and preferably twice during their first growing season by removing all vegetation within about 18 inches of each tree before it is overtopped. This is intensive treatment, but it is essential to success. Cottonwood cannot become well established if subjected to intense competition in its first year in the field. It grows best where weeds and vines also grow best, but easily outgrows competing vegetation once it is well established. The growth of weeds and vines on cut-over bottomland sites is so profuse and rapid that most newly planted cottonwoods are simply smothered if not released by May or early June.



Trees in full foliage, 6 years old

Much research remains to be done in developing the cheapest effective methods of accomplishing release under different conditions. One promising method is to grow corn between rows of cottonwood, and cultivate both plants intensively as long as the corn needs it. The cost of establishing cottonwood is greatly reduced by the returns from the corn, and the cottonwood benefits greatly from the intensive cultivation. Chemical control of competing vegetation is a possibility also worth investigation.

Probable Costs and Returns

There is very little basis in experience for estimating average costs and returns for cottonwood plantations, and figures will certainly vary widely under the variety of conditions that may be encountered. It is thought, however, that it will cost a farmer in the lower Mississippi River valley about $15 per acre to establish a plantation. Taxes and protection from fire and grazing

over a 35-year rotation will probably raise the total cash expenditures to some $18 to $34, depending on the location of the plantation. The lower figure is for land not protected by levees and therefore lightly taxed. Gross returns from stumpage from the final harvest alone should be about $220. Yields from thinnings should increase these returns at least one-fourth or one-third.

Under intensive management, good cottonwood plantations will probably be profitable even on rather costly and heavily taxed land. It is on cheap cut-over land between the levee and the Mississippi River, however, that cottonwood plantations offer the greatest promise even though they are also a more hazardous enterprise there. Cottonwood is not easy to grow in full stands on average bottomland sites, but successful plantations should be well worth the cost and effort required.

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FLAX PAPER MANUFACTURED IN THE UNITED STATES

A new line of fine light-weight papers, such as writing, airmail, and Bible papers, made wholly from flax fiber is announced by the Ecusta Paper Corporation of Pisgah Forest, North Carolina, America's largest manufacturers of high-grade cigaret paper.

Paper made directly from the raw flax fiber (as distinct from linen rag paper) is a new development in American paper manufacture. The process of separating the fiber from the flax plant and of converting it into paper is the result of many years of experimentation in which the Ecusta Paper Corporation has played the leading part. The Ecusta plant, one of the most modern in the country, went into production in 1939, and made this country independent of foreign sources of cigaret paper supplies. Today this company produces more than two-thirds of all the cigaret papers manufactured in the country. Ecusta paper is currently being used in such well-known cigaret brands as Camels, Chesterfields, Old Golds, Philip Morris, Lucky Strikes, and many others.

Ecusta is in a unique position to manufacture other thin papers of the highest quality in a great variety of types. These new writing and airmail papers are characterized by a fine formation and whiteness. Mr. Harry H. Straus, president of the Ecusta Paper Corporation and originator of the concept of using raw flax fiber for paper making, says that an ample supply of the paper is available immediately.

The new fine paper division of Ecusta Paper Corporation is under the management of Charles J. Grant, one of the most widely known fine paper men in the industry. Mr. Grant's experience over a long period of years in both the manufacturing and converting of fine papers brings to Ecusta the knowledge so necessary for the printing and converting trade. Just prior to joining Ecusta, Mr. Grant was for two years Chief of the Fine Paper and Converting Section of the Paper and Paper Products Branch of the Office of Price Administration in Washington.

Ecusta papers will be distributed through leading paper merchants in the principal graphic arts centers of the country. Matching envelopes, both printed and plain, are being made by the United States Envelope Company. The list of merchants that handle Ecusta Fine Flax Writing and Airmail Papers includes: Bauer Paper Company; Barton, Duer and Koch Paper Company; Carpenter Paper Company; Central Ohio Paper Company; Carter Rice and Company; Dillard Paper Company; Graham Paper Company; Jacksonville Paper Company; Judd Paper Company; Kennelly Paper Company; Hobson Miller Paper Company; Marquardt and Company; Miller and Wright Paper Company; Paper Supply Company; Frank Parsons Paper Company; Reinhold-Gould, Inc.; Sloan Paper Company; Schlosser Paper Corporation; Southern Paper Products; J. L. N. Smythe Company; B. W. Wilson Paper Company; Zellerbach Paper Company.

FATS, OILS AND OILSEEDS

European demand is strong for fats and oils to be supplied from the United States in 1945. Also, domestic demand is expected to remain at a high level next year. But the total supply of fats and oils available in the United States in 1945 probably will be considerably smaller than in 1944, with substantial reductions in the output of lard, grease, and linseed oil. Prices of most fats and oils are expected to remain at ceiling levels during 1945.

Tentative acreage goals and price-support programs for soybeans, flaxseed, cotton, and peanuts in 1945 were announced in mid-November. No change from 1944 was suggested in soybean or cotton acreage, but an increase of about 50 percent in flaxseed acreage and a decline of 4 percent in peanut acreage were proposed. Support prices for soybeans and peanuts would be the same as for the 1944 crops. For No. 1 Flaxseed, support prices would be placed at 10 cents per bushel under ceiling prices at all terminal markets. This would be $3.00 per bushel at Minneapolis, Chicago, Portland, and other Northwestern markets, up 5 cents from the present support level: $3.20 at Los Angeles and San Francisco, up 35 cents: $2.85 at Kansas terminals, and $2.80 at Texas markets, the same as in 1944. Cotton prices would be supported at 92.5 percent of the parity price.

Final goals and programs will be based in part on discussions with state leaders in late November and early December. Also, these programs will be contingent upon action by the Congress in providing funds and authorization for carrying them into effect.

The national average price received by farmers for peanuts in mid-November was 8.1 cents per pound, 0.4 cents more than a month earlier. This advance was largely a result of higher prices in Virginia and North Carolina. In these states the new crop began to move to market in volume in November at prices 1 cent per pound higher than those in effect for the old crop. Average prices to farmers for soybeans and cottonseed ($2.05 per bushel and $53.40 per ton, respectively) were slightly higher in mid-November than a month earlier. Flaxseed prices, at $2.90 per bushel, averaged the same as in mid-October. Parity prices for oilseeds