NORTH CAROLINA

AGRICULTURAL EXTENSION SERVICE

ANNUAL REPORT

for

1960.

Period covered: December 1, 1959 to November 30 1960.

Name of Project: Farm Forestry Extension Work

Covering work done by J. L. Gray, In Charge, Forestry Extension*; W. M. Keller, Acting, In Charge, Forestry Extension*; and Forest Management Extension Specialists W. M. Stanton, R. S. Douglass*; J. C. Jones*, John Gilliam, E. M. Jones*, Leonard Hampton, Fred E. Whitfield. Work of W. E. Keppler, Head, Wood Products Section; L. H. Hobbs, Wood Products Extension Specialist; and W. T. Huxster, Wood Products Extension Specialist, covered in separate report.

Percentage of time devoted to project: 100

Date Submitted: January 19, 1961. Signed: Walter M. Keller
Project Leader

Date Approved: _____, 196__. Signed: _____
Asst. State Director of Extension Work

Date Approved: _____, 196__. Signed: _____
Director of Extension Work, U. S. Department of Agriculture

* See Page 19A of report.

ANNUAL REPORT

FARM FORESTRY EXTENSION WORK

NORTH CAROLINA

December 1, 1959 - November 30, 1960, Inclusive

W. M. Keller, Acting, In Charge, Forestry Extension
J. C. Jones, Forestry Extension Specialist

David S. Weaver, Director

N. C. Agricultural Extension Service
N. C. State College of Agriculture and Engineering
of the University of North Carolina
and
U. S. Department of Agriculture, Cooperating

State College Station
Raleigh, N. C.

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FARM FORESTRY EXTENSION WORK

NORTH CAROLINA

W. M. Keller, Acting, In Charge, Forestry Extension
J. C. Jones, Forestry Extension Specialist

I. Results or Accomplishments by Major Work Phases

A. Tree Planting

Forest Management Extension staff members devoted about 10% of their time to tree planting in 1960. The end of the Soil Bank Conservation Reserve program during 1959, no doubt, was a major factor in the reduction from previous years of the percentage of work time spent on planting. Another factor was the discontinuation of county extension personnel handling of several free seedling offers by industry. Most of the larger free seedling programs are now handled directly by industry representatives. County extension agents play only an indirect part by informing adults and 4-H of the available seedling offers. Not all counties receive free seedlings since the selection of counties to receive free seedlings is made by the donors.

The following counties placed orders on special extension tree seedling applications for one million or more seedlings:

Anson -----	2,382,000
Halifax ---	1,282,000
Scotland --	1,083,000

Richmond County extension agents estimate, as shown on Exhibit A, that 2 million seedlings were planted in that county through their efforts, although 409,000 were ordered on extension applications. This discrepancy is due mostly to special free seedling offers where seedlings are not ordered on extension blanks or other promotional efforts by extension personnel, resulting in seedling orders on other than extension blanks. Likewise, Rutherford County agents estimate that they placed 1,172,500 seedlings, but the official extension order-blank total is 997,500. The difference of figures in Halifax County is the result of distribution of seedlings by Halifax Paper Company directly from their supplies to landowners with no application blanks involved.

There is no reasonably accurate list of tree planting machines available in North Carolina. Industries, banks, radio stations, farm implement dealers, and others, in addition to individuals who own planting machines, have made machines available in practically every section of the state where they can be used successfully. There are also a large number of contract tree planting crews operating in North Carolina, probably over 100.

The Appalachian Lumbermen's Association sponsored a tree planting contest in the mountain area. Buncombe County won the $100 prize.

Free seedling offers were as follows:

County	Donor	Terms
Person	Peoples Bank of Roxboro in cooperation with Pat Brown Lumber Company	Up to 5,000 free to adults. Up to 1,000 free to 4-H members.
All counties where company buys wood (about 50)	North Carolina Pulp Company	Up to 1,500 free to 4-H members
All 35 counties in which company buys wood	Halifax Paper Company	Up to 2,000 free to 4-H members. Up to 10,000 free to adults on matching basis.
Rockingham	Lumber industry	No limit specified
Jackson and Macon	Mead Corporation	500 free to adult or 4-H member
Graham	Bemis Lumber Company	No limit on amount specified
Haywood, Madison, Buncombe, Henderson	Champion Paper & Fibre Company	1¾ million total to 4-H and adult
Mitchell	Clinchfield Railroad Company	Free seedlings to 4-H members, limit unknown

B. 4-H Forestry

Members of the management section devoted approximately 12% of their total work time to the 4-H phase of the program.

During the year most of the counties used a forestry subject at one of their regular monthly meetings or some special training meeting. Thus, 10,258 4-H Club members and 320 adult leaders received definite instruction in forestry from extension workers. This represents a decrease in meetings, but this could be easily accounted for by the fact that there is increased resistance in schools to meetings of 4-H Clubs. Then, too, there are many new agents who have not had the opportunity to receive training in forestry.

Four-H Club members completed forestry projects and turned in records from 99 counties of the state. There were 8,016 club members enrolled in forestry projects, with 4,657 projects completed. This represents about the same number of completed projects for the previous year.

Thirty-four counties of the state had representatives entering the demonstration phase of the 4-H Club program. All six extension districts declared a winner, and each winner received an expense-paid trip to 4-H Club Week held in July at North Carolina State College in Raleigh. The six district winners entered state competition during 4-H Club Week. The Tyrrell County team won, for which they received wrist watches as prizes.

The sixth annual 4-H Forestry Camp, held at Camp Millstone, August 15 to 20, was attended by 92 delegates from ninety counties. These boys were selected by extension workers on the basis of previous interest or activities in forestry and their ability to serve as forestry leaders in their local communities upon their return from camp training.

To increase interest and attention during camp instruction periods, prizes were offered for highest grades on the end-of-the-week examination. The prize for the top grade at the camp was won by Bill Patrick from Currituck County.

Two assistant county agents were selected from each extension district to attend camp as counselors. Those attending were:

David Warrick	Carteret
George Bowers	Clay
Richard Bryant	Perquimans

Jack Early	Jackson
Haskel Shealy	Alexander
Earl Langdon	Bertie
J. L. Smith	Person
Ed Brown	Halifax
John H. Wynne	Pender
W. E. Maincus	Forsyth
Norman Brickhouse	Lee
Jimmy Wilson	Rutherford

Members of the extension staff who served as instructors were assisted by:

H. M. Ellis, In Charge, Agricultural Engineering Extension
J. H. Andersen, Conservation Forester, Halifax Paper Company
Yates Carpenter and Paul Marx, representatives, Porter Brothers Chain Saw & Equipment Company
E. W. Davis, District Ranger, North Carolina Division of Forestry
F. A. Moehler, Assistant District Forester, North Carolina Division of Forestry
J. S. Pippin, District Forester, North Carolina Division of Forestry
W. E. Roberts, representative, Sandvik Saw & Tool Corporation

County forestry winners were awarded medals in 99 counties for best records submitted of projects completed. These awards were made at the county achievement day. Long-time records were submitted for state competition from 18 4-H Club members in 17 counties. This represents a considerable increase over the previous years. The state winner was Leon Evans of Currituck County.

To stimulate interest in forestry among 4-H Club members, free seedlings were offered to members in most counties by various industries of the state. Once a 4-H Club member plants forest tree seedlings he becomes interested in protection from fire, insects and diseases and in other phases of forestry. The seedlings offered are shown under the planting section.

C. Brushland Conversion

The management staff devoted approximately 20% of their time to this phase of work.

Conversion of brushland to production of merchantable timber is the greatest problem and challenge facing forest management in North Carolina at the present time. Several hundred thousand acres must have a major overhaul to restore production. The great emphasis on planting of abandoned farm land in recent years, which was given a big boost by the Soil Bank Conservation Reserve program, has considerably reduced the amount of cleared land that is available for tree planting. Many who are actively interested in managing their forest lands have turned to their unproductive brush lands as the next area to be planted.

Chemical herbicides have been used in various methods, with satisfactory results in some cases. However, the chief proven method of brushland conversion is mechanical preparation with heavy equipment.

The "KG" blade, a modified type of bulldozer, seems to offer considerable promise for this work. In cooperation with heavy equipment dealers, and in some cases equipment operators who have purchased this type blade, several result demonstrations were established. Most of these were also method demonstrations. Meetings were held so that landowners could see this equipment at work and get pertinent information on cost, et cetera.

Carolina Tractor & Equipment Company of Salisbury cooperated

with county agricultural extension agents and forest management extension specialists in Rockingham, Rutherford, Alexander and Union Counties by furnishing a crawler tractor equipped with a "KG" blade for result demonstrations.

Gregory Poole Equipment Company of Raleigh furnished a tractor and "KG" blade for a similar demonstration in Moore County.

A primary purpose of these demonstrations is to encourage equipment operators to purchase this equipment and make it available to the landowners who need the job done. One "KG" blade was purchased in Orange County as a result of these demonstrations. It is believed that other blades have been sold in other counties as a result of these demonstrations.

In Johnston County several result demonstrations of brushland conversion were established in cooperation with a local consulting forester and an equipment operator. These were prepared using a heavy disk, fireplow, or "KG" blade. Some were planted to pines and others were direct seeded. Accurate cost records were kept. A brochure on brushland conversion was prepared, largely of before and after pictures and cost figures of these demonstrations. Distribution was to thirty coastal plain counties. A reworked version of the brochure will be printed and given wider distribution.

Mr. W. M. Stanton, specialist in the Eastern District, reports that one timber owner of Chowan County who sold the timber on 300 acres, set aside a portion of the money for establishment of a new timber crop. The brush and worthless hardwoods were removed from

the entire 300 acres using a "KG" blade at a cost of $26 per acre, leaving the land ready for planting.

Method demonstrations on chemical control of undesirable hardwoods were conducted in many counties. Ammate in notches and 2,4,5-T in frills were the most commonly used treatments. Many of these areas will continue to serve as result demonstrations. Several such result demonstrations were established in Guilford County.

Mr. Stanton states that there has been an increased interest in the control of undesirable hardwoods in his area. Perhaps this may be due in part to cooperative efforts by Union Bag-Camp Paper Corporation. This corporation offers one 60-pound bag of Ammate free to any timberland owner, and additional bags at their cost. Many timber owners have taken advantage of this offer and treated small areas.

In cooperation with the North Carolina Division of Forestry and equipment distributors and dealers, a list was prepared of contractual assistance available for land preparation, planting and reseeding operations. This list, Exhibit B, included the equipment owner's name and address, type of services offered, and special equipment each had available. Listing was alphabetical by county in each of the three physiographic areas of the state. Each county agricultural agent was provided a copy of the list. Also given copies were all consulting foresters and certain industry foresters.

From many sources the reaction to promotional efforts to encourage brushland conversion has been that more A.C.P. assistance must be made available if the job is to be done. Most comments have been that payment rates are fairly adequate, but there just is not enough

money to go very far. Consequently, most county A.S.C. boards have limited the amount of assistance available to any one landowner to such a small payment that heavy equipment operators cannot afford to move equipment to do the resulting small jobs. Therefore, if sufficient acreage is done to justify equipment moving, the landowner must bear most of the cost. This comes back to the major reason why brushland conversion is not being done by the average timberland owner. He just does not have the capital to invest.

D. Long-time Cooperators

Approximately 15% of the total work time of the department was spent on this program phase.

Most of this time was spent on follow-up work of woodland management demonstrations already established.

Two additional landowners were added to the list, one in the Western and one in the Southeastern District, making a total of 100 long-time cooperators.

Follow-up work on two demonstrations in Swain County accounted for an additional 1½ miles of access road built through the woodland area. An area wood-buying industry built the roads on this private land, with an oral agreement that the industry would get all marked pulpwood made accessible by the additional road.

Two additional timber sales contracts were drawn up for the landowner selling this marked timber.

In Henderson County a forestry tour was conducted which included a visit to the woodland management demonstration established there.

E. Christmas Tree Production and Marketing

Number of Fraser fir Christmas trees planted over the past five years:

Species	1955-56	1956-57	1957-58	1958-59	1959-60
Fraser fir	None planted	None planted	567,100	282,500	424,375

In 1958-59, 2 + 0 seedlings were held over for transplanting for sale as 3 + 1. This is why there was a drop in planting for the 1958-59 season.

The North Carolina Christmas tree growers' cooperative increased its membership from 37 members to 52 members in 1960. This shows a healthy increase in total amount of interest in the Christmas tree program.

During 1960, the association affiliated with the national association. This entitled members to receive the quarterly Christmas tree journal and other benefits of the national group.

John Gilliam, forest management extension specialist, attended a Christmas tree growers' short course at Cornell University to observe the work being done in New York on Christmas tree production and marketing. He also attended the first national Christmas tree growers' conference at Purdue University as a representative of the state association. A paper was presented to the group on the potential of growing Fraser fir in North Carolina for the Christmas tree market. There was a tremendous amount of interest in Fraser fir from all sections of the country.

A survey was made of the trial plantings of Scotch pine (planted

in the spring of 1959). The survival was promising. On the basis of this work the state nursery agreed to grow Scotch pine seedlings on a limited scale.

The state nursery at Penrose, North Carolina, agreed to step up its production of Fraser fir seedlings. They also agreed to transplant 250,000 seedlings, an increase of 100,000 over 1959. This program will be increased until a million Fraser fir transplants (2 + 1) are available to the growers.

A series of meetings were held in seven western counties to promote the growing of Christmas trees in that area and present some of the management problems involved.

A survey was made of the number of Christmas tree seedlings planted in North Carolina since 1950, by counties. This information will give the Extension Forestry Department a guide to determine where major emphasis needs to be placed in regards to area and species.

Weed and grass control is a major problem in the production of Christmas trees. John Gilliam, in cooperation with the Avery County agent, established a weed-control plot using "Simazon." This demonstration plot was established in the spring of 1960. Excellent control was obtained, with no apparent damage to the Fraser fir transplants. A mowing demonstration was held in conjunction with the weed control program, using a Gravely tractor. It was found to be practical on level to slightly rolling terrain.

A Christmas tree variety demonstration was established on the Rockingham County forest demonstration farm, using white pine and red cedar. It will also be used for demonstrations on weed and grass control and shearing technique and timing on different species. These demonstration plots will

prove invaluable in finding some of the answers to the production of quality Christmas trees.

F. Measurement, Harvesting and Marketing

County marketing guides, Exhibit C, were prepared and distributed in the following counties: Polk, Mecklenburg, Union, Lincoln and Rutherford. These publications listed the forestry marketing assistance available to each county landowner, as well as available markets for all wood products.

Miss Ruth Thomas of Hertford County may not be much as a timber cruiser, but she is pretty well near the top as a shrewd timber seller. She had forty acres of quality loblolly pine which had reached economic maturity. She first had the county agent bring in the extension forester to confirm the advisability of cutting part of the tract. Acting upon the advice of the extension forester, she next hired a consulting forester to cruise 15 acres of the less thickly spaced tract. With the cruise figures she again contacted the extension forester through the county agent's office to assist in the sale of the marked stand. Following the recommended procedure of invitation to bid and request for sealed bids, she got responses from six area sawmills. Her top reliable bidder paid $60 per thousand for the timber and agreed to leave the area in a condition which would be suitable for planting. Since the agreement was reached in December, she stipulated that payments be spread over the two years for tax benefits. She secured all understandings with a contract, as recommended.

Mr. H. J. Bragg, of Yeatsville, was prepared to sign an option permitting a sawlog producer the right to cut over a sixty-acre tract.

Mr. Bragg had formed an idea about what was in the tract, and it was in line with the option figure. Being a cautious man, however, he decided to get some professional advice before signing the option. He and the extension forester went over the tract and discussed the best procedures to follow for maximum returns. He first got his seed trees marked and then had the tract cruised. Using extension's copy of an invitation to bid on timber, he sent out the cruise data to all area sawmills. Accepting the highest reliable bid, he realized better than $6,000 above the option contract he previously was ready to sign.

The length-of-life fence post demonstrations which were established five years ago in ten counties were all tested. Those that could not pass the 40-pound pull test were replaced with freshly cut specimens.

G. Grazing Protection

The management staff devoted approximately 3% of the total work time on this program phase.

One additional demonstration was established in Cherokee County, making a total of seven in the Western District. Plans are made for the establishment of at least one demonstration in each of the fifteen western Tennessee Valley counties.

The demonstrations in Henderson and Yancey Counties were visited by a group of landowners while on a forestry tour in these two counties.

One TV program was given on the harmful effects of woodland grazing, and one Farm Forestry Facts sheet was prepared by Leonard Hampton, forestry specialist in the Western District, on this subject.

H. Forest Insect and Disease Protection

North Carolina woodlands have had, and always will have, insects

and diseases capable of destroying large numbers of trees of all ages and species. The increasing intensity of our management practices, which often conflict sharply with natural occurrences in forest stands, will surely aggravate our insect and disease problems. Higher timber values have accentuated the importance of pest control.

Dr. James A. Beal, speaking at the fifth annual Southern Forest Insect Work Conference, indicated that there was a greater danger from forest pests in the United States today than at any other time in his memory. This would surely apply to North Carolina woodlands.

To keep abreast of insect research and survey reports of outbreaks, Mr. Whitfield, forestry specialist, attended two meetings. These reports were given by various experiment station personnel from the U. S. Forest Service and universities in the South.

The first meeting was with the Forest Pest Committee at Blairsville, Georgia, February 24, 1960. This meeting was held to review existing pest conditions in the southern Appalachians. Because a report of the history, distribution and current trend of the elm spanworm was given, two county agents in the area of infestation attended the meeting with the forestry specialist.

The fifth Southern Forest Insect Work Conference was held in Macon, Georgia, December 6 - 8, 1960, at which time the latest research findings were presented. Also presented at this meeting were methods of applied entomology by various activities in several states.

Mass media techniques were used to disseminate information about woodland protection. The state-wide Tar Heel Farm network was used to

present a program about bark beetles. The subject of bark beetles was used on two network TV programs, as well as a program on how to handle forest trees damaged by a severe ice storm that moved across the state. Two TV programs were presented on a single TV station, one bark beetles, and another on woodland grazing.

County extension workers were trained, assisted or given counsel on pest control or identification in 22 counties during the year.

Perhaps the most spectacular insect infestation during the year was the sawfly outbreak in Granville, Person, Warren and Vance Counties. The extension entomologist, wildlife specialist and forestry specialist visited county workers in each county involved to review the current infestation intensity and to recommend action that may be recommended to landowners by agents.

A letter to all agents of the state was prepared and mailed to the agents, along with a mimeograph, Exhibit D, on all sawfly species known to occur in North Carolina. These mimeographs were also mailed to woodland managers and professional foresters in North Carolina, as well as being furnished to the pest control forester of the State Division of Forestry for distribution to personnel of his agency. This mimeograph was submitted to various specialists for revision suggestions, after which time it was prepared for publication as an extension leaflet.

Another sawfly outbreak occurred in Union County and was first reported by County Agent J. A. Marsh to Forestry Specialist Ed Jones. The larvae were reared into adults and were determined to be a different species (N. excitans) from the older infestation in the north-central part of the state. The older (since 1957) outbreak is a single-generation species

and has had no serious attacks by secondary insects. The pest in the new outbreak is a multiple-generation species and has a far more dangerous potential than the older infestation. Authorities at the Southeastern Forest Experiment Station were notified of this outbreak, and they are keeping the pest under surveillance.

The balsam woolly aphid is now firmly entrenched in North Carolina and threatens to eliminate the Fraser fir.

At the request of extension forestry specialists, a meeting was held in Durham to coordinate efforts to preserve and protect a permanent seed source for this valuable tree. Cooperating in this venture were representatives of the U. S. Forest Service, North Carolina Division of Forestry and the North Carolina State College faculty. The meeting was concerned with the following points concerning the insect attack on the Fraser fir:

1. Location of an area of seed trees for a seed source with regards for elevation.
2. Selection of superior trees.
3. Selection of areas where protection against the aphid might be carried out with a minimum cost.
4. Location of more than one area due to cone failures in different geographic areas at different times.

After the different aspects of these problems were discussed, it was felt that a committee was needed to investigate the different available locations. It was generally felt that location of these areas on national forest lands would be more desirable because these areas may be permanent and more secure. Other areas would be considered, however, if these fulfilled requirements and could be made available.

The president of the North Carolina Christmas Tree Growers' Association was selected as chairman of this action committee, with the pest

control forester of the North Carolina Division of Forestry, a representative of the Southeastern Forest Experiment Station and a representative of the North Carolina National Forests chosen to work with the chairman to locate several possible sites. These sites will then be selected by the original committee.

A pest of pine trees (tipmoths), for which there has been no easy method of control, continues to plague woodland managers over most of the state. A Farm Forestry Facts sheet was prepared and distributed for county agents' mailing lists. This fact sheet also contained information about another serious type of pest; i. e., the reproductive weevils.

County agents were given direct assistance with several problems, as follows:

Mecklenburg - Mites on hackberry
Watauga - Scale on Fraser fir
New Hanover - Pecan carpenterworm
Hoke - Needle cast on pines with a fatal secondary attack by bark beetles
Sampson and others - Pales weevils
Harnett - Cadelle beetle attacking stored cypress lumber
Moore - Bark beetles
Montgomery - Bark beetles

Two pulp companies were given direct assistance on bark beetles, also on cone moths. The cone moths were attacking young seed orchard pines and were tunneling in pith of young stems.

Dr. M. H. Farrier of the insect survey of A.R.S. cooperated with most determinations.

In October cooperation was given the Madison-Mayodan schools with their outdoor education program. The subject of the importance of entomology and how to make an insect collection was presented to four groups in field trips. This in-the-field instruction was given in a two-day session in

Rockingham County.

Of all the diseases attacking North Carolina trees probably the most serious is Fomes annosus. The U. S. Forest Service survey indicating that Fomes annosus is infecting 77 per cent of the thinned slash pine stands is borne out in stands thinned in this state.

Fomes annosus was discovered in a loblolly stand in Moore County, and experiment station authorities were notified. This area was immediately established as a research study plot because it was the first-reported infection on loblolly in the South.

All infections of this disease are being reported to the Pathology Department at North Carolina State College in order that a record can be kept of the spread of this disease.

Diseases of the red cedar are taking a heavy toll and are making it difficult to grow this species as a Christmas tree. A Farm Forestry Facts sheet, Exhibit E, was prepared for county agents' mailing lists that described several diseases and action to be taken by landowners. County agents were given direct assistance with this disease in plantations in Bladen and Moore Counties.

County agents were given counsel or assistance in Lincoln, Mecklenburg, Cleveland, Gaston, Union and Catawba Counties with pitch canker of pines. A test demonstration for control was set up with agents in Lincoln and Mecklenburg Counties.

II. Department Administration, Supervision

The graduate training program, under the sponsorship of the Richardson Foundation, Greensboro, N. C., is over half completed. Three staff members have completed work on a master's degree, while two are on graduate-study leave during the 1960-61 school year. E. M. Jones, forest management extension specialist, is attending Louisiana Polytechnic Institute, studying bottomland hardwood management; and John L. Gray, extension forester, is at Duke University working on his doctorate in economics and finance. Mr. Jones and Mr. Gray will return to the staff from study leave in September, 1961.

Walter M. Keller is acting, in charge, during Mr. Gray's leave of absence. J. C. Jones, forest management extension specialist, is acting head, Forest Management Extension Section, during the same period.

A change in geographical work areas and assignments became effective on October 1, 1960. See Exhibit E for map showing work areas and Exhibit G for area assignments and subject matter responsibilities.

III. Activities at the State or Area Level

A. Work with State Extension Supervisors, District Agents and Youth Leaders in Program Planning

Conferences were held between the extension forestry staff, state 4-H staff and other subject matter specialists in planning the 1960 4-H Forestry Camp.

Mr. John Gilliam worked with the district agents in planning a series of agent training schools.

Staff members met with district agents to discuss the forestry program in each county and to decide where special emphasis would be placed.

Forest Management Staff Members and Assignments

Name	Title	Area and/or Subject Matter Responsibility	Headquarters
J. L. Gray[1]	In Charge, Forestry Extension	Graduate-study leave	—
W. M. Keller[2]	Head, Forest Management Section	State-wide	Raleigh
J. C. Jones[3]	Forest Management Extension Specialist	Northeastern District	Raleigh
W. M. Stanton	" " " "	Eastern District	Windsor
R. S. Douglass	" " " "	Southeastern District - Planting, forest soils and site preparation - state-wide	Raleigh
J. H. Gilliam	" " " "	Northwestern District - Christmas trees - state-wide	Boone
E. M. Jones[4]	" " " "	Graduate-study leave	—
L. H. Hampton	" " " "	Western District	Asheville
F. E. Whitfield	" " " "	Southwestern District - Forest insects and diseases - state-wide	Raleigh

1/ Graduate-study leave, Duke University
2/ Acting, In Charge, Forestry Extension
3/ Acting Head, Forest Management Section
4/ Graduate-study leave, Louisiana Polytechnic Institute

Mr. Leonard Hampton and Mr. Fred Whitfield assisted the state 4-H agent in the Western District in marking timber for sale on the Swannanoa 4-H Camp property.

B. Assistance Given to or Received from Other Subject-Matter Specialists and Research Personnel

J. C. Jones, forest management extension specialist, assisted the School of Forestry in making arrangements and plans for a "Special Field Institue in Forest Biology." This was a four-week institute made possible by the National Science Foundation.

Dr. T. E. Maki, School of Forestry, assisted and advised Mr. John Gilliam in preparing a Christmas tree publication. Dr. Maki also assisted J. C. Jones in preparing a publication entitled "Planting Southern Yellow Pine."

Dr. Bruce Zobel, of the School of Forestry, assisted with plans to collect seed from native Fraser fir, employing the principles of forest genetics.

Advice and recommendations from staff members of the School of Forestry were received in preparing mimeographed material and Farm Forestry Facts sheets.

Assistance given to and received from the extension and School of Agriculture pathology and entomology staff by Fred E. Whitfield, forest management extension specialist, is discussed in section I H, Forest Insects and Disease Protection. A written agreement on responsibilities and duties between the forestry and plant pathology departments, Exhibit H, has increased the effectiveness of this program.

Assistance was given the School of Agriculture in conducting the annual short course in "Modern Farming," sponsored by the Agriculture Committee of the North Carolina Bankers Association.

Mr. W. M. Keller, acting, in charge, forestry extension, along with teaching, research and industry personnel, conducted the North Carolina Conference on Woody Plant Control, sponsored by the North Carolina State College Schools of Forestry and Agriculture.

Mr. John Gilliam assisted the extension horticultural specialist in holding an agent training school in nursery management, Exhibit I.

C. Assistance Given to or Received from Various State, Federal and Other Agencies or Interest Groups

There was close cooperation with the North Carolina Division of Forestry from the individual extension specialist; and the extension forester, Mr. John Gilliam, worked with Mr. Phil Griffiths, assistant state forester, in planning the nursery program for growing Fraser fir transplant seedlings and in growing seedlings from other sources in test plots. Mr. Fred Whitfield has mentioned other cooperative programs in the Forest Insect and Disease Protection section of the report. Division of Forestry personnel also assisted in planning and conducting certain field days and demonstrations.

Cooperative programs were planned and conducted with the T.V.A., Southeastern Forest Experiment Station, S.C.S. and U. S. Forest Service. Some of these programs are covered in section I of this report.

The wood-using industries, particularly pulp and paper, contributed much in the way of time and money to carrying out result

demonstrations, putting up prize money, giving free seedlings and assisting with field meetings and demonstrations. Section I of this report covers many of the activities of this group of cooperators. Assistance in conducting classes at our 4-H Forestry Camp was received from Halifax Paper Company, Inc., Roanoke Rapids, N. C.; Porter Brothers, Inc., chain saw distributors of Shelby, N. C.; and Sandvich Saw & Tool Corporation, New York.

The first two 300-Board-Footer awards were made to Mr. C. T. Parrish, Swain County, and Mr. E. D. Green, Watauga County, in the summer of 1960. This is a recognition award for efficient timber production presented by Tennessee Valley Association of Test Demonstration Farm Families in cooperation with North Carolina State College Extension Service, North Carolina Division of Forestry and Tennessee Valley Authority. Both Mr. Parrish and Mr. Green first obtained technical help from the extension foresters.

Mr. John Gray, extension forester, acted as chairman and coordinator of a program to provide a forestry feature story to appear in each monthly issue of the Carolinas-Virginia edition of the Progressive Farmer. This program involves the extension foresters from Virginia and South Carolina.

At the national meeting of the Society of American Foresters, Mr. Gray served as moderator for the program presented in the Division of Education meeting. Mr. Gray was largely responsible for the program, "The Proper Role of Extension and Adult Education in Forestry Education."

Exhibit A

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF NORTH CAROLINA

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
NORTH CAROLINA COUNTIES AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

EXTENSION SERVICE
COUNTY AGRICULTURAL AGENT

State College Station
Raleigh, N. C.
August 31, 1960

To: All County Agricultural Agents
From: J. C. Jones, Forest Management Extension Specialist
Subject: 1959-60 seedling planting totals

The attached report shows by counties and districts the number of applications submitted through the county extension offices on our special seedling application order blanks and the total number of seedlings ordered on those blanks.

You will recall that last spring I sent each of you a letter asking for your estimate of the number of seedlings planted through your assistance. Many of you responded with your estimate, and this is the figure shown in column 3. You can see that this estimate varies a great deal from the number of seedlings ordered on the special application blanks that we receive a copy of, in the majority of counties. Unless our special application blanks are used by you, we do not get credit for the effort made by the county extension personnel in the tree planting program. So let me urge you to use the special yellow application form being provided for you this year.

It is regrettable that these forms did not get into your hands the first of July, but an error in the printing office delayed our getting these forms in the mail.

We wish for you and your farmers a successful planting season.

EASTERN DISTRICT

County	Number of applications	Number of seedlings by applications	Estimated seedlings planted by counties
Beaufort	11	15,000	
Camden	1	500	
Carteret	8	13,000	
Chowan	5	19,000	18,000
Craven	4	4,000	
Currituck			
Dare	1	500	
Gates	11	229,500	230,000
Hyde	4	3,000	5,000
Jones	6	8,500	35,000
Onslow	6	12,000	45,000
Pamlico	8	5,000	10,000
Pasquotank	2	1,500	
Perquimans	1	1,000	
Tyrrell	2	1,000	4,000
Washington	6	5,500	6,000
District totals	76	319,000	

NORTHEASTERN DISTRICT

County	Number of applications	Number of seedlings by applications	Estimated seedlings planted by counties
Bertie	33	84,000	125,000
Edgecombe	22	106,100	
Franklin	12	115,500	
Granville	11	34,000	300,000
Greene	4	7,500	7,000
Halifax	13	16,500	1,282,000
Hertford	26	71,000	128,500
Johnston	14	194,000	
Lenoir	9	169,500	215,000
Martin	4	3,000	36,000
Nash	15	33,250	
Northampton	10	37,500	444,500
Pitt	12	13,000	
Vance	3	7,000	15,000
Wake	9	73,500	450,000
Warren	4	5,000	
Wayne	26	269,500	269,500
Wilson	6	42,000	
District totals	233	1,281,850	

SOUTHEASTERN DISTRICT

County	Number of applications	Number of seedlings by applications	Estimated seedlings planted by counties
Anson	103	2,382,000	1,793,500
Bladen	54	247,500	
Brunswick	7	7,500	
Columbus	16	50,000	
Cumberland	39	643,500	
Duplin	10	20,000	
Harnett	37	105,000	
Hoke	32	114,000	200,000
Lee	22	140,500	263,500
Montgomery	78	689,500	431,500
Moore	79	467,000	
New Hanover	6	5,500	
Pender	9	19,000	
Richmond	47	409,000	2,000,000
Robeson	22	118,500	
Sampson	72	444,600	
Scotland	29	1,042,000	1,083,000
District totals	662	6,905,100	

NORTHWESTERN

County	Number of applications	Number of seedlings by applications	Estimated seedlings planted by counties
Alamance	12	26,500	
Alleghany	36	152,000	
Ashe	2	12,500	
Caswell	21	83,000	275,000
Chatham	29	216,500	
Davidson	4	7,000	
Durham	5	15,500	35,000
Forsyth	12	26,500	
Guilford	12	14,500	
Orange	-	---	245,000
Person	20	68,500	167,000
Randolph	29	56,000	
Rockingham	58	221,600	233,000
Stokes	3	9,500	
Surry	7	53,000	65,000
Wilkes	36	82,500	
Yadkin	3	6,000	53,200
District totals	289	1,051,100	

SOUTHWESTERN DISTRICT

County	Number of applications	Number of seedlings by applications	Estimated seedlings planted by counties
Alexander	8	84,500	
Burke	12	49,500	
Cabarrus	32	237,500	
Caldwell	20	63,500	
Catawba	27	101,500	
Cleveland	51	431,000	150,000
Davie	11	17,500	200,000
Gaston	21	90,000	
Iredell	14	47,500	
Lincoln	29	291,000	
McDowell	6	19,000	76,000
Mecklenburg	53	840,000	
Polk	13	46,000	200,000
Rowan	25	63,000	
Rutherford	123	997,500	1,172,500
Stanly	1	500	
Union	52	542,500	
District totals	498	3,922,000	

WESTERN DISTRICT

County	Number of applications	Number of seedlings by applications	Estimated seedlings planted by counties
Avery	33	86,000	
Buncombe	12	107,250	
Cherokee	30	191,000	
Clay	18	48,500	
Graham	-	--	
Haywood	7	19,000	315,000
Henderson	8	28,000	200,000
Jackson	15	39,500	
Macon	35	65,000	
Madison	-	--	
Mitchell	26	73,000	
Swain	2	2,500	30,000
Transylvania	14	58,000	
Watauga	28	77,500	
Yancey	6	10,500	10,000
District totals	234	805,750	

STATE TOTAL	1,992	14,284,800

B

Exhibit B

CONTRACTUAL ASSISTANCE AVAILABLE

FOR CUTOVER LAND

OR OPEN LAND

CLEARING, FOREST PLANTING OR RESEEDING OPERATIONS

Prepared by:

Extension Forestry Department,
N. C. Agricultural Extension Service
with assistance from
N. C. Division of Forestry
Equipment distributors
and dealers

December, 1959

CONTRACTUAL ASSISTANCE AVAILABLE
FOR CUTOVER LAND
OR OPEN LAND
CLEARING, FOREST PLANTING OR RESEEDING OPERATIONS

Background - The following is a partial list of individuals or firms who are in a position to offer contractual services in:

1. Clearing brushland or cutover land for natural reseeding, artificial reseeding or planting of forest trees.
2. Scarifying mature timber stands for natural reseeding.
3. Machine planting or hand planting open land or prepared cutover land.
4. Poisoning or girdling cull trees.

The list is incomplete in many respects. In the heavy-equipment field, it includes only those contractors who own certain types of equipment - "KG" clearing blades, heavy-duty disk harrows and heavy-duty furrowing-type, fire-lane plows. It does not include owners of drum choppers, root rakes and other items sometimes used in preparing cutover land for forest planting.

With respect to heavy equipment, it includes owners or contractors who may not be interested in woodland improvement operations. At the present time, this will have to be determined through landowners contacting these operators individually.

The list of tree planting contractors is particularly incomplete. Many local operators working in individual counties are not included.

Contractors or equipment owners are listed according to the general area in which their business is located. This does not mean, however, that a land-clearing contractor listed in the Mountain section offers service only in that area. Some contractors are local. Others will go anywhere in the state if the size of the job justifies it.

This list implies no endorsement by North Carolina State College of the reputation or performance of the individuals or firms listed. Also, individuals or firms not included were left off simply because information on their services or equipment was not available at the time this list was prepared.

Pulp companies and similar industries who own forest land clearing equipment only for company-land operations are not included in this list.

This list will be revised at frequent intervals. Any individual or firm offering contractual services in forestry operations in North Carolina who wish to be included on subsequent lists should write to:

John Gray, Extension Forester
State College Station
Raleigh, N. C.

The list is arranged alphabetically by counties.

North Carolina Coastal Plain and Sandhills

Contractor	Address	Services offered	Special equipment owned and operated
Anson			
V. L. Wall	Rt. 1, Morven	Planting	Planting machine
M. B. Dutton	Rt. 3, Wadesboro	"	3 planting machines
Tom McRae	Wadesboro	"	2 planting machines
Robert Watkins	Rt. 2, Wadesboro	"	2 planting machines
Beaufort			
Guy E. Mills	Aurora	Disking	Disk harrow
Lake Phelps Farms	Washington	"	" "
J. B. Bell	Pantego	"	" "
G. C. Cordan	Bath	Blading	KG blade
Harvey Williamson, Jr.	Washington	Disking	Disk harrow
Bladen			
Carroll & Storms	Dublin	Disking	Disk harrow
Brunswick			
W. J. & A. D. McLamb	Shallotte	Disking	Disk harrow
Columbus			
Howard Hullock	Chadbourn	Disking	Disk harrow
Columbus Clearing Co.	Hallsboro	"	" "
B. C. Bailey	Chadbourn	"	" "
Dickerson & Garrell	Tabor City	"	" "
Craven			
Harvey Lewis	New Bern	Disking	Disk harrow
Kilpatrick & Berwick	Dover	"	" "
Coastal Grading Co.	New Bern	"	4 disk harrows
H. N. Deane	New Bern	"	Disk harrow
J. R. & C. V. Daly	Cove City	"	2 disk harrows
Cumberland			
Southern Builders, Inc.	Fayetteville	Disking	Disk harrow
Stone & Ragan	Fayetteville	"	" "
Malcolm D. Gillis	Rt. 3, Fayetteville	Planting	Not known
D. L. Matthews, Inc.	Fayetteville	Disking	Disk harrow

Contractor	Address	Services offered	Special equipment owned and operated
Duplin			
E. M. Pennington	Wallace	Disking	Disk harrow
Powell & Cavanaugh	Wallace	"	" "
W. H. Puckett	Wallace	"	" "
Ernest Taylor	Faison	Disking, blading	Disk harrow, KG blade
J. W. Hoffler	Wallace	Disking	2 disk harrows
Birtis Fussell	Rose Hill	"	Disk harrow
Edgecombe			
Powell & Allen	Macclesfield	Disking	Disk harrow
Barnhill & Long	Tarboro	"	" "
Conetoe Supply Co.	Conetoe	"	2 disk harrows
Phillip Burgess	Pinetops	"	Disk harrow
P. O. Bullock	Battleboro	"	" "
Franklin			
D. B. Lancaster	Louisburg	Disking	Disk harrow
Sidney Driver	Louisburg	"	" "
Gates			
L. B. Lawrence	Gatesville	Disking	Disk harrow
Greene			
E. L. Jones	Walstonburg	Disking	Disk harrow
Halifax			
Shaw & Liles	Littleton	Disking	Disk harrow
F. O. B. Lumber Co.	Scotland Neck	"	" "
Harnett			
Dan Andrews	Rt. 2, Fuquay Springs	Planting	Not known
Lewis Godwin Co., Inc.	Dunn	Disking	Disk harrow
Hoke			
J. B. Austin	Raeford	Disking	2 disk harrows
David Gibson	Rt. 1, Red Springs	Machine and hand planting	2 machines
H. B. Walters	Rt. 3, Raeford	Planting	2 machines
Johnston			
Floyd C. Price & Sons	Selma	Disking	Disk harrow
K. M. Taylor	Smithfield	Disking, blading	Disk harrow, KG blade

Contractor	Address	Services offered	Special equipment owned and operated
Johnston, cont.			
Nelson Nash	Smithfield	Hand and machine planting and row seeding, cull tree poisoning	Planting machine, row seeder, tree injectors
J. G. Lee	Benson	Disking	Disk harrow
Percy Flowers	Clayton	"	" "
Dr. R. E. Earp	Selma	"	" "
Lee			
Babcock Lumber Company	Sanford	Disking	Disk harrow
Martin			
Kader Lilly	Williamston	Disking	Disk harrow
Montgomery			
Robert Chappell	Candor	Planting	Planting machine
Josh Jordan	Candor	"	" "
Moore			
Goldsmith Construction & Forestry Service	Southern Pines	Hand and machine planting, furrowing	Planting machines, furrowing plows
N. F. Britt	Robbins	Disking	Disk harrow
Lee Williams	West End	"	" "
T. Clyde Auman	West End	Planting	Planting machine
Nash			
L. L. Pullen	Rocky Mount	Disking	Disk harrow
J. Bruce Moore	Spring Hope	"	" "
Atlantic Construction Company	Rocky Mount	"	" "
Watson Farms, Inc.	Rocky Mount	"	" "
New Hanover			
Coastwide Construction Company	Wilmington	Disking	Disk harrow
John Foreman	Wrightsville Beach	"	" "
Northampton			
Ramsey Brothers	Seaboard	Disking	Disk harrow
Wiley Long	Garysburg	Planting	Planting machine
Onslow			
L. L. Pennel	Jacksonville	Disking	Disk harrow
J. J. Morton	Jacksonville	"	" "

Contractor	Address	Services offered	Special equipment owned and operated
Pamlico			
J. W. Herring	Bayboro	Disking	Disk harrow
Pasquotank			
D. L. Saunders	Elizabeth City	Disking	Disk harrow
Pender			
Graham Padgett	Watha	Disking	Disk harrow
Robert Cowan	Maple Hill	"	" "
Ralph Walker	Watha	"	" "
Perquimans			
H. M. Copeland	Winfall	Disking	Disk harrow
Ellis Winslow	Belvidere	"	" "
Pitt			
W. V. Lassiter	Ayden	Disking	Disk harrow
Archie Evans	Grimesland	"	" "
Richmond			
L. V. Hogan	Rt. 1, Ellerbe	Planting	Not known
William C. Terry, Jr.	215 Hamlet Ave. Hamlet	"	" "
J. M. Long	Rockingham	Disking, furrowing	2 disk harrows, furrowing plows
George Jenkins	Rt. 2, Rockingham	Planting	Planting machine
Floyd Jacobs	Rt. 1, Rockingham	Hand planting	None
A. M. Waddell	Rt. 1, Rockingham	Hand planting	"
C. F. Odom, Jr.	Marston	Disking, furrowing, planting	Planting and furrowing machines
Boy Scout Explorers Post 167	c/o W. N. Watkins, Watkins Auto Supply	Hand planting (A new crew)	None
Robeson			
Robeson Clearing Co.	Lumberton	Disking	Disk harrow
David B. Gibson	Red Springs	Planting	Not known
Sampson			
Faircloth Construction Company	Clinton	Disking	Disk harrow

Contractor	Address	Services offered	Special equipment owned and operated
Scotland			
Emerson Langley	Rt. 2, Laurinburg	Planting	Not known
Charles F. Odom, Jr.	Laurinburg	"	" "
A. B. Hafer	Laurinburg	Planting, cull tree poisoning	" "
John F. McNair	Laurinburg	Disking	Disk harrow
Z. V. Pate, Inc.	Laurel Hill	Planting	2 planting machines
Jack Lassiter	Wagram	Planting	Hand planting
Wake			
George W. Pettigrew	Rt. 5, Raleigh	Hand and machine planting, furrowing, cull tree poisoning	Planting machines, furrowing plow
Hardee Timber Co.	Rt. 7, Raleigh	Cull tree poisoning	Not known
C. C. Dupree	Willow Springs	Disking	Disk harrow
Fieldstream Farms	Raleigh	"	3 disk harrows
Washington			
W. H. Thompson	Roper	Disking	Disk harrow
John Nylen	Lake Phelps	"	" "
Hilton Dunbar	Plymouth	"	" "
W. H. Thompson	Roper	Blading	KG blade
Wilson			
Pope & Tyson	Stantonsburg	Disking	Disk harrow
S. M. Cozart	Wilson	"	" "
S. T. Wooten	Stantonsburg	"	2 disk harrows
	Piedmont		
Alexander			
Harlan Robinson	Taylorsville	Disking	Disk harrow
Cecil Fry	Taylorsville	Planting	Planting machine
Rom S. Watts	Taylorsville	"	" "
Ben Watts	Taylorsville	"	" "
Cabarrus			
C. G. Tate	Concord	Disking	Disk harrow
C. C. Rimer	Rt. 2, Rockwell	Planting	Not known
Patterson Brothers	Concord	Disking	Disk harrow
James C. Fisher	Mt. Pleasant	Hand and machine planting	Planting machine
Caldwell			
Webb M. Price	Granite Falls	Planting	Planting machine

Contractor	Address	Services offered	Special equipment owned and operated
Catawba			
B. S. Shook	Rt. 1, Newton	Hand and machine planting	Planting machine
B. F. Seagle	Box 240, Hickory	Planting	Not known
S. G. Coley	Newton	"	Planting machine
Cleveland			
George Blanton	Shelby	Disking	Disk harrow
W. C. Powell	Rt. 1, Lawndale	Planting	Planting machine
E. A. Miller	Rt. 5, Shelby	"	" "
Davidson			
John Hunt	Denton	Disking	Disk harrow
Glenn Nance	Denton	"	" "
Durham			
A. T. Davison, Jr.	3004 Norwich Way, Durham	Hand and machine planting, poisoning cull	Machine planter
Nello Teer	Durham	Disking	Disk harrow
Forsyth			
George Sparks	Clemmons	Disking	Disk harrow
Gaston			
Bill Williams	2750 Penny Park Drive, Gastonia	Hand and machine planting	Planting machine
Sam A. Puett	Dallas	Planting	" "
J. A. Cobb	Lowell	"	" "
Guilford			
J. B. Smith	Greensboro	Disking	Disk harrow
J. C. Gambrell, Forestry Consultant	Rt. 1, Box 171 Guilford	Hand and machine planting	Planting machine
Iredell			
Iredell County S.C.S.	Statesville	Disking	Disk harrow
Hugh McHargue	Rt. 8, Statesville	Planting	Planting machine
Baxter Abee	2102 Bristol Rd., Statesville	Planting	Unknown
Lincoln			
Blair Goodson	Rt. 5, Lincolnton	Planting	Planting machine
Reid Sharar	Rt. 1, Stanley	"	" "

Contractor	Address	Services offered	Special equipment owned and operated
Mecklenburg			
W. V. Cornelius	Rt. 1, Huntersville	Planting	Planting machine
James H. Sherrill	Rt. 1, Huntersville	"	" "
W. C. Sherrill	Rt. 6, Box 749-H, Charlotte	"	" "
Polk			
Harold B. Newton	Rt. 1, Mill Springs	Planting	Planting machine
Randolph			
George Staley	Julian	Disking	Disk harrow
D. B. Kirkman	Asheboro	"	" "
Vernon King	Seagrove	Planting	Planting machine
Rockingham			
Tommy Joyce	Madison	Disking	Disk harrow
Rowan			
Robert Kluttz	China Grove	Disking	Disk harrow
Frank Fleming	Cleveland	"	" "
J. C. Leab	Barber	Planting	Unknown
J. G. Christie	Rt. 6, Salisbury	"	Planting machine
C. C. Rimer	Rt. 2, Rockwell	Hand and machine planting	" "
Rutherford			
W. O. Justice	Rutherfordton	Disking	Disk harrow
Stanly			
O. W. Hearne	New London	Hand and machine planting	Planting machine
Stokes			
Spainhour Brothers	King	Disking	Disk harrow
Burke Smith	Walnut Cove	"	" "
Surry			
Claude Golding	Mt. Airy	Disking	Disk harrow
Hull Brothers	Mt. Airy	"	" "
Carl Rose	Elkin	"	" "
Union			
David T. Simpson	Rt. 1, Waxhaw	Planting	Planting machine

Contractor	Address	Services offered	Special equipment owned and operated
Wilkes			
Claude Brooks	North Wilkesboro	Disking	Disk harrow
Joe Edmiston	Ferguson	Planting	Unknown
Yadkin			
Paul Gough	Yadkinville	Disking	Disk harrow
James Dobbins	Yadkinville	"	" "
South Carolina			
J. H. Gainey	Clover, S. C.	Planting	Planting machine
	Mountains		
Buncombe			
Emory Anderson	Weaverville	Disking	Disk harrow
Cherokee			
Herman West	Murphy	Blading	2 KG blades
Graham			
Phillips & Jordan	Robbinsville	Blading	3 KG blades
Cooper & Crisp	Robbinsville	"	2 KG blades
Jack Shuler	Robbinsville	"	2 KG blades
Henderson			
S. N. Youngblood	Fletcher	Disking	Disk harrow
Jackson			
Medford Dietz	Sylva	Disking	Disk harrow
Transylvania			
Siniard Brothers	Brevard	Disking	Disk harrow

Exhibit C

FORESTRY MARKETING ASSISTANCE AVAILABLE
TO RUTHERFORD COUNTY LANDOWNERS

If you need advice, guidance or technical forestry assistance in making a sale, contact the appropriate person listed here.

All Products

County Agricultural Agent's Office, County Courthouse, Rutherfordton - Your County Agricultural Agent and his assistants are not trained foresters. However, they are familiar with local woodland conditions, marketing practices and know most local buyers. They can also call on the Forestry Management Extension Specialist at Charlotte in special problem cases. They can advise whether or not a sale is practical and what products will be most profitable. They can help you decide what specific steps you should take in your particular case, furnish sample sales contracts, and advise whom to contact if trained forestry help is needed.

County Forest Ranger, North Carolina Division of Forestry, Box 41, Gilkey - This man is not a professional forester, but he is the initial man to contact for state timber marking and estimating service. He will examine your woodland with you; and if professional help is needed, he will call in the Service Forester, North Carolina Division of Forestry, Box 7146, Asheville.

This forester can examine your woodlands and help you decide what steps to take in making a sale. In addition, he can select, mark and measure trees ready for sale, give you a volume report and furnish you with a sample sales contract. You are required to pay for the marking paint used at $2.00 per gallon and furnish one man to help.

In sawtimber, there is no charge for the first 20,000 board feet marked and measured. Above this, the charge is 50 cents per 1,000 board feet marked.

In pulpwood, there is no charge for the first 10 cords marked. Above this, the charge is 15 cents per cord.

State employees do not cruise or appraise timber for sale of both timber and land, for estate settlement, for settlement of fire damage or trespass, or to help you decide how much to pay for a piece of timber land you want to buy.

The state service forester has a large area to cover. He stays pretty well booked up with requests and devotes only approximately five days of time a year to any one landowner. If you need him, contact him through the County Forest Ranger as early as possible.

Private Consulting Foresters - As of December, 1958, there were nine consulting foresters within fifty miles of Rutherfordton. The list is as follows:

Elmer J. Carlson, Route 5, Hendersonville, N. C.
Commercial Foresters, Inc., P. O. Box 1374, Asheville, N. C.
Richard A. Wood, 18 Buckingham Road, Asheville, N. C.
Elwood L. Demmon, 241 Old Toll Road, Asheville, N. C.
H. B. Frankenfield, Tryon, N. C.
Tom A. Hudgens, Flat Rock, N. C.
Harvey J. Loughead, 399 Vanderbilt Road, Biltmore Station, Asheville, N. C.
Charles A. Broadway, 113 First Avenue, Spartanburg, S. C.
Ralph B. Heberling, 140 West Park Drive, Spartanburg, S. C.

You, as a landowner, can hire one of these consultants to work for you in the same manner as you might hire a surveyor, lawyer, or real estate agent. You can hire him on a per day basis to mark or measure timber, appraise timber and land that you want to buy or sell, represent you in trespass cases, etc. You can also engage him to act as a business agent for you in selling timber, or timber and land, drawing the contract, checking to see that the sale terms are carried out, etc., on a flat commission basis if you wish.

Most consultants are prepared to offer almost any type of technical or business service you may need in connection with owning and operating your woodlands.

Pulpwood

Industry Foresters - All of the pulpwood dealers listed for Rutherford County can offer you marketing assistance in getting ready to sell pulpwood. They offer free marking service through foresters hired by them or by the pulp and paper companies which buy the wood they ship. Generally, they offer this service only to the owner with whom they have a firm agreement to buy wood.

Contact the pulpwood dealer or yard operator for this assistance.

FOREST PRODUCTS BUYERS
IN RUTHERFORD COUNTY, NORTH CAROLINA

Special Note - All sawmills buying in this area are circular-type mills. Where a mill uses 90% or more pine, it is listed as buying pine only, even though most pine mill operators will sometimes take small amounts of hardwood to get pine.

Firms listed as buyers of hardwoods, or pine and hardwoods, were clearly in the market for hardwood timber at the time this survey was made.

If you are not sure of the meaning of terms listed below, such as "Commercial Veneer Blocks," "Particle Board Bolts," etc., they are described in the next section, GENERAL WOOD PRODUCT SPECIFICATIONS.

FOREST PRODUCTS BUYERS IN RUTHERFORD COUNTY, NORTH CAROLINA

Name and P. O. Address	Species
FENCE POSTS	
Shelby Wood Preserving Company (Press* - Boliden salt) Route 3, Shelby, N. C. Hugh Dover	Pine
POLES	
Shelby Wood Preserving Company (Press - Boliden salt) Route 3, Shelby, N. C. Hugh Dover	Pine
PULPWOOD TIMBER (STUMPAGE)	
Bumgarner Woodyard Marion, N. C. C. H. Bumgarner	Pine
Flack, Charles (P)** Route 1, Union Mills, N. C.	Pine
Freeman, Clyde H. Rutherfordton, N. C.	Pine
Keller, Selby Pulpwood Yard Ellenboro, N. C.	Pine
Mud Cut Woodyard Route 1, Marion, N. C. R. G. Simmons	Pine

*Press - Pressure-type treating plant
**P - Portable sawmill

Name and P. O. Address	Species
Rader, I. E. Morganton, N. C.	Pine
PULPWOOD	
Bumgarner Woodyard Marion, N. C. C. H. Bumgarner	Pine
Freeman, Clyde H. Rutherfordton, N. C.	Pine
Keller, Selby Pulpwood Yard Ellenboro, N. C.	Pine
Mud Cut Woodyard Route 1, Marion, N. C. R. G. Simmons	Pine
Rader, I. E. Morganton, N. C.	Pine
SAWTIMBER (STUMPAGE)	
Arrowood, M. W. (P) Route 2, Rutherfordton, N. C.	Pine, poplar, hardwood
Atcheley, Horace (P) Route 1, Union Mills, N. C.	Pine, mixed oaks, poplar
Boyd, W. C. (P) Route 1, Union Mills, N. C.	Pine
Brackett Lumber Company Casar, N. C. A. C. Brackett	Pine
Chapman, Oscar (P) Route 2, Bostic, N. C.	Pine, mixed oaks
Cleveland Lumber Company Arrowood Drive, Shelby, N. C.	Pine
Conner, A. B. (P) Union Mills, N. C.	Pine
Conner, David (P) Route 2, Rutherfordton, N. C.	Pine

(P) Portable sawmill

Name and P. O. Address	Species
Conner, J. W. (P) Route 1, Union Mills, N. C.	Pine
Conner Lumber Company Rutherfordton, N. C. C. J. Conner	Pine, mixed oaks
Conner, Melrose W. (P) Lake Lure, N. C.	Pine
Crain, Cecil and Cleveland Arrowood (P) Route 2, Rutherfordton, N. C.	Pine, white oak, poplar
Dalton, C. S. (P) Route 1, Lake Lure, N. C.	Pine, mixed oaks
Elliott, Horace, Dee, and C. B. (P) Route 3, Rutherfordton, N. C.	Pine, mixed oaks
Elmer Lumber Company Box 388, Kings Mountain, N. C. D. M. Peeler	Pine
Flack, Charles (P) Route 1, Union Mills, N. C.	Pine
Fletcher Lumber Company (S) Box 41, Fletcher, N. C. T. O. Youngblood	Pine
Hamrick, Eldon (S) Ellenboro, N. C.	Pine
Harris, Clarence (P) Route 2, Marion, N. C.	Pine
Henson Timber Products Corporation Forest City, N. C. Carl O. Henson	Pine, poplar
Hutton & Bourbonnais Company Hickory, N. C. Charlie Robinson	Pine, mixed oaks, poplar
Justice, Earnest D. (P) Spindale, N. C.	Pine, mixed oaks
Laughter, Carl (P) Route 1, Union Mills, N. C.	Pine

(P) Portable sawmill
(S) Stationary sawmill

Name and P. O. Address	Species
Laughter, Leonard (P) Route 1, Union Mills, N. C.	Pine, mixed oaks, poplar
McCurry, Miles (P) Route 2, Bostic, N. C.	Pine
McDowell, C. E. (P) Route 1, Forest City, N. C.	Pine
Owensby, Roy (P) Route 4, Rutherfordton, N. C.	Pine
Padgett, S. T. (P) Route 1, Forest City, N. C.	Pine
Parton Lumber Company Rutherfordton, N. C. B. W. Parton	Pine, mixed oaks
Pitts Lumber Company Glen Alpine, N. C. P. H. Pitts	Pine
Queen, Edison (P) Route 2, Bostic, N. C.	Pine
Robbins, W. P. and Louis Parker (P) Route 1, Union Mills, N. C.	Pine
Robbins Lumber Company Chesnee, S. C. Frank Robbins	Pine
Standard Lumber Company Route 2, Rutherfordton, N. C.	Pine
Waters, Norris (P) Route 1, Bostic, N. C.	Pine, mixed oaks, poplar
Willis, Dewey (P) Route 2, Rutherfordton, N. C.	Pine, mixed oaks, poplar
SAWLOGS	
Conner Lumber Company (S) Rutherfordton, N. C. C. J. Conner	Pine, mixed oaks

(P) Portable sawmill.
(S) Stationary sawmill

Name and P. O. Address	Species
Fletcher Lumber Company (S) Box 41, Fletcher, N. C. T. O. Youngblood	Pine
Gilkey Lumber Company (S) Gilkey, N. C. W. O. Parton	Pine
Hamrick, Eldon (S) Ellenboro, N. C.	Pine
Hicks, W. C. (S) Box 432, Chesnee, N. C.	Pine
Lamb, Elbert (S) Route 1, Rutherfordton, N. C.	Pine, poplar
Sparks Lumber & Supply Company, Inc. (S) Rutherfordton, N. C. C. S. Sparks	Pine, mixed oaks
Standard Lumber Company (S) Route 2, Rutherfordton, N. C. Ben Wall	Pine, mixed oaks, poplar
SHUTTLE BOLTS	
Draper Corporation Swannanoa, N. C. Tom Pierce	Dogwood
COMMERCIAL VENEER BLOCKS	
Caldwell Furniture Company, Inc. Lenoir, N. C. T. W. Shuford	Birch, sweet gum, sycamore, poplar
Hickory Fibre Company Lenoir, N. C. P. D. Lovins	Hickory
Lenoir Veneer Company, Inc. Lenoir, N. C. C. H. Thomas, Manager	Poplar
Wright Veneer Company, Inc. Spindale, N. C. J. C. Hodge	Sweet gum, poplar

(P) Portable sawmill
(S) Stationary sawmill

Name and P. O. Address	Species
PARTICLE BOARD TIMBER (STUMPAGE)	
American Parboard Corporation Black Mountain, N. C. Richard Tipton	Birch, black gum, sweet gum, soft maple, poplar
PARTICLE BOARD BOLTS	
American Parboard Corporation Black Mountain, N. C. Richard Tipton	Birch, black gum, sweet gum, soft maple, poplar

GENERAL WOOD PRODUCT SPECIFICATIONS (Cont.)

Products	Kinds of Wood Accepted	Size Specifications				Most Limiting Defects	Remarks
		Minimum Diameter	Maximum Diameter	Length	Trim Allowance		
Shuttle bolts	Dogwood	5"	No limit	20 or 40"		Bird pecks, knots, worm stain	
Veneer blocks -	Beech, birch, black & sweet gum, soft maple, red & white oak, sycamore & yellow poplar	11-20"	42-52"	40-96"	4"	Crook & sweep holes, hollow heart, knots & shake	Generally, no reduction in grade is made for two defects in a line or defects clustered near the end of the bolt.
Veneer blocks - package	Black & sweet gum & yellow poplar	12"	No limit	48-84"	2"	Crook & sweep, knots	
Veneer blocks fibre	Hickory	8"	17-24"	28"	2"	Knots & shake	

Veneer blocks are the only forest product always purchased on grade. Two grades are used at all veneer plants in this area. Although some buyers take diameter into account in grading, the principal difference between Grades 1 and 2 is in the number and arrangement of knots permitted. Usually, a veneer block becomes a Grade 2 when knots occur on more than one face (quarter of the circumference) or exceed two in number on the same face. A block is considered a cull when it contains more than three to five knots, depending on the buyer. Within Grade 1, a premium price is often paid for blocks of certain kinds which are clear of all defect and exceed a certain diameter (say, 15 to 20 inches) at the small end.

In addition to knots, the veneer industry considers crook and sweep, holes, hollow heart, and shake to be serious defects. Bark distortions, bird pecks, and stains occur more frequently in veneer logs than some of these defects and can also down-grade or cull a block.

Rutherford County Timber Marketing Guide

THE N. C. AGRICULTURAL EXTENSION SERVICE

N. C. State College of Agriculture and Engineering of the University of North Carolina and U. S. Department of Agriculture, Co-operating, N. C. Agricultural Extension Service, D. S. Weaver, Director, State College Station, Raleigh, N. C. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.

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Field Survey by:

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Published by:

N. C. Agricultural Extension Service in cooperation with Southeastern Forest Experiment Station U. S. Forest Service

Entomology Information Note No. 129
Forestry Occasional Mimeograph 1

Exhibit D

PINE SAWFLIES (NEODIPRION SPP.) IN NORTH CAROLINA[1/]

What are they?

Pine sawflies are an important group of needle-eating insects that strip the needles off pines in North Carolina. Sawflies are not new to North Carolina but are native insect pests.

The sawflies get their name because the female uses a saw-like structure at the tip of her abdomen to cut slits in the pine needles, where she deposits her eggs. They belong to the same group of insects as wasps and bees, but they look more like flies. Adult sawflies vary in size and color, but most of the pine sawflies are small brownish-to-black insects about one-fourth-inch long. The average observer never notices the adults. Generally, he sees only the larvae (worms).

Damage to pines:

During heavy outbreaks, infested trees look as though a crown fire has burned through them.

For this reason, landowners have been seriously concerned and have sometimes sacrificed vigorous pine stands in a quick sale, thinking the trees were dead or dying.

While some growth loss occurs during infestation years, there are no cases on record, under North Carolina conditions, of pine trees of pulpwood size or larger dying from sawfly attack. Two to three weeks after attack new needles begin to appear. By midsummer the trees are green again.

Smaller pines of seedling size are seriously weakened and have, in some cases, been killed.

There are several species of the pest in the state. Most sawflies in North Carolina have only one generation a year. The redheaded pine sawfly, however, may have two or more generations a year. Those that have more than one generation overwinter as a brownish pupa in the litter, while others may overwinter in the egg and also in the pupal stage.

Eggs deposited in new needles in November hatch the following spring in April or May. The newly hatched larvae immediately start feeding in clusters on these needles. They complete their feeding about a month after hatching. Then they drop to the ground, where they spin cocoons in the litter near the base of the tree. When they emerge in November as adults, they are ready to start the cycle again.

Natural control:

Fortunately, the sawfly has many enemies. Predators, parasites and disease take a heavy toll. Over fifty kinds of parasites have been reported in the United States and Canada. Rodents destroy large numbers of the cocoons in the litter. Prolonged periods of high summer temperatures or low temperatures and wet snowstorms in the early fall cause the death of many larvae. The fact that sawflies

1/ Prepared by Fred E. Whitfield, Forest Management Extension Specialist, and George D. Jones, In Charge, Entomology Extension.

have so many different kinds of enemies makes it difficult to decide whether or not to apply artificial control measures, because chemical control also kills many of the sawflies' enemies.

Control suggestions:

In spite of its many enemies, there are periodic outbreaks of sawflies in all parts of the state. Where there are only a few colonies feeding on small trees, the most practical control is to pick them or shake them off and destroy them. Where heavier infestations occur or where infestations occur in pine stands, use of insecticides may become necessary. This will involve use of power spray equipment with sufficient pressure to thoroughly wet the needles and twigs in the tops of the trees. Under some conditions, aerial spraying may be practical. Such work must be done so as to avoid drift of insecticide into farm ponds, streams, and onto crops or pastures.

One should consider the many factors involved in the application of an aerial spray. Consult your county agent or district forester before you plan the work since treatment of individual tracts may be costly and harmful results can occur if the work is not planned properly.

If it is considered necessary to apply control measures, correct timing of spray application is necessary. The spray should be applied when flagging first becomes noticeable or when defoliation is just getting started.

Equipment	Insecticide and Formulation		Rate
Aircraft (Large commercial tracts in cooperative projects)*	DDT	1 lb. technical grade 1 1/4 qts. solvent (Solvacide PB-544c or equal) 2 5/8 qts. #2 fuel oil	1 gallon per acre
Aircraft	DDT	2 qts. 25% DDT emulsifiable concentrate 2 qts. #2 fuel oil	1 gallon per acre
Sprayers	DDT	25% emulsifiable concentrate - 2 teaspoonfuls in 1 gal. of water or 1 qt. in 100 gals. of water	Cover infested trees
	DDT	50% wettable powder - 2 tablespoonfuls in 1 gal. of water or 2 lbs. in 100 gals. of water	
Mist blower	DDT	1 qt. 25% emulsifiable concentrate 3 qts. water	2 to 4 gallons per acre

* Projects financed jointly by landowner and state or federal governments under Cooperative Forest Pest Control Act of 1947.

E

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, NORTH CAROLINA COUNTIES AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS STATE OF NORTH CAROLINA

EXTENSION SERVICE

Exhibit E

Farm Forestry Facts

Forestry Extension Department N. C. State College, Raleigh, N. C. December, 1960

Eastern Redcedar

Landowners of North Carolina have sought after redcedar (Juniperus virginiana L.) since early colonial days. Large quantities of wood from this tree have been, and are still being, consumed for paneling, millwork, woodenware, poles, posts and novelties. The fragrance of redcedar and its reputation for keeping moths away, combined with its striking color and excellent finishing properties, make it very popular for furniture, closet lining and chests.

Homeowners use redcedar for Christmas trees, as well as for ornamental plantings.

Redcedar grows naturally in all kinds of places (ridges, slopes, and flat land), but it does best on a loamy limestone soil.

Farmers are showing new interest in this tree because of its desirability as a Christmas tree. However, there are disadvantages in trying to grow redcedar in plantings because of diseases.

Christmas tree growers are finding a new blight that causes the lower branches to die. The disease keeps getting higher in the tree until only the tips of the branches are alive. This needle blight is called Exosporium (Exosporium glomerulosum (Sacc.) Hohn.)

A twig blight that makes redcedar unfit for a Christmas tree is called Phomopsis (Phomopsis juniperovora Hahn). This disease starts at the tip of a limb and moves down to kill the whole branch. Later it may kill the entire tree. In general, this disease is more severe on young trees, where it may completely kill all seedlings growing for Christmas trees.

Cedar-apple rust is a well-known disease that grows on redcedar and apple trees. Very little harm comes to redcedar, but the rust badly damages apples. The best control is to keep redcedar trees away from apple trees.

(OVER)

A root disease called Fomes (Fomes annosus (Fr.) Cooke) sometimes destroys the roots and kills redcedar. Shaded trees seem to be killed more easily than those in the open.

You may now ask - What can be done to control these diseases?

Mr. Howard Garris, Extension Plant Pathologist in a preliminary test, controlled Exosporium by spraying 9 times with Ortho Phaltan at 10-day intervals and/or after each heavy rain. Such a spray program is too expensive for redcedar Christmas trees. It may be that fewer applications will work and that other chemicals will effectively control Exosporium. More research is needed on the life history of the cedar fungus and control before definite recommendations can be made.

Phomopsis can also be controlled by spraying with fungicides, but what chemicals are best and how many applications are needed are not known at present.

There is no control for root diseases.

Very truly yours,

County Agricultural Agent

Prepared by:

Fred E. Whitfield
Forest Management Extension Specialist

F

Exhibit F

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF NORTH CAROLINA

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
NORTH CAROLINA COUNTIES AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

EXTENSION SERVICE
COUNTY AGRICULTURAL AGENT

State College Station
Raleigh, N. C.
September 30, 1960

To: All White and Negro County Agents
From: Forest Management Extension Section
Subject: Forest Management Extension Work Areas
Enclosure: Map of Work Areas

Gentlemen:

In the fall of 1957, we started a graduate program in the Forestry Extension Department. Up until that time our staff members were serving as general forestry specialists, but the demand for more assistance in certain specific problem areas of forestry has necessitated the assigning of each staff man to specialize in one of these problem areas.

This specialization is closely tied to the forest-cover types of the state, which do not coincide with the present Extension administrative districts. To reconcile these problems and better serve the county Extension staffs, new assignments, both geographic and problem-wise, have been made within the department.

The new geographical work areas are outlined on the enclosed map. The headquarters for each of these areas will eventually be moved to Raleigh except for the mountain area, which will remain in Asheville.

Until all staff members have completed their graduate programs, there will be some year-to-year juggling of assignments. Until September 1, 1961, assignments are as follows:

(1) North Coastal Area - W. M. Stanton -- headquarters, Windsor. No state-wide assignment until completion of graduate work.
(2) Mid-Coastal Area - J. C. Jones -- headquarters, Raleigh. No state-wide assignment until completion of graduate work. For the next year he will be acting head of the Forest Management Section in addition to area assignment.
(3) South Coastal Area - R. S. Douglass -- headquarters, Raleigh. State-wide assignment in planting, forest soils and site preparation.
(4) North Piedmont Area - J. H. Gilliam -- headquarters, Boone (temporary). State-wide assignment, Christmas tree production. His location in Boone will enable him to concentrate on some specific problems in Fraser fir production.
(5) South ~~Coastal~~ Piedmont Area - F. E. Whitfield -- headquarters, Raleigh. State-wide assignment, forest insects and diseases.
(6) Mountain Area - L. A. Hampton -- headquarters, Asheville. No state-wide assignment.

To simplify the handling of your requests for forestry assistance, you may direct each to your area forestry specialist, to the individual concerned if a special problem, or to the Extension forester's office, Raleigh.

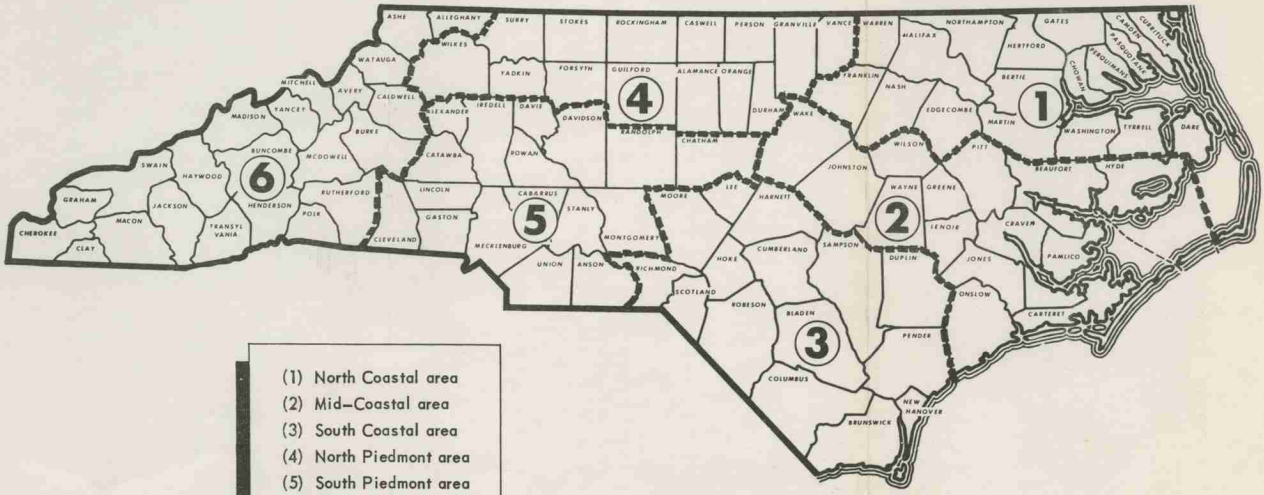
These assignments become effective on October 1, 1960.

We ask that you bear with us until the completion of our graduate-training program and all staff members have been permanently assigned.

J. C. Jones, Acting Head
Forest Management Section

W. M. Keller, Acting
In Charge, Forestry Extension

Forest Management Extension Work Areas



(1) North Coastal area
(2) Mid–Coastal area
(3) South Coastal area
(4) North Piedmont area
(5) South Piedmont area
(6) Mountain area

Exhibit G

Exhibit H

Summary of a Meeting Between Members of the Department of Plant Pathology and the Forestry Extension Department

On Thursday, September 15, the following persons attended a meeting to discuss problems of mutual concern in connection with the diagnosis of forest diseases: John Gray, Walter Keller, and Fred Whitfield of the Forest Extension Department, and Don Ellis, Howard Garriss, Charles Hodges, and Arthur Kelman of the Plant Pathology Department.

The following topics were discussed:

1. In connection with processing forest tree disease specimens, it was decided that all disease specimens should be recorded on a Plant Disease Clinic Specimen Record card. Thus, specimens that would come to the Forestry Extension Department would be recorded on this specimen card if they involved routine specimens that did not require special handling or diagnostic service.

   A carbon of all correspondence of the Forest Extension Specialist dealing with forest disease problems would be filed in the Plant Pathology Extension office. Furthermore, if diagnosis of forest tree disease specimens by persons in the Department of Plant Pathology involves correspondence, a carbon of such correspondence is also to be sent to Mr. Fred Whitfield of the Forestry Extension Department. If specimens are sent with the Plant Disease Clinic Form to the Forestry Extension Department, all such specimens sould be automatically referred to the plant disease clinic for diagnosis. All card files and other records that are related to forest tree diseases will be made available to Fred Whitfield so that he can keep informed of developments or prevalence of any specific forestry disease.

2. As needed, the opportunity will be provided for Mr. Whitfield to use microscopic equipment or other facilities that he may wish to use in facilitating diagnosis of specimens that are referred either to him or to other persons in the department.

3. Although no final action was taken on this particular matter, it was recommended that the Forestry Extension Department consult with the State Department of Forestry with reference to the possibility of issuing jointly a publication that would summarize current prevalence of forestry diseases. If plans can be completed for such a publication, it will be possible for Mr. Whitfield to summarize plant disease record information and this material could be submitted to the publication that is now going only to State Department of Forestry personnel. Such information will be designated as to origin.

4. It was decided that requests for personal visits to private homes for diagnosis of shade tree problems would be discouraged by both departments involved. Furthermore, calls of this type would be made only under special circumstances.

Exhibit I

AGENT TRAINING SCHOOL IN NURSERY MANAGEMENT

Outline of Topics to be Discussed

I. MARKET POTENTIAL AND SPECIES ADAPTATION

II. PROPAGATION

A. Primarily Cuttings

1. Bed Construction
2. Rooting Medias
3. Misting Systems

(a) Principles - advantages - economics
(b) Equipment (nozzles, solenoids, strainers, time clocks, etc.)
(c) Hardening-off procedures

B. Plastic Covered Structures

(a) Principles
(b) Equipment
(c) Hardening-off procedures

4. Rooting Hormones
5. Making and Sticking the Cuttings

III. DIGGING AND PLANTING

A. Particular Emphasis on Depth of Planting

IV. NEMATODES AND OTHER DISEASES

A. Nemotode Disease

1. Prevalence and Severity
2. Recognition of Symptom

(a) Above ground (Similarities to Nutrient Deficiency and Why)
(b) Root appearance

B. Control

1. Preplant treatments (D.D. EDB-Vapam, Methyl Bromide, etc.)
2. Post plant treatments (Nemagon-Fumazone, etc.

C. Disease Control

1. Leaf spots, root rots, cutting disorders — rust, leaf galls, etc.
2. Principles of disease control. Spraying, dusting, resistance, exclusion, etc.

V. INSECTS AND RELATED ARTHROPODS

A. Noxious Species Presently Known in the Area on Ornamentals

1. Recognition
2. Prevalence and economic importance
3. Control

B. Noxious Species under State and/or Federal Quarantine in the Area

1. Explanation of quarantine rules and regulations
2. Japanese beetle
3. Others

C. Noxious Species on Ornamentals which may be Introduced

1. Those present in U. S. under quarantine

(a) Gypsy moth
(b) Others

VI. CHRISTMAS TREES AND ORNAMENTALS

A. Economics of Growing Christmas Trees

1. National consumption
2. South consumption
3. Local consumption
4. Expected net returns per acre from well-managed stand of Christmas trees (use cost and return Data Sheet or typical Christmas Tree Farm)

B. Digging and Planting

1. Handling of planting stock from nursery to field

(a) Storage in bundles
(b) Heeling-in seedling
(c) Dip tree roots in mud solution at planting site

2. Planting methods and equipments
3. Planting site
4. Varieties

C. Pruning and Shearing

1. Necessity for pruning and shearing
2. How to shear
3. Time of year for different species
4. Shearing equipments and techniques

(a) Demonstration in field on white pine

D. Marketing

1. Explain grades — show how to grade

2. Explain National Christmas Tree Marketing situation in terms of supply and demand vs quality
3. Market competition from Canada and Northern states

E. Record Keeping and Taxes

1. Plantation layouts for record keeping purposes
2. Outline of type records to keep
3. Explain how income tax is handled on Dugged stock vs Cut Trees (ordinary income and long term capital gains)

VII. WEED CONTROL

A. Why?

1. Competition for moisture and nutrients
2. Exclusion of light from seedlings and small transplants
3. Dispersion of seeds

B. How?

1. Pre and Post emergence
2. Demonstration of materials and equipment

C. When?

1. Cautious, etc.

VIII. CONTAINER GROWN STOCK

A. Containers
B. Soil medias
C. Fertilization
D. Watering

IX. PRUNING

A. Top and Root

1. For quality plants

B. Fundamentals

1. Why? When? How?

X. IRRIGATION

XI. MARKETING

1. Quality
2. Standards
3. Pricing

Program personnel will include John Harris, J. C. Wells, George Jones, John Gilliam and Bryson James.

Exhibit J

FINANCIAL SUPPORT OF EXTENSION FORESTRY PROGRAM
IN NORTH CAROLINA FROM OTHER THAN PUBLIC FUNDS

Supporting Organization	Type of Support	Value of Support 1959	Value of Support 1960
Southern Bell Telephone & Telegraph Company	All 4-H forestry awards programs, including annual 4-H Forestry Camp	$ 3,175	$ 3,175
Richardson Foundation	Graduate fellowships for two Forestry Extension staff members each year	12,600	12,600
Halifax Paper Company	(1) Free matching tree seedlings to landowners in 35 counties	20,000	20,000
	(2) Furnishing equipment for site preparation demonstrations; feeding crowds attending demonstrations; furnishing two foresters to assist with instruction at 4-H Forestry Camp	1,500	2,300
Union Bag-Camp Paper Company	(1) 200,000 free tree seedlings to landowners each year	900	1,000
	(2) Free Ammate for demonstrations	---	100
Riegel Paper Corporation	Site preparation demonstration and free meal to crowd attending (Wilson County)	---	150
Champion Paper & Fibre Company	(1) Free tree seedlings to landowners	7,000	7,000
	(2) Prize money for 4-H timber stand improvement contest	75	---
Porter Brothers, Inc. (Chain saw dealers, Shelby, N. C.)	(1) Furnishes a new model McCulloch chain saw for demonstration use each year	300	300
	(2) Furnished two men plus equipment to assist with instruction at 4-H Forestry Camp	---	1,000

Supporting Organization	Type of Support	Value of Support 1959	1960
Gregory Poole Equipment Company (Raleigh)	Furnished heavy equipment and operators for site preparation demonstration in Moore County	$ ---	$ 500
Carolina Tractor & Equipment Company (Salisbury, N. C.)	Furnished heavy equipment and operators for site preparation demonstrations in Rockingham, Alexander, Rutherford and Union Counties	---	2,000
Homelite Chain Saw Company	Furnishes new chain saw each year for demonstration use. Furnished a second saw during 1960.	250	500
Pat Brown Lumber Company, and Peoples Bank, Roxboro, N. C.	100,000 free tree seedlings offered to landowners in Person County through county agent's office	450	500
R. A. Whitfield Manufacturing Company, Austell, Georgia	Furnished mechanical tree planter to Extension Forestry Department	600	---
Lumber companies of Ashe County	Donated one chain saw and other items for door prizes to be given away at a series of forestry meetings	400	---
Sandvik Saw and Tool Company	Supplied one man to serve as an instructor at 4-H Forestry Camp	400	400
Banks of Surry County	Donated one mechanical tree planter to county agent's office for use by Surry County landowners	---	625
Appalachian Lumbermen's Club, Asheville, N. C.	Donated prize money for a tree planting contest in Buncombe, Haywood, Henderson and Madison Counties	---	100
W. T. McClain, pulpwood dealer in Sampson County	Donated prize money for a 4-H forestry contest in Sampson County	150	150
Pulp and paper companies (4)	Fed crowds attending forestry demonstrations in Jones County	200	---
Clinchfield Railroad	10,000 free tree seedlings to 4-H'ers of Mitchell County	---	50
	Totals	$48,000	$52,450