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Intensive Culture on Industrial Forest Lands and Future Wood Supplies

Several months ago the Subcommittee on Intensive Culture (SIC) of the TAPPI Technical Trends and Needs Committee conducted an industry-wide survey of the trends and needs in intensive culture and the impact of cultural activities on wood supplies. Replies were received from 109 companies (a 66% return). The results of that survey are summarized here, and the complete report will be published elsewhere.

Recent reviews and forecasts have indicated that future timber supplies will fall short of demand at constant real prices if present levels of forest management and utilization continue. Wood supplies can be increased in several ways, one of which is investment in intensive culture practices to accelerate forest growth. The 1970 Outlook for Timber prepared by the Forest Service examined opportunities for intensified management on forest lands in general, with special emphasis on national forest and farm, and miscellaneous private lands. Both classes of land physically could provide much additional wood via intensive culture, and this fact has been well documented. Less emphasis in the Outlook was given to opportunities for industrial ownerships.

The SIC report is intended to provide more specific data regarding intensive culture activities on industry lands, which account for 14% of the nation’s total commercial forest land area. In general, industry lands are of higher relative productivity, and therefore may be more amenable to intensive culture than other lands. Other reasons for the committee’s emphasis on industry lands include the greater degree of owner control and the track record of substantial investments in recent years, indicating an ability to develop more reliable forecasts of intensive culture activities and impacts on future wood supplies. Finally, a better understanding of forecasted and potential increases in wood supply from intensive culture on industry forests should facilitate judgment of what may be possible on lands of other ownership classes.

A questionnaire was developed to determine trends, needs, and attitudes regarding intensive culture and future wood supplies. Intensive culture includes the following techniques, which can be used singly or in various combinations: growing-stock control, site preparation, weed control, species conversion, genetics, fertilization, drainage, irrigation, and short-rotation or silage forestry. Questions dealt with past (1971–1974) and anticipated future use (1975–1985) of 12 intensive culture practices, estimated contributions of these practices to timber harvest levels and expected harvest increases if they were used for one entire rotation, and the information base used to evaluate the practices. A mailing list was developed from two sources: American Forest Institute listings of tree farm owners, and the listing of woodland investments of pulp and paper companies. Initially, 205 questionnaires were mailed with a cover letter from TAPPI headquarters. The sample was reduced eventually to 166 firms (or regional headquarters in the case of large firms).

The survey indicated that application of most techniques (especially growing-stock control, fertilization, and genetics) increased substantially from 1971 through 1974. Greater activity is anticipated during the next decade (1975–1985) for most practices. Exceptions to these general trends are irrigation and silage forestry, where past use has been negligible, and little or no increase is expected.

Investments in intensive culture are expected to increase the annual wood harvest from industrial lands through 1985 by 10–15%. Based on 1970 harvest figures for all ownerships, this increased harvest from industrial lands would increase total national wood harvest by no more than 5% in the next decade. Yields after 1985 could be higher, but similar investments on national forests and other public and smaller private ownerships will be necessary before any major increase in total national wood supplies can occur.

Answers to survey questions regarding the quality of information used in reaching investment decisions and the managers’ priorities for research are indicative of needs that must be met. Existing information on commercial thinning, site preparation, and genetic improvement generally was reported as being rather good. Most managers also listed these practices as high-priority items for future research and development. Although more than half of the firms were not currently fertilizing, fertilization was listed as a medium or high priority R&D item by 75% of the managers.

For a substantial increase in wood supplies in the short term (1975–1985), operational programs in fertilization and short-rotation or silage culture will have the greatest impact, especially if an “allowable cut effect” is not available to or used by the landowner. Fertilization is unique in that it can increase substantially merchantable wood grown and harvested in selected stands in the short term. Short-rotation or silage forestry also offers an opportunity to quickly grow and harvest additional wood, yet its present use is negligible. If short-term increases are desired, these practices should receive high priority in ongoing R&D programs.

If intensive culture activities and wood supplies from the nation’s forest lands are to be increased in the long term (past 1985), several needs seem apparent and apply to nonindustrial as well as industrial lands:

- Intensify programs in biological and economic research to evaluate and refine current technology as well as to develop new opportunities for increasing forest growth.
- Transfer intensive culture technology currently used on industrial lands to nonindustrial managers.
- Promote an economic and social environment conducive to investment.
- Obtain legislation for establishing and funding essential steps in forest management programs.

Dean S. DeBell
General Coordinator
USDA Forest Service
Olympia, Wash.


2Current increase in harvest of mature stands in anticipation of future increases in growth of younger stands.

This is a summary of a report prepared for TAPPI’s Technical Trends and Needs Committee by the Subcommittee on Intensive Culture. The subcommittee consisted of forest biologists and economists from the following regions: Northeast—David A. Ganaker, Southeast—Stephen G. Boyce, Gulf—Eugene Shoulders, North Central—Dietmar W. Rose and John C. Gordon, Intermountain—Dennis L. Schweitzer, Southwest—Gilbert H. Schubert, California—William L. McKittrick, Northwest—A. Paul Brunette, General Coordinator—Dean S. DeBell.