

Va  
1927  
VIRGINIA

AGRICULTURAL ENGINEERING

Project 10

2. Sixteen Meetings were held at which expert assistance was given to farmers and agents. The total attendance of these meetings were 545.
3. (a) The County Agents and farmers called for our assistance. We had many more requests for assistance than we could possibly fill.
- (b) The only organization available through which the engineer could work were the ditching machine companies, which were organized the preceding year by the engineer.
- (c) Relationships were established with farmers clubs by assisting with the planning of lime storage houses. Thirty two farm equipment companies cooperated with our department in putting on farm machinery demonstrations and loaning equipment for their use in short courses.
4. Articles relating to the different projects were written for the various county and farm journals. In advertising the Tractor Demonstrations, posters were distributed throughout the territory of the demonstration by the Implement Dealers. Circulate letters were sent out from this office. New items were run in the local farm papers advertising the demonstrations. Bulletins and Blue Prints on the various engineering subjects were sent out from this department to the farmers by requests.

The County papers were found to be the most effective in advertising demonstrations. Bulletins and circulars the most effective in distributing information.

5. (a) Demonstrators were asked to report on the result of the new methods adopted as compared with the old. Demonstrations such as drainage, terracing and farm building speak for themselves. The results are so apparent that all may see.

Tile Drainage Demonstrations are conducted somewhat as follows: A representative farmer who wishes to tile drain is given assistance by the engineer. A drainage survey is made of his wet land and a map prepared showing the location of the tile system, size of tile, grades, etc. After he has secured his tile the engineer goes back to the farm and stakes off the work and instructs the farmer in the proper method of grading the ditches and laying the tile, etc. Sufficient time is spent with the farmer to be assured that the work will be carried out successfully. Other farmers are invited to see how this work is done. The farmers have to report on the results. Demonstration plats are located as far as possible, near the public roads.

In the farm building project, farm building plans are sent out upon request and in each case the farmer has to report on the cost of erecting the building, changes made in the plans, etc. In a few cases assistance was given in the actual

construction of the buildings planned by this Department.

In the water supply project bulletins and plans are sent out upon request recommending water supply systems and giving best methods of installation. In a number of cases personal assistance is given in the installation of Hydraulic Saws, etc.

In the Power Farming project, field demonstrations are held at which the different tractors are assigned plots of land to plow and order. These demonstrations are advertised well and large crowds always turn out for them.

Short Courses are held at which the farmers are instructed on gas engines, tractors, implements, etc.

(b) Demonstrators and County Agents are asked to advise this Department as to the number of acres tilled, buildings erected, etc., as a result of the demonstrations in the county.

6 1 (a). 48 County Agents trained or aided by specialists in this department  
3 District Agents  
50 Smith-Hughes Agricultural High School teachers trained  
5 Members of teaching staff of College aided.  
6 Specialists of Extension Division aided.  
4 Ditching Machine Operators trained.  
2 Agr. Agents of Banks aided.  
3 Agr. Agents of Railroads aided.  
2 Editors of Farm Journal aided.  
1 Agr. Director of Hampton Institute aided.

(b) 42 Counties in which Specialists worked.

2 (a) 1.

305 farms conducted drainage demonstrations  
120 of these farms were given personal assistance on the farm by the Engineers.  
185 were given assistance through letters and bulletins.  
218 farmers given assistance on miscellaneous engineering problems thru correspondence.  
260 farms conducted farm building demonstrations.  
5 farms were given personal assistance on the farm in the construction of these buildings.  
3 farms conducted farmstead layout demonstrations.  
55 farms conducted water supply demonstrations.  
16 of these farms were given personal assistance.  
14 farms conducted farm sanitation demonstrations.  
3 farms conducted land clearing demonstrations.

2. 32 Complete farm drainage surveys were made and maps prepared comprising 2058 acres.  
17 farm drainage systems were staked out comprising 1015 acres.  
26 of the systems have already been constructed comprising 1345 acres.

53 Preliminary examinations were made on farms in regard to overflowed and swamp land comprising 4835 acres. Total acreage examined and advised on 9450 acres. 55 Water systems installed. 260 farm buildings constructed.

2. (b) 1. It is almost impossible to get figures on the number of farms adopting instructions as a result of the demonstrations. This can be secured approximately from the County Agents' reports.

There is a very great spread of influence from the demonstrations. As an example - from the few drainage surveys made on the eastern shore a few years ago, hundreds of farmers have put in tiledrainage systems. Tile drainage is becoming a very general practice in this section now. Many thousands of feet of tile have been used in the state as a result of the demonstrations. Wherever a new farm structure is built from our plans other farmers in the community build the same types of structures. Wherever a new and improved type of farm implement is located it means many more for the same section.

3. The increased interest being taken by farmers throughout the state on the various engineering projects indicate that the work of this department is bearing fruit.

The value of extension work in drainage alone is worth many times more to the state than this Department is costing. When the land is drained on the 32 farms comprising 2065 acres, on which drainage surveys were made, the increased production of this land to the state will be at least \$41,000. This is based on an estimated increased productive value of only \$20.00 per acre. This estimate is very conservative.

1545 acres on which surveys were made during the year have actually been tiled - resulting in an increased productive value of \$30,800.

Besides the above is the 4835 acres of swamp and overflowed land which is not bringing in any revenue at the present time, but when drained will add thousands of dollars in productive value.

Agricultural Engineering Extension work is essentially different than most of the other Department projects. For most of our projects in the field, a survey is necessary which takes time and for each survey considerable office work is necessary for the making of maps, etc. A great deal of time is necessary for the draw of farm building plans, figuring bills of material, designing water systems, etc. The nature of the work is such that it necessitates considerable office work which is not the case with other specialists.

We have made reduced size drawings of all our farm building plans to put in booklet form for the use of the County Agents.

We believe that one project actually carried through to completion is worth more than trying to reach large numbers through meetings etc. This is proved by the results we are getting in projects being actually completed.

107 conferences were held to discuss problems in connection with our projects.  
Two farm implement demonstrations were attended by 160 farmers.  
Three gas engine and tractor short courses were attended by 107 farmers.  
Seven ditching machine demonstrations were attended by 220 farmers.  
Five tractor demonstrations were attended by 3460 farmers.

Perhaps the most outstanding piece of Extension work accomplished under our project was the establishing of a Department of Agricultural Engineering at V. P. I. The Extension Agricultural engineer was responsible for the establishment of this Department of instruction. The engineer drew the plans and specifications for the new farm machinery building and supervised the construction. The engineer also solicited the machinery companies and arranged for their cooperation. 32 companies cooperated with the Department by loaning equipment to be used for instruction purposes for short courses and regular college courses. Approximately \$15,000 worth of equipment has been secured in this way. Two additional men have been added to the Department under an arrangement by which they each work six months on extension and six months on resident instruction. One student assistant is also employed and next year a full time instructor and a research man will be added. New courses in Agricultural Engineering will also be added whereby the agricultural student can major in agricultural engineering. It will be possible to do much more effective Extension work with the newly organized Department.

The extreme low prices for farm products has compelled the farmers to retrench. He has put more effort into repairing his old machinery instead of buying new machines. He has found by proper care of his implements that he can get increased usage from them and does not have to replace so often. Very few new implements have been bought by farmers this year.

#### SUMMARY

42 Counties in which engineers worked  
48 County Agents were aided  
50 Smith-Hughes Agricultural High School teachers were trained  
25 Agricultural leaders aided  
5 Professors at College aided  
6 Extension Specialists assisted  
4 Ditching Machine Operators trained  
2 Agricultural Agents of Banks assisted  
3 Agricultural Agents of Railroads assisted  
2 Editors of Farm Journals aided  
1 Director of Agriculture at Hampton Institute assisted  
107 Conferences held  
545 Farmers attended 16 meetings  
160 Farmers attended 2 farm implement demonstrations.  
107 Farmers attended 3 gas engine and tractor short courses  
220 Farmers attended 7 ditching machine demonstrations  
3460 Farmers attended 5 tractor demonstrations  
3 Farmers conducted farmstead layout demonstrations  
55 Farmers conducted water supply demonstrations  
24 Farmers conducted farm Sanitation demonstrations  
260 Farmers conducted farm building demonstrations and were supplied with plans.  
216 Farmers were assisted in miscellaneous engineering problems thru correspondence

306 Farmers conducted drainage demonstrations.  
2065 acres on 32 farms were surveyed and maps prepared for tile drainage  
1012 Acres on 17 farms were staked out for tile drainage  
1646 acres on 20 farms - tile drainage systems were constructed  
6836 acres on 81 farms preliminary drainage surveys were made  
Approximately 900,000 feet of tile laid.  
\$30,000 increased productive value of land on which drainage  
systems were constructed  
32 Farm equipment companies cooperated with Department  
\$15,000 approximate value of equipment loaned by companies  
14 new farm building plans drawn  
60 farm building plans redrawn for County Agent Booklet  
20 days spent with exhibits at fairs.