

Extension Projects in Agricultural Engineering
To be conducted in cooperation with the County Agent.

PROJECTS TO BE TAKEN UP DURING THE YEAR BY

THE DEPARTMENT OF AGRICULTURAL ENGINEERING IN COOPERATION WITH THE

COUNTY AGENT
Department of Agricultural Engineering, Virginia Polytechnic Institute
Blacksburg - Va.

I. LAND RECLAMATION

- (a) Drainage
- (b) Terracing
- (c) Land Clearing.

II. DOMESTIC ENGINEERING.

- (a) Farm Water Supply and Sanitation.
- (b) Farm lighting plants and home labor saving devices.
- (c) Farm Hydro-electric Development.

.III. POWER FARMING.

- (a) Farm Implements
- (b) Gas Engines and Tractors.

IV. FARMSTEAD PLANNING

- (a) Farm Buildings
- (b) Efficient Arrangements of Farmstead *Farm Layout*

V. MISCELLANEOUS ENGINEERING PROBLEMS

1. (a) TILE DRAINAGE DEMONSTRATIONS (Individual farms)

Object.- To demonstrate the methods of draining wet farm lands.

The county agent should select good reliable and progressive farmers, in the different districts of his county, who have wet lands that can be improved by proper drainage. To make the demonstration worth while, the ~~acreage~~ ^{plot} should consist of not less than five acres. A good size demonstration would be twenty to ~~thirty~~ ^{about} acres. When the agent has selected his demonstrator who has agreed to follow instructions, the Department of Agricultural Engineering will send an engineer to survey the land to be drained, and will prepare a map showing the location, of the plot, size and amount of tile needed, together with an estimate of the cost of tiling. *Construction.*

After the farmer has purchased his tile and is ready to start ~~the~~ work, - the engineer will return and stake off the tile lines, giving the grade and cuts, etc. He will also instruct the farmer how to grade his ditch and lay his tile, spending as much time with him as is necessary to get the work started right. It is during this second trip and when the work is actually being done, that the County Agent should advertise the demonstration and have as many of the farmers from the immediate neighborhood present as possible, in order that they may be instructed in the proper method of draining their lands.

If the agent is located in a section where a large amount of drainage is needed, the Department will assist in organizing a ditching machine company for the purpose of getting the ditching done for the farmers. Wherever these machines are located the farmers are doing a lot of tiling as a machine is the most efficient means of doing then ditching. When a machine does the work, the farmer is assured of getting the ditches dug true to grade. The whole success of tiling depends upon a proper grade.

(2) Drainage of large areas.

Many counties have large areas of land that have been rendered useless by the overflowing of streams, etc. In most of these cases the land is owned by many parties and in order to accomplish anything in regard to the reclamation of these large areas, all the land owners have to join in a cooperative movement. In cases of this kind the Department will give the Agent assistance in making a preliminary survey of the areas in question so as to report on the possibilities of drainage, etc. After this preliminary survey, if it is found advisable to proceed, a drainage district will be organized under the state drainage law. The Drainage Division of the United States Department of Agriculture will aid in the organization work and will cooperate in putting the project across.

I. (b) TERRACING DEMONSTRATIONS.

Object.- To demonstrate the method of preventing the loss of soils through erosion or soil washing.

In counties needing terracing the Agent should select ^{four or five} ten or twelve farmers from different sections of his county. ^{having fields in need of terracing} Arrangements should be made to hold one demonstration ^{each} day. The active work should be given over exclusively to these demonstrations. The Department will send an engineer to the county to assist in the work.

The ^{agent} engineer will lay off a number of terraces on each farm ^{selected} and will construct one complete terrace on each farm so as to demonstrate how the terraces are made. The agent is to advertise the demonstrations and have the farmers from the immediate neighborhood present. Instructions will be given with instruments practical for every farmer to own and carry out the work for himself. The agents conducting these demonstrations should get complete instructions from the Department as to what each farmer will have to furnish and as to the nature of the land to terrace, etc. (Broad base terraces are not practical, on land having over 15% slope.) This is a work very badly needed in a number of our southern ^{part of} counties. Terracing is very inexpensive, the only cost being the farmers own labor. Terracing demonstrations will be conducted ^{to be most effective} in the fall and not again until the next fall.
should be conducted in the fall of the year.

I. (c) LAND CLEARING.

Object.- To demonstrate ^{the} most practical means of clearing land of stumps.

A limited number of stump clearing demonstrations will be given where needed most. The Department will get the cooperation of the Dynamite and Stump Pulling Machine Companies for these demonstrations. It would probably be advisable to demonstrate tractors in this work also. A

series of several demonstrations should be arranged for so that the companies cooperating with us will get enough out of the demonstration to pay them for their time. These demonstrations should be advertised well. The farmers will be shown how to blow a stump with dynamite, the best way to use the pullers and a combination of the two.

II. (a) FARM WATER SUPPLY AND SANITATION.

Object.- To demonstrate the most economical and practical method of getting running water in the farm home and improving the sanitation.

The agent should select a number of farmers who wish to put water in the home and the Department will send an engineer to make an examination of these farms and advise on the best and most economical system to install. The engineer will get all necessary data in regard to the available water supply, etc. and make an estimate on the cost of installing the system. Where it is necessary to construct septic tanks for ^{average} water disposal, The Department will furnish plans etc., and will assist in installing a limited number in each county. *It should be the aim of every agent to have running water in every farm home in his or her county. Very effective work has been done under this project in some counties of the state. The home demonstration agent should have charge of this project, if there are such agents in the county.*

II. (b) FARM LIGHTING PLANTS AND HOME LABOR SAVING DEVICES.

The Department will assist the Home Demonstration Agents in getting labor saving devices and lights installed in the homes. Probably one of the best means of doing this work is to select a few farmers' wives who wish to put in appliances and take these women on a tour of inspection of other farm homes which have the modern equipment desired. Also to hold meetings at which illustrated lectures will be given on various types of systems, etc. *The home dem. agent should have charge of this project, if there is such an agent in the county.*

III. (c) FARM HYDRO-ELECTRIC DEVELOPMENT.

Object.- To demonstrate the installing of farm hydro-electric plants.

Many farms have ^{small} streams with ample head to ^{convert} this water power into electric energy. Where these conditions exist the Department will make surveys and prepare plans and specifications etc., and assist with the installing of a hydro-electric plant. This is a good project for a community. For instance - several farmers can join in the cost of installing a plant and all of them get their power from the one plant. *There are practical farm hydro-electric projects in every county in the state. The cost of such plants compare favorably with gas engine driven plants, and still the former type require no expenditure for fuel.*

III. POWER FARMING

(a) FARM IMPLEMENTS

Object.- To demonstrate the use of some improved farm implements that are needed in a certain section.

Many sections are using old one horse implements when they could cut down the expense of cultivation etc., by using a modern implement that will do more work. The Agent should select the type of implement which he wishes to demonstrate and the Department will furnish a man and get the cooperation of the implement manufacturers in putting on the demonstration.

(b) GAS ENGINES AND TRACTORS

Object.- To demonstrate the use of engine power on the farm.

When the Agent believes there is need for the more general use of farm tractors and gas engines, the Department will arrange for demonstrations when a number of companies will be invited to join and demonstrate their machinery. In sections where the engine and tractor is in fairly general use, the Department will hold short courses on tractors and engines of about three days duration. At these schools the farmers will be taught the principles of the gas engine and the proper care and repair of his engine or tractor so that he can get more efficient use out of it, and he will be able to make his own minor repairs. Tractor and gas engine short courses will be held at the College and each Agent will be asked to send one or two farmers from his county.

IV. FARMSTEAD PLANNING

(a) FARM BUILDINGS

Object.-- To demonstrate the use of modern farm buildings.

The Department has a large assortment of farm building plans and is constantly adding to this collection. These plans will be sent to the farmers upon request. Agents should advise the farmers of this plan service and have them make use of it. Each Agent will be supplied with our Farm Building Plans booklet containing miniatures of all our large detail plans. When a farmer wishes to build, the Agent can have him go through this booklet and select the plan that he likes and then send to the Department for the large detail drawings.

In some cases the Department will send an engineer to assist the farmer in getting his building laid off and started. Especially in cases where community buildings are to be erected, such as lime storage houses, warehouses, fruit and potato storage houses, etc.

(b) EFFICIENT ARRANGEMENTS OF THE FARMSTEAD.

Object.-- To lay out a farm so as to enable a farmer to handle the largest possible amount of work with the least amount of labor, etc.

The agent should select a farmer who who is willing to follow instructions and whose farm affords a good opportunity to carry out the arrangements of buildings, fields, etc.

A map will be made of the farm by one of the Department engineers and will show acreage, fences, location of buildings, and suggested rearrangements so as to make the farm an efficient layout. The Agronomists and other specialists will be consulted along their several lines.

This should be a project in which all forces of the Extension Division would be consulted and the farm made a demonstration farm in every way. A good type of man to get interested in this type of project is the business man who wishes to start farming. If a man can be selected who is just starting farming we can layout the farm from start to finish.

V. MISCELLANEOUS ENGINEERING PROBLEMS.

The Agricultural Engineering Department will handle any problems of an engineering nature with which the farmer has to deal. Farmers are invited to write in for any information of any character. If the Department cannot answer their questions it will call upon the other engineering departments

The dept. of Ap. Engring. is organized for service to the farmers
of the College. We want the agents and farmers to know that we are here for
service and we will do the best we can to handle the problems that come to
us.

of the state and the agents should encourage the farmers to write us in
regard to their engineering problems.