

AGRICULTURAL ENGINEERING
Project No. 10

PLAN OF WORK

State of Virginia
1928

- OBJECT:** To make the farms of the State more productive, efficient and prosperous and the farm homes more attractive and more fit places in which to live.
- To offer technical information and assistance to any taxpayers of the State who are interested in the development, and the increase in the efficient use of, the agricultural resources of the State.
- To promote a better understanding of the value of the science of engineering as applied to agriculture.
- PROJECTS EMPHASIZED:** The following projects will be emphasized during the year:
1. Terracing.
 2. Farm Structures.
 3. Farm Water Supply and Sanitation.
 4. Rural Electrification.
- OTHER PROJECTS:** The other projects in Agricultural Engineering, such as drainage, irrigation, land clearing, farm power and machinery and miscellaneous, will be handled mainly through correspondence. Urgent requests for field assistance on these projects will be given when circumstances justify.
- SERVICE:** The work will be carried on by means of:
- A. Publicity and propoganda.
 - B. Meetings and short courses.
 - C. Field projects and demonstrations.
- Publicity and propoganda will be obtained through the publication of articles in county papers, farm journals, bulletins, circular letters, exhibits at fairs, etc. will also be used.
- Meetings and short courses will be given when scheduled and will consist of illustrated lectures, moving pictures and practical work.
- Field projects and demonstrations will consist of technical information and service to individuals, communities and organizations. Field assistance will be handled with the purpose of instructing on methods and an endeavor will be made to instruct as large a number as possible on each field demonstration.
- MEASURE OF RESULTS:** The projects to be emphasized are self-advertising, such as terraced fields, new or remodeled farm structures, water systems installed, and electric lines built or water power sites developed. Cost records and records of conditions before and after will be kept in order to show progress made.

Office records will be kept of the volume of correspondence, number and kinds of blue prints, bulletins, circulars and other material sent to farmers, county agents, etc.

Results will be measured by number of farmers reached and number influenced to use the better methods recommended.

PERSONNEL: The extension staff for the year will be as follows:

One Agricultural Engineer - three-fourth time.
One Assistant Agricultural Engineer - full time.
One Student Assistant Draftsman - one-half time.
One stenographer.

CALENDAR: The nature of the services rendered by this department preclude the possibility of following any fixed program for the entire year in advance.

Tentatively the terracing project will be handled during the months of October, November, and December. The farm structures and rural electrification and miscellaneous projects will be handled throughout all the year. The farm water supply and sanitation project will be handled from April to September inclusive.

Respectfully submitted,

Agricultural Engineer

Outlines of the four sub-projects to be emphasized during the year are attached.

AGRICULTURAL ENGINEERING
Sub-Project 1.

TERRACING

OBJECT: To spread the teaching and practice of terracing for the purpose of preventing soil erosion, conservation of soil moisture and improvement of the soils.

IMPORTANCE: Soil erosion occurs to some extent in practically every county of the state. In at least 25% of the counties it constitutes a serious problem. Soil erosion results in considerable loss of fertility. Soil scientists say erosion takes 20 times more out of the soil than does the growing of crops. If not checked in time, erosion will necessitate the ultimate abandonment of the land.

Investigations conducted in Charlotte county show that 89% of the farm land is subject to erosion and that over 4000 acres were abandoned to cultivation last year as a result of excessive erosion.

PLAN OF WORK:

Promote terracing through demonstration, terracing schools, meetings and propoganda. The county agent will assume leadership in all terracing activities in his county. Definite demonstrators will be selected in communities from farmers requesting aid in terracing. These demonstrators will agree to advertise the meeting in their community, provide necessary tools and power, and agree to complete the terraces as laid out.

The County Agent will:

1. Promote the project in his county by distributing the publicity material, etc. furnished by the department.
2. Select reliable farmers in different communities who have land in need of terracing, and who agree to follow instructions.
3. Make all necessary preliminary arrangements for holding demonstrations or schools. Advertise the demonstration.
4. Obtain a record of the results secured in his county due to the work of this project.

The Cooperating Demonstrator will:

1. Record results of terracing relative to crop yield, land value, etc.
2. Help county agent secure an interested group of men at the demonstration.
3. Report on other terracing work done as a result of his demonstration.
4. Help his community to practice extension teaching in terracing and uphold extension standards set out in demonstrators agreement.

The Agricultural Engineering Department will:

1. Supply county agent with educational publicity material for use in local papers; supply bulletins and other information on terracing for distribution; furnish agents with complete instructions on method of handling this project.

- 2. Send an engineer to the county to assist the agent in handling the demonstration; the engineer will assist the agent in giving instructions on handling the level, building terrace drag, and constructing at least one model terrace at each demonstration; help the agent with the solution of any particular soil erosion problem that may arise.

GOAL: To insure each county, men experienced in terracing who can take care of the terracing needs of the county, so that the agents future effort in terracing will be purely instructional and advisory. Results will be measured by number of men trained to do terracing, and number of acres terraced as a result of demonstration.

INSTRUCTIONS TO DEMONSTRATOR

Cooperative Demonstrator - - - - - Co. Agt.; - - - - -

History of the piece of land.

Crop grown in 1924	Yields per acre
1925	" " "
1926	" " "

Topography _____ Soil type _____

The assistance given you in terracing is being given for the purpose first of helping you to save or rebuild the top soil on your farm, and second for the purpose of influencing other farmers in your community to adopt the same extension practices. This would result in building up a fertile soil in your community.

As a cooperating demonstrator it is expected that you will study the terracing bulletin to be secured from your county agent, and apply the methods they present.

Your terraces should be built at least 20 feet wide at the base, and 2 feet high in the middle as soon as possible after work has started.

It is necessary to build all fills over gullies extra heavy. The terraces outlets must be big and generous.

You should farm terraced land as nearly as possible with the terraces at least for the first year.

During the first rain storm after building, it is important that you visit your terraces prepared with a shovel to help prevent any breaks.

You should encourage your neighbors to terrace and you are expected to report to your county agent on a blank furnished by him the results of your terracing. This report will give information on cost and benefits of terracing.

AGRICULTURAL ENGINEERING
Sub-Project II.

FARM STRUCTURES

- OBJECT:**
1. To enable the farmer to secure the best type and design of farm structure for the money expended.
 2. To promote better farm buildings both from the architectural as well as utility standpoint.
- IMPORTANCE:** Farm buildings in the state increased in value from \$268,080,748 in 1920 to \$286,138,184 in 1925. This department plan service will assist the farmers to get the most out of the approximately three and one-half million dollars expended annually in farm structures.
- PLAN OF WORK:**
- The Agricultural Engineering Department will:
1. Prepare new plans for farm structures as rapidly as possible.
 2. Cooperate with the Division of Agricultural Engineering, U. S. Dept. of Agriculture by using as many plans designed by that office as are adapted to Virginia conditions.
 3. Prepare a photographic booklet of all available plans for the use of the county agent, and instruct the county agent in the proper use of this booklet and the reading of blue prints.
 4. Rewrite Poultry Housing Bulletin.
 5. Prepare circulars for construction methods to supplement plan service.
 6. Cooperate with Portland Cement Association in giving county agent assistance with concrete problems.
 7. Supply county agent with plans, bulletins, specifications, bills of material, etc.
 8. In cases of community projects, such as packing houses, storage houses, fair buildings, etc. Give field assistance.
 9. Secure the cooperation of all interested agencies, such as lumber dealers and manufacturers, contractors, architects, etc.
- The County Agent will:
1. Promote the project in the county by distributing the publicity material supplied by the department.
 2. Make efficient use of plan booklet and send to the department for plans needed by the farmers.
 3. Keep a record of the farm buildings constructed in the county, costs, alterations made in plans, etc.
- RESULTS:** Results will be measured by number of plans furnished, new buildings constructed, old buildings, remodeled, etc.

AGRICULTURAL ENGINEERING
Sub-Project III.

FARM WATER SUPPLY & SANITATION

- OBJECT:**
1. To demonstrate the most practical methods of securing running water and other conveniences in the farm home.
 2. To improve the sanitary conditions around the home and thereby help the health of the whole family.

As the ultimate object of the extension work is to improve the farm home life, this project should be the most important in extension work.

- PROCEDURE:**
1. Promote the project in the county by county-wide campaigns which will give every farm owner an opportunity to know how, and at what cost, running water can be put in his home.
 2. Teaching farmers the fundamentals of different types of water systems.
 3. Enlisting the enthusiastic support of local leaders.
 4. Instructing local plumbers as to class of work generally put in in such campaigns and to ask them to cooperate with the farmers.
 5. Make this a definite and thorough piece of work so that it will continue under its own momentum.

LOCALITY: This project should be carried on in practically every Virginia county. There is immediate need for it in about 90% of the farm homes. It is hoped that ten (10) counties can be handled each year.

- PLAN OF WORK:**
- A. County and Home Demonstration Agents' Duties.
 1. To make a survey of the county to determine the number of farms having running water in the farm home.
 2. To list hardware dealers, plumbers, well drillers, and other local agencies through which pumping equipment is handled.
 3. To list all county preachers, school principals, bankers, county stores, newspapers, and any other agencies through which the farmers may become informed concerning the campaign.
 4. To give purpose and date of campaign in all talks and interviews.
 5. To list requests for assistance on water problems received as result of publicity.
 6. To conduct the follow up work and get the record of results.
 - B. Specialists' Duties:
 1. Supply all educational and publicity material to agencies willing to give cooperation.
 - (a) Write weekly articles for newspapers.
 - (b) Make placards for stores, banks.
 - (c) Write agent's letters to farmers on their revised list.
 - (d) Write notices to all preachers, plumbers, dealers, school principals.

- (e) Write District Extension Agent and School Superintendent, County Supervisors, Advisory Council.
 - (f) Get notices in all county postoffices.
 - (g) Get up school composition idea. "The Farm Water System" - Have teachers grade papers, sending only highest one in to specialist. \$25.00 in prize money from hardware men, plumbers and banks. \$10.00 1st, \$7.50 2nd, \$5.00 3rd, \$2.50 4th.
 - (h) Write Virginia State Chamber of Commerce (Mr. Nelson, Director of Publicity), Plumbers Association, National Association of Farm Equipment Manufacturers, Water Supply Department.
 - (i) Get stamp for Agents' letters in county, stickers for letters, big canvas for back of car.
 - (j) Send card questionnaire to all school principals, to give one to each family representative. Cover County. Purpose to advertise campaign.
 - (k) Get up mimeograph card for agents' to keep requests on.
2. Visit all farm homes, from which an inquiry has been received, for the purpose of making complete survey of proposed water system.
 3. Write each farmer having survey made giving data taken and approximate estimate cost of installation.

RESULTS: Campaign results will be measured by:

1. Number of water systems installed during 12 months following date of survey.
2. Number of water systems improved during 12 months following date of survey.

AGRICULTURAL ENGINEERING
Sub-Project IV.

RURAL ELECTRIFICATION

OBJECT: To aid farmers in securing electric service on the farm, and to demonstrate the use of electricity in improving living conditions on the farm, and for performing various farm operations.

IMPORTANCE: Electric energy on the farm offers a means of reducing some of the farmer's labor and power costs. Electricity in the farm home will be a Godsend to the farm housewife and will be an important factor in improving living conditions on the farm.

PROCEDURE: Promote the project in the county by means of meetings, demonstrations, bulletins, newspaper articles, and other publicity means. The men and women agents should cooperate on this project.

The Agricultural Engineering Department will:

1. Furnish the agent with instructions on methods of handling this project; supply bulletins or data for distribution; furnish educational publicity material for use in the county papers.
2. Send an engineer to the county to make a survey of the community and advise on best methods of securing electrical service; give an estimate of the cost; and advise on method of securing and maintaining the service; secure the cooperation of the electric power companies, if necessary.
3. Carry on irrigation demonstrations in cooperation with electric companies.
4. Secure cooperation of electric companies and induce them to maintain rural service departments with qualified agricultural engineers in charge.

The County Agent will:

1. Promote the project in the county by distributing the publicity material, etc. furnished by the department.
2. Select a group of farmers in a community who are interested in securing electricity on their farms, and arrange for the engineer to visit their farms. Arrange for meetings of the interested farmers.
3. Obtain a record of the results gathered in the county due to the work on the project. Keep records over a series of years.

RESULTS: Results will be measured by the number of farms securing electric service; labor saving equipment and other conveniences installed; reduction of labor and power costs by the use of electricity, companies organizing rural departments, etc.

