

1959 PLAN OF WORK

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Farm Management Specialist

Virginia Agricultural Extension Service

December 1, 1958 - November 30, 1949

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Farm Management

I. Project Situations:

Despite continued high levels of employment and incomes in the non-farm sector of the economy and the technological development within agriculture, incomes remain low for many farm families in Virginia. Technological developments and other improvements in production practices are changing the relative advantage of the various farm products among farms and production areas.

A major problem facing Virginia agriculture today is that of adjusting to changing conditions, both within and without agriculture. Achievement of economic balance in agriculture is a continuing problem because of changing technology, variations in market demand and other factors; but it is likely to be especially difficult in years immediately ahead. It appears that some resources now used in over-extended lines of production must be shifted to other uses or be less fully employed.

Flue-cured tobacco has long been the major cash crop produced in Virginia. The two largest flue-cured tobacco producing counties have been realizing approximately 90% of total cash farm receipts from the sale of flue-cured tobacco. However, continuing surplus production has called for acreage allotment adjustments over the years until the average acreage allotment per farm in Virginia was down from 4.41 acres in 1954 to 2.99 acres in 1958.

Of the 16,580 commercial farms in the six leading flue-cured tobacco producing counties (Pittsylvania, Halifax, Mecklenburg, Charlotte, Lunenburg and Brunswick), only 1.6% received \$10,000 or more gross income in 1954, 7.1% received between \$5,000 and \$9,999, and 91.3% received less than \$5,000 gross farm income. After deducting cash operating expenses and payments on farm debts, the remainder is obviously too small to afford more than minimum living conditions. Yet, since 1954, flue-cured tobacco acreage has been reduced to approximately 2/3 (67.6%) of the 1954 level while prices have remained relatively constant. Tobacco yields per acre have increased to partially off-set reduced acreage but net farm incomes have suffered nevertheless. For example, the number of farm operators working off-the-farm in Pittsylvania and Mecklenburg Counties has increased about one-half since 1954. The possibility of still further adjustments in flue-cured tobacco acreage and the impact of already reduced net farm income from tobacco is adversely affecting all segments of society in the area. Adjustments are needed which will relieve this condition.

Flue-cured tobacco farmers are requesting economic information that will help them make wise choices relative to complementary enterprises to replace dwindling tobacco acreages.

II. Objectives:

The specialist will attempt to provide guides to farmers when choosing among alternative production opportunities in order that they may make the most profitable decisions. More specifically, two objectives will be attempted in 1959.

A. To determine the nature and magnitude of adjustments needed in the flue-cured tobacco areas of Virginia* which will achieve the most profitable systems of farming under a range of conditions with regard to prices of major products and quantities of available resources, such as land, labor and capital.

B. To determine the quantities of resources required to provide selected levels of net farm income.

III. Method of Operations:

The procedure to accomplish the above objective will be:

A. The selection of resource situations with regard to size of farm, kind of land, family labor, capital assets, and available credit in such a manner as to represent the central tendencies and range in conditions that exist on a majority of the farms producing flue-cured tobacco in the area.

B. For each of the resource situations selected, input-output data will be obtained where available and developed where not available. Enterprise budgets will be developed for each major enterprise now in farming systems and for additional enterprises that are likely to offer economic opportunities.

C. Price data for use in (B) will come primarily from projected commodity prices as published by USDA. These prices will be adjusted to state and local conditions where feasible.

*Six leading flue-cured tobacco producing counties previously listed.

D. The input-output and price data described in (B) and (C) will be used to develop budgets of resource requirements, costs, and returns for each enterprise now in farming systems or believed to offer economic opportunities in the area.

E. Using the budgets developed in (D), the most profitable enterprise combination for each selected system of farming will be determined by linear programming.

F. Using the enterprise budgets and resource situations developed in (D) and (E), the resources required to provide certain levels of income will be determined under various product-price situations.

Once the most profitable enterprise combinations for the selected systems of farming are determined, a vigorous educational program will be provided to aid farmers in understanding the application of this information.

IV. Program of Work for 1959

The specialist anticipates putting major emphasis on the program in the sequence outlined under (III. Method of Operation). Since this is a new approach to the problem, it is difficult to budget time requirements for each step. However, the program for the six counties listed in the flue-cured tobacco area should be completed within the year of operation. In any event, upon completion of the program for the flue-cured tobacco counties, an educational program will be initiated in the area. Also, the same general type of programs are planned for other areas of the State. As envisioned at present, the program could well be a continuous phase of Extension Farm Management.

Extension training meetings, conferences, and similar meetings will be attended throughout the year. Other duties of the Farm Management Specialist, such as dissemination of outlook information, preparation of news articles and radio tapes, preparation and presentation of talks on farm management principles, etc., will be included in the year's work. Much work of this nature cannot be anticipated to be included in the formal Plan of Work. However, major emphasis will be on farming adjustment opportunities in the flue-cured tobacco area of the State as outlined in Section III.

PLAN OF WORK 1959

PROJECT LEADER IN EXTENSION ECONOMICS

SPECIALIST IN MANAGEMENT OF FARM SERVICE AGENCIES

D. UPTON LIVESMORE

EXTENSION AGRICULTURAL ECONOMIST

EXTENSION TIME 75%

DECEMBER 1, 1958 - NOVEMBER 30, 1959

PLAN OF WORK 1959
Project Leader in Extension Economics
Specialist in Management of Farm Service Agencies
D. Upton Livermore
Extension Agricultural Economist
Extension Time 75%
December 1, 1958 - November 30, 1959

PROJECT ANALYSIS

Project Leader: There exists a continuous need in the Department of Agricultural Economics for coordination of the efforts of the several specialists in problem analysis, program planning and development, and the presentation of program subject matter in the field. Such coordination will be extended to the areas of work in which other departments have an interest, other agencies, and with the office of the director. Considerable time will be spent with new employees to assist them with program development. Since there are currently several vacancies in the department, considerable time will be spent interviewing and seeking competent employees to fill these positions. The usual administrative routine, annual reports, and annual plans of work will be prepared as required.

In addition to administrative work, the following subject matter programs will be continued to the extent that time permits.

Management of Farm Service Agencies: The objective of this program will be that of making educational assistance available to proposed and established business organizations which serve the farm, to the

and that such organizations may better serve the interests of agriculture and the consuming public. By "farm service agencies" is meant any corporate business concern (cooperative or otherwise), partnership, individual proprietorship, or service organization which deals directly with farmers in providing materials and services for production and marketing, or for family living. It is believed that as improvements in the nature and the management of such organizations are effected through an educational program, direct benefit will accrue to farm people by reason of the greater efficiency of improved services of such organizations which are essential to improved farm operation and family living.

Most of the requests received for assistance are in the nature of particular problems of individual business firms or organizations. Questions relating to organization, purchasing, marketing, dissolution, mergers, financing, general management, taxation, legal obligations to local, state, and Federal government, and analysis of the need for proposed organizations of this kind are most frequently raised. There are few other sources of assistance to which county agents and others may turn for help of this kind.

Many of the direct contacts with such organizations will be made by production and marketing specialists of the department in connection with their regular program of work. The project leader will give assistance to the specialists as needed concerning legal, financial, and other aspects of the organization and operation of such business firms.

A general educational program is contemplated for presentation at meetings of directors and managers of farmer cooperatives. Such an educational program, if realized, will include the assistance of other staff members in the organization and presentation of the educational material.

Farm Policy: In addition to the above areas of work, the specialist will devote such time as may be available to educational work in public policy. Programs dealing with state finance will likely be discontinued for the time being since the greater part of the state financial problem is related to the financing of schools. The school financial problem has been superseded by the even greater problem of racial integration. Until this matter is settled in some way it is unlikely that the general public will give much attention to any significant changes in state financial policy.

Attention to the problem of rural income and industrial development will be continued.

As a result of the Experiment Station research program currently being conducted by the specialist, information on the supply response of farmers to prices and other factors will be made available to appropriate county agents and peanut growers and peanut industry representatives. Problems in price policy will be studied and discussed with industry leaders.

OBJECTIVES

The objective of the project leader will be to coordinate the efforts

of the several specialists such that the limited personnel resources of the department are used most effectively.

Regarding management of farm service agencies, the objective is one of providing a source of information and assistance to county agents and others as organizational problems arise. The purpose is not one of promotion of any particular type of organization, but rather to assist interested groups in selecting and using the type most suitable in furthering the objectives of the people concerned. In addition, assistance will be provided for solution of general management questions.

With respect to the educational work in public policy, the objective is to provide factual information on public affairs needed for decision-making by the citizen, and to provide the citizen with an opportunity to discuss public policy problems in open forum type meetings. The same general objective obtains for interested commodity groups.

PROGRAM OF WORK FOR 1959

1. Schedule and conduct staff meetings for Extension Economists at least twice monthly, or oftener as needed, and give proper attention to appropriate related administrative work.
2. Assist the several specialists individually, particularly new Extension specialists, and as a group with program planning and development.
3. Coordinate the efforts of the specialists with the work of other departments and agencies.

4. Maintain and improve the publication "The Economic Analyst" as a medium of communication with Extension personnel, vocational agriculture teachers, selected bankers and business firms, and others. The publication is for use by the several Extension specialists and by other members of the Department of Agricultural Economics.
5. Schedule with county agents and conduct public policy meetings in the state and transmit to Extension personnel and others information in this general area of subject matter through "The Economic Analyst" and by other means. Specific policy educational programs available will include "What Can Be Done About Low Incomes To Farm People" and "Technical Marketing and Production Information For the Peanut Industry."
6. Assist county agents and farm service agencies with management problems and organizational procedures.
7. Disseminate outlook information through meetings and mass news media.
8. As Chairman of the Committee of 15, assist with the analysis of the role of V.F.I. in Virginia's Agriculture and Rural Life.

PLANS FOR EVALUATION AND REPORTING RESULTS

A systematic filing system is kept for each business concern contacted by the specialist and other members of the department and files

memoranda are maintained in some detail describing the services rendered and the results obtained. These provide useful information in connection with repeat calls and for evaluating the nature of the work and probable results.

With respect to evaluating work in public policy, a record is maintained of the meetings held and the attendance. Mainly, the general acceptance of this type of work and interest expressed and the extent to which the subject matter generates discussion and understanding at public meetings seems to be the best indication of its usefulness.

In the preparation of the Departmental Annual Report, an attempt will be made to evaluate the overall program of work of the Department of Agricultural Economics insofar as the Extension work is concerned. A considerable amount of Extension-type work is performed by other members of the Department and should be included in such an evaluation.

RESEARCH

One-quarter of the specialist's time is assigned to research under the program of the Virginia Agricultural Experiment Station, Project SM-14, Subproject 2, Peanuts. This work is progressing to the point where the results will be useful for Extension educational work with members of the peanut industry and peanut growers.

PROFESSIONAL IMPROVEMENT

As was the case in 1957 and 1958, such annual leave as is available will be devoted to graduate study and an additional few weeks of educational leave will be necessary in 1959 to complete the course of study undertaken.

VIRGINIA AGRICULTURAL EXTENSION SERVICE

AGRICULTURAL ENGINEERING PLAN OF WORK
(Name of Project)

for

Calendar Year 1959

Major phases of project or subdivisions of project covered	Name of Worker*	Percentage of time devoted to entire project by each worker
Administration - Gen. A. E.	E. T. Swink	One third (33 1/3%)
Farm Structures	G. D. Kite	Full time, Agr'l. Engr. Ext. Project Leader
Farm Building Plan Service	L. B. Driggers	Full Time
Rural Housing	C. D. Wheary	Full Time
Farm Water Development and Use	J. A. Waller, Jr.	Full Time
Farm Machinery	E. S. Smith	Full Time
Rural Electrification and Crop Processing	A. J. Lambert	Full Time

Date submitted: December 31 . 1958 . Signed: G. D. Kite
Project Leader

Date approved: December 31 . 1958 . Signed: E. T. Swink
Head of Department

Date approved: 1/28/59 . 1959 . Signed: W. H. Dunnington
State Director of Extension

Date approved: JUN 23 1959 . 1959 . Signed: Carl Johnson
Administrator,
Federal Extension Work
U.S.D.A.

* If phases of project are divided between two or more workers, indicate assignment to each.

V. P. I. AGRICULTURAL EXTENSION SERVICE

PLAN OF WORK

PROJECT NO. 10

AGRICULTURAL ENGINEERING

FOR

CALENDAR YEAR 1959

Agricultural Engineering deals with problems in agriculture and rural living which involve engineering implications and knowledge in their solution. Included are: The planning, design, arrangement and construction of farm houses, buildings and other type structures; farm machinery and equipment to improve operating efficiency, improve product quality, reduce labor requirements and increase the production potential of individual workers; the development of water sources and their use; the conservation and development of soil and water resources; and the use of electricity, electrical equipment for farm production and processing, and household equipment to raise standards of living.

Most County Extension workers have not had basic training in the solution of problems of an engineering nature and, therefore, they must rely heavily on agricultural engineering specialists to assist them with problems and programs in this area. The specialists are responsible for developing sound information for the use of county workers and for suggesting educational activities that will be useful in county program planning. They are also responsible for keeping subject matter specialists in other departments abreast of engineering developments and practices, which when put into use, will improve the security and well-being of rural people.

MAJOR PHASES OF THE PROJECT:

Major emphasis this year will be placed on the following phases of agricultural engineering:

- Farm Structures
- Rural Housing
- Rural Electrification and Crop Processing
- Farm Water Development and Use
- Farm Machinery

An analysis of the situation and the program plan for dealing with each of the above phases of the project follows.

Administration: The department head is employed one-third time by the Extension Service. He will be responsible for the subject matter used in the program and will handle the administrative responsibilities for the project within the department. He will also give limited assistance with the program in the field and will give special attention to the maintenance of proper relationships with other agencies, organizations and industry in support of the total program. The project leader will be primarily responsible for planning and executing the program in the field.

Farm and Home Development: The specialist staff will make every effort to work with and assist county workers to effectively deal with engineering problems in their phase of the Extension program in the State.

MINOR PHASES OF THE PROJECT:

The Extension Agricultural Engineering Staff is called on for information and assistance on many related engineering problems. Such requests are often of an emergency nature and they will be handled as far as possible. Such activities as the following are typical:

Soil and Water Conservation: Appropriate Staff members will give as much assistance as possible to the State Soil Conservation Committee and S. C. S. District Technicians on problems and programs involving engineering.

The Soil and Water Research Section of the department will handle a limited number of requests of an Extension nature by assisting with special schools and short courses, presenting talks at meetings, assisting with campus tours and demonstrations, and cooperating with Extension Specialists in interpreting and publishing the results of research.

Rural Safety: The project leader will serve as chairman of the Extension Committee on Rural Safety during the year. Staff members will be continually mindful of the importance of safety on the farm and in rural homes, and will give attention to safety ideas in all publications and activities in connection with the project work. They will cooperate in every way possible with the State Safety Program and will serve on certain committees in connection with it.

Cooperation with Other Agencies and Organizations: An effective Extension program in Agricultural Engineering requires that good working relationships be maintained with many other organizations including: The State Department of Education, T. V. A., S. C. S., R. E. A., Electric Utilities, Virginia Association of Electric Cooperatives, Farm Machinery and Equipment Manufacturers and Distributors, The State Department of Agriculture, The State Health Department, farm commodity organizations, and certain trade associations. The Staff will continually seek to maintain and improve these relationships.

FARM STRUCTURES

ANALYSIS OF PROJECT SITUATION

The 1954 census shows the number of farms in Virginia to be approximately 136,000. At the end of 1958, this number is somewhat less, due to consolidation of units to make larger and more efficient farms. The average estimated value of the residence and service buildings on each farm is approximately four to five thousand dollars. The types and conditions of the buildings on these farms has decreased to 17.9% of the total physical assets of agriculture from a high of 24.9% in 1940. Every year, a large number of farm buildings are destroyed by fire and wind. Many other buildings are dismantled or extensively remodeled because of obsolescence and inefficient arrangement. Thousands of new or remodeled buildings are required each year to provide facilities for new and expanded enterprises. The farm of today must have economical, functional and efficiently arranged buildings for profitable operation. The economical arrangement of buildings and facilities to permit the maximum output per man is one of the primary concerns of most farmers.

A majority of the farmers do not have the experience or sufficient information to plan and construct the most up-to-date, functional, and efficiently arranged buildings they may need. They must get assistance or information on construction, materials, planning and use of equipment from some commercial or educational institution.

The economic outlook for 1959 indicates that farm income will be down slightly from 1958 and the cost of labor and things farmers buy will be moderately higher. Many farmers are enlarging, adding or changing enterprises in order to improve their net income. Remodeled and new facilities will be needed by those farmers. Many farmers will need some building repairs to maintain the conditions of their buildings and some remodeling or new construction for improvement in operating efficiency. Because of the economic squeeze, the improvements must be obtained at the minimum cost.

Every dairy and livestock farm in Virginia has some permanent fences, a part of which needs repair or replacement every year. The cost of materials and labor for fencing improvements is a major expenditure. It is estimated that the average farm fence needs major repairs or replacement every ten years. Livestock injuries resulting from inadequately maintained fences are considerable.

feeding. Many old silos, especially trench silos, will need repairs and additional construction to make them more permanent.

Many new silos will be needed. The use of plastic as covers for horizontal silos and for stacks of silage will probably increase a great deal in the future. On many farms, the labor used for feeding silage is excessive. New methods and equipment for getting the silage to the animals are necessary on many farms to lower the cost of feeding.

Thousands of bushels of corn and grain are damaged or destroyed in Virginia farm storages each year because of insufficient protection from the weather, rodents, birds and insects. Health and food laws that were enacted in 1956 mean that farmers who sell their grain must have facilities and storages to produce and maintain a good quality product, free from damage and contamination by rodents, birds, insects, and the weather. Grain stored under the government price support program must be protected from this damage and contamination. The hiving of corn and grain into and out of many farm storages requires excessive amounts of labor because of inefficient arrangements and inadequate labor-saving equipment.

The surplus of wheat and corn production in 1958 and the surplus that is expected in 1959 will require much additional storage facilities. The use of more farm storages would increase the farmers' income whether the grain was sold or consumed on the farm. Newly developed feed grinding and mixing equipment utilized with the farm storages would reduce the cost of the feed. On-the-farm storages will permit the farmers to harvest and store their grain in a more efficient manner. The grain can also be held off the market during the harvest period of depressed prices and sold at a higher price at a later date. Suitable drying facilities for the grain will permit early harvests and insure a good quality crop.

The poultry industry has expanded considerably in recent years.

Many of the poultry buildings were constructed without proper consideration given to adequate ventilation, light and heat control for winter as well as summer. Inadequate ventilation and extreme high and low temperatures reduce egg production and broiler gains. Improvements are needed in many of these houses and in all new houses which will permit more economical and efficient production. Almost one-third of the eggs used in the state are obtained outside the state. The poultry industry is emphasizing an expansion in egg production to at least supply the state requirements. New and improved facilities will be needed for this expansion program.

A large number of Virginia hogs are fed by inefficient methods and under conditions not favorable for the most profitable gains. Considerable interest has developed during the last several years in

the feeding of hogs in confinement on concrete. This new practice has created a need for additional pigs and thus, additional and improved hog farrowing facilities.

Production per worker on the beef cattle farm has increased the least of any farming enterprise. The size of farms are increasing. Improved methods of materials handling would reduce the labor requirement. Good facilities for handling livestock are needed to reduce labor requirements and injuries to man and livestock.

A recent survey of the grade-A dairy farms in the state indicated a large percentage would have an increase in the size of the herd in 1959. This increase will create the need for additional facilities for storage of hay, silage and grain, as well as more efficient methods of storing and feeding. Milk regulations on loose housing for dairy cattle are becoming more strict, especially in the Washington, D.C. area.

The educational level of farm people is higher than anytime in history. A large number of farmers are college graduates and many have Masters Degrees. New technological developments are increasing. In order for the agents and the specialists to be adequately informed on the latest teaching methods, they must study and receive training on a continuing basis.

Agriculture stands at the top among occupations in rate of fatal accidents and is exceeded only by the construction and mining industries in total number of fatalities. In 1957, fatal accidents among farm people in Virginia numbered 557. It is estimated that the number of disabling injuries to accident deaths is at least 100 to one. The economic loss runs into millions of dollars. It is recognized that a greatly expanded educational program on safety in all phases of agriculture is needed.

MAJOR PROBLEMS

Farmers in general do not have adequate information and experience on the following phases of farm structures to enable them to get the most economical and efficient facilities:

- Environmental requirements for the different facilities.
- Selection of the type of structure.
- Selection and proper use of building materials.
- Design and methods of construction.
- Location and arrangement for efficient operation.

Extension agents and certain representatives of industry and other government agencies who work with farmers on production programs involving buildings and equipment generally lack information to properly advise the farmers on building problems.

34
72

In 1957 accidents caused 557 fatalities and thousands of injuries, most of which resulted from carelessness, ignorance, and lack of judgement. Too many people are indifferent to the accident situation.

WORK TO BE DONE AND METHODS OF PROCEDURE

The objectives of the program are:

- To teach farmers certain information on farm buildings so they can intelligently understand the functional and environmental requirements of the things for which the facilities are to be used.
- Select the most suitable type of structure.
- Select the appropriate building materials, and use them properly.
- = Use proven methods of construction.
- Locate and arrange facilities for efficient and economical operation.
- To teach similar subject matter and principles to extension agents and certain representatives of industry and other government agencies so they will be in a position to plan programs and advise farmers on farm building problems in this area of activities.
- To make all farm people and other people working with them aware of the accident hazards in everyday life and to teach safety practices in connection with those hazards.

Subject matter to be emphasized:

- Features of building location relative to the farm layout and other buildings.
- Use of the different building materials for economical structures.
- Arrangement of buildings and facilities for convenient and efficient operation.
- The types of buildings and facilities most suitable for different types of farming activities.
- Methods of construction and repair for the different materials and types of facilities.
- Environmental conditions in structures most conducive to the most efficient production in dairying, poultry, cattle, sheep and hog enterprises.
- This subject matter will be emphasized on poultry houses, hog, sheep, and beef-cattle shelters and equipment, dairy farm

buildings, commercial broiler and layer houses, and storages for grain, silages and sweet potatoes.
Safety practices for home and farm activities.

The usual Extension methods of teaching will be utilized in conducting the program. Farm and home visits with County Agents to discuss local problems and establish demonstrations is expected to require considerable time. Illustrated discussions will be given at many farmers' meetings on the county and area level. Radio programs, and news and magazine articles according to the local programs will be used for getting out information to all farmers on seasonal and timely topics. Building plans and bulletins will be distributed to farmers when requested by them.

Conferences with County Agents during county visits and local meetings, training meetings, individual and circular letters and subject matter reference materials will be utilized as effectively as possible to keep the agents informed.

All county agents were supplied a list of suggested programs pertaining to farm structures for consideration by the community and county program planning committees.

Close cooperation will be maintained with representatives of industry and other government agencies to be informed of their programs, and problems relating to farm buildings as well as to keep them informed of extension programs and subject matter information in their respective areas of activity.

Specialists of other departments will be informed of pertinent programs and problems relating to farm structures associated with their subject matter speciality. Coordinated programs will be developed according to state, area and county situations.

Research engineers will be contacted for the latest developments in research programs. Also, they will be asked for assistance on special problems, as they arise.

Building and equipment plans in the Plan Service will be revised or deleted or new plans will be developed according to the farm needs. The list of these plans will be revised and issued to all county agents for their use in assisting farmers select plans suitable for their situation.

Appropriate publications received from the USDA and certain trade associations will be supplied County Agents for their reference files and for distribution to farmers who request them.

The specialist will request specialists of the other departments to emphasize certain aspects of safety at appropriate times in

their regular program. He will also cooperate with the State Health Department and the National Safety Council in certain safety programs on state and national levels.

Work with the Farm and Home Development Program will be conducted in the same manner as the regular Extension program.

RESULTS EXPECTED AND METHODS OF MEASURING

It is anticipated that more than 9,000 plans for buildings and equipment and 2,000 bulletins on building materials and construction will be distributed through this program this year. Building and equipment construction based on these plans and bulletins and on other information disseminated by this project will probably exceed several million dollars.

By using the plans and information to the best advantage, thousands of farmers will have more conveniently arranged and economical buildings than they would have had otherwise. Improved methods of harvesting, storing and drying the feed crops will insure a high quality and economical feed for the livestock. Improved livestock facilities will reduce injuries and disease. The new buildings and facilities will permit the work to be done with less labor, in less time and at less cost. As a result, the farmers will be able to perform more productive work by expanding existing enterprises or adding new enterprises and thus increase their income. No practical method has been devised for measuring the results of the annual extension farm building program at the farm level.

In the area of safety, the efforts of the extension safety program and the safety program of all other agencies are expected to reduce the number of accidents. No definite goal can be set for such a program.

PROJECTED PROGRAM NEEDS

Farmers in general need structures and facilities with the environmental conditions favorable to maximum production, that are arranged for more efficient operation, and built to require a minimum of maintenance. Research information on a continuing basis is needed to assist farmers in acquiring these desirable features in their buildings and keeping their facilities up to date with other technological advances.

Benefits that result from the use of improved facilities will be publicized on radio, in news and magazine articles and during meetings and demonstrations to influence other farmers to want similar facilities.

RURAL HOUSING

C. D. WHEAT

ANALYSIS OF PROJECT SITUATION

In each of the last three years, there has been an increase in the number of requests from farm families and rural non-farm families for information and assistance on house remodeling. Although outlook reports indicate that farm families may have less money to spend on housing in 1959, there will probably still be an increase in work in the area of remodeling and repairing of rural houses.

Although the number of farm families is decreasing each year, the number of rural homes is not decreasing at the same rate. Many professional people, retired people, and industrial workers are either buying old farm houses with small acreages of land and remodeling the houses, or they are buying a few acres of land and building new houses.

As progress continues in the farm and home development phase of the extension program, county extension agents will receive more requests for information and plans on house improvements.

In most cases, farm people are not able to obtain services of professional architects. Either the services are not available or the people cannot afford them. Unless these rural people are reached through the Extension Rural Housing Program, they will either build without planning or rely on local carpenters. In most cases these carpenters do not have the training and experience necessary to give competent assistance in planning farm houses. The Extension Service must continue to try to reach more farm people who are planning house improvements if rural housing is to continue to improve in Virginia.

All available reports indicate that 25% to 30% of the rural houses in Virginia are in need of major repair. Less than 3% have bathrooms and toilet facilities. Not over 40% have what may be considered convenient kitchens, and not over 30% have adequate storage.

MAJOR PROBLEMS

Remodeling - The fact that most rural families go ahead with major remodeling projects without plans is still a major problem. Many rural people depend on local carpenters for information on planning and construction. Although some of them have good ideas on house planning, the majority are not qualified for making plans to meet the family's needs.

Planning New Rural Homes - Observation by the housing specialist, and reports by county extension workers indicate that about half of the new rural homes constructed are not planned to meet the minimum requirements for family living. About one fourth of the new farm houses are constructed without plans of any kind.

Community Projects - For the past three or four years, there has been a big increase in the construction of community projects such as community houses and educational units for rural churches. These rural people need assistance in planning their projects. In most areas, professional architects are not available to these groups, and even when the service is available, they usually cannot afford to pay for it. In many cases, a large part of the work is done by the group concerned.

WORK TO BE DONE AND METHODS OF PROCEDURE

A letter will be sent to all Home Demonstration Agents and County Agents listing the problem areas in rural housing for the State. The letter will also suggest things which the housing specialist may do to assist them with a program which they may develop for working on one or more of the problems.

One of the primary methods of handling problems in house remodeling is that of individual home visits. The specialist, with one or more of the County Extension Agents, will make an estimated 160 visits during the year. During these visits, the agents will get on-the-job training in planning house remodeling. The remodeled houses will serve as demonstrations in the communities. There will be a wide variety of house remodeling problems to be worked out on these home visits. They will include rearranging rooms, bathroom additions, central heating systems, and general remodeling, kitchen arrangements, and room additions.

The specialist will make at least eight radio recordings on subjects related to rural house remodeling or repairing. He will try to present a television program on "Suggested Locations For Bathrooms in Old Homes".

As requests are received from County Extension Agents, the specialist will take part in programs at meetings of county special interest groups, home demonstration clubs, home economics groups, and community clubs.

Based on 1958 requests, it is estimated that more than half of the work on home remodeling will be done with families in the farm and home development program.

The specialist estimates that 60% of his work will be with house remodeling projects.

Method demonstrations in "Simple Household Repairs" will be given in three or four counties. These demonstrations show rural women how to do simple household jobs; such as, replacing a broken window pane, repairing a leaking faucet, and sharpening scissors and kitchen knives.

Several radio programs, and newspaper articles will be prepared on the subject of simple household repairs. These will be used in an attempt to make more people realize the importance of doing simple repairs around the house before they become costly major repairs.

The specialist estimates that he will spend about five percent of his time on the simple repairs phase of the program.

When requested by the county Extension workers, the specialist will work with community groups who are planning community homes or community recreational facilities. Whenever possible, standard plans of the Extension Plan Service will be used. In some cases, assistance will be given in making special plans. The specialist will furnish information and assistance to rural church groups who are either planning additions to their churches or new parsonages for their ministers. Here again, plans which have been prepared for other similar situations will sometimes be used. In many cases, assistance must be given in preparing special plans.

Based on an estimate on work in the area of Community Projects last year, the specialist will spend about 15% of his time on this activity in 1959.

One major activity planned for 1959 in the area of new farm housing is that of revising the Extension Farmhouse Plan Book. Some plans, presently listed, for which requests are seldom received will be deleted. Six new plans which were prepared by USDA-ARS will be included in the revised book.

Through radio programs, television programs, and newspaper articles, rural people will be informed of the availability of these plans through the County Extension offices.

This project on new rural housing will probably require 10% to 15% of the specialist's time.

During the year, the specialist must allow considerable time for special activities which are difficult to ascertain at this time. They include: (a) special committee assignments, (b) assisting with Extension agents short courses, (c) staff conferences, (d) office conferences and many others. An estimated five percent of the specialist's time is taken for such activities.

The Extension housing program, on the state level, will be conducted jointly by the home improvement specialist who is a home economist

and the rural housing specialist who is an agricultural engineer. Each will keep the other informed of his plans and activities. Most of the meetings on housing and some of the other activities will be conducted jointly by the two specialists working with the county Extension agents.

The housing specialist finds it necessary many times to call on subject matter specialists from the Agricultural Economics Department, the entomology department, the Home Economics Department and others for information and materials related to the rural housing program.

Some good publications and motion pictures are available from manufacturers of building materials. These will be used in the housing program as before. Local building materials dealers will be called on to take part in programs or furnish materials for demonstrations pertaining to rural housing.

RESULTS EXPECTED AND METHODS OF MEASURING

County Home Demonstration Agents are doing a good job in determining whether rural families and community groups are certain to work on projects for which they have requested assistance before she calls on the specialist for assistance. This will result in a high percentage of completions. If three fourths of those assisted will complete the projects, it will not only result in as much as 25% savings on cost of construction, but it will also mean more convenience and comfort for the people. Assuming that 100 rural families will receive assistance on house remodeling projects and 20 community groups will be helped with community projects, the construction involved will cost over one million dollars. Savings resulting from careful planning could result in as much as one quarter of a million dollars.

In 1959 at least 300 people will receive plans or assistance on new farm houses. It is reasonable to assume that 25% will use the plans or information. This will involve construction valued at three quarters of a million dollars.

At the present time, it is practically impossible to make an accurate annual evaluation of results of work in the rural housing program. About the only forms of annual statistical reports available are the annual reports of county Extension agents.

The following are some result goals which are set up for 1959:

Farm families to receive direct assistance in planning remodeling.....	175
Community groups or Rural Church groups..... to be given direct assistance.....	20

Number of people to be assisted with new rural house
planning through the plan service and personal con-
ferences..... 400

Home Demonstrations Agents to receive some training in
planning remodeling..... 15

PROJECTED PROGRAM NEEDS

The greatest need in the area of rural housing is a program for educating rural or small town contractors and building materials dealers in the fundamentals of house planning and up-to-date construction methods. Rural carpenters and local building material dealers have a great influence on rural house planning and construction. Many of these do not have the time, ability, or inclination to keep up to date on house planning, methods of construction, and new materials. Extension workers in rural housing have not been able to find a workable method of doing educational work directly with these people. The specialist will try to influence their practices indirectly by focusing the attention of rural people on the importance of thorough planning and use of up-to-date methods in rural housing. Radio, television, and newspapers will be primary means of disseminating such information.

RURAL ELECTRIFICATION AND CROP PROCESSING

J. L. Calhoun
J. H. Strickler

ANALYSIS OF PROJECT SITUATION

Electric service is supplied to the rural areas in Virginia by five power companies, 15 cooperatives, and one municipal system. Rural power lines now serve about 98 per cent of Virginia's farms. As a result of research and development, there are about 400 uses of electricity in the home and on the farm. Many of these are applications which provide conveniences, save labor, improve health conditions, and increase farm production efficiency. Rural people need information on how to make the most efficient use of electric service.

It is estimated that almost 90 per cent of our farms have inadequate wiring. This problem developed because farmers have added electrical equipment with little regard for expanding their wiring systems. The result is overloaded wiring - a condition which causes sub-standard performance of electrical equipment. The use of electricity on farms is expected to more than double within the next 10 years. Unless steps are taken to improve farmstead wiring systems, progress in expanding the use of electricity on farms will be retarded.

It is estimated that almost 90 per cent of the rural homes in Virginia have inadequate lighting. Only a small percentage of farm buildings and yards have been provided with enough light for efficiency, convenience, and safety. To cope with this problem, an intensive educational program on farmstead lighting has been conducted during the past two years. This effort has been sponsored by the Virginia Farm and Home Electrification Council and all interested agencies and organizations have been encouraged to participate in the program. An Extension lighting committee has given guidance for Extension participation in this activity. Outstanding results have been achieved through this joint effort and the program is to be continued in 1959. Lighting requirements for various tasks in the home have been established through extensive research. Fundamental research has not been conducted to determine farm lighting needs. While accepted recommendations are available for lighting farm buildings and yards, they are not based upon adequate research data.

It is estimated that almost 65 per cent of our farms are enjoying the benefits of water under pressure. Even though great progress has been made, water is still being pumped and carried by hand on

almost 50,000 farms in the state. The advantages of water under pressure can only be achieved through the installation of water using equipment. More water using equipment in the home and greater use of water in farm production would make a valuable contribution to better living. An organized emphasis program on water systems has been conducted in Virginia for the past 11 years under the sponsorship of the Virginia Farm and Home Electrification Council. The Extension service has been an active partner in this effort. The program is to be continued in 1959. There has been waning interest in this program in recent years. Rural leaders seem to feel that other major areas are more important and should receive attention.

The labor problem is a critical factor in production on many farms. Farm wages have continued the upward trend. During the period October 1, 1957 to October 1, 1958, the composite hourly rate of farm labor in Virginia advanced 1.8 cents per hour. Since 1948, the amount of equipment on farms has doubled and the production per man-hour of labor has increased about 50 per cent during the same period. Mechanization of field operations is largely responsible for the increased output per hour of labor. Since the beginning of World War II the labor requirements for livestock production were reduced by only 7 per cent. About 40 per cent of all farm labor is involved in livestock production. In Virginia, the physical volume of livestock production increased about 63 per cent during the period 1940-1954. These figures indicate the potential for reducing labor requirements in livestock farming. Electricity is an ideal source of power for operating chow equipment. Many types of materials handling equipment are available which can promote greater labor efficiency on farms.

Farm mechanization continues to move forward at a rapid pace in Virginia. During the period from 1950 to 1958 the number of grain combines on Virginia farms increased from 6,388 to 9,600; corn pickers from 2,440 to 6,500; pick-up balers from 3,302 to 10,000; and forage harvesters from 700 to 2,900. When these modern machines are used, the crops often contain too much moisture for safe storage. Drying equipment is needed on many farms to reduce losses and to remove excess moisture from crops so they can be stored safely. Picker-shellers are becoming more popular in the major corn producing counties. When this type of harvesting equipment is used, drying facilities are necessary. Comparisons have shown that mechanized peanut harvesting and drying is less costly than the stack-pole method on farms which produce 36 or more acres of peanuts. This new method requires only 1/6 as much labor as the stack-pole method.

Dairy and agricultural economics specialists in Virginia are recommending that dairy cows be fed increased amount of silage. Comparisons show that it costs about the same to produce grass

silage and alfalfa hay per 100 pounds TDM. Corn silage can be grown at a lower unit cost. Greater production of silage is being encouraged because the specialists believe it is easier to maintain quality in silage than in hay. It is apparent there are advantages to handling hay in chopped form. Chopped hay requires less labor than any other method and it lends itself to artificial drying in self-feeding structures. It also reduces equipment costs since the same farm equipment can be used for hay and for silage.

Boys and girls need to be informed on the efficient use of electric service. The 4-H Electric project has proven to be an effective medium for offering this training. In 1957, Virginia had a larger percentage of its total 4-H club membership enrolled in the 4-H Electric project than any other state in the nation. Since the project was first offered in 1949, only two units have been available. These units give 4-H members a choice of jobs to perform in order to complete the project. A need has been recognized for revising the 4-H Electric project material to more nearly meet the needs and interests of boys and girls of different age groups.

The electrical applications involved in the major areas listed above will receive emphasis during the year, but additional uses of electricity will be given attention in the total electric power and processing project. Electrical equipment is involved in all phases of agriculture and homemaking. This fact makes it imperative that liaison be maintained with other subject-matter departments. Likewise, it is important for the specialists to maintain close working relationships with the agricultural engineers, educational advisors, and home economists employed by the electric power suppliers.

MAJOR PROBLEMS

The specialists will concentrate on the following major problems which confront the people of Virginia:

Most farmstead wiring systems are inadequate, inconvenient, and often unsafe. The original farmstead wiring systems were not designed for present-day electrical loads. Makeshift wiring is often installed to serve a new piece of electrical equipment. The net result is inefficient operation of lights and electrical equipment and hazardous conditions are often created.

Almost 90 per cent of Virginia rural homes have sub-standard lighting and few farm buildings and yards have enough light for efficiency, convenience, and safety. Rural families are performing difficult seeing tasks in the home with inadequate light. In general, people do not understand the requirements for good lighting

and how it can be obtained through proper selection and placement of ceiling fixtures and portable lamps. Recommended home lighting equipment is not available generally throughout the state. Dealers are not informed on good lighting practices. A large percentage of our farms have no yard or farm building lighting. Only a few farms have installed enough lights outside the home for convenience, efficiency, and safety.

Water is being pumped and carried by hand on almost 50,000 farms in Virginia; some water supplies are unsafe; and families with pressure water systems do not possess the water using equipment needed to derive maximum benefits. Reports indicate that a large percentage of the water supplies in rural areas is polluted. Many families are experiencing difficulties because of water hardness, iron content, and corrosive water sources. The receding water table often results in an inadequate supply of water from wells. Most families without water under pressure are in the low income brackets. In general, rural people are not aware of the many benefits of running water.

An excessive amount of manual labor is being used in and around farm buildings. Chores are being performed by hand labor which can be done at least cost with electrical equipment. In general, farmers are not aware of the potentials for achieving greater labor efficiency with materials handling equipment. There are only a limited number of dealers in the state who promote and service materials handling equipment.

Delayed harvesting of certain field crops causes excessive losses and some crops contain excess moisture when harvested by modern equipment. Delayed harvesting of such crops as small grain and corn, is causing excessive field losses through shattering, storm damage, birds, and rodents. Early harvesting of these crops requires mechanical drying equipment. Hay of poor quality is often produced because of the hazards of field curing.

Many rural and urban boys and girls are inadequately trained on the efficient use of electric service. The services of power supplier personnel are being utilized only to a limited extent in training local leaders. The per cent of project completions is too low. In general, boys and girls do not take the project long enough to obtain maximum benefits from the training. The project materials are inadequate to meet the needs and interests of boys and girls of different age groups.

WORK TO BE DONE AND METHODS OF PROCEDURE

Farmstead Wiring. - The specialists will recommend that the Virginia Farm and Home Electrification Council adopt farmstead wiring

as one of it's major projects for 1960-61. If this action is taken, an Extension committee will probably be appointed to develop recommendations for Extension participation in the program. Experience indicates that a joint approach to the problem is required for effective results.

If the Council does not adopt a farmstead wiring program, the specialists will spend a limited amount of time on the wiring problem. The subject matter to be presented includes the symptoms of inadequate wiring, advantages of central pole metering, and planning the wiring in farm buildings. Mass media will be used to inform rural people on adequate wiring. Assistance will be given to county Extension agents in planning wiring installations for result demonstrations. Boys and girls enrolled in the 4-H Electric project will receive instruction on planning home and farm wiring systems. Electric power supplier representatives will be encouraged to continue their programs on the farmstead wiring problem.

Farmstead Lighting - The "Light for Better Living" program, sponsored by the Virginia Farm and Home Electrification Council, is to be continued in 1959. The Extension lighting committee has prepared recommendations for Extension participation in the program during 1959. The plans outlined are in conformity with the Virginia plan for program planning. Method and result demonstrations on lighting are being suggested as effective methods for presenting facts and information on proper lighting. County programs on lighting will be planned and conducted under the guidance of action committees.

The specialists will continue to participate actively in all phases of the lighting program. J. H. Strickler is serving on the Council "Light for Better Living" committee. He is also a member of the Extension lighting committee, and is chairman of the public information committee for this program. The specialists will continue to coordinate their activities on farmstead lighting with the house furnishing specialist. Assistance will be given to counties in selecting and establishing lighting demonstrations. Radio tape recordings, and news and magazine articles will be prepared on lighting topics.

Water Systems and Water Use Equipment - The Council also decided to continue it's sponsorship of the "Water for Better Living" program in 1959. Major emphasis will be placed upon three phases of the problem. (1) A safe and adequate supply of soft water under pressure, (2) water using equipment in the home, and (3) productive uses of water on the farm. The state health department and their local representatives have agreed to continue their support of the program. Suggestions for planning and conducting county water systems program were developed by a special committee appointed by the Council. This material includes suggestions for county

34
72

water systems programs as well as activities to be undertaken at the state level in support of the county programs.

Materials Handling Equipment - Materials handling equipment offers great potentials for improving labor efficiency in livestock production. Some of the equipment that will receive attention during the year includes elevators and conveyors of various types, mechanical bunk feeders for silage, automatic feeders for poultry and livestock, and wagon unloaders.

Assistance will be given to county Extension agents in establishing result demonstrations on labor saving equipment. The specialists will also cooperate with county Extension agents in holding educational meetings on chore equipment. Mass media will be used to inform rural people on practical equipment to save labor. This will be accomplished through radio tape recordings, news stories, and magazine articles. Subject matter on labor-saving equipment will be coordinated with the specialists concerned in other departments. Power supplier agricultural engineers and dealers are expected to render valuable assistance in helping farmers plan and select equipment to save labor.

Crop Drying and Processing - The specialists will continue to inform rural people on the advantages of artificial drying of hay, grain, corn, and peanuts. The proper selection, design and operation of drying equipment will also receive attention.

The specialists will help county Extension agents establish result demonstrations and conduct educational meetings on crop drying and processing. Mass media will be used to inform farmers on new developments in crop drying. Methods of saving labor in connection with crop drying will be stressed.

The specialists will cooperate with the farm structures specialist in educational activities on drying and storing small grain and corn on the farm. The farm machinery specialist will be requested to assist on harvesting operations related to the drying process. In cooperation with the farm structures specialist a plan will be prepared on a structure for drying, storing, and self-feeding of chopped hay.

Automatic grinding and mixing of feed on the farm will also receive attention. Information will be presented on new developments in equipment which automatically grind and mix feed in a single operation. Labor and cost savings will be emphasized.

Power supplier agricultural engineers and dealers are expected to render valuable service to farmers on drying and processing problems.

The specialists will advise these two groups on the latest recommendations for designing crop drying installations.

4-H Electric Program - The 4-H committee for the project will continue it's study on revising the 4-H electric project material. A list of topics to be taught by different age groups will be prepared. After this step has been completed, action will be taken to revise the project materials.

The State 4-H Electric Congress will be held in Richmond, Virginia on August 26-28, 1959. Information on the program and the awards available are contained in the leaflet "1959 Virginia 4-H Electric Program". A leaflet announcing the 1960 4-H electric program will be prepared in August.

The specialists will assist county Extension agents, leaders, and 4-H members in planning the training to be offered in the project. They will also assist the counties in training project leaders. Extension agents will be encouraged to make more extensive use of power supplier personnel in training project leaders. The 4-H electric demonstration contest, which was initiated in 1958, will be continued next year. The two winning contestants from each Extension district will compete at the State 4-H Short Course in June. Representative demonstrations will be selected at the Short Course for presentation at the 4-H Electric Congress. The specialists will assume major responsibilities in planning details of the State 4-H Electric Congress, which is offered to honor county, district, and state winners in the project.

General Activities of The Specialists - Aside from the major problems listed above, the specialists will assist county Extension agents on other activities and problems pertaining to electric power and processing. Electrical safety will be stressed in all phases of the project.

A short course on new developments in electrical equipment and methods will be conducted at V.P.I. in October for the benefit of agricultural engineers and educational advisors with the power suppliers. The specialists will also cooperate with the farm structures specialist in conducting county meetings on new developments in agricultural engineering.

The specialists will devote a large portion of their time to committee assignments during the year. The majority of these committee responsibilities relate directly to the Extension electric power and processing project, some of which have been mentioned in this plan of work. Other committee duties will be

concerned with advancing the overall Extension program. In this category are assignments for the State 4-H Short Course, Institute of Rural Affairs, Communication Training, and the Annual Extension Conference.

Mass media will be used to inform people on selection, operation and maintenance of electrical equipment. The public information schedule for the year is outlined below:

<u>Month</u>	<u>Subject</u>	<u>Press</u>	<u>Radio</u>	<u>Special Emphasis</u>
Dec., 1958	Electric Heat Applications on the Farm Winter Ventilation of farm Buildings	X	X	
Jan., 1959	Electric Brooding	X	X	
Feb., 1959	Hay Drying	X	X	
March, 1959	Farmstead Wiring	X	X	
April, 1959	Small Grain Drying	X	X	
May, 1959	Water Systems	X	X	
June, 1959	Elevators and Conveyors	X	X	
July, 1959	Electrical Safety Corn Drying	X	X	
August, 1959	Farm Chores Equipment Water Systems & Water Use Equipment	X	X	
Sept., 1959	Water Systems & Water Use Equipment			X
Oct., 1959	Farmstead Lighting	X	X	X
Nov., 1959	Farmstead Lighting	X	X	X

RESULTS EXPECTED AND METHODS OF MEASURING

The educational activities outlined in this plan of work are aimed at improved rural living standards and more efficient farm production. Modern electric wiring and lighting systems will provide convenience, safety, and more efficient operation of electrical equipment. The expanded use of water use equipment will save labor, provide conveniences, improve health conditions, and increase production efficiency. Greater use of materials handling equipment on farms will promote labor efficiency and reduce production costs. Farmers who install driers for hay, corn, and small grain will be able to reduce harvesting and storage losses. Boys and girls who enroll in the 4-H electric project will learn more about electricity and efficient use. They will also progress in leadership and

and personal development. Listed below are the result goals for 1959:

Farmstead wiring systems to be improved	900
Farmstead lighting systems to be improved	1,200
Families to improve their pressure water systems	10,000
Crop driers to be installed	100
Enrollment in the 4-H Electric project	10,500
Materials handling equipment to reduce chore labor(no method of estimating)	

The limited statistical data available on electric power and processing makes it difficult to evaluate the results of this project. Census information provides only a limited data on trends in the use of electrical equipment. The committees concerned with the farmstead lighting and the water systems programs will be responsible for evaluating the methods used and the results obtained. The 4-H electric program will be evaluated by the 4-H club committee for this project. This study and evaluation will provide the basis for revising the 4-H project materials as outlined above. Power supplier representatives will be requested to supply certain information that will be useful in evaluating trends and accomplishments in other phases of the Extension electric power and processing project.

PROJECTED PROGRAM NEEDS

Inadequate wiring is the most urgent problem in rural electrification. The Virginia Farm and Home Electrification Council will be encouraged to adopt farmstead wiring as one of its major projects for 1960-61. Materials handling equipment has a bright future in reducing labor and production costs. In order to prepare a foundation for a joint approach to this problem, it will be recommended that the Virginia Farm and Home Electrification Council adopt materials handling equipment as an emphasis program.

Additional research is needed on many applications of electricity on the farm. Some of the areas in which research results would be helpful in the electric power and processing project are:

Diversity factors of farm electric loads to provide a sound basis for designing wiring systems. Present data is inadequate for designing the size of wires needed in farmstead wiring systems.

Lighting requirements for farm jobs. Basic research has not been conducted to establish the light intensities needed for seeing tasks in farm buildings.

Peanut driers with greater capacity. Peanuts must be dried at temperatures below 95 degrees to preserve quality. Maximum use of peanut combines is often limited by inadequate drying capacity.

Summer cooling requirements, equipment, and methods for dairy barns, broiler, and laying houses, and farrowing houses.

Labor-saving electrical equipment for handling flue cured and other types of tobacco.

Only a limited number of the above needs are included in research projects underway in Virginia. Others could receive attention if appropriations and personnel were available to conduct the investigations. Much valuable information could be obtained through a field studies research project. The objective of a project of this nature would be to assemble data and information on the performance of electrical equipment under actual farm conditions.

FARM WATER DEVELOPMENT AND USE

J.A. WALLER, JR.

ANALYSIS OF PROJECT SITUATION

The activities for which this specialist is responsible are sprinkler irrigation, farm water supply, farm ponds, drainage, and 4-H Club work in tractor maintenance and operation. All are important and every effort will be made to develop and expand them.

Sprinkler irrigation is a profitable practice in many cases, but Virginia farmers are more cautious about investing in an installation than they were a few years ago. Reduced income due to higher production costs, lower acreage quotas on some high income crops, lack of an adequate water supply, more readily available engineering service from commercial sources, more favorable weather conditions, and the fact that installations are already operating on many of the best sites account for diminishing requests for specialist's help.

During 1959, help will be offered to Virginia irrigators in attempting to help them use their present irrigation systems to better advantage. According to recent surveys, there are about 850 irrigation systems on Virginia farms watering about 33,000 acres. In many cases, the systems were not designed or set up by a qualified engineer. In most cases, these owners of irrigation systems are simply not getting logical returns from their investments. They are not starting their systems soon enough for a particular application, they are not using it on enough acres and the system is not being operated with proper efficiency. Labor could be saved. The specialist expects to prepare and distribute helpful literature on the subject of better use of irrigation systems.

No doubt, there are many potential irrigation users in the state. There are many additional farmers who have satisfactory conditions for the profitable use of this practice. Many farm ponds are being built, some of which are adequate for irrigation purposes. Often adjustments to more profitable crops can be made and recently, credit has been made available by some of the irrigation companies.

Assistance will be given prospective irrigators by visiting each farm to secure all pertinent data, study each individual situation, design an appropriate system, and supervise its first operation. In addition to this service, the specialist plans to get out literature along this line. It is not unlikely that 60,000 acres will be under irrigation by 1960. The specialist will try to get in 20 installations during 1959.

Almost from the beginning of the V.P.I. Agricultural Extension Service, giving information and assistance on the development and use of farm water has been a major consideration. In spite of the time and effort devoted to this very important activity, it is estimated that not more than 60% of Virginia farmers have running water under pressure. Inconsistent with this fact is another fact that about 90% of Virginia farmers have electric service. We are slowly reducing this gap. This specialist expects to make 25 individual farm water surveys and to give complete cooperation to the Farm Electrification Council in its efforts to accomplish the same objective.

A rapidly increasing population growth with accompanying higher sanitation standards brings the problem of farm water quality sharply into focus. Since testing facilities are not available on campus, water samples are directed to the State Department of Health for analysis. A definite increase has been noticed in the use of this service.

A conservative estimate of the number of farm ponds in the state is several thousand. The practice is popular and this number is being increased considerably each year. There are many undeveloped sites. The Agricultural Conservation Program makes a partial cost for construction payment for ponds to be used for irrigation or for a supplemental domestic water supply. With ground water becoming more precious each year, farm ponds have a very real value. They tend to raise a fast lowering water table, they often make possible the practice of irrigation, and facilitate orchard spraying and livestock watering. In many cases, they serve as sources of water for fire protection and many forms of recreation.

Along with the many advantages of farm ponds comes the responsibility of protecting them from becoming human hazards. Work will be done on as many ponds as possible during the coming year, but major emphasis will be placed on making already constructed ponds safe for family use. Literature will be developed and distributed. Also, efforts will be made to get farm pond safety on the 4-H Club Camp programs.

Farm drainage, including surface and tile drainage, is being handled largely by the SCS. However, this specialist does handle a number of requests each year. Individual surveys are made on which contours are drawn. Then grades are established, drainage lines laid out and installation information furnished. All requests will be taken care of.

IRRIGATION PROGRAMS

Sprinkler irrigation systems already on Virginia farms, in many cases are not being used efficiently. Some of this is due to improper design and quite a bit of improper management. In nearly

all cases, our farmers are not using their systems on enough acres.

Farmers often lack adequate, unbiased, and competent information necessary for them to have in order to compare the merits of the different installations, or indeed, whether any system is practical for them.

Few wells in Virginia have an adequate flow for irrigation installations. Springs, creeks, rivers, and ponds are used as a source of water. More storage of surface water is the partial solution to this increasingly critical problem.

One reason why some farmers are not using a pressure water system is because they do not have an adequate supply of potable water. This situation can be improved by cleaning out and deepening present wells, by developing springs and seeps and by improving or increasing storage facilities.

More usable information on saline tolerances of field crops. Irrigation water from certain locations on eastern Virginia rivers often has a high salt content. Is it too high for a particular crop is the question.

Draining by surface ditches or under ground tile lines would bring into better use many additional productive acres.

WORK TO BE DONE AND METHODS OF PROCEDURE

The state-wide sprinkler irrigation survey made last year still serves as a basis for information on our irrigation programs. It was taken on the number of installations and the number of acres of major crops under irrigation.

All individual requests for assistance on this activity will be taken care of by on-the-farm surveys to secure needed data for designs and layouts of equipment and for operating suggestions. Appropriate literature will be furnished. All invitations to talk on this subject will be accepted. In handling this work, the specialist will work with the Soils, Agronomy, Horticulture, and Economics Departments and with the Virginia Agricultural Experiment Station and the Soil Conservation Service. Color slides, pictures, drawings and installation data will be used to illustrate talks. About 30% of the specialist's time will be devoted to this activity.

Plans to cooperate completely with the Virginia Farm Electrification Council are already under way for the 1959 domestic water supply program. The specialist is available to attend or conduct any community or county meetings and to make surveys for individual farm water systems. Since water is becoming so critical, all appropriate agencies should be seriously concerned. About 20% of the specialist's time is devoted to this activity.

In connection with the Farm Pond Program, cooperation will be given to the Soil Conservation Service and the State Soil Conservation Committee in the surveying, construction, and use of farm ponds. Educational material will be distributed to interested farmers.

A definite effort will be made to publish a bulletin on farm pond safety during the year. Such a bulletin would serve a very definite purpose on individual farms having ponds and at all 4-H summer camps. The American Red Cross would cooperate. About 15% of the specialist's time will be used to develop this work.

In the early days of Agricultural Extension work, farm drainage was the most important activity. Now, except for the educational phase of it, the SCS and State Soil Conservation Committee handle this work. The specialist catches quite a number of farmstead drainages and some terracing jobs. He will handle all requests. Not more than 10% of his time will be used on this work.

Miscellaneous campus activities will take about 25% of the specialist's time.

RESULTS EXPECTED AND METHODS OF MEASURING

Plans will be made to get in 75 irrigation systems in the state. In order to keep up to date on the number of systems installed and the number of acres of each of the principal crops, a questionnaire survey is made through the County Agents every few years. The last survey was made in the spring of 1937.

Efforts will be made to increase the percentage of farms having running water by 10%. These percentages are determined by school questionnaires and from the United States Census reports.

Sixty farm ponds is the state goal for 1939. The most accurate records of the number of farm ponds are kept by the SCS and the State Soil Conservation Committee.

Drainage activity depends on the weather. If it is a wet year, perhaps several hundred acres may be improved by surface drains and tile lines.

PROJECTED PROGRAM NEEDS.

Perhaps the greatest need in this project area is a more aggressive program on farm safety. Much work has been done by the National Safety Council and by farm machinery manufacturers on the development and application of safety devices. Much information has been distributed. Also, the American Red Cross has done much work on Water Safety. However, many farm people continue to be injured, killed and drowned.

We have stressed farm safety in all of our 4-H schools and tractor

72

contests and have distributed much literature on the subject. We will get out more during the year.

It would be quite helpful to have facilities on the V.P.I. Campus for analyzing domestic water samples from both a chemical and bacteriological determination. Also, an occasional sample of branch or river water is sent in for salinity or chemical waste analysis. This water being considered for irrigation use. These determinations are made in Richmond.

Cooperation in the education of farm people concerning an approved sewage disposal system will be continued with the State Department of Health.

There is a need for more study on the distribution of fertilizers through sprinklers irrigation system. The fertilizer manufacturers and the irrigation equipment people are cooperating on this problem. Much labor would be saved. Soil erosion is always with us. The SCS, the State Soil Conservation Committee and the specialist will work together in combating this menace.

FARM MACHINERY

ANALYSIS OF PROJECT SITUATION

Farm machinery now accounts for a large portion of the capital requirements on Virginia farms. Increased uses have been brought about by new developments and the continual high cost of labor. This means that a progressive and efficient farm operator must stay aware of the latest machinery developments in his field and make maximum use of them.

Farmers are looking for unbiased information as to the advantages and disadvantages of many of the newer machines. They desire information on the size and types of equipment that can be used most efficiently in their operations. It is important that this information be secured from research and made available through the Extension farm machinery program.

At the present time, livestock and dairy farmers are becoming more aware of the need for more automation in materials handling. Many of them are using the latest equipment for harvesting but still require considerable labor for storing and feeding.

The number of wheel tractors in Virginia have increased approximately 75% since 1950. There has been a 314% increase in forage harvesters, 50% increase in combines, and a 167% increase in corn pickers. The use of hay conditioners has jumped in the last two years and there are other machines in the making such as hay pelleting machines.

The cooperation of machinery manufacturers and dealers, the Virginia Farm Equipment Association, and other agencies are necessary to make the Extension project most effective.

MAJOR PROBLEMS

Many young people living on farms are operating farm machinery in which they have had little or no training in safety, operation or service care. An attempt will be made to reach as many of these young people as possible through the 4-H tractor program.

Farmers lack accurate, unbiased information on operating costs of many machines which is often needed to aid them in the selection of the most useful machine. Cost of ownership and operation of farm machinery under varying conditions will be stressed in this year's program.

Improper adjustment and operating practices in the use of power

and seeding and harvesting equipment results in increased costs, lower yields and loss of thousands of dollars in farm crops. The lack of safety precautions with the operation of tractors alone costs the nation's farmers about 1100 lives annually. Emphasis will be placed on the adjustment, operation, and safety of farm machinery.

The trend to more mechanization in peanut harvesting has been slow but, due to the continual shortage of labor, more farmers are interested in peanut combines. Specialist plans to assist county agents with this problem and instruct farmers on the procedures developed by research agricultural engineers working on peanut harvesting mechanization.

The use of labor-saving machinery for handling grain and feeds has lagged considerably behind the use of other labor-saving farm machines. Specialist plans to promote the use of more labor-saving equipment for hauling, unloading, elevating, conveying, and feeding in an effort to reduce many of the back-breaking farm chores.

The recent increase in the use of hay conditioners has raised many questions among farmers. They desire information on the benefits that can be expected from the use of conditioners and a comparison of the various types of conditioners. Specialist plans to make information available which will help answer many of these questions.

Work to Be Done and Methods of Procedure

Approximately 50 percent of the specialist's time will be given to the 4-H tractor project. The remaining 50 percent will be used in developing the phase of the project for adult farmers on the choice, care, adjustment, and maintenance of farm machinery.

Seven tractor maintenance schools are being planned for training Extension Agents and leaders in the 4-H tractor program. Six of these schools will be held at the district level with one at the state level. Agricultural engineering specialists, 4-H Club specialists, other subject matter Extension specialists, oil company representatives, and machinery manufacturers' representatives and dealers will cooperate in conducting these schools.

This specialist will assist Extension agents and leaders at the county level in organizing programs in the 4-H project.

Radio, television, and newspaper publicity will be used to encourage enrollment in the 4-H project.

The specialist will cooperate with the 4-H Club Department and Extension agents in planning and conducting tractor operators contests on county, district, state, and regional levels. Oil companies, individual farm machinery dealers and manufacturers and

farm equipment associations will all cooperate in conducting the tractor operators' contest.

Specialist will continue with a series of leaflets entitled "Farm Machinery Cost Guide", some of which have already been published.

Information will be prepared on the adjustment, operation, and safety of farm machinery for use in demonstrations, meetings, and for the individual farmer.

A leaflet is planned explaining the benefits obtained from the use of hay conditioners and showing a comparison of the crushers and crushers.

Specialist will assist with at least two county demonstrations on the proper adjustment and operation of each of the following machines; combines, corn picker, plows, mowers, and hay conditioners. County Extension Agents, farm machinery dealers, and manufacturers' representatives will cooperate in these demonstrations.

Information will be assembled on labor-saving machinery for handling grains and feeds and greater use of this type equipment will be promoted through radio, television, and newspaper publicity.

Other subject matter departments concerned with machines will be contacted to arrange for joint participation in demonstrations.

County Agents will be advised of available assistance through specialist on machinery adjustment clinics.

To make the Extension machinery program most effective, the specialist will cooperate with the following agencies or specialists:

<u>NAME OF AGENCY OR SPECIALIST</u>	<u>ASSISTANCE TO BE GIVEN</u>	<u>ASSISTANCE TO BE RECEIVED</u>
4-H Club Dept. W.A. Turner (Sponsor-American Oil Company)	Develop programs on state level and assist with county programs on both tractor maintenance and operation. Assist in laying out and conducting some county and all district, state and regional tractor operators' contests. Supply needed equip- ment.	Assist with conducting meetings. Furnish literature. Explain county procedure to club leaders.

NAME OF AGENCY OR SPECIALIST	ASSISTANCE TO BE GIVEN	ASSISTANCE TO BE RECEIVED
Extension Specialist of other subject matter departments.	Cooperate on interchange of information and recommendations pertaining to the program projection and assist with organizing, publicizing, and conducting meetings and demonstrations in various programs. Participate in preparing information, where involved, for publication in bulletins.	
State Fair of Virginia	Assist in planning, promoting and conducting the Eastern U.S. 4-H Tractor Operators' Contest and helping with exhibits.	Publicize the 4-H tractor Operators' Contest and furnish space, and the necessary materials and equipment for conducting the contest.
Virginia Farm Equipment Assoc-	Promote better use of equipment and better relations between dealers, manufacturers and industry and state and federal agencies.	Assist in supplying equipment and personnel for meetings, demonstrations and contests in the 4-H program and in adult phase of the machinery program.
Virginia Agricultural Experiment Station and Sub-Stations.	Assist with information and recommendations for equipment used and promote the recommended practices. Help with field days.	Make available information on recommended practices where machinery is involved.
SCS, USDA, ARS, J.H. Lillard	Observe development of equipment of new design and promote the use of proven equipment.	
Commonwealth of Virginia, Dept. of Welfare and Institutions.	To help organize and conduct a 4-day farm machinery maintenance school for institutional employees.	

The specialist will give special assistance to county agents working with the Farm and Home development phase of the Extension program when requested, particularly in the area of machinery adjustment demonstrations.

RESULTS EXPECTED AND METHODS OF MEASURING

Train 250 leaders and Extension agents for the 4-H Tractor program.

Conduct a 4-H Tractor Program in 75 counties, and increase the enrollment in the 4-H Tractor Program from 967 in 1958 to 1400 by training more leaders through district schools and by publicizing the program at local, county, district, and state levels.

Conduct 4-H tractor operators contests in six districts and at the and at the state and regional levels.

Conduct 4-H tractor operators contests in 65 counties for members of the 4-H tractor program.

Assist in making the 1959 Eastern U.S. 4-H Tractor Operators' Contest the biggest and best yet.

Conduct 25 demonstrations and publicize information on choice, operation, adjustment, care and safety of farm machinery.

Reach approximately 1100 farmers directly in the adult phase of the farm machinery program.

PROJECTED PROGRAM NEEDS

Emphasis will be placed on expanding the enrollment of the 4-H tractor program to reach more farm boys. The 4-H tractor program is well established and is supplied with excellent project material but there are too many eligible Virginia farm boys missing the advantages of being a member of it.

The need for a strong adult farm machinery program increases each year with the continual increase in farm mechanization. This specialist is developing an up-to-date file on new machines and plans an adult program that will place emphasis on the cost of ownership, choice, operation, adjustment, and safety of all types of farm machines including tractors.

PROJECTED PROGRAM NEEDS

The projected program needs are discussed at the end of the plan of work for each major phase of the project. In looking at the project from a long range point of view, the following items need consideration:

Soil and Water Conservation

The specialist responsible for the soil and water aspects of the current Extension program in agricultural engineering will retire in August, 1959. This phase of the Extension program will be reviewed early in the year, and an effort made to develop an improved program of work in this area. The nature and scope of the revised program with the responsibility of the agricultural engineering department in making it effective should be clearly established before a replacement for the present specialist is employed.

Rural Safety

The urgency for a specialist to devote full time to an educational program in rural safety is greater than ever before. Although the project leader is making an important contribution to safety work in Virginia and other specialists incorporate appropriate safety features in their project work, this effort is inadequate to meet the rapidly changing needs of the people in the area of safety. A full time specialist on rural safety should be employed as soon as possible, and a carefully planned safety project developed and put into operation.