

Plan of Work 1941

AGRICULTURAL EXTENSION SERVICE

State of North Carolina

PLAN OF WORK

1941

Period covered December 1, 1940 to November 30, 1941
(Month) (Month)

Name of project: EXTENSION AGRICULTURAL ENGINEERING

Covering work to be done by D. S. Weaver, Extension Agricultural Engineer, and Head,
Department of Agricultural Engineering

H. M. Ellis, Extension Agricultural Engineer, J. B. Richardson, Ass't. Ext. Agri. Engineer,

J. C. Ferguson, Extension Cotton Gin Specialist, D. E. Jones, Rural Elec. Specialist

Percentage of time to be devoted to project: D. S. Weaver - half time on Extension
All others - full " " "

Date submitted: December 10, 1940. Signed: D. S. Weaver
Project Leader

Date approved: _____, 19 ____ . Signed: _____
State Dir. of Ext. Wk.

Date approved: _____, 19 ____ . Signed: _____
Director of Ext. Work
U.S. Department of Agriculture

PLAN OF WORK -- 1941

EXTENSION AGRICULTURAL ENGINEERING

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J. B. RICHARDSON, ASSISTANT EXTENSION AGRICULTURAL ENGINEER
D. E. JONES, EXTENSION RURAL ELECTRIFICATION SPECIALIST
J. C. FERGUSON, EXTENSION COTTON GIN SPECIALIST

I. O. SCRAUB, DIRECTOR
NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE
NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
OF
THE UNIVERSITY OF NORTH CAROLINA
AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING
STATE COLLEGE STATION,
RALEIGH, NORTH CAROLINA

EXTENSION AGRICULTURAL ENGINEERING
PLAN OF WORK

1941

(In all phases except Rural Electrification and Cotton Gin Improvement)

I. SITUATION

1. Soil Conservation

The most recent soil surveys made in North Carolina show that over two-thirds of the top soil has been lost from 11.9 per cent of the total land area and between one-third and two-thirds of the top soil has been lost from another 27.1 per cent.

It is estimated that 5,647,540 acres or 18.1 per cent of the total land area has been affected by gullying.

Due to the nature of the soils, slope, and cropping practices, the Piedmont Section, which comprises about one-third the area of the State, has suffered most from erosion. In ten of the worst eroded Piedmont Counties about 25 per cent of the area has been abandoned.

In the Mountain Section, the area of abandoned land is about one-half as great as the area cultivated.

EROSION CONDITIONS IN NORTH CAROLINA

Erosion Condition	Acres	Percent
Total land area	31,276,299	100.0
Areas with no appreciable erosion	10,085,000	32.2
Areas with slight sheet erosion (less than 1/3 topsoil lost)	9,000,264	28.8
Areas with moderate sheet erosion (1/3 to 2/3 topsoil lost)	8,480,000	27.1
Areas with severe sheet erosion (over 2/3 topsoil lost)	3,711,035	11.9
<hr/>		
Total area affected by gullying	5,647,540	18.1
Slight or occasional	4,219,513	13.5
Severe	1,428,027	4.6
<hr/>		
Land abandoned because of severe erosion	1,065,363	3.35

2. Farm Buildings

The most recent survey made in this state that gives any figures at all on farm buildings was the farmhouse survey, made in ten counties, during 1934. At this time a house to house survey was made of 28,205 farmhouses in areas selected to cover all types of farm life in the state. Following are excerpts from this survey.

Ninety-five per cent of all farmhouses were frame. Only 36 per cent of all farmhouses have ever been painted, and only 7.3 per cent have paint in good repair. Seventy per cent are one-story.

Enumerators judged the following percentages of houses to be unfit for human habitation. In these homes cost of repair would be greater than cost of replacement:

- 4.0% of houses occupied by white owners
- 5.5% of houses occupied by white tenants
- 7.2% of houses occupied by Negro owners
- 8.6% of houses occupied by Negro tenants

Few significant trends toward better housing were found when a sample of houses under ten years old was compared with a sample from twenty-five to forty-nine years old. We do not have such a survey to cover other farm buildings, but the problem of farm buildings, and the farmers' need of assistance, can be better appreciated when the condition of their houses is understood.

This survey was made during a general depression that was already over four years old and it is only natural to assume that general conditions were somewhat reflected in the final figures. A

trip into any rural section of the state, however, will quickly convince one of the need for every possible effort to be made toward improvements and replacements of farm buildings.

3. Home and Farm Water Systems

During the same survey it was found that over three-fourths of all farm families carried their water. The average distance was 177 feet. Some families carried it as much as 1,000 feet. Only 5.8 per cent of all houses had piped cold water, and only 17.5 per cent had hand pumps. Half the houses surveyed got their water from dug or bored wells, a fourth from drilled or driven wells, almost a fifth from springs, and only 0.2 per cent from cisterns. One hundred and eight families were getting their water from streams, and 213 had no source of water on the premises.

Since the survey made in 1934 a great deal of work has been done by many agricultural agencies toward home improvements, and this work, plus the rapidly expanding rural electrification program, has resulted in running water in a large number of rural homes. No survey of a general nature has been made since 1934, however, to indicate the increase in number of homes supplied with running water.

4. Farm Drainage

A large area of cultivated land in this state is not yielding a fair return on the money and labor expended because of inadequate drainage. The Coastal Plains Section of North Carolina makes up approximately one-half of the entire state and in every

county of this section there are large areas where the loss from improper drainage is considered unavoidable. With a favorable season, the yield is high, but too often the season is not right for these poorly drained areas. Proper drainage in this section increases the farmers' income by the production of better quality produce at an earlier date. Five million acres of the Coastal Plains Section, which is one-sixth of the total land area of the state, is classified as poorly drained in the North Carolina Agricultural Experiment Station Bulletin No. 293.

In addition to this staggering figure, in many sections of the Piedmont and in the bottom lands of the Mountain Section, yields would be greatly increased, and many complete crop failures would be avoided by proper and adequate drainage.

5. Farm Machinery

A great service could be rendered the farmers of this state by pointing out improved implements and making it possible for the farmers to see and acquaint themselves with these implements. In general our farmers have been very slow to take advantage of improved farm machinery, nor have they realized the most out of what they have used, because of improper adjustment and lack of care and repairs.

6. General Farm Problems

There is dire need for assistance and guidance in handling many farm problems of an engineering nature. One or more of these problems face an agricultural engineer on each trip he makes to the field. Generally the problems are small ones, but failure to

to solve them costs our farmers thousands of dollars annually. The health of the farm family, and even of the community, is jeopardized by lack of sanitary facilities. The Agricultural Engineering Department can, and does, render service on many of these problems, through our blue print service, and on regular field trips by members of the staff.

II. SOLUTIONS

1. Soil Conservation

In the development of a general soil conservation program, terracing is recognized as one of the foundation practices. Since terracing is an engineering practice, this department attacked the problem of soil erosion from that angle. We have been instrumental in setting up soil conservation associations in forty-one counties. These associations were later incorporated and are conducting county-wide terracing programs.

Thirty-five of these associations operate one complete heavy terracing unit, three operate two complete units each, and one association operates three complete units.

Each complete terracing unit consists of a 40 horse power, crawler type tractor and a two-wheel terracer. We have a total of forty-seven terracing units and these are underwritten either by the association, or by the board of county commissioners.

In addition to the terracing units, these associations own and operate eight sub-soilers, (capable of sub-soiling to a depth of twenty-eight inches), and four, heavy, four-gang discs which weigh approximately 4,000 pounds each.

The program in these counties that have terracing equipment is making rapid progress, and our work will be to check the terraces being constructed, confer with assistant county agents on special terracing problems, and to coordinate the work of the county associations with the program of the Soil Conservation Service, and

with other soil conservation associations. As the personnel changes it is necessary to train new terracing assistants in the counties, and also to train new operators for the equipment.

From time to time, improvements are made in the methods of terrace construction, and these methods are demonstrated in the counties on regularly planned visits.

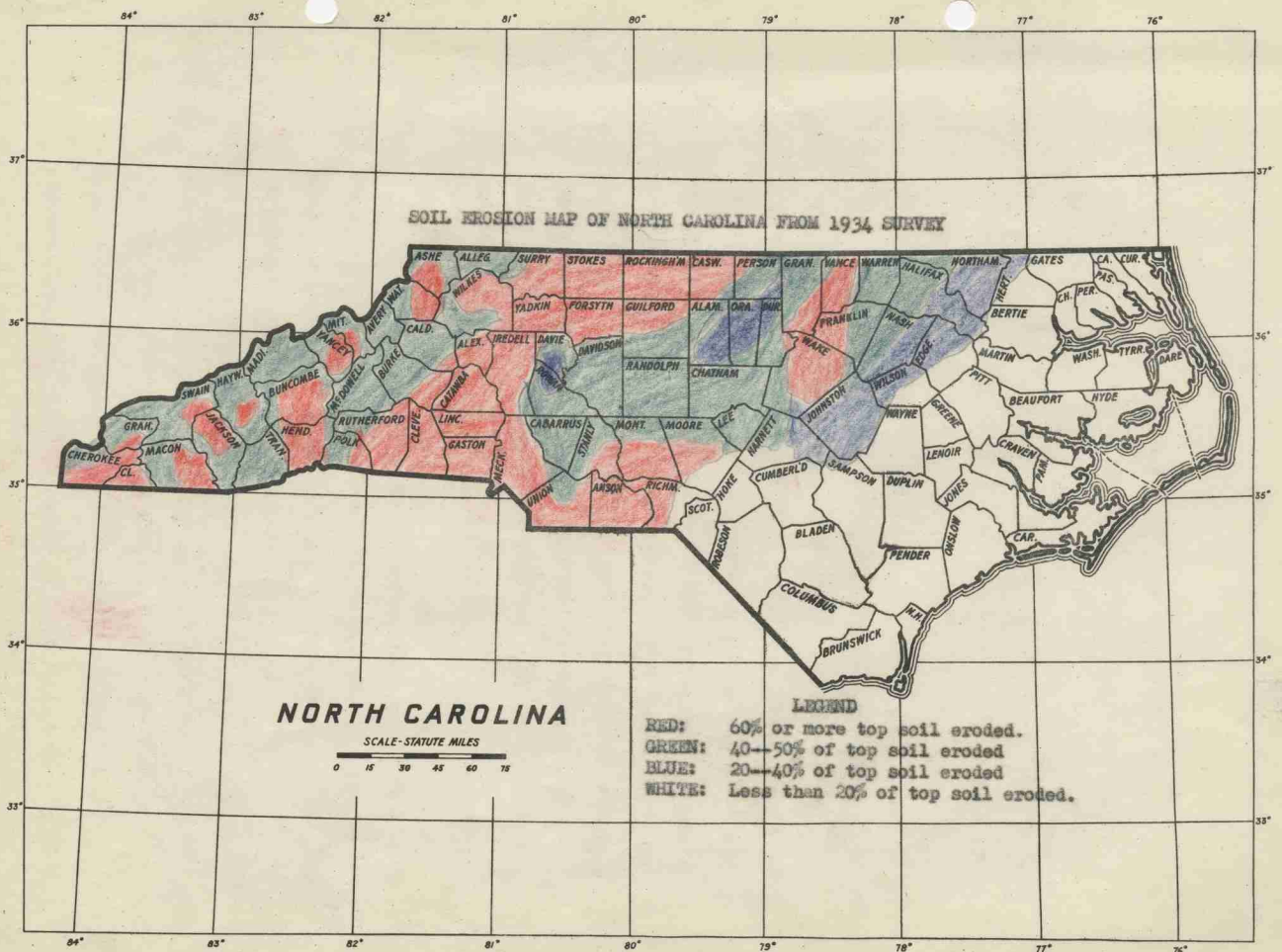
This office has set up a standard bookkeeping system for the terracing associations. These records are kept in the county agents' offices and monthly summary reports are submitted to this office.

Close cooperation is maintained with the Soil Conservation Service and our county terracing associations were of inestimable value to this service in organizing the Soil Conservation Districts. In March, 1937, the Soil Conservation Districts law was passed and since then twelve Districts have been organized in North Carolina. The twelve districts include 12,754,240 acres of land in forty counties.

During 1941 members of this department will continue to work with the county terracing associations and will also make frequent trips to the field with engineers of the Soil Conservation Service and other agencies conducting conservation programs.

It is not practical to set up heavy terracing equipment in some counties of the upper Coastal Plain and the lower Mountain Sections. In these areas, however, some terracing is necessary and where this is the case, terracing demonstrations with home-made v-drags and light commercial terracers have been planned. An outline of these

SOIL EROSION MAP OF NORTH CAROLINA FROM 1934 SURVEY



NORTH CAROLINA



- LEGEND**
- RED: 60% or more top soil eroded.
 - GREEN: 40-50% of top soil eroded
 - BLUE: 20-40% of top soil eroded
 - WHITE: Less than 20% of top soil eroded.

areas is clearly shown on the Soil Conservation Work Map which is attached. This method of terracing particularly appeals to the small land owner.

For the number of specialists' visits to counties in connection with this phase of the work, refer to Table No. 1. The attached maps will give the distribution of this work over the state.

With the soil conservation program well under way we have realized the importance of carrying on a definite program of terrace maintenance. We started an intensified maintenance program two years ago and have planned maintenance demonstrations in each county operating terracing units, for the coming year. For each demonstration a group of farmers will be called together, and the proper method of ploughing terraced land will be demonstrated, and proper row arrangement will be discussed. We advocate that each farmer who builds terraces should construct a v-drag with which to maintain them.

2. Farm Buildings

By referring to the Situation, Part I, of this plan of work, one can readily see the need for a farm buildings program in this state, and for the past five years we have been gradually increasing the amount of time devoted to this work.

We are starting this phase of Agricultural Engineering for 1941 in a big way, by placing a copy of Miscellaneous Publication No. 360, "Plans of Farm Buildings for Southern States" in every county agent's office in the state. The department of Teacher Training, Agricultural Education, purchased enough of these plan books to give a

copy to each of their Vocational Agricultural teachers. The federal Extension Service has recently promised to supply us a sufficient number of additional plan books to give each home demonstration agent a copy.

In addition to the Southern States plan book, we have just published a new bulletin of our own state plans.

We will be able to render a much better plan service during the coming year than we have been able to give in the past.

The farmhouse survey made in 1934 will be brought up to date during the coming year. This work will be done in a series of community meetings rather than a house to house survey. This is necessary because of no available funds for conducting a regular survey.

The time of one member of the department is gradually being worked toward a farm buildings program which is gradually increasing the time devoted to this phase of the work.

Farm building construction demonstrations have been planned in thirty-eight counties for the coming year. The buildings constructed at these demonstrations will be small, such as brooder houses, farrowing houses, summer range shelters for chickens, and self-feeders for hogs. Assistance with other farm building problems will be given in answer to special requests from the county agent.

3. Home and Farm Water Systems

North Carolina's rural homes are far behind the times with their water systems. On every trip to the field the need of improved water systems is impressed upon us. When approximately two-thirds of our rural people are still carrying water into the house, and when some of them are using open streams for their source of supply, we realize more than ever, the need for work along this line. During the past few years considerable time has been spent by the members of this department on this phase of the work. For 1941 this line of work has again been made a joint project with county agents and home demonstration agents who plan to put on an active campaign for the improvement of home water systems in their counties. Interest will be increased and new interest aroused at the meetings of the home demonstration clubs, and in a number of counties the county agent will attend at least one club meeting for the purpose of explaining simple home water systems.

Charts and circulars will be furnished by this department for use at meetings and at many of these meetings members of the department will attend for lectures and group discussion. Follow-up work will consist of water system surveys and actual installation demonstrations. The specialists of this department have planned with county agents and home demonstration agents to make forty-eight visits in connection with this campaign. We have two general plans which we follow in assisting agents with their home water system campaigns.

In conducting meetings where groups of people have been called together, we deliver a talk on the importance of a home water system and the installation of the various types. These talks are supplemented by two portable water system demonstration units. One of these is a shallow-well, hand-force pump mounted beside a kitchen sink, and having an overhead tank. We recommend this where electricity is not available. The other unit is an electric, automatic system. For the number and distribution of water system meetings and demonstrations planned, refer to Table No. 1, and the attached map.

The first consideration of farm sanitation is an adequate supply of safe water, and in close coordination with this problem is that of sewage disposal, therefore, the two problems are handled together, and blue prints and bulletins covering these two subjects are available upon request. Other problems of farm sanitation are discussed whenever they are confronted.

4. Farm Drainage

During the past five years we have been gradually increasing the amount of time devoted to land drainage.

Most of the tile drainage in the state has been done without trained supervision, and results in many cases have been very unsatisfactory. Ordinary farm labor was used, and to them the water grade was the only possible grade. Maintenance on such systems has been neglected; many have been forgotten; and the land has been allowed to revert to its original state. The round-pointed shovel has been their only tile tool, and a drain scoop is an entirely new implement to them.

One phase of our drainage program has been to organize groups in the various counties so that they may buy their drain tile cooperatively. Demonstrations have been planned to completely cover the drainage of a small area. Rather than call a group together to go over a special phase of tile drainage, we intend to start with the survey and finish with back-filling the trench.

In carrying on this program we have planned to work with those counties most in need of assistance, but there is not a county in the eastern half of the state that does not need several demonstrations. For the number and distribution of these demonstrations refer to Table No. 1, and the attached map.

5. Farm Machinery and Tractors

has A number of improved farm implements demonstrations have been planned for the coming year, but it is practically impossible to make definite plans for these very far in advance. The demonstrations will be jointly conducted by county agents and implement dealers. North Carolina farmers are producing large quantities of lespedeza seed, and several local manufacturing concerns have patented and are selling lespedeza seed harvesters which were designed by farmers of the state. Because of a growing demand for this implement, county agents plan and conduct demonstrations in cooperation with the manufacturers. The interest created by these demonstrations makes it easier for the county agents to conduct similar demonstrations of other improved implements. Wherever possible, we assist in conducting such demonstrations.

fencing
James H. Hanning

6. General Farm Problems

General farm problems for which we have requests for assistance are of such nature that they do not lend themselves to planned demonstrations. We are faced with one or more of these problems on practically every trip to the field. The time we devote to these problems is in connection with other work, except in special cases when requests come in for assistance that we are unable to handle on our regular schedule of planned visits. We have set aside time for field trips to assist with these problems, and the work will be planned as the occasion arises.

7. 4-H Clubs

During 1941 we have planned to assist twenty-six counties with their 4-H club camps. This assistance will be in the form of classes in rope work conducted by members of the department. Both boys and girls attending these classes will receive instructions, and will be required to make certain splices and hitches, and will complete an adjustable rope halter, which they will take home with them.

This rope will be paid for out of the general camp fund.

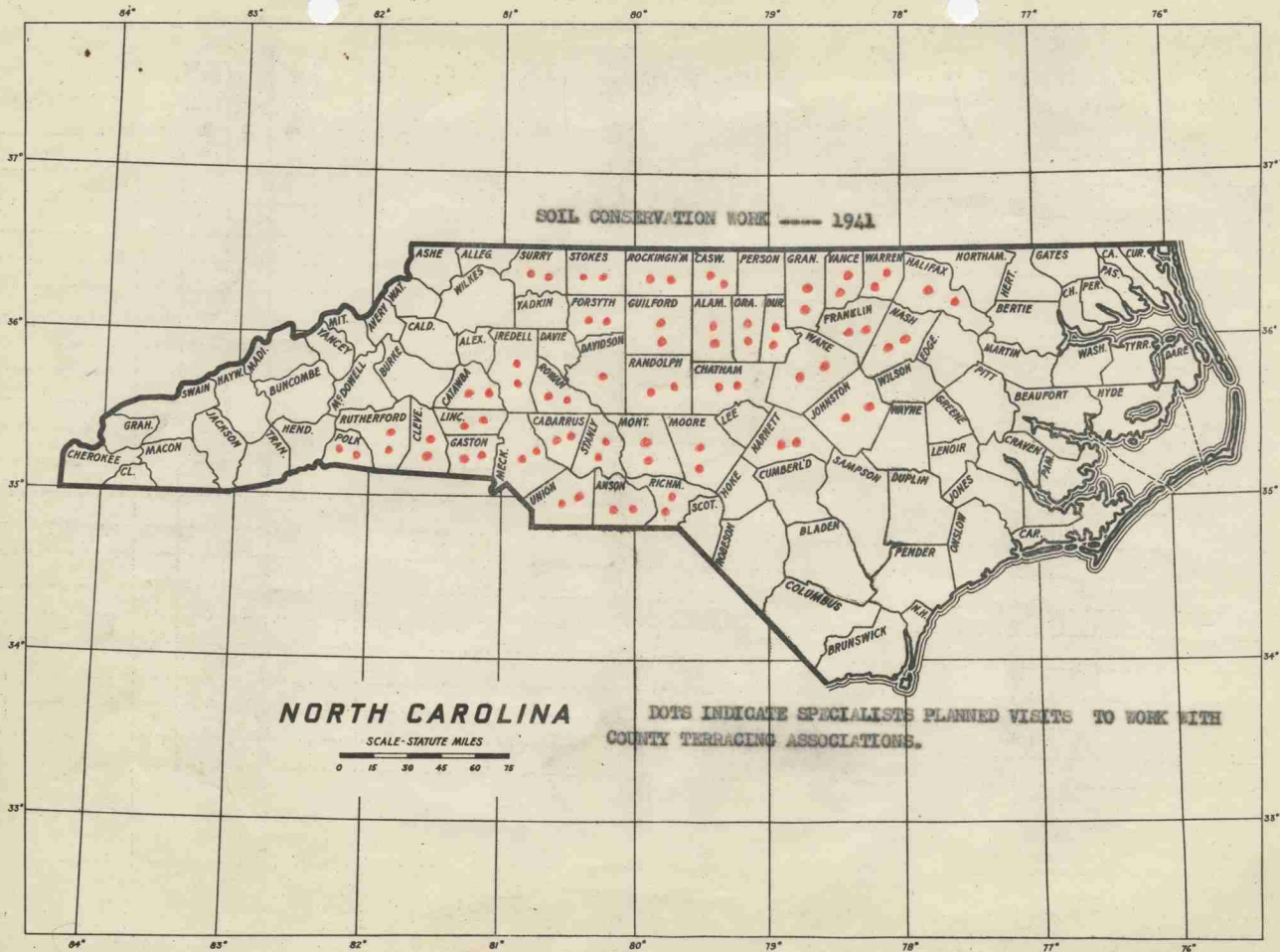
Due to definite dates not having been set for these camps, this phase of work has not been included on the plan of work table.

COUNTIES	Heavy Tex- racing	Light Tex- racing	Drainage	Farm Buildings	Farm Con- veniences	COUNTIES	Heavy Tex- racing	Light Tex- racing	Drainage	Farm Buildings	Farm Con- veniences
Alamance	2				1	Johnston	2				1
Alexander				1		Jones			2		
Allieghany		1				Lee		1		1	1
Anson	2					Lenoir				1	1
Ashe				1		Litcoln	2				
Avery					1	McDowell		1			1
Beaufort					1	Macon		1		1	
Bertie				1	1	Madison					1
Bleden			1			Martin			1	1	1
Brunswick					1	Mecklenburg	2				
Buncombe					1	Mitchell					1
Burke				1		Montgomery	2				
Cabarrus	2					Moore	2				1
Caldwell		1		1		Nash	2			1	1
Camden				1		New Hanover			1	1	
Carteret				1	2	Northampton		1		1	1
Caswell	2				1	Onslow			1		1
Catawba	2					Orange	2				1
Chatham	2			1		Pamlico				1	
Cherokee					1	Pasquotank				1	1
Chowan				1	1	Pender			1		1
Clay					1	Perquimans					1
Cleveland	2				1	Person					1
Columbus				1	1	Pitt			2		1
Craven			1		1	Polk	2				
Cumberland		1		1		Randolph	2				
Currituck					1	Richmond	2				
Dare			1		1	Robeson			2		1
Davidson	1			1		Rockingham	2				
Davie	2			1		Rowan	2			1	
Duplin			2		1	Rutherford	2				
Durham	2					Sampson			2		1
Edgecombe			2		1	Scotland			1	1	
Forsyth	2					Stanly	2				
Franklin	2					Stokes	2				1
Gaston	2			1		Surry	2				
Gates					1	Swain					1
Graham					1	Transylvania		1		1	
Granville	2					Tyrrell				1	1
Greene			2			Union	2			1	
Guilford	2					Vance	2				
Halifax	2				1	Wake	2		1		
Harnett	2					Warren	2				
Haywood				1		Washington				1	1
Henderson				1		Watauga					1
Hertford					1	Wayne		1	1	1	
Hoke		1		1		Wilkes		1		1	
Hyde					1	Wilson		1	1	1	
Iredell	2					Yadkin		1		1	
Jackson					1	Yancey				1	1
STATE TOTAL							75	13	25	38	50

NOTE: 48 specialists' days at 4-E Club Camps not included because dates have not been decided upon at this time.

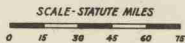
TABLE NO. I.

SOIL CONSERVATION WORK ----- 1941

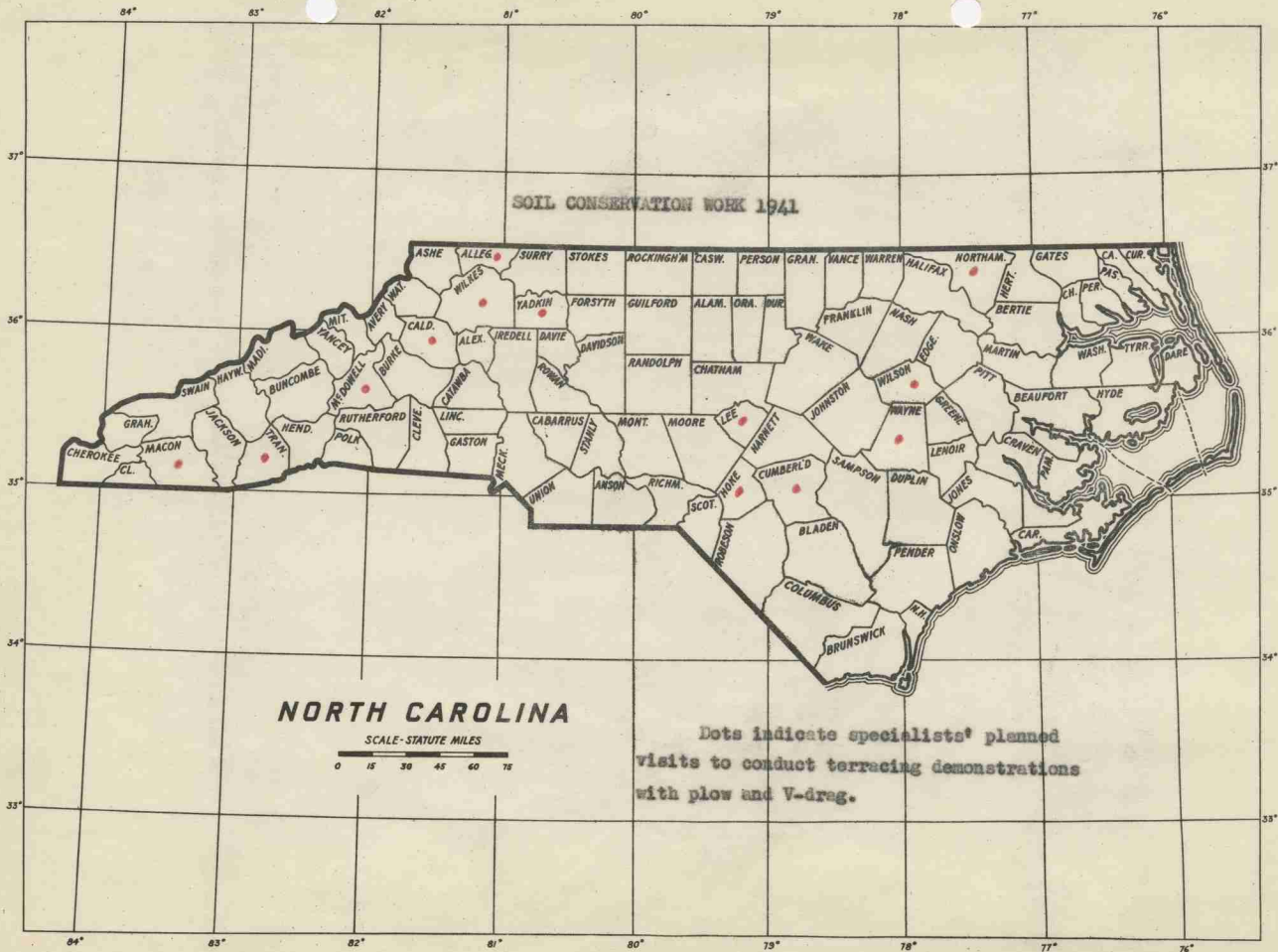


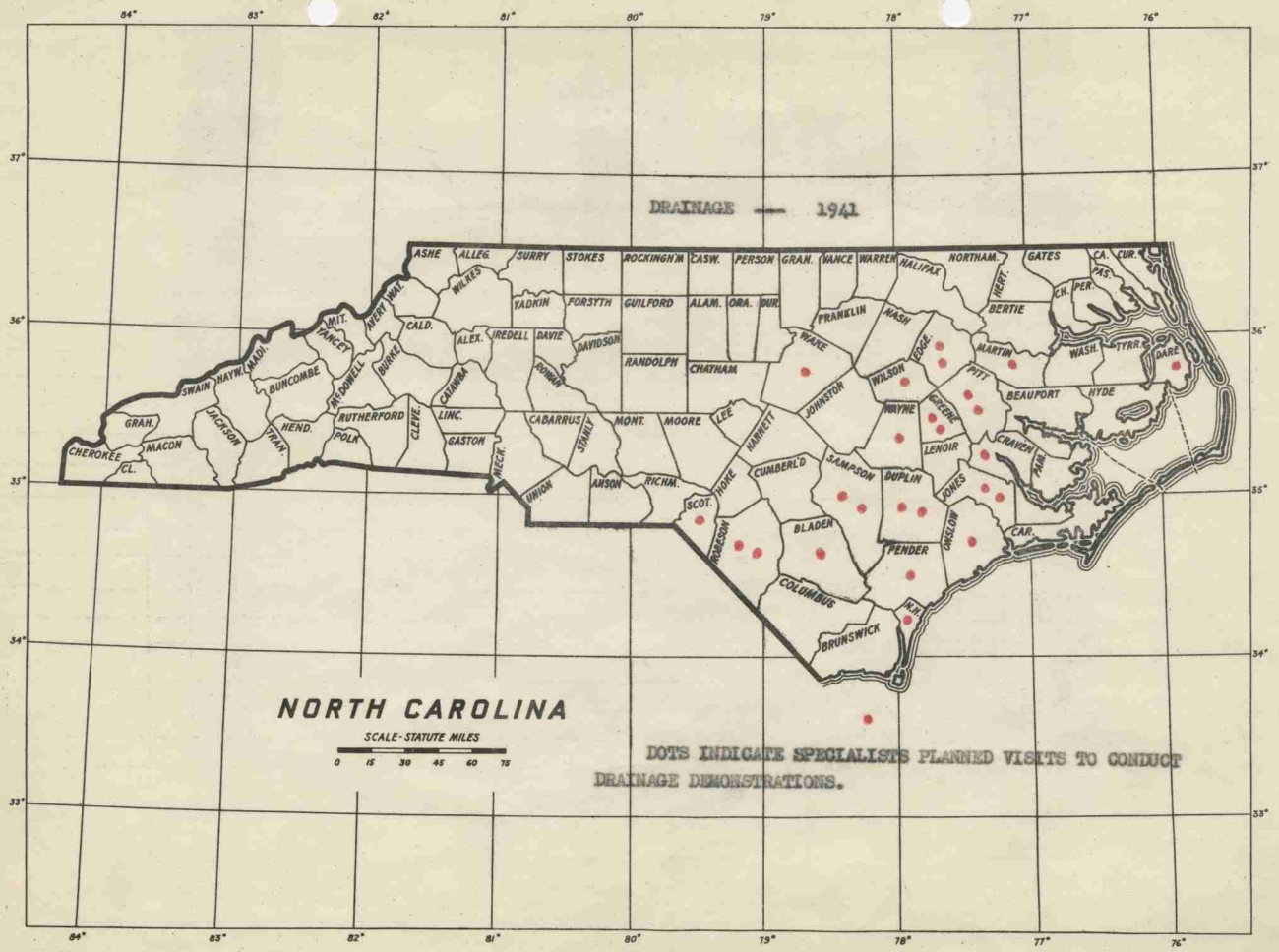
SOIL CONSERVATION WORK 1941

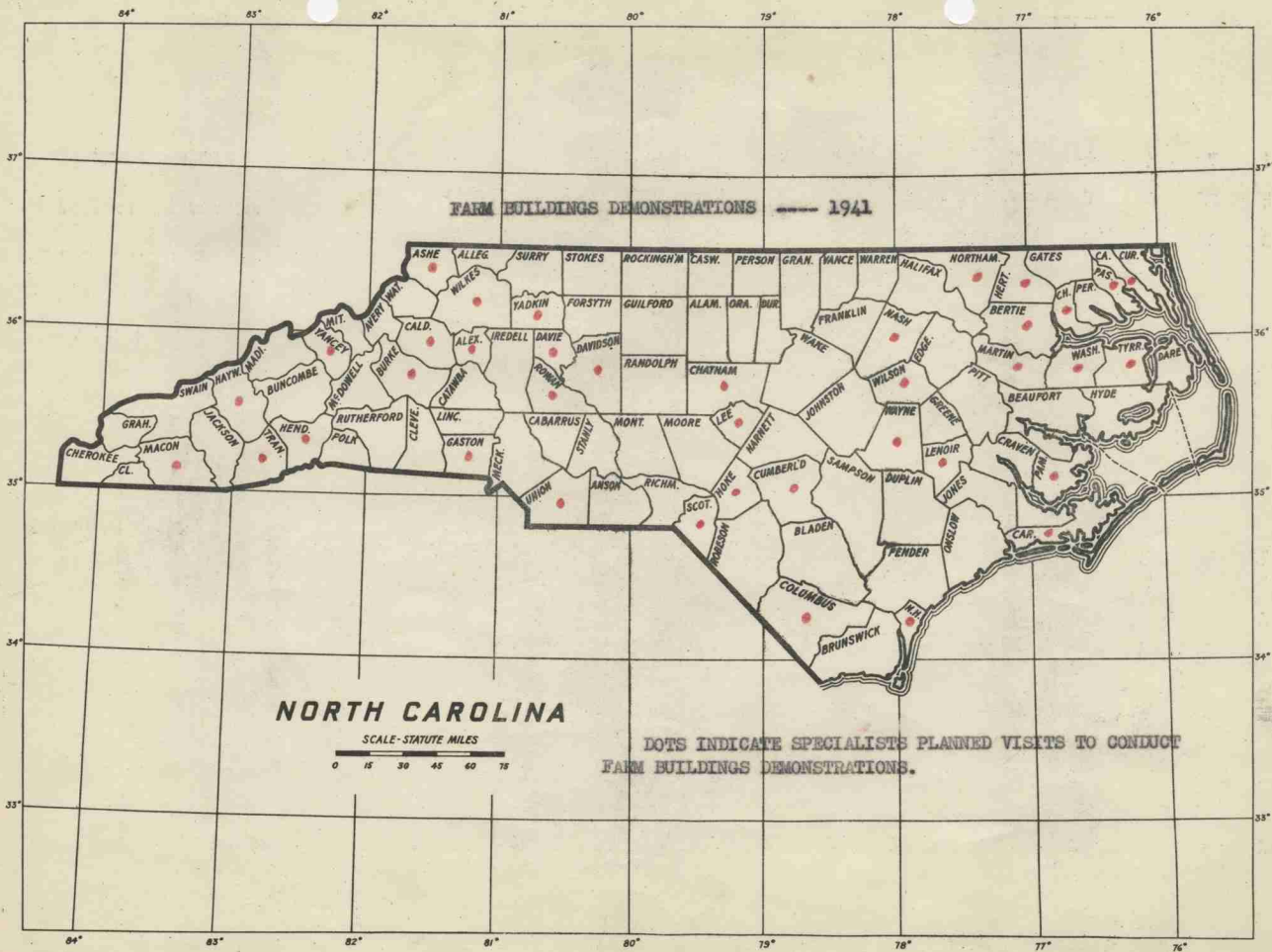
NORTH CAROLINA



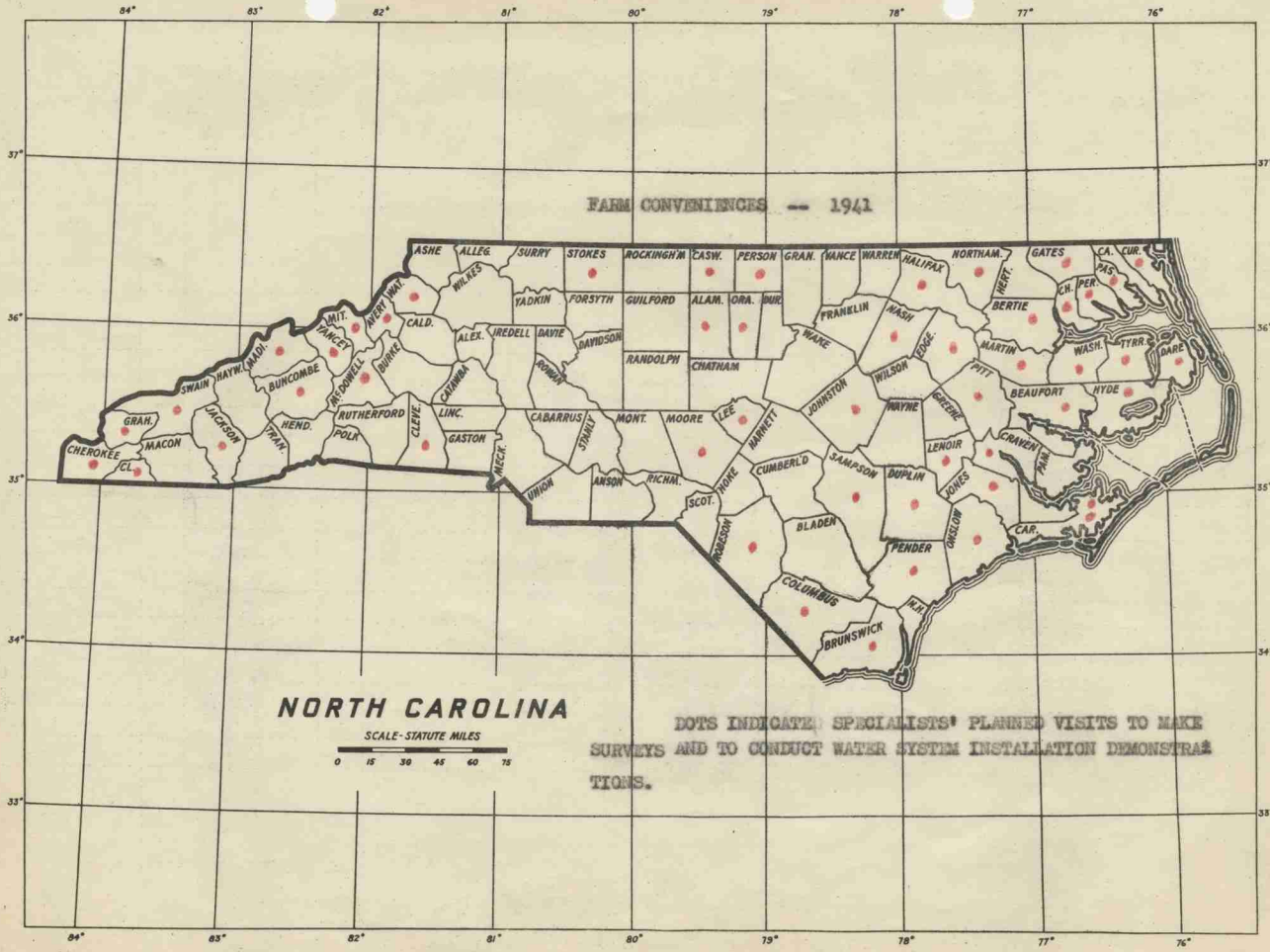
Dots indicate specialists' planned visits to conduct terracing demonstrations with plow and V-drag.







FARM CONVENIENCES -- 1941



NORTH CAROLINA



DOTS INDICATE SPECIALISTS' PLANNED VISITS TO MAKE SURVEYS AND TO CONDUCT WATER SYSTEM INSTALLATION DEMONSTRATIONS.

EXTENSION AGRICULTURAL ENGINEERING

The following phases of Extension work in Agricultural Engineering will be available by planning for specialists' visits, 1941. The projects outlined below are not result demonstrations.

A. LAND IMPROVEMENT PRACTICES

I. TERRACING

1. Terracing with Heavy Equipment
 - a. Technical supervision of terracing programs in counties having terracing equipment.
 - b. Meeting with the Soil Conservation Association or its directors for the purpose of discussing the general program and the status of the program in that particular county.
2. Terrace Maintenance
Actual demonstrations showing the correct procedure for plowing terraced land to properly maintain the terraces.
3. Terracing with Homemade and Light Terracing Equipment
Holding demonstrations of terrace staking and construction with light equipment, such as v-drags.

II. FARM DRAINAGE

- a. County-wide, or community meetings to explain and discuss farm drainage problems.
- b. Technical assistance in making preliminary surveys or proposed tile drainage projects.
- c. Conducting tile-laying demonstrations.

B. FARM MACHINERY AND TRACTORS

1. Farm Machinery and Tractor Demonstrations
 - a. General county-wide meetings to demonstrate farm machinery. (We will work with commercial concerns in planning and conducting these demonstrations.)
 - b. Demonstrations with special equipment, such as lespedeza harvesters, combines, etc.

C. FARM BUILDINGS

1. Construction demonstrations
 - a. Self-feeders and farrowing houses for swine.
 - b. Other small farm structures. (Specify type.)
2. Farm home design and remodeling meetings.
Including discussion of materials and construction methods.
3. Fencing
 - a. General meetings where fencing will be discussed with explanations of fencing in relation to regular farming operations
 - b. Fence erection demonstration-special meeting at which short section of fence will be erected, demonstrating proper procedure for bracing posts, stretching wire, etc.
4. General Meetings
In connection with other agricultural meetings a short talk can be given on the proper planning of farm buildings with an explanation of our blue print service.

PROJECTS

Ad.	4-H

C. FARM BUILDINGS (CONTINUED)

5. Farm Building Plans Service

Prints on over 400 farm buildings and equipment are available through this office. Each agent has a revised list from which to select plans.

D. RURAL ELECTRIFICATION

1. Electric Farm Equipment

Meetings and demonstrations to groups. Assistance in selecting and installing proper electrical equipment for certain farm jobs. Such equipment would include electric brooders, feed grinders, dairy equipment, hotbeds, poultry lighting equipment, electric water systems, etc.

2. Electrified Farm and Home Demonstrations

Effective when held at farms where electrical equipment is being generally used. To see equipment in operation with desirable explanations and discussion.

3. Wiring and Lighting

A discussion and demonstration of adequate wiring and lighting to show the importance of good wiring, kind of material and sizes of wire to use. How to have good but inexpensive lighting.

4. General Information of New Line Development

A discussion on how to get electricity, what makes a line feasible and what it will cost.

E. FARM CONVENIENCES

1. Meetings on Rural Water Systems

County-wide, or community meetings to explain the various types of home water systems and improvements that can be made in existing systems. Proper sewerage disposal systems and their installation will be explained. Demonstrations of portable water systems will be given.

2. Installing Farm Water Systems and Sewerage Disposal Systems

As demonstrations.

3. Meetings on Insulation and Heating

Interest in improved farm home heating has increased and discussions on the subject may be held.

4. Rendering Technical Assistance

Assistance to the agent in planning and making preliminary surveys of systems to be used as demonstrations. NOTE: This work should be planned to eliminate, as far as possible, personal service.

F. COTTON GIN IMPROVEMENT

1. Community, or County-wide Meetings with Cotton Growers

A discussion of harvesting and handling practices and ginning methods, with special emphasis on one-variety cotton communities. Illustrated with large photographs or film strip and cotton samples. A demonstration of correct and incorrect methods of gin operation, illustrated by the use of a small, portable, 8-saw, brush gin. Small lots of seed cotton are ginned to show the advantages of loose roll operation, vs. tight roll ginning and the ginning of dry cotton vs. wet cotton.

PROJECTS

Ad. 4-H

F. COTTON GIN IMPROVEMENT (CONTINUED)

2. County-wide Meetings with Ginners and Cotton Merchants
A discussion of harvesting and handling practices, gin machinery, operation, etc. Illustrated by photographs, film strips; cotton samples and small portable gin.
3. Inspection Service for Cotton Ginners
Chocking ribs and saws, brush setting, nozzle setting and pressure, speeds, etc., prior to, and during the gin season.
4. Technical Advice to Builders of New Gins
Planning of new gin buildings, advice on selection of equipment, computing speeds, capacities of various machines, cost of operation, etc.
5. Advice to Gin Operators
Feeding rates, and seed roll density. Seed board adjustment, demonstrations of proper vs. improper ginning. Care of equipment during idle season.
6. To Supply Exhibit Material for County or Community Fairs, etc.

G. 4-H CLUB WORK

I. CAMP PROJECTS

1. Rope Work
Each boy and girl participating will be given exercises in rope splicing and will be required to make an adjustable rope halter to take home. Cost of rope will be 12 cents each. It will be necessary for each student to take two 1-hour classes during the encampment.
2. A Demonstration in the Construction of Small Farm and Household Appliances--such as fly traps, bird houses, three-horse eveners, etc. One-hour class.
3. Home Water Systems
A 1-hour lecture period will be devoted to home water systems and improvements that can be made. Demonstrations of portable units will supplement the lecture.
4. Electrification Projects
 - a. Talks and demonstrations. Use of electricity on the farm, lighting etc.
 - b. 4-H Rural Electrification Contest.

II. CONTINUOUS PROJECTS

1. Electrification projects for each month that the club meets throughout the year. Lesson sheets to be provided.
Typical subjects:
 - A homemade electric lamp
 - A homemade electric brooder
 - A study of wiring and wiring materials
 - How to read your electric meter.

LINE OF WORK Agri. Eng. **NORTH CAROLINA EXTENSION SERVICE** _____ COUNTY
 PLAN OF WORK, 1941

KEY	TYPE OF WORK PLANNED	TOTAL WORK PLANNED	RESULT DEMONSTRATIONS	DISTRIBUTION OF TOTAL WORK PLANNED												
				NO.	NO.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.
	DESCRIPTION															
	Heavy Terracing	AD. 45		2	4	6	8	5			2	5	3	7	3	
		4-H														
	Terrace Maintenance	AD. 69		3	5	7	9	6		1	1	3	6	4	10	5
		4-H														
	Farm Buildings	AD. 25		2	2	3	2	2		2	2	2	2	2	2	2
		4-H														
	Water Systems	AD. 6			2	2	2									
		4-H														
	Drainage	AD. 1			1											
		4-H														
		AD.														
		4-H														
		AD.														
		4-H														

SEE REVERSE SIDE FOR INSTRUCTIONS.

EXTENSION PROCEDURE		TOTAL NO.	DISTRIBUTION												
			DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	
DAYS AGENT(S) TO DEVOTE TO WORK *	AD.	130	15	6	8	8	15	15	6	6	6	15	15	15	
	4-H														
DAYS SPECIALIST TO DEVOTE TO WORK	AD.	3		1		1								1	
	4-H														
DAYS LOCAL LEADERS TO ASSIST	AD.	20		2	2	2	2	2	2	1	1	2	2	2	
	4-H														
FARM AND HOME VISITS *	AD.	390	45	18	24	24	45	45	18	18	18	45	45	45	
	4-H														
NEWS ARTICLES	* NO.	7		1	1		1	1			1			2	
CIRCULAR LETTERS	* NO.	6		1	2	2			1		1		1		
MEETINGS PLANNED	METHOD DEMONSTRATION*	NO.	10		1	1	2	1	1			1	1	1	1
	RESULT DEMONSTRATION*	NO.													
	OTHER	NO.													
RESULT DEMONSTRATION RECORDS TO SECURE *	NO.														
TOURS	NO.														

INSTRUCTIONS

Make at least 3 copies, one for specialist, one for district agent and one for county agent.

Under column headed "KEY", use the key numbers from the monthly reports. Example: In dairying, "C 3" would represent Jersey bulls to be placed.

Under the column headed "TOTAL WORK PLANNED", enter the total number of units planned for the year. Example: A total of 40 listed on the adult line and 10 on the 4-H club line would represent a total of 50 Jersey bulls to be placed in the county during the year.

Figures entered under the column headed "RESULT DEMONSTRATIONS" represent that part of "TOTAL WORK PLANNED" for which result demonstrations will be conducted, records secured and other teaching methods employed necessary to the result demonstration. Example: 40 Jersey bulls are to be placed with adults in the county but only 5 are to be used as adult result demonstrations with performance records, meetings, etc. The 5 should be listed under the column headed "RESULT DEMONSTRATIONS". (All 4-H club projects are result demonstrations.)

The "TOTAL WORK PLANNED" and "RESULT DEMONSTRATIONS" planned must be distributed by months and a separation of the two shown. Example: 12 Jersey bulls are to be placed in April with no performance records planned and in addition 2 Jersey bulls are to be placed for result demonstrations with records, "12 S2" should be entered under April. Substitute "C" for "S" to show completions. Use "S" under December and "C" under November to designate result demonstrations conducted for several continuous years with the number of such demonstrations written to the right of the letter. A record must be obtained sometime during the year on such demonstrations.

EXTENSION PROCEDURE

Totals for the year's work must be entered under the column headed "TOTAL NUMBER", and distributed by months for all activities.

The lines with an asterisk (*) must be keyed by months. Example: If 5 days in April are planned for Jersey bull placement work, "C3-5" should be entered under April and the same followed for other lines marked with an asterisk. If for two or more months an identical system of work is planned, the indication may be made by a line through the blocks under the months involved.

The total of the distribution by months must equal the figures under the column headed "TOTAL NUMBER".

NORTHEASTERN DISTRICT
COUNTY PLANS OF WORK IN AGRICULTURAL ENGINEERING

COUNTIES	PHASES OF WORK					Days Agent to Devote	Days Specialist to Devote	Days Local Leaders to Assist	Farm and Home Visits	News Articles	Circular Letters	Meetings Planned
	A	B	C	E	G							
Beaufort	9		33	2		40	1	10	70	4	3	12
Bertie	11	15	28	10	X	16	4	8	32	2	2	4
Camden	6			2		8	1		16	2	2	2
Chowan	10		10	4		20	2	20	40	2	2	3
Currituck	6		16	10		15	1	15	30	2	2	3
Dare	2	5		6		8	2	4	23	3	2	1
Edgecombe	60	10	60	20	X	65	5		90	5	3	4
Gates			10	5		10		10	20	5	2	2
Greene	20		11	2	X	30	4	23	51	4	3	4
Halifax	105	12	10	5		61	2		105	3	3	12
Hertford	5	1	30	1		9	1		18	2		3
Hyde			12	5		10	1	6	18	2		4
Martin	21		2	25		31	3	12	68	2	2	4
Nash	139		30	5		75	4		110	14	16	12
Northampton	25		25	6		20	3	20	40	4	2	6
Pasquotank	4		12	5		14	2	14	28	3	2	3
Perquimans	5		10	10		17	1	8	20	2		1
Pitt	15		13	3		35	3	19	70	4	4	2
Tyrrell	3		4	7		16	2	14	32	1	2	2
Washington	29			5		20	2	15	30	2	2	4
Wilson	43		40	12	X	41	5		80	6	6	16
TOTAL	566	41	409	150	4	564	49	198	1021	74	60	104

Note: All phases of Agricultural Engineering work planned are shown on this sheet except Rural Electrification and Cotton Gin Improvement.

Note: X Denotes classes in Agricultural Engineering work at 4-H Club Camps.

SOUTHEASTERN DISTRICT
COUNTY PLANS OF WORK IN AGRICULTURAL ENGINEERING

COUNTIES	PHASES OF WORK					Days Agent to Devote	Days Specialist to Devote	Days Local Leaders to Assist	Farm and Home Visits	News Articles	Circular Letters	Meetings Planned
	A	B	C	E	G							
Bladen	52	15	65	25	X	20	4		40	9	4	6
Brunswick			30	4		6	1		12	1	1	1
Carteret	4	4	25	7		15	3	10	36	4	4	2
Columbus	4	8	125	75	X	15	4	25	30	4	2	4
Craven	9		15	4		27	2		52	2	2	4
Cumberland	25	32	65	62	X	52	4		104	5	7	5
Duplin	55	12	30	6	X	51	5		162	5	5	4
Harnett	111	5	40	30	X	150	4	14	298	6	6	12
Hoke	21		25	1		19	2		38	8	6	10
Johnston	148		1	50		176	3		170	2	2	17
Jones	14	100	126	25	X	22	5		66	5	3	6
Lenoir	10	1		15	X	16	4	12	32	3	3	4
New Hanover			24			13	2		26	1	1	
Onslow	26	2	125	18		16	2		32	2	2	4
Pamlico			27	12		6	1	8	18	3	1	4
Fender	21	12	38		X	21	4	6	40	5	4	4
Robeson	20		10	15	X	29	5	25	58	4	3	4
Sampson	51	10	38	8		37	3		96	6	5	6
Scotland	15		25		X	8	4		16	2	2	3
Wayne	23		25		X	24	5		48	4	4	4
TOTAL	630	231	869	357	11	713	67	100	1314	81	67	104

Note: All phases of Agricultural Engineering work planned are shown on this sheet except Rural Electrification and Cotton Gin Improvement.

Note: X Denotes classes in Agricultural Engineering work at 4-H Club Camps.

NORTHWESTERN DISTRICT
COUNTY PLAN OF WORK IN AGRICULTURAL ENGINEERING

COUNTIES	PHASES OF WORK					Days Agent to devote	Days Specialist to devote	Days local Leaders to assist	Farm and home visits	News Articles	Circular Letters	Meetings Planned
	A	B	C	E	G							
Alamance	230		25	6		179	3	12	220	9	3	12
Caswell	128		30	12		158	3	12	316	6	6	16
Chatham	115		25	4		60	3	3	315	4	4	4
Davidson	72		30	6		68	2	12	136	5	6	8
Durham	115		41	25		195	2	12	585	4	4	12
Forsyth	444		50	8		118	2	3	385	10	6	6
Franklin	90		15	6		75	2	12	115	8	10	11
Granville	325		35	6		153	2	19	312	12	8	12
Guilford	275	3	100	2		195	2	12	521	30	11	4
Orange	225		30	25		183	3		350	8	4	12
Person	36			2		36	1		36	6	2	2
Randolph	200		25	15		177	2	5	310	6	12	16
Rockingham	200		30	6		163	2	15	430	8	11	10
Surry	200		30	10		120	2	12	360	6	4	6
Stokes	370		36	6		116	3	11	221	9	11	10
Vance	121		40	8		117	2	2	291	5	4	8
Wake	106		25	6		190	3		390	7	8	
Warren	400		18	5		166	2	4	462	4	10	8
Wilkes	20		12	6		30	2	30	50	4	1	25
Yadkin	180		24	8		78	2		156	4	4	16
TOTAL	3885	3	611	172		2535	145	174	6020	163	135	192

Note: All phases of Agricultural Engineering work planned are shown on this sheet except Rural Electrification and Cotton Gin Improvement.

Note: X Denotes classes in Agricultural Engineering work at L-H Club Camps.

SOUTHWESTERN DISTRICT
COUNTY PLANS OF WORK IN AGRICULTURAL ENGINEERING

COUNTIES	PHASES OF WORK					Days Agent to Devote	Days Specialist to Devote	Days Local Leaders to Assist	Farm and Home Visits	Fews Articles	Circular Letters	Meetings Planned
	A	B	C	E	G							
Alexander	30		2	8		12	1		21	1	1	2
Anson	272		100	50	X	161	4	12	328	6	6	8
Cabarrus	160	8	30	12		123	2	2	231	3	2	8
Caldwell	20		2	3		25	2		65	3	2	15
Catawba	250		50	6	X	111	4	4	312	3	9	6
Cleveland	210		36	10	X	151	5		300	4	2	20
Davie	100		20	10		80	3		160	2	3	6
Gaston	150		30	15		130	3	12	260	6	5	12
Iredell	615		125	60		106	2		318	4	4	12
Lee	70		25	6		36	3	1	72	7	3	6
Lincoln	191		20	6		150	2	3	300	6	4	6
Mecklenburg	220		45	23	X	162	4	2	458	5	10	11
Montgomery	330	5	27	12	X	100	4	6	200	5	3	6
Moore	272		15	75		170	2	13	401	7	12	6
Polk	50		8	2	X	61	4	2	121	10	2	2
Richmond	132		30	30		135	2	6	270	4	3	8
Rowan	91		36	25	X	50	5	6	150	10	10	6
Rutherford	196		25	2	X	105	4		315	5	3	6
Stanly	250		50	25		135	2	11	270	7	9	11
Union	180		50	25		65	3	5	150	6	4	8
TOTAL	4395	13	726	405	8	2030	61	85	4851	109	97	168

Note: All phases of Agricultural Engineering work planned are shown on this sheet except Rural Electrification and Cotton Gin Improvement.

Note: X Denotes classes in Agricultural Engineering work at 4-H Club Camps.

WESTERN DISTRICT
COUNTY PLANS OF WORK IN AGRICULTURAL ENGINEERING

COUNTIES	PHASES OF WORK					Days Agent to Devote	Days Specialist to Devote	Days Local Leaders to Assist	Farm and Home Visits	News Articles	Circular Letters	Meetings Planned
	A	B	C	D	E							
Alleghany	15		10	5		15	1		30	2	2	3
Ashe			20	5		15	1		40	3	2	3
Avery	1		10	50		12	1	29	53	2	1	1
Buncombe			24	2		5	1		10	2	2	2
Burke	2		8	5		9	1		18	2	1	4
Clay	20	55	24	4		20	1		40	2	2	5
Cherokee			22	6		12		10	45	4	2	4
Graham			15	8		8	1		18	2	1	2
Haywood	3		40	20		18	1	50	72	5	3	5
Henderson	30		20	12		26	1		75	6	4	6
Jackson	2		25	4		19	1		38	7	7	2
Macon	5	100	20	6		25	2	6	50	2	1	3
Madison			24	24		8	1		32	4	2	2
McDowell	30		10	15		24	2	6	40	6	2	6
Mitchell			25	5		8	1		16	2	1	1
Swain		15	15	5		20	1	3	40	4	4	7
Transylvania	18		20	5		10	2		30	2	1	8
Watauga			10	5		6	1		18	4	4	
Yancey			40	10		10	2		50	3	1	2
TOTAL	126	170	382	194		270	72	104	715	64	43	66

Note: All phases of Agricultural Engineering work planned are shown on this sheet except Rural Electrification and Cotton Gin Improvement.

COTTON GIN IMPROVEMENT PLAN OF WORK

1941

by

J. C. Ferguson, Ext. Cotton Gin Specialist

Cotton in North Carolina during the past year has made great strides. An estimated production of 434 pounds of lint per acre is the highest on record. On 814,000 acres planted it is expected that North Carolina will produce around 740,000 bales of cotton. Staple length has increased and will average about 1-1/32 inches which is approximately 1/32 of an inch improvement over last year. Staple length has slowly improved over a period of ten years, showing that many farmers were slow to change from the shorter varieties to those of better lengths. However, the one variety program has played a large part in stimulating this improvement and farmers now plant only small quantities of gin run seed.

Statistics reveal the following facts regarding the North Carolina cotton crop.

	1939	1940
Acreage planted	740,000	814,000
Lint production B/C	457,000	740,000 (Est.)
Cotton seed - tons	186,456	301,000
Value of Lint @ 9½¢	\$21,707,500	\$35,150,000
" " Seed @ \$21.00 ton	<u>3,729,120</u>	<u>6,038,000</u>
Totals	25,436,620	41,188,000

Increase in value from greater production \$15,751,380

Grade and staple reports show that the average grade of cotton in North Carolina in 1939 was worth 45.4 points below middling while in 1940 the average grade is worth 30.4 points below middling, making an improvement of fifteen points.

In regard to staple we find that the average staple in North Carolina in 1939 was worth 27.9 points above 15/16, or base, while in 1940 the value has improved by 20 points, or 47.9 points above 15/16. These two value increases added make a total of 35 points, or \$1.75 per bale. Applying this figure to the 1940 production we find that the crop was improved in value by better grade and staple to the amount of \$1,295,000. Adding this to \$15,751,380 derived from greater production, we have a total of \$17,046,380 more from cotton in 1940 than in 1939.

Cotton ginners are becoming more aware of their responsibility to the farmer and are conscientiously trying to improve their service. However, low prices and keen competition has made it difficult to realize sufficient profits from ginning operations to modernize plants and in many instances to replace or even repair worn machinery.

There is a definite trend of concentration of ginning to larger and better equipped gins which is giving certain plants an increase in volume, thereby giving them a larger return on their investments. There are between 250 and 300 gin plants in North Carolina in excess of actual needs. However, until more improvement is made on the necessary ginning establishments and farmers realize more fully the advantages of good ginning the many small and obsolete plants will continue to operate.

More emphasis should be put on the need for extracting and cleaning machinery and especially on seed cotton drying equipment. Much improvement can also be made in operation and maintenance of existing equipment.

With the unusually good crop this year, and the definite effort on the part of farmers to control boll weevil it is expected that ginners will endeavor in the coming year to add more improvements to ginning facilities than they have for several years past.

Cotton classification service has meant a great deal to those ginners receiving it, as well as to the farmers and it has been found that gin operators

use this information in checking on their work. Many of them go over the reports very carefully as they are returned, and analyze the information as it is affected by the gin service.

It is clearly evident, however, that the greatest need for educational work toward the improvement of cotton quality is with the farmer. His carelessness in harvesting and his disregard for proper conditioning and storage of cotton before and after ginning costs the cotton farmers of the state millions of dollars each year.

Objectives of a Long-time Program

To bring about through educational methods, better harvesting and handling of North Carolina cotton and by improvement of ginning methods and facilities preserve the natural qualities of both seed and lint.

Goals for 1941

- To conduct demonstrations for farm groups.
- " " " " gin owners and operators.
- " submit recommendations to both farmers and ginners.
- " prepare timely material for circulation and publication.

Procedure and Methods of Teaching

This phase of work requires parallel, but to some extent separate programs of work, with gin operators and farmers, on conditioning and ginning, harvesting and handling of cotton.

Methods and Agencies of Instruction

- Actual ginning demonstrations with small demonstration gin.
- Exhibits of cotton standards on both grade and preparation.
- Public lectures and personal conferences.
- Film strip and motion picture material.
- Educational bulletins and mimeographed material.
- Charts on grade and staple statistics (for local and adjacent districts).
- Photographs prepared by USDA Cotton Ginning Laboratory.

Practices to Be Demonstrated by Portable Exhibits, and Actual Ginning of Specimen Lots.

- Effect of care in harvesting and handling.
- Ginning clean-picked vs. roughly-picked cotton.
- Ginning damp-picked vs. dry-picked cotton.
- Ginning freshly-opened vs. weather-exposed cotton.
- Ginning with fast feed vs. proper feeding rates.

Quality Effects as Result of Various Ginning Methods

Ginned artificially dried vs. damp cotton.
Ginned samples from loose seed roll vs. tight seed roll.
Ginned samples with good saws vs. poor saws and ribs.
Ginned samples with cleaning and extracting machinery vs.
without cleaning and extracting machinery.
Ginned samples with good brushes vs. bad brushes.
Ginned samples showing results of plating.
Ginned samples from huller front gins vs. plain front gins.

Improving Efficiency and Lowering Ginning Costs

Air blast gauge instructions.
Selection of fans, piping and speeds.
Costs of blowing vs. conveying seed.
Rib and saw gauges.
Repairing and balancing brush cylinders.
Gumming, filing and training saws.
Repairing and balancing brush cylinders.
Repairing leaky cotton and air piping.
Care of power units and belting.
Construction arrangement and repair of buildings.
Power saving possibilities from drying cotton.
Loose vs. tight seed rolls.
Losses from plain vs. frictionless bearings.

Other Agencies Cooperating

U.S.D.A. Cotton Ginning Investigations.
B.A.E., B. P. I., U.S.D.A.
North Carolina Experiment Station.
Cotton Ginners Association.
Cotton Cooperatives.
Cotton buyers and factors.

Extension Literature to Be Used.

Bulletin No. 1748 - Cotton Ginning
" " 393 - Care and Maintenance of Cotton Gin Saws and Ribs.
" " 239 - The Vertical Drier for Seed Cotton
" " 407 - Cotton Gin Brushes
" " 1802 - Modernizing Cotton Gins
" " 151 - Effects of Feeds and Saw Speeds on Cotton Turnout
And Quality
" " 314 - Overhead Cleaner-Drying Systems.

Mimeographed Material - Cotton Gin Operating and Testing Equipment.
" " - Effects of Variations in Design of Gin Saw Teeth On
Lint Quality and Ginning Efficiency.

Methods of Measuring Results

Grade and staple statistics.
Surveys of gins and ginning conditions.

Calendar of Work 1941

Visiting gins to examine condition of equipment, recommend improvements, adjustments, repairs and replacements.

Meeting with ginners' groups to discuss better ginning facilities and more efficient service.

Meeting with farm groups to encourage better harvesting and handling, and to stress the advantages of good ginning.

Personal assistance to gin operators in correct operation, care and maintenance of their equipment in both idle and busy seasons.

Preparation of timely news articles, circular material, charts exhibits, cotton samples, etc.

All meetings, exhibits, etc., to be conducted in cooperation with county agents.