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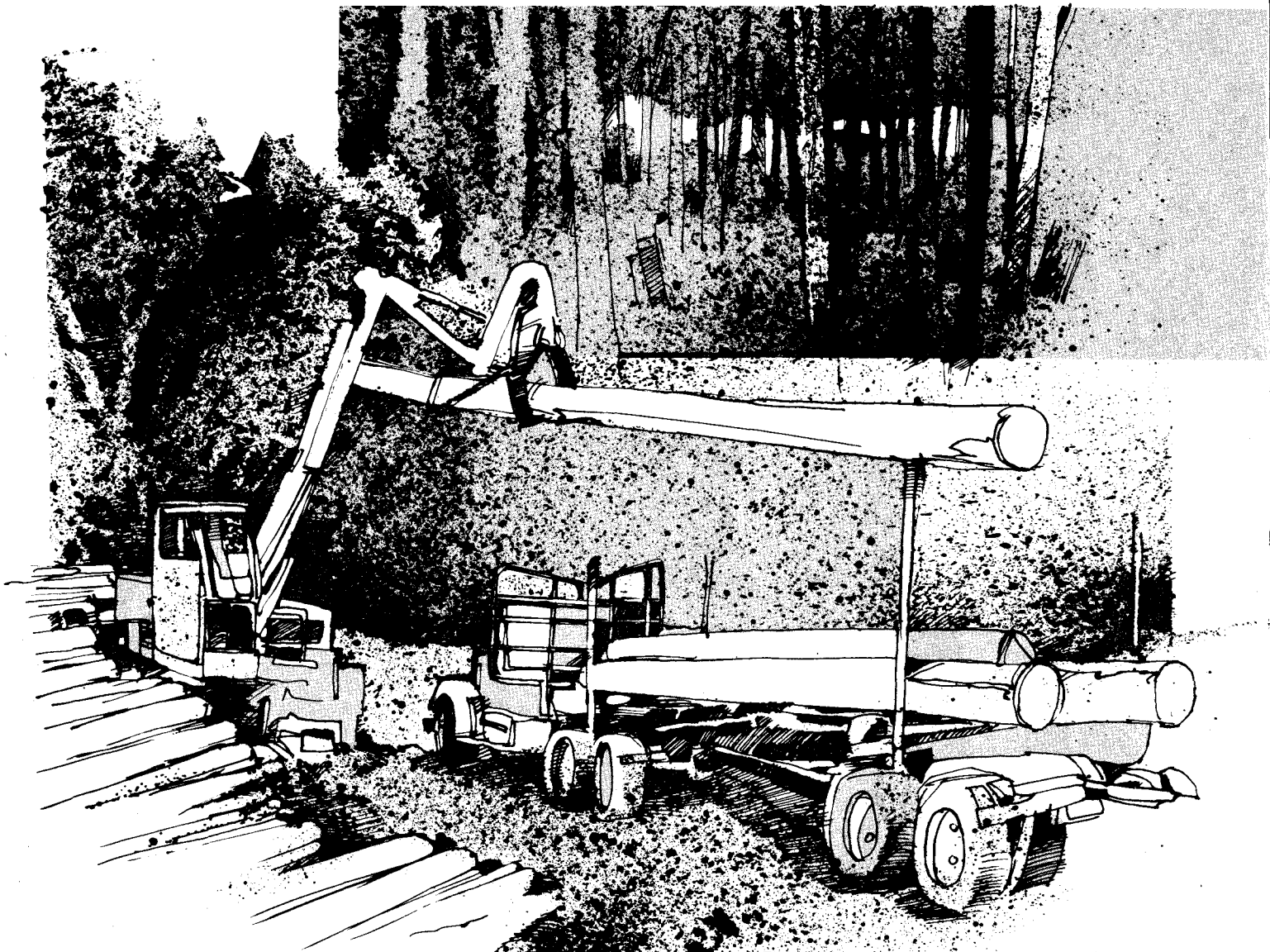
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Forestry Cooperatives

Organization And Performance

Donald M. Simon
Orlin J. Scoville



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Abstract

FORESTRY COOPERATIVES: ORGANIZATION AND PERFORMANCE.

Donald M. Simon, Cooperative Development Division, Agricultural Cooperative Service, U.S. Department of Agriculture, and Orlin J. Scoville, Economic Consultant. ACS Research Report 25.

This study describes organizational structure, functions, and facilities of forestry cooperatives in the United States. It evaluates their economic performance and explores current problem areas and potentials for future development. Cooperative organization provides woodland owners professional forestry assistance, in terms of forest management, marketing, and educational activities. Some cooperatives consistently provide these services at less than prevailing rates and obtain higher than average stumpage prices on a local basis. In addition, forestry cooperatives have the potential to play a great role in marketing alternative forest products, such as wood for energy. Woodland-owner organizations have a wide range of sizes, business activities, types of forest products handled, and variety of services offered. However, there are potentially limiting factors that could inhibit somewhat cooperative organization on a long-term basis.

Keywords: Forestry, cooperatives, forestry cooperatives, timber, woodland, forest owner, rural development.

Preface

Agricultural Cooperative Service (ACS) has heard from a number of woodland-owner groups in recent years who are interested in cooperative organization. Although forestry cooperatives have the potential to improve output, income, and employment from private, nonindustrial lands, their performance has not been evaluated for more than 30 years.

The exact number of forest-owner cooperatives and associations now in operation in the United States is not known but is thought to be small. In preparation for this study, the authors sought to locate forestry cooperatives that: 1) were composed of woodland-owners, 2) had been in operation at least 2 years, and 3) were providing some marketing or other business activity for their membership. A nationwide canvass of State forestry officials and other sources in 1979 identified only seven active organizations in Mississippi, Indiana, Minnesota, Colorado, and Washington. Organizations handling solely Christmas trees or crude pine gum were not considered bona fide forestry cooperatives for purposes of this study. The short cutting cycle for Christmas trees and recurrent production of gum rosin relative to other forest products place these items in a special category.

The major objective of this study is to identify and evaluate factors that have contributed to the organization and economic performance of forestry cooperatives in the United States. Primary field data were collected on the seven woodland-owner organizations identified for purposes of this study. In addition, interviews were conducted with relevant State and university forestry professionals. Specific survey information sought for this study included:

- Member characteristics,
- Types of services provided,
- Organizational and financial structure,
- Economic performance,
- Member benefits, and
- Future cooperative plans and activities.

Numerous individuals contributed conceptual and technical advice to this study. We wish to particularly acknowledge the helpful suggestions of the various board members and managers of the forestry cooperatives studied. The authors also thank for their assistance staff members of Agricultural Cooperative Service, Forest Service (at both Federal and State levels), Extension Service, and Land-Grant University System.

Highlights

This study shows cooperative organization provides woodland owners greater access to professional forest management and marketing services. Forestry cooperative activities and services are especially adaptable to the needs of owners of small woodland acreages. Woodland-owner organizations offer beneficial services to their membership in terms of handling sales of traditional forest products, exploring new markets and alternative forest products, and encouraging proper forest management. Member benefits from cooperative participation have ranged from provision of conventional services at less than prevailing costs to improvements in dollar returns from the sale of timber to sustained timber production. In addition, forestry cooperatives can play a substantial role in taking advantage of increasing opportunities for wood-derived fuels.

To be successful on a long-term basis, forestry cooperatives must overcome such potentially limiting factors as the time lag within the timber-harvesting cycle and the diverse ownership goals and purposes of members. Potential difficulties of maintaining sufficient member support, in terms of both continued patronage and accumulation of member capital, could adversely influence the financial health of woodland-owner organizations. Adequate capitalization is essential to support such important services as employment of skilled management and/or qualified foresters on a full-time basis.

Among the cooperatives studied, a real disparity exists not only in level of business activity, but also in types of forest products handled, variety of services offered, and kinds of facilities and staff employed. In addition, commissions for handling timber sales and methods of assessing fees for different forest management services also vary considerably. Services provided by the cooperatives include improving timber stands, providing forest management plans, cruising and marking timber, negotiating contracts, supervising harvests, and furnishing market information.

Major findings derived from an analysis of 1979 survey information on forestry cooperatives and their members include:

- Woodland-owner organizations averaged 154 members, ranging from a high of 340 to a low of 18.
- Member woodland averaged more than 50,000 acres among the cooperatives studied, ranging from as few as 3,000 acres for one cooperative to as many as 200,000 acres for another.
- Nearly half of all cooperative members were farmers or ranchers, and about one-third were professional or business people.
- On average, 60 percent of members held their woodlands primarily as sources of income, with other purposes of ownership including recreation, speculation, tax shelter, and grazing.
- Hardwood sawtimber was handled more by the cooperatives than any other type of forest product, with woodland-owner patrons receiving nearly \$2 million for timber marketed through these organizations.
- Among cooperatives preparing management plans for requesting members, an average of 38 percent of members utilize this service, representing only 18 percent of the total membership of all cooperatives studied.
- Among cooperatives collecting fees from members for marketing services, sales commissions ranged from 3 to 12 percent (depending on type of harvest), with the average sales commission reported as 13 percent below prevailing local rates.

- Total sales handled by the cooperatives exceeded \$3 million, with member share of volume totaling 83 percent.
- The average cooperative realized nearly \$7,000 in net savings available for distribution, ranging from a net loss of 28 percent to a net margin of 17 percent of total income.
- Total assets of forestry cooperatives averaged \$146,000, with total assets of the more active cooperatives almost 200 times greater than that of the lesser active ones.
- Average amount of equity per member for all cooperatives in this study was \$276, with the cooperatives having an average equity-to-asset ratio of 29 percent.
- Stumpage prices for timber handled by the cooperatives were reported to average 11.4 percent more than prevailing local prices for comparable timber, with four of the seven cooperatives having a positive influence on members' dollar returns through some combination of favorable service charges, sales commissions, and stumpage prices.

Contents

Cooperatives' Role in the Forest Economy	1
Cooperative Organization and Membership	2
Legal and Business Provisions	2
Formation of Forestry Cooperatives	3
Characteristics of Members.....	3
Functions and Facilities of Cooperatives	6
Forest Products and Markets	6
Services of Forestry Cooperatives.....	6
Management and Financial Policies	10
Management of Forestry Cooperatives	10
Service Charges and Commissions.....	11
Capital Formation.....	12
Economic Performance	13
Sales and Other Operating Data	13
Balance Sheet Information.....	15
Benefits to Members	16
Potentials for Forestry Cooperatives	18
Current Problem Areas.....	18
Alternative Product Markets and Organizational Structures	20
Future Development.....	22
Selected References	23

List of Tables

1. Incorporation features of forestry cooperatives	2
2. Institutions assisting in formation of forestry cooperatives	3
3. Members of forestry cooperatives: number, woodland holdings, and geographic distribution, 1979.....	4
4. Distribution of woodland acreage of forestry cooperatives, 1979	5
5. Principal occupations and ownership objectives of forestry cooperative members.....	5
6. Types of forest products handled by woodland-owner organizations, 1979.....	7
7. Types of market outlets utilized by forestry cooperatives and distribution of volume, 1979	7
8. Services offered by forestry cooperatives, 1979	7
9. Management plan use by forestry cooperative members, by organization, 1979	8
10. Summary schedule of service charges and sales commissions, forestry cooperatives, 1979.....	11
11. Sales volume by or through forestry cooperatives, 1979.....	13
12. Average composite income statements—all, most active, and least active forestry cooperatives, for operating year 1979	14
13. Distribution of income and expenses, forestry cooperatives, 1979.....	15
14. Average composite balance sheets—all, most active, and least active forestry cooperatives, end of operating year 1979	16
15. Distribution of assets and liabilities of forestry cooperatives, 1979.....	17
16. Comparability with local service charges, sales commissions, and stumpage prices from forestry cooperative participation, 1979.....	18

Forestry Cooperatives

Organization And Performance

Donald M. Simon
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COOPERATIVES' ROLE IN THE FOREST ECONOMY

Commercial timber resources constitute about two-thirds of the total forest area of the United States. More than 283 million acres of forest land, or 58 percent of potentially commercial timberland, are held by private, nonindustrial owners. Total commercial timber acreage is projected to continue to decline in the years ahead.² At the same time, demands for forest products are projected to continue rising, possibly at an increasing rate. Remedying this imbalance may rest largely on improvements in forest management practices and market potentials for a majority of the Nation's private timber owners.³

Private, nonindustrial forest owners contributed 48 percent of the volume of timber removal in 1976. In addition, these owners hold 70 percent of hardwood growing stock and 27

percent of softwood growing stock on commercial timberland. However, private, nonindustrial ownership is concentrated in small tracts, averaging about 70 acres per owner nationwide.⁴ These woodlot owners, in many instances, do not have the economic leverage individually to obtain adequate stumpage prices. With good management and improved markets, financial returns from their timber resources could be greater.

The small woodlot owner generally has not taken advantage of appropriate forest management opportunities. Management of small woodlands has not received much attention by private, nonindustrial owners for several reasons. There are risks inherent in growing timber, such as fire, insects, and disease. Many woodlots are incidental parts of farms or ranches. A number of small owners are not interested in or knowledgeable about the potential for their woodland, especially in comparison with the rate of return from other agricultural investments. Few are well informed of timber management practices or of potential markets. Harvesting operations often occur without the assistance of qualified foresters. Tax laws in some States discourage investment for timber production.

Forest Service (through cooperating State forestry agencies), Extension Service, and Agricultural Stabilization and Conservation Service (ASCS) all work toward fulfilling the needs of woodland owners in management planning; reforestation; timber stand improvement; and protection from insects, disease, and fire, among other areas. However, small woodlot owners generally either lack or do not take advantage of such services as management plans, timber marking, contract negotiation, and penetration of

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²Commercial forest land is considered that which produces or is capable of producing crops of industrial wood, not withdrawn from timber utilization by statute or administrative regulation.

³John Slusher, "North Central White Paper Summary," Proceedings of National Private Non-Industrial Forestry Conference, Appendix C, Gen. Tech. Rpt. W0-22, FS, USDA, Washington, D.C., 1980; P. M. Raup, *Staff Paper*, Dept. of Agr. and Applied Econ., University of Minnesota, pp. 77-79, September 1977; U.S. Forest Service, *Forest Statistics of the U.S.*, 1977. Review Draft, 1978.

⁴*Ibid.*

new markets. With small amounts of stumpage available for market, the private, nonindustrial owner usually does not acquire the necessary professional help and thus obtain favorable stumpage prices. In some instances, these woodlot owners have elected to combine management and marketing of their timber supply through cooperative organization.

Owners interested in well-managed forests but lacking sufficient resources to pursue continuous management and timber production need to bring within their reach the economies of large-scale enterprise. Group efforts among woodland owners may provide an effective means of lowering unit costs of operation and management. Forestry cooperatives can allow individual owners to share in overhead costs of functions requiring much technology or capital. In this way, cooperative organization provides qualified management and marketing services for owners not able to effectively perform such operations.

Formation of forestry cooperatives in this country has not taken root to the extent other agricultural cooperatives have. Cooperative action among woodland owners is more extensive in other parts of the world, such as Northern Europe, than it is in the United States. Sixty-eight U.S. woodland-owner cooperatives were reported to have been started in the half century before 1969, but 47 had ceased operations by this same date. Of this latter group, some had become inactive after achieving their objectives; others had failed and dissolved.⁵ Many of our Nation's woodland-owner organizations center on timber stand improvement and reforestation programs. A few organizations are commercially oriented and have ventured into the marketing and processing of members' timber.

USDA is particularly interested in evidence of forestry cooperatives as viable business entities. Prior efforts by various government agencies in promoting sustained cooperative participation among woodland owners have met with limited success. In some cases, slow turnover in income generation for forest products (due to timber's yield cycle) has contributed to sporadic membership interest in cooperative organization. However, over the long run, potential economic returns for timber through cooperative endeavors may be as great as that experienced for most other agricultural commodities.

Adoption of more intensive forest management practices by private, nonindustrial woodland owners could signify increased income and employment multipliers for local areas. In 29 States, more than 40 percent of the land is

forested.⁶ More important, estimated value of timber products harvested was more than \$100 million in each of 15 States in 1972.⁷

COOPERATIVE ORGANIZATION AND MEMBERSHIP

Legal and Business Provisions

Surveyed cooperatives and associations have been incorporated under various State statutes. Table 1 presents information on the organization of these cooperatives. The entities in this table and the tables following are represented by the States in which they are located. In the case of Mississippi, the three study cooperatives within this State are distinguished numerically.

All cooperatives surveyed were incorporated between 1961 and 1977. Less than one-fourth of these cooperatives were in operation before 1967. One Mississippi organization appears to be the country's longest active forestry cooperative.

Two types of operating structures have been classified in table 1, cooperative and association. The principal differences between these two forms of organization seem to be that cooperatives raise capital primarily through borrowing

Table 1—Incorporation features of forestry cooperatives

Cooperative ¹	Year incorporated	Operating structure ²	Stock value in dollars ³
Colorado	1967	Association	25
Indiana	1977	Cooperative	50
Minnesota	1967	Cooperative	5
Mississippi-1	1974	Association	25
Mississippi-2	1961	Cooperative	10
Mississippi-3	1972	Association	20
Washington	1965	Cooperative	20

¹Cooperatives are represented by the States in which they are located.

²"Cooperative" pertains to organizations incorporated under the appropriate State statutes for cooperatives. "Association," on the other hand, refers to a group incorporated under State laws as a nonprofit organization.

³Stock value for cooperatives is the dollar amount of one share of common stock. For associations, it is the value of a membership or entry fee.

⁶U.S. Department of Agriculture. Forest Service. *An Assessment of the Forest and Range Land Situation in the United States*. FS-345. January 1980.

⁷Robert B. Phelps, U.S. Department of Agriculture. Forest Service. *Timber in the United States Economy: 1963, 1967, and 1972*. General Technical Report WO-21. June 1980.

⁵G.P. Dempsey and Clyde B. Markeson, *Guidelines for Establishing Forestry Cooperatives*, Forest Service Research Paper NE-133, USDA, Washington, D.C., 1969.

or sale of securities, while building reserves through retention of net savings. Although associations also have authority to raise capital in various ways, their operations require little capital reserve. The Colorado organization was originally chartered as a cooperative; however, it became a nonprofit association in 1972. Its management and marketing functions have remained relatively unchanged. Stock purchases have been retired, and there is no membership fee.

Charters of the cooperatives are broad enough to permit them to assist members with forestry production, marketing, and information. Three of the cooperatives are empowered to engage in a variety of processing activities, plus handling of farm supplies. Authority to manage members' woodlands is not specified in charters or bylaws, except as negotiated in separate management agreements between the organization and individual members.

All but one of the organizations operates on the basis of one vote per member. Although this single organization provides for one vote per share of common stock, no member can hold more than 20 percent of common stock. Four cooperatives issue nonvoting common or preferred stock or capital certificates. All seven organizations surveyed will be referred to in this study as "cooperatives."

Formation of Forestry Cooperatives

All surveyed forestry cooperatives essentially share the same views about their general purpose: to increase income-generating potential of members' timber resources through recommended forest management practices and commercial utilization of low-grade timber. Cooperatives in Colorado, Indiana, Mississippi, and Washington were organized primarily to enhance the yield potential of timber stands through proper long-range management planning. The cooperative in Minnesota, on the other hand, was organized to create a market for saw timber where none existed before.

Types of organizations instrumental in the formation of forestry cooperatives are listed in table 2. Their assistance has involved (1) financial support, (2) help with incorporation and other legal matters, (3) technical and economic feasibility analysis, (4) coordination of forest management and cooperative education programs, and (5) dissemination of information about Federal-State funds and programs. More than half the cooperatives surveyed had received some form of organizational assistance from their respective State forest service offices.

In the case of Indiana, the State forest service had facilitated financing of the cooperative forester/manager's salary. This amounted to 80 percent through Federal sources and 20

percent from State monies. For other survey States, local State forestry agency and Extension Service professionals have encouraged woodland owners to collectively market their timber in sufficient quantity to attract buyers.

For some of the study cooperatives (notably Minnesota and Indiana), initial steering committees were composed of woodland owners who were also members of other cooperative organizations. These owners had acquired firsthand experience in cooperative formation. In these cases, they relied on their prior cooperative experiences as a means to enhance timber management and marketing.

Characteristics of Members

Selection criteria for this study required membership of surveyed cooperatives be composed of woodland owners. Tables 3 through 5 detail some of the principal characteristics of these members of forestry cooperatives. Variations among cooperatives in number, woodland holdings, and geographic distribution of members are shown in table 3.

Forestry cooperatives averaged 154 members in 1979 and have increased individually an average of 9 times since incorporation. Membership in 1979 ranged from a high of 340 woodland owners for one Mississippi cooperative to a low of 18 members for the Indiana group. A majority of the cooperatives now have more than 100 members; however, when founded, no cooperative had more than 50 members.

Location of members' residences relative to cooperative headquarters may be an important factor affecting the success of woodland-owner organizations. Distant residence of members in relation to cooperative facilities may adversely

Table 2—Institutions assisting in formation of forestry cooperatives

Assisting institutions	Cooperatives assisted ¹
	Percent
State forest service	57
Agricultural Extension Service	43
Regional agricultural cooperatives	29
Timber companies	29
Bank for Cooperatives	14
Economic Development Administration ..	14
Land-grant university	14
Private development organization	14

¹Percentages are based on a total of 7 identified woodland-owner organizations as defined by this study.

influence turnout at membership meetings, communication between board, management, and members, and effectiveness of educational programs. Table 3 presents a breakdown of distances of members' residences from cooperative service centers. On average, nearly half the members live within 20 miles of cooperative headquarters, with less than 10 percent residing more than 100 miles away. However, two of the seven organizations have at least 60 percent of their membership residing more than 40 miles from cooperative facilities.

Distribution of member woodland acreage is not as concentrated as that of residences. Most of the study cooperatives handle timber sales on tracts scattered over wide areas. The geographic scope of the cooperatives' services varies from a single county or 20-mile radius to Statewide. Concentration of members' landholdings is of special importance to one Mississippi cooperative, where the area of operation is limited by transport to an affiliated pulpwood yard. Distance to mills and other potential markets are additional important factors affecting service delivery.

Distance is somewhat less of a problem for cooperatives with more than one forester in their employ. Consolidating management of small tracts over wide areas may help increase the marketing potential of members' timber. Foresters posted at different geographic centers are able to enhance the efficiency of total cooperative operations through economic management and harvesting of dispersed woodland acreage. Two study cooperatives in Washington and in Mississippi operate in this manner. In some cases, inaccessibility of timberland to highway transportation may impede this efficiency.

Members' total woodland holdings (table 3) averaged more than 50,000 acres among the study cooperatives, ranging from as few as 3,000 to as many as 200,000 acres. Woodland holdings of individual members of forestry cooperatives averaged 345 acres overall. This member acreage represents commercial timberland, some of which is under management or marketing agreements with the cooperatives.

The greatest percentage of members fall in the 100- to 199-acre class (table 4). About two-thirds of all forestry cooperative members hold between 50 and 499 acres. Few cooperative members held fewer than 20 acres; however, nearly all organizations had some members holding more than 1,000 woodland acres.

Members of the cooperatives are predominantly individual forest landowners, but private and public institutions may be eligible to join if they qualify as timber owners. The principal occupations of forestry cooperative members are presented in table 5. Nearly half of all members were farmers or ranchers, varying between 28 and 70 percent. About one-third of members were professional or business people. In no cooperative was more than one-third of the membership composed of wage earners. On average, retired or widowed members constituted only 10 percent of cooperative membership.

Board members and managers of the study cooperatives were asked their opinions on the principal purpose of ownership among their membership. On average, about 60 percent of all members were holding their woodlands primarily as sources of income (table 5). However, within this group,

Table 3—Members of forestry cooperatives: number, woodland holdings, and geographic distribution, 1979

Cooperative	Membership		Members' woodland acreage	Distances of members' residence from cooperative facilities			
	At organization	In 1979		Fewer than 20 miles	20-39 miles	40-99 miles	100 miles and more
	<i>Number</i>			<i>Percentage of members</i>			
Colorado.....	5	44	18,000	15	20	50	15
Indiana.....	18	18	3,000	50	24	10	16
Minnesota.....	50	225	21,000	50	25	24	1
Mississippi-1.....	50	50	40,000	90	2	3	5
Mississippi-2.....	20	340	200,000	20	20	45	15
Mississippi-3.....	30	295	70,000	89	3	4	4
Washington.....	5	106	20,000	20	50	25	5
Average ¹	25	154	53,143	49	18	25	8

¹Weighted averages are figured for percentage of members.

Table 4—Distribution of woodland acreage of forestry cooperatives, 1979

Cooperatives	Sizes of members' woodland holdings						
	Fewer than 20 acres	20-49 acres	50-99 acres	100-199 acres	200-499 acres	500-999 acres	1000 acres and more
	<i>Percentage of members</i>						
Colorado.....	5	0	18	9	50	9	9
Indiana	0	34	34	17	10	5	0
Minnesota	10	25	30	30	5	0	0
Mississippi-1.....	0	5	5	5	65	10	10
Mississippi-2.....	0	5	15	24	26	15	15
Mississippi-3.....	0	17	25	27	21	7	3
Washington	0	42	16	17	17	5	3
Average ¹	2	16	21	24	22	8	7

¹Weighted averages.

Table 5—Principal occupations and ownership objectives of forestry cooperative members¹

Cooperatives	Principal occupation of owners					Principal purpose of ownership				
	Farmer or rancher	Professional or business	Retired or widow	Wage earner	Other ²	Income	Recreation	Speculation	Tax shelter	Other ³
	<i>Percent</i>									
Colorado.....	70	10	0	20	0	10	5	15	0	70
Indiana	28	33	33	6	0	80	15	5	0	0
Minnesota	70	10	10	5	5	80	20	0	0	0
Mississippi-1 ⁴	35	50	5	10	0	80	10	10	0	0
Mississippi-2.....	35	30	20	5	10	50	15	5	30	0
Mississippi-3.....	50	40	0	10	0	70	10	10	10	0
Washington	30	50	0	14	6	50	18	1	31	0
Average ⁵	47	31	9	8	5	62	14	6	15	3

¹As estimated by managers and board members of the study cooperatives.

²Includes firms, schools, churches, and other public and private institutions.

³Mostly grazing.

⁴Occupations taken from State survey of all owners.

⁵Weighted averages.

income goals would vary from short-term financial gains to long-range, deferred incomes. Similarly, owners might vary in their woodland investment strategies. Apparently, members of the cooperative in Colorado view direct income gains from timber harvesting as secondary to use of woodlands as grazing resources for livestock.

All cooperatives studied reported at least some members interested in recreation as the principal purpose of timber ownership. Recreational goals as a primary concern of woodland owners varied between 5 and 20 percent among the cooperatives. Surprisingly, holding and management of woodland for speculation or tax shelter was viewed as significant by only 21 percent of forestry cooperative members. However, the occupation of 31 percent of these members was that of a professional or business person.

FUNCTIONS AND FACILITIES OF COOPERATIVES

Forestry cooperatives offer certain potential advantages to their membership. Many woodland owners do not have the expertise necessary to select merchantable timber for harvest or to obtain favorable stumpage prices. Often, effective harvesting and marketing of timber require professional guidance and business practices. However, some woodland owners find it difficult to regularly utilize, on an individual basis, the services of forestry consultants and professional forest managers.

Cooperative organization may allow owners of small tracts easier access to professional management and marketing services. In addition, management of woodlots through cooperative means may prove to be more gainful over the timber-cutting cycle. Implementation of management plans can result in small woodland owners assembling a uniform and high-quality volume of timber, attracting more favorable prices. A cooperative structure allows members to pool not only equipment purchases, but also operating capital requirements, such as compensation for managers and foresters and expenditures for office needs. Cooperation among woodland owners can also give rise to volume discounts on purchases of forestry supplies.

Among the study cooperatives, a real diversity exists between types of forest products handled, variety of services offered, and kinds of facilities and staff employed.

Forest Products and Markets

Species of timber sold through forestry cooperatives range from high-quality (mostly walnut and cherry) veneer to various grades of pulpwood. Forest products handled by the study cooperatives include pine and hardwood (for both sawtimber and pulp), veneer, sawlogs for export, fence posts, and lumber. Table 6 outlines volume, prices, and

owner payments for each forest product. More hardwood sawtimber was handled by forestry cooperatives in 1979 than any other type of forest product, but payments to owners were greater for pine sawtimber. In units of cords, the cooperatives marketed more than twice as much sawtimber as they did pulpwood (assuming two cords per 1,000 board feet of timber). The greatest volume of pulpwood, as would be expected, came from pine.

Woodland-owner patrons received nearly \$2 million in 1979 for timber marketed through their cooperatives. Average stumpage prices for sawtimber were highest for export logs; however, pine sawtimber represented the greatest proportion of total estimated owner payments. On average, members marketing timber in 1979 accepted more than \$7,500 in gross receipts for forest products handled by their organizations.

Markets for these forest products include local sawmills, pallet processors, pulpwood mills and paper companies, timber exporters, plywood companies, and furniture manufacturers (table 7). Nearly three-quarters of the study cooperatives utilized local sawmills as buyers of members' timber. More than 40 percent of the cooperatives also marketed to pallet and pole processors, as well as pulpwood mills. The greatest proportion (32 percent) of forestry cooperative volume was sold to local sawmills. Plywood companies represent nearly 25 percent of total cooperative volume. Although stumpage prices for export timber appear relatively favorable, only 4 percent of the volume was sold directly to the export market. However, not all the cooperatives studied are in a position to tap this market.

Services of Forestry Cooperatives

All the cooperatives are involved in developing economic ways to improve marketing of forest products. Services include timber stand improvement and planting, management and market information, management plans, timber appraisal, cruising and marking timber, harvesting, preparing bids and negotiating contracts, purchasing and processing timber, market development, and selling forestry supplies. Percentages of cooperatives providing such services are outlined in table 8. Providing technical forestry and financial advice and information to members was an important service for all cooperatives studied. Services seldom offered by cooperatives studied include surveys of members' ownership objectives, inventories of timber composition and growth stages of member woodlots, and maintenance of concentration yards.

Although each organization has sought and investigated new markets for forest products, development of markets for small-diameter or low-grade timber remains in an exploratory stage. Feasibility of cooperative processing of

Table 6—Types of forest products handled by woodland-owner organizations, 1979

Forest product	Volume		Average stumpage price per MBF or cord ²	Estimated owner payments ³
	MBF ¹	Cords		
	<i>Number</i>		<i>Dollars</i>	
Sawtimber⁴				
Pine.....	8,100	—	100	810,000
Hardwood	10,093	—	56	565,208
Veneer	390	—	134	52,260
Export logs	1,100	—	225	247,500
Pulpwood				
Pine.....	—	12,950	9	116,550
Hardwood	—	4,850	5	24,250
Other				
Poles/piling.....	400	—	325	130,000
Total	20,083	17,800	—	1,945,768

— = Not applicable.

¹Thousand board feet.

²Represents a weighted average price among the study cooperatives for each forest product.

³Gross receipts to woodland owners for timber handled by forestry cooperatives.

⁴One cooperative processes lumber. This organization purchases sawtimber outright from its patrons and sells the lumber mostly for pallets. As such, volume and prices of forest products handled by this cooperative are represented by the data for sawtimber.

Table 7—Types of market outlets utilized by forestry cooperatives and distribution of volume, 1979

Market outlet	Cooperatives utilizing market ¹	Distribution of volume ²
	<i>Number</i>	<i>Percent</i>
Local sawmills	5	32
Pallet and pole processors	3	7
Local pulpwood mills	3	11
Paper companies.....	2	20
Exporters of forest products	2	4
Plywood companies.....	1	24
Furniture manufacturers...	1	2
Total	—	100

¹Based on a total of 7 forestry cooperatives.

²Totals based on cord equivalents.

— = Not applicable

Table 8—Services offered by forestry cooperatives, 1979

Type of service	Cooperatives offering service ¹
	<i>Number</i>
Performing timber stand improvement	4
Providing management and market information.....	7
Developing management plans.....	4
Appraising timber.....	5
Cruising and marking.....	4
Harvesting	5
Preparing bids and negotiating contracts..	4
Purchasing and processing timber	1
Exploring new markets	7
Selling forestry supplies	3

¹Based on a total of 7 forestry cooperatives.

firewood for home use and whole-tree chips for industrial use is being considered as market alternatives by some cooperatives. Harvesting (primarily supervision) and timber appraisal are additional major services frequently offered by cooperatives. The following describes in further detail specific functions of services outlined in table 8.

Timber Stand Improvement and Planting. A majority of the cooperatives were quite active in helping their members plan and carry out various kinds of timber stand improvement (TSI) or planting activities. A few cooperatives offered direct supervision of TSI. Their activities were closely coordinated with services available through Federal and State Forestry Departments, the USDA Forestry Incentives Program (FIP), and in Mississippi, the similar Forest Resource Development program. The FIP program is authorized by Congress to provide government funds in sharing the cost of tree planting and timber stand improvement with private landowners. The cooperatives usually encourage members to participate in Federal and State cost-sharing programs. All cooperatives promote the practice of thinning overstocked stands to allow maximum growth of high-quality timber. Efforts to convince members of the longrun value of periodic thinning also contribute to timber stand improvement.

Management and Market Information. Each cooperative considers dissemination of information an important service of its organization. Sponsoring field days and educational seminars provides new information on management, prices, and production practices by utilizing experts from State and university forestry offices, Extension Service, and private industry. Field days also afford members an opportunity to share their forestry experiences with each other. Issuing periodic newsletters is another means by which woodland-owner organizations help sustain member interest and participation in their cooperatives, while providing instructive forestry information. Management and market information related through newsletters includes benefits of recommended forest management practices, advice on tax matters, and comparative data on local stumpage prices. Forestry cooperatives also serve their members by providing technical information on forest taxation, economics, and finance. In addition to educational meetings, technical information is spread through personal contact between consulting forester staff and individual member-owners.

Management Plans. A majority of the cooperatives will prepare timber management plans for requesting members. However, only two of the cooperatives have sufficient resources to devote forester staff full time to development and application of long-range management plans. Among cooperatives providing this service, use by members ranges between 15 and 75 percent and, on average, 38 percent (table 9). Members using management plans represent only 18 percent of total membership of all study cooperatives.

The primary purpose of a management plan is to provide a landowner with an extensive blueprint for carrying out specific timber stand improvements and management and harvesting activities. Such a plan is adapted to the composition of the wood resource and assessment of timber values, with consideration for pertinent timber tax laws. A formal plan would outline such activities as amount and timing of removal of undesirable growing stock, choice and method of cultural practices, and specifying cutting-cycle length and the attendant harvesting schedule. A skillfully designed and implemented management plan would maximize economic or esthetic returns to woodland owners for timber resources. However, development of such plans requires a conscientious effort between forester and landowner alike to fulfill the owner's objectives in concert with the capacity of the land.

State forestry agencies in States where study cooperatives were located also provide management plans for landowners through FIP and similar Federal-State cost-sharing programs. However, resources are limited due to the low level of available funds. Private consulting foresters also prepare management plans on a fee basis. Without greater availability of public cost-sharing assistance, many forestry cooperative members and other woodland owners find it difficult to make the necessary capital outlays over time to implement management plans. This is especially true when timber represents a minor part of the member's total business or when an owner's objectives are noneconomic in nature,

Table 9—Management plan use by forestry cooperative members, by organization, 1979

Organization	Management plan use	
	Members within each organization	All study cooperative members
	<i>Percent</i>	
Colorado.....	75	3
Indiana	15	(1)
Mississippi-2.....	30	9
Washington	50	5
Average.....	38	—
Total.....	—	18

— = Not applicable.

¹Represents less than 1 percent of all study cooperative members.

such as esthetics and wildlife preservation. However, greater efforts on the part of cooperative managers and foresters in communicating potential economic and environmental benefits of following management plans could enhance members' willingness to invest necessary time and funds in such activities.

Cruising, Marking, and Appraisals. Cruising members' woodland to determine an accurate volume and composition of timber and marking trees to be cut are additional services performed by most forestry cooperatives. Although this service is also provided by State forestry departments, public resources are limited, and response to requests may be delayed for long periods. Forestry cooperatives offer members the opportunity to maximize returns through timely designation of timber for harvest or improvement cuttings. For some of the cooperatives, cruising and marking are part of the total management plan preparation process.

Most of the cooperatives provided appraisal work for their members. For some, this work represented a regular and formal service to members; while for others, infrequent timber appraisals provided owners with estimates to help establish easements or resolve boundary disputes. Cooperatives performing appraisals as a regular service assist members with marketing decisions by providing an accurate assessment of the value of their timber resource. Members unaware of the value of their stand could easily sell the timber at the first bid or a seemingly high offer and lose otherwise obtainable income. By appraising a stand before sale, owners have an accurate value placed on the stumpage with which to compare offers or bids and maximize their return. Also, appraisals are usually required, so woodland owners may take advantage of applicable State tax laws.

Timber Harvesting. Supervision of harvesting is a service frequently provided by forestry cooperatives. This usually involves overseeing cutting of marked timber and preventing any unnecessary damage to land or trees. In some cases, cooperatives have assumed direct responsibility for contract logging and hauling specified timber to selected markets. In addition to supervising, these cooperatives will arrange contracts with logging crews to harvest and deliver members' timber. In a clear-cut harvest, the timber buyer will usually provide the cutting under cooperative supervision.

Forestry cooperatives supervise timber harvesting due to many inequities in logging methods. Managers and foresters of the cooperatives reported owners often had been dissatisfied with conditions in which their woodlots were left after harvest. Independent loggers are inclined to make a heavy cut due to the cost efficiencies involved. In addition, loggers tend to purchase large blocks of timber at below-market value. Proper harvesting methods are often sacrificed for

the opportunity to make a larger profit. By arranging contract logging, forestry cooperatives are able to establish working relationships with loggers who then harvest member timber lands on a regular basis. This provides the added advantage of having loggers trained by cooperative foresters to ensure proper harvesting methods. Such training reduces the supervisory requirements of cooperative staff.

Timber Marketing. A majority of the cooperatives represent forest owners in timber marketing through preparation, circulation, and review of sealed bids and negotiation of sales contracts. These cooperatives help members market their timber by recommending whether to accept or reject bids. Owners depend on the cooperative manager/forester's knowledge of log measurement and optimum prices for merchantable timber.

When composition and maturity of the stand warrant, cooperatives will attempt to assemble and market the timber of more than one member as a single sale. In this way, owners of small tracts may be assisted in attracting a greater number of potential buyers and increasing probability of higher bids. Implementation of management plans is an important aspect of cooperative marketing of members' forest products. The remaining cooperatives either maintain a fixed arrangement with a single local buyer or purchase stumpage directly from patrons for processing and marketing lumber.

Market Development. At one time or another, each cooperative has been involved in developing market strategies either for surplus supplies of timber or underutilized forest products. Some cooperatives emphasize soliciting bids from new buyers. Selling forestry supplies to members and other patrons is now only a minor sideline. However, cooperative managers see this activity on the increase, as more members adopt management plans and practices.

Most of the cooperatives are actively exploring new markets for both low-grade timber and underutilized forest products. More aggressive marketing techniques have been applied to locate adequate buyers of veneer, saw logs for export, and short logs or billets. Woodland-owner organizations are currently investigating the possibilities for concentration or sorting yards, pallet manufacture, firewood processing, and economic utilization of low-quality timber through such means as particle-board production or wood chips for industrial use.

Staff and Facilities. Less than half of the cooperatives have employed on a regular basis professional or managerial staff. Most of the cooperatives studied have at least one full- or part-time forester hired directly or working under mutually agreed fee schedules. The other cooperatives rely

mainly on the State forestry commissions or Extension Services, retired foresters serving as unpaid officers of the cooperative, or timber company foresters and private consultants engaged by the cooperatives when needed.

Managers of woodland-owner organizations have extensive forestry experience in addition to knowledge of proper cooperative business practices and draw regular monthly salaries. Foresters employed by the cooperatives, on the other hand, usually do not perform administrative services and are compensated through service charges or commissions for specific management or marketing activities. Most of the cooperatives also retain the services of private forestry consultants during peak periods of activity or for special-purpose services. Cooperatives that have successfully lined up a good backlog of timber management and marketing work employ assistant foresters or forestry technicians. Less than half of the cooperatives have other paid staff such as office managers, bookkeepers, and secretaries.

Nearly all the cooperatives utilize office space provided without cost. Four organizations are provided office space either by public agencies in State or county buildings or in offices of other agricultural cooperatives. The remaining cooperatives are either headquartered in the homes of managers and full-time foresters or, in the case of the one processing cooperative, own their facilities. Less than a third of the organizations own vehicles of any kind, and only the one processing cooperative owns such industrial facilities and equipment as a sawmill and logging machinery.

MANAGEMENT AND FINANCIAL POLICIES

Management of Forestry Cooperatives

The day-to-day affairs of most of the cooperatives are handled by their forester/managers, with varying degrees of participation by boards of directors. Managerial responsibilities encompass not only professional forest management and marketing, but also planning and directing of all business and administrative activities. Cooperatives that involve board members to a greater degree in management decisions usually orient services more closely to members' ownership objectives. In these cases, the forester/manager's activities are monitored and evaluated by the board of directors to ensure decisions follow established cooperative policies.

Decisionmaking roles of board members and officers vary considerably among the cooperatives. The Washington cooperative utilizes three formal committees composed of both directors and general members. These committees are active in finance, taxation, and liaison with industry and government landowner assistance programs. The other cooperatives either form committees as needed or rely on executive committees of their boards to consider or study issues requiring special attention.

For most of the cooperatives, number of board meetings ranged from one to six in 1979; however, the boards of two cooperatives met at least once a month during that year. These board meetings included not only planning activities, but also allowed for an evaluation of the previous months' accomplishments. In some cases, the cooperative forester/manager presented a monthly work record for the board's examination. All the cooperatives had general membership meetings in 1979, but only one organization reported more than one-third of its members attending the annual meeting.

All managers and foresters of the cooperatives were accustomed to an extensive workload requiring careful scheduling of activities. It is not unusual for a cooperative forester/manager to be simultaneously responsible for timber management and marketing, office administration, and public relations. Due to the time requirements of diverse cooperative activities, managers normally establish priorities among concurrent activities or employ additional staff as needed.

Recently established forestry cooperatives have found timber marketing should take precedence over other services, at least until sufficient woodland-owner interest and participation can be established to defray the costs of providing these services. However, marketing programs must incorporate encouragement of continuous forest management. Operating budgets of new woodland-owner organizations, including manager/foresters' salaries or fees, are best maintained when services are concentrated on actual marketing of prospective and existing members' timber. By initiating services around immediate as opposed to future member returns, beginning forestry cooperatives are in a better position to accumulate resources necessary for fulfillment of long-range forest management objectives and further cooperative activities. Longstanding forestry cooperatives and those progressing well enough to generate increased member activity and support additional services have found it necessary to supplement the work of managers and foresters with an expanded staff.

Provision of important services by a woodland-owner organization is contingent on the desires and needs of its membership. In some cases, management has overlooked landowners' objectives for ownership and utilization of forestland. Some members may not be fully aware of the economic opportunities afforded by proper forest management and harvesting practices. Others may be motivated by ownership objectives having little effect on personal income. Thus, execution of management policies stands the risk of conflict between financial aspirations and nonpecuniary objectives. This may require forestry cooperatives to more accurately assess the ownership purposes of members and potential members.

Service Charges and Commissions

Charges for services and commissions on sales vary considerably among the cooperatives (table 10). Four of the seven forestry cooperatives generate income through providing technical services and handling timber sales. The remaining cooperatives either have special arrangements with timber brokers or purchase timber outright from members.

Methods of assessing fees for different forest management services also vary considerably. Service charges are calcu-

lated on the basis of hours, worker-days, acres, cords, as well as on a flat fee basis. These fee-based technical services include preparation of management plans, annual TSI inspections, provision and supervision of contract labor, timber cruises, and professional consultation. Charges for management plans normally encompass detailed maps of woodland acreage, volume estimates, and recommendations on present salability and future marketable harvest of timber. Professional consulting fees cover recommendations for improving timber growth as well as legal, financial, and tax advice. Members paying for cruising of timber receive information on species, sizes, and grades of their stands.

Table 10—Summary schedule of service charges and sales commissions, forestry cooperatives, 1979¹

Revenue source	Washington ²		Mississippi-2 ³		Indiana ⁴		Colorado ⁵		Mississippi-1 ⁶		Mississippi-3 ⁷	
	Rate	Unit	Rate	Unit	Rate	Unit	Rate	Unit	Rate	Unit	Rate	Unit
<i>Dollars</i>												
<i>Service charges</i>												
Management plans	51	hour	150	plan	4	acre	—	—	—	—	—	—
Annual inspections	51	hour	75	inspec.	.2	acre	—	—	—	—	—	—
Timber cruises	51	hour	100	cruise	3.8	acre	—	—	—	—	—	—
Professional consulting	51	hour	150	worker-day	15	hour	—	—	0.5	cord	—	—
Contract labor	(⁸)	—	150	worker-day	15	hour	—	—	—	—	—	—
<i>Percent of dollar sales</i>												
<i>Sales commissions</i>												
Selective harvest	6	—	10 ⁹	—	8 ¹⁰	—	12 ¹¹	—	—	—	7	—
Clear cutting	3	—	7.5	—	8	—	12	—	—	—	7	—

— = Not applicable

¹This schedule applies to only 6 of the 7 forestry cooperatives. The Minnesota organization buys timber outright from its members, thus there is no sales commission. There are no service charges either because management services are a part of the manager's salaried duties.

²The rate for service charges includes not only the conducting of management plans and inspections, but also timber cruising and professional consultation. The cost basis of this rate is as follows: \$25 for manager, \$14 for forestry technician, and \$12 for clerical work. The distribution of sales commissions is as follows: 1 percent to the cooperative and the remainder of the fee as a direct commission to the cooperative manager.

³Service charges represent minimum fees. Actual charges for management plans and annual inspections are calculated on a sliding-scale basis according to size of woodland acreage. Categories of fees range from \$1.75 to \$2.25 per acre for management plans and from 30 to 50 cents per acre for annual inspections. Cost of management work performed on more than 1,000 acres is negotiable. Actual fees for timber cruises range between \$1.00 and \$2.50 an acre, depending on extent and type of cruise. One-tenth of the sales commission goes toward the purchase of nonvoting stock in the cooperative. Thus, the member equity base of the cooperative is increased for each timber sale.

⁴A 1-percent surcharge is added to management fees for the purchase of preferred stock in the cooperative. General management recommendations including a detailed sketch of timberland are assessed at \$1.00 per acre.

⁵Sales commission includes not only the facilitating of timber marketing, but also associated forest management activities such as preparation of management plans, timber cruising and inspections, and professional consultation and supervision.

⁶Members contribute 50 cents per cord harvested to the capital base of the cooperative for market development and educational activities. However, the cooperative offers no special technical services in management and marketing of forest products.

⁷An agreement exists between the cooperative, a local dealership, and an established paper company. The sales commission is received by the dealership, which serves as a broker for members' timber. The dealership markets members' timber to the one buyer. The buyer, in turn, provides forest management services to members free of charge. Membership fees and annual dues cover the cooperative's operating costs.

⁸The cost basis for contract labor supervised by the cooperative is twice the local prevailing hourly wage. Contract labor would be provided for such services as reforestation surveys, tree planting, aerial spraying, and road construction.

⁹Sales commission on marked pulpwood amounts to 20 percent of the sale.

¹⁰Sales commission on selective harvest does not include a contract logging fee of 12 cents per board foot harvested. Sales commissions may be as low as 3 percent for high-value timber.

¹¹Distribution of sales commission is as follows: 2 percent to the cooperative and the remainder of the fee as a direct commission to the cooperative forester.

Annual inspection costs cover an account of the progress in improvement work and an examination of potential problems such as insects or trespass. Contract labor is normally provided for such services as reforestation surveys, site preparation, planting of seedlings, and maintenance of fire lanes.

Three of the four cooperatives offering technical services have printed schedules of charges. The forester of the other cooperative offers members management assistance in connection with forthcoming harvests. The fee schedules have been designed to generate sufficient income for the cooperatives to cover their operating expenses and still be able to provide requested services economically on small tracts.

Commissions to the cooperatives for timber-marketing services are expressed as a percentage of total dollar sale. These percentages may differ among sales for an individual cooperative, depending on the manager/forester's degree of assistance with the timber harvest. Sales commissions among cooperatives involved in a selective harvest range between 6 and 12 percent, but commissions for sales of clear-cut timber may be as low as 3 percent.

The same cooperatives with printed fee schedules also utilize management and marketing agreements. Members enter into agreements with their cooperatives, with both parties subscribing to certain responsibilities. The cooperative normally agrees to secure for the woodland owner full market value for and accurate measurement of harvested forest products. The owner, in turn, agrees to market through the cooperative all forest products on the woodland acreage described by the contract. Owners agree to pay specified service charges and sales commissions for management and marketing activities performed by the cooperative. If the cooperative recommends acceptance of any written competitive bid and the owner refuses to sell to that bidder, then the owner agrees to reimburse the cooperative costs incurred in handling the sale. Forest product sales that apply to the agreement but are made without prior approval of the cooperative also require owners to pay their cooperative the appropriate commission. The cooperatives agree to make settlements to owners within 2 to 4 weeks after receipt of payments from buyers. When no bids are offered for purchase of members' timber, the marketing services of the cooperative are usually without cost to the owner.

Capital Formation

Each cooperative utilized member capital as an initial source of funds. Member investment ranged from a total of \$125 for the Colorado association to \$24,000 for the timber-processing cooperative in Minnesota. Two of the seven cooperatives received startup capital through sale of pre-

ferred stock to regional agricultural cooperatives. Other sources of initial financing included grant assistance from Federal resources and State forestry agencies and loan capital from Economic Development Administration, Banks for Cooperatives, and local commercial banks.

Forestry cooperatives have employed startup capital toward investments in facilities and equipment, operating expenses, and advance payments to woodland owners. Credit sources usually require an ample part of capital requirements for development of woodland-owner organizations be furnished by members. It is felt member contributions and stock purchases should mean more than just a mere token of support for establishment of the organization. Rather, member investment should represent an amount sufficient to sustain the owner's participation in cooperative activities at least through the timber-cutting cycle.

Level of member capital should be consistent with requirements for a financially sound cooperative organization. Most of the cooperatives have had difficulty in accumulating adequate working capital to support important services such as those of a full-time forester. Adequate financing is essential in the initial stages of organization to procure cooperative services necessary to maintain member business at projected levels. Capital outlays during a forestry cooperative's crucial beginning years should be available for promotional activities, as well as management and marketing of member timber.

Some of the cooperatives accumulate capital reserves through per-unit retains for contingencies and implementation of expanded services. In this way, cooperatives may build capital by assessing patrons a per-unit retain in proportion to sales or services provided. Specified deductions in proceeds, based on physical units handled or on a percentage of dollar volume, are contributed to the capital base of most cooperatives as allocated member equity. Thus, a capital reserve is established through patrons' allocated equity investments, which are redeemed at a future date on a revolving basis.

Cooperative organization also offers new and expanded opportunities for energy production facilities utilizing wood. Startup costs for cooperative activities designed to develop methods for processing new forest products may be financed in certain areas through public revenue issues. In some States, industrial development revenue bonds or energy bonds are available to finance special energy projects, such as enterprises experimenting with untried wood-utilization practices. Interest payments to holders of such bonds are normally exempt from Federal income taxes and, in some cases, State income taxes, if the proceeds are used to defray costs of facilities that generate fuel from renewable and indigenous energy resources. Thus, energy bonds may be

considered a potential source of financing for cooperatives interested in commercial firewood or wood chip production and distribution enterprises.

ECONOMIC PERFORMANCE

Sales and Other Operating Data

Sales refer to volume of business handled by the cooperatives, mostly through marketing timber. Gross income stems from service charges and sales commissions assessed by the cooperatives. Sales of forestry supplies is a component of both dollar volume and gross income.

Total sales handled by forestry cooperatives exceeded \$3 million in 1979, with average sales of nearly half a million dollars (table 11). The scope of business activity is evidenced by sales volumes ranging from \$15,000 for the Colorado organization to \$1.5 million for one of the Mississippi cooperatives. Three of the cooperatives each handled sales of more than \$750,000. However, no other organization had a dollar volume greater than \$80,000.

Table 11—Sales volume by or through forestry cooperatives, 1979

Cooperatives	Sales volume ¹	Member share of volume ²	Proportion of members marketing ³
	Dollars		
Colorado.....	15,113	100	10
Indiana	65,000	60	20
Minnesota	820,296	90	50
Mississippi-1.....	30,272	100	10
Mississippi-2.....	1,551,000	85	15
Mississippi-3.....	76,450	70	20
Washington	919,000	75	20
Total	3,477,131	—	—
Average	496,733	83	24

¹Dollar sales represent total receipts from buyers of forest products handled by woodland-owner organizations in 1979. A small amount of dollar volume was the sale of forestry supplies to cooperative patrons.

²Member sales volume as a proportion of total sales volume in 1979.

³Proportion of total members marketing through forestry cooperatives in 1979.

Most of the cooperatives' sales stemmed from member business. Proportion of sales from members ranged between 60 and 100 percent. Overall, member share of volume totaled 83 percent. Proportion of members marketing some timber in 1979 was usually between 10 and 20 percent, except in Minnesota where about half the membership made sales. The low proportion of members selling in any one year may indicate a lack of management planning among forestry cooperative members. Thinning undesirable growing stock and cutting low-grade timber would occur with greater frequency, if proper forest management practices were being followed. Potentially, forestry cooperatives could accumulate this "junkwood" in economic units, providing members with a more even or accelerated stream of income from their woodlands.

Sources of income and expenses, as well as net margins, are shown in table 12. Cost of goods sold consists of direct costs associated with purchase and processing of timber. Figures are for average operating data among all the study cooperatives and among the most active and least active forestry cooperatives. Level of activity is determined by volume of business.

Revenue from processing and sale of lumber was received by only one cooperative. In this case, a gross margin was realized through revenue less stumpage payments to woodland owners and other direct costs associated with the finished product. Otherwise, the greatest source of revenue was from fees for services and commissions on handling sales. Some cooperatives provided management services on small units (in contrast with other consulting firms in the area), even though it was uneconomical to do so.

The average cooperative realized nearly \$7,000 in net savings. Two cooperatives realized an operating loss. Overall, nearly all the net margin from forestry cooperative operations was attributed to the most active class. An average net margin of \$16,070 was achieved by each of the most active cooperatives, but the least active group averaged only \$27 in net savings. However, some of the less active forestry cooperatives are chartered as nonprofit associations and thus operate on a strict at-cost basis, without any provision for retained earnings. A majority of the cooperatives have policies aimed at making cash refunds to patrons from allocated net savings. However, in 1979, only one cooperative followed this practice.

More cooperatives received fees and commissions as a source of revenue in 1979 than any other income source (table 13). Service charges and sales commissions represented 56 percent of total forestry cooperative income. Magnitude of income from processing operations is evidenced by one cooperative's net lumber sales representing 40 percent of total income for all organizations combined.

Table 12—Average composite income statements—all, most active, and least active forestry cooperatives, for operating year 1979¹

Item	Average income and expenses		
	All cooperatives	Most active cooperatives	Least active cooperatives
		<i>Dollars</i>	
Service charges and sales commissions.....	31,344	70,591	1,909
Lumber sales.....	117,185	273,432	0
Member dues.....	150	0	262
Other income ²	1,560	3,639	0
Gross revenue.....	150,239	347,662	2,171
Cost of goods sold.....	94,392	220,247	0
Gross margin.....	55,847	127,415	2,171
Expenses: ³			
Professional and management costs.....	23,962	54,027	1,414
Direct operating costs.....	6,480	14,174	710
Administrative expenses.....	3,720	8,655	20
Subtotal.....	34,162	76,856	2,144
Taxes.....	1,529	3,567	0
Interest.....	3,416	7,972	0
Depreciation.....	9,836	22,950	0
Total expenses.....	48,943	111,345	2,144
Net savings ⁴	6,904	16,070	27

¹Operating statements represented by average dollars among all forestry cooperatives and average dollars among the most active and least active cooperatives. Level of activity based on volume of business. The most active and least active were represented by three and four cooperatives, respectively.

²Other income includes patronage dividends and interest income.

³Expense categories include, but are not limited to, the following costs: 1) professional and management—professional fees and management commissions and salaries; 2) direct operating—forestry supplies, field work, contract labor, vehicle expense, insurance, and utilities; 3) administrative—office expenses, promotion, property taxes, telephone, postage, etc.

⁴Among the most active, 2 cooperatives retained net savings in an allocated tax-paid reserve, and the other allocated net savings and paid a cash patronage refund. Among the least active, 2 cooperatives are chartered as nonprofit associations and did not generate significant savings, and 2 cooperatives showed an operating loss for the year.

Table 13—Distribution of income and expenses, forestry cooperatives, 1979

Item	Colo.	Ind.	Minn.	Miss.-1	Miss.-2	Miss.-3	Wash.	Total
	<i>Percent</i>							
Income:								
Member dues.....	17	0	0	3	0	100	0	1
Fees and commissions.....	83	82	0	97	97	0	97	56
Other	0	18	3	0	3	0	3	3
Net sales ¹	0	0	97	0	0	0	0	40
Total.....	100	100	100	100	100	100	100	100
Expenses:								
Professional and management	100	90	24	29	64	0	89	49
Administrative	0	2	10	0	8	0	0	8
Direct operating	0	8	8	71	18	100	9	13
Interest, taxes, and depreciation.....	0	0	58	0	10	0	2	30
Total.....	100	100	100	100	100	100	100	100
Net margin (or loss) ²	17	(2)	9	3	17	(28)	8	12

¹Sales of lumber, net of costs associated with purchase and processing of timber.

²Net margins (or loss) expressed as percentage of total income.

All the cooperatives except one incur direct operating expenses and professional and management costs. Operating expenses for the cooperative sawmill are other than the costs associated with the purchase and processing of timber. Aside from this cooperative, the low proportion of administrative and operating expenses overall reflect policies of limited overhead and minimal direct involvement in forestry ventures by the cooperatives themselves. The general emphasis on professional forest management and negotiation of timber sales among the cooperatives is highlighted by the fact that professional and management costs represent about half of total forestry cooperative expenses. On the whole, woodland-owner organizations operated in 1979 on a net margin of 12 percent of total income (gross revenue), ranging from a net loss of 28 percent to a net margin of 17 percent of total income.

Balance Sheet Information

The disparity in level of business activity among forestry cooperatives is further emphasized by the balance sheet information presented in table 14. Total assets of the more active cooperatives are almost 200 times greater than those of the lesser active ones. These smaller volume cooperatives are modest undertakings that operate for the most part on a limited-funds basis. With no fixed assets or ending inventories, they seek to avoid risk by minimizing capital outlays

and investments. However, the volume of sales and forestry work facilitated by these cooperatives with insignificant amounts of capital and low expenses is more than one would expect.

Forestry cooperatives in 1979 averaged about \$146,000 in total assets, including nearly \$42,000 in fixed assets. The most active cooperatives had a great amount of accounts receivable outstanding, averaging 38 percent of total assets. Likewise, accounts payable represented the greatest proportion of total liabilities among the cooperatives. Both term loan and 1979 patronage refunds payable were reported by the same cooperative. Sales of common and preferred stock represented the greatest source of equity capital for the average forestry cooperative. Unallocated earnings were high among the most active cooperatives, choosing to maintain a tax-paid reserve of capital. On the other hand, the least active cooperatives have placed little emphasis on acquiring a capital reserve of any kind.

Overall, the cooperatives had a relatively low liquid position, with an average current ratio of 1.17 and average net working capital of about \$15,000. The ratio of current assets to current liabilities is somewhat higher among the least active cooperatives, mainly due to their absence of any debt obligations. On the whole, forestry cooperatives are highly leveraged, with a total-liabilities-to-net-worth ratio of 2.43.

Table 14—Average composite balance sheets—all, most active, and least active forestry cooperatives, end of operating year 1979

Item	Average assets and liabilities		
	All cooperatives	Most active cooperatives	Least active cooperatives
<i>Dollars</i>			
Assets:			
Current:			
Cash.....	23,938	53,610	1,686
Accounts receivable ..	55,060	128,473	0
Inventory.....	18,567	43,323	0
Prepaid expenses.....	2,535	5,915	0
Total current.....	100,100	231,321	1,686
Fixed ¹	41,900	97,769	0
Other ²	4,027	9,349	35
Total assets.....	146,027	338,439	1,721
Liabilities:			
Current:			
Accounts payable ³	65,590	151,597	1,085
Term loan.....	19,348	45,146	0
Patronage refunds payable.....	268	627	0
Total current.....	85,206	197,370	1,085
Long-term:			
Term loan.....	18,284	42,664	0
Net worth:			
Purchased stock.....	21,688	50,322	212
Allocated reserve ⁴	5,073	11,272	424
Unallocated earnings ⁵	15,776	36,811	0
Total net worth.....	42,537	98,405	636
Total liabilities.....	146,027	338,439	1,721

¹Buildings and equipment are net of accumulated depreciation.

²Includes investments in regional cooperatives, unamortized organization expense, accrued interest receivable, and work in process.

³Include timber stumpage payable, payroll taxes payable, and income tax payable.

⁴Includes capital retains and allocated equities withheld in certificates.

⁵Represents tax-paid unallocated retained earnings.

Again, the least active cooperatives exhibited a better leverage position, having only \$1.70 in debt (accounts payable) for every dollar of equity. The average cooperative also exhibited a favorable solvency position, with total assets exceeding total debt by 41 percent. However, capital contributions and support by members for their cooperatives appear quite low. The average amount of equity per member for all study cooperatives was \$276, ranging from \$440 for the most active to only \$6.25 for the least active.

The percentage distribution of assets and liabilities of individual cooperatives are in table 15. Most of the cooperatives had no fixed assets whatsoever. Only one cooperative had a long-term debt obligation. Net worth among the cooperatives ranged from 2 to 100 percent of total liabilities and net worth. Although a majority of the cooperatives had an equity-to-asset ratio of 52 percent or greater, the average ratio was only 29 percent.

Benefits to Members

Forestry cooperatives afford woodland owners the opportunity to have a voice in the operations of their own forestry assistance organization. Members vest responsibility in their board of directors to establish competitive yet favorable service charges and sales commissions, encourage members to follow policies that could yield marketable stands of high-quality timber, direct management to secure for owners an optimum return on their timber, assess capital contributions and allocate net margins in an equitable manner, and evaluate present and future plans of the cooperative. Ownership and control of services are distinctions woodland owners enjoy over services available through Federal or State agencies, timber companies, and private forestry consultants. Benefits to members of forestry cooperatives include services adaptable to the small owner, new activities unavailable from existing sources, conventional services provided at less cost, the potential for sustained production of forest land, and improvement in members' returns over prevailing market prices.

Although most forest owners stand to gain, forestry cooperatives are especially relevant to the needs of small woodland owners. Individually, most owners of small woodland acreages cannot take advantage of professional forest management and marketing as can owners of large timber tracts. The small woodlot owner generally is most lacking in the capital resources and technical knowledge necessary to ensure a high-quality stand of marketable timber. Forestry cooperatives help members whose woodlands are a minor part of their landholdings or incomes to think about their woods in a businesslike manner. Practical forestry education, seminars, and demonstrations are normally adapted to the resources and forest management needs of the small

Table 15—Distribution of assets and liabilities of forestry cooperatives, 1979

Cooperative	Assets				Liabilities and Net Worth			
	Current	Fixed	Other	Total	Current	Long-term	Net worth	Total
	<i>Percent</i>							
Colorado	100	0	0	100	24	0	76	100
Indiana.....	98	0	2	100	98	0	2	100
Minnesota.....	36	59	5	100	40	27	33	100
Mississippi-1	0	0	100	100	0	0	100	100
Mississippi-2	96	3	1	100	76	0	24	100
Mississippi-3	100	0	0	100	0	0	100	100
Washington	100	0	0	100	48	0	52	100
Total	69	27	4	100	58	13	29	100

woodland owner. Cooperative ownership may also increase small woodland owners' chances of obtaining financial assistance for forestry investments.

Some of the cooperatives have initiated forestry services and activities that were not being supplied by existing sources. Two cooperatives in Mississippi and one in Minnesota created a timber market in their area where none had existed before. Another cooperative in Mississippi has expanded its operations to parts of the State where there are few private consultants. The Colorado cooperative is the only private source of forestry consultation in that locality. Services provided vary with the need to supplement those available through other sources. In many instances, the cooperatives offer their members such services as timber cruising, contract negotiation, and harvest supervision at less cost than local private or industry foresters.

Forestry cooperatives also offer their membership long-term benefits in timber stand improvement. Where harvests are 10 to 30 years apart, there is a tendency not to concern oneself with the feasibility of making annual investments to ensure the sustained productivity of forestland. All the cooperatives emphasize improving the condition of woodlands, so members will have future crops of timber to sell. A more active interest in proper forest management has been stimulated by showing members the advantages of selective cutting and TSI practices. Although the benefits of

cooperative membership from timber management are less tangible, a better grade product and improvement in the quality of member stands and timber volume eventually result.

An important and more tangible benefit from cooperative participation is the improvement in members' dollar returns over prevailing market prices from the sale of timber. Forestry cooperatives have been able to procure higher stumpage prices and allocate any net savings from cooperative operations back to members. In some cases, cooperatives have increased the competition for bids on member timber, raising stumpage prices locally. A landowner thus receives a larger payment for timber than would have been possible without an association. Dollar returns also accrue to members made aware of the comparison between present and potential value of their timber stands. Potential buyers may offer a sum of money that appears to an uninformed owner as quite large, and there is a temptation to accept before the offer is withdrawn. Such transactions may place owners in an unfavorable bargaining position. One cooperative reported the highest bid is frequently 100 percent more than the lowest bid. All the cooperatives assure their members a fair return through accurate grading and stimulation of bidding. The greater dollar return to members also acts as an incentive to practice good forest management.

The performance of forestry cooperatives in relation to the prevailing market in influencing dollar returns to members

in 1979 is outlined in table 16. Data are based on estimates reported by cooperative managers and foresters. Of the cooperatives that assessed members for forest management services, only one's assessment was below the prevailing local rate. The service fee of the Washington organization was usually 10 percent below that charged by other local providers for comparable services. Both the Indiana organization and one of the cooperatives in Mississippi had service charges that met the local market rate. Most of the cooperatives collected a commission from members for marketing services. Among these cooperatives, the sales commission averaged 13 percent below prevailing local rates. The percentage difference in sales commissions ranged from 0 to 20 percent.

All cooperatives reported members receiving stumpage prices at or above prevailing market prices for comparable timber volumes and quality. Overall, stumpage prices for timber handled by the cooperatives averaged 11.4 percent more than prevailing local prices for comparable timber, as reported by cooperative managers and foresters. The percentage difference in stumpage prices also ranged from 0 to 20 percent. Four of the seven cooperatives had a positive

Table 16—Comparability with prevailing local service charges, sales commissions, and stumpage prices from forestry cooperative participation, 1979¹

Cooperative	Below prevailing levels		Above prevailing levels
	Service charges	Sales commissions	Stumpage prices
	<i>Percent</i>		
Colorado ²	—	0	15
Indiana.....	0	20	20
Minnesota ³	—	—	5
Mississippi-1 ⁴	—	—	10
Mississippi-2.....	0	10	10
Mississippi-3 ⁴	—	20	20
Washington.....	10	15	0
Average.....	3.3	13	11.4

— = Not applicable

¹Percentages for service charges and sales commissions reflect amount cooperatives assess members below prevailing local rates. Percentages for stumpage prices reflect amount participating members receive over prevailing market prices. Data based on estimates reported by cooperative managers and foresters.

²No service charges per se, but incorporated with sales commission. Only local private source of forestry consultation.

³Principal service is to manage harvests on basis of selective cuttings. Such service is offered free of charge for members marketing to the cooperative. There is no service charge because the cooperative buys timber outright from its members.

⁴The cooperative offers no special technical services to members in management or marketing of forest products.

influence on members' dollar returns through some combination of service charges, sales commissions, and stumpage prices. However, no cooperative reported having a positive effect on members' dollar returns through all three performance categories.

POTENTIALS FOR FORESTRY COOPERATIVES

Current Problem Areas

Some of the problems of concern to leaders of forestry cooperatives are unique to the forest economy. Others are those common to most cooperatives and businesses in general. The diverse interests of members with regard to their purposes for woodland ownership may adversely affect a cooperative's business program. Both insufficient support for services and an inadequate volume of timber tend to reduce a management and marketing cooperative's chances to succeed. Lack of participation by members in the accumulation of equity capital to provide the cooperative with a sound financial base may prove equally troublesome to woodland-owner organizations. Without able and aggressive management, forestry cooperatives may encounter some of the more common pitfalls of inadequate planning, poor member relations, and misguided business investments. Experienced, well-paid management is an essential key to cooperative success. However, the board of directors has the responsibility to assess whether there is sufficient member activity to support the services of a manager or forester full time.

Increased turnovers in woodland ownership may impose constraints on benefits of forest management programs, especially if member education does not remain an ongoing process. Relatively frequent changes in woodland ownership may not permit consistency in following management plans, especially for periods longer than the ownership rotation. Land transfers often result in owners cutting heavily and indiscriminately for varied purposes. Recent buyers may wish to quickly reduce outstanding debt, while woodland sellers may seek a final return on their capital investment. In addition, management arrangements between the study cooperatives and their members are frequently for only 1 or 2 years and almost invariably for periods shorter than the timber harvest cycle.

Varied ownership goals and purposes of members remains a major problem area for forestry cooperatives. Table 5 provided an estimated breakdown of ownership objectives of forestry cooperative members. These objectives ranged from short-term financial gain to long-term productivity of the woodlot, to recreation and purely aesthetic reasons. A widely held assumption is that forest owners are operating business units. However, in many cases, timber production is not of paramount interest to owners who have acquired

their woodlands for other purposes. Thus, forest owners may not respond to new ideas, improved practices, and economic incentives in the same manner as, say, farmers.

Compounding the problem of maintaining active member participation in the business affairs of the cooperative is the time lag between timber harvests. A frequency of harvest no more often than every 10 to 15 years requires an unusual effort on the part of cooperative leaders to maintain the interest of members in cooperative activities. Existing stands cannot easily result in staggered timber harvests, unless members follow recommended management plans. Use of this important service offered by forestry cooperatives could be greater if members were willing to invest the time and funds in developing and implementing management plans. Additionally, the demand for management plans in some cooperatives may be limited to members primarily interested in gaining tax advantages.

The time lag between timber marketings not only contributes to a less active member interest in cooperative affairs, but also tends to make channels of communication between management and membership more difficult. Some cooperatives maintain member participation by keeping landowners informed periodically about current services and programs. A number of the cooperatives use newsletters and other educational program tools to demonstrate the importance of good forest management, as well as inform members about stumpage price fluctuations and recent developments in the forest economy. However, most cooperative managers and foresters do not have an accurate assessment of local woodland-owner interests and reasons for ownership. Activities of some cooperatives may conflict with woodland-owners' real concerns. Survey information on owner attitudes could prove a sound investment for targeting cooperative activities more specifically to members' needs and ensuring clear lines of communication.

Cooperative leaders must adjust management plans according to the diverse goals of members. Woodland-owner organizations do not hold complete control over the timber resource and its disposition. Final decisions are governed by management or marketing agreements between the cooperative and each member, with the member reserving authority over important forest investment and sale decisions. Unlike some Scandinavian forestry cooperatives, managers of the study cooperatives cannot treat members' woodlands as a single holding. If this were possible, planting and harvesting schedules could be programmed according to certain cooperative production and marketing objectives. Cooperatives could have more control over crucial forestry decisions, if scattered tracts were grouped into single management units. This would require owners to sacrifice some independence in decisionmaking. However, economies of scale may not be realized, given the operating structure of

forestry cooperatives. As table 3 illustrates, there is widespread geographic distribution of members among several cooperatives. Dispersed membership not only poses a problem for efficient forest management, but also makes member participation and communication more difficult.

Analyses of the experiences of early forestry organizations often allude to antagonism between cooperatives, brokers, and timber-using firms out of concern over increased competition or bargaining power of the cooperatives. Conversations with forestry professionals and cooperative leaders indicate the study cooperatives enjoy reasonably good relations with the firms or market outlets to whom they sell. In one case, a large paper company encouraged formation of one of the forestry cooperatives in Mississippi to generate an economically adequate supply of timber to maintain the company's concentration yard. The organization in Washington worked closely with a tree-farm program sponsored by a large timber-using company. Although the proportion of timber sold to the company by members has declined in recent years, the cooperative's relationship with this company remains cordial, and the company continues to be an important market outlet.

In a few instances, timber-using firms have not been in favor of cooperative formation. In addition, there is said to be concern among some brokers and consultants that forestry cooperatives may supplant them. But even in areas where the cooperatives have grown rapidly, it seems likely competitors need be concerned mainly with enhanced competition and perhaps some loss in market share. Consulting foresters could maximize their opportunities by functioning as part-time managers or foresters with woodland-owner organizations.

Growth of services and accumulation of capital are of concern to some forestry cooperatives. Without sufficient capital to provide services on a self-sustaining and businesslike basis, these organizations could experience serious financial problems from the outset. Undercapitalization could lead to lack of necessary beneficial services, such as employment of skilled management. There is apparently little recognition by financial institutions, including those of the Farm Credit System, of the real opportunities and investment potential for timber-management and marketing cooperatives.

Some cooperatives attempt to operate before adequately meeting capital requirements. In such cases, operational problems can arise if projections on timber sales are not reached. Unavailability of operating capital also results in insufficient services to maintain member interest and participation. Compounding the problem of adequate capital accumulation may be a declining demand for forest products or adverse fluctuations in stumpage prices.

Woodland-owner organizations maintaining a sound, yet flexible financial structure can withstand many unexpected financial difficulties. This is of major significance to cooperatives involved in highly capitalized ventures. Such undertakings involve substantial working capital needs and expansion in scale of timber production. The large capital investment and high level of management expertise required for efficient operation could drain a cooperative's resources, if initiated without an adequately designed financial structure. Development of timber-processing activities would most likely necessitate a heavy infusion of borrowed capital, especially if sufficient member investment could not be stimulated. However, relatively high interest rates combined with low operating margins in the beginning stages of operation could make loan repayment difficult.

Some of the cooperatives follow policies of building a capital reserve to facilitate expansion into new forestry activities. However, most have kept member dues and equity investments at a minimum to attract as many woodland owners as possible. Having a limited financial investment in the cooperative, members are not likely to feel that it is their own organization, but more of an external agency that has contracted to manage their woodlands and handle sales of their forest products.

A continuing constraint to maintaining a strong financial base for the cooperatives is accessibility of credit to forest owners. Credit to members for investment in forestry cooperatives is limited, because timber-growing stock cannot be translated quickly into capital, as it can in industries with more frequent harvests. To date, proposals to improve credit facilities for forest owners have not reached the program stage.

Alternative Product Markets and Organizational Structures

The commercial success of forestry cooperatives may depend on the extent marketing programs are concentrated on traditional product cycles. This may involve taking advantage of new products, while not neglecting traditional ones. The various uses of forest products, especially the increasing opportunities for different forms of wood-derived fuels, may provide a more regular income flow to members. Forestry cooperatives are in a good position to undertake new activities by making wider use of available markets. Wood contributes more than 2 percent of total U.S. energy needs, with the probability that it may supply as much as 7 percent of our Nation's energy in the future.⁸ Woodland-

⁸John Zerbe. "The Many Forms of Wood as Fuel", *American Forests*. October 1978.

owner organizations may wish to explore the use of wood fiber as an energy source within their forest management and marketing programs.

As fossil fuel costs rise and the future availability of fossil fuel becomes questionable, wood will expand as an alternative fuel for industrial boilers and domestic heating. Industry is manufacturing steam, electricity, charcoal, char oil, and combustible gases from wood. Annual sales of home wood-burning appliances increased tenfold between 1973 and 1979.⁹ Increase in domestic and industrial applications of wood energy may fuel the interest of woodland owners in culling small-diameter trees and otherwise noncommercial growing stock, while maintaining high-quality stands. Forestry cooperatives may need to assist landowners in gaining access to such potential markets through proper assembly, grading, or processing of timber and assuring an adequate volume to permit filling minimum-sized orders.

Alternative products from low-grade timber may range from locust posts, to firewood, to whole-tree chips. Woodland owners may benefit by salvaging "junk" timber for immediate dollars, while improving long-term growth of their timber stands. Identification of available markets for small-diameter and undesirable growing stock could make selective thinning and periodic removal of this material economically attractive, even in the short run. Cooperative concentration or sorting yards may be employed to aid woodland owners in assembly and segregation of various forest products. In areas of good market potential, this pooling of multiple uses, species, or grades of timber could attract many qualified buyers. However, a successful cooperative concentration yard would require skilled management and close supervision. Merchandising ability and quality control at delivery and in storage are essential elements for a successful multiple-products yard. In addition, adequate accounting methods are needed to separate the various forest products by ownership.

Processing of firewood may be an alternative product market for forestry cooperatives to explore. However, high capital investment and high labor costs could be required. Entering the firewood business on a commercial scale would entail processing and handling a large number of logs. Consequently, this may require some type of automated firewood-manufacturing system. One such venture is a recently initiated cooperative firewood-processing plant that purchases low-grade timber from local woodland owners. Logs

⁹Ralph T. Monahan and Jeffrey L. Warluft. *Prospectus: Firewood Manufacturing and Marketing*. NA-FR-17. Forest Service. U.S. Department of Agriculture. 1980.

are cut, split, and packed in 35-pound bundles and marketed to a nearby metropolitan center. This new technological venture is owned and operated by a regional farmer cooperative, with additional financial and technical assistance provided by both Tennessee Valley Authority and Appalachian Regional Commission. Woodland owners delivered their formerly nonmerchantable timber to the cooperative facility in 8-foot lengths and were paid about \$36 a cord in 1980. As cooperative members, owners may also receive a proportion of net margins generated from marketing of firewood, based on individual patronage.

Forestry cooperatives have the potential to play a substantial role assisting woodland owners in finding markets for various sizes, qualities, and uses of wood not in great demand. The cooperative manager could help determine such market decisions as which forest products would be best sold on a stumpage basis, through a concentration yard, or as firewood. A skilled manager should have the ability to develop new and improved markets for both traditional and alternative forest products. Development of outlets for low-grade and small-diameter growing stock also coincides with the cooperative's long-term forest management objectives, reducing costs of timber stand improvement and site preparation. However, the cooperative should be careful to maintain a strong marketing program for high-quality timber which, over the longrun, should generate a greater financial return to the landowner than similar efforts for scrub timber. In addition, service charges and sales commissions to the cooperative from maintaining and handling sales of high-quality growing stock may be crucial to defraying the organization's operating costs.

Market discovery for firewood and other low-grade material would require information on suppliers, handlers, and users of these products, as well as price information and location, types, and quantities of wood being used. Management also may need to keep abreast of which industries are converting their energy needs from fossil fuels to wood, and to what extent. Cooperatives contemplating production and marketing of firewood would need to verify any shortfall in supplies of wood-burning equipment. And trends in alternative on-farm uses of forest products such as in wood-fired tobacco barns, hog operations, grain-drying, and sweet potato curing would also require periodic investigation.

A prerequisite to development of new and expanded cooperative activities is compilation of detailed and reliable estimates on the feasibility of such ventures. Of initial concern is the economic need among members for a specific type of service or activity. Attitudes of landowners and their probable degree of participation, both in terms of patronage and capital contributions, must be appraised. This information, in combination with survey data on physical volume and growth of timber, should provide the cooperative with a

reliable estimate of expected total volume of timber available. Estimates should also be based on survey information about location, species, quality, and accessibility of members' timber. As discussed above, market identification and potential should be investigated thoroughly, including competing suppliers of the same forest product. In addition, commercial use of the timber resource should be compatible with sustained forest management conditions.

Determining the prospects for a particular forest enterprise entails a detailed business plan consisting of capital requirements and sources, monthly cash flow projections and resulting pro-forma statements, and an analysis of financial returns. A sound and growth-oriented financial structure will always have a capital reserve set aside for contingencies and possible expansion. The business plan should describe the total operations of the proposed venture and outline 1) facility, equipment, and labor needs; 2) capital requirements for fixed assets, labor, and operation; 3) a financial package with equity and loan capital requirements; 4) projected margins, financial ratios, and return on investment; and 5) plans for patronage refunds and equity redemption. This will enable the cooperative to determine the economic feasibility of the proposed venture, along with conservative estimates on what financing mechanisms may be necessary, working capital needs, and expected member benefits. In this way, a cooperative board of directors has the information necessary to make decisions on opportunities for alternative forest products.

Success or failure of cooperative enterprises depends to a large degree on breadth of experience and ability of management. A key function of the board of directors is selection and monitoring of skilled management. During initial operating years, a forestry cooperative may not attract sufficient startup capital to sustain the services of a trained forester/manager fulltime. With only part-time management, these organizations may find it difficult to implement strong forest-improvement and marketing programs and other beneficial services.

Alternatives in the organizational structure of forestry cooperatives may enhance opportunities to maintain good management on a full-time basis. Regional farm-supply cooperatives may offer an unrealized potential as a market outlet and a more direct channel to consumers of forest products, especially firewood. It could prove feasible for an organization of woodlot owners to contract with a regional farm-supply cooperative for such services as business management, financial assistance, and cooperative education in return for an ample and quality supply of forest products at competitive prices. In this way, a forestry cooperative could benefit from the larger organization's managerial and marketing experience and strengthen operation and financing of existing forestry activities and services.

Future Development

As long as the timber resource of private, nonindustrial owners is not being productively managed and the existing market infrastructure is not yielding adequate dollar returns to woodland owners, the cooperative method can be used successfully to supplement the services of public forestry professionals and private consulting foresters. Recent changes in timber tax laws provide greater opportunities to practice forestry on private, nonindustrial lands. Cooperatives have the potential to serve woodland owners in management and marketing of timber production generated by tax shelters for timber.

By placing a high priority on members' ownership objectives, forestry cooperatives can have a significant impact on delivery of services to woodland owners in terms of merchandising traditional forest products, encouraging development of new markets, and ensuring proper forest management. However, forestry cooperatives must follow a period of phased program development to do an effective marketing job, while fostering good silvicultural practices. Total reliance on either generating immediate income from low-grade timber or maximizing dollar returns from stumpage sales could impede a cooperative's chances for long-term success.

To be successful on a long-term basis, forestry cooperatives must overcome a number of potentially limiting factors. Foremost is the long interval within the timber-harvesting cycle and the resulting difficulty of maintaining member interest and support. However, management's ability to establish a firm business base through discovery of new markets or development of alternative forest products may be a solution. Establishing some form of operational arrangement with a large cooperative organization is another possibility. With good feasibility prospects and an adequate financing package, a processing facility is a further possibility.

In some instances, public aid to forestry cooperatives may be necessary to assist in establishing whether commercial enterprises would be feasible, using alternative technological processes. Pioneering operations to test the commercial application of certain forms of wood energy is an area that may benefit from assistance by the public sector. This is especially true where new investment costs are required and market response is uncertain. Public revenue financing, either through credit on favorable terms or energy bonds, may help forestry cooperatives cover financial risks involved in experimental processes or pilot enterprises. Public support to forestry cooperatives during the initial stages of untested technological applications can also promote self-reliance, especially among small forest owners, through well-managed woodlands and establishment of forest-based enterprises.

A number of agencies within U.S. Department of Agriculture provide special services to stimulate development of forestry cooperatives and guide them along constructive lines. Agricultural Cooperative Service (ACS) assists woodland-owner organizations in exploring the economic feasibility of new cooperative activities and can suggest sources of debt financing. ACS can also provide advisory assistance in cooperative organization and management and help with educational programs for members and boards of directors.

Forest Service, working through individual State foresters, offers technical advice on all phases of timber management and forest product utilization. Forest Service can be particularly helpful to woodland-owner organizations in advising on proper forest management plans, selective marking of timber, and locating markets. It also provides cost-sharing assistance along with Agricultural Stabilization and Conservation Service (ASCS) for timber stand improvement and reforestation through the Forestry Incentives Program. Recently, ASCS in conjunction with Forest Service, launched a pilot fuelwood program in New England. This project seeks to use the commercialization of firewood as an incentive to insure proper management of forestland and growth of high-quality stands. Extension Service also provides technical advice on timber production, harvesting, and marketing.

A critical element for the long-term success of forestry cooperatives is member support, both in terms of continued patronage and willingness to invest equity capital. Financial health of cooperative organizations depends to a large degree on members fulfilling marketing agreements and making necessary contributions to the cooperative's capital base. This member commitment may entail reinvesting as capital a reasonable proportion of the cooperative's net margins to satisfy working capital needs. A concentrated educational program may be necessary to inform woodland owners of their responsibilities as members and benefits to be derived through participation and investment.

If there is indication that adequate member support cannot be obtained, plans to initiate or expand cooperative operations should be postponed. On the other hand, with dependable member commitment, forestry cooperatives may wish to link service charges or sales commissions with sustained patronage. Members following recommended management plans and harvesting schedules may be subject to more favorable fees or commissions. No standard organizational structure or operational format is suitable for all forestry cooperatives. With realistic and needed services, aggressive and committed management, strong member support, and favorable markets, forestry cooperatives stand a good chance to remain successful business organizations.

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**U.S. Department of Agriculture
Agricultural Cooperative Service**

Agricultural Cooperative Service provides research, management, and educational assistance to cooperatives to strengthen the economic position of farmers and other rural residents. It works directly with cooperative leaders and Federal and State agencies to improve organization, leadership, and operation of cooperatives and to give guidance to further development.

The agency (1) helps farmers and other rural residents obtain supplies and services at lower costs and to get better prices for products they sell; (2) advises rural residents on developing existing resources through cooperative action to enhance rural living; (3) helps cooperatives improve services and operating efficiency; (4) informs members, directors, employees, and the public on how cooperatives work and benefit their members and their communities; and (5) encourages international cooperative programs.

The agency publishes research and educational materials, and issues *Farmer Cooperatives*. All programs and activities are conducted on a nondiscriminatory basis, without regard to race, creed, color, sex, or national origin.