FARM FORESTRY EXTENSION
AND ITS APPLICATION IN OREGON

by

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FARM FORESTRY EXTENSION
AND ITS APPLICATION IN OREGON

Introduction

The problem of this paper is to investigate the national and state aspects of farm forestry extension with the purpose of drafting a program for an extension forester who might be working in Oregon. Another purpose is to make available more information on the thesis subject.

Extension foresters have been working within the Extension Service as specialists. As a group, they comprise a system of extending farm forestry. They also exist as part of a larger cooperative undertaking in farm forestry by the United States Forest Service, the Soil Conservation Service, and federal and state Extension Services. Other governmental boards and bureaus also assist.

One basis for promoting farm forestry is the need for proper management of a large acreage of farm woodlands. They total 185,529,240 acres and represent 17.6 per cent of the total farm acreage and 26 per cent of total commercial forest land in the nation (41). Of this total, one author estimates that 21 million acres need restocking and about 45 million acres are in need or rehabilitation if production is to be increased (105). On a basis of forest surveys and economic studies, another author states that commercial farm forests have received less positive management and more abuse than almost any other major farm crop (57).
The need for increased management of farm woodlands is stressed by many writers in addition to the many needs of the farmer for information and advice in proper management of woodland. "It is a recognized fact that the average woodland owner knows less about the value of his forest products than he does of any other crop on his farm."(28) Besides a lack of knowledge, the methods and facilities used by most farmers are reported to be less effective than those of larger industrial forest owners. It is difficult for the farmer to get trained and experienced foresters, loggers, and millmen to help in locating profitable markets (105).

Much of the promotional work in farm forestry deals directly with eastern situations. Statistics reveal that 95 per cent of the farm woodlands are in the five eastern regions of the United States. A comparison showing this predominance in the East leads to the conclusion that, "... the farm woodland problem is for the most part a problem of the eastern half of the country."(30) A writer portraying conditions in the Pacific northwest points out, however, that farm forestry importance in any of the major lumbering regions has never been realized until the virgin timber in extensive tracts has been cut. The Northeastern, Lake, and Southern states which once held the lead in lumber production now utilize a third of their total lumber production from farm woodland, or a total income of $168,000,000. (36)
Oregon is one of the leading lumber producing states. It may be justly reasoned that farm woodlands will assume more importance as the virgin timber becomes less economically accessible. Investigators bear out this assumption and call attention to the addition of new markets for farm forest products (77) (106). Manufacturers are said to be depending more and more on second growth stands such as are owned by individuals rather than by corporations (77). The farmer is thus availing himself of additional income (13).

The importance of farm woodlands in Oregon is gradually being recognized. A farm forestry program for the state has been formed and adopted. An intensive farm forestry project has been established. It is anticipated that an extension forester's position will eventually be created. In view of the importance of farm woodlands, the newness of farm forestry work, and the expected development of a farm forestry extension program, there exists a need for investigation of the farm forestry extension background and of methods used by other extension foresters.

At present the data on farm forestry extension is widely scattered and the broader aspects of the work appear neglected. Were this information condensed it would be of value to students in a state where farm forestry has not been accentuated or where material is unavailable.

Methods used in collecting the data varied. Extension foresters in other states were contacted regarding their programs and methods. Letters, bulletins, and booklets on
the subject were used freely, and interviews were held with men in the cooperating and administrative agencies.

Part I contains the development and authorization, the national status, extension forester's position, a description of tools of farm forestry extension, and some evaluations of the system of extending farm forestry.

Part II is arranged in a form which might be used by an extension forester. The farm woodland situation is briefly described, and the work being done or planned by public agencies is presented. Concepts gained from Part I and Part II are used in the proposed program of an extension forester for Oregon.

Since there may be some uncertainty about the meanings of forestry extension and farm forestry extension, they are defined below.

The majority of writers hold that forestry extension is the extending of forestry information and education to all groups needing or desiring such information. These groups may be classed under three headings: the owners of farm woodlands, the owners and managers of industrial forests, and the general public (110). The inclusive objectives have been stated as follows:

"The objective or mission of forestry extension is to spread a working knowledge of forestry, to bring about a widespread appreciation of forestry in our national economic and social structure, to pass on to forest land owners, users, and managers all applicable knowledge of forestry and its practices, and also
to demonstrate and interpret in the light of local requirements in forestry; all to the end that the forest lands of the country produce larger returns in terms of profit and human welfare." (110)

Farm forestry extension is a division of forestry extension but limits its field to matters which directly or indirectly affect the owner of farm woodlands. It makes information about woodland protection and management available to cooperatives and owners (105). Since farm forestry extension is also a subject matter of the Extension Service, workers in forestry under that agency will also consider the objectives of that agency.

Some enumerated objectives of farm forestry extension have been stated by the extension forester of California to be as follows:

"1. To increase knowledge of forestry principles, bring about wise handling of farm forest and woodland areas and promote judicious use and protection of forest products on the farm and in farm homes. 2. To encourage reforestation and revegetation of suitable forest and watershed areas in order to promote water conservation and to prevent erosion. 3. To help place the full power of organized agriculture in California behind the cooperative movement for protection of forest, watershed, grazing and other farm areas from damage by fire and other agencies." (45)

Farm forestry extension "... aims to take its teachings out to the farm, the home, the garden, the field, the barn, and the woodlot, to induce the owner on his own ground to try the new practice to the end that he may adopt it." (2)

From a statement of these phases of extension, the objectives above describe the specific field of this paper.
PART I

THE NATIONAL ORGANIZATION
Early history and acts authorizing farm forestry extension aid in determining the specific regulations of and the reasons for the employment of extension foresters. The history and laws also assist in forming a concept of all the work being done in farm forestry, and the length of time such assistance has been given farmers.

The Early History, 1911-1923

Forestry was first given a place as an agricultural extension project in Pennsylvania in 1911, with New York following in 1912. This work preceded the establishment of the Extension Service and consisted primarily of personal services. After the passage of the Smith-Lever Act of 1914, the aims in these projects were of a wider educational nature. In 1914 North Carolina added farm forestry extension to the extension program. Georgia, Maryland, Tennessee, and Virginia added significant farm forestry extension projects in 1918, but dropped them because of conditions following the war (2). Some of the extension foresters employed in these earlier programs devoted only a part of their time to assisting the county agents, but later were employed full time as the programs expanded (96). The federal Extension Service employed an extension forester from the fall of 1916 to June, 1919 (42).
As a summary of activity in the last month of 1923, we note that seven states - Iowa, Louisiana, Maine, Maryland, New York, North Carolina, and Pennsylvania - had active projects. The federal Extension Service employed a full-time extension forester (42). The total sum expended from both state and federal funds was $14,187, which covered six full-time projects and two part-time projects.

It is significant to note about the earlier history that the Smith-Lever Act of 1914 provided for work in a few states for the services of forestry specialists, and that some states started in farm forestry work a few years prior to the creation of the Extension Service.

"An informal and unofficial conference, held previously in New Haven, Conn., in February 1923, must be regarded as a very important meeting from an extension standpoint. It considered the field and function of extension work in farm forestry. National legislation on the subject was in the air and the meeting crystallized sentiment and made recommendations which surely were potent in influencing Congressional action which culminated in the Clarke-McNary Act of 1924." (42)

The Clarke-McNary Act of 1924

The basic act providing for farm forestry extension and the one under which most of the programs in the states have developed came under Section V of the Clarke-McNary Act passed on June 7, 1924. When funds from the act became available in July, 1925, nine states began or reestablished forestry projects. One by one, other states initiated farm forestry projects (42).
The act may be summarized as follows:

"An act to provide for the protection of forest lands, for the reforestation of denuded areas, for the extension of national forests, for the distribution of planting stock to farmers, and for other purposes, in order to promote the continuous production of timber on lands chiefly suitable therefor." (65)

The specific provision for farm forestry extension is:

"Section V. That the Secretary of Agriculture is hereby authorized and directed, in cooperation with appropriate officials of the various states, or, in his discretion, with other suitable agencies, to assist the owners of farms in establishing, improving, and renewing woodlots, shelterbelts, windbreaks, and other valuable forest growth, and in growing and renewing useful timber crops; Provided, That, except for preliminary investigations, the amount expended by the federal government under this section in cooperation with any state or other cooperating agency during any fiscal year shall not exceed the amount expended by the state or any other cooperating agency for the same purpose during the same fiscal year. There is hereby authorized to be appropriated annually out of any money in the Treasury not otherwise appropriated, not more than $100,000 to enable the Secretary of Agriculture to carry out the provisions of this section." (65) (115)

The full amount to be appropriated under the farm forestry extension section of the act has never been reached since not all states cooperate under its provisions. Usually $1,500 is available to each state cooperating. As a result, there is approximately $70,000 available from federal funds and about $90,000 from total state funds. (110)

Under Section V of this act, extension foresters were added to the group of specialists within the federal and state Extension Services. Material used by the foresters has been cooperatively developed by the Extension Service and the federal Forest Service. (65)
Other provisions of the act provided for the establishment of tree nurseries to supply planting stock to farmers. During 1939, there were 55,369,700 trees distributed at not more than cost to farmers in 41 states and two territories. Another part of the act aided farm forestry as it provided funds for controlling and preventing forest fires on private land (34).

Acts and Activities, 1924-1933

Other acts influenced farm forestry by enlarging the Extension Services under which the extension foresters worked. These were the Capper-Ketcham Act of 1928 and supplementary acts increasing the scope and size of the Extension Service. None of the funds were specifically directed towards farm forestry extension although, in some states, it benefitted by the provisions of these acts (2).

A national conference of extension foresters was held early in 1926 at Washington, D. C. This meeting of outstanding importance considered methods, agencies, plans of work, and reports concerning farm forestry extension (48).

Until 1933 the Extension Service, through its extension foresters, was practically the only public agency given the express duty of advising owners of farm woodlands. State foresters extended some woodland management information, but this service was not far-reaching (95). In 1933, there were 37 extension foresters employed (110).
Status from 1933 to 1938

After 1933, a number of federal agencies gave attention to farm woodland management. Among these were the Soil Conservation Service, Agricultural Adjustment Administration, and Tennessee Valley Authority. In 1933, the Soil Conservation Service engaged in farm plantings, and in 1935, increased their work to timber stand improvement on farm woodlands. Efforts of the Tennessee Valley Authority have been confined to project areas under its supervision (95). The AAA began a program of paying benefits to farmers who practiced certain farm woodland improvement methods.

A phase of farm forestry work is the Prairie States Forestry Project, initiated in 1934 through executive order of the President. These shelterbelt plantings have been continued with emergency funds as a relief measure in the states of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas. They are administered by the Forest Service. "To date, the Project has planted more than 34,000,000 trees in 6,857 miles of shelterbelts to protect 2,000,000 acres of crops and soils on 15,810 farms."(105) The undertaking is a cooperative one with the farmers contributing labor and fencing while the Forest Service selects the site for the plantings and directs the WPA laborers in producing, planting, and building fences (105).

The number of extension foresters increased during this period from 37 in 1933 to 51 in 1938 (105). Additional
programs of farm forestry extension were gradually started or existing ones were enlarged.

**The Cooperative Farm Forestry Act, 1938–1941**

Besides the laws mentioned above, no other act directly affected the system of farm forestry extension until the passage of the Cooperative Farm Forestry Act. This act, known also as the Norris–Doxey Act, was approved on May 18, 1937, but remained inactive until the fiscal year of 1939–40 because no appropriations were made to carry out its provisions. Briefly, the act authorizes the Department of Agriculture to carry out a more effective farm forestry program in cooperation with individual farmers, land-grant colleges, state experiment stations, federal–state forest nurseries, and state agencies. The Soil Conservation Service is authorized to administer the programs undertaken (71). A statement of the law is contained in Exhibit A of the appendix.

For the fiscal year ending July 1, 1940, Congress appropriated $300,000 for carrying out the provisions of the act. The division of funds was tentatively as follows: $50,000 for farm forestry extension, $50,000 for the production of planting stock, and the remaining $200,000 for demonstrations and farm forestry investigations. Of the latter sum, $25,000 was to be set aside for research (104). For the fiscal year ending June 30, 1941, there was appropriated $251,100, or enough to establish about 45 farm forestry projects (32).
Aid to farm forestry extension under the Extension Service was from the $50,000 set aside for this work. State allocations were made and several states supplemented their extension forestry programs with funds from this act (112).

At first it was the consensus of opinion that the United States Forest Service would administer the program authorized by the act. This agency even prepared some policies to be used when appropriations became available. Final division of authority gave the administration to the Soil Conservation Service because of departmental reorganization and the reason that farm forestry was considered to be first a farm problem and secondly a forestry problem. The federal Forest Service is the subject-matter authority besides conducting research and forest farming. The Extension Service's place is one of education, while the Bureau of Agricultural Economics assumes a function of general planning. (71)

To carry out the plan of work outlined by the act, a farm forestry committee was established in the Department of Agriculture in Washington, D. C. This committee prepared the policies and procedures for the entire farm forestry program. These guiding principles are stated below:

"1. The objective of the Cooperative Farm Forestry Act is the development of the farm woodland as a productive unit of the farm. To achieve this objective, the Department has outlined a general research, education, and action program, including both reforestation and management of existing stands.

"2. The development of the farm woodland as a
productive unit of a farm should be initiated and carried out as an integral part of farming, as a part of a farm plan, based on proper land use and economic principles.

"3. Research, education, and action in farm forestry must be carried on as complementary phases of a single program.

"4. A primary means of achieving the objective of the Cooperative Farm Forestry Act is the initiation and development of intensive projects to demonstrate the effects of woodland management on farm economy and land use. These projects will at the same time provide a proving ground for farm forestry methods.

"5. The farm forestry program will also provide for the production of additional planting stock which will be available in cooperating states to farmers throughout as well as for use on the intensive projects." (102)

The guiding principles outlined above were relayed to the regional directors in the cooperating agencies. In addition, a set of instructions was sent to each state cooperating with the federal government in the farm forestry within the state. The program was to be outlined by a farm forestry committee which is an advisory body to the state land use planning committee. Main features of this broad program were: to decide upon areas in which intensive farm forestry projects are to be located, to outline a procedure for the distribution of planting stock, to prepare an educational and research program, and to secure plans for contributions from cooperating agencies (71).

After these instructions had been complied with, the parts were formed into a unified state program. The state plan represents the combined efforts of all the private,
state and federal interests in setting forth the objectives, problems and general plan of cooperative action (71) (104).

A last step in the formation of the state programs is the selection of definite locations for intensive projects. This location is to be approved by all cooperating agencies. In the operation of an intensive project, wide latitude is given to the states. The central farm forestry committee proposed the following standard form in the operation of intensive projects:

"1. Projects are to demonstrate effects of woodland management on farm economy and land use.

"2. Projects of two types are considered, namely farm forestry and forest farming. The former is in areas where small landowners depend for their living on agricultural enterprise other than forestry projects and the latter in areas where small landowners depend mainly on products of their woodland.

"3. If the projects are located outside of Soil Conservation districts, the Department of Agriculture and the state will furnish personnel as agreed upon.

"4. Technical assistance may be given to farmers who have or desire complete farm plans, and also to those who desire only forestry advice.

"5. Farmers with whom complete farm plans are formed may receive from the Department of Agriculture such personnel, equipment and facilities as they require for the purpose of carrying out the project plan. This personnel besides that contributed by other cooperating agencies will make the necessary surveys, prepare and explain the individual farm conservation plans, execute agreements with landowners, check performance and make any necessary revisions in the farm plans. This farm cooperative agreement will cover a period of at least five years and will be a 'condition precedent to cooperation between landowners and the Department of Agriculture.'

"6. If the project is within a Soil Conservation district, the district work plan will be the basis for development of the project.
7. The state will be responsible for fire protection unless other arrangements are made.

8. Educational activity on projects will be in accordance with existing memoranda of understanding.

9. Research and production of planting stock will be provided for in separate memoranda of understanding.

10. The project personnel if paid at least 50% by the state shall work under the direction of the state 'insofar as normal administrative matters are concerned.' (106)

The above ten points outline the policies and procedures used in the formation of state farm forestry programs under the new Cooperative Farm Forestry Act. State programs were drafted within the cooperating states and sent for approval in Washington, D. C. When these programs were approved, they became the guiding plans for farm forestry in each of the states. Such a program has been prepared for Oregon and is reviewed in Part II of this paper.

This completes the discussion of the development and authorization of the system of extending farm forestry by the Extension Service. The broader cooperative plan for furthering farm forestry is also included as it aids in determining the specific part in the entire program delegated to extension foresters.

Summary

Farm forestry as an agricultural extension project started in 1911 and 1912, with more assistance given by the passage of the Smith-Lever Act in 1914. Projects
gradually increased until 1923, when seven states had active farm forestry extension projects. The basic act of farm forestry extension is the Clarke-McNary Act of 1924, which established the system of extension farm foresters working within the Extension Service in cooperation with the federal Forest Service. Other extension and forestry acts strengthened the system by enlarging the groups through which the extension forester works. Other agencies entered the work in 1933 and assisted farm forestry extension. In 1938, there was a total of 51 extension foresters employed in the states and in Washington, D. C.

The Cooperative Farm Forestry Act, first effective in 1939-1940, gives funds for the employment of additional extension foresters and delegates to the Extension Service, the educational program of farm forestry. In addition, the act sets up a coordinated program of farm forestry within the nation based on land use programs and the establishment of a farm forestry program in each state. Intensive projects are proposed within the states as a means of securing woodland management data and demonstrating the effect of farm forestry on the economy of each farm.
CHAPTER II

THE NATIONAL STATUS OF FARM FORESTRY EXTENSION

This chapter lists the number of extension foresters employed, statistical accomplishments, and the rank of farm forestry in the Extension Service. These facts are further evaluating the system of extending farm forestry.

States and Possessions Cooperating

The states are divided into four divisions and the possessions included under the division geographically nearest. In the following table, the number of extension foresters employed are grouped beside the state in order to show which states are accenting farm forestry work. The list was compiled in February, 1941.

TABLE I

STATES AND POSSESSIONS COOPERATING
IN FARM FORESTRY EXTENSION

<table>
<thead>
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<th>Eastern Division</th>
<th>Foresters Employed</th>
<th>Central Division</th>
<th>Foresters Employed</th>
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<tr>
<td>Maine</td>
<td>1</td>
<td>Ohio</td>
<td>1</td>
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<tr>
<td>New Hampshire</td>
<td>5</td>
<td>Indiana</td>
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<td>Kentucky</td>
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<td>Illinois</td>
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</tr>
<tr>
<td>Connecticut</td>
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<td>2</td>
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<tr>
<td>Rhode Island</td>
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<td>2</td>
</tr>
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<td>New York</td>
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<td>Minnesota</td>
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<td>West Virginia</td>
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TABLE I (CONTINUED)

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<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>11</strong></td>
<td></td>
</tr>
</tbody>
</table>

The table above indicates that all but six states employ extension foresters, the majority of whom are working in eastern states.

Statistical Accomplishments of Farm Forestry Extension

The following table records the accomplishments during the calendar years of 1938 and 1939. These statistics show a substantial increase in the work over a two year period. According to the table, 4-H club activities rank high. Any conclusions about accomplishments by divisions are hard to form, since conditions within each state making up the division vary considerably. The information presented in the table should be compared with the total time devoted to all projects by extension workers in order to ascertain the relative rank of farm forestry.
## TABLE II

STATISTICAL INFORMATION ON FORESTRY WORK AS REPORTED BY ALL EXTENSION AGENTS IN 1938 AND 1939

<table>
<thead>
<tr>
<th>Item</th>
<th>1938</th>
<th>1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days devoted to work by home demonstration agents</td>
<td>321.48</td>
<td>535.80</td>
</tr>
<tr>
<td>Days devoted to work by club agents</td>
<td>2439.75</td>
<td>1978.97</td>
</tr>
<tr>
<td>Days devoted to work by agricultural agents</td>
<td>12019.78</td>
<td>18091.00</td>
</tr>
<tr>
<td>Days devoted to work by specialists</td>
<td>3487.06</td>
<td>3326.17</td>
</tr>
<tr>
<td>Number of communities in which work was conducted</td>
<td>18754</td>
<td>18338</td>
</tr>
<tr>
<td>Number of voluntary local leaders or committeemen assisting</td>
<td>10937</td>
<td>13024</td>
</tr>
<tr>
<td>Days assistance rendered by voluntary leaders or committeemen</td>
<td>16008.68</td>
<td>18274.70</td>
</tr>
<tr>
<td>Number of adult result demonstrations</td>
<td>6106</td>
<td>8250</td>
</tr>
<tr>
<td>Number of meetings at result demonstrations</td>
<td>1154</td>
<td>1041</td>
</tr>
<tr>
<td>Number of method demonstration meetings held</td>
<td>5539</td>
<td>6163</td>
</tr>
<tr>
<td>Number of other meetings held</td>
<td>5474</td>
<td>6635</td>
</tr>
<tr>
<td>Number of news stories published</td>
<td>9264</td>
<td>10704</td>
</tr>
<tr>
<td>Number of different circular letters issued</td>
<td>4040</td>
<td>4247</td>
</tr>
<tr>
<td>Number of farm or home visits made</td>
<td>26107</td>
<td>35464</td>
</tr>
<tr>
<td>Number of office calls received</td>
<td>113612</td>
<td>129002</td>
</tr>
<tr>
<td>Number of 4-H club boys enrolled</td>
<td>18743</td>
<td>20802</td>
</tr>
<tr>
<td>Number of 4-H club girls enrolled</td>
<td>6182</td>
<td>6157</td>
</tr>
<tr>
<td>Number of 4-H club boys completing</td>
<td>15788</td>
<td>15800</td>
</tr>
<tr>
<td>Number of 4-H club girls completing</td>
<td>4842</td>
<td>4695</td>
</tr>
<tr>
<td>Number of 4-H club boys not in special project clubs who participated in forestry activities</td>
<td>14525</td>
<td>20528</td>
</tr>
<tr>
<td>Number of 4-H club girls not in special project clubs who participated in forestry activities</td>
<td>5795</td>
<td>6186</td>
</tr>
<tr>
<td>Number of transplant beds cared for by 4-H club members completing</td>
<td>2491</td>
<td>2394</td>
</tr>
<tr>
<td>Number of acres planted to forest trees by 4-H club members completing</td>
<td>8205</td>
<td>8034</td>
</tr>
<tr>
<td>Number of acres thinned, weeded, pruned or managed by 4-H club members completing</td>
<td>37087</td>
<td>12584</td>
</tr>
<tr>
<td>Number of acres of farm woodland protected from fire by 4-H club members completing</td>
<td>104624</td>
<td>297539</td>
</tr>
</tbody>
</table>
TABLE II (CONTINUED)

<table>
<thead>
<tr>
<th>Item</th>
<th>1938</th>
<th>1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farms on which new areas were reforested by planting with small trees</td>
<td>32487</td>
<td>40026</td>
</tr>
<tr>
<td>Acres involved in preceding question</td>
<td>140043</td>
<td>166018</td>
</tr>
<tr>
<td>Number of farmers planting windbreaks or shelterbelts</td>
<td>24431</td>
<td>31985</td>
</tr>
<tr>
<td>Number of farmers planting trees for erosion control</td>
<td>67723</td>
<td>25906</td>
</tr>
<tr>
<td>Number of farmers making improved thinnings and weedings</td>
<td>26797</td>
<td>36224</td>
</tr>
<tr>
<td>Number of farmers practicing selection cutting</td>
<td>31744</td>
<td>41384</td>
</tr>
<tr>
<td>Number of farmers pruning forest trees</td>
<td>13911</td>
<td>12893</td>
</tr>
<tr>
<td>Number of farmers cooperating in prevention of forest fires</td>
<td>319018</td>
<td>338134</td>
</tr>
<tr>
<td>Number of farmers adopting improved practices in production of naval stores</td>
<td>6206</td>
<td>5845</td>
</tr>
<tr>
<td>Number of farmers adopting improved practices in production of maple sugar and sirup</td>
<td>4513</td>
<td>4754</td>
</tr>
<tr>
<td>Number of farmers assisted in timber estimating and appraisal</td>
<td>3791</td>
<td>5259</td>
</tr>
<tr>
<td>Number of farmers following wood preservation recommendations</td>
<td>21109</td>
<td>26441</td>
</tr>
<tr>
<td>Number of farmers following recommendations in the marketing of forest products</td>
<td>16199</td>
<td>16977</td>
</tr>
</tbody>
</table>

Rank of Farm Forestry Extension in the Extension Service

As stated under statistical accomplishments in forestry, the above table would have more weight if the amount of time occupied by farm forestry work were presented. The following table indicates that agents and specialists devote about one per cent of their time to the subject matter of forestry. The work has remained in the same proportion from 1927 to 1938. During this time, however, the number of workers in extension has increased.
TABLE III
PERCENTAGE OF AGENTS’ AND SPECIALISTS’ TIME
DEVOTED TO PROJECTS
(65)(72)

<table>
<thead>
<tr>
<th>Item</th>
<th>1927</th>
<th>1928</th>
<th>1929</th>
<th>1930</th>
<th>1931</th>
<th>1932</th>
<th>1933</th>
<th>1934</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm crops</td>
<td>12.4</td>
<td>12.5</td>
<td>12.4</td>
<td>12.5</td>
<td>12.4</td>
<td>12.5</td>
<td>12.4</td>
<td>12.5</td>
</tr>
<tr>
<td>Horticulture</td>
<td>7.1</td>
<td>7.4</td>
<td>7.6</td>
<td>7.4</td>
<td>7.7</td>
<td>7.2</td>
<td>7.1</td>
<td>7.4</td>
</tr>
<tr>
<td>Forestry</td>
<td>0.9</td>
<td>0.5</td>
<td>0.7</td>
<td>0.8</td>
<td>1.0</td>
<td>1.0</td>
<td>0.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Animal husbandry</td>
<td>8.2</td>
<td>11.6</td>
<td>9.0</td>
<td>7.0</td>
<td>7.4</td>
<td>7.6</td>
<td>8.2</td>
<td>11.6</td>
</tr>
<tr>
<td>Dairy husbandry</td>
<td>7.8</td>
<td>3.7</td>
<td>3.6</td>
<td>3.4</td>
<td>4.2</td>
<td>4.0</td>
<td>7.8</td>
<td>3.7</td>
</tr>
<tr>
<td>Poultry husbandry</td>
<td>8.8</td>
<td>3.3</td>
<td>3.5</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>8.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Agricultural engineering</td>
<td>3.4</td>
<td>1.6</td>
<td>3.0</td>
<td>4.4</td>
<td>4.7</td>
<td>4.4</td>
<td>3.4</td>
<td>1.6</td>
</tr>
<tr>
<td>Rodents and insects</td>
<td>1.5</td>
<td>1.4</td>
<td>0.9</td>
<td>1.0</td>
<td>1.7</td>
<td>1.7</td>
<td>1.5</td>
<td>1.4</td>
</tr>
<tr>
<td>Agricultural economics</td>
<td>4.1</td>
<td>3.2</td>
<td>7.4</td>
<td>3.7</td>
<td>8.7</td>
<td>7.9</td>
<td>4.1</td>
<td>3.2</td>
</tr>
<tr>
<td>Foods and nutrition</td>
<td>7.1</td>
<td>7.8</td>
<td>7.3</td>
<td>7.0</td>
<td>7.2</td>
<td>6.8</td>
<td>7.1</td>
<td>7.8</td>
</tr>
<tr>
<td>Child development and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>parent education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing</td>
<td>6.8</td>
<td>5.8</td>
<td>5.6</td>
<td>5.8</td>
<td>6.6</td>
<td>5.8</td>
<td>6.8</td>
<td>5.8</td>
</tr>
<tr>
<td>Home management</td>
<td>1.5</td>
<td>1.4</td>
<td>1.6</td>
<td>1.8</td>
<td>2.1</td>
<td>2.1</td>
<td>1.5</td>
<td>1.4</td>
</tr>
<tr>
<td>House furnishings</td>
<td>2.0</td>
<td>2.1</td>
<td>2.4</td>
<td>2.9</td>
<td>3.3</td>
<td>3.4</td>
<td>2.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Home health and sanitation</td>
<td>1.1</td>
<td>1.0</td>
<td>1.0</td>
<td>0.9</td>
<td>1.1</td>
<td>1.0</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Community activities</td>
<td>6.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soils</td>
<td>4.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formulation of the extension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Demonstrations recorded in forestry work should also be compared with the demonstrations held in other subject matter by workers in the Extension Service. The following table indicates that farm forestry extension ranked next to lowest among 20 adult result demonstration projects in the period from 1935 to 1938. Its rank among 20 4-H club projects completed in the same period was sixteenth in 1935 and fourteenth in 1938.
TABLE IV

ADULT RESULT DEMONSTRATIONS AND 4-H CLUB PROJECTS
COMPLETED 1935-1938 AS REPORTED BY COUNTY EXTENSION AGENTS
(93)

<table>
<thead>
<tr>
<th>Project</th>
<th>Adult Result Demonstrations</th>
<th>4-H Club Projects Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1935</td>
<td>1938</td>
</tr>
<tr>
<td>Cereals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legumes and forage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>crops</td>
<td>90440</td>
<td>98916</td>
</tr>
<tr>
<td>Potatoes, cotton, etc.</td>
<td>61694</td>
<td>43405</td>
</tr>
<tr>
<td>Horticulture</td>
<td>150894</td>
<td>153596</td>
</tr>
<tr>
<td>Forestry</td>
<td>3189</td>
<td>6108</td>
</tr>
<tr>
<td>Dairy</td>
<td>16313</td>
<td>11533</td>
</tr>
<tr>
<td>Animal Husbandry</td>
<td>26994</td>
<td>26012</td>
</tr>
<tr>
<td>Poultry</td>
<td>28919</td>
<td>28056</td>
</tr>
<tr>
<td>Agricultural engineering</td>
<td>20132</td>
<td>30026</td>
</tr>
<tr>
<td>Rodents and insects</td>
<td>9768</td>
<td>27203</td>
</tr>
<tr>
<td>Agricultural economics</td>
<td>66254</td>
<td>48901</td>
</tr>
<tr>
<td>Foods and nutrition</td>
<td>121457</td>
<td>111293</td>
</tr>
<tr>
<td>Child development and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>parent education</td>
<td>7362</td>
<td>9486</td>
</tr>
<tr>
<td>Clothing</td>
<td>48769</td>
<td>48038</td>
</tr>
<tr>
<td>Home management</td>
<td>16156</td>
<td>22113</td>
</tr>
<tr>
<td>House furnishings</td>
<td>29814</td>
<td>33083</td>
</tr>
<tr>
<td>Handicraft</td>
<td>11351</td>
<td>19707</td>
</tr>
<tr>
<td>Home health and sanitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife conservation</td>
<td>---</td>
<td>2256</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6356</td>
<td>7568</td>
</tr>
<tr>
<td>Totals</td>
<td>788615</td>
<td>767714</td>
</tr>
</tbody>
</table>

Summary

The present status of farm forestry extension shows that there are 69 extension foresters employed as specialists within the Extension Service. Forty-two states and two possessions cooperate in the program. Statistical accounts indicate that the work is increasing and recorded accomplishments show that much work is being done. In comparison with other subject matters, farm forestry...
occupies about one per cent of agents' and specialists' time. This percentage remained stationary from 1927 to 1938. Among 20 projects, forestry ranked next to lowest among adult result demonstrations conducted, and averaged fifteenth among 4-H club projects completed.

A survey of the development and authorization, and of the present status of farm forestry work has aided in obtaining a background of extension forestry activities. A definite position within the Extension Service is held by extension foresters. It is necessary that this position be determined.
CHAPTER III
THE EXTENSION FORESTER'S POSITION
IN THE EXTENSION SERVICE

Extension foresters are authorized to assist farmers
to renew and establish woodlots and other valuable forest
growth. This they do through educational means. In addition,
the foresters occupy a definite place within the
Extension Service—carrying out the Service's objectives,
acting as state or federal specialists, and working coop-
eratively in other programs of the federal government.

The Forester's Position in Fulfilling Extension Service
Objectives

The Extension Service was created in 1914 as a means
of disseminating information to rural groups. Assistance
before that time was not comprehensive enough and found
application only on a limited number of farms (65) (115).

Original objectives mentioned under the Smith-Lever
Act of 1914 changed because of program enlargements and
experiences gained through the work of the Service.
Changed viewpoints of people as well as changed practices
have been an influencing factor. The latest objectives
have been stated as listed below (65).

"1. To increase the net income of the farmer
through more effective production and marketing and
the better use of capital and credit.

"2. To promote better homes and a higher
standard of living on the farm."
"3. To develop rural leaders.

"4. To promote the mental, social, cultural, recreational, and community life of rural people.

"5. To acquaint the public with the place of agriculture in the national life.

"6. To implant a love of rural life in farm boys and girls.

"7. To enlarge the vision of rural people and the nation on rural matters.

"8. To improve the educational and spiritual life of rural people." (65)

The extension forester's position, in the light of these objectives, is one of endeavoring to assist the farmer and his family to enjoy the highest social, economic, and political benefits.

Specialists in the National Organization

The extension forester occupies a definite position within the structure of the federal Extension Service. The following chart shows the structure of this federal agency and indicates the division under which the foresters work.
TABLE V
ORGANIZATION OF THE FEDERAL EXTENSION SERVICE (109)

<table>
<thead>
<tr>
<th>Director of Extension Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Director of Extension Work</td>
</tr>
</tbody>
</table>

Divison of Business Administration

Division of Field Coordination
- Surveys and Reports Section
- Organization and Planning Section

Division of Extension Information
- Motion Picture Section
- Visual Instruction and Editorial Section
- Agric. Exhibits Section

Division of Subject Matter
- Agric. & Home Economics Section
- (Extension Forestry Specialists)
- Economics Section
As shown by the organization chart, the extension foresters work as specialists within the division of subject matter of the federal Extension Service. Foresters employed under this division prepare and gather the results of research of the entire Department of Agriculture and send this data on to forestry specialists and research agencies within the states. The last group reciprocally relay information back to the main office, which in turn compiles the information so gathered and sends it out to all needing such information. Thus, their duty is to serve as a clearing house for information. These subject-matter specialists also prepare reports on their specific fields and occasionally visit the states in order to test the effectiveness of the working plans and projects. In this way, coordination is maintained between the federal and state groups. Since the use of federal funds makes it necessary that state extension projects be approved federally, the subject-matter specialists consider the proposed projects from a subject-matter and extension viewpoint (65) (79). At the present time, there are two federal extension foresters in the regular extension service and a third is cooperatively employed by the Extension Service and the federal Forest Service (79).

Specialists within the States

The extension foresters employed by the state Extension Services occupy positions as extension specialists according to the following diagram. They work under state directors.
TABLE VI
ORGANIZATION OF THE STATE EXTENSION SERVICE
(65) (115)

U. S. Department of Agriculture  State Agricultural College

State Agricultural Extension Service

Director

County Agent Work  Home Demonstration Work  Boys' & Girls' Club Work  Extension Specialists' Work

County Extension Agent Staff
County Government and Farmers Cooperating

Agricultural Agent & Assistants  Boys' & Girls' Club Agent  Home Demonstration Agent & Assistants

Rural Communities, Committees, and Clubs
Projects

Corn  Dairy  Nutrition  Poultry  Clothing  Farm Management  Etc.

Farm Families  Farm Families
This group, usually located at the land-grant college of the state, have somewhat the same duties as subject-matter specialists in Washington, D. C., but deal more with local programs, and spend more time with field matters. As they usually have one subject in which they specialize, their titles indicate the name of that subject, such as extension agronomist, extension forester, etc. (65).

Some of the specific duties which the specialist performs in the state extension service are as follows:

1. Keeps currently well informed on farm forestry and sends on the latest research data in simplified form for application on the farm by the county agents.

2. Develops a state-wide program for forestry farming which is promoted in harmony with the entire extension program of the state and is incorporated with the existing state and county programs.

3. Develops educational aids which assist in keeping the subject in the minds of rural groups. In this he may be assisted by a publicity director or visual aid department.

4. Visits the counties to determine the effectiveness of the program and assist the county agent in any special part of the farm forestry program through talks and meetings with other county or state groups.
5. Prepares for the state director an annual report in which he states the accomplishments and highlights of farm forestry in the state. (65)

The extension forester or specialist is declared to be a "pivot man" in the organization. "The duties carry responsibility and he must strive for accomplishment in his field of endeavor. The county agent develops more particularly the machinery of extension work. The specialists are responsible in considerable degree for the right grist to be ground, resulting in better practices, more efficient production, and a larger and broader vision." (65) (115)

The specialist works directly with the county agricultural agent in disseminating needed information to the farmers. This agent is governed by several concepts, one of which states that he or she is a member of the staff of the agricultural college, but does his teaching away from the college. Since funds for his salary are raised cooperatively by the federal, state, and local governments, he is an agent of the federal government, a state college of agriculture agent, and a county representative. Being educators and spreaders of information, the agents also study local needs and requirements. These needs are sent on to research organizations, so that research itself is directed along needed phases. The agents are valuable since they are located near the people they serve, and are present when information or advice is needed, or when an
authority on local agricultural conditions is desired. Another value of county agents to the system is that they gather results which farmers themselves have devised through experimentation and use. These results are valuable elsewhere if relayed to other farms. (65) (115)

As the specialist depends upon the county agent to further much of the work in his subject, so must the county agent rely upon assistants, local leaders, and committees to assist in developing the entire county program. These local leaders serve as demonstrators of good practices, assist in calling together groups of people for meetings, prepare educational exhibits, assist in securing financial support for extension work, report extension news, and keep extension records. They assist in making the program a sustaining one. (65) (115)

Specialists in Cooperative Programs

Besides the cooperative nature of the extension forester's position in the Extension Service, he also cooperates in other programs. One of these duties is to follow his outlined part in the organized land use planning committees formed throughout the states. It is his duty to assist and work with the farmers in planning for public farm policies and programs. His information is needed in addition to that possessed by the farmer in a planned procedure for agriculture, and he is to give aid when desired by the state and local planning committees. (111)
Another duty is to cooperate with other agencies in the many action programs initiated by the federal government during the present administration. While the Extension Service administers the main educational program of the Department of Agriculture, other agencies must use educational and informational approaches that may overlap or strengthen those used by the Extension Service. The extension forester will cooperate with the Soil Conservation Service in its farm forestry program, with the Agricultural Conservation Program where farm woodland benefit payments are made, and with the Forest Service in forest farming programs. "The work being done must be coordinated and the extension specialist must be well informed on what is being planned by these other agencies so that a harmonious approach to the land use planning viewpoint may be made." (111)

Summary

The extension forester must consider the generalized objectives of the Extension Service in improving viewpoints held by the farmer. The technical nature of his position classes him as a specialist within the federal and state organizations of the Extension Service. A listing of duties which extension foresters perform reveals that these men are mainly informational and educational directors of farm forestry. Assisting the specialist in his work is the county agent, who is an agricultural teacher located among
local groups. This agent in testing extension methods and teaching better practices is in turn assisted by larger groups of local leaders, agents, and voluntary assistants. It is through this county agent that the extension forester promotes his program.

Besides the generalized and technical nature of the forester's position within the Extension Service, the position involves assisting cooperatively other governmental educational and action programs.

The development and authorization of farm forestry extension indicates the reason extension foresters are employed; the national status determined the place or rank of farm forestry in the Extension Service, while the last division limits and defines more closely the actual nature of the extension forester's duties. There now exists a need to investigate the actual tools and procedures used by these extension foresters in promoting farm forestry.
CHAPTER IV
THE TOOLS OF EXTENSION FORESTERS

The mediums through which farm forestry is promoted are the tools used by extension foresters. The two major tools are state programs and major projects. Minor tools used are segregated as procedures under the two major headings.

State Programs

An inclusive device used by foresters is the state program or plan of work which they follow in accomplishing phases of farm forestry considered most important in their state. Some of these programs were quite detailed and included a step-by-step outline of what was to be done in farm forestry. The state program is a major tool of farm forestry extension since it distributed the work evenly and accents important phases. Applying a generalized account to these state programs, they were divided into the following: a description of the farm woodland situation, a listing of objectives, and cooperation to be built up, and the procedures to be used. (22) (18) (8) (43)

In the description of the farm woodland situation, the amount of crop land and the proportion of farm woodland not in a productive condition were cited to show the importance of farm woodlands in that state. Present management practices were outlined and the needs of farm forestry
Thus illustrated. An analysis of the woodland situation sanctioned the procedures that would be used in remedying present practices. It was evident in reviewing the paper account of the situation described that not all the facts were recorded. The forester would have supplemental information based on his own experience to guide him in his action.

Objectives were listed in the state programs. These gave definite goals or contemplated accomplishments for the year. A certain number of farms were to adopt better practices, a number of demonstrations were to be held which would bring about desirable changes, and a few specific visual aids were to be developed for use in farm forestry extension. One forester under this heading proposed a planting on every farm in the state. Sometimes the counties were divided into groups, and the publicity objectives divided to cover changed conditions in the state.

Extension foresters realized that to show much accomplishment they needed the cooperation of other organizations. These groups contacted would promote farm forestry under their programs. Besides the regular publicity channels of the Extension Service, the extension forester endeavored to interest local boards of trade, chambers of commerce, youth organizations, industrial concerns, and foresters of lumber companies using farm woodland products. Conferences were held with leaders of rural and civic groups
to assist in setting the objectives for farm forestry in that locality. Banks, county fairs, and business places were to be used as places where posters, exhibits, or announcements could be placed. (22)

Additional means of cooperation were for the foresters to act as advisors to associations engaging in marketing of farm forest products and cooperating in the programs of forest fire associations. Participation in meetings of forestry and agricultural groups aided cooperative action. Through the use of local leaders within and outside his regular agency, the forester hoped to build up cooperators who would act as future demonstrators of farm forestry. Other cooperation enlisted the close unity of officials in agencies working on a united land use program.

Procedures were occasionally listed in a general fashion in the state program and explained more fully under major projects. Writers on the subject of farm forestry emphasize the necessity for approaches based on economic data. (114) (12) The best forestry extension results are achieved "when economic facts are available to show the effect of forests and their industries on the standard of living of the individual, the community, or the state." (28) Writers also emphasize that besides an economic approach, the procedures should also be based on other supplemental items, such as wildlife protection, wise land use, the farm as a unit of
production, and the best use of forest lands. Only a slight modification of procedures used is necessary to include these items (12).

As an example of generalized procedures, a committee on forestry in New Hampshire recommended that the extension forester follow the following program:

"1. Study forest tax laws and encourage discussions on that subject in towns and counties.

"2. Continue efforts in cooperative marketing of farm forest products and strive for better standards in the production of farm forest products.

"3. Stress the use of products on the farm.

"4. Continue efforts of farm woodland management which will effect a reduction of slash.

"5. Encourage plantings which will secure full stocking.

"6. Advocate management practices such as weeding, improvement cuttings, thinnings, and prunings." (8)

J. A. Cope lists as a procedure in the farm forestry work of New York State, the stressing to farmers of aids available to them in practicing farm woodland management rather than the actual planting (8).

While more specific procedures used by extension foresters are described under major projects, the following list comprises the more general publicity methods:

1. Demonstrations of all kinds.
2. News notes and circular letters sent regularly to county agents and interested people.
3. Illustrated lectures.
4. Farm woodland statistics prepared and distributed.
5. Local news stories.
7. Forest planting circulars.
8. Discussions following demonstrations.
9. Holding a forestry field day by counties.
10. Participation in youth group activities.
11. Collecting photographs on all phases of forestry.

A calendar of work was used in some state forestry extension programs. This farm forestry extension device aided in evenly spreading the work over a twelve-months period. Such projects as woodlot planting and 4-H summer camps were seasonal activities. Projects and publicity approaches that were not seasonal could be worked on during months vacant of seasonal aspects.

It can be said that the state program serves as an orientation tool for the extension forester. The forester states in it the problems, objectives, cooperation to be promoted, procedures used, and the calendar of work followed in assisting the farmer to realize more returns from farm woodlots.

**Major Projects**

Besides the general orientation tool of state programs, the extension foresters group many of their activities under major projects. The emphasis given to any major project
depends upon their value in remedying farm forestry problems. Each of these projects is conceived as being a tool of farm forestry extension. Minor tools are listed as examples of procedure under a statement of the major project.

**Marketing Forest Products**

The marketing of forest products appears to be the major program in states where farm woodlands already exist. Extension foresters pay perhaps more attention to promoting cooperative action in marketing and giving marketing services than to other phases. The forester in New Jersey is of the opinion that educational work and services in timber marketing is nearly as important and vital as that pertaining to woodland management. "It is extremely hazardous to forests and forestry to promote a program that is aimed at speeding up growth and increasing timber crop yields when the marketing program has not been simultaneously cared for." (90)

Factors causing marketing problems have been summed up by the forester in Iowa as follows: "1. The depleted condition of the farm woods. 2. The small amount of material which the individual farmer has to market. 3. The infrequency of harvest cuttings which has caused local mills and factories to turn to other regions for raw materials. 4. The low prices paid by portable mills and their wasteful methods of sawing. 5. Fire. 6. Overgrazing." (91)
Much of the available material on farm forestry deals with the marketing of farm woodland products. A further reason for the importance of this project is that through this approach, a more definite basis is given the farmer for practicing woodland management. Programs of education appear to be more effective if based on proper marketing procedures. (66)

In comparing the farmer's position in the lumbering business with commercial concerns, some writers believe that the farmers have considerable advantage. For large holdings, the chief items of expense are taxes, fire protection, cost of patrolling, and overhead. The farmer would have little expense for the last three items, and generally the ad valorem tax is less against farms than on larger forest lands. His greatest disadvantage in competition with industrial concerns is the lack of proper marketing facilities (5).

Extension foresters engage in a wide variety of approaches which assist in reducing the farmer's disadvantage in marketing forest products. The approaches may be grouped under general marketing services and cooperative marketing services. The latter consists of assisting in the formation of cooperative associations, forming producer agreements, and aiding in cooperative action with other agencies. To show the wide variety of methods used, a typical marketing program of an extension forester is
itemized below:

1. Survey the available markets and get the specifications of various forest products needed by industries.
2. Survey the available supply of marketable timber.
3. Maintain a timber market information service.
4. Promote the establishment of small, local wood-using industries.
5. Promote the cooperative pooling of farm forest products to secure better sale contracts.
6. Hold demonstrations in timber estimating and scaling.
7. Promote a wider market for firewood.
8. Encourage the use of minor products such as nuts, shade trees, native shrubs, Christmas trees, and greens.

Many services rendered by the extension foresters in marketing are of a general nature. Examples are illustrated below.

The forestry specialist of North Carolina endeavors to maintain an up-to-date file of information on markets for various types of farm timber products, including data supplied by dimension and veneer plants. A file of markets is also kept for the various types of pine products as poles, piling and pulpwood. This information is sent to agents, farmers, and other timber owners upon request. A sample contract form for selling standing timber is also included.
In West Virginia, a study was made to determine the markets for woodland products in or near West Virginia production centers. Enough data is reported to have been collected to improve the ability of the extension specialist to advise farmers in disposing of woodland products. (90)

Material has been prepared and distributed in one state which shows the variation in sale price throughout the state. "Sharp" practices used by buyers of farm timber were exposed to farmers, thus showing the profits which could have been realized had the farmer been informed about timber values. (91)

In August, 1939, a questionnaire was sent to wood-using industries of Illinois asking for information on amounts of wood used in one season and prices paid. "A study of the returned questionnaires revealed that industries were reluctant to give out price information, especially on stumpage." (91)

Mill operators and wood users were canvassed by the forestry specialist of Connecticut to gather information for a forest markets report. This report which was issued to farmers "has proven of great value to owners with woodlot products to sell, giving them some idea of market prices." (75)

Georgia's extension foresters aid the program by supplying information where tools, such as pruning saws, can be purchased. Five hundred scale sticks were distributed
among the farmers of the state by the Extension Service. Other aids were to furnish county agents with a list of major wood-using industries of the state together with product specifications. Instructions for scaling timber were included with this list. (90)

Lists of timber buyers, market prices by regions of Ohio, bulletins on farm woods, sale contract samples, and information on measuring and marketing timber is sent upon request to farmers in the state of Ohio. Sawmill men and timber buyers are interviewed when the extension specialist is in the field soliciting markets and prices. A timber scale and log rule was printed and distributed to farmers. This rule was based on the Doyle Log Rule and the Biltmore Cruising Stick. Personal requests are frequent, but this form of service is discouraged, as the forester believes it better to inform farmers on how trees are scaled rather than providing personal services in estimating volumes of standing timber. (91)

Wisconsin's extension forestry contributions to marketing of forest products is contained in issues of a "forests products price summary" and a list of users and manufacturers of forest products. "This quotation service is prepared from information supplied by approximately 100 cooperators in addition to about 60 wood-using industries canvassed by district foresters of the conservation department. Owners are enabled to acquaint themselves with current market values
and to contact a wide number of potential buyers." (90)

The effect of personal service in saving the farmer money is demonstrated by a report from Arkansas. One farmer was offered $2800 as a lump sum for the timber on 320 acres of farm woodland. The offer was made known to the county agent who talked over the matter with the farmer and the buyer. The result was that on a per thousand board feet basis and cutting to a ten-inch diameter, a sum of $5230 was received by the farmer. (91)

These illustrations show the wide variety of general services used by the extension foresters. They can be summarized as market quotation services, discouragement of lump sum sales, distribution of material on estimating and marketing practices, and advice on the values of timber.

In addition to these general services in marketing, reports show that the foresters attempt to promote the establishment of diversified products businesses. Trees which can be used for special purposes are advocated as desirable to plant or cultivate. The uses may be for durable post material, ornamental trees, gum production, nuts, greeneries, Christmas trees, and collection of seeds for sale. A small business when promoted through publicity may often grow into a large profitable means of income to a farmer. An example is listed below:

Promotion was given to the small business of digging and marketing of red cedars along the Platte river in
Nebraska. Pictures were taken of the activity and more farmers became interested in the venture. It is estimated that now one-half million trees are shipped each spring from a 15-mile strip along the river. Consumers for these trees are nurseries, city park departments, landscape contractors, and agencies beautifying the state-federal highways. Some of the farmers are expecting a considerable portion of the farm income through the sale of these cedars. (91)

Ranking along with the general services and the service of promoting smaller enterprises are the cooperative marketing services given by foresters. First among this type of service is the aid extended in forming cooperative associations for marketing of farm forest products.

There was a total of eight organized cooperative marketing associations and four others in the process of formation in the first months of 1940 (95). A great deal of work is performed by forestry and extension agencies in forming these cooperatives and many excellent publications cover this activity. Advantages of cooperative marketing have been described as follows:

1. An association is in a much better position to study, contact and secure markets.

2. By pooling a large number of farm woodlands, the association can offer the purchasers a substantial quantity of forest products, uniform grading, and eventually a higher quality product.

3. The association gives the farmer a better price for forest products through elimination of middleman's profit.
4. Gives the farmer additional income if he does his own cutting and hauling.

5. Helps to increase the standard of living of the farmer.

6. Helps farmers improve and build up their woodlands through the practice of forestry.

7. Benefits the community by gradually building up its forest resources with attendant advantages of increased income from sale of forest products, better watershed protection, and improved land use. (66)

Extension Service foresters assist in forming cooperative associations by giving advice to farmers on the business of marketing, handling the educational work in getting woodland owners to form cooperatives, and contacting woodland owners who might be interested. The extension forester in Maryland contacted more than a thousand woodland owners about the details of an association to be formed. He did this contact work by securing woodland ownership data from tax assessment rolls and sending letters to owners through the county agent (91).

The extension forester in Florida assists in pooling the resources of gum farmers, since it is necessary that for profitable operation, the farmer must take advantage of group purchasing. (91)

Christmas trees were marketed cooperatively in Wisconsin in 1939. Eighteen members formed the association in Oneida county with the purpose of promoting more profit and preventing tree wastage. They were then graded, tagged, and wrapped as high-grade products. Instead of receiving ten cents per
tree, the members received thirty-eight cents per tree as an average price. (91)

Other tools of cooperative action by the extension forester, besides assisting to form cooperative associations, are the agreements and business arrangements they make with private manufacturers and buyers. These agreements are rated as very effective extension tools. In many cases, the extension foresters have secured the cooperation of private concerns by pointing out the benefits in having the farmer practice farm forestry. As a result of some of these contacts, rules and regulations embodying good woodland management were drafted. The regulations covered the area from which the buyer received his products. Thus, buyer and farmer both became interested in proper management and marketing. (9)

A creosoting plant in Arkansas paid farmers $21,000 for poles and another $18,000 for labor in barking, skidding, etc. Through agreements with farmers, the plant follows the extension forestry program and explicitly fulfills the contract.

Two outstanding sawmill owners in New Jersey were contacted in an effort to find out the problems and needs of their business as well as to determine what could be done to make the farm forestry program more effective. These problems were presented as follows:

"The greatest problem is the rather large and increasing group of timber operators who operate on
a dishonest basis, those who:

1. Urge sales by telling the woodland owners that their timber is being rapidly deteriorated by an imaginary disease.

2. Offer high prices which they never pay either by greatly underestimating the volume, or failing to make full payment knowing that the woodland owner can't afford to bring legal suit.

3. Over-harvesting and cutting everything of value and leaving the woods a tangle of tree tops and broken or badly damaged trees."

The greatest need as these two sawmill owners saw it was forcing dishonest operators either to be honest or go out of business. These owners agreed it was to their interest to harvest to a diameter limit of 12 or 14 inches, pay a fair price, buy and sell on the basis of actual mill run, operate under a legally binding contract, and harvest so the woodlot is left highly productive. (91)

Further instances of cooperative action besides those promoting cooperative associations or agreements with manufacturers, has been work done by the extension forester under marketing with other state and federal agencies. The Timber Salvage Corporation developed a program for the purchase of logs, but the method was little understood by farmers and woodlot owners.

"The extension forester taught county agricultural agents, agricultural conservation program supervisors, farmers and farm leaders, the meaning of the International log scale and its application to log grades available in the region. Extension workers were encouraged to assist in the location of sawmill sites and storage ponds and to help woodland owners understand the harvesting and
transportation of logs." (91)

Another instance of cooperative action by a number of agencies was the system of tagging Christmas trees adopted in Massachusetts. Cooperating agencies were the extension forester, the Massachusetts Conservation Council, the Massachusetts Department of Agriculture, the Extension Service, women’s clubs, and garden clubs.

The principal idea of tagging the trees was to advance conservative cutting of greens to prevent despoliation of woodlands. The plan of tagging was also intended to prevent bootlegging and stealing, in addition to providing the farmer with the income justly due him. Seventy-five thousand tags were printed and distributed. Colors differentiated between home-out material and greens cut outside the state. The results were reported to be gratifying to all agencies. (91)

Summarizing the tools used by the extension forester in the project of marketing, it can be said that his work consists primarily of general marketing services and cooperative marketing services. Among the latter are the assistance in forming of cooperative associations and cooperative agreements with manufacturers, and aiding in agency programs.

Farm Woodland Management

This project appears to rank second in importance among extension projects. The extension forester aids
the program in innumerable ways to bring about good management practices. Steps in executing this project as outlined in Arkansas were to make full use of farm organizations, to prepare an intensive program of publicity, to take advantage of all available educational material in the form of leaflets, and to carry the program directly to the farmers in a series of timber management demonstrations. (63)

States vary considerably in phases of management undertaken. Where forests are established, foresters' efforts center on managing these existing stands. In a state such as Nebraska where forests are scarce, the forester reports that his work consists of demonstrating to farmers the methods and possibilities of establishing windbreaks, woodlots, and erosion control plantings (118). In a majority of the states, efforts concentrated on both management of existing stands and plantings of all kinds.

The aim is to bring about sustained woodland management through methods which will make the farmer realize benefits from better practices. Foresters cover the state as a whole and they repeat that they endeavor to reach as many farmers as possible, getting them started on management principles, rather than concentrating on a few farm woodlands. J. A. Cope, extension forester of New York, states that, "Whether demonstrations in woodlot management cover a fractional acre or an entire woodlot on a farm, they are of chief value, as 'demonstrations' of applied forestry. Actual accomplishments
on an extended scale in such volume as to produce significant results can be accomplished only by group action." (84)

In other farm forestry projects, the extension forester emphasizes that the program moves along more steadily when he is equipped with economic facts that show the farmer how to use management practices profitably. Educational approaches bring out this fact. Two examples are cited below.

In information sent to farmers in a district in Texas, the forester informed them that second growth pine timber sold for an average of $2 per thousand board feet where it should have sold for $7 per thousand board feet. One mill stripped large areas of timber and did not pay proper prices. Because of this information released to them, farmers ceased the cutting of pulpwood. In consequent meetings with this group, thinning methods were considered and conservation measures given attention. (83)

Ohio's extension forester cites that pastured woods there return 35 to 50 cents per acre a year, while ungrazed woods will return $3 to $4 per acre a year. The three million dollar loss to farmers is pointed out as a reason for woodland management. (22)

Linked closely with the project of marketing forest products is the knowledge held by extension foresters that farmers do not know the real value of their crop. As a result of not knowing values, trees are not only sold for far less than actual value, but the proper residual crop
is not selected. The educational approach tends to educate
farmers to think of timber as a crop, similar to their an-
nual crops, from which a portion can be harvested each year
rather than to wait for a new crop after clear cutting. (84)

The extension foresters cooperate closely with farmers
in keeping cost records of management practices. From these
actual costs, the forester can make known the advantages of
management. He also inspects experimental plantings done by
other agencies in order to accumulate data on adaptability
of species of trees to site conditions and survival.

New Jersey's extension forester brings out the disad-
vantages and advantages of different methods of harvesting
by talking over expected income with the farmer. The rea-
sons for the various steps of management are given emphasis
when greater income is shown. As a result of management
assistance on 23 farm woodlands, it was estimated that
$40,000 was saved on total cash transactions involving more
than $180,000. A future growing stock remains which,
without technical advice, would have been included in the
total year's sales at a heavy loss. (84)

The extension foresters in Washington, D. C. published
a "Farm Forest Products Record" which is available to
farmers. This is an attempts to encourage the keeping of
farm woodland records as a part of the entire farm manage-
ment records. Until recently in many records little men-
tion was made of the sale and use of fuel wood, fence posts,
lumber, shingles and shakes, and pulpwood. (68)

Educational tools in management consist largely of
demonstrations of all kinds besides the regular publicity
releases which may supplement any or all of the management
phases. Demonstrations can be divided into two groups;
those involving management of existing woodlots, and those
advocating the planting of new woodlots. The latter group
includes:

1. Methods of planting trees.
2. Spacings to use for various species.
3. Planting tools and their use.
4. Demonstrations showing the difference in methods
used in planting for gully control, windbreaks, timber, or
woodlots for aesthetic purposes.
5. Planting of openings in woodlots.
6. Planting of diversified species.
7. Reproduction methods such as demonstrating the
reproduction when cutting is made after a heavy seed crop.

Pennsylvania's extension forester believes that forest
tree plantings offer an efficient way of getting people in-
terested in forestry. The contrast between bare hillsides
and young forests is an effective educational measure (2).
Some believe that if plantings are near roads or in promi-
nent places, they are impressive. In some cases, the
forester attempts to interest commercial nurseries in
producing planting stock for use by farmers (45).
The forester assists in arranging for the place of demonstration and assembles educational methods such as pictures, etc., that will increase the effectiveness of the demonstration.

In a demonstration which accentuated diversified species, the extension forester and the county agent selected farmers interested in growing durable post material. One farmer plowed a planting site about two months before the demonstration. On the day of the group gathering, the officials in charge explained the purpose, importance to the future of the farm, cost of seedlings, cost of labor, number of seedlings per acre, and the results to be expected. Following this explanation, the seedlings were planted by the group to show proper planting methods. (84)

A wide range of demonstrations are held which show woodland management on existing forests. The list would contain the following:

2. Tours showing the contrast between grased and ungrased woodlands.
3. Construction of fire breaks.
4. Results of light burning.
5. Range improvement demonstrations.
6. Demonstration plots which are visited periodically.
7. Thinnings and how to do them properly.
8. Timber stand improvement and selection cuttings.

10. Cleanings and salvage cuttings.


12. Cultural cuttings for improvement of sawlog material.

13. Partial cuttings for income and securing natural regeneration.

14. Treatment of recreational areas and wildlife units.

A typical demonstration in which 2,476 farmers in 33 counties of Alabama were assisted illustrates the type that can be held under management of existing stands.

"Thinning and stand improvement demonstrations consisted of two types, the 'crop tree' method and the 'complete thinning' method. In the former, the landowner, assisted by the county agent and the specialist, marked with bands of white or yellow paint from 150 to 200 trees to the acre as well spaced over the area as possible. Those banded were designated as crop trees and were left to produce quality sawlogs and piling. Only trees that were interfering with the growth of these crop trees were cut at the time. As the landowner had need for more fuel, posts or timber, a limited quantity was removed at a time.

"In selective cutting demonstrations, farmers were assisted in selecting, marking, and in most cases scaling commercially mature trees to be removed and sold as poles, piling, or lumber. If the farmer was ready to sell, he was assisted in formulating a contract which included proper cutting practices such as stump height, care in felling, brush disposal, and complete utilization." (84)

After an inclusive farm woodland management demonstration in Arkansas, the group made these recommendations:

1. Keep fire out of the woods.
2. Eliminate grazing.

3. Make the necessary thinnings by taking out deformed, wolf, dead, and suppressed trees, and using the thinnings as poles, posts, mine props, and fuel wood.

4. Preserve good trees to be used for lumber, handle stock, stave bolts, and furniture. (83)

Meetings were held in the nearby communities to discuss the results of another typical demonstration in the state of Arkansas. Reasons for different practices were given and the effect of management practices pointed out. After five years have elapsed, it is planned that meetings will be held again and the changes noted and discussed. (84)

One author believes that the success of extension forestry work has been accomplished largely through result demonstrations. He discloses a method used by the South Carolina Agricultural Extension Service. This method is described as a record card procedure and the steps are stated below: (15)

1. The county agent selects several demonstrators who have 25 or more acres in farm woodlands.

2. The extension forester arranged for a visit with the county agent. Both visit the farms selected and look over the timber with the farmer.

3. This meeting includes a full discussion of management practices for various stands of timber.
4. The county agent makes a record card of the timber property and the management practices suggested.

5. This record card is given to the demonstrator who fills in the data called for on the card as he cuts the timber.

6. A new record card is supplied the farmer at the end of the year when the old card is collected.

7. The results of the demonstration are given local and state-wide publicity.

8. These woodland management demonstrations become the basis for the educational program in each county.

Permanent demonstration plots are believed to be effective in furthering forestry practices. Farmers cooperate with the agencies interested in securing accurate growth data. Wisconsin's extension forester described in detail the means of obtaining accurate growth data on demonstration plots following improvement cuttings. The Lake States Forest Experiment Station gave assistance in laying out five permanent plots in which a complete record of trees, diameters, and heights is made. Measurements are taken at regular intervals. (83)

The above discussion on the project of farm woodland management presents some of the tools used in extending forestry information and education to farmers. The next important project is that of encouraging utilization of forest products for farm needs.
Utilization of Forest Products for Farm Needs

The essential part of the utilization project is the promotion of home grown timber for uses on the farm. Many examples are mentioned by the extension foresters to show the reduction of cost to the farmer by either producing of timber to be used on farms, or through the organization of industries which will assist in utilizing the farm woods economically. (88)

Utilization is also stressed in educational approaches to farmers so that they will adopt practices resulting in thrifty woodland growth, rather than in growth of woodlands containing defective trees. It is often stated by the forestry specialists that farmers fail to use their woodlots for fulfilling home needs (89). The farmers have the advantage in comparison with commercial forest concerns of using poorer products on the farm and selling higher grade products (5).

Where markets do not readily exist, barter and trade for products is often carried on by farmers. Savings in farm building expenses and improvement to farm and farmsteads is reported as a result of these trades. (89)

A few illustrations describing this project are given below to show the possibilities and endeavors in this work.

In Illinois, coal is plentiful and some farmers let their trees decay in the woods, while at the same time,
they buy coal from local mines. One example showed that a farmer saved enough from the use of his own woodlot for fuel and fence posts to enable him to lime 80 acres of crop land. The extension forester of this state believed that more information about the use of wood was needed to promote utilization. (88)

The forester of Ohio tries to encourage farmers to use products from farm woodlands for building repairs and replacements. Facts disclosed in the forester's report show that the farm group is the heaviest consumer of timber, and that 20 percent of the farm acreage could be devoted to timber growing. The specialist concluded by stating that farm woods have a place on the farm regardless of the commercial sale which may take place. (88)

Arkansas's director of extension reported that the home management specialists assisted the extension forester and the agricultural engineer in holding 20 builder's schools in connection with a homemade homes program. It was estimated that over a million dollars was saved in the construction of 7,845 farm buildings by the use of home labor and native materials. (89)

A farmer in Indiana believed that his 17 acre woodlot would not pay the cost of clearing. His barn burned some years later, and through the use of a portable mill erected at the farm, he realized a total of $75.09 per acre. This figure included the lumber used and the fuel wood left.
In addition there remained a stand of trees in the woodland. The farmer's final opinion was that his woodland proved to be one of the most profitable crops grown on the farm. (89)

Durable material for posts and poles seems to be an acute problem in farm forestry in other states. In Louisiana approximately three million black locust and catalpa seedlings were established. (88)

The Texas forestry specialists report that: "During the year, models of farm utilization and logging equipment, including sawmill construction and transportation, were completed and pictures were taken by the agricultural experiment station. Also, during the year, all species of timber on Texas farms were classified and the data gained was prepared for publication. Considerable forestry information including methods of wood finishing is included in this report." (89)

The lack of utilization of material from improvement cuttings is one of the problems in getting farmers to adopt improved forestry practices in Connecticut. Accordingly, the marketing committee of this state assisted in interesting a local manufacturer in putting on the market a new type of wood-burning stove known as the "Char-wood Heater."

"This stove is giving great promise as an efficient and economical method of heating farm homes." (89)

Extension foresters show by examples the savings which can result in improved utilization of farm woodlands. Sometimes portable mills were used at the site of the building,
or logs were hauled to a mill and part of the lumber cut was left at the mill to pay for cutting the amount used by the farmer. Additional utilization notes emphasize the labor cost saved by using home grown products. The savings ranged from one-fifth to one-half the price commonly paid for material. (89)

Besides assisting in the marketing of products, in management, and improved utilization, the extension foresters engage in a number of other projects. The highlights in the program of 4-H forestry are included in the next major project.

4-H Forestry Project

A great deal of attention is given 4-H forestry. In fact, some of the yearly reports indicate that a major portion of the extension forester's time is given to sponsoring and promoting 4-H forestry. The approaches used are innumerable. A partial list of the items covered follows:

1. Plantings of all kinds, for reforestation, erosion control, for aesthetic purposes, and for wildlife protection.

2. Establishment of small home grown nurseries for club members.

3. Dissemination of posters on conservation by members.

4. Trips to forested areas where fire protection and timber management features are discussed.

5. Tours through sawmills.
6. Recording data on farm woodland management with the club members taking active parts in timber marking and estimating.

7. 4-H summer activities in forestry and conservation.

8. Getting club members to interest their parents in adopting woodland management practices.

9. Sending publicity materials and visual aids to be used at club meetings. These may not necessarily be on farm forestry, but may include related subjects.

Yearly programs are often listed among 4-H forestry plans. In New York, a thousand trees are sent members who enroll in the 4-H program. The second year students are taught forest appreciation, the third year students take courses in woodlot improvement practices, and the fourth year, students study log scaling and timber estimating. Nursery operation is taught in the fifth year. Prizes and awards are given students completing exhibits, or completing their attempted projects.

As 4-H club members become engaged in forestry projects they bring information back to adults and the community. It is the belief of the extension forester in Georgia that this project is accomplishing on a large scale in the field of good woodland management what cannot be done by the individual men and programs on a small scale (10). Some of the advantages of 4-H forestry work are described by this forester as follows:
1. Demonstrate how to handle the farm woods for continuous growth.

2. Demonstrate the advantages of close utilization and proper marketing.

3. Inspire the adult with confidence in growing timber as a crop.

4. Teach the coming generation the fundamentals of forestry and how to make it pay.

5. Give widespread free publicity of the best kind to forestry.

6. Reduce human fire hazards.

7. Increase farm income and hence general prosperity.

8. Make better future citizens. (10)

It is believed that although the time spent on 4-H forestry work occupies considerable time, the results are bigger and better than can be obtained in any other way, provided the club work aims to produce an actual demonstration of a practical and profitable kind (10).

**Farm Forestry in the Agricultural Conservation Program**

Proper farm woodland management is receiving more emphasis in a number of states through the provisions of the soil conservation program. Farmers receive benefit payments for such practices as thinnings, plantings, and otherwise improving the woodlot. Extension foresters assist in this program by giving illustrated lectures,
recommending certain practices as desirable in the state program, and working in close cooperation with farmers desiring to practice farm woodland management under the program. Publicity releases of all kinds are used in making the farmer and county agent more familiar with the provisions of the conservation program in the states. (85)

Reports from some states relate that the program has greatly increased interest in farm forestry. In fact, one extension forester stated that the most urgent phase in farm forestry extension is the satisfying of requests from county committees and farmers for more information about the program (85). In North Carolina, a gain of 120 percent in benefit payments during 1939 is reported (86).

The state specifications occasionally call for prior approval by the extension forester before practices are started. "This provision affords an excellent opportunity to teach proper management methods. A check after the work has been completed makes possible correction of faulty cutting methods." (86)

More insight can be given regarding the program if some examples of work done are related and some viewpoints stated. A few accounts are given below:

Payments may differ in each state. In California, the rule is, "...two units, or $3 per acre for improving a stand of forest trees under an approved system of farm woodlot and wildlife management as is specified by the AAA and with prior
approval of the county committee, etc." (43)

In Illinois, after a discussion of farm forestry payments, the chairman of the state conservation committee requested that each community committee man be furnished with a state tree price list, an official order blank for trees, and a statement of forestry practices recommended for compliance under the program (86).

The Maryland extension forester visits parties desiring advice and by the means of planting site and woodland examinations advises them of the needs and means of accomplishment. In some cases, demonstration meetings are held. (86)

A two-weeks intensive campaign on the program is carried on in every county in the state of Massachusetts. The forester met with the conservation agent and his field men and visited badly damaged areas of woodland where the mechanics of slash reduction were demonstrated. (86)

Woodland areas inspected after practices were adopted showed that in New Hampshire, "...the cleaning up of woodlands was done much more thoroughly than was necessary from a practical forestry viewpoint and that a lot more litter and debris could have been left on the ground." (86)

Vermont's extension forester prepared a mimeographed handbook which explained and encouraged the practice of improvements and benefit payments. The handbooks were used in connection with a series of seven field meetings at which
95 delegate farmer committeemen from nine counties received
training in the giving of approval for woodland rehabilitating
practices.

Wilbur O'Byrne, writing an account of the conservation
program in Virginia, states that the program is constantly
being made more practical. Better practices rather than
mere good practices is the goal. His statement of opinion
regarding the entire program is as follows:

"The greatest advance that could be made in the
agricultural conservation program, from a forestry
point of view, would be to have it sufficiently
stabilized over several years, so that a regular
improvement program could be planned and carried on
through several years, instead of being forced to
wait until each year's program is announced before
daring to start publicity." (86)

One of the most serious objections to the program is
that it lacks stability and does not offer a permanent
solution to the farm woodland problem. Farmers may do the
work when paid for doing it, but may quit when the govern-
ment ceases to pay benefits. (66)

A few salient facts have been presented on the agricul-
tural conservation program project. For a statistical
summary of the work under this project, the reader is re-
ferred to Table IX in the appendix.

Somewhat similar to the project just described is the
work by the extension forester in land use programs. Very
little information is available to show the specific pro-
cedures used by extension foresters in land use planning.
Land Use Programs

Through the process of land use planning in the states, it is believed that farm forestry will receive stimulation and assume a more permanent position in agriculture. "Many extension foresters are of the opinion that the project of land use planning offers opportunities for building forestry into a sound land use program for agriculture." (74)

Land use planning committee opinions in a county in New Hampshire were that educational programs directed to the farmers would be much more satisfactory than the passing and enforcing of rigid cutting laws. They recommended that more foresters work with farmers in showing the financial benefits in woodlot management. (174)

The extension forester of Vermont has studied the facts of land use planning which relate to the farm woodlands. He has assisted in gathering facts which will be available to county agents and land use committees who are studying the situation. Some questions have been compiled on land use problems which will be treated in discussions, stories, and radio talks. (74)

An extension forester of California assists in developing recreational facilities for rural people and the improvement of picnic and camping areas. This assistance is to aid in fire protection and minimizing trespass. (43)

Many of the projects of the extension forester revolve around proper land use. Marketing, managing, utilization,
4-H forestry, and agricultural conservation have as their basis the better use of farm land.

The last major project used by extension foresters is that of training forestry leaders. In a sense, 4-H forestry might be conceived as a training project, with the difference being the training of future forestry leaders in 4-H work, and the training of present leaders.

Training of Forestry Leaders

The basic feature of this program is the teaching of leaders and workers in agriculture, the principles and goals of farm forestry extension. Often the county agent is handicapped by a lack of previous training or experience in forestry. The extension foresters in a number of states spend some time in the field with county agents, explaining the practices leading to improved marketing of forest products.

Other methods of training forestry leaders include a number of short courses or instructional talks by the extension forester, who may be aided by men from the Soil Conservation Service, State Forest Services and the U. S. Forest Service, as well as other informational groups. These courses are described as follows; courses in conservation, publicity releases to teachers in schools where conservation practices may be furthered, vocational guidance talks by the extension forester in schools, taking leaders
on tours through woodlands, and specialized courses given to county agents, 4-H club leaders, supervisors in agricultural conservation programs and women leaders in agricultural work. Local leaders in the counties are trained through meetings, and individuals are contacted by forestry specialists. (80)

This cooperative training often reaches outside the field of farm forestry extension in meetings with forestry officials, so that all engaged in forestry can have a better understanding of farm forestry when forestry agencies work with farmers living in districts where commercial forests predominate (80).

All kinds of publicity material such as films and circular letters are sent out to the leaders in an effort to keep them informed about the progress of the program.

Summary

Tools used by extension foresters may be divided into state programs and major projects. The former may be considered to be a tool of orienting the efforts of the forester. The state program may be divided into a description of the farm woodland situation in that state, the objectives, cooperation to be built up, procedures to be followed, general publicity methods, and a calendar of work.

A description of the situation gave the forester clues about the problems. Objectives of the work gave concrete emphasis to desired accomplishments. Cooperation among
boards of trade, the forester's own organization, lumber companies, etc. was listed as a means of furthering the program. Procedures to be used showed the emphasis given to the phases and how farmers would be reached through educational approaches. A calendar of work distributed the work by major projects over a year's period, in order to promote efficiency.

Major projects of extension foresters are marketing of farm woodland products, farm woodland management, utilization of farm woodland products, 4-H forestry, farm forestry under the agricultural conservation program, training forestry leaders, and land use programs.

Marketing of farm woodland products is a project of major importance in the work of extension foresters. They state that farm woodland management can be advocated when a marketing program is built up. Tools under this project are urging farmers to receive just return for their products, marketing information services which sent to farmers the prices paid and cutting practices to be followed, assisting farmers in keeping cost records of marketing, sending information on log scaling and timber estimating, promoting diversified farm woodland businesses, cooperating in starting cooperative marketing associations, and agreements with manufacturers in promoting sustained marketing facilities.

The principal aim in the farm woodland management
project is to bring about sustained practices from which the farmer will receive the greatest benefits. In their approaches the foresters accent those which cover the state as a whole, based on the problems to be solved. The emphasis placed depends upon the amount of woodlands already in existence, and the number of woodlands that need to be established through planting.

Approaches used under management are acquainting the farmer with the real value of his crop, cooperating in the keeping of management costs, forwarding results of experimental plantings to farmers, and demonstrating planting and managing of farm woodlands. A good extension tool was the release of examples where farmers benefited financially through proper management.

Under the project of utilizing forest products for farm needs, the forester advocates the use of home grown timber for replacements on the farm, the preservative treatment of wood by home methods, the use of barter and trade where markets do not exist, planting of trees which will yield durable wood products, and the use of inventions which will promote home utilization.

4-H forestry projects rank high in the state programs of the extension foresters. Advantages proposed for this project are bringing home to adults and the community the goals and advantages of farm woodland management, improvement of rural youth through teaching of farm forestry,
the individual benefit to members, and giving publicity to other projects.

Approaches used in 4-H work are plantings of all kinds, nursery establishment, publicity dissemination, trips and tours, and 4-H club camp activities.

Methods used in the farm forestry program under the agricultural conservation program are publicity releases to agencies connected with the program, working with both state and local committees, approving applications for benefit payments, and keeping the practices started under this program a sustaining feature of farm improvement.

The training of forestry leaders involves the teaching of the goals of farm forestry to leaders in agriculture and conservation so that all the programs can move forward with a better understanding of farm forestry. Extension foresters assist land use programs by cooperating with groups endeavoring to classify agricultural and forest lands. Through land classification farm forestry is built into a more permanent place in agriculture, it is believed.

This chapter completes the national organization of farm forestry extension. The concluding chapter of Part I presents some opinions on the operation of this extension organization.
CHAPTER V

EVALUATIONS OF THE SYSTEM OF FARM FORESTRY EXTENSION

Incorporated in this chapter are some evaluations and opinions held by writers regarding the system of farm forestry extension. It is intended that they will aid the reader in more closely evaluating the national aspects of this activity.

Effectiveness of the System

Of forestry extension as a whole, one author contends that, "Considerable extension effort, both organized and incidental, has been carried on. But, as measured by the financial investment in it, it is doubtful whether foresters or their backers have realized one-tenth of the results that might be attained through a serious and thoroughgoing program along extension lines." The same author continues with particular reference to farm forestry extension, "The results obtained more than justify the amount of money expended, but the field as a whole is only partly exploited, and there remain great possibilities and public good to be achieved from an expansion and development of the work."

(110)

"The most effective forestry extension work is being carried on as a part of the agricultural extension service of the state colleges with the department of agriculture and the forest service cooperating. It is, as stated before,
confined almost entirely to farmers and is therefore concentrated upon not more than 25 per cent of the forest lands of the nation." (110)

Another author states that, "In spite of inadequate facilities for assisting the farm owners in their forestry programs, farm forestry is expanding and without a doubt will expand beyond the hopes of the most optimistic forester of a few years ago." (45) "The Extension Service has had foresters in most of the states working at this job for 15 years. They have been working under inadequate appropriations, but nevertheless, much has been accomplished." (56) "Work accomplished by the Extension Service is to be highly recommended in most states, but it has been confined to what could be accomplished by a single individual and for that reason inadequate in comparison to the problem." (95)

One author states that, "In most cases, there is but one man, and in a few cases, two men, to cover the entire state, with the result that, despite the best of intentions, they are unable to do more than scratch the surface of the farm woodland problem. It must be said, however, that considering their limited funds and facilities, the extension foresters have done remarkably well." (66)

In order to increase the effectiveness of the program, the National Plan for American Forestry recommended that the staff of extension foresters, then totaling 37, be raised to 94. Additional overhead was to be added in Washington, D. C.,
but the addition of men to the field force was stressed, "...so that each extension forester could be a specialist in the problems peculiar to a given forest belt." The plan further recommended that, in areas where the forest land use outranked the agricultural use, an extension forester take the place of the agricultural county agent. The movement of farm forestry extension would be given greater emphasis if county agents in forested counties were given a basic forestry course. (110)

The late Chief of the Forest Service in his annual report of 1939 suggested an increased program. "Farm forest ownership now seems important enough, and farm forest problems acute enough, to justify the full time of trained foresters in each of some six hundred counties." (105)

Fundamental Weaknesses in the Forestry Extension System

Intimately connected with farm forestry extension and important in its promotion is the basic fault described as follows:

"At the bottom of the trouble is, first of all, a state of mind that does not understand and therefore fails to accept the principle of growing and harvesting successive or continuous crops of timber on the same soil, just as corn or cotton is grown and gathered. As a people, our experience in harvesting a bountiful virgin forest, the accumulated heritage of ages before the advent of the white man, is still too recent. We are not yet patient enough to believe that what we will get even in one lifetime henceforth will depend upon our growing another crop on the lands we have cut over, rather than upon the opening up of some new territory rich in virgin timber." (110)
A proposed weakness frequently brought up in evaluating the problem of farm forestry is the extensive use versus intensive use argument. The trend in this country has been from a destruction of forests to cultivation of land for agricultural crops. "Generally, farmers oppose forests as crops as they and their forbears have been fighting the wilderness too long to look with complacency upon the forest as a crop." (59)

**Agency Weaknesses**

According to authorities on the subject, one of the biggest obstacles in the progress of farm forestry is bureaucracy. Jealousies, dissension, misunderstandings, and arguments have prevented a unified attack on the farm forestry job. Rather than one agency to handle the work, this authority recommends contributions from all agencies. "The field of education is unlimited and there is no possibility of any so-called action programs replacing or displacing the foresters assigned to that part of the program. The need is for a unified program, and a harmonious, cooperative farm forestry undertaking." (58)

In direct conflict with the position of the author on the points expressed above is the opinion that there are too many agencies in the field of farm forestry extension as it is, with resulting unnecessary conferences and duplications of effort. The contention is made that the Agricultural Extension Service can continue to give the service
of education more effectively and cheaper than any other agency. "It must be remembered that the effectiveness of the farm forestry program is closely related to the amount of time spent in the field with farmers and not in the time consumed by officials around conference tables." The county agents are reported to have the confidence of the farmer and community leaders, all of whom can advise the forester on his method of approach and where the forester's efforts would be both needed and effective. (33)

**Relationship Weaknesses**

A supposed weakness in the system of farm forestry extension is that the foresters receive supervision, advice, and direction from men not intimately familiar with forestry practices and aims. "The service has little primary contact with the forest problem and the extension forester is often detached from the general current of forest ideas." (110) It is also believed by one writer that cooperation between the extension forester and the state forestry department is not close enough to reduce the danger than two independent agencies will engage on the same forestry problems without proper coordination. (110)

It is reported that the extension forester is handicapped because of the lack of management results and information.

"Unfortunately, foresters are handicapped by lack of exact information about results of systematic woods
management applied to farm woodlands. The forester may draw on his technical knowledge as well as his imagination to paint a glowing picture of what management will accomplish, but is without rather definite examples to cite. Examples of well managed woodlands are not hard to find, but the records of how the results were obtained and what the inventory was at various periods and the volume, value of material, etc., are incomplete or non-existent. The forester still cannot talk definitely about income which was obtained from such woodlots.

"The job of properly evaluating and demonstrating what farm woodland management can do for the farmer must be extended over a period of at least 20 years in order to give time to build up an adequate growing stock, develop markets and marketing machinery, in order to enable the farm woodland to take its place as an income producing unit of the farm." (58)

There are also declared to be weaknesses in the relationship between the forester and the county agricultural agent, through whom the forester must advance his program.

"The state extension services are weak in the number of foresters employed ... and too frequently the work is hampered by a lack of training and experience on the part of the county agents upon whose shoulders lies the major burden of agricultural extension work. They are capable men, but extremely busy with many other agricultural subjects." (110)

One investigator presents the view that agricultural workers have the same opinions about forests as the farmer, in that the farm woodlot is simply a part of the farm that cannot be used for field crops or pasture. "The idea that the farm woodland is a productive unit of the farm must first be accepted by agricultural workers if we are to succeed in getting the farmers to accept it." (59)

It is the view of one author that, "County agents hesitate to tackle a problem so complex as the forest
problem with as little knowledge as most of them have. The extension forester must spend valuable time teaching county agents things they should have learned during their regular agricultural course." (58)

Forester-farmer relationships constitute a weakness, if we are to believe some opinions stated. "But we know, as foresters, that if agricultural prosperity is to be realized, more farmers must become foresters and that silviculture must be recognised as a part of agriculture." (67) In sharp contrast to this concept is the opinion that foresters must become farmers in order to understand the economically-guided thoughts of the farmer with reference to woodland management. Interest in the program is not lacking because it lacks a coordinated approach, but because of a lack of attractive profits from timber production. "When market conditions become such that attractive profits may be obtained from timber sales, the farmer really becomes interested in practical woodland management. (33)

Summary
Certain authorities believe the system is quite effective, but that the field can be greatly expanded. The effectiveness is reduced by a lack of sufficient funds and what can be accomplished by one or two individuals covering an entire state.

Proposals to increase the effectiveness recommend raising the number of extension foresters employed to 94.
This number, it is believed, would enable the foresters to work more closely with the farmers and county agents. County agents should be given a basic forestry course, and their activities directed toward areas needing such assistance. One forestry leader considered farm forestry problems large enough to justify the full-time employment of trained foresters in 600 counties.

Among fundamental weaknesses is a state of mind which does not consider that raising successive crops of trees is similar to raising staple agricultural crops. Farmers are said to oppose forests as a crop because the trend has been from an extensive to a more intensive use in the history of farming in this country.

Among cooperative weaknesses expressed is the opinion that many agencies can cooperatively enter the field of farm forestry education without replacing the present extension foresters. Another author contends that duplication of effort and reduction of necessary field work is the outcome of cooperation among many agencies. He believes the present system can handle the program more efficiently.

Foresters become detached from forestry aims and efforts, because they receive direction from men not familiar with such aims and efforts, it is contended. The foresters do not cooperate closely enough with state
forestry departments to avoid the danger of cooperative duplication, another author contends.

Foresters themselves are reportedly handicapped in their programs because they lack sufficient management records which can be used to promote management, a writer states, and that the job of gathering facts should be extended over a long period of time.

Relationships between the forester and the county agent and farmer are not the best, since it is believed that the county agent does not accept farm woodlands as a productive unit of the farm. This agent is not properly informed or trained in forestry objectives, it is also charged. One author proposes that farmers become foresters; another proposes that foresters become farmers, indicating that sometimes forester and farmer do not see alike in farm forestry.
CONCLUSIONS TO PART I

Extension foresters working in other states engage in a multitude of activities and have assisted in establishing many cooperative organizations which care for an orderly sustained removal of farm forest products. The system is well organized, the programs well rounded, and considering their numbers, the work is seemingly coordinated. They may be limited by funds and by attitudes that hinder the best forward progress of farm forestry.

Extension tools used show that a wide variety of approaches are used in the educational program. Foresters have been engaged in the work long enough to test the effectiveness of their tools. Marketing has been stressed since this is the outlet for work in other projects such as management and utilization. The foresters especially accent approaches that release the economic benefits of practicing farm woodland management. In line with the effectiveness of the work, the writer agrees that the system should be increased in numbers in many states, and further funds appropriated.

Farm forestry extension as a regularly organized activity has not been established long, since much of the work has been developed the past 15 years. Extension foresters may not have been working long enough to have proved the definite benefits of woodland management.
PART II

THE APPLICATION OF FARM FORESTRY EXTENSION IN OREGON
FOREWORD

In determining the application of farm forestry extension in Oregon, there are three needed developments. The first of these involves determining the farm woodland situation, the second is ascertaining the present control by cooperating agencies. Facts from the farm woodland situation and the present control methods are used in forming the third development, the proposed program for an extension forester. Concepts gained from the national organization of farm forestry extension are also applied in developing the third, or proposed, phase.
CHAPTER I

THE FARM WOODLAND SITUATION

Only major points are presented in describing the farm woodland situation. Lack of specific knowledge concerning Oregon's farm woodlands prevents any detailed summary of the present situation. Except in the intensive project described in Chapter II, surveys of farm woodlands have not been very extensive. For more details about farm woodlands, the reader is referred to the farm forestry program for Oregon cited in the bibliography (106).

Area in Woodland

Expressed as a total, there are 2,788,300 acres of pastured woodlands and 571,600 acres of non-pastured woodland or a 3,349,900 acreage total (108). Roughly, five times as many acres are pastured as unpastured. The average acreage of woodland per average farm in Oregon is 51.7 and 40 per cent of the farms in Oregon had woodland products cut from them. This total acreage is 10 per cent of the total acreage of forest land of 28,790,700 acres and 19 per cent of the land in farms of 17,357,500 acres (106). For more detailed land ownership data, the reader is referred to Tables XI and XVIII in the appendix.

Western Oregon has 1,424,900 acres of pastured woodland and 463,200 acres of unpastured woodland. According to the 1935 Census, the 47,745 farm units had an average
of 39.7 acres of woodland per farm unit and comprised 40 per cent of the average farm area. Eastern Oregon has 1,353,400 acres of pastured woodland, and the non-pastured woodland total is 88,400 acres (108).

Content of the Farm Woodlands

Estimates made in western Oregon reveal that there is an average of 35,000 board feet per acre within the agricultural zone. On this basis, there are ten billion board feet of merchantable timber in western Oregon (108). This estimate was based on the forest survey within the agricultural regions and consisted of narrow strips running east and west through the agricultural valleys spaced three miles apart. The data secured was an average of the entire strip (16). The estimate appears high, because it is hard to conceive of farm woodlands in varying degrees of productiveness having such a heavy volume. Besides this merchantable volume claimed, there are "... thousands of acres carrying heavy stands of pole and sapling size material." (36)

Of the total acreage, it is estimated that 1,112,000 acres of farm woodland in Oregon are in a productive condition (106). This estimate comprises one-third of the total acreage. No data at hand reveal just what proportion is satisfactorily stocked, nor where the more productive woodlands exist. Authors differ as to the condition of the stand. "Over the entire northwest, farmers
own more than their proportionate share of the oldest and largest second growth timber upon which the near future of forest industries depend." (98) Contradicting this opinion, another writer states, "Indiscriminate exploitation of subsequent reproduction has produced third and fourth growth forests of little commercial value, marred by pock marks of repeated burning to encourage grass growth for grazing."

(106)

In comparison to the total timber in western Oregon, a rough computation shows 7 per cent of this to consist of timber on farm woodlands, if there are ten billion board feet in woodlots. This latter figure is based on the assumption that it is all economically accessible. Of the total 397 billion board feet, which estimate includes farm woodlands in Oregon, 201 billion board feet was considered accessible under market conditions as they existed from 1925 to 1929. An additional 142 billion board feet would be available if better conditions prevailed.

"A remaining 52 billion board feet are either low in quality or inaccessible. Of the 300 billion board feet in the Douglas fir region, 139 billion board feet is available, or 46 per cent. In the pine region there are 97 billion board feet with only 62 billion board feet available for economic cutting." (52) It can be expected that farm woodland timber will be much more accessible than the bulk of timber now existing in Oregon.
The predominating species in western Oregon is Douglas fir which constitutes nearly 90 per cent of the volume. Other western Oregon species include western hemlock, lowland white fir, Oregon white oak, bigleaf maple, madrone, white ash, redwood, western red cedar, sitka spruce, ponderosa pine, incense cedar, red alder, and northern black cottonwood. The major species in eastern Oregon is ponderosa pine with hardwood fringes along stream courses. (106)

Income from Farm Woodlands

In order that income figures from farm woodlands can be compared more closely, a few figures on total income of Oregon are given.

Oregon's wealth in 1929 amounted to $3,800,000,000, or $4,084 per capita. Its rank per capita in the United States was sixth (51). Income from industries in the state may be represented by the following brief table (14).

**TABLE VI**

**INCOME FROM OREGON'S INDUSTRIES**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Millions</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural industries total</td>
<td>163.6</td>
<td>26.9</td>
</tr>
<tr>
<td>Cash income from crop and animal production</td>
<td>129.3</td>
<td></td>
</tr>
<tr>
<td>Value added by manufacture</td>
<td>34.3</td>
<td></td>
</tr>
<tr>
<td>Timber and lumber industries gross</td>
<td>136.6</td>
<td>22.3</td>
</tr>
<tr>
<td>Value added by manufacture</td>
<td>96.6</td>
<td></td>
</tr>
<tr>
<td>Fishery products total</td>
<td>2.6</td>
<td>.4</td>
</tr>
<tr>
<td>Mine and quarry products</td>
<td>2.4</td>
<td>.4</td>
</tr>
<tr>
<td>All other income (includes construction,</td>
<td>303.6</td>
<td>49.9</td>
</tr>
<tr>
<td>transportation, communication, electricity,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>trade, and professional or governmental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>services)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In comparison with the entire United States, Oregon had an average value of forest products harvested in 1934 for each reporting farm of $101. This figure was greater by 50 per cent than the average for the United States as a whole. (71) Another source reveals that the total value of forest products cut per farm was $177. (106) Farm families are reported to benefit from the sale of forest products up to 40 per cent of the total farmers in the state. The total income from farm woodland products in 1934 was $2,700,000, according to one source, and $2,233,000 according to another source. This is about 6 per cent of the total farm products value. Farm forest products totaled 2.5 per cent of the cash farm income from commodities from 1926 to 1935 according to Table XVII in the appendix (50).

The above figures are mostly condensations from the 1935 census. Values recorded were to include value of timber, poles, piling, logs, firewood, pulpwood, fence posts, railroad ties, mine timbers, and miscellaneous products. Included in some cases, the census reports, was the value of farm products used rather than the value of firewood sold. (108)

Additional facts disclose that "Forty-five per cent of the farms rely upon a portion of their income to be supplied by means other than agriculture." (69) More than 25 per cent of Oregon farmers live on uneconomic units and must seek outside employment. In 1935, 41 per cent of
the farms in the state reported off-farm work for pay (48). Sawmills and woodworking industries employed 54 per cent of part-time farmers who subsisted on an annual cash income of $781. (53)

An indirect approach to the income situation may be made through a study of sales of minor products in Oregon. The total sales remained at about $6,900,000 in both 1929 and 1930. (55) (73) Classification according to products is in Table XVI of the appendix. These minor products make up about 11 per cent of the timber utilized each year (77). More value would be given the sale of minor products if they were divided into the groups selling minor products. The figures indicate money received from sales of material which the farmer has to offer. It can be expected that a good proportion of these minor products came from either farm woodlands or occupied the time of farmers in harvesting them.

Data relating to unit prices received for farm woodland products are not complete, but computations for both western Oregon and Washington in 1929 show the following figures. Fuel wood sales occupied 53 per cent of the total, the average price being $4.50 per cord. Log-scaled lumber made up 26 per cent, the farmer receiving 62 cents per thousand. Poles and piling comprised 6 per cent of the total sales, the unit price being 22 cents. Railroad crossties occupied 2 per cent of the total with a unit
price of seven cents. (36) A yearly average price for cascarabark will approximate 6½ cents a pound (19).
The reader is referred to Tables XI and XII in the appendix for figures on products used and sold from Oregon farms (10).

Markets for Farm Woodland Products

The principal markets for fuel wood are the industrial and residential centers within range of an economical haul. Railroads use the crosstie products and logs are generally sold to mills of the smaller type which lack sufficiently large logging operations. Drug manufacturers bargain for cascarabark through a middleman who engages in a variety of similar businesses. In one case, the farmer deals directly with the drug company since he has a larger volume of bark and products to offer (11). Pulpwood is sold to mills located at Lebanon, Oregon City, and Salem. Spruce for pulp is often hauled from a distance exceeding 100 miles. Posts and poles are sold either directly to consumers or through a number of small concerns filling orders for larger construction projects. Excelsior mills bargain for cottonwood, and hardwood burls are sold to men engaged in this business. Alder mills consume a considerable amount of farmer-owned timber, and in some cases small mills are owned and operated by part-time farmers. (36)

In the sale of forest products, it is reported that the seller is at the mercy of the buyer and that there has been
no log grading on such sales (106). Whether this is generally the case could not be determined without much study.

Besides known markets for woodland products, farmers use considerable material grown on their farms. Fuel wood and posts are the principal products used. Products by price, quantity and value are given in Table XIV in the appendix.

Management of Farm Woodlands

Examples of managed woodlands in Oregon are extremely hard to find. Scattered examples of management are known about, but they have not been officially recorded. Woodlands recently placed under management are described under the intensive farm forestry project in Clackamas county in Chapter II.

Plantations and plantings offer the principal examples of managed woodlots. In western Oregon, farm plantings are generally made for aesthetic reasons and constitute farm shelterbelts. In eastern Oregon, the plantings have been made mainly for erosion control or windbreaks. (106) A 17 acre cascara plantation near Brownsville in western Oregon is an example of a managed woodland (11). Plantings can be said to be managed in cases where the farmers care and tend the trees after planting. Facts regarding the amount of care given, or on the survival of the newly established trees are not known (69).
Reasons for lack of management examples are that the products such as "...fuel wood and other low-grade products can be supplied on short rotations without management," and that in many cases, sale of the products has paid part of the cost of clearing the land for agricultural purposes. "Development of market roads, small mills, and gypo logging have tended to increase the proportion of farm-produced sawlogs sold." (106)

It is estimated that about 3 per cent of western Oregon's private lands are managed under modified sustained yield and about 12 per cent have only a rough type of forestry without sustained yield. In eastern Oregon there is said to be less than 9 per cent of the private land under extensive forestry without sustained yield. (106) It is assumed that farm woodlands are classed in these estimates.

Summary

Although Chapter I is in itself a summary, there are some salient facts. Farm woodlands occupy 10 per cent of the total acreage of the commercial forest land and 19 per cent of the land in farms. Roughly, five times as many acres are pastured as unpastured. Estimates on the total board feet volume are not conclusive and appear to be high. Authors differ on the productiveness of the woodlands. One estimates that one-third of the woodlands is in a productive condition; another author states that
the stands are composed largely of old growth and large second growth timber; while another writer contends that they are of little commercial value. The predominating species in western Oregon is Douglas fir; in eastern Oregon, ponderosa pine.

Income figures reveal that 40 per cent of the farm families in Oregon benefit from the sale of forest products. The income was 6 per cent of the total farm products value and 2.5 per cent of the cash farm income from commodities. Minor forest product sales are high, but it is not known what proportion came from woodlots.

Products are sold to many diversified markets. Very few examples of managed farm woodlands are officially recorded and the majority of known examples constitute plantings for special uses. It is estimated that from 3 to 12 per cent of private forest lands in Oregon are under varying degrees of forest management.

Chapter 1 brings out some of the major points about farm woodlands. The next chapter outlines what is being done in farm forestry extension. With the facts regarding farm woodlands, the reader may more adequately judge the attempts being made in farm forestry extension.
CHAPTER II

THE FARM FORESTRY EXTENSION SITUATION IN OREGON

Facts presented in this chapter show work being done and planned in farm forestry extension in Oregon. This control is divided into cooperative action by a number of agencies and separate control exercised by each agency. The present state program is an example of cooperative action.

Present State Program

Completed and adopted in February, 1940, was a "Farm Forestry Program for the State of Oregon." This program closely followed recommendations made by the Department of Agriculture's farm forestry committee appointment, and the Cooperative Farm Forestry Act.

Cooperating in this plan are the Extension Service, the State Board of Forestry, the Soil Conservation Service, the Oregon State College School of Forestry, the United States Forest Service, Oregon Agricultural Experiment Station, and the Bureau of Agricultural Economics. Men from these agencies formed the farm forestry committee for Oregon. Funds allocated to Oregon under the Cooperative Farm Forestry Act amounted to $3000 for the fiscal year ending July 1, 1940. (4)

Up to the time of the program's adoption, agencies were working on separate and cooperative phases of farm
forestry extension. This program delineates the work of each group more closely and delegates each agency certain phases of the work. The essential points covered in this program are as follows:

1. Outlined the part each agency would play in the farm forestry program. This followed the general scheme under the authorizing act.

2. Outlined the cooperation each agency would give in the first intensive farm forestry projects.

3. On the basis of state-wide conditions which affected farm forestry, recommended priority for location of intensive farm forestry projects. The state was divided into seven sections and conditions in each pertaining to farm forestry described. Sections were the Coast, Willamette Valley, Southern Oregon, Columbia Basin, Southwestern Oregon, and irrigated section. The Willamette Valley was given first priority, the coast region second priority, and for the rest of the state no priority was recommended because of variable economic and agricultural conditions.

4. Acknowledged that much more factual study on farm woodlands was necessary in order to bring out more definite information. It recommended a number of research projects.

5. Listed desirable legislation needed both in forestry and agriculture which would affect farm forestry, such as land zoning, fire protection, sustained yield, tax collection, etc.
6. Contains the greater share of available material on farm woodlands in Oregon. (106)

These major points are described in detail under the work of each agency cooperating in the program. Besides the groups mentioned in the program, there are other agencies which engage in farm forestry work to a limited extent.

Control by Cooperating Agencies

Extension Service

According to officials of the Extension Service, there is no organized project comparable to the major projects of horticulture, dairying or agronomy. The work is done by the county agents to meet the apparent forestry needs such as pooling nursery stock orders, and giving information on care of tree plantings for windbreaks and woodlots. Some of the windbreak planting has been done in Multnomah county where small crops are affected by winds sweeping down the Columbia Gorge. Approximately less than one per cent of the county agent's time is spent on forestry programs. (72)

An investigation of the statistical accomplishments recorded in Table X of the appendix reveals that the work is mainly divided into planting assistance, 4-H forestry work, and advice on the preservative treatment of wood. A bulletin on this latter activity is now being prepared. Days devoted to farm forestry by home demonstration agents
and county agents were spent mainly on result planting demonstrations or giving advice. It is noted in the accomplishments that the number of farmers planting windbreaks or shelter belts is high, while the number of farmers managing existing stands is low.

A committee has recently been appointed to go over the entire 4-H forestry program and revise it so that projects of a more beneficial and active nature will be available to club members. The revised program will probably be ready for adoption this fall (1941), and is intended to round out the existing 4-H forestry program. Men from the School of Forestry, the federal Forest Service, and the State Forester's office comprise the committee (40).

As a phase of 4-H forestry club work, there are a number of forested tracts set aside for purposes of educational work in forestry. These are located in a number of counties and have been in operation for several years. Tillamook county has 160 acres, the city of Portland 50 acres at the edge of the city, Washington county 40 acres, Lake county 80 acres, Lane county 280 acres, and Douglas county 160 acres. (90) Land selected for this use has been dedicated by the county courts (102).

These areas contain some second growth timber and some bare land so that a varied forestry program can be applied on them (63). Nursery stock is supplied by the Clarke-McNary nursery free of charge and is used in
planting windbreaks, woodlots, 4-H forests, or on burned-over or cut-over lands (90). In the tree planting work, the planting stock is sent to some responsible individual and the trees are planted in places where good survival is expected (20).

Additional activities under 4-H clubs are tours, summer camps, and meetings. During the annual summer school on the Oregon State College campus, club members go out to the Arboretum, and talks are given by different forestry personnel. In all 4-H club camps in the counties, a local forester teaches classes and gives out forestry material. The forest service has cooperated in the location of these summer camps (63) and sends staff members or rangers on the tours and to group meetings. The State Forester's office provided $100 in prizes to be awarded at the State Fair to forestry club members (90).

The club agent of Lane county outlined his program in 4-H forestry somewhat as follows: cooperating with state and national forest officers in 4-H programs, securing trees for club members from the Clarke-McNary nursery, having one three-day county-wide forestry trip and camp, planting one demonstrational woodlot, preparing an arboretum near one of the camp sites, and supplying educational material. Clubs organized during the year totaled 18, with 14 clubs completing 100 per cent. Two arboretums were established, one on the east side of the county
and one on the west side. Prior to the establishment of the CCC, club members improved a campground located approximately 25 miles up the Willamette river from Eugene.

Forestry officials cooperating with this club agent include the nurseryman from the state nursery at Corvallis, the assistant state forester, local national forest officials, rangers, and forest fire protective association men. Educational material includes that supplied by the assistant state forester, Department of Agriculture, and a book on CCC forestry. A need was expressed for additional educational material, particularly films and visual aids (37).

The source of technical forestry information used by the Extension Service has been the School of Forestry, the State Forester's office, and the federal Forest Service. Some of the educational material has been developed cooperatively. Bulletins published by the Department of Agriculture in Washington, D. C. have also been used. (72)

Under the state farm forestry program, the extension director is given the authority for conducting educational work in farm forestry. Farm forestry work of other agencies is to be carried out in cooperation with him. The director is also to help in arranging for and holding farm meetings, assisting in arranging meetings with county land use committees for purposes of selecting intensive project locations, and in preparing educational material and other
publicity releases. It is contemplated by the Extension Service that an extension forester will eventually be added to the group of subject-matter specialists located at the college. Duties will be to assist the extension director in formulating a farm forestry extension program. (106)

A forest in every county of the state will be made available for the use of 4-H forestry club members, it is planned. Various demonstrations of farm forestry will be held in these forests. (63)

State Forester's Office

Present work in farm forestry consists of distributing trees to farmers of the state, establishing of experimental plantings, cooperating with various clubs in planting projects or forestry programs, and field work creating interest in farm forestry. Educational work in particular is in cooperation with the "Show Boat" program with the forest service. This is an educational tour to schools and organizations, reaching rural areas also. A publication titled "Trees for Oregon's Farms", prepared by the assistant state forester in charge of lands, is used considerably by farmers in their tree planting programs. Advice is also given on the desirable species to plant. (20) The work of this agency in forestry extension is summarized as follows:

1. Administration of the Oregon Forest Nursery.
2. Distribution of forest tree seedlings.
3. Forestry educational work in schools.
4. 4-H forestry club work.
5. Cooperating in programs of the Future Farmers of America organization.
6. Work with Boy Scouts and similar groups.
7. Cooperating in tree planting work.
8. Cooperating with land owners in forest management.
9. Farm forestry work of all kinds.
10. Preparation of bulletins, reports, educational material, general publicity and other phases of technical forestry. (20)

At the present time, no follow-up work on nursery stock sent to farmers is being made through the State Board of Forestry. Examples of successes and failures in plantings are known, but any large body of factual information on the plantings has not been secured. Approximately 400,000 seedlings were sent to farmers in 1939. (39) In the state of Oregon, more than 500 acres of farm woodlands are planted annually (69). It is believed that doubled production of the Clarke-McNary nursery would be necessary if the proper publicity were given, and knowledge of the seedling use was made known (69).

The Clarke-McNary nursery has advance orders for the year 1942 for 100,000 cascara seedlings. One order for 50,000 seedlings could not be filled. (19)

Control over Christmas tree cutting is possible under the trespass law of the state. Prosecutions of three or
four cases has been carried out under the state's reforestation law. In these cases, cutting was done without taking out a permit. (19)

Planned activity of this office is to secure about 900 shipping order copies comprising representative cases of plantings in counties of the state. An inspection tour is to follow, and farmers will be contacted to get results of tree plantings. Inspection will be stressed where no natural tree growth exists, in order to test the results of tree growth under varying climatic and soil conditions. (103) The work outlined would assist future farm forestry work in Oregon.

As an agency in the state farm forestry program, the office is to carry on in cooperation with the Soil Conservation Service in particular, one of the intensive farm forestry projects established in Clackamas county. Assistance will be mainly in the form of services and supplies used on the project to supplement the work of the project forester.

On both farm forestry and forest farming projects, this agency will cooperate in determining necessary fire prevention and protection measures and is to furnish adequate protection within its legal authority. Assistance will be given to other activities coming within the scope of this office. (106)

Another basic responsibility is the production of
nursery stock for farm forestry demands in Oregon. The nursery at Corvallis will be the main supplying unit for both eastern and western Oregon. (106)

The assistant state forester outlined a proposed program for future farm forestry work as follows:

1. Increase of the output of the nursery to maximum capacity.

2. Cooperation with the Soil Conservation Service in the farm forestry program and also with the Extension Service of the state when and if an extension forester is employed.

3. Promote the program of farm forestry throughout the state by field work.

4. Contact county officials, community leaders, farmers, clubs, etc., about farm forestry work.

5. Study problems such as the need of forest planting in the eastern part of the state. Experimental plantings are established and are advocated to determine the adaptability of trees to various climatic and soil conditions. (20)

**Soil Conservation Service**

Work done by this organization has been in the nature of advice and information given to farmers located within Soil Conservation districts on woodlands, erosion plantings, and work in conjunction with regular soil conservation activities by the technical staff. An estimated 110 acres of
eroded land in eastern Oregon has been planted to shelter belts and farm woodlots through cooperative work between the Soil Conservation Service and private landowners.

Through demonstrations on forest values and growth in western Washington, it is expected that data of a general nature may be applicable to Oregon (106). Farm plans in the agreements between farmers and this agency frequently call for tree planting (98).

The administration of the farm forestry program under the Cooperative Farm Forestry Act is given to this organization. Some of the duties detailed to it are:

1. Coordination of all farm forestry programs financed under authority of the Cooperative Farm Forestry Act.

2. Direction of action programs in farm forestry demonstrations in cooperation with the appropriate state agencies.

3. Cooperation with the Extension Service in the educational programs on farm forestry demonstration projects.

4. Cooperation with the Forest Service in farm forestry research in determining allocation of Cooperative Farm Forestry Act funds for the production and distribution of nursery stock and in making complete plans on forest farming projects.

5. Representing the Department of Agriculture in all contacts affecting farm forestry.

6. Managing the farm forestry program in such a way
as to be in harmony with general land use plans developed co-operatively with the Bureau of Agricultural Economics. (107)

Nursery stock for use by farmers cooperating under the Service's program can be had from the Soil Conservation Service nursery at Warrenton, Oregon up to 50 per cent of the total generally required. The remainder can be bought privately or through the Clarke-McNary nursery near Corvallis, Oregon. This agency has administrative responsibility for the newly established farm forestry project described briefly below. (107)

**Clackamas Farm Forestry Project**

**Location and Selection**

This project, established under the provisions of the Cooperative Farm Forestry Act, encompasses about one-fifth of the land area of Clackamas county and contains approximately 220,000 acres located just to the south and east of Oregon City (107). Reasons for selecting this area were the favorable market conditions in Oregon City and Portland for furniture, wood, and fuel, convenient hauls to markets, favorable climatic and growth conditions, and a suitable distribution between farm woodlands and agricultural areas, "although a need was seen for developing markets that recognize and pay higher prices for higher grade materials." (32) It was also selected because of marginal land use conditions that should be studied, and because there was
more interest shown in farm woodlands than in other counties contacted (106). A basic survey of physical, cultural, economic and social conditions guided the state farm forestry committee in selecting the area covered through the project. The selection of this particular acreage was further influenced by the unemployment situation among the farmers who welcomed the additional labor offered them in establishing, maintaining, and harvesting timber products. The fact that new industries might develop in the Portland area when the Bonneville Dam was completed also affected the selection of the area (107).

In depicting the project more closely, national forest lands were eliminated as were lands predominantly timber and reforestation lands. The area was further limited to an area where the greatest concentration of desirable farms occurred. That left a region comprised of parts of four Agricultural Adjustment Administration districts which were districts used by the county land use planning committee. Sufficient size remained to be efficiently handled by one forester and offered a convenient and logical boundary for the proposed project. "Upon careful examination of these four districts, it was decided that they were fairly representative of conditions found in the foothills of the entire Willamette Valley subdivision." (107) The farms selected contained on the average more than 20 acres of cropland and
more than 17 acres of farm woodland, thus having enough farm and sufficient timber to handle profitable (32). "Douglas fir predominates on the higher land, white fir and cedar in the draws, and alder, maple and some cottonwood in the so-called 'wet' draws." (32)

Objectives

The principal objective of the project is to "determine the practicability of supplementing farm income by growing and marketing farm forestry products." (107) It is to "add to the farm income by helping the farmer increase the net returns from his existing woodland, and from unused portions of the farm, by utilizing them for the production of wood products." (32) More inclusive objectives have been stated as follows:

1. Demonstrating the best farm methods of producing forestry products for market and farm use at the lowest possible cost.

2. Determining the markets available and the prices which may be obtained for wood products that are now growing or may be grown on farms, and providing an orderly flow of farm woodland products to the industries.

3. Obtaining information on culture, available markets, and possible returns on trees adapted to the area that might be grown for special purposes such as cascara.

4. Finding most economical land uses of present wooded areas on the farm, such as woodland, pasture or crop land,
for the greatest return over a long period.

5. Developing a complete soil conservation farm plan in individual farms. (32)

Administration

The administration of the project is in charge of a forester supplied by the Department of Agriculture, who in turn is responsible to the Soil Conservation Service area office. This forester writes up the detailed project plans with the advice and help of the county agricultural agent of Clackamas county and the State Board of Forestry. Plans are approved by the county land use planning committee and the state farm forestry committee. (107) (106)

Technical responsibility is divided between the State Forester's office and the Soil Conservation Service men from these agencies aiding in the project's development, while technical information will be secured from the State Board of Forestry, the School of Forestry, and the U. S. Forest Service (32).

Educational work in connection with the project will be conducted by the State Extension Service through the county agent at Oregon City. This agency will also act in a general advisory capacity.

Research is to be handled cooperatively by the U. S. Forest Service, the Pacific Northwest Forest Experiment Station, and the Agricultural Experiment Station. These first two agencies plan a study of markets for the products
of farm woodlots from this project as well as to cooperatively conduct a study of yield and growth on woodlands. The yield study is expected to present more knowledge about the products on the woodland and the amount of management practiced. (32)

Nursery stock for the use of cooperators in the project is to be made available by the Clarke-McNary nursery. Where the plantings are primarily for erosion control, the stock is supplied by the Soil Conservation Service. (106)

Financial help is divided between the Soil Conservation Service which supplies approximately one-half the funds and the State Board of Forestry and the Oregon State College School of Forestry which supply the remaining half. For the fiscal year July 1, 1939 to June 30, 1940, the Soil Conservation Service expended $2,783.58 while other cooperative agencies spent $2,957.62. Proposed expenditures for the following fiscal year were $3,950 by the Soil Conservation Service, $3,800 by the State Board of Forestry, and $600 by the School of Forestry. (61)

The Farm Plan

As parts of the entire project, individual farm plans are drawn up in detail.

"A soils man first goes over the entire farm and notes the suitability of each acre for cultivation, pasture, or timber. The project forester and the county agent then go over the place with the farmer and talk over the problems of land use, timber and
crop management. The farm plan is drawn up by the farmer and project forester after land use capability classes are determined for each combination of soil type and degree of past erosion and slope found on the farm. This plan includes whatever rearrangement of fields is necessary to give the most efficient operation, suggested crop rotation, and a complete plan for the timber." (32)

"A cruise of all the timber on each cooperating farm is made by the project forester who explains to the farmer the types that may be used for saw logs, peelers, piling, posts and so on. In every case, the timber is put on a selective logging and permanent yield management basis. The farm plan is worked out in such a way that the farmer can carry out the practices as rapidly as he is able without financial or other inconvenience or hardship." (32)

"General conservation phases of the project farm plans include, besides improved crop rotations and pasture seeding, the turning under of green manure crops on orchard and truck land, application of lime and phosphate fertilizer, use of all available crop residues and animal manures, retirement of steep slopes to grass or woodland, and development of contour cultivation and terraces on sloping land." (32)

Parts of the woodland plan include the following:

1. Fire protection.
2. Control or exclusion of grazing.
3. Determination of the condition, volume and growth of the stand.
4. Kind of local markets and other expected uses.
5. Estimation of the amount of work needed to put the stand in the desired condition.
6. Rate at which the farmer can carry out the needed work from year to year.
8. Wildlife development possibilities, etc.

9. Marketing recommendations as conditions dictate. (32)

Progress

The present forester was detailed to the project in April, 1940. The plan was adopted April 27, 1940. (180) The following groundwork was laid: "General and detailed surveys of area, gathering of marketing data, working out a method of cruising to obtain information on second growth stands, and completion of the project proposal and working plan." "Farm forestry plans are being written every week toward the total of approximately 25 farms that can be accepted this fiscal year ending June 30, 1941. This number is estimated to be the nucleus of a thousand or two farms in the total project which could be included if the farmers wanted such a plan, and technical advice or other assistance would be made available." "The farms so approved have from 20 per cent to 50 per cent woodland on them and are nearly all livestock ranches with sheep or dairy cattle principally." (32)

The total acreage of cooperators having complete farm plans is 503; that of cooperators not having farm plans complete include 538 acres. A soils survey has been made on farms totaling 718 acres and the total acreage including applications totals 2,182 acres. (61)

Three tours had been made up to December 1, 1940, with a total attendance of 249. These tours explained the purpose
of the farm forestry project and how it would benefit the farmers. Attending were farmers, county planning board members, legislators, and forestry representatives. (61)

Three talks have been given by the project forester with a total attendance of 163. Topics discussed were the scope of the project, the duties of the project forester, preservative treatment of Douglas fir for posts, and growing of durable wood species such as black locust. (61)

One hindrance in the marketing of farm fuel wood in the project area has been that in former contracts with fuel wood buyers of Portland, the farmer was not able to give delivery as called for because of other farm duties. The buyer suffered, and new marketing endeavors meet with disfavor unless there is a penalty clause in the contract, and the marketing organization is of sufficient stability to assure the buyer that the farmer means business. (19)

School of Forestry

Forestry educational work directly applicable to farm forestry extension is the release of mimeographed instructions on topics which are in demand by farmers. These have dealt mainly with preservative treatment of wood and with construction hints. Through the Extension Service editor, an article has been sent out each year to the county agents on the results shown by the "post farm". This study is one made on various preservative treatments of posts placed in contact with the ground. This information is also printed
in many of the weekly newspapers serving farmers. (70)

There are many miscellaneous requests from farmers for information on cascara plantations, identification of woods and trees, tree surgery, availability of nursery stock, planting procedures, and the various experiments being carried on in the Peavy Arboretum and McDonald Forest. Not many inquiries have been made for advice on farm woodland management, but inquiries have been made by farmers who desire to know the market for specialized products.

An excellent publication titled "The Farm Woodlot in Oregon" has been compiled (38). Detailed information is given on the use of woodlots for many purposes; management steps are outlined and the advantages of management are discussed in detail. Growing new woodlots, protection from fire, disease, insects, and overgrazing, methods of cruising, marketing, and measuring trees and logs are phases discussed in this manuscript. The style used is simple and direct, making a very desirable educational pamphlet for use by farmers.

Many of the informational releases are for the general public. During the fall months of 1940, 14 radio talks on farm forestry were given by staff members and men in cooperating agencies. These talks dealt with markets, uses for woodlands, planting, growing, protection, measurement, costs and returns, and the recreational and aesthetic value of farm woodlots.
The part the School of Forestry plays in the program for farm forestry is to make available its research results. A number of research projects are now in progress which pertain to farm forestry. The school not only serves as a research organization, but is concerned with making pertinent information available concerning farm forestry practices. Staff members are specialists in divisions of forestry, and can render information on all or particular phases of farm forestry. (40)

United States Forest Service

Work being done by the United States Forest Service is the preparation of data on farm woodlands, educational and informational work performed by the division of information and education, and the educational "show boat" program. Rangers and members of the Service take active part in 4-H forestry work and assist in the work of the Extension Service in various ways. (106) Since this agency is the recognized authority on forestry subject matter and its jurisdiction covers so many fields, its indirect influence is great. The Forest Service is the agency under the Farm Forestry Program for technical guidance and is the authority on forestry subject matter. Continued cooperation in the distribution of nursery stock under the Clarke-McNary Act is a part of the outlined work. (106) Administration of forest farming projects is a function of this agency. As yet no area has been selected definitely as a forest farming
project, although the coast territory is being studied as a location site. Neither have the details under a proposed market study in the Clackamas county farm forestry project been worked out. (16)

Pacific Northwest Experiment Station

Since this organization conducts research on all phases of forestry in the Pacific northwest region, much of the work already done by the station is applicable to farm forestry. Logging economics, forestation technique, pruning studies, cutting methods, slash disposal, forest resources, forest land ownership and stability, utilization of wood, growth and yield, and fire protection are among the many research projects conducted. Twenty-two research projects are outlined for this agency in the program for farm forestry. The reader is referred to their detailed content in the "Farm Forestry Program for Oregon." (106) Staff members have contributed articles on farm forestry to leading state newspapers.

Agricultural Conservation Program

Statistical accounts of this agency reveal that in 1938 there were 38 acres of farm woodland maintained on 29 farms and 23 acres planted to trees on 27 farms. Counties participating in this program were Clackamas, Hood River, Malheur, Morrow, Umatilla, and Union. (47)

Specifications under which farmers receive benefit payments are described below. They were made out by the
Forest Service and the State Forester's office. (72)

"Cultivating, protecting, and maintaining, by replanting if necessary, a good stand of forest trees planted between July 1, 1938, and July 1, 1940; $3 per acre.

"There shall not be less than 200 living trees per acre. Trees shall be protected from livestock by a fence, if necessary. Land shall be cultivated sufficiently to control weed growth. The area occupied by forest trees planted in rows shall be one-half rod on either side of row, and in block planting of forest trees, the acre occupied by such planting shall be a block consisting of the area occupied by trees plus one-half rod beyond the outside row of trees.

"Planting forest trees (including shrubs beneficial to wildlife or in protective plantings), provided such trees are protected and cultivated in accordance with good tree culture and wildlife management; $7.50 per acre.

"There shall be a minimum of 300 trees and/or shrubs per acre on land properly prepared for planting. Land shall be kept in a good state of cultivation and livestock shall be excluded by fencing if necessary. Varieties of shrubs and trees which shall qualify under this practice shall be varieties recommended for the locality by the Oregon Experiment Station or Extension Service and approved by the State Committee." (78)

While there has not been much action taken in Oregon under the Agricultural Conservation Program, it is expected that in the future more action will be in evidence. The county AAA committees work in close cooperation with the county land use planning committees, so when woodland areas are delineated, and more interest developed among farmers, an increase may be expected. (23)

The farm forestry program states that the results are small and are about the same in other northwestern states. Farmers have been slow to take advantage of tree planting
provisions, generally because most farmers can qualify for maximum payments by farming practices more familiar to them, and partly because educational efforts informing them of payments have been inadequate." (106) "What has been done has furthered interest in tree plantings." (72) For a comparison of the work done among states, the reader is referred to Table IX in the appendix.

**Agricultural Experiment Station**

This agency has prepared and published a number of bulletins which indirectly and directly show the monetary value of farm forests to the farmer. Studies have brought out the economic dependency of a large percentage of part-time farmers on forestry enterprises. Soil adaptability and rating studies indicate more closely the land available for farm forestry.

The Experiment Station is to cooperate in approving contemplated research projects and assist in carrying out phases of farm forestry considered important (106).

**Bureau of Agricultural Economics**

The Bureau of Agricultural Economics "conducts studies in farm economics, correlating types of farming, annual incomes, ownership stabilities, agricultural settlement and development trends, land use adaptations, taxation, and compiles other basic data in a composite presentation of agricultural permanency." Much of the work done in assisting farm forestry extension will be of value since
the land use studies will delineate land uses more closely, thus giving emphasis to lands which can be used chiefly for farm forestry practices. The Farm Forestry Committee states that "insofar as possible, the Bureau will cooperate in conducting studies showing the importance and value of farm woodland income in farm economy." (106)

Farm Security Administration

The cooperative specialist of this agency reports of one cooperative undertaking in which three farmers located in Klamath county have set up a small sawmill and are cutting pine timber. A larger project is at Brookings, Oregon, in Curry county, under a loan from the Oregon Rehabilitation Corporation. This mill is now running. Further official details on these two projects are forthcoming. (31)

Miscellaneous Organizations

Other organizations in the field which give aid to farm forestry extension are: National Resources Board, Western Forestry and Conservation Association, American Legion through assistance in fire prevention programs, state planning committees, the many service clubs such as the Oregon Federation of Garden Clubs, Rotarians, etc., local transportation systems, local radio stations, state-owned station KOAC, business organizations, and newspapers which periodically print articles on farm forestry. (106)

Summary

The essential points which the state program for farm
forestry in Oregon are outlined briefly as follows: the part each agency would play in the entire state program for farm forestry and the duties of each in organizing the intensive projects; acknowledgement that much more factual data is needed to complete an evaluation of farm woodlands in Oregon; listing desirable legislation which would assist farm forestry; an assembling of basic facts about farm woodlands.

Highlights taken from the work being done and planned by cooperating agencies show the following facts. The Extension Service does not have a regularly organized project and the work being done is to meet apparent forestry needs. Approximately one per cent of the county agent's time is occupied in farm forestry work. Material used has been cooperatively developed. As substantiated by statistical records, planning assistance and 4-H work rank high. It is contemplated that the existing 4-H program will be revised. Planned work is to conduct educational work in farm forestry as delegated by the farm forestry program, and through the county agent and the extension forester, release information as it is developed.

Work done by the State Forester's office includes work in experimental plantings, distribution of trees for farmers of the state, field work to create interest, and cooperation in 4-H club programs. A publication on trees available to farmers and publicity work keeps farmers informed on the use of the state nursery under this agency's supervision. No
intensive follow-up work is done on trees sent out, but plans are made for such work. The office assists in providing funds for the intensive project, and other duties coming within the scope of the agency.

Work done by the Soil Conservation Service in farm forestry has been in regular soil conservation activities of the agency, such as advice and information to farmers within soil conservation districts. A number of acres of land have been planted as an aid in erosion control, a nursery being maintained for this purpose. Data gained from work in Washington is expected to have application in Oregon. This agency has administration of all farm forestry programs financed by the Cooperative Farm Forestry Act and is administratively responsible for the project.

The Clackamas farm forestry project occupying about one-fifth of Clackamas county is the first intensive farm forestry project in the Pacific northwest. Its location near a commercial center which can utilize products from farm woodlands makes it ideal for the establishment of farm forestry work. Its principal objective is to learn the practicability of supplementing farm income by growing and marketing farm forest products. Educational work material is released through the county agent at Oregon City. Research is carried on by forest and agricultural experiment stations. Technical responsibility and financial help is handled by the Soil Conservation Service, State Forester's
office, and the School of Forestry.

As a principal phase of the work on the project, complete farm plans based on soil studies and including a woodland plan are drafted. With general conservation the theme, progress includes cruising surveys, marketing studies, plans for planting of diversified species, and six complete farm plans finished, with others in various stages of completion. Three talks and three tours have been given as educational and informational features.

The School of Forestry supplies farmers with mimeographed information on topics in demand, and is the material source for the Extension Service. Not many inquiries are made on farm forest management, but a number of requests are made on topics such as cascara plantations, markets for specialized products, and preservative treatment of wood. Informational services rendered by the School's staff and students are of a more general nature, but have application to farm woodland management. Research conducted has application to farm forestry. Staff members assist in the state farm forestry program and the School renders services such as financial aid in the intensive project.

The United States Forest Service releases data on farm woodlands, and gives services of a general educational and informational nature. Members take active part in 4-H forestry work and assist in farm forestry work. The Service is the authority for technical guidance in the state
farm forestry program and has the authority for forest farming projects which have not yet been established. Assistance in nursery stock distribution and marketing studies comprise further work of this agency.

It is expected that much of the factual data prepared by the Pacific Northwest Forest Experiment Station will be applicable to farm woodlands. Some of the staff assist farm forestry through articles in newspapers, and the farm forestry program outlines 22 research projects that could be conducted by this agency.

The Bureau of Agricultural Economics conducts studies in farm economics, land use adaptations, and other basic data. Work by this agency will assist farm forestry through land use studies showing the value of farm woodland income to farm economy.

The Agricultural Experiment Station is a cooperating agency and the agricultural conservation program provides benefit payments to farmers who have not as yet taken full advantage of this program. The Farm Security Administration assists by helping farmers set up enterprises which will aid the farmer in building farm establishments economically. A wide group of service organizations assist in promoting forestry in general.
CHAPTER III
A PROPOSED PROGRAM FOR AN EXTENSION FORESTER

This last chapter contains general applications of farm forestry extension, a condensation of work done by other extension foresters which have application in Oregon, more specific applications as they appear desirable for use in Oregon, and opinions gained by the writer in studying this field of work.

In order to present this adequately, the chapter is divided into two parts, the first of which is termed concepts. These concepts are guiding principles which would aid the forester in forming a state program. The guiding principles are divided into those of a general nature and those having to do with state-wide concepts.

The second part contains a proposed state program which treats two phases of the state program, that of a general formulation, and that of a formulation by major projects. Work being done by other agencies is thus segregated by projects and is analyzed.

Guiding Concepts of the Program

General Concepts

In forming a state program, the forester would need to consider the more general concepts held regarding his position and the more specific principles applicable in this state. The general concepts may be described as follows:
1. The forester is mainly an educator and not a research man. He is concerned with sending on valuable information as it develops to farmers who will benefit by having this information. He will know of needs in research and can gather results of applied woodland management.

2. The forester must be concerned with the national views on farm forestry, in that it is first considered a farm problem, and secondly a forestry problem. The farm woodland is a productive unit of the farm, based on proper land use and economic principles. (102)

3. The effectiveness of his work can be measured by the amount of cooperation he extends to members of his own organization, and to the nucleus of assistance he can develop among other agencies and service groups.

4. In line with views of other extension foresters, he may stress the aids available to farmers in farm forestry more than advocate the actual management step (18). This viewpoint appears logical because he needs to cover the state as a whole, and were he to advocate plantings and management of all kinds, he might become involved in action programs rather than give emphasis to the educational program.

5. He should follow the principal objectives of the Extension Service in assisting the farmer to enjoy the highest economic, social, and political benefits.

6. The extension forester's range of activity should
be definitely located in the zone between farm forestry and forest farming. It would not be within his scope to assist commercial timber owners with management plans unless such activity assisted farm forestry.

7. The extension forester should have the personal qualifications which would fit him for such a position. He should be a technically trained forester and his academic training should give him a knowledge of extension methods, history and organization, rural sociology, journalism, and public speaking (65). A knowledge of timber values, cruising and scaling methods, and logging costs should have been gained through actual experience.

State-Wide Concepts

First among the state-wide concepts which would be followed by the extension forester are those having to do with the following out and forming of his program in harmony with existing extension programs. The basis for the work of the Extension Service in Oregon may be described as follows:

A large proportion of Oregon's income is derived from farms and farm products. This proportion is given added weight through rental value furnished farmers by farms, food and fuel value, value added by manufacture, and as a source of employment. Only a small proportion of the total farm production is consumed in Oregon. This condition calls for finding of markets outside the state, and understanding
of market trends, adjustment and outlook, and knowledge of market competition in other states, transportation facilities and marketing handicaps.

Necessity exists for efficient production and marketing practices on each farm under high scientific principles. Prevention of erosion and maintenance of fertility is also especially necessary because of marketing handicaps. (49)

A further knowledge of the state and national basis of the Extension Service's work would be necessary in an extension forester's program. Other concepts in connection with the Extension Service may be described as follows:

1. As a specialist in the state service, it is the forester's duty to keep the subject of farm forestry in the minds of rural groups and keep them informed about recent developments.

2. He must deal directly with the county agent who understands local conditions perhaps more closely than the specialist, unless the specialist is informed about particular local areas.

3. Since he may be the only forestry specialist working within the state service, he would be concerned with covering the state as a whole and as uniformly as possible. Special groups and specific areas would receive attention as the case warranted, since they would serve as proving grounds for farm forestry, or receive the highest benefits
from farm forestry.

4. He must strive for a well-balanced farm forestry program. The easiest educational approach may not be the best one to use.

5. He should know the goal of other subject-matter programs such as 4-H work, agricultural economics, etc.

The state-wide objective of the forestry program among all agencies concerned with forestry is to place lands chiefly suitable for the production of timber in the best condition for the continued production of timber. Maintenance of the lumber industry at a high rate of high grade, sustained production of lumber would come as a result of increased forest management. Communities and industrial centers are often developed around lumbering enterprises. It is therefore essential that the forestry business be evenly maintained. (13)

The lumber industry in common with the agricultural industry must find outside markets for many of the manufactured and raw products. Market trends, outside competition, transportation facilities, etc., must be understood. High grade timber is said to be the mainstay of the industry because lower lumber grades cannot stand distant shipment. It is important that high grade products be grown so that the industry can maintain itself.

A knowledge of the state forestry program is necessary to the extension forester, because farm woodlands comprise
a part of the general forestry picture. Markets must be found for farm woodland products, which the farmers by themselves probably could not develop. Also, the farm woodlands contain much second growth material, which is necessary for future lumber production.

Besides the concepts of a general nature, those specifically dealing with the extension concept, and the state forestry concepts, the forester must know the part delegated to him in the farm forestry program as it exists and as it may be further developed. This program delegates to him, in conjunction with the director of extension, the educational phase of farm forestry. He would need to keep informed about the progress in the state program as developed by separate agencies.

Concepts Affecting the Extension Forester's Program

First among guiding principles are land factors, which may be of a general nature and of a regional nature. A major assumption is that not all lands classified now as woodlands are adapted for the practice of woodland management. The farm forestry program advocated as a primary step in the management of woodlands a classification of timber growing lands, plow lands, and pasture areas. Management measures, it was stated, could then be applied to the lands relegated to woodland management. The classification work is to be done through state and county land
planning committees. (106)

Land factors must be judged by the extension forester, since they give him a basic index of lands available for management where he can best advocate farm forestry through educational approaches. These general and regional factors can be listed as follows:

1. The lands occupied by farm woodlands, pastured and unpastured, total three and one-third million acres, according to census figures. This estimate may not be valid since it is believed that it also includes marginal cutover and brush covered lands where "forest production is purely incidental or considered definitely detrimental because the owner's primary interest is in the development of grazing values." (25) This belief may be found to be correct since five times as many acres of woodland are pastured as unpastured.

2. The degree of grazing occurring on lands now classified as woodland is not known. Undoubtedly, a number of the total pastured woodlands are used concurrently for grazing, others may be used sparsely for forage yield. Were the lands segregated that are now classified as pastured, but yielding no forage value, more definite knowledge would be available about the lands suitable for woodland management.

3. The lands now classified as unpastured woodland and totaling 571,630 acres do not constitute woodlands that can be managed since a portion are growing on agricultural
land that is too valuable for the production of forest products.

4. Another general land factor which affects the lands available for farm forestry is the reduction or increase that occurs during varying periods of time. Between 1925 and 1936, pastured woodlands increased 29 per cent and unpastured woodlands increased 10 per cent. (52) This point emphasizes that while woodlands may decrease through better classification methods, they may also increase because of population changes. Furthermore, it is not known whether the increase is a sustaining or a temporary condition.

5. Costs of clearing the land now occupied by woodlands may inhibit a justifiable reduction. When economic conditions warrant, farmers may further reduce woodland acreage.

6. Land chiefly suitable for the production of farm crops does not exist in sufficient quantity for uses that do not yield the highest return.

Regional land factors can be enumerated in great detail, but the following points bring out those which have a general bearing on the extension forester's program. They elaborate on the general land factors above.

1. Land classification, if widespread, would indicate closely the farm woodlands which could be placed under management. Computations from a digest of county economic reports for 1938 show that a reduction in farm woodlands
would occur through clearing, burning and seeding to pasture, or addition to crop land.

In Linn county, the reduction would be 17 per cent; in Coos county, 7 per cent (not counting an estimated 150,000 acres to be cleared which exceeds the total census acreage of farm woodland in the county and possibly includes land outside farms); in Curry county, 11 per cent; in Lincoln, 6 per cent; in Tillamook, 10 per cent; and in Douglas county, 7 per cent (27).

These rough computations show the regional reductions that may occur through land classification. The farm forestry program recognized these regional land factors in locating the Clackamas farm forestry project.

2. Good agricultural land in Oregon is regionally located. For example, "It is generally acknowledged that only limited areas of undeveloped land in the coast and southern Oregon sections have soil types adapted for permanent agricultural use. The Willamette valley offers considerable further development opportunities." (106) On the basis of these regional factors, it can be expected that farm woodlands located on good agricultural land should not be advocated for the continued practice of farm woodland management, unless their present use is the best comparative use that can be expected.

3. Farm woodlands may be located on farms, the entire unit of which is sub-marginal and perhaps should be used
only for timber production.

4. As a regional example, the farm woodlands in the Willamette valley may be greatly reduced in acreage should proposed developments through irrigation, drainage and clearing be carried out. One author estimates that if this valley were properly irrigated with available water supplies, it could support nearly eight times the present population of the whole state (44). Developments that might occur are shown in the examples given below.

It is anticipated that in the Willamette valley project clearing will be done on 450,000 acres with 7,500 new farm units to be developed. Through irrigation and drainage, 1,800 new farm units of 40 acres each are anticipated. Through drainage and clearing, 2,500 new farm units of 40 acres each may be established. These new farm units suggested will be of the diversified fruit, truck crop, and poultry types. Altogether, if these suggestions are carried out, 622,000 acres will be put into farm units. (44)

"Limitations due to vegetative cover, topography, or inaccessibility to water make it improbable that more than half a million acres will be irrigated in this valley in the next generation.

"Clearing is economically feasible for the best stream-bottom and valley-floor soils. Areas of better soils including Chehalis, Newberg, Columbia, Willamette, Powell, and Hillsboro are now in brush and stumps; also areas of fertile soils with impeded drainage such as Wapato, Sauvie, and Clackamas need some clearing as well as drainage."
Eventually some of the well-located deep hill soils of smooth topography may be brought into cultivation by clearing. Perhaps a quarter million acres of river-bottom and valley-floor lands and a similar area of the better hill lands might be cleared eventually for agricultural use. Clearing has followed the line of least resistance and has been carried on mainly as a slack-time activity. The market for farm woodlot products has been and will be a factor. Erosive soils are essentially the hill group of sandstone origin."

These two examples indicate the reduction that might occur through irrigation, clearing, and drainage. Using the total farm woodland acreages of counties in the Willamette valley of 1,006,966 acres, and estimating that the reductions would total 500,000 acres, reductions might total 50 per cent in one of the most promising farm forestry fields in Oregon.

5. The place of farm woodlands in Oregon may be to occupy land too steep for cultivation, soils too poor for crop production, and other areas too difficult to work. Land worn out through improper cultivation may be used for timber production. (38) Farming if carried to stream banks may result in bank erosion. On a basis of soil ratings which place certain lands below the margin of cultivation, there are soil types within the Willamette valley which are suitable for the growing of farm timber.

6. The distinct contrast between eastern and western Oregon must be considered. Timber types, degree of settlement, scarcity of woodland products, distances of haul, etc., must be considered in evaluating land factors.
Besides these general and regional land factors, the extension forester must also consider attitude factors. Beliefs and attitudes of people through whom the forester works must be evaluated.

Attitude Factors

The forester should be able to estimate or evaluate the different attitudes existing among farmers, county agents, and other groups. These attitudes can be determined primarily through field contacts, meetings, or through educational approaches. Some of the general attitudes of the farmer have been stated to be as follows:

"Despite favorable growing conditions for wood products, the average farmer who may be a part-time agriculturalist, regards his woodland either as a stock pasture of fuel wood source and harvests his wood crop without regard to management and sustained yield." (106)

"Farmers in general have been uninterested and uninformed in simple basic principles of woodland management, and have made no effort to capitalize on a permanent basis their natural advantages in raising timber crops and marketing the woodland products. Vast numbers of farmers do not appreciate or recognize the potential source of income from their present wooded areas, nor realize that the profits they have obtained in the past from selling timber may be made a steady or recurrent source of income." (71)

"Farmers are realizing that some regulatory measures must be introduced because of education, decreased forage, decreased wood production, and increasing erosion of the soil." (69)

It is reported that farmers from ten counties in Oregon are beginning to ask all the agencies concerned with forestry for plan ideas and assistance in marketing
and managing valuable stands of trees remaining on their farms. (69)

Interest is reported among cooperators in the Clackamas farm forestry project. They are "taking special interest in planting black locust for needed post replacements on their farms. One cooperator is planting between 1,500 and 1,800 on two acres." "They are surprised to learn that they can take out small timber and use it for posts which when treated are as good or better than cedar posts and cost less." (32)

If the farmer in the past has been uninterested, or is just becoming interested, what are the reasons? Among the answers proposed is that the income from farm woodlands has not been sufficient to pay the farmer for his time and effort. His acreage must return a profit and the use that will give him the highest income is the one he is interested in, considering adaptability of soil and maintenance of fertility. (6) Another reason for a present attitude of being uninterested is that much of the land on which farm woodlands are now located are of too good a quality for the production of farm forest products. Woodlands satisfy a need for pasture on a portion of his farm, offer shade for stock, and are a source of posts or pole replacements. (62)

It has been stated that the farmer is not informed about profits that can be had from managing the woodland.
Another view of this is that the farmer is pretty well informed about prices obtained from woodland products, but the prices offered have not been inviting enough to induce management (62). In addition, the farmer has not been interested in woodland management because the practice was unfamiliar to him. He would rather care for crops about which he has knowledge. This has been true of benefit payments through the AAA. (23)

Whether these opinions and reasons for the farmer not practicing management are true or not should be investigated by the extension forester. The opinions range from total disinterest to active interest. If the reasons for disinterest are due to lack of information this condition should be remedied by the release of information. Non-existence of markets may be attributed to the farmer not knowing the uses for his woodland, or to a scarcity of markets, or to economic conditions which prevent the economical sale of woodland products. Educational approaches making the farmer better informed about woodland cutting practices would be a needed activity.

On a regional basis, the farmers' opinions may be found to vary. This was the case in findings of the state forestry program. The intensive project was located in an area where more interest was shown by county agents and farmers toward farm forestry. The program also recognized
that in the coast region indifference may exist in the
southern end and interest would be found in the northern
end of the coast area, due partly to the make-up and social
beliefs of the people living in the locality. In south-
eastern Oregon, reputedly low in woodland management possi-
bilities, a strong educational program would be necessary.
In the Columbia basin and pine belt, where conditions were
more scattered than in many other areas, considerable op-
portunity was believed to exist for a tree planting program.
(106) It is reported that farm woodland management is
economically feasible in Linn and Benton counties, but that
the problems would be in developing an interest in the work
and getting the practices started. The problems were not
forestry problems. (17)

Besides the general and regional attitudes of farmers
are those held by county agents and other groups. As with
the farmers' attitudes, these would have to be determined
through field contacts or meeting and working with county
agents. Agents' views may vary considerably by regions.
It is necessary that this attitude be determined because
the forester would promote his program in a large measure
through the county agent.

One agent views farm woodlands as of limited value
to the farmer in the valleys of western Oregon since wood
needed is so plentiful in the nearby natural forest land.
The farmer has no need for the production of wood on the
farm except as it offers a few replacements for use on his farm and as a stock shade. Land throughout much of the agricultural zone is believed more valuable for crop production. Clearing is recommended to increase the cash income from more valuable farm crops unless the cost of clearing is prohibitive. On steeper slopes, where soils are not adapted to crops, farm forestry is recommended. Woodlands which contain large size trees may be held for future sale.

This agent believed that in eastern Oregon there is an excellent field for woodland management to supply fuel material, fence posts, shade for stock, and erosion control. Black walnut and black locust were recommended as suitable for planting in western Oregon. (62)

This view may be found to be a general view held by many agents, or it may be found to change greatly according to localities. It may be found that more knowledge is desired by the county agent about forestry aims and practices. The educational program of the forester would include this phase, so that a mutual understanding could develop.

Agricultural agencies that may have as a part of their work improved farm woodland practices or land use studies would need information about farm forestry. Their present attitudes may be judged by working with them.
Summary

The first part of Chapter III deals with the state program of an extension forester, giving guiding concepts to use in formulating a state program for farm forestry extension. The concepts are those of a general nature and those of a state-wide nature.

The forest is mainly an educator, not a research man, but concerned with sending out valuable information as it develops. He should be concerned with seeing farm forestry as a farm problem, based on the best productive use of the farm as a unit. The effectiveness of his work may be measured by the amount of cooperation he extends. He is a technically trained forester and follows the major objectives of the Extension Service in assisting the farmer to enjoy the highest benefits possible.

First among state-wide concepts are those in connection with the extension programs of the state. He should understand and appreciate agricultural and extension problems. It is his duty to keep the subject of farm forestry in the minds of rural people. He deals with the county agent who understands local conditions perhaps better than the forester. Since he may be the only specialist working in the state on the subject, he is concerned with covering the state as uniformly as possible and developing a well-balanced forestry program in harmony with existing extension programs.
Concepts of the entire state forestry program would guide the forester. Problems of forestry would be problems of farm forestry in a large degree. He would need to keep informed on the progress in forestry. In the state farm forestry program, he would keep in mind the educational program delegated to him and the Extension Service. He would keep informed on progress made by all cooperating agencies.

Concepts as they would guide the extension forester's program are divided into land factors and attitude factors. Land factors need to be evaluated by the forester since they give him more basis for educational approaches. He needs to have knowledge of the lands suitable for farm forestry, lands in woodlands that might be cleared for agricultural production, reductions that might occur through land classification, and factors affecting the regional composition of Oregon.

Attitude factors occasion study by the forester. From a knowledge of opinions held by farmers, writers, and county agents, he can more readily determine whether interest is lacking because of lack of information, lack of markets, or because of the social make-up of the people. Desire for knowledge among groups and individuals must be determined and information released.

Land and attitude factors need analysis by the forester through field study, meetings and other educational work. This rather brief summary, including only a part of
the many guiding principles which may be illustrated, aids in forming a more specific state program. The following represents a rather skeletonized program that might be followed.

The State Program of an Extension Forester

This proposed program has two parts, one dealing with cooperation, procedures, objectives, and calendar of work, or the general formulation of the state program.

Cooperation

The greatest amount of cooperation would be given members of his own organization, the Extension Service. Members of the state staff could assist him in his program, and he may be able to render valuable aid to other specialists as they strengthen projects in his own field. Besides the regular extension field, he must be cooperative with agencies under the farm forestry program, and with departments such as farm management, farm security, land economics, etc. He is given the place as a specialist in forming land use programs and his viewpoints may be asked for by local land planning groups. Using cooperative suggestions listed in the tools of the extension foresters in Part I of this paper, he may acquaint service groups, trade organizations, youth organizations, lumber concerns, and fire protection associations with the program. If cooperative marketing associations develop, he may act as an advisor to them and
assist in formulation of their policies. Fairs and business places could be used as exhibit places. Through cooperative measures extended firms using farm woodland products, the forester may gain familiarity with the reputation of concerns using such products and assist in the marketing phase of the work.

**Extension Procedures Based on their Effectiveness**

A wide range of extension and publicity methods were employed by other extension foresters. Many of these could be used by the forester in Oregon. The yardstick applied in their use and the amount of each used would depend upon their relative effectiveness.

Extension foresters of other states stress the release of educational material based on economic data. This approach they believe most effective because the farmer wants to know what returns he can expect from an advocated management practice. For the same reason, marketing outlets should be stated along with management recommendations.

Besides the use of an economic approach, it is advocated that the entire farm forestry program take into account such items as wild life protection, the farm as a complete production unit, and the best combined use of all lands (12). Extension methods would be planned to cover all these items.

Extension methods commonly in use may not be effective when used for farm forestry. One author in reviewing accomplishments shows that demonstrations reach only a fractional
number of the farms having woodlands. He advocates a method of contacting woodland product buyers, having them formulate management rules encompassing farms from which the products are bought. (45) Farmers as a rule would not be expected to possess intimate knowledge of forestry practices, and the extension methods would necessarily cover all phases.

Table VIII presents the relative costs of different extension methods and their effectiveness. Cost is graded evenly down the chart and effectiveness placed in comparison.

Forestry ranks about average among extension subjects, but certain farm forestry phases may prove more difficult to promote than others. (165) The effectiveness sometimes depends upon the amount of reading done by groups or individuals, the training of the farmer and his age, the distance to farms, and road conditions. (94)

The use of any one extension method should depend largely upon time available to use the method based on its effectiveness. One proven method should be used in conjunction with minor methods which may not be so effective, but should satisfy the need for general farm forestry information.

More improved practices are reported among operator-owned farms than among tenant-operated farms (65). The forester would be especially concerned with ownership stability, since effects of forest management practices may not be ascertained until years later.
### TABLE VIII

**Relative Cost and Influence of Extension Methods**

(Cost Data from 17 States; Practices from 14 States)

<table>
<thead>
<tr>
<th>Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method Demonstration and Leader Training</td>
<td>19.65 20.49</td>
</tr>
<tr>
<td>Result Demonstration</td>
<td>17.28 8.06</td>
</tr>
<tr>
<td>Farm or Home Visits</td>
<td>13.68 15.45</td>
</tr>
<tr>
<td>General Meetings</td>
<td>10.48 18.05</td>
</tr>
<tr>
<td>Bulletins</td>
<td>6.16 8.65</td>
</tr>
<tr>
<td>Office Calls</td>
<td>5.37 8.38</td>
</tr>
<tr>
<td>News Service</td>
<td>4.60 12.82</td>
</tr>
<tr>
<td>Exhibits</td>
<td>4.20 .77</td>
</tr>
<tr>
<td>Correspondence</td>
<td>3.46 1.56</td>
</tr>
<tr>
<td>Extension Schools</td>
<td>2.61 .97</td>
</tr>
<tr>
<td>Circular Letters</td>
<td>1.27 2.53</td>
</tr>
<tr>
<td>Telephone Calls</td>
<td>1.11 .49</td>
</tr>
<tr>
<td>Study Courses</td>
<td>.71 1.19</td>
</tr>
<tr>
<td>Radio</td>
<td>.33 1.75</td>
</tr>
</tbody>
</table>

**Money Spent** | **Practices Adopted**
The method demonstration is a very effective extension procedure and accounted for 15 per cent of the practices adopted (65). It is believed especially good for forestry work because farmers can see the actual method used in managing woodlands and would become more familiar with forestry practices. Fire protection, tree marking, timber estimating, cutting and measuring fuel and pulp wood, are all good examples of method demonstrations.

Result demonstrations point out by means of local proof that a practice is beneficial and a desirable one to incorporate in the regular farm management program. They are heavy time consumers and need many checkings to secure yield data (94). If the farm is sold, the new owner may destroy the demonstration. Fire or floods may also nullify much effort and expense.

The forester in assisting to establish result demonstrations should ascertain that it will be permanent, at least until the results have been definitely established. One or two examples in an area may be sufficient to show nearby farmers the existing management demonstrations. Farmers sincerely interested in the venture can assist in keeping cost and yield records.

It is reported that few people put into effect the things observed at exhibits. This extension procedure is costly and a time consumer. Exhibit charts shown at lectures aid in an orderly presentation of the subject and differ from visual exhibits. (165)
Circular letters had the least total influence in the adoption of improved practices according to Table VIII (65). Since this table was prepared, extension workers have improved circular letters and this method is now reported as being effective in extending unfamiliar topics (64). One extension forester disclosed a method of contacting woodland owners by getting data from tax assessment rolls. Circular letters were sent out through the county agent to farmers having woodlands. (91)

Extension workers have increased the effectiveness of general meetings because methods used in holding meetings have improved. The group described would be a community meeting composed of 20 to 25 farmers, with every farmer contributing to the meeting. If a larger group is present, a reserve enters into the meeting. A round table talk is especially effective (7).

A wide variety of oral methods of extending forestry may be used. These include farm and home visits, office calls, meetings, field meetings, community meetings, farm and home weeks, tours, extension schools or short courses, telephone, and the radio. (65)

Objectives

A major objective of the program proposed is "to encourage proper land use in Oregon so that farm woodland management can be practiced where it would be beneficial to the farmer individually and to the farm situation in the state collectively."
The staff of the State Forester’s office lists as goals of farm forestry the following:

1. Insure that the proper species are planted with regard to soil type, soil moisture, drainage, elevation, climatic conditions, and cover types.

2. Insure proper location of plantings for windbreaks and to prevent erosion.

3. Help the Oregon farmers to increase the investment and revenue values of their lands through silvicultural methods administered by men thoroughly familiar with their use.

4. Correlate, where feasible, the relationship between wildlife, cover locations, and woodland plantings.

5. Promote the utilization of idle land in the state of Oregon. (69)

To the above points may be added the following:

6. Assist farmers in economically marketing their woodland products.

7. Encourage utilization of farm products for home use.

8. Form land use programs and supplementary programs as 4-H forestry and training forestry leaders.

9. Indirectly provide a source of employment.

10. Through cooperative marketing, assist in perpetuating local industries and community welfare.

11. Organize a complete farm plan along with definite plans for woodland management. (32)
Calendar of Work

A year's period would be divided among the major projects of marketing, farm woodland management, utilization, 4-H forestry program, land use programs, and training forestry leaders. In addition to these projects, meetings, preparation of visual aids, pamphlets on certain phases, and matters of general publicity would occupy time. All of these could be spread evenly over the twelve months period with the exception of tree planting demonstrations and publicity during fall and late winter months, and summer months occupation with 4-H summer camps and fire protection phases. Preparation of annual reports would come at the close of the year and time would have to be allotted for this.

Following this brief outline of the state program's formulation, major projects used are presented. Specific ways that might be used by the extension forester under each project have been outlined. They are presented in the order of their importance according to time spent on these projects by other extension foresters.

Formulation of the Program by Major Projects

Marketing of Farm Woodland Products

This project of farm forestry extension is the most important as revealed by the accounts of extension foresters working in other states. They believe the work is
as important as advocating farm woodland management, since there must be a marketing outlet and management must pay its way. They strive for increased income to the farmer and cite cases where the farmers have not received their just return for farm woodland products. By attending to this phase, other phases are encouraged.

Marketing is of special importance in Oregon, since so many of the farm and forest problems are based on the proper marketing of products. It is the crux of the farm forestry program, because in many areas of Oregon, marketing is an acute problem. Where trees are grown for aesthetic and protection purposes, marketing is not so important.

**Efforts to Date and Planned**

Marketing is further increased in importance in Oregon since so little attention has been given it to date. Outside the organized farm forestry project in Clackamas very few examples of assistance in marketing became known to the author. The importance of marketing is recognized in the farm forestry program for Oregon and a number of research projects have been outlined. In the statistical accounts of the Extension Service, Table X, appendix, there have not been any farmers following recommendations in the marketing of woodland products. Men working in connection with the intensive forestry project have gathered market information, and its release may give information that can be applied elsewhere.
Advantages in the Marketing of Woodland Products

Drummond, in his investigation showing the possibilities of farm woodland cooperatives in the Willamette valley, has found them to be good. His summary covers the following points:

1. They need not invest large amounts of money in processing plants as a sufficient number exist which can be utilized.

2. They can secure markets through marketing associations which they would be unable to get without cooperative arrangements.

3. A cooperative could get enough material to attract buyers, standardize products, get a top price for them, and offer a full line of products.

4. Transportation facilities exist which would give a cooperative farm forestry association an advantage in comparison with other timber-producing concerns. (24)

Disadvantages which may affect the organization of cooperatives may be:

1. Farmers lack hauling equipment and finances with which to market to the best advantage. (24)

2. Cooperatives may receive opposition from other forest owners and sawmill operators. (24)

3. Each individual would have a small amount of material to market. (91)

4. Infrequency of harvests and uncertainty of cutting
unless the farmer had entered into a definite business arrangement. (75)

5. Promiscuous use of fire, thus reducing the value of products. (75)

6. Overgrazing, to a degree which would affect the quality and quantity of products offered. (90)

7. Long haul, lack of markets and no concern to use products.

These advantages and disadvantages may be common to individual marketing of woodland products. Regions will differ markedly as to marketing advantages and disadvantages. Eastern Oregon is not so fortunate as western Oregon in having marketing facilities due to the scarcity of industries and population to absorb farm woodland products.

It is believed that a Christmas tree cooperative has excellent possibilities in western Oregon. Advantages of this type of work would be that the products are sold at a time of the year when extra income is desirable and other farm work has subsided. The trade in many cases is speculative, unorganized and wasteful. (97)

Cooperatives may be expected to have good application in Oregon at the present time. Their greatest usefulness may exist in the Willamette valley region, in the more centralized sections in southern Oregon, and along the coast region. Criteria to be used in forming cooperatives which
can be applied in Oregon are as follows:

1. Is there an economic need for a cooperative?

2. Is there a sufficient volume for economical operation?

3. Are local woodland owners willing to join such a cooperative?

4. How can it be financed? (SS)

Marketing Measures Proposed for the Extension Forester

These measures are condensed from measures used by other extension foresters, and some are derived from a study of this project. They are arranged in the importance that the writer believes to be applicable in Oregon.

1. Discourage the lump sum method of disposing of farm woodlands, and assist farmers to learn the value of their products.

2. When in line with good land use, the need arises for a farm woodland to be liquidated, assist the farmer in realizing the highest return.

3. Maintain a farm forest products market information service, assist in gathering marketing information which would have definite application, and aid in surveying possible markets.

4. Cooperate in the holding of method demonstrations in timber estimating and scaling and distribute information on scaling and measurement of farm woodland products. Sample
contract forms for the sale of products may be sent out as well as arrangements made for the purchase of scale sticks by farmers.

5. Contact buyers who would assist in marketing improvements and formulate business arrangements which will perpetuate farm woodland management.

6. Assist in the establishment of cooperatives for the marketing of farm products. These cooperatives may include only the sale of saw logs or diversified products. Under cooperative association promotion, a Christmas tree selling organization may be formed.

7. Assist in keeping cost records of marketing demonstrations.

8. In news notes, distribute information on sale prices received.

9. Assist in forwarding research needs on to research agencies.

10. Arrange for prizes to be given 4-H forestry members for completing a phase of marketing farm forest products, or to groups presenting papers on farm forestry.

The next major project of importance is that of farm woodland management. This project is linked very closely to the project just discussed, that of marketing, for management provides the products for marketing.

Farm Woodland Management

Classed equal in importance with the marketing project
is that of management. As used in this project, management
means the more specific ways and means of actually caring
for existing farm woodlands or establishing new ones. Under
broader interpretations of the term, all phases of farm
forestry may be included. Marshall gives this broader mean-
ing as follows: "This problem of forest management in-
volves more than raising the maximum amount of timber. . . .
Our problem . . . is to find how we may manage our forests so
as to realize their highest potentialities for the well-
being of mankind." (34)

The proper management of farm woodlands is important
for several reasons. One of these is that at present exist-
ing woodlands are not being managed to any measurable de-
gree. Farmers using proper management practices could pro-
duce higher valued products and receive a return from the
land in addition to a labor return. Proper practices are
important in another respect in that more production is
received.

"It has been shown in every forested region of
the country that properly executed thinnings which
give each tree the ideal amount of growing space will
speed up growth. Under intensive management, it is
possible to get about half again as much volume out
of a stand in which thinnings are made at regular
intervals as from an unthinned stand at maturity."
(77)

As an extension project, proper management of existing
stands is of major importance. Extension efforts to date
among all agencies accentuate one phase of management which
is the planting of trees for woodlots or protective purposes. The establishment of new woodlands appears to receive the major share of encouragement and the continued management of existing neglected ones is also emphasized. The Clackamas intensive project has started to develop interest among farmers in managing their present woodlands.

The proper steps of managing existing woodlands may not be known to the farmer. The technical measures necessary to place the woodland in productive condition are known to a large degree. A few of these measures are described in the following paragraphs. It is recognized that measures necessary for one farm woodland may not apply to another.

**Technical Measures Recommended**

Management measures advised are "stand improvement thinnings in immature stands of Douglas fir or in mixed types of hardwoods and conifers, or individual and group selection in old growth stands. Liquidation of capital investment in a commercial woodland by group or individual selection or clear cutting of a considerable area may be affected under methods that will dispose adequately of the slashing and provide a seed supply for cut over regeneration."

(56) Prunings may be employed to produce quality timber on trees below eight inches in diameter (167). By restricting cuttings to a balance between increment and cut, even small woodlots can be managed under sustained yield. (106) Tree
stands along the river banks in eastern Oregon should be cut lightly in order to prevent bank erosion in addition to a need for fire protection in both eastern and western Oregon. (69) "Lands which are relegated to forestry should be given complete fire protection, moderate grazing, and conservative cutting. Salvage of the dead and dying material should be the first management step." (106)

Grazing

Authorities differ on the extent of grazing which can be done in the woodlands of Oregon. One suggestion made is to not let overgrazing occur on the east side of the Cascades or destruction of pine seedlings will result. On the west side, where wood is more plentiful and grazing is practiced on many of the woodlands, light regulated grazing is not so harmful to the species. Trees below four inches in diameter should be excluded from grazing. "First ranking farm woodlands cannot be expected when overgrazing packs the soil, exposes the roots, destroys the usual herbaceous cover which affords tree food when decayed and which results in cut, bruised and browsed limbs and tops." (69)

It is pointed out in the farm forestry program that if woodlands in western Oregon composed of Douglas fir are fully stocked, properly spaced, and capable of producing good timber, grazing value is very scant. Conversely, firs which are spaced wide enough apart to allow grazing will not
be of a quality to enter favorably into timber production. "Present practices are detrimental to forest reproduction, and, if combined with fires as a brush reducing agency, ultimately will impoverish the forest soil. Western Oregon's grazing opportunities are not in the forest, but in open grass glades adjacent to forests. Broadleaves planted should be fenced temporarily to prevent injury to reproduction because of trampling by stock." (106)

Plantings

Erosion plantings in western Oregon are recommended only on restricted areas such as coastal sand dunes and where reburns have destroyed soil fertility or seed trees do not exist. Since Douglas fir is the predominating species planting variations are necessary in order to diversify the production. The species recommended for introduction would be red alder and black walnut for furniture, cottonwood for pulp wood located near pulp mills, Douglas fir for Christmas trees, and cascara for medicinal use. "Interest in these planting variations can be instilled by cooperative educational work in a farm forestry program." (106) Plantings for these specialized uses would be a feature for use in western Oregon.

Plantings in eastern Oregon are believed more necessary than plantings in western Oregon because of the distinct climatic differences. Woodlots, shelterbelts, windbreaks, and plantings for erosion control constitute an important
project of farm forestry in eastern Oregon. A great variety of trees are available for planting purposes in eastern Oregon. Plantings are recommended in eastern Oregon as they fulfill many uses for fuel, posts, poles and protection.

Research Measures Recommended

Priority for research projects were recommended as follows. While a much larger number were proposed, the following contain many proposals similar to those in the larger list.

1. A factual study of present use of farm woodlands.
2. Economic basis for forest use versus grazing use in coastal counties.
4. Relation of woodlands to farm economics and farm management.
5. Effect of domestic stock grazing in woodlands of certain kinds. (106)

Technical measures are widely varied. In putting them into effect, it must be remembered that they should be kept simple and technical terms avoided in the educational releases. (43) There are also advantages and disadvantages that exist concerning farm woodland management in Oregon. These are described below as those of a general nature and those of an eastern or western Oregon nature.

General Advantages

1. A topography advantage as the land is less steep than
on many commercial logging operation sites. Logging can be accomplished in many places where conditions are extremely favorable.

2. Farmers are usually without the pressure to liquidate the farm woodland, as contrasted to mills and logging companies holding only forested areas. During periods of depression, this situation may change, and the woodland would offer a means of supplying needed revenue.

3. Labor problems are minimized and the farmer can work on his woodland when other farm work has subsided.

4. Generally a lack of seasonal factors interfering with management of farm woodlands, thus management measures can be applied with less weather hindrance than on a number of commercial concerns.

5. They can secure planting stock at a price near the cost of production.

6. Not so much care need be exercised nor expense incurred in slash disposal. There is a possibility of utilizing large parts of slash.

7. Besides a possible revenue, woodlands may offer a means of erosion control, windbreaks, shelterbelts, and improvement of soil fertility. (38)

8. In many cases the farmer possesses an initial growing stock which can be managed without the need of waiting until planted woodlands reach marketable size. (13)
9. Advantage of utilizing idle acres for an additional return which may not be realized in other uses.

10. Advantage of growing timber for posts and pole replacements for the individual farm, thus saving cash expense.

11. Possibility of home treatment of posts and poles of less durable wood to insure longer life.

12. Increasing remoteness of other timber, the longer distance of haul, and depletion of stands near farming communities. (77)

General Disadvantages

1. Cutting immature stands and realizing only a labor return. These immature stands when managed may return a timber value as well as a labor return.

2. Attitudes which do not consider the opportunities for woodland management, holding that farm land should only serve an intensive use.

3. Promiscuous grazing where no forage value exists and failure to fence new plantings effectively.

4. In some areas, farm woodlands may not pay farmers a return because of a poor situation or lack of markets. It would possibly be hard to show where utilization of products for home purposes would warrant management practices.

5. Cutting high grade material for fuel wood, when a higher return might be expected through market investigations and use by forest industries.

6. Release of low grade lumber by commercial concerns
at a price which would not pay the farmer to grow timber.

7. Present low standards of forest management.

Western Oregon Advantages

1. A fast growth rate. In the Clackamas project, it was stated that the "larger number of the farm woodlands are producing from three-fourths to a cord of wood an acre a year, and that many of the second growth stands contain trees that are or will be merchantable in a few years as poles, piling, fuel wood, etc." (32)

2. A large timber volume per acre if Douglas fir is the predominating species.

3. The growing reliance of manufacturers on second growth stands. "Almost without exception, this means stands of rather limited area, such as are owned by individuals, rather than by corporations." (77)

4. "Industries that can absorb considerable material as they develop beginning with ages from 40 to 60 years for pulp wood, poles, piling, posts, etc." (13)

5. "Territory required to yield sufficient timber on a management basis to support a prosperous community is relatively small as compared to other sections of the country." (75)

6. The opportunity for caring for and growing highly diversified products. (106)
Western Oregon Disadvantages

1. Competition with low prices which are now offered in the sale of county-owned timber and timber owned by individuals who desire to dispose of their lands at any price which the market will offer.

2. Because of the fuel wood market, clear cutting without the reliance upon thinnings to supply fuel wood.

3. Excessive carrying charges that may cause stumpage investment to double in ten years time. This is true of commercial forest lands. (52) Further investigation is needed to determine whether this is true of farm forest lands.

4. A responsibility for fire protection if the farmer owns a particularly hazardous woodland area, or if the area is near an operation which presents a risk (20).

5. The fact that if low quality products are to be produced, a great deal of revenue may not be expected. "If the supply of high quality timber is allowed to diminish, there is no escaping the conclusion that a large proportion of the foreign market and most of the remote domestic markets will be lost. Lower grades of lumber cannot stand distant shipment." The southern pine region can produce lumber more economically. (15)

Eastern Oregon Advantages

1. Many of the general advantages listed are applicable
to eastern Oregon. In addition, an advantage would be in the saving of a long haul to markets where replacements can be bought.

2. The advantage of utilizing farm woodland products for fuel on the farm.

**Eastern Oregon Disadvantages**

1. The non-existence of markets in most of the area, or the cost of shipment such as to be prohibitive.

2. Scattered conditions making demonstrations difficult.

In many cases extensive extension procedures would be necessary.

**Measures Proposed for the Extension Forester**

1. In informational releases, assist farmers to know the condition of the stand, and the necessity of leaving a residual stand for future cutting on lands suitable for farm woodlands.

2. Provide sufficient information about the aids available for the desired groups.

3. Assist in holding method demonstrations, and arrange for farmers to keep results of demonstrations on existing stands.

4. Sending on to farmers the results of farm woodland management as developed by the farm forestry project in Clackamas county.

5. Inspection of plantings made both by farmers and by other agencies, so that information can be distributed on
adaptability of species to site conditions, and about the
mistakes commonly made in planting.

6. Assist the state forest nursery by noting survival
and use of seedling stock by farmers.

7. Keep cost records of good or bad examples of farm
woodland management.

8. Collect photographs, etc., which will show effective-
ly the necessary farm woodland management measures.

9. Incorporate method demonstration results in news
letters.

10. Cooperate with fire prevention associations in
reducing fire hazards and assisting in protection plans.

Utilization of Products for Farm Needs

The project of assisting farmers to utilize farm
woodland products for home needs is of prime importance
in some areas of Oregon, since market outlets for products
are not available. Were this field to be investigated more
closely, it might be determined that farmers in this state
are similar to those of other states in that they do not
utilize their woodlots for replacements, repairs, and con-
struction. A certain amount of this usage is conducted,
but it could be increased.

Utilization of home grown timber for their own use
would result in considerable cash saving. According to
Tables XIII and XV in the appendix, Oregon farmers bought
over three and one-half million dollars worth of forest
products in 1937. In this same year, nearly one and a half million dollars worth of products was sold by farmers and an equal value was grown and used. It is believed that through proper utilization more products could be grown and used.

In 1938, 47 farmers followed wood preservation recommendations of county agents in the state Extension Service, and in 1939, 66 farmers. (81) (5) The School of Forestry, the U. S. Forest Service, and the State Forester's office have assisted in releasing information on the preservative treatment of wood. A bulletin which explains methods of home preservative treatment is now in the process of publication. Cooperators in the Clackamas intensive project are interested in using Douglas fir for posts, which when treated are as good or better than cedar and cost less. (32)

**Assistance in Utilization by the Extension Forester**

1. Through additional educational releases, provide information on preservative treatment of posts, poles, etc., by simple methods which can be used on the farm.

2. Release news notes on new wood-burning stove, portable mills, etc., that will assist in utilizing products from farms.

3. Encourage nearby mills to cut lumber for use by farmers cooperatively or to encourage barter and trade where mills and markets do not exist.

4. Promote the use of inferior trees, weedings, cuttings for fuel wood, and minor home uses.
Land Use Program

Ranking high in importance would be assistance in land use programs. The importance ascribed to it by other extension foresters is that by developed land use programs, farm forestry can be built into a sound and permanent feature of agriculture. The forester would follow land use recommendations closely because they give him a close index of the lands available for farm woodland management. His work would be composed of assistance in planning for educational action after the program has been adopted and approved, as well as giving advice when asked for by planning groups. Items followed by the forester could be:

1. Having his work approved by state and county land use committees where permanent woodlots were to be managed.

2. Furnishing facts on farm forestry which can be used by land planning groups in studying the problems.

Farm Forestry in the Agricultural Conservation Program

The needs and provisions of this project have been adequately described under the work of the agency administering the program. Educational efforts have been inadequate in informing the farmer about the necessary practices for benefit payments. The extension forester could further the educational work and recommend practices which could be incorporated in the state specifications. As used in other states, the provisions may provide for the extension forester approving the application, thus giving the opportunity
to check compliance and explain farm woodland management. Also, county committees could be furnished with order blanks and with information about tree planting now available to farmers.

4-H Forestry Program

As shown by statistical records (Table X, appendix), the amount of activity in forestry work by 4-H clubs is considerable and perhaps outweighs other activities by the Extension Service. Foresters in other states record heavy programs in 4-H work, since it offers many advantages in promoting farm forestry. These benefits promulgated are apparent in that 4-H work offers an easy approach to contact the woodland owner indirectly as club members take home the teachings in club work, accomplishes what otherwise could be done only on a small scale, and benefits 4-H club members. (10)

The 4-H forestry program is in the process of revision. When the new program is adopted, it can be expected to be more inclusive, and probably will be tied into the state program for farm forestry.

To the writer, however, this project represents a sort of unbalanced project as other phases of farm forestry extension have not been simultaneously cared for. He could aid in rounding out this program by:

1. Developing visual aids and references that can be used by 4-H club members in regularly outlined projects,
and courses to be followed at summer camps and meetings.

2. Assist in preparing a booklet for the use of club members explaining the entire farm forestry program.

3. Assist in securing nursery stock for 4-H clubs.

4. Arrange for tours through sawmills, forests, experimental areas, etc., by organized club groups.

5. Assist in the location of summer camps, arboretum sites, planting sites, etc.

6. Hold and arrange for 4-H demonstrations on cruising, estimating, thinning and cutting practices.

Training Forestry Leaders

In reviewing the work accomplished in training forestry leaders besides 4-H groups, we find that little accent has been placed on this project. It is important for a furthering of the entire program as cooperative resources will be established to carry on the work. Others can undertake more localized features of farm forestry. Leaders need to keep informed about the progress and approaches that are being used. The forester could assist this program by:

1. Supplying information to county agents in the form of news notes which would give this agent more facts and information about the entire program for farm forestry.

2. Whenever feasible, go on tours with the county agent and come to mutual understandings about phases of farm forestry.

3. Give talks at meetings of agents and leaders.
4. Offer conservation courses and publicity to teachers in rural areas where woodlands available for management are situated.

5. Acquaint leaders or committeemen in other agencies about farm forestry goals.

The training of forestry leaders is the last major project we shall consider. It may be that other major projects can be developed, but they would be points under the six described above. Since the proposed state program is a summary in itself, major points of this section of Chapter III are contained in the conclusions for Part II of this paper.
Farm forestry extension in Oregon is in a process of formation. A program has been outlined which divides responsibility to those agencies which can advantageously handle the work assigned to them. The intensive farm forestry project organized in Clackamas county seems to be organized under very inclusive objectives and it is expected that the thorough work being undertaken will give much additional information about the practice of farm forestry. There is a fear, however, that work on the project will be overemphasized and broader extension phases covering the state will be neglected.

Forestry educational work now being done by the Extension Service is considered remarkable when it is noted that no organized project is in existence. There is probably too great an accent towards the project of 4-H forestry and the giving of planting recommendations. A thorough program is needed to complete the program from planting of new woodlands through the marketing of farm woodland products from existing stands.

There is a need for an extension specialist in forestry to work under the supervision of the Extension Service. Management and marketing practices necessary to put more farm woodlands in a productive condition are known, but the proper information is not being extended to the farmers.
Farmers and groups concerned with planning the most efficient use of the land in farms need to know more about farm forestry. Farm woodlands can then be liquidated or managed on a more equitable basis. At present, farm forestry extension in Oregon lacks specific direction. The extension forester is needed to coordinate the present disorganized program.

Reviewing the farm forestry extension situation in Oregon as a whole, there is a need for someone or some group to act in the zone between research and application of farm forestry by farmers. The extension field can be filled by the extension forester. This person can gather results of applied farm forestry from the farmer and send such data on to possible beneficiaries through efficient extension methods. Carried on in conjunction with this extension work should be a provision to accumulate results of plantings, management and marketing throughout the state. Examples of managed woodlands can then be used in future farm forestry extension.

In preparing the proposed program for an extension forester, it became obvious to the writer that thorough knowledge about Oregon's farm forestry needs could not be gained through interviews or recorded data. To form an authentic extension forester's program would necessitate field work and much further study. Were there an authorized forestry program, more facts would be available. Through
close contact with members of the Extension Service, the effectiveness of extension approaches would be more certain.
FURTHER STUDIES RECOMMENDED

During the preparation of this paper, the writer thought of a number of investigations which would aid in clarifying the status of farm forestry in Oregon and would assist farm forestry extension. They are listed below.

1. Further work with land use programs in determining the land adaptable for farm forestry.

2. A study investigating the present marketing of farm woodland products.

3. Development of a system of tagging and cooperatively marketing Christmas trees.


5. Preparation of a farm forestry booklet for use by 4-H members.

6. Investigation of the prices paid and practices used in the marketing of cascara bark.

7. A study of prices paid farmers for their farm woodland products versus the prices paid commercial concerns for the same products during the same period.

The writer believes a study investigating the possibilities for county foresters in western Oregon would be very worth while. Counties are rapidly coming into possession of all kinds of forest lands, ranging from brush lands to lands having old growth timber stands. It is often the desire of the county courts to place this land
on the tax rolls as quickly as possible. In the opinion of the writer, this process has been sometimes unwise, hasty, and costly for the taxpayer, since the money received by the counties has not equaled that commonly received in the sale of many commercial tracts. Not being forest land managers, county commissioners are confronted with going into the real estate business against their wishes. Considering the number of county officials employed by the counties in other fields and comparing with the revenue, problems, diversion of duties, etc., caused by the forest land sale business, there appears to be a need for county foresters in western Oregon.

Whether there is a need for such an agent could be discovered by investigating the present prices received from the sale of county-owned forest lands and the timber sale practices in effect. A properly formed questionnaire could be sent to the county courts and followed by an interview program with county officials in forested counties. Land sales may bring out conclusive facts about sale practices in effect.
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APPENDIX
EXHIBIT A

THE COOPERATIVE FARM FORESTRY ACT

(NORRIS-DOKEY BILL)

(103)

An Act, To authorize cooperation in the development of farm forestry in the States and Territories, and for other purposes.

"Be it enacted by the Senate and House of Representatives of the United States of America and Congress assembled, That in order to aid agriculture, increase farm-forest income, conserve water resources, increase employment, and in other ways advance the general welfare and improve living conditions on farms through reforestation and afforestation in the various States and Territories, the Secretary of Agriculture is authorized in cooperation with the land grant colleges and universities and State forestry agencies, each within its respective field of activity, according to the statutes, if any, of the respective States, wherever such agencies can and will cooperate, or in default of such cooperation to act directly, to produce or procure and distribute forest trees and shrub planting stock; to make necessary investigation; to advise farmers regarding the establishment, protection, and management of farm forests and forest and shrub plantations, and the harvesting, utilization, and marketing of the products thereof; and to enter into cooperative agreements for the establishment,
protection and care of farm or other forest land tree and shrub plantings within such States and Territories; and, whenever suitable Government-owned lands are not available, to lease, purchase, or accept donations of land and develop nursery sites for the production of such forest planting stock as is needed to effectuate the purposes of this act, but not including ornamental or other stock for landscape plantings commonly grown by established commercial nursery-men, and no stock grown in Government and cooperating nurseries shall be allowed to enter regular trade channels. No cooperative reforestation or afforestation shall be undertaken pursuant to this act unless the cooperator makes available without charge the land to be planted. There is hereby authorized to be appropriated annually not to exceed $2,500,000 for carrying out the purposes of this act, which shall be known as the Cooperative Farm Forestry Act.
## TABLE IX

### SUMMARY OF FOREST PRACTICES UNDER THE AGRICULTURAL CONSERVATION PROGRAM FOR 1939 (67)

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<thead>
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**U. S. Total**: 60,976, 150,755, 69,988, 28,144, 48,201, 358,064
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<td>Number of other meetings held</td>
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<tr>
<td>Number of 4-H girls completing</td>
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<td>Number of 4-H club girls not in special project clubs who participated in forestry activities</td>
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<td>Number of acres thinned, weeded, pruned or managed by 4-H club members completing</td>
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<td>Number of acres of farm woodland protected from fire by 4-H club members completing</td>
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<td>Number of farms on which new areas were reforested by planting with small trees</td>
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<td>Number of farmers planting windbreaks or shelterbelts</td>
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<td>Number of farmers planting trees for erosion control</td>
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### TABLE X (CONTINUED)

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<td>Number of farmers practicing selection cutting</td>
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<td>Number of farmers pruning forest trees</td>
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<td>Number of farmers cooperating in prevention of forest fires</td>
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<td>Number of farmers assisted in timber estimating and appraisal</td>
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<td>Number of farmers following wood-preservation recommendations</td>
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<tr>
<td>Number of farmers following recommendations in the marketing of forest products</td>
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### TABLE XI

**LAND IN FARMS OF OREGON**

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### TABLE XII

**TOTAL VOLUME FARM FOREST PRODUCTS USED AND SOLD IN OREGON DURING 1937**

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<tr>
<td>Sawlogs M Board Feet</td>
<td>64,672</td>
<td>Feet</td>
</tr>
<tr>
<td>Ave. per farm</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Poles</td>
<td>47,328</td>
<td></td>
</tr>
<tr>
<td>Ave. per farm</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>Pulpwood, Cords</td>
<td>8,796</td>
<td>Cords</td>
</tr>
<tr>
<td>Ave. per farm</td>
<td>.14</td>
<td></td>
</tr>
</tbody>
</table>
TABLE XIII

FOREST PRODUCTS SOLD FROM OREGON FARMS IN 1937

QUANTITY, UNIT PRICE AND TOTAL VALUE

(101)

<table>
<thead>
<tr>
<th>Posts</th>
<th>Number</th>
<th>Price</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$0.09</td>
<td>$32,735</td>
</tr>
<tr>
<td>Fuelwood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cords</td>
<td>363,720</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>$3.16</td>
<td></td>
<td>$1,143,361</td>
</tr>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standing Timber</td>
<td>64,672</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M Board Feet</td>
<td></td>
<td>$1.89</td>
<td>$122,230</td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saw Logs</td>
<td>20,347</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M Board Feet</td>
<td></td>
<td>$2.53</td>
<td>$51,478</td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poles</td>
<td>47,328</td>
<td>$0.84</td>
<td>$39,756</td>
</tr>
<tr>
<td>Number</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulpwood</td>
<td>8,759</td>
<td>$4.39</td>
<td>$38,610</td>
</tr>
<tr>
<td>Cords</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Products</td>
<td></td>
<td>$55,750</td>
<td></td>
</tr>
<tr>
<td>Total Products Sold</td>
<td>$1,483,920</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE XIV

FOREST PRODUCTS GROWN AND USED ON OREGON FARMS IN 1937 (101)

<table>
<thead>
<tr>
<th>Product</th>
<th>Units</th>
<th>Price</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumber</td>
<td>M Board Feet</td>
<td>8,200</td>
<td>$125,000</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>$.15</td>
<td></td>
</tr>
<tr>
<td>Shingles</td>
<td>Thousands</td>
<td>2,701</td>
<td>$6,509</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>$2.41</td>
<td></td>
</tr>
<tr>
<td>Posts</td>
<td>Number</td>
<td>2,153,077</td>
<td>$191,977</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>$.99</td>
<td></td>
</tr>
<tr>
<td>Fuelwood</td>
<td>Cords</td>
<td>366,315</td>
<td>$1,157,555</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>$3.16</td>
<td></td>
</tr>
<tr>
<td>Other Products</td>
<td>Value</td>
<td>$103,073</td>
<td></td>
</tr>
<tr>
<td>Value Total Products Grown and Used</td>
<td></td>
<td>$1,582,114</td>
<td></td>
</tr>
</tbody>
</table>
**TABLE XV**

<table>
<thead>
<tr>
<th>Product</th>
<th>1929</th>
<th>1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumber, 100 board feet</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Price</td>
<td>$12.50</td>
<td>$18.75</td>
</tr>
<tr>
<td>Value</td>
<td>$1,250</td>
<td>$1,875</td>
</tr>
<tr>
<td>Shingles, 100,000 thousand</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Price</td>
<td>$4.50</td>
<td>$5.00</td>
</tr>
<tr>
<td>Value</td>
<td>$450</td>
<td>$500</td>
</tr>
<tr>
<td>Posts, 2,000 number</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Price</td>
<td>$0.10</td>
<td>$0.10</td>
</tr>
<tr>
<td>Value</td>
<td>$200</td>
<td>$200</td>
</tr>
<tr>
<td>Fuelwood, 1 million cords</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Price</td>
<td>$4.00</td>
<td>$4.00</td>
</tr>
<tr>
<td>Value</td>
<td>$20,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>Other products</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Total products bought</td>
<td>6,930,522</td>
<td>6,888,000</td>
</tr>
</tbody>
</table>

**TABLE XVI**

<table>
<thead>
<tr>
<th>Products</th>
<th>1929</th>
<th>1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poles, 2 million lineal feet</td>
<td>300,000</td>
<td>300,000</td>
</tr>
<tr>
<td>Felling, 1 3/4 million lineal feet</td>
<td>150,000</td>
<td>150,000</td>
</tr>
<tr>
<td>Fuelwood, 1 million cords</td>
<td>5,200,000</td>
<td>5,500,000</td>
</tr>
<tr>
<td>Fence posts</td>
<td>227,000</td>
<td>250,000</td>
</tr>
<tr>
<td>Pulpwood</td>
<td>873,000</td>
<td>468,500</td>
</tr>
<tr>
<td>Hewn ties and timbers</td>
<td>34,000</td>
<td>40,000</td>
</tr>
<tr>
<td>Shingle bolts</td>
<td>7,622</td>
<td>8,000</td>
</tr>
<tr>
<td>Excelsior Bolts</td>
<td>17,500</td>
<td>18,000</td>
</tr>
<tr>
<td>Mine Timbers</td>
<td>10,400</td>
<td>11,000</td>
</tr>
<tr>
<td>Cascara Bark</td>
<td>135,000</td>
<td>140,000</td>
</tr>
<tr>
<td>Totals</td>
<td>6,930,522</td>
<td>6,888,000</td>
</tr>
</tbody>
</table>
### TABLE XVII

PERCENTAGE OF OREGON CASH FARM INCOME FROM COMMODITIES, 1926-1935 (50)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk Production</td>
<td>18.1</td>
</tr>
<tr>
<td>Sheep, Lambs, Wool</td>
<td>11.0</td>
</tr>
<tr>
<td>Cattle and Calves</td>
<td>10.2</td>
</tr>
<tr>
<td>Chickens and Eggs</td>
<td>6.3</td>
</tr>
<tr>
<td>Hogs</td>
<td>4.4</td>
</tr>
<tr>
<td>Horses and Mules</td>
<td>.4</td>
</tr>
<tr>
<td>Mohair</td>
<td>.1</td>
</tr>
<tr>
<td>Wheat</td>
<td>15.3</td>
</tr>
<tr>
<td>Hay</td>
<td>3.7</td>
</tr>
<tr>
<td>Hops</td>
<td>3.5</td>
</tr>
<tr>
<td>Truck Crops</td>
<td>3.2</td>
</tr>
<tr>
<td>Potatoes</td>
<td>2.9</td>
</tr>
<tr>
<td>Oats</td>
<td>1.5</td>
</tr>
<tr>
<td>Barley</td>
<td>.6</td>
</tr>
<tr>
<td>Clover Seed</td>
<td>.5</td>
</tr>
<tr>
<td>Corn</td>
<td>.2</td>
</tr>
<tr>
<td>Rye</td>
<td>.1</td>
</tr>
<tr>
<td>Alfalfa Seed</td>
<td>.1</td>
</tr>
<tr>
<td>Small Fruits</td>
<td>3.9</td>
</tr>
<tr>
<td>Apples</td>
<td>3.7</td>
</tr>
<tr>
<td>Prunes</td>
<td>2.7</td>
</tr>
<tr>
<td>Pears</td>
<td>2.0</td>
</tr>
<tr>
<td>Cherries</td>
<td>1.2</td>
</tr>
<tr>
<td>Greenhouse Products</td>
<td>.9</td>
</tr>
<tr>
<td>Walnuts</td>
<td>.5</td>
</tr>
<tr>
<td>Nursery Products</td>
<td>.4</td>
</tr>
<tr>
<td>Peaches</td>
<td>.2</td>
</tr>
<tr>
<td>Apricots and Plums</td>
<td>--</td>
</tr>
<tr>
<td>Farm Forest Products</td>
<td>2.5</td>
</tr>
<tr>
<td>Federal Lands</td>
<td>All Lands</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Public domain 13,343,387</td>
<td>Federal 32,029,067</td>
</tr>
<tr>
<td>National forests 13,734,482</td>
<td>Private 25,883,038</td>
</tr>
<tr>
<td>Reserved public lands 3,205,001</td>
<td>County 1,778,273</td>
</tr>
<tr>
<td>Indian lands 1,497,246</td>
<td>State 1,463,485</td>
</tr>
<tr>
<td>Misc. Federal lands 248,951</td>
<td>Municipal 34,617</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>State Lands</td>
<td>Private Lands</td>
</tr>
<tr>
<td>Grant lands 692,580</td>
<td>Farm lands 17,357,549</td>
</tr>
<tr>
<td>Roads 344,160</td>
<td>Forest lands 7,404,938</td>
</tr>
<tr>
<td>Farm lands 244,543</td>
<td>Non-forest lands (non-farm) 1,120,552</td>
</tr>
<tr>
<td>Other lands 162,968</td>
<td></td>
</tr>
<tr>
<td>State parks 19,234</td>
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</tr>
<tr>
<td></td>
<td>Totals</td>
</tr>
<tr>
<td></td>
<td>Federal 32,029,067</td>
</tr>
<tr>
<td></td>
<td>All Lands 61,188,481</td>
</tr>
<tr>
<td></td>
<td>State Lands 1,463,485</td>
</tr>
<tr>
<td></td>
<td>Private Lands 25,883,038</td>
</tr>
</tbody>
</table>