

AGRICULTURAL ENGINEERING.

Plan of Work, 1927.

**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.

METHOD OF PROCEDURE.

The methods of teaching the subject matter under Agricultural Engineering are by:

A. Short Courses and Meetings, which are given when scheduled, and consist of illustrated lectures, moving pictures, laboratory work and talks at meetings.

B. Publicity and Propoganda, which is handled through correspondence, bulletins, circular letters, newspapers and farm journal articles, and exhibits at fairs.

C. Field Projects and Demonstrations, which consist of supplying technical information and service to individuals, communities, and organizations of the State.

Individuals, county or home demonstration agents, or community organizations make application to the department for the services of the specialists. The individual project is visited, in company with the county agent, surveys and other notes are made and a detailed report, plans and suggestions furnished. Demonstrations consist of visits and meetings at projects under construction and at finished projects, in order to instruct on methods and show results obtained. The specialist endeavors to instruct in such a way that those in attendance at the demonstration can carry out the practice recommended without further assistance. Many of the projects are self-advertising, such as improved farmsteads, farm home or other buildings, new operating equipment, water systems and other conveniences in the home and reclamation projects, such as drained fields, terraced hillsides and cleared land.

The following listed sub-projects are to be emphasized during the year, 1927.

- Sub-Project - I Rural Electrification.
- Sub-Project - II Terracing Demonstrations.
- Sub-Project - III Farm Water Supply.
- Sub-Project - IV Farm Buildings.
- Sub-Project - V Land Clearing.

Outlines of these sub-projects are appended hereto.

Sub-Project I

RURAL ELECTRIFICATION.

**OBJECT:** To demonstrate the best methods of securing electricity on the farm, and 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 the 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.

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, etc.

Sub-Project II.

TERRACING DEMONSTRATIONS.

**OBJECT:** To demonstrate the method of preventing soil erosion by the use of the broad base, or magnum, terrace.

**IMPORTANCE:** Soil erosion occurs to some extent in every county of the State and in some counties it constitutes a very serious problem. Soil erosion results in a tremendous loss of fertility as well as the soil itself. If not checked in time, it will necessitate the ultimate abandonment of the land.

In twelve of the Southern Piedmont counties, erosion occurs extensively on about 10% of the farm land, or on 300,000 acres. The value of terracing improvements can be figured at from \$5.00 to \$50.00 per acre. Figuring conservatively at \$10.00 per acre, the value of the project should be estimated at \$3,000,000.00 in these twelve counties.

**PROCEDURE:** Promote terracing through demonstrations, meetings, bulletins and other publicity methods.

The Agricultural Engineering Department Will:

(1) Furnish county agents with educational publicity material for use in their local papers; supply bulletins and other material on terracing for distribution; furnish agents with complete instructions on methods of handling projects.

(2) Send an engineer to the county to assist the agent in making surveys for and laying off terracing systems; construct one model terrace on each farm laid off; instruct interested persons in the use of the level in laying off terraces; give talks at meetings.

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 the necessary arrangements for holding the terracing demonstrations, such as having terrace drags ready, advertise the demonstrations, arrange for at least three demonstrations, one each day.

(4) Obtain a record of the results gotten in his county due to the work of this project.

**RESULTS:** Results will be measured by number of feet of terraces laid out and constructed; number of acres terraced; number of farmers attending demonstrations; spread of influence, etc.

Sub-Project III.

FARM WATER SUPPLY.

**OBJECT:** To demonstrate the most practical methods of securing running water and other conveniences in the farm home.

To improve the sanitary conditions around the home and thereby help the health of the whole family.

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

**IMPORTANCE:** According to the best figures available, only approximately 10,000 of the 182,242 farms in the State have running water in the home. The lack of water and other conveniences entails great hardships on the farm women. By installing inexpensive water and sewage disposal systems, the women can be relieved of a lot of drudgery and the health and happiness of the whole family improved. Good health is fundamental to progress in all activities.

**PROCEDURE:** Promote the project in the county by means of meeting, demonstrations, bulletins, newspaper articles and other publicity means. As this project deals directly with the farm home, it should be handled by the home demonstration agent where one is available.

The Agricultural Engineering Department Will:

(1) Furnish the agent with instructions on methods of handling this project; supply bulletins, plans, etc., for distribution on water supply, sanitation and home conveniences; furnish educational publicity material for use in the county papers.

(2) Send an engineer to the county to visit the farm homes and advise on the most practical water system, sewage disposal system or other home conveniences; give an estimate of the cost of installing such conveniences and advise where equipment can be secured, etc.

The County Home Demonstration Agent Will:

(1) Promote the project in the county by distributing the publicity material, etc., furnished by the department.

(2) Select a number of farmers or farmers' wives who are interested in getting home conveniences; arrange for the engineer to visit these homes (several visits can be made in one day).

(3) Obtain a record of the results gotten in the county due to the work of the project.

**RESULTS:** Results will be measured by number of water systems, sewage disposal plants, conveniences, etc., installed in the county.

Sub-Project IV.

FARM BUILDINGS.

- OBJECT: 1. To demonstrate the use and value of modern farm buildings.
2. To demonstrate the value of proper arrangement of buildings, fields, etc., so as to conserve labor.

IMPORTANCE: The farmers of the State have \$268,000,000.00 invested in farm buildings, or more than the combined value of implements and live-stock. Thousands of dollars are spent annually by farmers for new buildings. In most cases, these buildings are constructed without plans and the farmer often finds, after he has finished the building, that it is not what he wanted. By using a good plan, he can usually save money and get a building suitable to his needs.

PROCEDURE: Promote better buildings through the distribution of standard building plans, bulletins, etc.

The Agricultural Engineering Department Will:

- (1) Furnish the agent with educational publicity matter for use in local papers; supply bulletins on farm buildings, concrete constructions, etc.
- (2) Furnish the agent with blue prints, specifications and bills of material for any farm building needed by any of his farmers; prepare new plans when requests cannot be filled from plans on hand.
- (3) In cases of community buildings, such as packing houses, county fair buildings, etc., send an engineer to the county to lay off the grounds, buildings, etc.
- (4) Answer all requests for information on the farmers' building construction problems.

The County Agent Will:

- (1) Promote the project in his county by distributing the publicity material, etc., furnished by the department.
- (2) Select farmers who intend to build and send to the department for plans and other information relating to the proper construction of the structure in question.
- (2) Obtain a record of the results gotten in his county due to the work of this project; cost of structures and changes made in plans, if any.

RESULTS: Results will be measured by number of new buildings constructed, old buildings remodeled, value of new structures constructed, rearranged farmsteads, etc., and the spread of influence.

Sub-Project V.

LAND CLEARING.

**OBJECT:** To demonstrate the use of explosive in clearing land (distribution of Government explosive).

**IMPORTANCE:** There are, in the aggregate, great areas of good cut-over land in Virginia farms, lying idle, not growing farm crops, timber, or anything else of value. Practically every farm has fields in cultivation which contain stumps, rocks, etc. Such land cannot be worked efficiently. The clearing of this cut-over land and the removal of stumps, rocks, etc., on the cultivated land is an important factor in the Agricultural Economics of many farms, yet probably no feature of farm life is so little understood or so blindly pursued.

The Agricultural Engineering Department Will:

- (1) Send agents complete information as to the use of explosive in clearing land and the method of distributing the Government explosive.
- (2) Send a specialist to the county to give demonstrations in blasting stumps.
- (3) Furnish order blanks for explosive.
- (4) Order this explosive from the Government and arrange for the distribution of it at cost to the farmers.

The County Agent Will:

- (1) Arrange for and advertise the demonstrations through the papers and by posters, etc.
- (2) Advise the farmers as to cost, amount of material needed for clearing land, how to order.

**RESULTS:** Results will be measured by the number of stumps removed, acres cleared, value of land before and after, increased yield per acre, etc.

