

NORTH CAROLINA
AGRICULTURAL EXTENSION SERVICE
ANNUAL REPORT

for
1958.

Period covered: December 1, 1957 to November 30 1958.

Name of Project: Farm Forestry Extension Work

Covering work done by J. L. Gray, In Charge, Forestry Extension; W. M.

Keller, Head, Management Section; and Forest Management Extension Specialists

W. M. Stanton^{1/}, R. S. Douglass, J. C. Jones, John Gilliam, E. M. Jones,

F. E. Whitfield^{2/}, Leonard Hampton^{3/}. Work of G. W. Smith, Head, Wood Products
Section, and L. H. Hobbs, Wood Products Extension Specialist, covered in
separate reports.

Percentage of time devoted to project: _____

Date Submitted: August 12, 1959. Signed: _____
Project Leader

Date Approved: _____, 195 . Signed: _____
Asst. State Director of
Extension Work

Date Approved: _____, 195 . Signed: _____
Director of Extension
Work, U. S. Department
of Agriculture

ANNUAL REPORT
FARM FORESTRY EXTENSION WORK
NORTH CAROLINA

December 1, 1957 - November 30, 1958, Inclusive

John L. Gray, In Charge, Forestry Extension
Walter M. Keller, 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.

TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| I. Results or Accomplishments by Major Work Phases ----- | 1 |
| A. Tree Planting ----- | 1 |
| B. h-H Forestry ----- | 4 |
| C. Brushland Conversion ----- | 6 |
| D. Long-time Cooperators ----- | 10 |
| E. Roadside Demonstrations ----- | 10 |
| F. Measurement, Marketing, Harvesting, Preservation and Utilization ----- | 11 |
| G. Forest Insect and Disease Protection ----- | 12 |
| H. Department Administration, Supervision, and Program Development ----- | 13 |
| II. Activities at the State or Area Level ----- | 17 |
| A. Work with State Extension Supervisors, District Agents and Youth Leaders in Program Planning ----- | 17 |
| B. Assistance Given to or Received from Other Subject-Matter Specialists and Research Personnel ----- | 17 |
| C. Assistance Given to or Received from Various State, Federal and Other Agencies or Interest Groups ----- | 19 |
| III. Assistance Given County Extension Workers with Both Adult and Youth Work ----- | 22 |
| IV. Contribution to Regional Extension Program ----- | 24 |

Exhibits

- A. Extension Forestry Department Reorganization
- B. Report on Pine Sawfly Epidemic
- C. " " " " "
- D. " " " " "
- E. Policy Statement on Program and Working Relationships
- School of Forestry and Agricultural Extension
Service
- F. Summary of Tree Seedlings Ordered Through Extension
Personnel during the 1957-58 Planting Season
- G. Brochure - Planting Southern Yellow Pines

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FARM FORESTRY EXTENSION WORK

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John L. Gray, In Charge, Forestry Extension
Walter M. Keller, Forestry Extension Specialist

I. Results or Accomplishments by Major Work Phases

A. Tree Planting

Extension Forestry staff members devoted approximately 13% of their time to this phase of the program in 1958.

With over one-half million acres of idle land and many hundred thousand acres of poorly stocked cutover timberland needing planting, this will remain an important phase of the Extension forestry program for many years.

During the 1957-58 tree planting season a total of 18,000,000 tree seedlings were ordered on special yellow application blanks distributed by Extension personnel, or were placed by Extension personnel through several special offers. This means that the county Extension staffs were responsible for placing approximately 22% of the total state nursery production of 83,000,000 tree seedlings for this planting year. This total placed by county Extension personnel becomes much more impressive when we remember that as recently as 1946-47 the total production of all tree seedlings in the state nurseries was only slightly over 3,000,000. In four counties, the

county agents' staffs were responsible for placing over one million pine seedlings each. These counties and their totals are as follows:

| | |
|---------------------|-----------|
| Anson County ----- | 1,276,200 |
| Halifax County ---- | 1,065,750 |
| Richmond County --- | 1,545,000 |
| Scotland County --- | 1,233,250 |

For complete planting summary, see Exhibit F in Appendix.

During this planting season, the Extension Forestry Department withdrew from direct handling of free seedlings for 4-H Club members. It was felt that this program had served its purpose and it was not necessary to give away free trees to promote interest in planting. The adult phase of the free-trees program had been dropped the previous planting season. Several of the pulp and paper companies gave free seedlings to boys and girls, but it was very limited in nature and all the details of the program were handled directly by the companies concerned.

E. M. Jones, forestry specialist in the Southwestern District, stated that there was a large increase in the use of tree planting machines since the start of the Soil Bank program. Twenty-five new planting machines were placed in this district during the past year through the efforts of the county agents and forestry specialist.

The planting program in the mountains and western Piedmont continued to be hampered by the serious shortage of white pine planting stock. This has been a chronic situation, but should be corrected before the 1958-59 planting season begins, when the new Morganton nursery will be in full production and will have 15,000,000 white pines available. This will be a big step since this area has never

had more than 5,000,000 seedlings available in any prior planting season.

There has been a rapidly growing interest in the use of slash pine for planting in the Coastal Plain and Sandhill areas of the state. This interest has developed all of a sudden, and has caught the state nurseries by surprise and thus short of seedlings. All foresters working in this part of the state agree that many million more slash pine seedlings could have been used. The state is moving rapidly to correct this shortage, and instead of the 8,000,000 seedlings available during the past planting season there will be 25,000,000 slash pine seedlings ready for the 1959-60 planting season.

R. S. Douglass, forestry extension specialist in the Southeastern District, devotes a high percentage of his time to tree planting. The Sandhills are located within his work area, and this section is rapidly being put back into pines. Douglass had observed that with this accelerated planting program in the Sandhills, there was a great difference in the planting recommendations made by the different agricultural workers. Each worker seemed to have different ideas as to site, species, spacing, etc., and this was causing confusion among all concerned. Douglass arranged a tour of some older slash and loblolly pine plantations in Richmond County for professional agricultural workers only. Forty-two workers from surrounding counties attended, and a detailed study was made of the results obtained in these plantations. The purpose of this tour was to attempt to unify planting recommendations being made by all agricultural workers. The tour was

highly successful and well received, and more uniformity in recommendations was soon apparent.

One result of the preparation and holding of the above-mentioned tour was the growing conviction that slash pine was much better suited for planting on the deeper sands than was loblolly. The more the problem was studied, the more apparent this fact became. A group of farmers from Hoke County were taken on a tour of these older slash and loblolly plantations in Richmond County and shown these results. The purpose of the tour was to encourage the planting of slash pine rather than loblolly pine on the deeper sands, and according to Douglass the response to this suggestion was excellent and soon apparent in the planting activities of the landowner.

B. 4-H Forestry

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

During this club year, all one hundred counties held forestry training programs for 4-H Club members, and 25,786 club members received definite training in forestry from county Extension workers or members of the Forestry Extension staff. This represents an increase of almost 1,000 club members over the 1957 total of 24,845.

Four-H Club members from 99 counties participated in and completed forestry projects for which they turned in records. During the year, 7,169 white club members were enrolled in forestry projects, and 4,437 completed projects. This represents an increase of 5.4%

over the 1957 program year when 6,681 club members were enrolled and 4,224 completed projects.

In the demonstration phase of the 4-H program, 43 counties had an individual or team entrant in district contests. This figure compares favorably with those of the past years, since this program seems to have reached a fairly steady level and apparently is going to remain at or near this level. In 1957, there were 46 counties represented; 1957, 40 counties; and 1955, 38 counties.

All six district winners received an expense-paid trip to 4-H Club Week held at North Carolina State College in Raleigh in July. All six district winners entered the state competition. The team from Edgecombe County won the state competitions with a demonstration on how to increase your woodland income. They demonstrated the need for site preparation and the different methods of site preparation. The members of the winning team each received an engraved gold wrist watch.

The fourth annual 4-H Forestry Camp, held at Camp Millstone, June 2 to 7, 1958, was attended by 89 delegates from 88 different counties. Six counties were unable to send a delegate to camp due to late school-closing dates in their counties. The heavy snows of the previous winter left many counties with lost school days to be made up, and this make-up ran into the same week the forestry camp was held.

Two assistant county agents from each of the six Extension districts attended the camp as counselors; and one district agent attended as evaluator. The district agent attending was E. L. Norton of the

Northeastern District. The assistant county agents attending were:

| | |
|---------------------|---------------------|
| Joe Honeycutt ----- | Pender County |
| John Beck ----- | Alamance County |
| Gene Gray ----- | Ashe County |
| Bill Garmon ----- | Transylvania County |
| Bill Teague ----- | Swain County |
| Bob Love ----- | McDowell County |
| Bill Parton ----- | Burke County |
| Shep Moore ----- | Pamlico County |
| Clarence Harris --- | Pasquotank County |
| James Hoover ----- | Sampson County |
| David Spruill ----- | Bertie County |
| Ed Biddix ----- | Northampton County |

The members of the Forestry Extension staff served as instructors at the camp and in addition were assisted by:

H. M. Ellis, In Charge, Agricultural Engineering Extension
Bob Williams, Forester, Southern Bell Telephone &
Telegraph Company
Harry Jefferson, American Pulpwood Association
James Altman, American Pulpwood Association

In the best-record phase of the program, 85 counties selected county winners and awarded medals to them on county achievement days. In only 12 counties a club member prepared a long-time record and entered it in state competition. This is a very difficult phase of the program to get participation, and 1958 was one of the poorer years in this respect. Not only were fewer records submitted, but the quality of those submitted was below previous levels. In all fairness, it should be pointed out that for the two previous consecutive years, North Carolina had a national winner each year, and no group could expect to maintain such a standard indefinitely. The 1958 long-time record winner was Jimmy Alston of Warren County.

C. Brushland Conversion

The members of the Extension Forestry Department devoted about

12% of their total work time to this program phase. Converting brushland to pine or carrying out operations that will assure natural restocking of pine is a long-time investment, and a program of many practices, depending on the local situation. The different practices applicable to the different regions of the state were well covered in the 1956 report, and no necessity can be seen for covering them again in this report.

At least 28 result demonstrations of this practice were set up during 1958.

Since this is a comparatively new program, we will cite several examples of the program and its problems.

1. From E. M. Jones, forestry specialist in the Southwestern District, comes this report:

"No contractual services are available yet in the Southwestern District, but there is a great deal of interest in this program by many landowners. A good example is Mr. A. C. Fowler, Route 9, Lenoir. Mr. Fowler has poisoned all the hardwoods of no value on 35 acres of good white pine land, releasing an excellent stand of white pine reproduction. He is continuing this work until he has covered his entire 300 acres of woodland. Two days were spent by the forestry specialist with Mr. Fowler setting up this operation. Most of the chemical used for this job was Ammate in notches at the base of the tree."

2. From the Southeastern District, Ross Douglass reports the following:

"In February, 1956, a fireplow was borrowed from North

Carolina Forest Service, and several result demonstrations were established using the fireplow to furrow scrub oak areas for planting in furrows. During 1957 and 1958, a number of additional demonstrations were set up, with two fireplows purchased by heavy equipment operators as a result of the 1956 demonstrations. These operators have plowed about 1500 acres during 1956-57 and 1957-58 tree planting seasons. Nearly 1,000 acres have been prepared for planting using heavy disking. Two lumber companies have now purchased fireplows, and during 1957-58 they prepared and planted at least 500 acres.

"A demonstration was established in Moore County in a scrub oak stand to compare preparation with a fireplow to use of Crossville plow. Three acres were prepared, with one-half of each acre by fireplow and the other half by Crossville plow. One area is set to loblolly pine, one to longleaf pine, and one to slash pine so that there will also be a species comparison demonstration.

"A shortage of seedlings (particularly slash pine) has seriously curtailed hardwood conversion work. Lack of ACP funds, or in some cases, unwillingness of county ASC committees to allot funds for forestry practices, has seriously curtailed amount of work done. Thousands of small owners would do the work if ACP cost-sharing assistance were available, but without ACP help they just do not have capital at a rate of \$25 to \$35 per acre to tie up in a 30-year investment. In plain words, they just cannot afford it without help.

"The practice of county ASC offices paying off ACP only once a year has resulted in a serious handicap since it is sometimes fifteen or sixteen months from the time the work is accomplished until the owner receives his ACP payment. Use of purchase orders to pay contractors for land preparation and other forestry practices is being tried; and if it is expanded, it could help a lot to overcome this handicap."

3. John Gilliam, forestry Extension specialist from the Northwestern District, sends in the following report:

"A special effort has been made to set up contractual services for hardwood conversion in Person, Chatham and Rockingham Counties in addition to a step-up in emphasis in the Orange County program.

"A demonstration was held in Rockingham County on the county farm property. A 2-acre area was bulldozed, poisoned and planted to white pine. One-quarter-acre demonstration plots were set up to compare cost and results of different poisoning methods. The area was then planted to white pine. The survival through the first growing season is 95%. The actual cost of this operation was about \$40 to \$45 per acre, which is \$10 to \$15 above ASC assistance. Results on poisoning demonstration are not yet available.

"A similar demonstration was held in Chatham County. International Paper Company furnished the bulldozing equipment for the disking. The larger trees were poisoned, using 2-4-5T, 4 lbs. ^{acid} and equivalent mixed at a ratio of 1 - 12 in fuel oil and applied

with a 'Little' tree injector. The area was then planted to Lolly pine. Survival - 90%.

| | | |
|-------------------------|-------------------------|-------------------------------------|
| Disking cost ----- | \$14 per acre | |
| Poisoning cost ----- | 6 per acre | |
| Planting cost ----- | 15 per acre | |
| Tree seedlings ----- | 4.50 per thousand | |
| <u>Total cost -----</u> | <u>\$39.50 per acre</u> | |
| Less ----- | \$30.00 per acre | maximum ACP cost-sharing assistance |
| Net ----- | \$ 9.50 per acre | out-of-pocket landowner cost" |

4. In the Mountain district, Leonard Hampton set up hardwood control demonstrations in Henderson County (1), Yancey County (1), and Transylvania County (3). Due to the mountainous terrain, very little mechanical preparation was tried. The bulk of the control measures tried were either chemical or hand girdling or cutting.

D. Long-time Cooperators

Approximately 11% of the time of this department in 1958, was devoted to this phase of the program. Two districts, the Western and Southwestern, accounted for about 60% of the work time devoted to this phase of the program.

Since this program is a continuing one and has been discussed in detail in two earlier annual reports, it is not deemed necessary to go into the mechanics of it again in this report. This program has an ultimate goal of one cooperator in each county of the state; and at the beginning of 1958, there were sixty such cooperators. Eighteen new ones were added during the year, making a total of 78 cooperators at the end of the program year.

E. Roadside Demonstrations

Approximately 2% of the time of the staff members was spent on

this phase of the program.

By the end of the 1957 program year there were 40 roadside sign units placed about the state. During 1958, 24 additional sign units were ordered, making a total of 64 signs now placed throughout the state. The long-range goal for this program is 150 sign units; so this is currently approaching the halfway mark for this program.

F. Measurement, Marketing, Harvesting, Preservation and Utilization

Approximately 19% of the time of staff members was devoted to this phase of the program.

This represents one of the earliest activities in the forestry extension program, and it is still one of the largest and most important fields. It is so large that on July 1, 1958, the Forestry Extension Department was divided into two sections, a Forest Management Section and a Wood Products Extension Section. For details on this reorganization see Exhibit A in the Appendix. The activities of the Wood Products Section are covered in a separate report.

Each of the forestry management specialists gets many small requests from landowners for help in marketing and harvesting forest products. The following case, reported by William M. Stanton, forestry management specialist in the Eastern District, is typical of these requests.

Mr. Wesley Chesson, farmer from the Mackeys community in Washington County, had a ten-acre tract of mature pine which he thought was ready for marketing. He talked to his county agent, who in turn called in Forester Stanton. The extension forester agreed that it

was ready for cutting and suggested that the owner get bids from three different buyers. The three bids received were for \$1800, \$2500 and \$3500, with no allowance for the laps or smaller trees. Forester Stanton advised Mr. Chesson to hold out until he got a bid which would make allowance for the laps and small trees to be utilized for pulpwood. With Stanton's help, the landowner finally found such a buyer and received slightly more than \$5,000 for this timber. Following the recommended better marketing practice, the landowner realized better than \$1500 more than his original highest bid.

G. Forest Insect and Disease Protection

Approximately 5% of the time of staff members was devoted to this phase of the program.

Lacking a staff member with special training in forest insects and diseases, the Extension Forestry program in North Carolina has never emphasized forest insect and disease protection. This condition, however, is now in the process of undergoing a change. In September, 1958, Fred Whitfield, forestry extension specialist, in the Western District, went on leave of absence and enrolled at Syracuse University to take graduate training in the field of forest entomology and pathology. Upon his return in August, 1959, Mr. Whitfield will be assigned state-wide responsibility in this specialized field.

The forestry specialists stationed in large cities like Raleigh, Charlotte and Asheville had to devote considerable time to identifying insect specimens and making control recommendations for shade

trees. This shade-tree work has been increasing rapidly from year to year, and it is hoped that the return of Mr. Whitfield will strengthen the department in this field.

The most spectacular insect problem in the state during 1958, was an outbreak of the pine sawfly (Neodiprion pratti-pratti) in the northern parts of Person, Granville and Vance Counties. Approximately 50,000 acres were involved in the outbreak in North Carolina. This was the southern end of an outbreak of this pest which extended northward to Warrenton, Virginia. The Extension forester took the lead in setting up a Pine Sawfly Committee which studied the outbreak carefully and kept the landowners informed of the situation. H. J. Green, Pest Control Officer, North Carolina Division of Forestry, and W. F. McCambridge, Forest Entomologist, Southeastern Forest Experiment Station, worked closely with the Extension forester and the county agents throughout the period of this outbreak. The Soil Conservation Service, Army Corps of Engineers and other agricultural workers were very cooperative during this outbreak. It is felt that a good job was done keeping the landowners informed of the truth of the situation during the outbreak period, and landowners were kept from becoming panicky and selling all their pine timber during that period of complete defoliation when it appeared that all the trees were dead. For type of information distributed from the Extension forester's office during the outbreak see Exhibits B, C and D in the Appendix.

H. Department Administration, Supervision and Program Development

The department program of professional improvement through

graduate training was explained in detail on pages 37 through 41 of the 1956 annual report. In the spring of 1958, the Extension forester was able to complete work on lining up a sponsor to provide \$6,000 for the school year to continue the department's graduate training program. As a result, Mr. Fred Whitfield entered Syracuse University graduate school in September, 1958, to specialize in forest insects and diseases.

There were two major administrative changes made in the department during 1958. The first was the previously mentioned department reorganization. The Extension forester put into effect on July 1, 1958, the reorganization of the department into two sections. The first section is a Forest Management Extension Section headed by W. M. Keller and includes the six district Forestry Management Extension Specialists. The second section is a new Wood Products Extension Section headed by G. W. Smith and includes one forestry marketing specialist. For more specific details on this department reorganization see Exhibit A in the Appendix.

The other major administrative development during 1958, was the establishment of a policy statement on program and working relationships between the School of Forestry and the Agricultural Extension Service. This agreement, hammered out by the Extension forester, Dean of the School of Forestry and the Extension Administration, is very thorough and far reaching in its effects. It effectively ties the School of Forestry and the Extension Service much closer together

and makes the Extension Forestry Department the official representative of the School of Forestry in all off-campus operations. This statement spells out in detail all of the many relationships between the School of Forestry and the Extension Forestry Department. For the complete text of this statement see Exhibit E in the Appendix.

Two personnel changes were made during 1958. On April 1, 1958, William M. Stanton was hired to fill the vacancy of forestry extension specialist in the Eastern District. On September 1, 1958, Leonard Hampton transferred for one year from TVA to fill the position of forestry extension specialist in the Western District left vacant when Fred Whitfield took a year's study leave.

During 1958, the staff members of the Forestry Extension Department held 438 individual meetings with a total attendance of 17,153 people.

As of November 30, 1958, staff members and assignments were as follows:

| <u>Name</u> | <u>Title</u> | <u>Area or Subject Matter Responsibility</u> | <u>Headquarters</u> |
|-----------------|--|--|-------------------------------------|
| J. L. Gray | In Charge, Forestry Extension | State-wide | Raleigh |
| W. M. Keller | Head, Forest Management Section | Management - state-wide | " |
| G. W. Smith | Head, Wood Products Section | Wood products - state- wide | " |
| L. H. Hobbs | Wood Products Extension Specialist | Marketing - state-wide | " |
| W. M. Stanton | Forest Management Extension Specialist | Eastern District | County Agent's Office, Plymouth |
| J. C. Jones | " " " " | Northeastern District | Raleigh |
| R. S. Douglass | " " " " | Southeastern District | County Agent's Office, Clinton |
| J. H. Gilliam | " " " " | Northwestern District | Agricultural Center, Wentworth |
| E. M. Jones | " " " " | Southwestern District | County Agent's Office, Charlotte |
| Leonard Hampton | " " " " | Western District | Courthouse, Asheville |

II. Activities at the State or Area Level

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

In planning the 4-H Forestry Camp for 1958, a joint conference was held in May between the Extension Forestry staff and the state 4-H office staff. At this time all plans for the camp were reviewed and discussed.

Since the 4-H staff and the forestry staff are both assigned on a district basis, the district forestry extension specialist, district agent and associate 4-H Club leader in each district acted as a committee to select two assistant county agent 4-H counselors from each district for the 1958 4-H Forestry Camp.

Forestry Extension Specialist E. M. Jones, Southwestern District; John Gilliam, Northwestern District; and R. S. Douglass, Southeastern District, each sat down at least once during the year with their respective district agents and had a planning conference. At these conferences the entire forestry program for the district was discussed with the district agent, and his suggestions and support were solicited.

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

Several subject-matter departments contributed generously of their time and services to help make the 1958 4-H Forestry Camp an outstanding success. H. M. Ellis, In Charge, Agricultural Engineering Extension, served as an instructor for the week in a class on better fencing techniques. Bill Mills, Poultry Extension Specialist,

supervised the barbecuing of enough chickens to feed 200 hungry boys and girls. Ralph Mills, photographer from the Visual Aids Department, spent several days around camp enduring the heat, gnats and redbugs while he recorded the camp activities with his cameras. Hank Wilkinson, radio and TV specialist, spent two days in camp recording taped interviews with many of the 4-H delegates to the camp. These tapes had been brought in by the delegates and were taken back to their home counties where they were used on local radio programs. These tapes were later used over 31 radio stations located in North Carolina, South Carolina, Virginia and Tennessee.

J. C. Jones, Northeastern District forestry extension specialist, spent considerable time assisting the Farm Management Department in securing information for and preparing a marketing report for Bertie County.

The research personnel of the Bent Creek Experimental Forest were very cooperative in helping to set up a week's training conference for the Extension Forestry staff. Part of the training conference was held on the Bent Creek area, and the station personnel did an excellent job in presenting their part of the program.

Dr. T. E. Maki of the School of Forestry worked closely with the Extension Forestry staff throughout the year. Dr. Maki was especially helpful by providing his services as a consultant and adviser on the Rockingham County Home Research Forest. The project is rapidly becoming a showplace of forestry practices, and Dr. Maki's services have been invaluable in keeping it on a sound and practical basis.

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

In the federal agency field, 1958 was marked by continued close cooperation between the Extension Forestry program and the Soil Bank program of the Agricultural Stabilization and Conservation agency.

Extension Forester Gray, Forestry Extension Specialist Keller, and representatives of the North Carolina Division of Forestry served as a technical forestry advisory group to the state A.S.C. committee. During the year several conferences and meetings were held by the committee with H. V. Mangum, Administrative Assistant with the state A.S.C. office. The Extension Forestry staff prepared a special issue of the "Farm Forestry Facts" sheet dealing with the major changes in the forestry phases of the 1959 Conservation Reserve and A.C.P. programs.

Forestry Extension Specialist Douglass assisted the Soil Conservation Service in collecting and preparing information for the soil and water survey in Duplin and Sampson Counties. Forestry Specialist E. M. Jones worked in the same capacity in the survey in Mecklenburg County.

In the Western District, the forestry specialist was asked by the Southeastern Forest Experiment Station to assist in locating and reporting certain insects and diseases - specifically, oak wilt and Fomes annosus. Several stands were located and reported, and these were isolated for further study.

The Southeastern Forest Experiment Station and the Extension

Forestry Department worked very closely on the pine sawfly outbreak in Person, Granville, Vance and Warren Counties. This was reported earlier in the report and is covered in Exhibits B, C and D in the Appendix.

The Extension Forester worked closely with the U. S. Forest Service on one major development. As a follow-up to the Timber Resources Review, the U. S. Forest Service called for a small woodland owners' conference in almost every state of the nation. This was sprung as somewhat of a surprise; and in many states the U. S. Forest Service called this meeting, conducted it and controlled it entirely. The Extension forester felt that if this meeting was to have any real significance in North Carolina, it must follow some other pattern. The Extension forester moved fast and had the North Carolina Forestry Association, as a non-public agency, move in and handle the meeting. The Association then named the Extension forester to be chairman of the committee to arrange the meeting. This committee arranged for this to be a "Governor's Conference on Small Woodland Management," and the Governor called the meeting and sent out special invitations to attend to key landowners throughout the state. The meeting was held on the State College campus on November 6, 1958, with approximately 300 persons in attendance. The Governor was the keynote speaker, and the group was then broken down into eight discussion groups according to interests. A prominent landowner served as chairman of each discussion group and reported his group's opinions to the entire assembly during the afternoon program. The opinions expressed were those of actual small

woodland owners, and not those of professional foresters. As a result, this was one of the most successful of these conferences held in any state and promoted better feelings between the U. S. Forest Service and the Agricultural Extension Service.

There was also some close cooperation between the Forestry Extension Department and the North Carolina Division of Forestry. The State Forest Service was coming up with almost 100,000,000 tree seedlings in its four nurseries ready for distribution during the 1958-59 planting season. The State Forest Service requested the assistance of the Extension Service in putting on a sales-promotion type of program. The Extension Service responded by arranging and holding a Forest Tree Planting Conference at the Ralph Edwards State Forest Nursery, Morganton, N. C., on September 18, 1958. This meeting was well attended and received much favorable publicity. The State Forest Service felt that this meeting had been highly successful in focusing public attention on the seedling supply situation in the western part of the state, and requested that a similar meeting be arranged at the Little River Nursery at Goldsboro for the eastern part of the state. This meeting was arranged and conducted by the Extension Service at Little River Nursery on November 20, 1958. One tangible result of these meetings was to promote better working relationships between the North Carolina Division of Forestry and the Forestry Extension Department.

John Gilliam, Northwestern District forestry extension specialist, worked closely with Phil Griffiths of the North Carolina Division of Forestry in the production of Fraser fir seedlings for Christmas

tree planting stock. Growers wanted better seedling stock, and Gilliam and Griffiths worked out a program to transplant 200,000 Fraser fir 3-0 stock as an experiment. The idea is to try to produce better Fraser fir nursery stock for distribution to persons going into the Christmas-tree-growing business.

III. Assistance Given County Extension Workers with Both Adult and Youth Work

- A. With specialists assigned on a district basis, the Forestry Extension Department is able to render close personal service to county agents whenever and wherever it is needed. Generally speaking, all counties are contacted by the district specialists of this department each year with regard to program planning. An example of this service is as follows:

"In the Northwestern District, John Gilliam, forestry extension specialist, held a meeting in the early fall in each county with all agricultural groups and agencies represented. At this meeting, the county forestry situation and needs were discussed. Following this general meeting, a meeting was held in each county with all county Extension personnel represented, and an attempt was made to develop a county forestry program for the year. This information was included in the county plan of work. This included both adult and youth work."

- B. An example of special assistance in planning, organizing and conducting new subject matter was as follows:

Interest has been growing quite rapidly in several counties in the mountains in the commercial production of Christmas trees, and some steps have been necessary to meeting this growing interest.

Forestry Specialist Gilliam has been assigned responsibility in this field. Gilliam has been working closely with county agents and land-owners, and has successfully organized a state "Christmas Tree Growers' Association." He has instructed the agents and growers in techniques of planting, shearing and grading Christmas trees. To date, primary emphasis has been on the production of Fraser fir.

Gilliam assisted one county in putting on a fair booth depicting the management and production of Fraser fir for Christmas trees. Mr. Gilliam also prepared a one-page mimeograph for general distribution on Growing Fraser Fir for Christmas Trees. He is currently preparing a much more detailed publication on Christmas Tree Growing.

In order to gather more information on the Christmas tree program, Mr. Gilliam and L. H. Hobbs made a trip to Pennsylvania in June, 1958, to observe their Christmas tree growing, harvesting and marketing program. They visited with the Pennsylvania Extension foresters and went to numerous shearing and grading demonstrations held by the Extension foresters. Pictures and slides were made and a special report was written on the trip. The trip was of great value in that much helpful information was obtained on the management of plantation trees, some cost and return figures, and the potential of the industry. Contacts were made with nurserymen and other important people in the industry who can be of great help to us in North Carolina in our efforts to promote the growing of Christmas trees.

C. Assistance to Agents in Preparation and Use of Teaching Devices

A planting brochure was prepared for distribution to all professional agricultural workers attending the tree planting promotional

meetings at Morganton and Goldsboro nurseries. This brochure was presented in the form of pictures and charts which an agricultural worker could go through with any landowner and show him why he should plant trees; where he should plant trees; how he should plant trees; and what he could expect in the way of returns from planting trees. One brochure was prepared on planting white pines in the western part of the state, and another was prepared on planting southern yellow pines. A copy of the yellow pine brochure is included as Exhibit G in the Appendix.

IV. Contribution to Regional Extension Program

In October, 1958, the entire Forestry Extension staff attended a workshop for Southern Extension foresters held in Washington, D. C. Forestry Specialist W. M. Keller served as presiding chairman of the group at one half-day session. In addition, Specialists Gray, Keller, G. W. Smith and John Gilliam each presented a special report during the workshop.

John L. Gray, Extension Forester of North Carolina, was elected chairman of the Committee of Southern Extension Foresters.

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

Exhibit A

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

EXTENSION SERVICE
COUNTY AGENT WORK

State College Station
Raleigh, N. C.
July 30, 1958

To: Forestry Extension Staff
From: John Gray, In Charge, Forestry Extension
Subject: Department Reorganization

Gentlemen:

Effective August 1, 1958, the Extension Forestry Department will be divided into two administrative and program sections. The following chart shows organization, personnel assigned and examples of subject matter phases assigned under this set-up:

EXTENSION FORESTRY DEPARTMENT
Specialist in Charge - J. L. Gray

Forest Management

Extension Section

Section Head: W. M. Keller

Professional Personnel:

R. S. Douglass
J. H. Gilliam
E. M. Jones
J. C. Jones
W. M. Stanton
F. E. Whitfield

Clerical Personnel:

Mrs. Inez Tucker

Subject Matter Phases:

Reforestation
Genetics
Protection
Physiology
Cultural practices
Grower harvesting
On-farm processing and
utilization
Raw-product marketing
Christmas tree production
and marketing
Watershed management
Economics of raw-product growing,
harvesting and marketing

Wood Products

Extension Section

Section Head: G. W. Smith

Professional Personnel:

L. H. Hobbs

Clerical Personnel

Mrs. LaVerne Lee

Subject Matter Phases:

Raw material procurement
Buyer or processor logging
and transportation
Processing semi-finished
and finished products
Marketing semi-finished
and finished products
Trade promotion
Consumer education
Economics of raw-
material procurement,
processing and marketing

(Over)

Clientele: Primarily forest
landowners and operators

Clientele: Primarily
industry and business
owners and operators

The following lists the responsibilities assigned to the Section Heads:

1. Recruit and interview workers needed. Analyze technical proficiency in cooperation with appropriate School of Forestry faculty and others acquainted with prospective employee. Make recommendations to Specialist in Charge.
2. Make work assignments, supervise and evaluate work of professional and clerical personnel assigned to their sections.
3. Provide for in-service training and development of section personnel.
4. Make budget recommendations for their sections to Specialist in Charge.
5. Supervise spending of funds budgeted to their sections.
6. Supervise operation and maintenance of equipment and facilities assigned to their sections.
7. Prepare reports, work plans and similar material required of their sections.
8. Represent Department in cooperative or joint program planning, execution and evaluation with other program groups in subject-matter fields assigned to their sections where established policies and relationship agreements are to be followed.

Please study this over carefully. We will discuss this in detail with you at the Department meeting which will follow staff conference on August 11. If staff conference is cancelled, come in anyhow as we will hold a Department meeting on August 11 at 1:30 P. M. in Room 260 Kilgore Hall.

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

EXTENSION SERVICE
COUNTY AGENT WORK

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

August _____, 1958

To: _____ County Forest Owners
Subject: Pine Sawfly Survey

Back in May, we wrote to you calling your attention to a pine sawfly which was stripping needles off of shortleaf and Virginia pines in certain sections of the county. This letter is to bring you up to date on the situation.

On May 27, H. J. Green, pest control officer, North Carolina Division of Forestry, and W. F. McCambridge, forest entomologist, Southeastern Forest Experiment Station, flew the entire infestation area. They marked the location of defoliated pine stands on large county aerial photographs.

As a result, we now have a pretty good picture on the location of the outbreak. For North Carolina it looks like this:

1. The heart of the outbreak is located in the northeast corner of Person County, eastward across the north third of Granville and on into the northwest corner of Vance. This covers an area of some 50,000 acres of both farm and forest land. In this, about 12,500 acres of woodland were defoliated by this insect.
2. The most solidly infested area runs from the Virginia line south to Cornwall, east through Stovall to Townsville and north to the Virginia line again.
3. In northeast Person County, individual stands were defoliated, but they are more scattered in distribution with others which were not hit, or not hit hard.
4. Lighter and much more scattered attacks were found in the remaining portions of Person, Granville and Vance Counties and in sections of Orange, Durham, Franklin and Warren Counties.
5. Worm feeding has been heaviest on shortleaf pine. Some feeding has been observed on Virginia pine. Loblolly pine has generally not been bothered.
6. So far, little or no killing of pines has been reported from this attack.

At present there is nothing you should do if you own an infested pine stand. A meeting of the North Carolina Sawfly Control Committee has been called for September 2, in the county agent's office, Oxford, North Carolina, at 2:00 P. M. At this meeting we will go over the results of this survey in detail. We will be making plans for a sawfly egg population survey in December.

If the egg survey indicates another heavy worm attack next spring, we may be contacting you in mid-winter to ask your cooperation in getting set up to spray infested areas with DDT from airplanes next spring.

Very truly yours,

County Agent

PINE SAWFLY CENTERED IN GRANVILLE, PERSON AND VANCE COUNTIES

An aerial survey reveals that the pine sawfly which stripped needles off of shortleaf and Virginia pines in north-central North Carolina this spring, concentrated its heavy feeding in the northeast corner of Person, the north third of Granville and the northwest corner of Vance Counties in North Carolina. The area of heaviest defoliation ran from Cornwall to Stovall to Townsville and north to the Virginia state line. Heavily stripped individual pine stands were also found scattered through northeast Person County.

When a boundary line is drawn around the heavy-feeding area in North Carolina, it encloses an estimated 50,000 acres of forest and farm land. Some 12,500 acres of this is forest land on which pines were stripped of their older needles.

This survey was made in late May by H. J. Green, pest control forester, North Carolina Division of Forestry, and W. F. McCambridge, forest entomologist, Southeastern Forest Experiment Station. Mr. McCambridge and C. L. Morris, pest control forester, Virginia Forest Service, made a similar survey in south-central Virginia, where heavy defoliation was found over some 330,000 acres of farm and forest land.

These technicians spotted the location of heavily defoliated stands on large county area photographs. This information will be used in making sawfly egg samples this coming winter and in planning for control spraying next spring, if it appears necessary.

Plans are underway to call a meeting of the North Carolina Sawfly Control Committee in September to review the survey information and to make plans for the egg population survey this winter.

The committee is composed of leading landowners, plus local public and private foresters who work in this area and the county agents of Person, Granville and Vance Counties.

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

EXTENSION SERVICE
COUNTY AGENT WORK

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

State College Station
Raleigh, N. C.
August 19, 1958

To: Certain County Agents

Gentlemen:

Since sending you an initial news release and letter for you to send to land-owners at your discretion on the sawfly epidemic in north-central North Carolina last spring, a detailed aerial survey of the infestation area has been made.

We are enclosing a news story bringing the infestation information up to date. This is for your local use with newspapers and radio stations.

We are also enclosing a letter for you to reproduce and send out to your land-owners at your discretion, bringing them up to date on the situation.

The first meeting of the North Carolina Sawfly Control Committee set up to combat this infestation has been called for September 2, at 2:00 P. M., in County Agent C. V. Morgan's office in Oxford. Members of this committee are as follows:

Robert Taylor, Townsville
Carl Samford, Route 5, Henderson
Frank Morgan, Route 5, Henderson
A. H. Moore, Henderson
Lee Campbell, Bullock
Oliver Davis, Route 1, Clarksville, Virginia
Lester Sutphin, Bassett, Virginia
Virgil G. Watkins, Durham
J. C. Jones, Raleigh
Don Dewey, Oxford
Douglas T. House, Louisburg
Allen Minetree, Henderson
W. J. Reams, Roxboro
Hugh Barden, Henderson
Claude Morgan, Oxford

This letter, plus copies of the enclosed material, is being sent to all committee members. We would like to urge them to attend the September 2 meeting.

Very truly yours,

George D. Jones
George D. Jones

In Charge, Extension Entomology

J. L. Gray
John L. Gray

In Charge, Extension Forestry

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 AGENT WORK

State College Station
Raleigh, N. C.
June 12, 1958

To: All District Agents, County Agents and
Assistant County Agents
From: Walt Keller, Forestry Extension Specialist
Subject: Summary of Tree Seedlings Ordered Through Extension Personnel during
the 1957-58 Planting Season

During the past 1957-58 planting season a total of 15,522,150 tree seedlings were ordered on special yellow application blanks distributed by Extension personnel or on special blanks distributed to 4-H Club members from North Carolina Pulp Company and Champion Paper & Fibre Company personnel. This total number of seedlings is almost exactly the same as those distributed the previous planting season. We do not, however, at the present time have a complete report from each county of those tree seedlings which were placed through the agents' efforts but were not ordered on the special yellow application blanks. We are currently receiving these reports from the various agents on these additional trees; and when we get them all in, we will compile a supplementary list of any trees ordered through the efforts of county agents on other than yellow application blanks. We will get this list out to you at some future date, and I am sure it will increase this total of 15,500,000 trees by quite a few hundred thousand trees.

On the basis of the present report, three counties - Anson, Richmond and Scotland -, all in the Southeastern District, planted over one million seedlings through the efforts of the county agents during the 1957-58 planting season.

All in all, the 1957-58 planting season must be regarded as a highly successful one; and we are already looking forward to the 1958-59 planting season. There will be an entirely new and different type of application blank for ordering seedlings for the next planting season; so do not send in any orders until you receive the new application blanks. Please destroy all old yellow application blanks which are now in your possession and hold any orders for next year until after July 1, at which time we will have the new order blanks in your hands.

EASTERN DISTRICT

| County | Free 4-H Trees | | Purchased Trees | | County Total | |
|--------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|
| | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered |
| Beaufort | 5 | 2,600 | 17 | 73,250 | 22 | 75,850 |
| Camden | 1 | 500 | 2 | 3,000 | 3 | 3,500 |
| Carteret | | | 15 | 11,650 | 15 | 11,650 |
| Chowan | 5 | 7,500 | 3 | 8,500 | 8 | 16,000 |
| Craven | 3 | 2,300 | 20 | 41,400 | 23 | 43,700 |
| Currituck | 4 | 3,650 | | | 4 | 3,650 |
| Dare | 7 | 4,000 | | | 7 | 4,000 |
| Gates | | | 6 | 18,500 | 6 | 18,500 |
| Hyde | | | 1 | 6,000 | 1 | 6,000 |
| Jones | 3 | 2,600 | 6 | 12,500 | 9 | 15,100 |
| Onslow | | | 8 | 11,500 | 8 | 11,500 |
| Pamlico | 5 | 7,600 | 10 | 72,500 | 15 | 80,100 |
| Pasquotank | 1 | 500 | 3 | 3,000 | 4 | 3,500 |
| Perquimans | 1 | 500 | | | 1 | 500 |
| Tyrrell | 3 | 1,500 | | | 3 | 1,500 |
| Washington | 4 | 4,300 | | | 4 | 4,300 |
| District totals | 42 | 37,550 | 91 | 267,800 | 133 | 305,350 |

NORTHEASTERN DISTRICT

| County | Free 4-H Trees | | Purchased Trees | | County Total | |
|--------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|
| | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered |
| Bertie | 3 | 1,600 | 3 | 11,000 | 6 | 12,600 |
| Edgecombe | | | 10 | 11,500 | 10 | 11,500 |
| Franklin | 2 | 2,000 | 12 | 20,000 | 14 | 22,000 |
| Granville | 2 | 3,000 | 22 | 160,500 | 24 | 163,500 |
| Greene | | | 3 | 2,000 | 3 | 2,000 |
| Halifax | 1 | 1,500 | 6 | 9,500 | 7 | 11,000 |
| Hertford | 3 | 4,000 | 17 | 23,600 | 20 | 27,600 |
| Johnston | 2 | 3,000 | 14 | 110,200 | 16 | 113,200 |
| Lenoir | | | 18 | 21,000 | 18 | 21,000 |
| Martin | | | 5 | 5,500 | 5 | 5,500 |
| Nash | 1 | 1,000 | 17 | 21,250 | 18 | 22,250 |
| Northampton | 5 | 4,200 | 3 | 32,000 | 8 | 36,200 |
| Pitt | | | 23 | 35,800 | 23 | 35,800 |
| Vance | 3 | 3,000 | 7 | 19,500 | 10 | 22,500 |
| Wake | 1 | 2,000 | 20 | 111,650 | 21 | 113,650 |
| Warren | | | 3 | 20,000 | 3 | 20,000 |
| Wayne | 12 | 13,500 | 51 | 253,000 | 63 | 266,500 |
| Wilson | | | 4 | 8,500 | 4 | 8,500 |
| District totals | 35 | 38,800 | 238 | 915,500 | 273 | 954,300 |

SOUTHEASTERN DISTRICT

| County | Free 4-H Trees | | Purchased Trees | | County Total | |
|--------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|
| | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered |
| Anson | 27 | 30,050 | 75 | 1,246,150 | 102 | 1,276,200 |
| Bladen | 40 | 60,300 | 37 | 295,850 | 77 | 356,150 |
| Brunswick | 8 | 10,000 | 6 | 44,600 | 14 | 54,600 |
| Columbus | 9 | 14,900 | 21 | 78,500 | 30 | 93,400 |
| Cumberland | 11 | 13,600 | 34 | 594,000 | 45 | 607,600 |
| Duplin | 9 | 11,000 | 19 | 53,500 | 28 | 64,500 |
| Harnett | 11 | 14,400 | 24 | 21,000 | 35 | 35,400 |
| Hoke | 5 | 5,700 | 26 | 413,700 | 31 | 419,400 |
| Lee | 7 | 8,000 | 28 | 124,400 | 35 | 132,400 |
| Montgomery | 34 | 46,150 | 81 | 762,000 | 115 | 808,150 |
| Moore | | | 55 | 838,300 | 55 | 838,300 |
| New Hanover | | | 6 | 15,000 | 6 | 15,000 |
| Pender | | | 9 | 155,500 | 9 | 155,500 |
| Richmond | 19 | 24,100 | 64 | 1,520,900 | 83 | 1,545,000 |
| Robeson | 11 | 9,500 | 24 | 249,600 | 35 | 259,100 |
| Sampson | 11 | 9,900 | 57 | 560,150 | 68 | 570,050 |
| Scotland | 17 | 18,500 | 73 | 1,211,750 | 90 | 1,233,250 |
| District totals | 219 | 275,800 | 639 | 8,187,900 | 858 | 8,463,700 |

NORTHWESTERN DISTRICT

| County | Free 4-H Trees | | Purchased Trees | | County Total | |
|--------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|
| | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered |
| Alamance | 9 | 8,850 | 18 | 59,000 | 27 | 67,850 |
| Alleghany | | | 18 | 200,800 | 18 | 200,800 |
| Ashe | | | | | | |
| Caswell | 2 | 2,400 | 13 | 29,100 | 15 | 31,500 |
| Chatham | 18 | 20,700 | 42 | 348,300 | 60 | 369,000 |
| Davidson | | | 9 | 38,000 | 9 | 38,000 |
| Durham | | | 7 | 38,300 | 7 | 38,300 |
| Forsyth | | | 21 | 61,500 | 21 | 61,500 |
| Guilford | 5 | 6,300 | 15 | 39,500 | 20 | 45,800 |
| Orange | 4 | 9,500 | 5 | 26,500 | 9 | 36,000 |
| Person | 19 | 16,000 | 11 | 69,300 | 30 | 85,300 |
| Randolph | 6 | 8,000 | 29 | 318,600 | 35 | 326,600 |
| Rockingham | | | 27 | 133,500 | 27 | 133,500 |
| Stokes | | | 5 | 25,000 | 5 | 25,000 |
| Surry | | | 7 | 18,000 | 7 | 18,000 |
| Wilkes | | | 9 | 36,000 | 9 | 36,000 |
| Yadkin | | | 13 | 116,150 | 13 | 116,150 |
| District totals | 63 | 71,750 | 249 | 1,557,550 | 312 | 1,629,300 |

SOUTHWESTERN DISTRICT

| County | Free 4-H Trees | | Purchased Trees | | County Total | |
|--------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|
| | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered |
| Alexander | : | : | 7 | 16,500 | 7 | 16,500 |
| Burke | : | : | 7 | 30,500 | 7 | 30,500 |
| Cabarrus | 11 | 13,350 | 25 | 164,700 | 36 | 178,050 |
| Caldwell | : | : | 42 | 214,400 | 42 | 214,400 |
| Catawba | : | : | 23 | 62,450 | 23 | 62,450 |
| Cleveland | : | : | 44 | 156,800 | 44 | 156,800 |
| Davie | : | : | 9 | 28,000 | 9 | 28,000 |
| Gaston | : | : | 4 | 10,500 | 4 | 10,500 |
| Iredell | : | : | 10 | 48,500 | 10 | 48,500 |
| Lincoln | : | : | 39 | 275,100 | 39 | 275,100 |
| McDowell | : | : | 19 | 78,000 | 12 | 43,000 |
| Mecklenburg | 1 | 500 | 56 | 387,750 | 57 | 388,250 |
| Polk | : | : | 19 | 86,600 | 19 | 86,600 |
| Rowan | : | : | 35 | 49,250 | 35 | 49,250 |
| Rutherford | : | : | 90 | 801,600 | 90 | 801,600 |
| Stanly | 3 | 3,500 | 3 | 4,500 | 6 | 8,000 |
| Union | 19 | 18,150 | 52 | 537,100 | 71 | 555,250 |
| District totals | 34 | 35,500 | 484 | 2,952,250 | 511 | 2,952,750 |

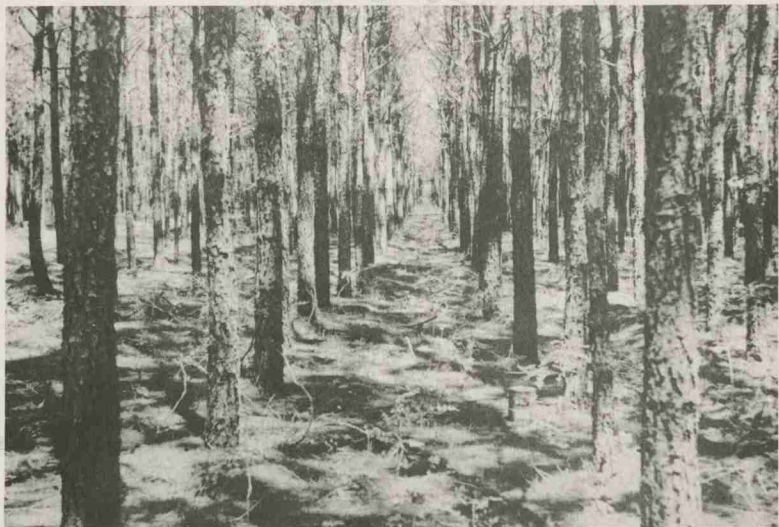
WESTERN DISTRICT

| County | Free 4-H Trees | | Purchased Trees | | County Total | |
|--------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------|
| | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered | Appli- cations | Seedlings ordered |
| Avery | : | : | 19 | 47,500 | 19 | 47,500 |
| Buncombe | 10 | 9,550 | 24 | 22,200 | 34 | 31,750 |
| Cherokee | 18 | 24,000 | 28 | 91,000 | 46 | 115,000 |
| Clay | 31 | 42,500 | 9 | 20,000 | 40 | 62,500 |
| Graham | 25 | 21,000 | : | : | 25 | 21,000 |
| Haywood | 39 | 27,300 | 29 | 68,500 | 68 | 95,800 |
| Henderson | 13 | 9,500 | 25 | 57,250 | 38 | 66,750 |
| Jackson | 34 | 29,900 | 17 | 81,500 | 51 | 111,400 |
| Macon | 39 | 34,300 | 34 | 129,000 | 73 | 163,300 |
| Madison | 13 | 16,900 | 5 | 18,000 | 18 | 34,900 |
| Mitchell | : | : | 25 | 100,250 | 25 | 100,250 |
| Swain | 26 | 20,100 | 10 | 16,500 | 36 | 36,600 |
| Transylvania | 55 | 60,000 | 23 | 112,500 | 78 | 172,500 |
| Watauga | : | : | 27 | 100,000 | 27 | 100,000 |
| Yancey | : | : | 10 | 22,500 | 10 | 22,500 |
| District totals | 303 | 295,050 | 285 | 886,700 | 588 | 1,181,750 |
| STATE | : | : | : | : | : | : |
| TOTALS | 696 | 754,450 | 1,986 | 14,767,700 | 2,682 | 15,522,150 |

PLANTING SOUTHERN
Yellow
Pines

Prepared for: Piedmont and Coastal
North Carolina Agriculture and
Forestry Workers

Prepared by: J. C. Jones and
R. S. Douglass
Extension Forestry Department
N. C. Agricultural Extension Service



PLANTING PINES IS A GOOD INVESTMENT

Many areas of cut-over land and poor cropland could be planted to pines to put it back into productivity. Some areas are ready for planting now, others will need site preparation.

Compare the two pictures on the left

Top Picture: All the timber has been cut from this area, and now there is little of value remaining.

Lower Picture: This area is producing a timber crop. With proper management it will continue to increase in value.

Timber Yields at Various Ages - The tables below list volume yields for different kinds of trees at various ages. You can apply local stumpage or delivered-product prices to them to get an indication of how much gross income to expect from timber growing. These tables should be used as a guide only. For the most part they are based on measurements taken by research personnel over wide areas in the Eastern and Southern U. S. in fully stocked unmanaged natural stands. Similar data based on large-scale sampling of forest plantations which have been systematically thinned are not yet available.

Yields listed in cords are those that an owner could expect from clear-cutting all pulpwood and larger-size trees into pulpwood at the age given. Yields listed in board feet are what he would get from clear-cutting the larger trees only, at a given age, into sawlogs scaled by International $\frac{1}{4}$ Inch Log Rule.

Special features which should be considered in using each table are as follows:

Coastal Plain - Longleaf volumes are for growth on dry Sandhill sites; loblolly and slash for average upland sites out of the Sandhills. Pulpwood volumes cover all trees 4" diameter breast high (D. B. H.) and larger to a 3" diameter inside bark (D. I. B.) top limit. Sawtimber volumes cover larger trees only to a 5" D. I. B. top limit.

Piedmont - Pulpwood volumes cover same size limits as Coastal Plain tables. Sawtimber volumes cover all trees 7" D. B. H. and larger to a 5" D. I. B. top limit.

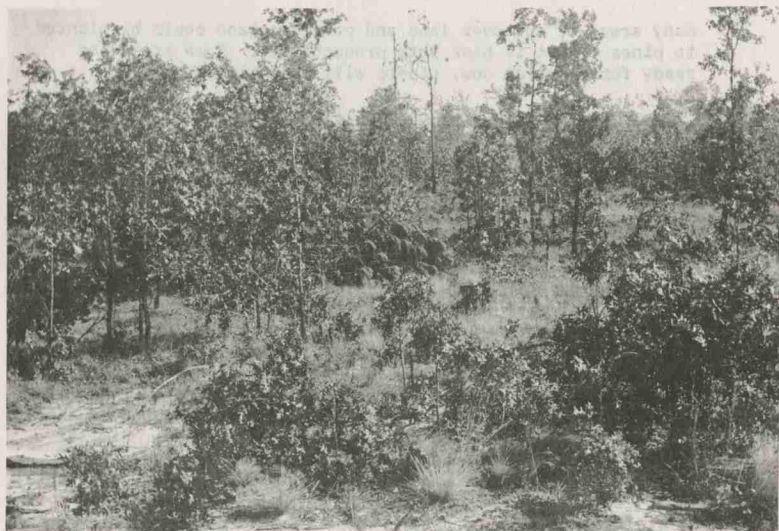
COASTAL PLAIN - Average Site

| Species | 15 Years | | 20 Years | | 30 Years | | 40 Years | | 50 Years | |
|----------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|
| | Cds. | Bd.Ft. | Cds. | Bd.Ft. | Cds. | Bd.Ft. | Cds. | Bd.Ft. | Cds. | Bd.Ft. |
| Loblolly | 14 | 135 | 22 | 2,700 | 38 | 10,000 | 51 | 16,700 | 60 | 22,600 |
| Slash | 24 | 1,000 | 31 | 2,700 | 44 | 8,800 | 53 | 14,900 | 60 | 19,000 |
| Longleaf | 4 | ----- | 7 | 250 | 17 | 2,200 | 24 | 4,500 | 30 | 7,600 |

PIEDMONT - Average Site

| Species | 15 Years | | 20 Years | | 30 Years | | 40 Years | | 50 Years | |
|-----------|----------|--------|----------|--------|----------|--------|----------|--------|----------|---------|
| | Cds. | Bd.Ft. | Cds. | Bd.Ft. | Cds. | Bd.Ft. | Cds. | Bd.Ft. | Cds. | Bd. Ft. |
| Loblolly | 13 | 75 | 18 | 1,800 | 33 | 9,000 | 45 | 16,500 | 53 | 22,000 |
| Shortleaf | -- | -- | 10 | ----- | 30 | 2,500 | 43 | 8,500 | 52 | 15,000 |

PLANTING PINE IS A GOOD INVESTMENT



From clear-cutting all pine-wood and large-wood trees into pulpwood at the age given, yields listed in board feet per acre, also the would get from clear-cutting the larger trees into a given age, into pulpwood again by intermediate of large log mills.



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HERE'S WHERE YOU CAN GROW PINES

You can plant pines in open fields; or in wooded areas that have the brush and undesirable hardwoods removed, or destroyed, by cutting, mechanical preparation, chemical treatment, or a combination of these.

Top Picture - Deep sandy and dry lands, suitable for longleaf or slash pine.

Bottom Picture - Land other than deep sandy land, and moderately well drained, suitable for loblolly pine.



HERE'S HOW TO GET THE JOB DONE

1. Figure how many trees you will need from the following table:

| Type of Land and Spacing (Feet) | Open Land 8' x 8' | Cutover Land 6' x 7' | Severely Eroded Land 6' x 6' |
|--|----------------------|-------------------------|---------------------------------|
| Number of trees required to plant 1 acre | 680 | 1,000 | 1,200 |

2. Order Planting Stock Early - The state foresters office will accept orders for tree seedlings on or after July 1 of each year. Applications and instructions for ordering seedlings can be secured from your County Agent, County Forester or Forest Ranger, County Soil Conservation Service Technician, and County A.S.C. Office.
3. Take Care of Seedlings After They are Delivered - If you plan to plant your seedlings within two weeks after they arrive, they may be held in the shipping package provided you do the following:
- When seedlings arrive, dip in water or pour water into open end of package. Roll package on the ground to thoroughly wet all the roots.
 - Store the package in a cool place where there is no danger of freezing. Raise one end of bundle to allow for drainage.
 - Repeat watering and rolling process once each week.

If you are not going to plant the seedlings within two weeks after receiving them, you should dig a 10 to 12-inch deep V-shaped trench, break open the bundles, and "heel-in" the seedlings, tamping soil back into the trench firmly. They need watering only at time of "heeling-in."

Protect seedlings from extremes of heat or cold at all times before they are planted.

4. Land Preparation Where Necessary - Plowing and fertilization are not recommended, as a general rule. On open land, no preparation is needed. On cut-over and wooded land, some type of treatment is necessary.

Top Picture - Crawler tractor and heavy disk preparing area for planting. Allow soil to settle before planting. Usually a heavy rain will do this.

Bottom Picture - Crawler tractor and fire plow preparing area for planting. Seedlings may be planted in lanes opened with a fire plow.

HERE'S HOW TO GET THE JOB DONE



...digging. When one end of handle is in soil for weightage...
...the other end is held by the boy who is digging...
...the boy who is digging...
...the boy who is digging...



5. Two Methods to Get Your Trees Planted

- a. Hand Planting - The planting bar, top picture at left, may be used on open land, and rough cutover land. On some clay soils a mattock may be necessary.
- b. Machine Planting - The tree planting machine can best be used on fairly smooth open land, or on areas that have been well disked, or behind a fire plow.

TIME REQUIREMENTS FOR VARIOUS FORESTRY OPERATIONS

Information on the cost of seedlings or the cost of buying or hiring equipment is readily available, but very little information is available to landowners on the time required to carry out various forestry activities. If the landowner does not know the labor and/or the machine time required to do a certain job, he cannot even figure approximate costs for the job. These are average figures, but by applying local labor rates to these time requirements, a landowner should be able to come up with a pretty fair estimate of the cost of carrying out any listed practice.

TIME REQUIREMENTS FOR FORESTRY OPERATIONS

| Operation | Equipment Used | Conditions | Hours Required | Unit of Production |
|--------------------------|---------------------------------|---|--|--------------------|
| Planting | Mattock | Rough, rocky land | 26 Man Hrs. | 1,000 Trees |
| Planting | Mattock or bar | Smooth land-Piedm. | 13 Man Hrs. | 1,000 Trees |
| Planting | Bar | Light, easy to work land | 7-10 M.Hrs. | 1,000 Trees |
| Planting | Machine | Open, smooth land | 1 $\frac{1}{2}$ -3 M.Hrs. | 1,000 Trees |
| Poisoning | Axe | Ammate in notches* | 3/4-1 M.Hr. | 100" of D.B.H.*** |
| Poisoning | Axe | 2-4-5 T in frills** | $\frac{1}{2}$ Man Hr. | 100" of D.B.H. |
| Girdling | Axe | 2-hack girdle (cull oaks) | $\frac{1}{2}$ -3/4M.Hrs. | 100" of D.B.H.*** |
| Girdling | Mechanical girdler | Cull oaks | $\frac{1}{4}$ -3/8M.Hrs. | 100" of D.B.H. |
| Disking brush land | 3400 to 4700 lb. disk & crawler | Coastal Plain up-land forest single disk | 3/4-1 $\frac{1}{2}$ Machine and man hrs. | 1 Acre |
| Plowing planting furrows | Fire lane plow and crawler | Sandhill scrub oak ridges furrows spaced 7' to 8' apart | 3/4-1 $\frac{1}{2}$ Machine and man hrs. | 1 Acre |

* 3-4 Lbs. of poison required per 100 inches D.B.H. treated.

** $\frac{1}{2}$ gal. of poison required per 100 inches D.B.H. treated.

*** D.B.H. is diameter outside bark measured at 4 $\frac{1}{2}$ feet above ground.



REMOVING OVER TOPPING BRUSH FROM PINES



DISKING FIREBREAK AROUND YOUNG PINES

HERE IS HOW TO TAKE CARE OF YOUR TREE CROP

Southern Yellow Pines are in demand for both pulpwood and sawtimber. Take care of your pines, give them a chance and you can help supply this demand.

1. Make Sure You Have a Full Stand - No matter how careful you are, some of your trees are going to die from the shock of transplanting. Most of this will show up the first growing season.

At the end of the first growing season, inspect your planting and make a sample count to find out what proportion of your trees are still living.

If 7 out of 10 lived, replanting is generally not needed unless trees died in spots. If the percentage is lower than this, plan to reorder and replant the missing hills prior to the next growing season.

2. Keep Fire Out of the Plantation - You should disk a fire break around your plantation, if natural breaks are not present; and keep these fire breaks clean by disking during fire season. It doesn't take a very hot fire in small pines to do considerable damage or completely destroy them.
3. Protect Them From Insects and Disease - There is little you can do about the Pine Tip Moth insect that kills new buds. However, this insect does not kill the trees, but slows their growth for several years. You should wait at least one year to plant pines on land that has been logged over for pines to reduce the effect of Pales and pitch weevils. Trees may be planted immediately after cutting if seedlings are treated. Trees that have been attacked by the Ips, southern pine or turpentine beetles should be removed from the area.

Trees with stems infested with rust "cankers" should be removed. Limb infestation as much as 15 inches from the trunk can be successfully pruned.

4. Release the Trees From Overtopping Trees and Shrubs - Pines must have room and sunlight to grow, and they cannot tolerate shade or severe root competition. Four to six years after planting, any hardwood bushes or shrubs overtopping a pine should be removed. Larger trees should be removed at time of planting. This can be done by cutting, by girdling or by chemical treatment, using "Amate" or oil solutions of 2, 4, 5-T.

HOW TO TAKE CARE OF YOUR PINE

...to be ... for ...
...of ... and ...
...this ...



...this ...
...and ...
...the ...

5. Harvesting Your Pine Crop - You will need to make your first thinning when your pine crop is about 18 to 25 years old. You will need to repeat the practice every 5 to 8 years thereafter until the crop trees are ready for the final harvest.

In thinning you will want to cut the weaker, suppressed trees, and others that are diseased or interfering with your crop trees.

Thinnings pay off two ways - you sell pulpwood and small-to-medium-sized sawlogs from trees which might otherwise die from overcrowding, and you push the growth of your crop trees.

A thinning program will add 30% to 40% to your crop income over the entire cropping rotation.