Dup file with Reports.
Send back

UNIVERSITY OF KENTUCKY

COLLEGE OF AGRICULTURE

Extension Division

THOMAS P. COOPER, Dean and Director

CIRCULAR NO. 113

ANNUAL REPORT

FOR THE

YEAR ENDING JUNE 30, 1921

LEXINGTON, KY.
December, 1921

Published in connection with the agricultural extension work carried on by co-operation of the College of Agriculture, University of Kentucky, with the U. S. Department of Agriculture and distributed in furtherance of the work provided for in the Act of Congress of May 8, 1914.

Presid

My de

I h
Agricul
Kentuc
found
Divisio
a list o
Busines

Lexingt
Novemb

To the

I h
tural E
of Kent
Extensi
tucky f

Lexingt
Novemb

Hon. Ed
Gov

Sir:

I tr
tural Ex
for the

Lexingto
Novemb

Letters of Transmittal

President F. L. McVey,
University of Kentucky.

My dear President McVey:

I have the honor to present the annual report of the Division of Agricultural Extension of the College of Agriculture, University of Kentucky, for the year ended June 30, 1921. In this report will be found a statement of the work as carried on through the Extension Division covering briefly the various activities of the past year, also a list of the publications and in addition a financial statement by the Business Agent of receipts and expenditures.

Respectfully,
THOMAS COOPER,
Dean and Director.

Lexington, Kentucky,
November 15, 1921.

To the Board of Trustees, University of Kentucky:

I herewith submit the annual report of the Division of Agricultural Extension, established under act of the Legislature of the State of Kentucky, approved March 15, 1916, containing an account of the Extension Division of the College of Agriculture, University of Kentucky for the year ended June 30, 1921.

Respectfully,
FRANK L. McVEY, President.

Lexington, Kentucky,
November 15, 1921.

Hon. Edwin P. Morrow,
Governor of Kentucky,
Frankfort, Ky.

Sir:

I transmit herewith the annual report of the Division of Agricultural Extension of the College of Agriculture, University of Kentucky, for the year ended June 30, 1921.

Respectfully,
R. C. STOLL, Chairman,
Board of Trustees,
University of Kentucky.

Lexington, Kentucky,
November 15, 1921.

CIRCULAR NO. 113.

Annual Report, Extension Division, 1920-21

The College of Agriculture is one of the four colleges that compose the University of Kentucky. It is thru the College of Agriculture that the co-operative extension work of the U. S. Department of Agriculture and University of Kentucky is carried on. This agricultural extension work, as expressed in the language of the Smith-Lever law, signed by the President May 8, 1914, consists of "the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information on said subjects thru field demonstrations, publications and otherwise."

This report attempts to convey an idea of the progress that is being made toward the solution of a multitude of rural problems. In the nature of the case many of these things require years for their accomplishment, but it is gratifying to be able to report considerable progress in many of them.

Any adequate program for the improvement of agricultural conditions must recognize that farming must be made a profitable business, that the farm home must be a comfortable and agreeable place in which to live and that rural social conditions must be satisfying. The Agricultural Extension Service of the University of Kentucky has taken account of these facts and has been so organized as to render assistance in problems such as those enumerated below and in many others allied to and growing out of them

While the following list is merely suggestive, it serves to convey an idea of the many questions upon which the Extension Service is attempting to render help. These questions more or less naturally divide themselves into two general classes, which, for lack of better names, may be called (1) economic problems, and (2) domestic and sociological problems.

I. Economic Problems.

1. Restoration and maintenance of the productiveness of soils.
2. Use of pure seeds of high vitality.
3. Use of live stock of better quality.
4. Better feeding and management of live stock.
5. Curtailment of the tenant system.
6. More even distribution of labor thruout the year.
7. Adoption of better business methods and cost accounting.
8. Establishment and maintenance of standard grades of all products.
9. Businesslike disposal of farm products.
10. Better utilization and care of farm machinery.
11. Control of plant and animal diseases and insect pests.
12. Production of more and better fruit and vegetables.

II. Domestic and Sociological Problems.

1. Better equipment of rural homes.
2. Organization and co-operation.
3. Adoption of better dietary habits.
4. Improvement of rural schools.
5. Good roads.
6. Improvement of sanitary conditions.

To assist in the solution of these problems the College of Agriculture has utilized its subject matter departments, such as Animal Husbandry, Agronomy, Horticulture, etc. Each department of the college, in addition to its former work of investigation and teaching, is now charged with the duty of doing field work known as extension work. The work of the departments is co-ordinated and directed thru the extension office. The county and home demonstration agents are the representa-

tives of the University in the individual counties and are strengthened in their work by the representatives of the departments, such as Agronomy, Home Economics, etc., who visit the county and home demonstration agents periodically, or upon call, in order to assist them in technical work . The University has made special provision for the prosecution of work with the boys and girls and a section of the Extension Division is devoted exclusively to the direction of the work of junior clubs. During the current season about 20,000 boys and girls are actively engaged in the several definite projects prepared by the junior club department.

Method of Approach.

The foundation of all county program building should be upon the basis of community programs. Representative local men and women are called into a conference to study and analyze the local business of farming, its favorable and its unfavorable aspects, and to determine upon the efforts to be used in overcoming the difficulties. A leader is assigned for each project determined upon. Having several communities in the county with such programs established the building of a county program then becomes a matter of harmonizing the various community programs. In order to do this all community leaders representing a certain project are called into a conference for the purpose of determining the county program on this one line of work. This program is built upon the assumption that the best men to determine a county plan are those who are most familiar with the specific parts of the program. For example, the leaders from the various communities on the subject of soil improvement meet and decide that their best procedure would be to encourage the growing of clovers and other legumes whose production at that time was meeting with indifferent success. The county goal would be established and each community leader would be assigned a certain allotment for his community. It then becomes his work to secure a sufficient number of demonstrators to meet the assigned acreage or goal, having at his disposal at all times the assistance of the county agent in educational and publicity matters. Other leaders meet in groups

similarly and determine upon their respective lines of work but in each case before the work is put into execution it should be left to the approval of a board appointed for this purpose, usually the county executive committee. By such a plan each undertaking has a leader in each community, who in turn secures others to proceed with him in the enterprise, so that results may be more widely observed and the improved methods more rapidly adopted by others. As these community projects are fitted together and harmonized by the executive committee, the county program is determined.

Business Considerations.

While the law provides that agricultural extension work is to be an educational enterprise, it does not mean that its efforts are to be directed solely to bringing about greater or more economical production. It is equally important that it teach the principles of more advantageous methods of disposal. If the only difficulties were those of demonstrating how to produce better and at a less cost, the task would be comparatively simple.

The question of disposal involves such matters as the standardization of product, whether it be grain, live stock, wool, poultry, eggs, dairy products, or tobacco; the finding of better markets, the principles of co-operative effort and intelligent merchandising. The county and home demonstration agents with the assistance of the specialists, who are always ready to serve, give assistance in these matters as well as in those of production.

The Farm Home.

In the attempt to make farming a profitable business too little attention has been paid to making the farm home as comfortable and as attractive as possible, or toward making housework less of a drudgery. The major portion of the family's time is spent in or about the farm home and in the majority of cases the greatest return in comfort and contentment, for the amount of thought, money and energy employed, can be gotten from the improvement of a dwelling and the working conditions found in or about it It is with these facts in mind that great effort is being made by the extension service to bring about im-

provement in the conveniences of the home and to teach other subjects such as might be grouped under the general heads of foods, clothing, household management, etc. It should be borne in mind also that this part of the work has a very important bearing upon the social welfare of the community.

Co-operation.

In undertaking a program of work in a county the college attempts to utilize every existing local piece of machinery that lends itself to the purpose of the work. Among such are the various farmers' associations and organizations, schools, boards of trade, banks, commercial houses, community clubs, improvement leagues, parent-teachers' associations, boards of health the Red Cross, Y. M. C. A. and many other agencies whose help has been exceedingly valuable and whose aims and purposes have much in common with those of the Extension Service of the College of Agriculture and the U. S. Department of Agriculture.

How County and Home Demonstration Agents Are Secured.

When a county has decided that it desires to co-operate with the Extension Division of the College of Agriculture in improving its agricultural condition thru the employment of a county or a home demonstration agent or both, the interested persons get in touch with the Extension Division of the College of Agriculture which sends a representative to outline the terms upon which the University and the U. S. Department of Agriculture will co-operate financially and otherwise in the employment of an agent. When these terms are fully understood the fiscal court is asked, by a committee from the county, to make an appropriation sufficient to cover approximately half of the cost of such work. In certain cases the necessary local funds have been provided by popular subscription, by local associations or farmers' organizations, but in the majority of cases the local funds are provided by the fiscal court, as the county agent must be regarded as a public servant and must serve all persons alike whether they have contributed directly toward his salary or not. After the necessary funds are provided a memorandum of understanding is arranged between the University and the local

co-operating parties providing for the selection of the agent and the projects to be undertaken. This memorandum of understanding serves as a sort of constitution under which the agent's work is organized and conducted.

The University attempts to serve all portions of the State equally, but it is obvious that a county with a county or home demonstration agent or both is in more direct touch with the University and the U. S. Department of Agriculture and the specialists from the college will be requested oftener to come into the county for work than would be the case in a county that has no agent.

County Agent Work.

The year ending June 30, 1921, was one of rapid numerical expansion as well as in program development. On July 1, 1920, there were forty-five counties with full time agents. Eleven of these had assistant county and one county had two assistant or acting agents awaiting the installation of the regular county agent on August 1. Four of these counties also had colored agents.

On July 1, 1921, there were sixty-one counties with full time agents, seventeen of these had assistant agents and there were five colored agents employed, one being in a county not supplied with a white agent, making a total of sixty-one counties now doing county agent work, a growth of thirty-five per cent in twelve months.

Of the thirteen assistant agents employed July 1, 1920, four resigned, five have become county agents and four continue as assistant agents.

Of the seventeen assistant agents now employed, at least twelve will be placed as county agents.

There has been a rapid growth of county agent work in counties which in the past had been difficult to interest and many positions have been made vacant by the resignation or promotion of old men, many of whom have held their offices with success for several years. This has developed the need of several highly trained men with experience in county agent work.

As the supply of trained men is very limited and high priced it becomes necessary to train our own men, using good

prospects who have many satisfactory qualifications but are lacking in county agent experience. In order to eliminate any chance of partial failure on the part of newly appointed men the plan has been adopted of appointing new men to assist successful agents so that to their knowledge of agriculture they may add the knowledge of presentation and organization, thus avoiding the possibility of failure. After being so placed they are left for an indefinite period for training and observation.

This method has proven very valuable and it is hoped in this way to develop all needed material instead of taking it away from neighboring states or using inexperienced men where only experienced men can succeed.

The greatest development of methods during the year just ended has been the adoption of the community as a basis for building a program of work of which the following is a fair sample:

Community Program **BELL'S CHAPEL** **I. C. Graddy, County Agent**

Farm Activities	Limits of Profit	Remedy	To be Done in 1921	In Charge	Goal
TOBACCO	Market Field Quality	Co-op. market Smaller acreage Better cultivation Fertility	Fertility Demonstration	J. N. Burrus	Two fertility demonstrations
CORN	Poor seed Poor cultivation Yield	Field selection and testing Limestone Phosphate Clover	Field selection	W. E. Thornhill	Six farmers (field selection)
WHEAT	Poor yield Poor seed	Lime, Phosphate and Clover	Limestone and Phosphate demonstrations	E. O. Bell	Two farmers to demonstrate
DAIRYING	Markets Low product Poor feeding	Co-op. market Purebred sires Balanced rations	Two demonstrations in feeding	Wm. Bell	Two feeding demonstrations
POULTRY	Scrubs Poor layers Poor feeding and housing	Purebreds Culling Balanced rations	Culling Better feed	Mrs. H. G. Webber	Six flocks culled and six flocks fed balanced rations
Community Activities ROADS	Muddy	Drainage and dragging	Drainage and dragging demonstrations	Wm. Wilson	½ mile on 3 roads from school
SCHOOL	Poor water Ugly school building Poor co-operation with teachers	Fixing well Decorating school Co-operation with teachers	Fix up school house Co-operation with teacher	C. E. Moore	Parents to visit and fix up school building

This program is built by meeting with a group of local representative men to analyze the problems, make plans for improvement to be made and to assign a local leader for each subject attempted. Such program for the most part is a self determined type in which the county agent is able to secure the help of the local people in building a program of interest to them as applying to their local needs. The local leader selected looks after the details of securing demonstrators, planning meetings and looking after results in that community.

This plan of work is being followed closely by the State Agent and his assistants with the result that thirty-seven county agents have reported the building of eighty-nine community programs of work.

The spirit with which these programs are met is indicated by the following extract from a letter written by a county agent in the mountains of Kentucky:

Dear Sir:

Last week I overlooked stressing my first successful meeting where I endeavored to start a program of work, so I want to tell you just what we did.

The first meeting advertised was in the north end of the county. I put Mr. ———————— in charge of this meeting, but no one came out so of course nothing could be done.

The second meeting was held in the southern end of the county where we have a few good farms on a creek bottom. Four men were present. I hung my board on the wall, and drew the outline for them and then got them started to talking about the most important thing that their community needed. Well, do you know they jumped me about drainage right away. I had thought of drainage some for that locality but didn't know they were so interested in it. They started right out to plan how they could get not only their own bottom tiled but how they could interest their neighbors. It did me good to see these men begin to plan out their campaign. This was something they wanted and they didn't sit back and let me talk. We finally appointed a good leader and set ten men as our goal to order more or less tiling. The plan is to order all together.

Next, these men informed me that plantain was ruining their grass. It developed that the creek overflowed on their bottoms and set it fresh each year.

Here was a problem that I knew little about and I saw it was serious, so we set to work and I called their attention to the fact

that they were on the head of the creek and we could try a rotation on the bottoms which were highest up on the creek where plantain is first found. This we are going to do if we can persuade the man farthest up on the creek to work out a rotation. All those present, of their own accord, agreed to cut off a part of their bottoms where the overflow did not reach but where the plantain had spread, and try a rotation. A good leader was voted on and the others promised to back him up.

I then steered them on selecting their seed corn in the field and the leader was agreed upon and six men set as their goal. This gives us two short time projects and one long time project.

When I look back on my past work as an agent and think of the times I have wished that I might be of more service I deeply regret that I did not have a plan of this sort to follow.

Very truly yours,

(Signed) R. O. BATE, County Agent,
McCreary County, Kentucky.

In an effort to develop a favorable mind for this program building and to establsih the county agent's relationships within his county, these subjects were featured at the annual conference held January 27 to 31 in which the following men took part: Lucius E. Wilson of the American City Bureau; R. K. Bliss, Director of Agricultural Extension, Iowa; M. C. Burrett, Director of Agricultural Extension, New York; Clark S. Wheeler, Ex-Director of Extension, Ohio; Thomas Cooper, Dean and Director, Kentucky; Dillon Meyer, County Agent, Franklin County, Ohio, and former Asst. State Leader of Indiana; A. A. Olsen, County Agent, Crawford County, Ohio. All of these men treated their subjects in an excellent manner. Mr. Wilson in his very able way explained some of the fundamentals of organization, and proved conclusively that service is the keynote of organization strength, that the organization that did not procure service from its members was short lived, that a voluntary organization based on money return was apt to fail because of dissatisfaction of the members who become money mad instead of enthusiasts for community betterment.

Mr. Burrett placed the final decision upon county agent or farm bureau relationship to commercial activities in saying it was as much the opportunity and obligation to help set up and to demonstrate the successful means of co-operative buying and selling as it was to find out, to help establish and demon-

strate how to grow a good field of alfalfa, as such a program was as much or more in public interest. It was, however, no more their business to buy and sell crops and supplies than it was to cut the alfalfa and feed it to the cows. Neither a county agent nor farm bureau secretary should participate directly in buying and selling because it is fundamentally unwise and no one man could be big enough to do the business for a whole county and give satisfaction. This policy, the correctness of which was attested by the other authorities who took part in that conference, is the policy advocated by the University of Kentucky.

Another important development of the past year has been the group conferences for county agents. From six to nine agents are called to some central point in their territory for one day. Most of the agents drive in so they have very little expense. One specialist from each of two departments is taken on these trips, each has one-half day at his disposal to outline in detail his plan of work, indicating the importance, the timeliness, the method of applying in farm practice, and organization needed for successful work. Each agent is given all the time needed to question the specialists and to discuss local conditions to bring out his own situation regarding the subject under discussion after which each agent is asked if he desires to employ this project in his county, the modifications he would suggest and the help needed. This type of round table discussion gives the advantage of many view points and questions, improves the specialist's plans and thus leads to a broader treatment of the subject than would otherwise be possible.

The following summary of county agent activities for the calendar year 1920 serves to convey some idea of the activities undertaken.

Subject	No. Demon.	Acreage	Est. Profit
Corn	1,646	12,807	$30,722
Tobacco	847	1,009	4,837
Oats	752	2,308	1,868
Tomatoes	82	213	2,872
Wheat	381	5,531	4,954
Rye	743	2,466	1,266
Buckwheat	5	28	60
Alsike	8	135	3,000

Subject	No. Demon.	Acreage	Est. Profit
Crimson Clover	132	1,214	$6,080
Red Clover	198	142	8,154
Sweet Clover	514	1,856	1,643
Lespedeza	63	805	175
Millet	23	84	270
Sorghum	118	225	75
Cow Peas	141	1,308	1,106
Soybeans	341	3,611	10,743
Irish Potatoes	1,223	702	5,080
Sweet Potatoes	80	134	2,121
Orchards	396	25,722 trees	22,000

LIVE STOCK—PURE BREDS INTRODUCED INTO COUNTIES

Stallions	5	Beef Cows and Heifers	117
Mares	24	Boars	216
Jacks	9	Sows and Gilts	602
Dairy Bulls	121	Rams	73
Dairy Cows and Heifers	376	Ewes	160
Beef Bulls	78		

MISCELLANEOUS EXTENSION

No of visits by agents	40,336
No. miles traveled	232,388
Calls on agents relative to work	38,164
Telephone calls	22,278
No. farm meetings held	2,724
No. meetings addressed	3,054
Attendance (approximate)	221,584
No. field meetings	698
Attendance (approximate)	24,845
Per cent of time spent in office	27
Per cent of time spent in field	73
No. letters written	37,150
No. articles for publication	2,701
No. circular letters	1,015
No. copies	218,440
No. U. S. Bulletins distributed	25,517
No. State Bulletins distributed	43,818
No. visits to schools	2,509
No. farms keeping cost records—	
Complete	514
Partial	1,136

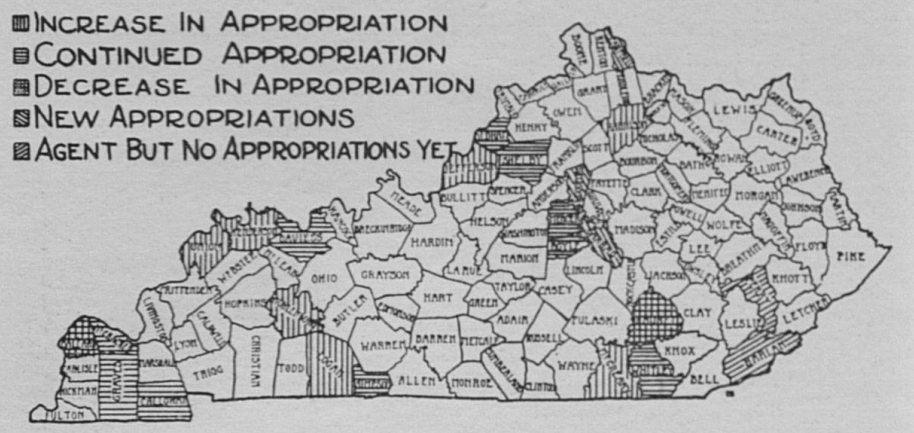
Limestone Demonstrations

No. of demonstrators	732
No. of acres in demonstration	7,771
Estimated profit	$15,506
Tons lime used	4,832
Tons limestone	19,864
Total acres treated	10,004
No. lime crushers installed	31
No. lime sheds installed	13

HOME ECONOMICS

I. County Work.

Since September, 1920, the number of counites appropriating for home demonstration agents increased from nineteen to twenty-four In that time a number of changes in the personnel took place for reasons of health, marriage, etc. During the summer months, when the work is especially heavy, it was found desirable to place assistants in six counties. From this number it will be possible to select several candidates for future vacancies.



No. 1. Showing the growth of Home Economics extension work in the State.

Growth.

Two new counties have made appropriations for home demonstration work and at least three others are in immediate prospect.

II. Aims of Home Economics Extension Work.

A. To carry modern homemaking education into those homes not reached thru the home economics work as taught in the public schools, normal schools, colleges and universities.

B. To promote education in general and home economics in particular.

C. To promote corrective and preventive health measures thru:

1. Home economics courses in clothing, nutrition and child care.
2. Co-operation with all agencies that foster health —individual, county, state and national.

No. 2. Adult farm women learning how to use clothing patterns.

D. To co-operate with the several divisions of agricultural extension so as to:

1. Convince men and women that the business of the farm cannot be promoted as it should be unless the same up-to-date business methods are used in running the home as the farm.
2. Encourage those phases of farming in which women and girls can participate and teach modern

methods of carrying these on. Those now taught are poultry, dairying and gardening.

E. To convince the citizens of Kentucky that:

1. Homemaking as a profession which fosters the physical, moral and mental development of the nation deserves as much thought, encouragement and public financing as the breeding of good farm animals. That this pays in decreased need for public care of individuals reared under improper home conditions.
2. Medical care of the child and mother before and after the birth of the child as a means of decreasing suffering, ill health, blindness, still births, infant mortality, as well as mortality of mothers at child birth, etc., is a public responsibility and may be alleviated thru state and federal help.

No. 3. School children should have good pure milk to drink every day.

III. The Home Demonstration Work.

For the purpose of directing the work of home economics extension along definite channels, certain projects were prepared along several lines. Some of these projects are adapt-

ed to those counties only where there is a trained worker to direct the courses; these are called home demonstration projects. Other projects may be conducted in unorganized counties and are called extension projects.

One of the great drawbacks to the school system of teaching home economics has been, and still is, that methods are often too inflexible. The home demonstration agent chooses those lines of work that may be agreed upon by the conferences which she holds with the women of the county, in preparing the county program best suited to the local needs.

No. 4. The hot school lunch is now being used in many schools.

A. Project work for girls.

The girls' home demonstration clubs are organized as a part of the junior clubs and may take up study along any one of the following lines:

1. Foods, including the selection of foods and the preparation of meals.
2. Clothing, the making of articles for themselves and others, or for their rooms, and the selection of suitable materials.
3. Canning, both in tin and in glass

4. Poultry—the care and feeding of poultry to obtain the best results in birds or eggs, with emphasis on the cultivation of standard pure bred stock.
5. Gardening—the growing of vegetables for home use, fresh or canned.

The work for four successive courses in foods, clothing and canning has been outlined, and full directions for it are supplied to each club member taking the course. On satisfactory completion of each course the girl receives a certificate of merit.

B. Women's project work.

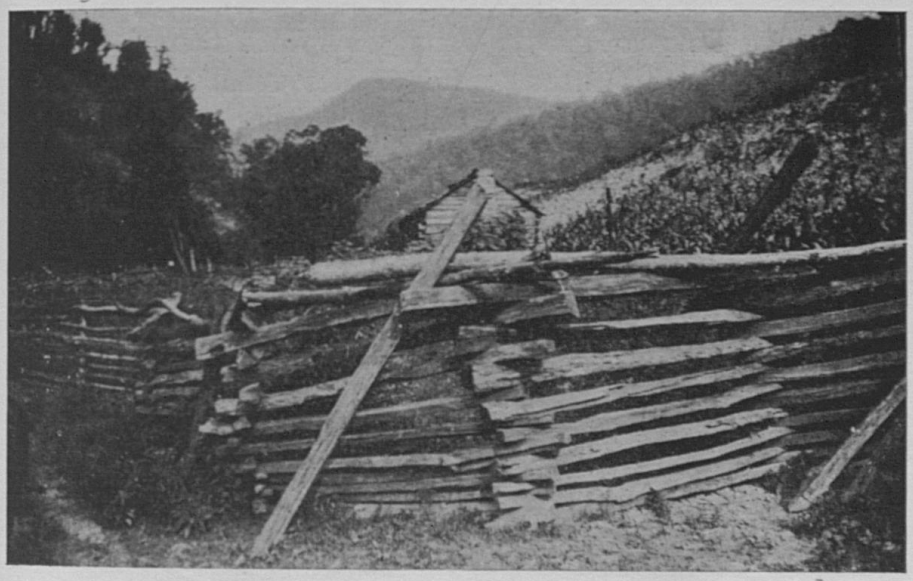
The women's home demonstration clubs choose the line of work according to projects which are carried on in the homes of the members by means of study, demonstrations and active work. They also help to carry on some community work, the most popular being the school lunch. Some of the lines in which there are increasingly efficient demonstrators in the home are:

1. Food and nutrition—selection, preparation and combination to best nourish the family. The planning and supervision of the school lunch.
2. Clothing—especially the course in Clothing Efficiency in which the woman is taught to simplify garment making, and to learn to save motions and time.
3. Canning—of vegetables, fruits and meats in glass or tin.
4. Gardening.
5. Home beautification—improvement of the home, both inside and outside the house. In two counties the government horticulturist from Washington has visited and adivsed women interested in improvement of their farmstead grounds.
6. Dairying—butter and cheese making, as well as care of milk and cream.
7. Poultry—the development of a flock, giving best possible results, due to proper selection, care and feeding.
8. Home equipment—the selection of the right tools

for houeswork and their arrangement so as to save time and work.

9. Care and management of the home—the care necessary to keep the home healthful, the best ways of cleaning different materials, and the best division of the money spent on the needs of the family.
10. Care of children—the means used to produce the best possible results in children thru the right food, clothing, sleep and general care.

C. Miscellaneous Activities of Home Demonstration Work.



No. 5. All types of farm homes are reached by Extension work.

1. Community clubs have been organized by home demonstration agents in many counties and include in their membership all ages, men, women and children. The meetings usually are held at night, and have regular programs conducted by the members. Topics of community interest are studied and discussed, with some help from outside speakers. The importance of the recreational side of community life is not overlooked. Singing and social enjoyment freqeuntly constitute a very attractive portion of the program.

2. In one county, several very flourishing community gardens have been maintained, and have proved a very valuable means of interesting all the community. The gardens are made on the school grounds and are worked by the boys while the girls and the women are having their sewing meeting, then all have games and simple refreshments are served by the women. As the vegetables ripen, the girls can them for use in the school lunch.
3. Several agents have been influential in the plans for a community house to be the center for all the community interests of the town.
4. In nearly every county in which there is a home demonstration agent, a rest room for the farm women is maintained in the county seat, under the supervision of the agent. The farm bureau frequently provides the room, but in other cases the women's clubs, the bank, or some interested individual does this. The agent sometimes collects magazines and always provides bulletins and other reading matter for the room. Sometimes the country women use it as an exchange, offering what they have for sale in farm products or cooking.
5. Each agent has one office day a week, when she answers questions and gives help on all kinds of home matters. In addition to this and her work thru groups, she makes many personal calls to give help or encouragement.
6. In the spring one home demonstration agent, thru her poultry association or thru work with individuals, placed 1,200 settings of pure bred eggs, on the return pullet plan in many cases. The money for these settings was provided by a large poultry dealer in the county seat who is an enthusiastic supporter of the work. Many other agents are doing similar work.
7. In another county, the home demonstration agent has interested her Junior Clubs so that they have

raised money by ice cream suppers, etc., to pay the expenses of one of their members for a year at the State University.

No. 6. One of the Junior Agricultural Club girls. Notice the cap and apron she has made.

IV. The Activities of the Field Agents.

The projects in home economics are introduced into the counties under the direction of the field agent; each agent has her particular line of specialization. The most outstanding are as follows:

A. Nutrition Work.

Under this head there are two projects, the school lunch and the nutrition class. Nutritional work, however, is not confined to these two projects, for in food work nutrition is constantly stressed.

1. The Nutrition Class.—This project is as yet only in process of formation. It is to be launched in the fall of 1921. Its object is to establish definite corrective measures for malnutrition among children, and eventually among adults. A follow-up system is planned by which progress may be checked and recorded. A means of extending the work is planned thru adult sponsors of the children in the class.

2. School Lunch.—This line of work may be established thru one or more of several agencies, as Women's Home Demonstration Clubs, Parent-Teacher's Associations, other women's clubs, interested individuals, or any organization interested in child welfare. The first problem is the financing of the equipment and supplies. This is met in many ways; by gifts of individuals or organizations, by benefit entertainments or by loans. Some schools serve lunches to the children free and pay for the supplies from entertainments, while others just charge enough to cover the cost. The second problem, the operating of the lunch, usually is solved by the co-operation of the older pupils, the teacher and the women of the community.

The aim is to serve one hot dish (preferably one containing milk) to supplement the cold lunch, to the children in every rural school in Kentucky. The community or school gardens are often sources of supplies, as the products are canned by the girls

and thus used for the school lunch in the winter.

If it were possible to have good scales in every school so that an accurate record of the nutritional benefits of the school lunch could be had, it would be much easier to start new lunches. However, the teachers all agree that the hot drink or soup at noon is an educational and hygienic factor. There is more of the atmosphere of one family, for this lunch is served to the pupils seated at their desks and the teacher has an excellent opportunity for instruction in table manners and the hygiene of eating the right foods. Many teachers have commented on the decided improvement in the behavior of the children in the afternoon as a result of being well nourished, instead of hungry. The teachers, as well as the children, enjoy eating the lunch.

Summary of School Lunches:

School lunches started by county home demonstration agents	50
Average number of pupils	35
Meals served	35,000

B. Girls' Food Clubs.

So far, in the girls' work, the clothing projects have received more attention than the food work. This is due to these facts:

The method of conducting clothing work is easier to outline definitely than is the food work, and the outlay for equipment is so much smaller in the first than in the last. The first difficulty has been overcome by a new set of instructions for conducting food clubs, and in the last case it is felt that since the communities are becoming better acquainted with the home demonstration work, money for equipment in food study will be forthcoming. The study of foods is a background for nutrition, and as such should be encouraged. The result from this plan of work can not as yet be ascertained as it has been in use in this State for only two months. To date, ten clubs have been organized.

C. Women's Clubs in Home Problems.

The field agent found that the homemaking work was a more or less "hit or miss" affair, and set about systematizing the subject matter and planning a definite scheme for the working out of an avenue thru which this subject matter could be delivered. A new plan for clubs was decided upon, using as a nucleus: the Parent-Teachers' Association in various communities, poultry clubs, canning clubs, etc., already in existence, who desired a change in problems and programs, and new clubs were formed in communities where women have shown interest after certain amounts of preliminary work carried on by local county home demonstration agents and home economics field agents.

A Woman's Club in Home Problems may be formed by any six women who are interested in studying such work, the place of meeting to be in the homes of the members, so as to have the demonstrations in the setting in which they will be carried out in practice.

A program for the eighteen meetings was drawn up, also a detailed outline of each meeting with the references in books, periodicals and bulletins for the preparation of papers and demonstrations.

Clubs formed under new plans:

1. Calloway County.—Six clubs with total membership of 110. The field agent co-operated with the county home demonstration agent in visiting the six communities, giving demonstrations and talks to arouse interest, resulting in the formation of the six clubs.
2. Mercer County.—Two clubs, membership 37.
3. Boyle County.—One club, membership 10.

D. Clothing Efficiency.

1. Project.

Clothing efficiency was started as a State project in Kentucky in December, 1920. The purpose of this project is to teach homemakers to make clothing quickly, easily and with good results. Emphasis is laid upon the elimination of waste motions, upon

short cuts, such as plackets and finishes, and upon the use of a tested set of foundation patterns. The latter enables a person to make garments in the shortest possible time without fitting. Good posture, correct shoes and healthful corseting are important parts of the project.

2. Method of Presentation.
The course has been given in nine counties of the State where home demonstration agents are employed (Harrison, Oldham, Jefferson, Henderson, Daviess, Union, Muhlenberg, Logan, McCracken). The demonstration group was made up of 6 or 7 women (leaders) representing 6 or 7 communities and the home demonstration agent and these in turn were expected to "pass on" to others in their community and make it real "extension work." The growth is recorded by a family tree. This group, with any number of observers, met the field agent one day a week for 6 or 7 weeks, for an all day lesson, and learned to construct the set of patterns and test them, using various short cuts. The project is a long time piece of work, as a course in development of these patterns follows the above mentioned series of lessons.

3. Summary of Clothing Efficiency.
A total of 226 women have been reached by the field agent and 120 have been taught by the home demonstration agents. Quality, rather than quantity work, has been desired.

4. Results of Clothing Efficiency Work.
From the counties.—"Mrs. Arrendell (the Ennis leader) is about thru with her pupil and has her class ready to start this week. She has the work well organized, too. Her pupil's pupil is to take a pupil several miles from Ennis, that one will take another farther on, and so spread the work over the eastern section of the county. My pupils will work west and south. Mrs. Penrod's class will work southeast, but cannot begin work until later,

as Mr. P. had three fingers partly cut off. Mrs. P. has made two dresses for herself, nine for the children, and several for the nighbors. I have made three corset covers, another dust ruffle skirt, and a dress. Mrs. A. has made her whole skirt, and as many as six dresses. I can tell a great difference in the way their garments look, too. Mrs. Lovell has been sick so Miss Barkley was unable to work with her. She will begin her class in Greenville soon.''—Helena Turner, Muhlenberg County.

''The Clothing Efficiency Work has not only changed my attitude toward our clothing problems, but has placed homemaking on an entirely different basis. I find myself watching for false motions in every phase of housework. The children's clothing is no longer a bugbear, as I have learned clothing principles and have a freedom in reasoning out the designing and fitting of garments.''—Mrs. Lyle, McCracken County.

5. Family Trees of Clothing Efficiency Classes.

a. Oldham County.

Some members of original class.	Pupils			
Allen	Cummins			
	Rees		W. W. Van Derem	
	McCauley			
	L. Evans		McMurty	
Phillips	Kendall	Rees	Palmer	McKenney
	Phillips			
	Spegal			
Waites	Sauls			
	Rennacher		Habday	
			Jones	
	Rennacher		Hodson	
			Raymond	
	J. L. Waites			
	Ermstem			
	Drath			
Hall	VanDeren	Taylor	Lefferty	
			M. D. Martin	
			Martin	Moore

b. Daviess County.

Some members of original class.	Pupils			
Aiken	Ruby	Gordon	Jones	
	Fulkerson	Gordon		
Welsh	May			
	Birkhead	Birkhead	Hayes	Hayes
	Horn			
	Oldham			
Allen	Cannon	Rowes		
	Isel	Read	Read	Read
Evans	Evans			
	Winford			
	Wells	Small		
	McCarty	Cambron		
		McCarty		
	Basham	Bishop		
		Riddle		
	Lashbrook	Stour		

E. Girls' Garment Making Clubs.

1. Principles taught.

The work for the Girls' Garment Making Clubs is planned for four consecutive projects, providing for:

a. Acquaintance with tools and equipment necessary for construction of clothing.

b. Knowledge of textile fabrics that will facilitate intelligent buying of both materials by the yard and various ready made articles and garments.

c. Construction of certain specified articles and garments.

d. The fundamental principles of care and repair of clothing.

e. The keeping of accurate records and accounts.

2. Ground covered.

The projects have now been in use for over a year. A splendid exhibit was made at the State Fair in September, 1920, and another is planned for 1921.

The fourth project has been written and is now in use. The projects are:

a. Beginning project.
b. Elementary project.
c. Advanced project.
d. Home Craft project.

3. Summary of Girls' Garment Making Club Work.

Project	No. Clubs.	Enrollment.	No. finishing project.	No. art. and gar. made.	Est. cost art. and gar. made.	Est. value.	Est. money saved.
Beginners	157	1,745	660	4,594	$2,054.63	$3,446.54	$1,391.91
Elementary	39	470	195	997	1,959.13	3,364.13	1,405.00
Advanced	11	65	37	464	898.10	1,835.30	937.20
Totals	207	2,280	892	6,055	$4,911.86	$8,645.97	$3,734.11

4. Results of Girls' Clothing Work.

Garrard County—Heard at local exhibit: "It has been the best thing that could have happened to my daughter. She has learned, thru the clothing work taught by the home demonstration agent, the fundamentals of systematic clothing as I could not have taught her. I know how to sew but I could never interest my daughter until the home demonstration agent came; now she sews well."

Mercer County.—"It is most surprising what the home demonstration agent has accomplished in this county in interesting girls in proper sort of clothing."

F. General Activities of Feld Agents.

General instruction in all phases of home economics and the different lines of work in agriculture, as well as health, etc., are part of the field agents' duties. Thru lectures, talks, demonstrations, etc., much that is needed in rural life is supplied other than the particular specialty of the agent. Other organizations, such as

Red Cross, Y. W. C. A., Public Health, etc., ask help and they in turn co-operate with the extension service.

SUMMARY OF COUNTY HOME DEMONSTRATION AGENTS' REPORTS.

Consultations at home or office	13,787
Visits to demonstrators, homes, schools and clubs	10,677
Bulletins distributed	39,012
Letters written	15,209
Meetings held	4,102
Miles traveled	93,696
No. of women influenced by home demonstration	13,816
Utilization of vegetables—demonstration	170
Dairy products	119
Poultry products	78
Breadmaking	88
Child feeding	179
Invalid cookery	43
Cooking under steam pressure	36
Fireless cooker	77
Canning	377
Drying	74
Brining	65
Vinegar	4
Laundry	13
Clothing	73
Home conveniences	113
Kitchen	65
Improving home grounds	62
Total number demonstrations given	1,636
Estimated total attendance	14,013
Number of women giving demonstrations to clubs	105
Number of women making bread under direction of home demonstration agents	1,161
Number of gardens grown	660
Number of cans of meat put up	90,328
Number of gallons of vinegar made	18,490
Number of demonstration centers established	13
Number of women keeping household accounts	435
Number of quarts of canned vegetables	206,185
Number of quarts of canned fruits	12,500
Number of pounds of sausage made	219,586
Number of pounds of lard	353,758

Girls' Club Work

Number of girls' clubs	207

Total number of girls enrolled	4,499
Number enrolled in first year work	1,528
Number enrolled in second year work	857
Number enrolled in third year work	1,121
Number enrolled in fourth year work	993
Number of girls using scholarships in normal schools and colleges	7
Number of girls paying all or part of school expenses from money earned in club work	53
Number of girls growing tenth-acre gardens	129
Number of girls enrolled in poultry clubs	307
Number of girls enrolled in dairy clubs	57
Total number of quarts of vegetables canned	66,882
Total number of quarts of fruits canned	92,027
Total number of pounds of fruit and vegetables dried	23,250
Total number of pounds of fruit and vegetables brined	15,050

House and Yard Improvements

Number of demonstrators following definite plan for improvement of the home	51
Number of new houses built	4
Number of houses remodeled	38
Number of houses repaired	106
Number of lighting systems installed	82
Number of heating systems installed	25
Number of water systems installed	23
Number of kitchens improved	370
Number of washing machines bought	30
Number of ironing boards bought or made	47
Number of sleeping porches built	7
Number of fences repaired	15
Number of trees and shrubs planted	1,115
Number of unsightly buildings removed or repaired	19
Number of lawns planted	29
Number of flowers planted	1,263
Number of counties organized	23
Number of county agents employed	21
Number of assistant county agents employed (during summer)	6
Number of meetings attended by state leader	113
Number of women attending these meetings	8,321
Number of new counties opened	2

JUNIOR AGRICULTURAL CLUB WORK.

I. Activities of Club Department.

A. Junior Club Camps.

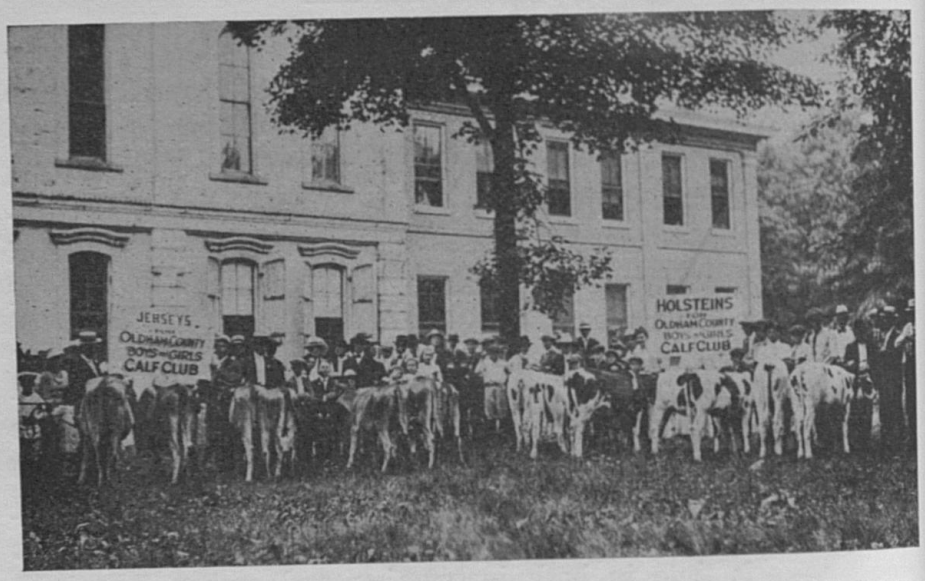
1. Three camps were held as follows:

	No. boys attending	No. girls attending
Browns Valley, Daviess County August 9th to 13th	38	44
Fair grounds, Laurel County, August 16th to 21st	61	43
State Fair, Jefferson County, September 13th to 18th	84	

The object of these camps was first, to discover the type of program which would appeal to club members who are located in the eastern and western sections of the State; second, to discover if a camp composed of boys and girls could be conducted successfully; third, to determine what, if anything a camp could contribute to the success of club work.

To summarize in a few words, it was discovered thru the camp held in Daviess County that the type of boys and girls in that section respond more readily to a program which exercises mental faculties and appeals to higher moral nature. This is true in both instruction and games. The boys and girls in the mountain districts demand simple games and a type of instruction which borders on the dramatic. There was no difficulty in arranging a program where both the boys and girls were present in the same camp. The girls formed into tribes or teams, and competed against each other for prizes and the same can be said of the boys. Boys and girls competed against each other in only such games as could be adapted to this type of contest. Their association together in instructional work, as well as various game activities, was always closely supervised and the result of such association was decidedly wholesome.

The camp held at the State Fair was conducted in a very satisfactory manner and the boys who had the privilege of attending received the very best attention and instruction. The attempt was made to inspect systematically the various exhibits of animals, crops and implements, having a competent leader in charge who explained the essential things to be observed. In addition to this several prominent men were introduced who gave excellent addresses. The camp was always orderly and well organized.



No. 7. The distribution of Jersey and Holstein calves to Club members of Oldham County.

2. The general program for the camp was as follows:

6:00 a. m.—Bugle.....Alarm clock
6:10 a. m.—Flag raising .....Star Spangled Banner
6:30 a. m.—Setting up exercises.....Morning swim
7:00 a. m.—Breakfast .....Yells and songs

Group Instruction

8.00 *a. m. to* 10:55 *a. m.*

Four-H development; nature study; woodcraft; home club plans; health; first aid; agriculture; home economics.

11:00 a. m. ..... Medicine ball
11:15 a. m. ..... General assembly
12:00 noon ..... Dinner
1:30 p. m. ..... Leaders' conference
1:45 p. m. ..... Play and recreation by tribes
4:30 p. m. ..... Rest
6:00 p. m. ..... Supper
7:30 p. m. ..... Vesper service
8:00 p. m. ..... Camp fire meeting
10:00 p. m. ..... Bed

3. Some opinions concerning club camps.

LETTER FROM A CLUB MEMBER.

"I take great pleasure in telling you how I enjoyed the camp this year. I liked the setting-up exercises and athletic contests, and best of all the volley ball.

"As for pleasure, the camp fire and the police courts were my ideals for a camp. I enjoyed all of the lectures and being in all of the classes. The class I liked best was when we studied about swine and soils. I learned several good points about picking out a fine hog and treating the soil.

"I think the camp was fine for it made us all interested in the club work. It made us all the more anxious to be club members so we can have a bigger and better time next year than we had this year.

"Sincerely yours,
CECIL IGLEHART,
Daviess County."

LETTER FROM A PARENT.

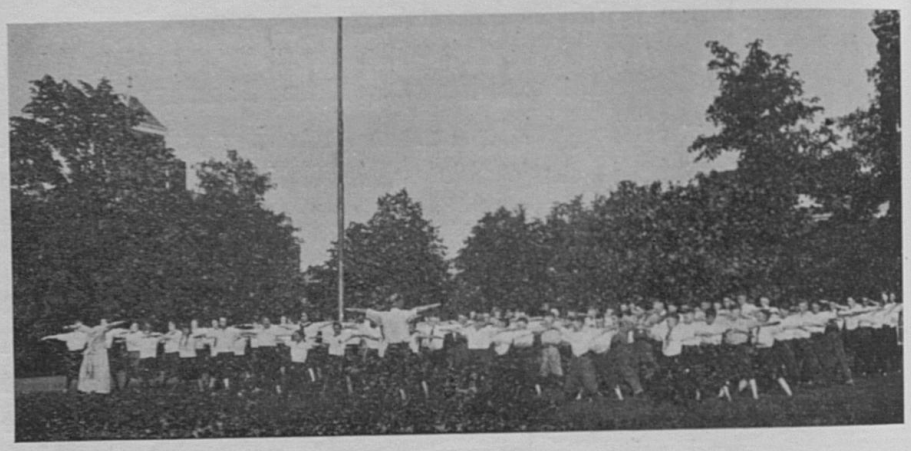
"I am extremely busy going to our revival twice a day but will take time to tell you about my trip to the London encampment. None of the parents were anxious to send their children and would not pay their way.

"By inviting outside help we had quite a successful box supper and made plenty of money to

take all who wished to go.

"The train on which we went left Wofford about ten o'clock and arrived in London early in the afternoon. We were taken in trucks to the fair grounds where the encampment was held.

"It took the rest of the day to rest, organize and become acquainted with our new friends. So efficient were the leaders that by morning the camp was in good working order.



No. 8. Regular exercise was given the boys and girls who attended Junior Week at the University, 1921.

"At six o'clock there was a drill similar to those held in the army camps. There in the crisp morning air, with the dewy grass beneath our feet, the murmuring pines over our heads and more than a hundred fresh faced children at our side, was our first drill which made a picture not easily effaced from memory. So full of pep and vigor was the ex-soldier who trained us that by the end of the week the recruits were quite a decent company. After such snappy exercise, away we ran for pie pan and so forth to drop into the breakfast line. The blue sky was our roof, but what cared we with such appetites as ours. After breakfast we listened to four different lectures by competent speakers, the subjects covering home, orchard and field.

"So thorough was the first aid work that my ten

year old daughter, a week later, promptly and neatly bandaged her brother's head to show him that she had been awake. Next on the list was a dinner followed by one more talk, then play filled the afternoon, and to judge by the yelling, the Indian tribes were thoroughly organized.

"When supper was over, we listened to a half-hour sermon, then off to the camp fire for an hour of song, treat and story. Then we retired with 'lights out' at nine.

No. 9. Boys and girls receiving a medical examination while attending the Junior Club Camps.

"The girls with their chaperones slept upstairs in the display hall of the fair and the boys slept downstairs in the shed with their leaders.

"With two faithful guards, competent physicians near and a 'phone in the building, we slept as soundly as at home.

"Such was the program for one day and the others were much like it. We had fudge once and melons also and apples all the time. The London people were especially nice treating us to peanuts,

candy, ice cream and the movie where a special picture was run for children at the expense of Mr. Moren.

"So entertaining, helpful and instructive was the program that each child must have come away with a broader outlook on life than he had before and a more sincere desire to become worth while men and women and we older people made friends we shall not soon forget.

"MRS. KING, Whitley County."

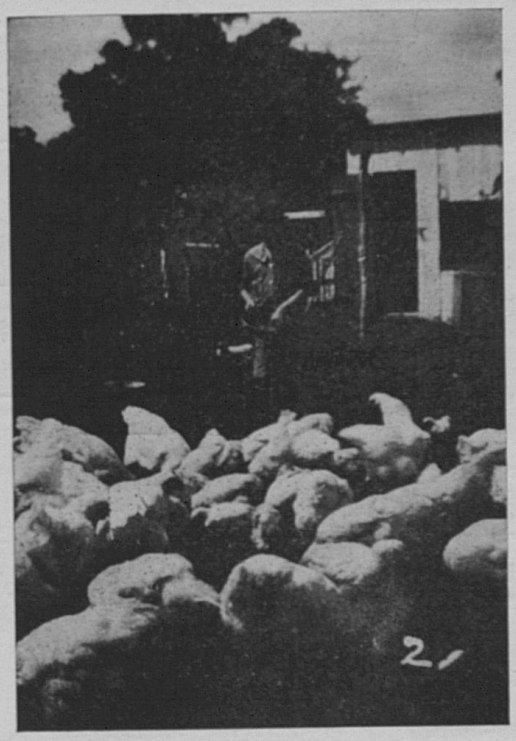
No. 10. Junior Club girls demonstrating approved methods of canning vegetables.

LETTER FROM A BUSINESS MAN.

"Since visiting your club camp during the encampment period at London, Kentucky, of the club girls and boys of this and the neighboring counties, I have been thinking most seriously as to what a meeting of this kind meant to a community. In my estimation, figures cannot be calculated so as to give the value as to what a meeting of this kind is worth to the agricultural improvement of our county and State, and I don't feel that I can suggest as to how to improve these meetings, but may I ask you if you can arrange to have more en-

campments, as I assure you that one in each county will be of great value to boys and girls of our State.

"T. G. MOREN, Laurel County."



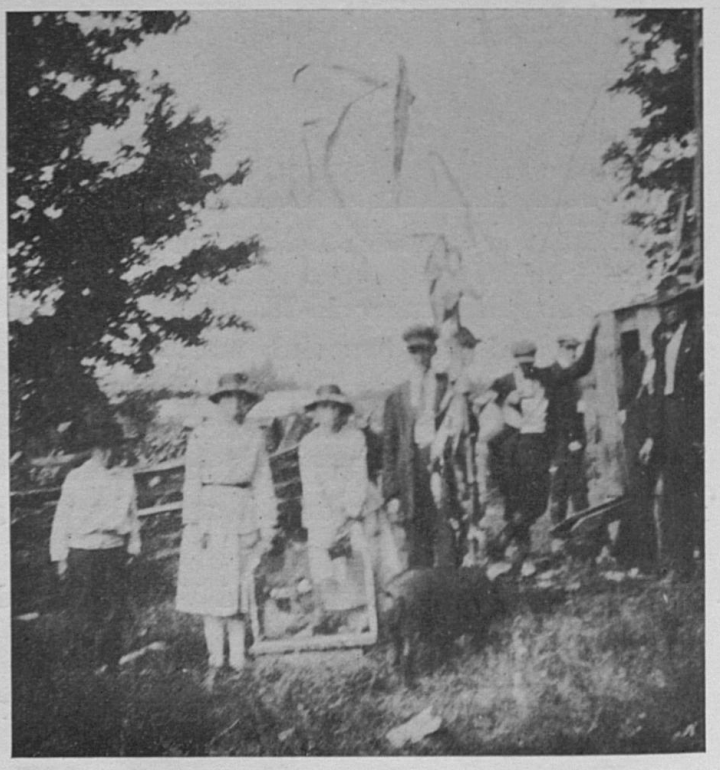
No. 11. Flock of chickens belonging to a club member.

B. State Fair, September 15-22, 1920.
One hundred and two club members exhibited their products at the State Fair in competition for the $1,015.00 offered as premium money. Thirty-nine pigs were exhibited by the boys and represented the largest exhibit. The canning exhibit made by the girls deserves mention.

C. Report on Club Enrollment and Value of Products for 1920.

Project	No. Enrolled	Value of Product
Pigs	1,223	$47,507
Sheep	79	2,387

Project	No. Enrolled		Value of Product	
Beef cattle	47		2,423	
Dairy cattle	61		4,581	
Poultry	985		14,021	
		2,395		$70,919
Corn	624		$25,883	
Potatoes	213		6,800	
Tobacco	96		5,318	
Soybeans	7		792	
Miscellaneous	10		2,610	
		950		$41,403
Farm makers (colored)—				
Pigs	160		$6,315	
Poultry	230		3,280	
		390		$9,595
Corn	200		$11,573	
Potatoes	85		2,010	
		285		$13,583
Total enrollment		4,020		$135,500



No. 12. Club members growing corn and pigs.

D. Enrollment Campaign, November-December, 1921.
Governor Morrow issued a proclamation designating the week of December 6-11 as Junior Club Enrollment Week.

Mr. George Colvin, State Superintendent of Public Instruction, addressed a letter to the teachers of the

No. 13. County championship girls in the canning club work.

No. 14. Boys and girls clubs in the mountains of Kentucky.

State urging them to assist in enrolling boys and girls as members of the Junior Agricultural Clubs.

The county agricultural and home demonstration agents, assisted by members from the club office, as well as extension specialists, put forth a special effort to secure a creditable enrollment. A State aim was set for 21,000 members. The following results were obtained as reported by the agents, records of which are on file in the junior club office.

CROPS	
Corn	1,968
Potatoes	486
Soybeans	60
Alfalfa	21
Sweet clover	16
Small fruits	12
Gardening	260
Tomatoes	626
Tobacco	205
	3,654

LIVE STOCK	
Swine growing	2,914
Swine breeding	734
Sow and litter	569
Dairy calf	335
Dairy cow-calf	42
Baby beef	115
Beef cow-calf	38
Sheep-lamb	200
Poultry hatching	4,613
Poultry laying	223
Bees	28
	9,811

GIRLS' WORK	
Beginning sewing	2,403
Elementary sewing	881
Advanced sewing	177
Home crafts	1
Foods I	991
Foods II	135
Foods III	30
Foods IV	8
Canning I	996
Canning II	295
Canning III	173
Canning IV	52
Butter making	5
	6,147
Miscellaneous	8
	6,155

FARM MAKERS (Colored)	
Corn	72
Potatoes	43
Gardening	34
Tomatoes	53
Swine growing	38
Swine breeding	3
Sow and litter	1
Beginning sewing	50
Canning I	55
Home crafts	30
Poultry hatching	84
	459

Summary Enrollment.

Crops	3,654
Live stock	9,811
Girls' work	6,155
Farm makers	459
Total	20,079

II. Plans for Junior Club Department in 1921.

A. Calendar of Club Work

E. Human Interest Stories.

Many cases have appeared this year which show the influence of good club work. Here is a single illustration:

"Enclosed find picture of four club members who, I think, have done great work this year in their respective projects in Jackson County. On the right is Clarence Farmer who made 56 bushels of corn on one acre, which is more than 30 bushels over the average

No. 15. Lined up for food at one of the Junior Agricultural Camps.

for his section. Next to Clarence is his sister Ersie and then his sister Lizzie, who have before them two very fine Barred Plymouth Rocks which won the blue ribbon at the community fair. Mr. Smyth of the Extension Department said that these two birds were as good as could be found anywhere. On the extreme left

is Robert Farmer, another brother, who owns the red pig that has just gone over to nibble at the stalk of corn held by Clarence. This pig won first prize and is a 'corking' good one.

"This is not a good picture but it represents four mighty good club members. These children are tickled to death over their achievements, and this year's work alone, it seems, has put the spark of do-something in their very lives and they are now bent on making good next year in the club. These children live in a remote section of the county where the soil is badly depleted and where many have trouble in getting a living from the soil.

"The acre of corn grown by Clarence is a fine demonstration of what can be done and it seems as if it will have the desired effect upon the farmers of that community.

"On the extreme right stands Mr. Charles Farmer, the father of the four children, who has been made a believer through the efforts and results of his children. He is now a strong believer in a better agriculture and was made so by his four children becoming members of the Junior Agricultural Club."

No. 16. On the way to the camp grounds.

January, February, March, April, May	June	July August	September October	November December
Enrollment in club projects directed	Junior Week, Lexington. 100-600 Club members. 50-100 Leaders.	23 county camps for 35 counties	1. County and Community fairs to judge.	1. Revising club literature A. Projects and demonstrations.
Community club leaders appointed		Training, judging and demonstration teams	2. Achievement day programs to attend.	2. Enrollment campaign.
Club projects written and printed		State Fair 1. Premium list 2. Club exhibit	3. Judging teams to train: A. Selected at State Fair. B. Entered at National Dairy Show. Southeastern. International.	3. Reports from agents on year's work. 4. Signing up plan of work for next year. 5. Club supplies to agents.. 6. Plan work for 1922.
Supplies and club literature mailed to agents				
County Agricultural and home demonstration agents select club members for Junior week				
County agricultural and home demonstration agents select club members for A. Judging teams. B. Demonstration teams.			4. Demonstration team work.	
Financial campaign for A. Judging and demonstration teams ..... $1,000 B. Junior week scholarship $1,500			5. State Fair. A. Junior club booths. B. Exhibits. C. Judging and demonstration teams.	
			6. Club members urged to complete projects.	
Publicity for club work 12 months in the year.				

B. Results Obtained in Following Calendar Plans.

1. Total enrollment of 20,079, representing 66 counties.

2. The Commercial Club of Williamsburg voted $150.00 to employ three Junior Community Leaders for Whitley County for six months. This sum is matched by the Extension Division. Each leader holds four junior club meetings each month. The leader's work is that of supervising and directing the junior club which has been organized under the direction of the county agent. The money received by the leader approximates the expenses incurred in meeting with the clubs.

Mr. T. G. Moren contributed $150.00 to employ three club leaders for Laurel County for six months on the same plan as above. These three leaders hold twelve meetings each month, reaching from six to eight hundred people. It is believed that this scheme is the most efficient and economical plan for reaching a large number of members. This plan has the advantage of standardizing the work of securing leaders. A few paragraphs from the leaders' reports are included here.

"Fifty-seven members or substitutes of the Rough Creek Club met last Monday at J. T. Tipton's and with two double shovels and three riding cultivators worked out 12 acres of corn and went home for dinner. Mr. Tipton is in the hospital, having been operated on for appendicitis."

"Seventy-seven club members and forty parents attended the meeting on the experiment field at Fariston, May 31st and all seemed to enjoy themselves. Many of our farmers say that it was the best speaking they ever heard."

Pine Grove Report

"The Pine Grove Club met and did the following community work:

(1) "Met at local church and cleaned grounds and house.

(2) "Met at community graveyard and cleaned it.

(3) "Met at a graveyard in another community and helped to clean it.

(4) "Met at a school house, cleaned off the grounds, whitewashed the trees and outbuildings, washed windows and cleaned out the house.

"A picnic is now on foot which I will tell about in my next report."

No. 17. Girls who have completed the canning work as outlined for the Junior Agricultural Clubs.

3. Club Projects Written and Printed.

a. A printed set of instructions covering each project is the aim of the Club Department. It is essential, if the work is to be handled efficiently, that the club member be given definite instructions about his work when he enrolls.

The following projects are offered to club members: Corn, Potatoes, Soybeans, Alfalfa, Sweet Clover, Small Fruits, Gardening, Tomatoes, Tobacco, Swine Growing, Swine Breed-

ing, Sow and Litter, Dairy Calf, Dairy Cow Calf, Baby Beef, Beef Cow Calf, Sheep and Lamb, Poultry Hatching, Poultry Laying, Bees, Beginning Clothing, Elementary Clothing, Advanced Clothing, Home Crafts, Foods I, II, III and IV, Canning I, II, III and IV, and Buttermaking.

b. Supplementing the above, records books have been prepared and printed for use of the club members in keeping their records in the Live Stock, Crops, Canning, Clothing and Food Projects.

No. 18. Boys and girls working the club garden.

c. As an aid in conducting the Junior Community Club meeting, a secretary's book, providing space for record of meetings and including suggestions for conducting the meeting in parliamentary order, has been prepared. A definite list of suggestive programs has been prepared and presented in Circular No. 91, "Hints on Programs for Junior Agricultural Clubs."

d. Merit Courses. If a club member wishes to do work in addition to completing his project,

he may do so by enrolling in a Merit Course, which will provide instruction along lines of his own choosing. The object of the Merit Course is to aid the boy or girl in a better interpretation of the commonplace experiences and observations of country life. By this method a greater interest is stimulated and a decision to live and work in the open country encouraged.

The following Merit Courses are offered: Soils, Crops, Fundamentals in Live Stock Judging, Farm Management, Farm and Home Craft, Home Improvement, Own Your Own Room, Health, Books and Collections, Radio Telephoning.

4. Junior Week, June 20-25.

Early in the year a definite plan was adopted for holding a club round-up at the University the week of June 20-25. Work began immediately along the following lines:

a. Business organizations interested in a state wide business in Kentucky purchased scholarships, making it possible for one or more club members to enjoy a free trip to the University. Twenty-one companies purchased twenty-nine scholarships, amounting to $810.00. These were awarded to members in twenty-nine counties thru the county agricultural and home demonstration agents.

b. County agricultural and home demonstration agents advertised Junior Week among their club members. The enrollment was limited to 160 for the State. Forty-six different counties were represented.

c. Program for Junior Week. The program was arranged so that the boys and girls would be thrown together for Nature Study and General Lecture, otherwise they attended classes especially planned to fit their interest.

Daily Program.

6:00 a. m.—Reveille.
6:30 a. m.—Inspection of Cots.
6:40 a. m.—Setitng up exercises. (Athletic Dept.)

7:00 a. m.—Breakfast, University Cafeteria.

GIRLS (Miss Burnam in charge.)

A.M.	Monday	Tuesday	Wednesday	Thursday	Friday
8:00		Foods, Miss Enright, Agricultural Building, Room 101	Buttermaking Miss Adams Agricultural Building, Room 101	Home Improvement, Miss Miller, Agricultural Building, Room 101	Home Improvement, Miss Miller, Agricultural Building, Room 101
9:30		Social Hygiene for Girls, Dr. Holmes, Agricultural Building, Room 205	Eating to be Healthy, Miss Eichelberger, Agricultural Building, Room 101	Health for Girls, Dr. Holmes, Agricultural Building, Room 205	Health for Girls, Dr. Holmes, Agricultural Building, Room 205
10:15		Clothing, Miss Cornell, Agricultural Building, Room 101	Home Nursing, Miss Whittemore, Agricultural Buildin, Room 101	Flowers, Prof. Olney, Agricultural Building, Room 101	Demonstration, Bed Making, Miss Burnam, Agricultural Building, Room 101
11:00	Lecture Chapel	Dean Cooper	Miss Cornell	W. C. Hanna	Ralph Owens

12:00 Dinner, University Cafeteria—Rest Period.

P.M.					
2:00		Home Conveniences, Miss Enright, Agricultural Building, Room 101	Clothing, Miss Piedalue, Agricultural Building, Room 101	Millinery, Miss Piedalue, Agricultural Building, Room 101	Poultry, Mr. Martin, Agricultural Building, Room 101
3:00		Nature Study Talks, Prof. Funkhouser	Nature Study Talks, Prof. Funkhouser	Nature Study Talks, Prof. Funkhouser	Nature Study Talks, Prof. Funkhouser
3:45	Athletic Program—Group Games and Contest Conducted by Athletic Dept., Univ. of Ky. Mrs. Florence Offutt Stout, Director for Girls.				Field Meet.

6:00 SHOWER BATHS.
6:30 Supper.
7:10 Vesper Service.
7:45 Moving Pictures (New Chemistry Building).
8:30 Camp Fire.
10:00 Taps.

SATURDAY 6:00 a. m.—Reveille.
6:30 a. m.—Inspection.
7:00 a. m.—Breakfast.
7:30 a. m.—GOOD BYE.

Daily Program.

6:00 a. m.—Reveille.
6:30 a. m.—Inspection of Cotes.
6:40 a. m.—Setting up Exercises. (Athletic Dept.)
7:00 a. m.—Breakfast, University Cafeteria.
7:45 a. m.—March to Classes.

BOYS
Mr. Feltner in charge.

A.M.	Monday	Tuesday	Wednesday	Thursday	Friday
8:00		Gas Engine Operation, Mr. Kelly, Farm Engineering Building	Ropes and Belts, Mr. Kelly, Farm Engineering	Water Supply & Sanitation, Mr. Kelly, Farm Engineering Building	Tractors, Mr. Kelly, Farm Engineering Building
9:30		Food for American Boy, Miss Eichelberger, Agricultural Building, Room 101	Social Hygiene for Boys, Dr. Holmes, Agricultural Building, Room 205	Health for Boys, Dr. Holmes, Agricultural Building, Room 205	Health for Boys, Dr. Holmes, Agricultural Building, Room 205
10:15		Soils, Prof. Roberts, Agricultural Building, Room 205	Soils, Prof. Roberts, Agricultural Building, Room 205	Crops, Prof. Kinney, Agricultural Building, Room 205	Crops, Prof. Kinney, Agricultural Building, Room 205
11:00	Lecture Chapel	Dean Cooper	Miss Cornell	W. C. Hanna	Ralph Owens
12:00	Dinner, University Cafeteria—Rest Period.				
P.M. 2:00		Dairy Cattle, Prof. Hooper, Judging Pavilion	Beef Cattle, Prof. Good, Judging Pavilion	Sheep, Prof. Horlacher, Judging Pavilion	Swine, Mr. Wilford, Judging Pavilion
3:00	Report on Athletic Field	Nature Study Talks, Prof. Funkhouser, New Chemistry Bldg.	Nature Study Talks, Lecture Room, New Chemistry Building	Nature Study Talks, Lecture Room, New Chemistry Building.	Nature Study Talks, Lecture Room, New Chemistry Building.
3:45	Athletic Program—Group Games and Contest Conducted by Athletic Dept., Univ. of Ky. S. A. Boles, Director for Boys.				

6:00 SHOWER BATHS.
6:30 Supper.
7:10 Vesper Service.
7:45 Moving Pictures (New Chemistry Building).
8:30 Camp Fire.
10:00 Taps.

SATURDAY 6:00 a. m.—Reveille.
6:30 a. m.—Inspection.
7:00 a. m.—Breakfast.
7:30 a. m.—GOOD BYE.

5. Judging and Demonstration Teams.

a. Premiums. Plans were formulated to encourage the organization of judging and demonstration teams. These teams will compete at the State Fair, September, 1921. Premium money was secured as follows:

Stewart Dry Goods Store, Louisville, Ky. (for demonstration teams)	$200.00
Bourbon Stock Yards, Louisville, Ky. (for judging teams)	300.00
Total	$500.00

6. Junior Club Camps for 1921.

a. As a result of the two camps held in August, 1920, and referred to above in this report, the interest in camps became so pronounced that it was decided to hold camps in as many counties as practical. Agents were asked to make application for a club camp in February. Applications were closed in April and the following counties were scheduled for camps: Muhlenberg, Simpson, Ballard, Christian, Campbell, Graves, Warren, Madison-Rockcastle, Union, Barren, Knox, Henderson, Hart, Whitley, Daviess, Larue, Jackson, Nelson, Taylor, Powell-Lee, Marion, and Boyd-Lawrence.

b. Program for the camps. A co-operative agreement was made with the State Y. M. C. A., State Board of Health and State Department of Agriculture, whereby each organization contributed a definite part in the camp program. A camp program was prepared by the University of Kentucky outlining definitely the part to be played by the agents and College of Agriculutre in organizing the camp. The agents were to assume the responsibility of providing the physical equipment of the

camp, as well as enrolling the club members. The University of Kentucky assumed the responsibility of supplying the program and securing the necessary instructors. The daily program of instruction and recreation is the same as that mentioned at the beginning of this report under Junior Club Camps.

MOVABLE SCHOOLS AND THE WORK OF SPECIALISTS

During the month of July, 1920, 20 specialists did work in 73 counties.

August, 1920—32 specialists did work in 114 counties.
September, 1920—18 specialists did work in 44 counties.

The college had an educational exhibit at the State Fair. In this exhibit practically all phases of extension work in agriculture and home economics were represented in a graphic way.

October, 1920—24 specialists did work in 87 counties.
November, 1920—24 specialists did work in 103 counties.
December, 1920—27 specialists did work in 103 counties.
January, 1921—31 specialists did work in 65 counties.
February, 1921—24 specialists did work in 59 counties.
March, 1921—29 specialists did work in 76 counties.
April, 1921—29 specialists did work in 77 counties.
May, 1921—33 specialists did work in 82 counties.
June, 1921—33 specialists did work in 79 counties.

MOVABLE SCHOOLS IN SPECIAL SUBJECTS.

Two-Day Tractor Schools

CITY	DATE	Total Enrolled	No. of Sessions	Total Attendance	Average Attendance	Per cent Owners and operators
Hickman	Nov. 29-30	38	4	102	25	74.5
Murray	Dec. 2-3	130	6	520	86	25.0
Paducah	Dec. 6-7	76	4	252	63	61.5
Morganfield	Dec. 9-10	72	4	188	47	70.7
Bowling Green	Dec. 13-4	88	4	278	70	35.9
Russellville	Dec. 16-17	100	5	600	120	40.7
LaGrange	Jan. 17-18	45	5	201	40	58.2
Louisville	Jan. 20-21	137	5	670	134	63.5
Bardstown	Feb. 14-15	61	4	160	40	52.4
Hodgenville	Feb. 17-18	73	4	250	62	46.5
Beaver Dam	Feb. 21-22	83	4	397	100	68.7
Owensboro	Feb. 24-25	104	4	467	117	73.0
	Totals	1,007	53	4,085	77	55.8

Agronomy.

One Day Each

December 1—Meeting in Hart County .....Attendance 30
December 2—Meeting in Larue County .....Attendance 32
December 3—Meeting in Marion County .....Attendance 75
December 8—Meeting in Breckinridge County.....Attendance 220
December 9—Meeting in Daviess County .....Attendance 50
December 10—Meeting in Henderson County .....Attendance 58
December 11—Meeting in Christian County .....Attendance 90

Animal Husbandry and Dairying.

December 7—Meeting in Lewis County .....Attendance 47
December 8—Meeting in Mason County.....Attendance 21
December 9—Meeting in Campbell County .....Attendance 67
December 10—Meeting in Owen County .....Attendance 112
December 11—Meeting in Shelby County .....Attendance 93

PUBLICATIONS.

News Service.

Specialized services designed to fit the needs of different classes of papers are sent out each week, the total number of papers receiving this service being approximately four hundred, including daily, weekly, semi-weekly and farm and poultry journals. All papers of Kentucky, as well as a number in other states, receive the service.

Since its beginning the section of public information has held up an ideal of service to the newspapers of this State as well as to some in other states. "Press agenting" and "publicity campaigns" have been displaced by the establishment of a bureau, the purpose of which is to furnish legitimate agricultural news to editors.

Extension Circulars.

The following circulars were issued during the fiscal year:

SUBJECT	Edition
Junior Agricultural Club Camp Announcements	20,000
Soybean Circulars	5,000
Garment Making Record Books	2,000
Garment Making Record Books	10,000
Tractor Hints for Owners	5,000
Club Record Books	3,000
Food Record Books	10,000
Circular No. 82—Corn Project; Junior Agriculutral Clubs	5,000
Circular No. 83—Eggs for Hatching	5,000
Circular No. 84—Sow and Litter Project; Jr. Agricultural Clubs	5,000
Circular No. 85—Docking and Castrating Lambs	10,000
Circular No. 86—Tobacco Project; Junior Agricultural Clubs	5,000
Circular No. 87—Sweet Clover Project; Jr. Agricultural Clubs	5,000
Circular No. 88—Sheep and Lamb Project; Jr. Agr. Clubs	5,000
Circular No. 89—Wildfire and Angular Leaf Spot of Tobacco	12,000
Circular No. 90—Renewing Old Orchards in Kentucky. First Year Results in a Five Year Program	5,000
Circular No. 91—Outlines for Junior Club Work	5,000
Circular No. 92—Pruning Fruit Trees	5,000
Circular No. 93—Alfalfa Project	5,000
Circular No. 94—Soybean Project	5,000
Circular No. 95—The School Lunch	5,000
Circular No. 96—Fundamentals of Live Stock Judging	30,000
Circular No. 97—Phosphates for Kentucky Soils	5,000

ILLUSTRATED POSTERS DISTRIBUTED TO BANKS, RAILWAY STATIONS AND OTHER PUBLIC PLACES.

July, 1920	1,500
December, 1920	1,000
February, 1921	1,500
March, 1921	2,000
April, 1921	2,000
June, 1921	2,000
July, 1921	1,500
Total	11,500

These posters were designed to call attention to matters that should have immediate attention from farmers. They are properly illustrated and are gotten out just before the time when the matters need attention. For example, attention is called by these posters to the importance of winter cover crops, in the late summer or early fall, shortly before the crops should be sown.

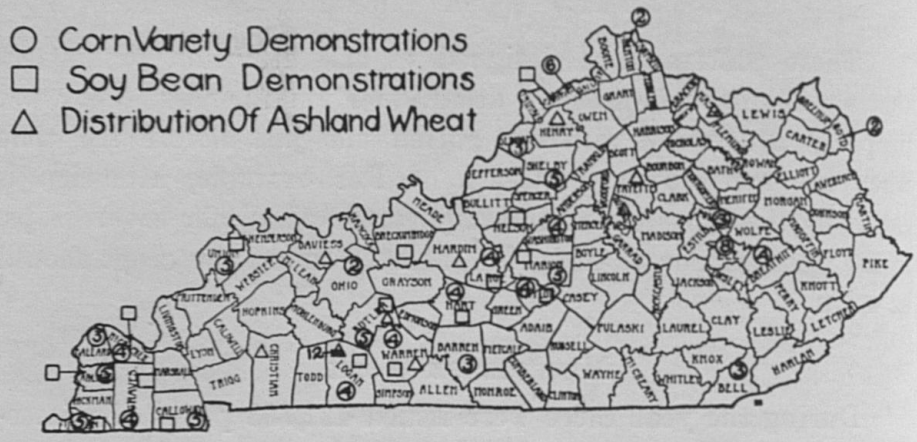
MIMEOGRAPH WORK.

During the year there were issued 421,753 pages of mimeographed sheets, giving specific information on special topics to those interested in those particular subjects.

AGRONOMY.

Soil Improvement Demonstrations.

A number of long-time soil improvement demonstrations have been in progress for some time and were continued thru last year. One of these is located at Berea on the Berea College farm about two miles east of Berea at the junction of two much travelled roads. Three and one-half acres of land are included in the demonstration. The soil is a very poorly drained, white, strongly acid type of very low productive capacity.



No. 19. Showing some of the Extension activities in the distribution of new varieties of corn, soybeans and wheat.

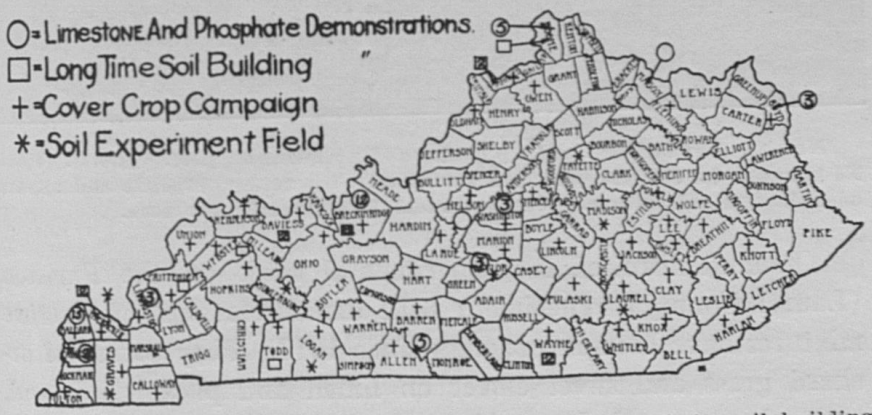
In the spring of 1916 it was treated with two tons of limestone and 300 pounds of acid phosphate per acre and seeded to sweet clover. The next year (1917) the clover was cut for seed and yielded 275 lbs. of marketable seed (in hull) per acre which was worth at that time 15c per lb. or $41.25 per acre. (A strip was left unlimed on which the clover was a total failure). The clover straw was returned to the soil and plowed under and the ground as planted to corn the next year, 1918. The season was a very dry one, but the yield was 40 bushels per acre against 20 bushels on the untreated land.

Sweet clover seeded in corn did not give a stand and rye was used for cover crop, but next spring a good stand of clover appeared in the rye. This made a fair crop the following year (1920) yielding 1½ tons of hay per acre, following the cutting of which the ground was prepared and seeded to soybeans, yield-

ing a crop of 1½ tons per acre. The yield of soybeans on untreated ground was 1,570 lbs. per acre. The field was planted to corn again in the spring of 1921.

This demonstration in connection with the Berea soil experiment field has shown that this very unproductive land can be made to produce well by treating with lime, phosphate and using sweet clover, corn and soybeans and rye in the rotation.

For example, the use of limestone, acid phosphate and a very limited amount of manure has, as an average of seven years, increased the yield of corn 20 bushels and of soybean hay 2,600 lbs. per acre. Meetings have been held on the experiment and demonstration fields. The county agent takes large numbers of visitors to them and classes in agriculture at Berea College make use of the results, which have also been used to good advantage in extension circulars and newspaper articles.



No. 20. Showing the activities of the Extension work in soil building demonstrations.

A demonstration with sweet clover as a preparation for alfalfa was begun in 1915 on the farm of Lincoln Institute in Shelby County. The demonstration is located on the Shelbyville and Louisville pike on which there is an unusual amount of travel. The ground was limed and phosphated and seeded to sweet clover in 1915. The crop was very heavy. It was turned under in 1916 and the ground was seeded to alfalfa. From 1917 to 1920 the alfalfa was cut twelve times and yielded an average of 1.7 tons of field-cured alfalfa per cutting. The field was planted to corn in 1921 and will go back to alfalfa in 1921 or 1922.

Demonstrations with sweet clover as a means of building up worn soils are being conducted at Campbellsville, Greenville, Lone Oak (McCracken County) and Mayfield, with similar gratifying results. These demonstrations are on worn land in connection with the soil experiment fields and are visited annually by 2,500 to 5,000 people. (See later account of field meetings at experiment fields).

No. 21. Greenville field. Tobacco—Unfertilized plot. (Left). Yield 575 pounds. On the plot at right fertilized with acid phosphate and nitrate of soda and sulphate of potash. Yield 1,625 pounds per acre.

On land unsuited for experimental work on the Fariston (Laurel County) experiment field demonstrations of pasture mixtures have been in progress since 1916. They consist of orchard grass and sweet clover on limed and phosphated land, orchard grass and Japan clover and redtop and Japan clover on unlimed but phosphated land. These demonstrations have shown that on this land, which, when untreated, will not grow clover at all and will produce only about 12 to 15 bushels of corn per acre, most excellent pastures may be maintained by the treatments indicated above.

In connection with the experiment fields two series of meetings were held during the year. In August, 1920, meetings held at Greenville, Russellville, Lone Oak and Mayfield fields were attended by 3,000 farmers while similar meetings held in May, 1921, at these fields and Campbellsville and Fariston were attended by about 2,500 farmers.

These field meetings have become annual events. All-day meetings with picnics are held and the attendance ranges from 200 to 1,200 people, depending on the time of year and the weather. Thus the experiment fields have become in themselves great demonstration fields which the extension specialists and county agents use much in their work, both by visits of farmers and by use of the results in lecture work and lantern demonstrations.

As an illustration of the value of the soil experiment fields for demonstration work, the average yields of crops are given for the six fields that have been in operation for a period of four to seven years.

	Untreated Four-Year Rotation	Treated with Limestone and Acid Phosphate Average of Six Fields	Gain
Corn	27.5 bus.	41.4 bus.	13,9 bus.
Soybeans	2,084 lbs.	3,357 lbs.	1,273 lbs.
Wheat	7.7 bus.	15.3 bus.	7.6 bus.
Clover	797 lbs.	2,940 lbs.	2,143 lbs.

	Three-year Rotation	Average of Two Fields	
Tobacco	493 lbs.	960 lbs.	467 lbs.
Wheat	7.6 bus.	22.4 bus.	14.8 bus.
Clover	925 lbs.	4,020 lbs.	3,095 lbs.

As an illustration of the effective use of the experiment fields in this way, the experience is given of Mr. M. M. Gordon, formerly county agent in Fulton County and at present county agent in Hopkins County, who writes the following story. The names of the farmers in his story are omitted. Otherwise it is just as he gave it:

"Several years before I went to Fulton County, about 1913, Mr. A. and a neighbor bought a car of limestone. They were much pleased with the results and several others became interested. Mr. B. then bought a whole car of lime and top dressed a stand of young clover. The clover died, and Mr. B. pronounced limestone and book farming impractical. This put a damper on the interest in lime as Mr. B. is a great talker, and very decided in his opinions.

"In 1916 Browder Bros., millers, tobacco men, farmers, and also men of large vision grew alarmed at the decreasing wheat yields. They wrote to the college and were advised to try acid phosphate alone, limestone and acid phosphate, and also to secure a county agent. They purchased a carload of limestone and put it under 20 acres of wheat, using also 200 lbs. acid phosphate per acre. This 50-ton car of lime was the only car coming into the county in 1916. In addition to this, however, they purchased a carload of acid phosphate and gave it to men at different points in the county in ton lots.

"Some of the acid phosphate which was given away and used without limestone, produced no increase and some a fair increase, in one case threshing 21 bushels as opposed to 16 without treatment. In the field which Mr. Browder limed and phosphated, he left a narrow strip untreated. This strip made a comparison that could be seen 200 yards away. On the interest aroused by this, I got up a party of 10 to go to Mayfield, and we repeated the trips every few weeks that year and 1918. After each trip to Mayfield orders were placed for lime.

"There are 548 owner operators in Fulton County, and about the same number of renters. During these three years about 50 per cent. of the owner operators used lime, and 10 per cent. of the renters. About 7,000 acres were limed.

"We had no trouble in obtaining lime in 1917 or 1918, but in 1919 we had orders for about 3,000 tons, unfilled. Also the rise in price held back a number who were converted. Mr. Cunningham, the county agent, informs me that in 1920 they had still more trouble.

"In writing any story about Fulton County, it would be well to mention that the county has no rock in it of any kind, and that the farmers had been raised to believe that rock, limestone, or otherwise, was a sign of poor land. So great was this prejudice, that Mr. C., a farmer of about fifty-five years and very successful, declared very wrathfully that 'the day he had to have rock, his land was for sale.'

"Mr. C. was an expert at making a seed bed for summer clover, and he challenged his two closest neighbors, Mr. A. and

Mr. D. to a contest. All three prepared excellent seed beds in 1917, Mr. C. using acid phosphate and the other two men limestone and acid phosphate.

"In June, when the first crop was ready to cut, Mr. C. admitted that their clover was the best, but contended that his was the most profitable, as he had less money and work invested. Quite a few men approved Mr. C.'s position, and it seemed that the extra ½ ton to ¾ ton per acre was costly. However, within three weeks after the three clover crops were cut, Mr. C.'s field was bare, and Messrs. A. and D. had fine second crops coming on for soil improvement. Mr. C. slipped quietly in and ordered a car of lime, and when the boys teased him about it later, all they could get out of him was, 'Well, it's done been proved.'

No. 22. Greenville field. Plot on the left unfertilized, yield 590 pounds of clover hay. Plot on the right treated with limestone and acid phosphate, yield 5,360 pounds per acre.

"The Mayfield station absolutely deserves credit for starting all this work, and as soon as our new plant opens, I expect to begin to get some results in this county from our trip to the Greenville station. Already those who visited it are enthusiastic. I have had numerous people and several county agents to warn me in a friendly way that I could never expect a soil awakening here similar to Fulton County, and I realize that the soil here has no such possibilities for spectacular demonstrations. How-

ever, with the soil department back of me and the Greenville field, which will be by main reliance, I expect to make an honest effort to 'Sweeten the pot.'

"By the way, I already have a community crusher in the Richland Section, which will be too far from the new plant to haul lime. Please credit this little 20-ton a day crusher to the Greenville field. (The new plant referred to is a large commercial crusher being installed in Hopkins County)."

Dr. R. E. Stephenson began work December 1, 1920, and at once took up the matter of demonstrations with limestone and phosphate as the basis for soil improvement. Arrangements have been made for starting fifteen long-time demonstrations in the counties of Daviess, Breckenridge, Muhlenberg, Boone, Carroll, Crittenden, Todd, McCracken, Webster and Wayne.

Under his direction fifty-seven short-time demonstrations were started in twelve counties upon the following plan:

1. No treatment.
2. Acid phosphate.
3. Limestone.
4. Limestone and acid phosphate.

Fifteen of these are in Ballard County where farmers claim to get little or no results with acid phosphate alone. Since similar results have been obtained on the Mayfield and Lone Oak experiment fields, it was deemed worth while to make rather extensive demonstrations along these lines in Ballard County which adjoins Graves and McCracken counties which have somewhat similar soils.

As indicated above, two types of soil improvement work are under way. The short-time work aims at studying the effects of one treatment of lime or phosphate, singly or together, on the various crops grown. Studies of this nature usually would last thru three or four years because the effect of a single application would not be exhausted sooner than that. It is the aim to have a legume, such as clover, come in during the period, more especially to show the benefits of liming. Incidentally a series of crops is always suggested which means virtually a crop rotation.

The more permanent type of demonstration has been planned for several counties. For this work one field on the owner's farm (after selecting the desired type of man) is set aside for the demonstration. A definite crop rotation and system of treatment is planned not as an experiment field but as a plan of practical and profitable farming. To build up the nitrogen and organic matter of the soil, one or two legumes are included in the rotation. A four-year rotation with clover and soybeans or cowpeas seems most popular. Manure and crop residues are returned to the soil. The field is given an application of limestone at the start and as often thereafter as necessity may demand. Phosphate is regularly and systematically applied. Such a demonstration, which is a study in crop rotation and soil building, must naturally cover a period of several years, the longer the better. These demonstrations should give returns which would make them profitable to the farmer as a business proposition.

As a further study in the long-time demonstration work, the fields are sampled before any treatments are made and the soils analyzed to determine their fertility status from the chemical standpoint. After several years treatments the soils will again be sampled and analyzed. This affords a study in co-ordinating increased yields and profits with increased soil fertility.

In the short-time work usually only a small area of soil is treated, often less than an acre, while in the long-time work an entire field or several acres is brought under treatment. In both cases records are kept of treatments and returns so that definite knowledge of results may be obtained. A dozen counties started short-time demonstrations with limestone and phosphate last spring. Not all that were planned will be carried out, but about fifty separate farmers in various parts of the state, under the supervision of their respective county agents, are carrying on work of this kind. A few more will be started this fall. Two counties deserve mention for the care taken with this work. Ballard County, under the supervision of Mr. Whalin, has fifteen demonstrators. Mr. Whalin secured a ton of 20 per cent. acid phosphate from a fertilizer company as a donation for demonstration work. This he has distributed in small quantities among his farmers. Limestone was used also and more will be bought

this fall. Work in this county is especially valuable because the farmers in general have not used limestone or phosphate and have little faith in it. Previous minor tests seem to have shown little advantage in using the fertilizer. The other county deserving mention is Breckenridge, under the supervision of Mr. Harth. He has about the same number of carefully planned demonstrations, and has taken much interest in the work. Other counties have good demonstrations but fewer in number. In a few cases inability to get limestone has prevented carrying out the demonstration.

Soil Erosion.

Soil erosin is such a large source of loss to the soils of the state that a special campaign was started in June, 1921, for the use of cover crops. Much publicity has been given to the campaign thru the press. Conferences were held with all county agents in group meetings to present the plan of the work. Some fifty county agents are putting on the campaign. Thirty sets of charts were prepared and sent out for use in the campaign. Altho most of this work has been done since June 30, it is reported here because the campaign was begun within the period of this report.

Work With Field Crops.

Soybean Production.

Experiments at the Kentucky Experiment Station have shown that hogging down corn and soybeans planted together is a very cheap and efficient way to produce pork. County agents have been recommending this practis but not many records had been kept. It was decided to put on a record project in hogging down corn and soybeans, and upon receipt of this project sixteen agents requested that co-operative work on this line be started in their counties. In company with the county agent, the extension specialist has attended meetings held for promoting interest in soybeans in these counties and has interviewed five or more farmers in each county and persuaded them to grow a combination of soybeans and corn, hog them off, and keep a

record of weights of hogs when turned in, weights when taken off and value of the increase at the local market price of hogs when the work is completed. The agents have used the information brought by the specialist in addition to their own knowledge to persuade a few more men in each county to co-operate with similar demonstrations. From 80 to 150 such demonstrations have this year for the first time been planned for the specific purpose of demonstrating the greater return per acre as well as cheaper production of pork and maintenance of soil fertility. The distribution of this work by counties is shown on the accompanying map.

No. 23. Mayfield field. Wheat unfertilized, 3.8 bushels. Fertilized with limestone and acid phosphate 29.3 bushels.

Six variety test demonstrations are being conducted in Fulton County to show the greater desirability of a medium early variety of soybean such as Haberlandt instead of Mammoth Yellow for hogging off. The Mammoth Yellow has been practically the only variety in that county. Two variety test demonstrations are planned in Carroll County.

Duration of This Project. It is intended that work of a similar nature shall be continued until all counties in Kentucky are planting soybeans with half or more of the corn every year.

Results to Date. Fulton County has already reached the desired stage of progress in growing soybeans. In 1920 there were

6,000 acres of beans in corn. Many men planted beans in every acre of corn. Mr. Tom Prather had 700 acres of corn with beans in every acre. In 1921, Fulton County planted 15,000 acres of beans in corn and 1,000 acres of Haberlandt beans for seed. The county grows about 35,000 acres of corn annually. This acreage of beans in the county is the direct result of efforts of the county agent.

Results of work started this spring in the sixteen counties mentioned, other than the number of co-operators, cannot be ascertained until the end of the growing season for 1921.

Corn Variety Test Demonstrations.

These consist of four varieties, seed of which is furnished from the Experiment Station, and three or more local popular strains. They serve a variety of purposes; namely:

1. Demonstrate the high-yielding strains.
2. Establish many points of contact between the Experiment Station and the farms.
3. Keep alive in the minds of the people a desire for further knowledge of corn. (Three and a half million acres in the state are in corn out of five million acres in cultivated crops).
4. They are a type of demonstration that has a definite form, that has definite records at the end of the season, and shows a step of advancement each year.

Upon receipt of the project outline, twenty-seven agents requested co-operative work on this project be carried on in their counties. One hundred and thirteen such demonstrations have been established. The distribution of this work is shown on the accompanying map.

Duration of This Project. It is intended that this work shall be continued for five or more years, or as long as it serves a useful purpose.

Results of the Work to Date. Results cannot be had until the end of the growing season. Five counties are obtaining surveys in several communities each to record the varieties now in use on all farms. These records will be obtained again three or more years hence and compared with those of 1921 to record any change in farm practis caused by the demonstrations.

Wheat Standardization.

This work was already started by the Agronomy Department thru the development of Ashland, a pure-line strain of Fultz wheat. The first distribution of seed amounting to fifty bushels was in 1919. In 1920 about 300 bushels more were sent out by the station.

The work of the extension specialist this year has consisted of inspection of all fields of wheat grown from seed distributed last fall and tracing out and inspecting all fields located as having been grown from seed distributed last fall and tracing out and inspecting all fields located as having been grown from the seed furnished by Mr. J. W. Duncan at Nicholasville, who planted the entire fifty bushels sent out in 1919.

Twenty-one crops in six counties were inspected, five other widely scattered small plantings were not. All known sources of seed together with a report of inspection have been compiled in a seed list issued to county agents and others interested. A complete record is being kept of the distribution this fall of the 7,500-10,000 bushels of this year's crop.

Fifty variety test demonstrations to show the superiority of Ashland are being located thruout the state this fall; thirty-five of these are already requested by various agents. Comparative yields of Ashland and other varieties have been obtained on five farms thruout the state.

The distribution of Ashland growers in 1921 is shown on the accompanying map.

Rosen Rye.

Closely related to the wheat work is that of rye. A questionnaire and considerable personal work have developed the fact that Rosen rye wherever tried in Kentucky is steadily growing in favor. In Fulton, Calloway, Pulaski and Carroll counties it is almost the universal variety grown. Attention of county agents has been called to this as a minor line of activity.

Grass Improvement.

At present this is the line of least activity, owing to a lack of information. Fifteen million acres of the entire 25,000,000

acres in Kentucky are either actual or potential pasture lands. This is the greatest crop extension problem. It will be developed as rapidly as feasible. In Central and Western Kentucky this means the use of phosphate and in the hills and mountains it appears to mean woodland pastures coupled probably with the use of phosphate. Heavier seeding and more varieties must be used in all sections. It is necessary to work out demonstrations largely from the farm practis of a few individuals, in the absence of experimental data.

Results of the Work to Date. Five counties in Western Kentucky have started co-operative demonstrations in the use of acid phosphate at 100 pounds per acre as a top dressing on old meadows. Twenty-five men applied this top dressing in the spring of 1921. The drouth in May and June cut the grass crop in that section over 50 per cent. and no results are to be had.

Plans are in operation to put on demonstrations of various methods of pasture improvement in the mountain section of Eastern Kentucky. Co-operators have been secured in two counties and the work will be extended to several more this fall. One "Better Grass" railway poster with a circulation of 1,500 was distributed in May, 1921.

The following men who are members of the agronomy staff but not on extension pay have rendered highly valuable service in extension:

Mr. R. H. Milton—On tobacco diseases and tobacco grading.
Mr. E. N. Fergus—On corn diseases, management of clover crops for seed, and in showing the work of the Experiment Station to delegations of farmers brought to the station by county agents.
Dr. W. D. Valleau—On tobacco diseases and the distribution of disease-resistant strains and the preparation of an extension circular on tobacco diseases.
Mr. S. C. Jones—In giving a large number of lectures (37) on soils before farmers' meetings.
Prof. J. B. Kelley—In agricultural engineering.

Lantern Slides.

Seven sets of lantern slides on soils and crops have been used by twenty-one county agents during the year. The time the

slides were in the hands of the county agents averaged thirty-eight days.

Farm Engineering.

Farm engineering deals with a great variety of questions of vital interest to the farm and home. Among these may be mentioned heating, lighting, water and sewage disposal systems; the planning of various farm structures from fences and gates to pig houses, chicken houses and barns; the laying out of roads, drainage systems, terracing for the prevention of erosion, plans for stopping gullies; the operation and care of farm machinery, including gas engines and tractors. A summary of the farm engineering work is given below.

Farm Buildings.

Total number of sets of plans sent out	234
Number of projects visited	9
Number of plans prepared for distribution	40
Correspondence	154
Special consultations	20

Engineering Service Project.

Farm roads laid out	3
School yards graded	2
Farmsteads planned	1

Drainage and Soil Erosion.

Drainage projects visited	33
Drainage systems designed	16
Soil erosion demonstrations	6
Drainage and soil erosion consultations	22
Correspondence	109

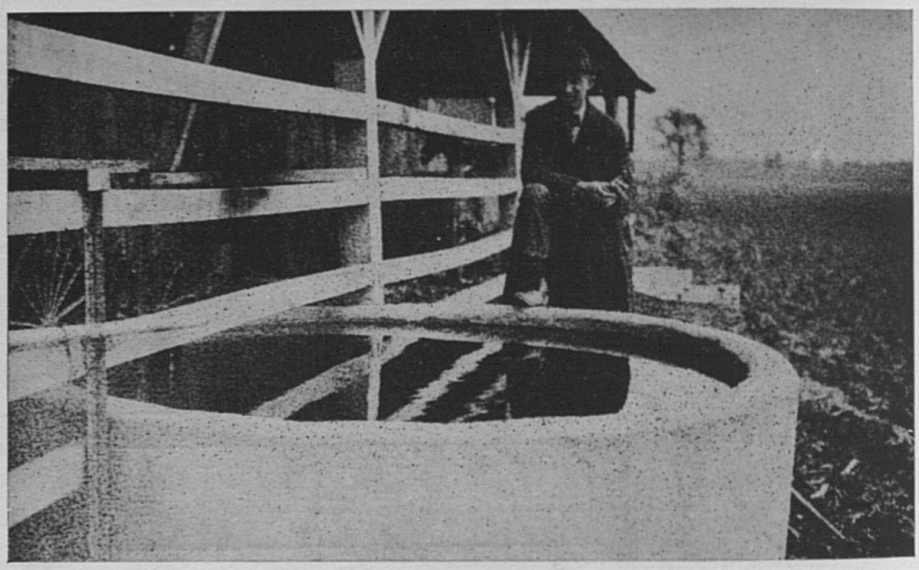
Water Supply and Sewage Disposal.

Systems designed	3
Water supply system projects visited	25
Water supply system projects outlined	27
Correspondence	42

ANIMAL INDUSTRY.

Beef Cattle.

Extension work with beef cattle has consisted first in carrying on beef cattle feeding demonstrations, second in advocating the better sire movement and perfroming the preliminary work necessary to make a success of the purebred bull sale in Louisville, June 2 and 3 in miscellaneous work such as judging livestock at fairs and furnishing ideas and plans for the erection of barns and silos.



No. 24. Agricultural Extension Engineers help plan water supply system for farmers.

In the feeding demonstration work, sixty-five cattle feeders were visited at different times during their feeding period. Rations were worked out with them for the most economical gains. These men agreed to keep a record of their feeding operations. Especial emphasis was laid upon the feeding of prescribed rations; feeding under shelter with water in the barn, all for the purpose of securing cheaper gains and the saving of manure. Good results were obtained, especially with the steers under cover, and as more barns with covered sheds for cattle feeding will be used in the future. Cattle fed on silage made cheaper gains last year than those which were on dry feed. Corn valued

at $1.00 per bushel in the silo proved a more economical feed than dry corn at 70 cents per bushel.

On June 2 a bull sale with 130 purebred bulls was held at Louisville. This sale was the first Better Sire sale to be held. A full week was devoted in each of sixteen different counties toward eliminating the scrub sire and interesting people in the purchase of purebred bulls. A representative from the Bourbon Stock Yards worked with the county agent in each of the counties helping with the campaign.

The members of the Department of Animal Husbandry have been greatly in demand as judges, not only at the Junior Club shows but also at county and other fairs.

SUMMARY.

Meetings held	69
Attendance	8,150
Visits to demonstrators	295
Visits to other farmers	435
Visits to county agents	89

With the cattle feeders, the past year has been a difficult one in which to operate with any assurance of a profit, on account of an almost constant decline of the cattle market. Those feeders who did make a profit on the feed bill alone in most cases had a quick turnover of capital on a short feed. There was not as much difference this year between the cost of gains of silage-fed and dry-fed steers, on account of the low price of corn.

Many feeders made larger gains on their steers with less feed per 100 pounds gain than they did last year. The case of Mr. J. D. Reisz, of Daviess County, illustrates the work being done in cattle feeding demonstrations. Due to a change of ration as suggested by the University the following results were obtained: In a 120-day feeding period in 1919, he made a gain of 172 2-5 pounds per steer or 1.44 pounds per day while this year in 166 days he made a total gain of 392 pounds or 2.36 pounds per day at a less cost per pound gain. This was due largely to the building of an addition to the barn so that the cattle could remain under shelter all the time, putting in a good watering trough and changing the ration to feeding most of the grain during the latter part of the feeding period.

All the men of Daviess County who will feed cattle this year and have kept a record of the past year's work said they would feed under shelter this time.

Sheep.

A culling and purebred ram campaign looking toward the improvement of breeding sheep and the elimination of unprofitable individuals has been conducted in the leading sheep counties. The records show that as a result of this campaign more than three hundred flocks which have heretofore used grade and scrub rams have changed to purebred rams. The campaign also has resulted in such a demand for purebred registered rams that nearly all Kentucky breeders of purebred registered sheep have been sold out for some time. This statement is backed up by the following quotation from William Reid, the leading breeder of purebred sheep in Western Kentucky: "In ten years experience as a purebred breeder I have never sold out so early or had half

No. 25. A silo is a good asset in feeding beef cattle.

so great a demand for breeding rams as I have had this year. The great part of the credit for this is due the better sheep campaign put on by the sheep extension specialist of the College of Agriculture. The docking and castrating campaign has also helped out in this way. Kentucky breeders have sold out completely while Northern and Southern breeders have much of their stuff still on their hands.'' Many Kentucky farmers have this year been unable to secure breeding rams from Kentucky and have gone to other states for them, especially to Ohio.

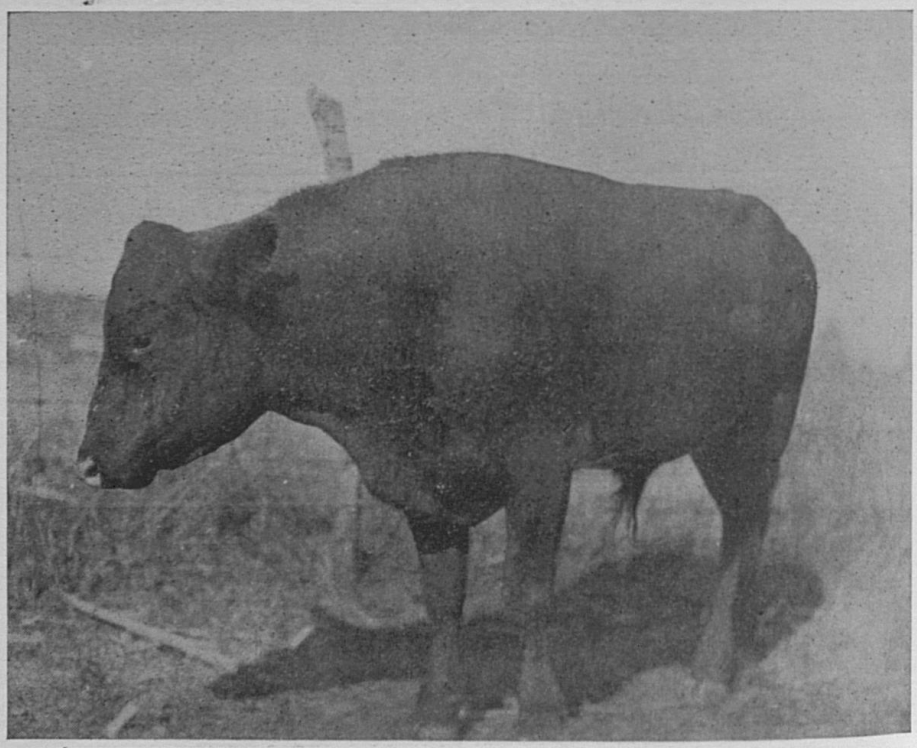
A total of more than 2,530 sheep breeders attended the ninety-eight demonstrations given in connection with the campaign to show farmers how to distinguish between the profitable and unprofitable animals in their flocks. More than 8,000 animals were handled in these demonstrations. The percentage of culls varied from 40 per cent. in Western Kentucky to 10 per cent. in the Bluegrass region. Sixty night meetings were given over to a discussion of sheep raising and management and were attended by a total of 4,320 farmers.

While making a survey of the sheep industry of the state, it was discovered that less than 10 per cent. of the sheep men docked and castrated their lambs. After conferences with stockyard officials and commission men, it was concluded that the farmers

No. 26. Notice the covered barnyard and silo. Both profitable investments for beef cattle feeders.

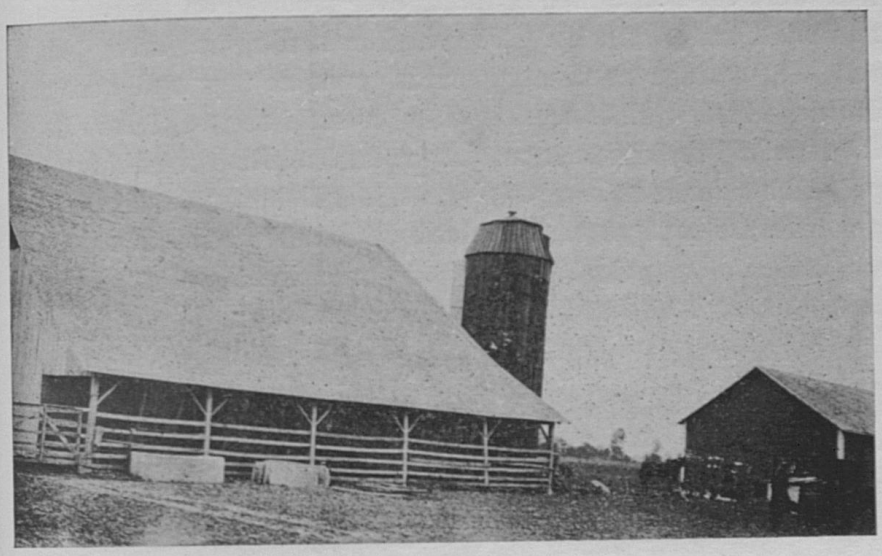
of the state lose several hundred thousand dollars annually because they fail to dock and castrate their lambs. Therefore it was decided to conduct a docking and castrating campaign in which would be shown the advantages to be gained from docking and castrating and also to give practical demonstrations in docking and castrating lambs.

This campaign began in February and lasted thru April. During the campaign one field agent from the University docked and castrated 7,000 lambs. Many farmers who saw this work went home and docked and castrated their own flocks. In following up these lambs to the stockyards, it was found that they topped the market in every case. An example of the results of the work comes from an Owen County community where a car of docked and castrated lambs was shipped alongside a car of long tail buck and ewe lambs of similar breeding and treatment to the docked and castrated lambs. They went on the market during the last week of July. The buyers at the stockyards threw two seconds out of the carload of docked and castrated lambs and



No. 27. An undesirable type sire.

sixty seconds out of the carload that had not been docked and castrated. The seconds sold for 7½c a pound while the tops brought 12½c. This meant a loss of between $200.00 and $250.00 for failing to dock and castrate a carload of lambs. The buyers in this section have already agreed to pay more per pound next year for lambs that have been docked and castrated.



No. 28. Notice silo and covered barnyard and concrete watering trough.

No. 29. The introduction of better live stock by means of purebred sires.

Considerable time was given to the extreme Western Kentucky counties. One of the counties where last year only 10 per cent. of the lambs were docked and castrated reported that as a result of the campaign all lambs in the county were docked and castrated this year. Several other Western Kentucky counties docked and castrated a large percentage of lambs. Reports from buyers on the St. Louis market where these lambs were sold say they were the best bunch of lambs ever received on the St. Louis market from Kentucky. The wether lambs, in many cases weighing as high as ninety pounds, went as tops and were not discriminated against or thrown to seconds as would have been the case had they gone to market as bucks. Results of this campaign have been so successful that it will be followed up on a greater scale next year. Hundreds of farmers who did not dock and castrate last year have assured the University that they will this year dock and castrate all their lambs.

DAIRYING.

During the year 1920-21 the dairy extension work with farmers has consisted principally of the organization of Co-operative Cow Testing Associations, Co-operative Bull Ownership Associations and Boys' and Girls' Dairy Calf Clubs. A brief summary of the work for the year is as follows:

The extension staff helped the farmers of Shelby County, last May, to organize a large Cow Testing Association that embraces twenty-four farmers and 350 cows. Mr. Chas. E. Cook was employed as tester. Also the Cow Testing Associations in Campbell, Oldham, Christian and McCracken counties that were organized last year have been continued during this year.

Appreciating the fact that there is a pressing necessity of improving the quality of dairy stock thruout the state, an active campaign has been instituted to organize Co-operative Bull Ownership Clubs. In this work the farmers of a county who have dairy cattle are first brought together in a general meeting; the proposition of a Bull Club is then placed before them. The plan of procedure is as follows: Four bulls are bought by the farmers of a county. These sires are placed with careful farmers in different parts of the county. The cows of all the members are brought to these good sires and when the heifers reach the age of two years, and are ready for breeding, the bulls are moved. In this way four bulls can be used over a period of eight years. Such clubs have been organized in Whitley and Laurel counties, and a club is being organized in Owen County and another in Fayette County. It is sometimes a little difficult to convince the farmers that they can afford to spend a few hundred dollars for a prepotent sire, but after they have seen the improvement in the heifers they are usually convinced and are ready to back up the work. The average cows in Kentucky are producing annually only 4,000 pounds of milk and 200 pounds of butter and it is estimated that the heifers from these cows by a good sire will produce at least 50 per cent. in excess of their dams. As there are 444,000 dairy cows in Kentucky and as it is probable that 400,000 of these are being bred to nondescript males, the importance of this work will readily be seen.

Also the farmers are appreciating the necessity of giving their cows official test records. The University is now supervising official tests on 169 registered dairy cows owned by forty different farmers living in all parts of the state. In April 880 Jersey cows in the United States produced over fifty pounds of fat during the month and twenty-three of these cows are owned by ten Kentucky farmers.

During the year considerable effort has been spent in interesting the young people on the farm in a better quality of dairy cattle. A number of calf clubs have been organized and nice dairy heifers have been purchased for the boys and girls who are members of these various clubs. The children have taken great interest in the work and are giving their heifers careful attention. The heifers are well bred, in fact, most of them are registered. Financial assistance in this work has been rendered by the banks. Such calf clubs have been organized in the following counties:

In McCracken County twenty high-grade Holstein heifers were purchased; in Christian County forty registered Jersey calves are being used; in Larue County the children have thirty-one registered Holstein calves, while in Nelson County they have ten registered Holstein calves. In Jefferson County there are ten club members who have ten registered Jersey calves.

It is the earnest desire of the extension staff to help farmers produce a better grade of market cream in order that they may receive a better price for the cream and that the creameries may be enabled to produce a higher grade of butter. High-score butter (92-point score) commands five cents a pound more than the 87-point butter that usually comes from creameries in this state. Our creameries desire to make the highest quality of butter, but they receive such inferior, sour and bad flavored cream that they cannot produce the highest quality of butter. This means a loss of five cents a pound on butter fat produced in Kentucky which brings about a staggering loss when it is recalled that these creameries produce approximately five million pounds of butter annually. With a little more care the farmers can produce as good cream and deliver it to the creamery in as good condition as the farmers of the great dairy sections of the North.

To prove that the creameries are willing to pay for high quality cream it may be mentioned that the Co-operative Cream Marketing Association at Buffalo organized in December, 1920, with the assistance of the college and a similar association at Pembroke, both receive a price for their cream that is considerably above the general market. They have studied co-operatively the matter of producing good cream and sell it on guarantee of high quality. Many other farmers who produce quality cream are receiving a higher price for their cream. The manager of an important Kentucky creamery stated: "During the month of September we paid for 36 per cent. of our cream a No. 2 price which is three cents less than our No. 1 price. The producer realizes that good cream is worth more than poor cream the same as he knows that good eggs are worth more than bad eggs. Our policy is to pay according to grades, and we feel that it improves the quality of the cream received by us. Carry the gospel of better cream to the farmers."

In order to bring this matter to the attention of producers of cream in Kentucky, conferences have been had during the past year with all the county agents in the state. With their assistance meetings have been held in ten different counties and demonstrations have been given of grading cream at twenty milk depots in various villages.

The following paragraphs show the interest and importance of the dairy extension work for the past year:

James M. Duff, a member of the Shelby County Cow Testing Association had his herd of fifteen cows tested. The cows were extra good milkers and tested over forty pounds of butter fat per month. In his herd he had six yearling heifers and had been offered $45.00 each for them. After the test reports were tabulated Mr. Duff received three offers of $100.00 a piece for these grade heifers. They had increased in price $55.00, due to the test records of their dams.

Mr. Rodman Meacham, a member of the Christian County Cow Testing Association, remarks that the work of the association has done more for the dairy cattle interests of that section than has ever been accomplished thru any other means. Because of the test work that has been done in Christian and adjoining

counties a new State Champion heifer and a Gold Medal cow have been developed. The former, Blue Belle's Sarah Ann, owned by H. H. Fulcher, of Pembroke, Ky., calved when she was fifteen months old and produced 418 pounds of butter fat during the year; the latter, Majesty's Golden Elsie, owned by J. C. Askew, Trenton, Ky., produced 722 pounds of butter fat in a year and the owner has been awarded a gold medal by the American Jersey Cattle Club.

Vermer Weaver, of Alexandria, reports that the cow tester helped him prepare a proper ration for his cows. He tried this ration experimentally on one cow before giving it to the entire herd and brought her up from seventeen to forty-two pounds of milk daily in two weeks. Since then he has adopted the ration for his entire herd.

Newell Hanna, of California, states that the experience gained in the Campbell County Cow Testing Association during the first year meant a saving to him of over $300.00 in feed alone.

Fred Von Allmen, of LaGrange, Ky., cleared $111.60 in December, 1919, from seventeen cows. In November, 1920, he cleared $245.74 from nineteen cows. Price of milk December, 1919, 35 cents per gallon, November, 1920, 30 cents per gallon. This was accomplished with the same herd of cows thru better dairy management as taught by the local testing association.

W. W. Hampton, of Goshen, Ky., produced 235 pounds of butter fat from ten cows in December, 1919, while in December, 1920, he produced 452 pounds of butter fat from twelve cows. This resulted from better feeding practis as brought out by the testing association.

Also the extension staff has held consultations with many farmers and commercial clubs in regard to the advisability of establishing and operating creameries and ice-cream factories in various localities. Sometimes the proposed plan of organizing a creamery has been endorsed and the farmers helped in the organization and equipment of the creamery or ice plant, but sometimes advice has been given against the establishment of such plants where conditions did not warrant their success.

Also a volume of correspondence has been conducted in answer to inquiries concerning the management of dairy herds and the construction of practical dairy barns and milk houses.

In 1920 the State Board of Control of Eleemosynary institutions asked for help and advice in the management of the dairy herds owned at the various state institutions. During the year assistance has been given to these institutions in the purchase of many dairy cows and in the management of the herds. Frequent visits are made to these herds to consult with the superintendents regarding dairy problems and a weekly report on these herds is sent to the University from each institution.

An extension specialist acted as superintendent of the dairy products exhibit at the state fair and members of the department also acted as judges of dairy cattle at the fairs held at Hopkinsville, Ewing, Florence, Germantown and Harrodsburg. An educational exhibit was prepared and exhibited at the state fair.

FARM ECONOMICS.

The activities of the Department of Farm Economics have been directed to the teaching of farmers in fundamental business principles, together with practical methods for putting these principles into operation. The work has included both the economics of production (Farm Management) and the economics of exchange (The Marketing of Farm Products).

Demonstration Work In Farm Management.

The Department of Farm Economics has carried on co-operative work in farm organization and management with twenty farmers located in Fayette, Spencer, Christian and Fleming counties. Most of these men have attained outstanding success in their farming operations and demonstrate the essential characteristics of profitable farm organization and management. Several large groups of farmers have been taken to study the farming systems of six of these co-operators during the past year. The fact that each of these farms has a detailed record of labor and other costs expended on each enterprise makes the farms doubly valuable to farmers who visit them for the purpose of studying their organization and methods. A number of these farms have shown good profits in spite of the severe agricultural depression and since the great majority of the other farms in the neighborhood have failed to make expenses, these successful farms teach very valuable lessons in profitable farm organization.

Demonstration Work in Cost of Producing Farm Products.

During the months of July, August and September demonstrations were carried on in the cost of producing farm products. In Jefferson County 175 enterprise cost accounts were kept by co-operating farmers, these being supervised carefully during the crop season. They included accounts with corn, wheat, potatoes, onions, cabbage and tomatoes. A number of cost of production demonstrations were also carried on in Daviess County At the end of the season these accounts were summarized and

tabulated, showing the average costs and range of costs on each enterprise. A copy of the summarized accounts showing the items of cost was returned to each co-operator showing the cost figures for his farm.

No. 30. A group of farmers attending a Farm Account School.

These cost demonstrations impress upon farmers the need and the proper method of studying costs, and serve as a guide to the more profitable organization of the farm, particularly the selection of interprises which will fit in most profitably with a properly diversified farming system.

The Kentucky Farm Account Book.

The Farm Management Demonstation work has furnished a means for trying out and perfecting a form of farm account book suited to the needs of practical farmers. The 1919 book was revised and improved and an edition of 5,000 of the revised books was distributed, this being done this year, as it had been done previously thru the banks in the agricultural districts. One bank bought 500 copies of the 1919 book and was so well impressed with the results that they ordered 1,000 copies of the 1920 edition.

One-Day Farm Management Schools.

These schools constituted the most important of the Farm Management projects. They were held in 16 counties with a

total attendance of 337 adults. In addition to these, similar schools were held in the agricultural departments of seven high schools with a total attendance of 175 boys who were given instruction in the keeping of systmatic farm records. The plan of these schools was to enroll groups of farmers, numbering from 10 to 30, these agreeing beforehand to meet at 9:30 in the morning and to remain until the close of the session at 3:30 p. m. The field agent acted as instructor and each farmer recorded in a copy of the Kentucky Farm Account Book the items involved in a year's business record of an actual Kentucky farm. These figures were then summarized and were used to determine then and there the net farm earnings for the year. This furnished a basis for the discussion of the main factors which affect farm profits.

These Farm Management schools secure the universal interest of farmers because of the evident fact of the very close relation which they hold to the actual dollars and cents to be made in the farming business. It is worthy of note that at the outset farmers appeared to be skeptical as to the practicability of "keeping books." However, this diffidence on their part was dispelled as the work progressed. This point is well illustrated by the school which was held at Sedalia in Graves County. At the opening of the morning session there were only 10 men. These became so interested and enthusiastic that during the noon recess each man secured another farmer and brought him back to participate in the work of the afternoon. This case is typical of the manner in which the work was received.

A follow-up visit has been made to each of the communities in which Farm Management schools were held, for the purpose of extending assistance and encouragement to farmers who have undertaken by this means to analyze their farm business and put it on a systematic basis.

Farm Management Exhibits.

At the Kentucky State Fair in September, 1920, a Farm Management exhibit was put on, this being a miniature farm laid out on economical and practical lines and showing field fences, farm buildings, growing crops and miniature animals. This exhibit created a large amount of interest and favorable comment.

Work During Farmers' Week.

Daily lectures and demonstrations were given during the annual Farmers' Week at Lexington the last week in January, 1921, the central thought in this being practical ways and means by which farmers may reduce expenses and production costs.

Meetings and Conferences.

Members of the staff of the department visited 30 counties and attended meetings in which the principles of better farm organization and management were discussed. They also attended a number of conferences of county agents, going over with them the Farm Management problems in their respective counties. In numerous cases also advice and suggestions were given personally to farmers who came to the department to confer concerning their Farm Management problems. Members of the department also handled Farm Management problems presented in written inquiries from farmers located thruout the State.

Section of Markets.

The field agent in marketing assumed his duties about October 1, 1920, and the following report covers the work which was done from that date until the end of the fiscal year.

Conferences With County Agents.

One or more visits were paid by the field agent in marketing to a large number of the county agents during the year and time was spent in going over with them marketing problems of interest in their counties, gaining an acquaintance with the local situation and bringing to them information regarding the extension work in marketing. Thirty-four counties in the State were visited by the extension representative in the nine months he was on duty during the fiscal year just ended. Marketing problems were discussed with county agents, farmers and others in these counties.

Meetings and Conferences.

Representatives of the section of markets took part in fifty-three meetings of farmers with a total attendance of 2,790 dur-

ing the year. Marketing questions, especially those connected with the marketing of live stock, dairy products and tobacco were discussed at these meetings. Plans for farmers' organizations were outlined in a number of instances and suggestions were made regarding co-operative marketing plans under consideration by groups of farmers.

Conditions governing live stock marketing were looked into in co-operation with county agents in various localities; live stock shipping associations were visited, and information regarding the method of organizing and the manner of operating live stock shipping associations was furnished farmers in places where a desire for such information was indicated.

The field agent attended a meeting arranged for co-operation live stock shippers at East St. Louis in December. He also helped arrange and took part in a similar meeting in the Cincinnati market in March. Farmers in Kentucky and Indiana shipping stock to the Evansville market requested assistance in organizing a co-operative live stock commission company and the Section of Markets assisted this organization in formulating its by-laws and adopting its plan. This company is now in operation and is reported to be making satisfactory progress.

Special attention also was gvien during the year to dairy marketing problems. Information and suggestions regarding co-operative cream shipping associations were given upon request in several communities. Market milk producers in both the Louisville and Cincinnati districts were assisted in connection with marketing problems.

Several meetings and conferences of tobacco growers were attended and information and assistance were given in connection with organization plans under consideration.

Assistance was given county agents and farmers in finding outlets for surplus farm products and in locating sources of farm supplies. Information regarding wool marketing conditions was supplied from time to time to the central wool pool committee which had charge of the sale of the 1920 wool pool.

Market News Letter.

The Market News Letter issued by the section differed somewhat from that of previous years. The letters issued during

the year were given over to the discussion of marketing matters of interest. Considerable material on wool market conditions, grain, live stock, feed and similar news was given. Discussions of economic conditions, agricultural prices, co-operative marketing and live stock shipping also were included.

Illustrations of the Value of Extension Work in Marketing.

A group of farmers in one community was interested in co-operative shipping of live stock but had difficulty in arriving at a suitable method of apportioning the proceeds of a shipment among the shippers. A brief explanation of the methods of identifying stock by clipping marks in the hair sufficed to give these men just the information which they desired.

A community had some surplus potatoes for which they were seeking a profitable outlet. A suggestion was made that a section of the State not far distant was in the habit of bringing products in to supply its needs, and this led to the location of a good market nearby.

The unsatisfactory conditions in the wool market during the year caused many wool growers to look about for different outlets for their wool. Farmers at several points have inquired regarding having their wool manufactured into blankets, auto robes and other finished goods, and in response the Section of Markets furnished names of mills doing custom work of this kind and other needed information.

At a meeting which the field agent in marketing assisted in organizing and which was held to discuss live stock marketing attended by both farmers' and stockyards' representatives, there was exhibited an instance of the distrust which frequently exists between the farmer and the dealer. One of the farmers present suddenly turned to a stockyard's representative and in an angry tone charged the stockyards with feeding only coarse timothy hay to the sheep and lambs when they would not eat hay of this kind. The stockyard man immediately replied that he had never received a request for anything other than timothy hay, but indicated that if the group of farmers present so desired, both clover and alfalfa would be available upon request. This incident demonstrates how much more effective it is to

take up a question with the other party directly and obtain his views than to suspect and accuse him at a long range of being dishonest. The Section of Markets is using its efforts to bring about such contacts so that there shall be a better understanding and more effective co-operation between the farmer and the dealer.

The above specific illustrations are simply a few typical illustrations of some of the many ways in which the extension work in markets has been found of value.

HORTICULTURE.

The extension service of the horticultural department during the last fiscal year has included two main lines of work; fruit growing, chiefly orcharding, conducted by Mr. H. R. Niswonger, and vegetable gardening by Messrs. K. C. Westover, who resigned in January last, and Mr. J. S. Gardner who succeeded him in April, 1921. The horticultural specialists have spent most of their itme traveling over the State in the development of their various projects which usually have been organized in co-operation with the county agents.

In fruit growing the work of the past year has been directed largely toward the development of two principal projects: the renovation of neglected orchards and aid in the planting of new orchards.

There are great numbers of abandoned or ill-cared for orchards thruout the State, and, believing that many of these could be reclaimed by proper methods of fertilization, pruning and spraying, the work of renovation was begun with several of these orchards in the spring of 1920, upon the understanding that the supervision of each project should continue for a period of five years.

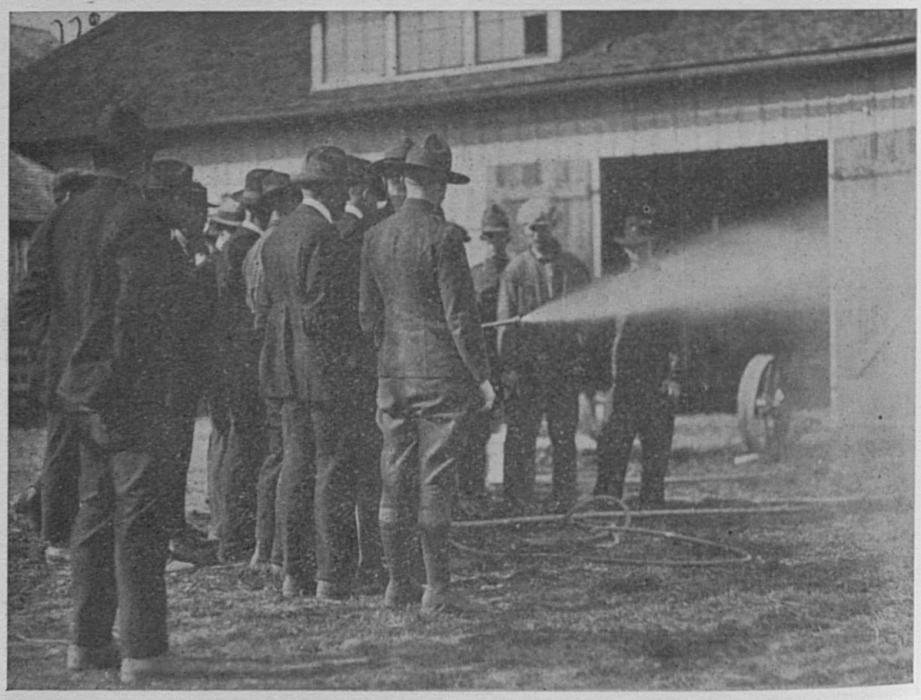
The idea has been prevalent for many years among farmers owning such orchards, that fruit growing was such an un-

No. 31. An orchard field demonstration.

certain business that nothing they could afford to do to their trees would make these orchards an asset to their farms. So persistently has the idea been held that apple growing is unprofitable, that considerable persuasion often was necessary to interest the orchard owners in these renovation projects, and even when begun there was so little faith in the outcome that they were often reluctant or unwilling to turn aside from other farm operations, in order to apply the necessary sprays or other treatments at critical times.

The result of remedial treatment in ill-kept orchards commonly does not become fully apparent during the first season's work, but in this series of demonstrations, the efficacy of the treatment was clearly shown in the same year, and in some cases was strikingly manifest.

Among the plots treated was an old orchard of 83 trees in Breckinridge County, owned by a farmer with two ambitious boys, 14 and 18 years of age. The land had been used as pasture, the orchard had never been pruned or sprayed, and of course had never produced a crop of any consequence, and was con-



No. 32. Studying the use of the spray pump. A necessity in successful orcharding.

sidered by the neighbors of very little value. Tho having but little faith in the venture, the owner finally agreed to turn over the entire project to his sons, bought a spray pump, and agreed to furnish a team and the necessary implements, the boys to do all the work and receive the crop.

The boys found they had a big task before them, but worked early and late outside of school hours, spending twelve and a half days time in taking out the dead wood and crowded branches, hauling out the brush and in cleaning up generally. They carefully followed the instructions of the extension specialist as to soil treatment and spraying, the neighbors in the meantime looking on, doubtful whether most to praise the boys for their zeal, or to pity them for the disappointment expected to follow.

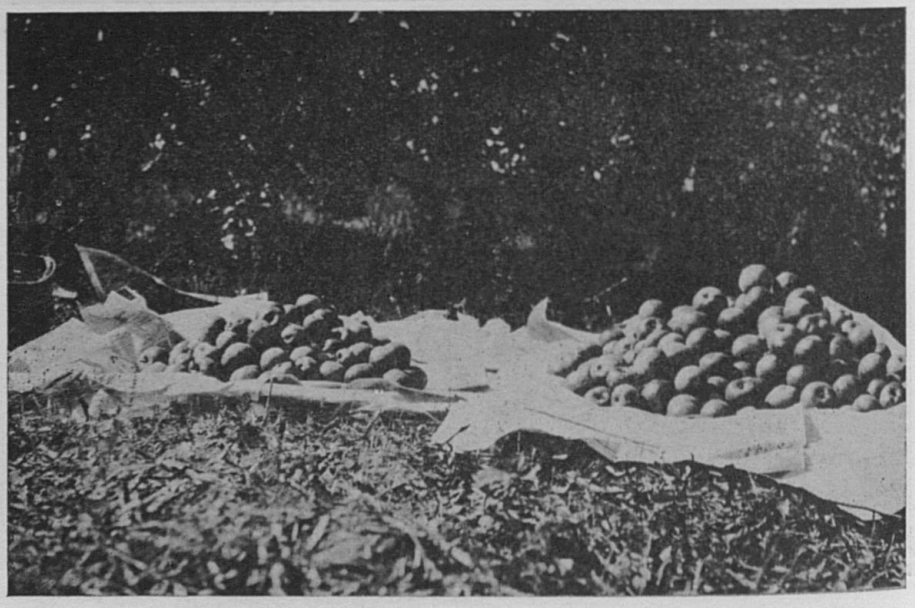
As summer came on about half the trees proved to be of early varieties and summer apples soon became a drug on the market. Not to be overcome by this turn of affairs, the boys quickly decided to grind these early apples for vinegar, of which they made about 300 gallons. There was a good demand for the later apples in the fall, and the boys were generously rewarded with a crop of 74 barrels which they readily sold to the people in the community, thus saving expenses of transportation.

No. 33. One lb. of marketable (5 apples) fruit, 31 lbs. of culls from tree that was not treated.

Several trees in the orchard were left untreated for comparison. On these the scanty fruit soon became wormy and diseased, and at harvest time not a single specimen was fit for sale or even for cider. Careful accounts were kept of all receipts and expenditures, the final result showing gross returns of $177.00 from the 83 trees, giving the boys a good rate of pay for all their labor, and in addition a net profit of $58.81. The neighbors now admit that this is the best orchard in the community, and are following the example of the boys by beginning treatment of their own orchards.

In another county a single acre was selected out of an orchard of ten acres for purposes of demonstration. The year before this acre bore a good crop, but for lack of spraying only a fourth of the crop was fit for market, the remainder of the apples being turned into cider. The returns, following the single season of pruning, mulching, and spraying this acre, amounted to $156.50. The owner at the same time undertook to spray the remaining nine acres and secured receipts of over $1,400.00, as a result of spraying alone.

Other demonstrations were equally successful in showing benefits from this remedial line of treatment. In one instance



No. 34. 117 lbs. of marketable fruit, 31 lbs. of culls from a winesap tree that had been sprayed and fertilized.

a half acre home orchard yielded a net profit of $126.02 above the entire cost of labor, spray materials, and an allowance for interest on the investment.

During the year orchard rejuvenation projects have been established in 16 counties, as follows: Breckinridge, Daviess, Oldham, Washington, McCracken, Knox, Whitley, Bell, Boyd, Lewis, Shelby, Warren, Todd, Nelson, Marion and Hopkins. Demonstrations of orchard planting and subsequent care have been started in Fleming, McCracken, Warren and Washington counties. Orchard management projects in commercial orchards have been undertaken in Henderson, McCracken, Ohio and Warren counties, all of them involving a course of several years' treatment.

A field meeting was held in the orchards of Henderson County in 1920, and another in McCracken County in June of this year. Fifty-two general meetings were held in various parts of the State for the discussion of orchard topics, with an attendance of 1,415 fruit growers, and twenty demonstrations of pruning were made in the orchards. The specialist in fruit growing also made 220 visits to the farms of fruit growers, involving a total of 16,361 miles of travel in the interest of fruit growing in the State, in addition to which a number of trips were made with the same object by other members of the staff.

No. 35. Successful potato growing requires up-to-date methods.

In the fall of 1920 a display of apples from both treated and untreated trees on the demonstration plots was made in the several county seats of Breckinridge, Daviess, McCracken, Oldham and Washington counties.

The efforts of the vegetable garden specialist for the season of 1920 were devoted mainly to two major projects relating to tomato and potato growing. During that season a considerable number of farmers in the counties along our northern border made contracts for the first time, with canning factories for the production of tomatoes upon a rather large scale. Many of these growers were unfamiliar with the methods of field production of tomatoes, and the enterprise therefore called for assistance from the department in the details of plant growing, transplanting, spraying and fertilizing the crop. Considerable attention was given also to keeping cost accounts upon the crop, such records being completed by 47 commercial growers.

A careful analysis of the records for the year showed that the following factors are essential for the profitable production of canning tomatoes in our State:

1. That relatively strong, well prepared and well drained land must be used.
2. That the plants used should be "stocky" and the stand be even over the entire area planted.
3. That the best known cultural methods must be followed.
4. That as large an area should be planted in the crop as is consistent with the available labor supply. For example, an average tract of 15 acres in tomatoes produced a crop at a cost of $10.94 per ton, while on a similar tract of 3 acres, the production cost was $15.21 per ton.
5. That the crop should be grown as near the market as possible, as a long haul adds very materially to the cost per ton of producing the crop.

In the season of 1920 an effort was made to focus the attention of potato growers upon the importance of securing better seed stock and arrangements were begun looking toward the organization of an association of growers of certified seed.

Following the change in personnel, and the arrival of Mr. J. S. Gardner in April to take charge of vegetable extension work, the project of potato seed improvement has assumed still

larger proportions and constitutes for the year the major problem in vegetable extension.

With the co-operation of the extension service, the Jefferson County Certified Seed Growers' Association was formed in June, 1921, and this association is emphasizing the idea of "clean seed and clean land for scab free potatoes," seed treatment with corrosive sublimate solution for scab control being required.

Several of the men who treated their potatoes before putting them into cold storage report the almost total absence of "bin-rots" in their seed when taken out, preparatory to planting the second crop, whereas other growers complain of a high percentage of seed lost thru rot in storage. In addition, several growers planted sample lots of treated seed as first crops and find the percentage of scabby potatoes to be from 15 to 40 instead of the customary 50 to 100. An increasing number of men will treat their potato seed with corrosive sublimate in consequence.

In furtherance of the project of seed improvement, several lots of certified stock have been brought into the state for seed. In a western Kentucky community this spring introduction was made by the field agent in horticulture of two lots of high grade potato seed, one Kentucky grown, the other from the north. The high price of this imported seed, as compared with that of some home-grown, bin-selected, seed, incidentally unsalable potatoes, caused comment and some merriment at the expense of the "experimenters" but when digging time came the selected Kentucky and Northern grown seed yielded on the average at the rate of 250 bushels to the acre, as compared with the home saved lot, which produced at the rate of 30 bushels. More seed will be imported in 1922, and hill selection is a part of the program on the "second crop" in 1921.

Heavy losses often are suffered in our State thru the ravages of potato blight; altho the disease does not appear every year, there is always a possibility that it will, and when it does it is too late to do much to offset its ravages. The control is to spray with Bordeaux mixture, beginning when the plants are small and repeating every two weeks or so until the vines are of full size. Spraying involves considerable expense and since the

margin of profit on a potato crop is sometimes quite narrow, potato growers are somewhat backward in increasing their expenses by spraying.

A demonstration in Fayette County in spraying the first crop, has just been completed. No blight was present, and the value of spraying did not show the marked results that it might have shown in a blight season. There was, however, an average increase of thirty bushels per acre in the sprayed rows over those not sprayed. This increase was due to the control of the flea beetle, which does not relish the taste of Bordeaux mixture, and to the fact that, for some reason, the vines of the sprayed rows stayed green longer than the others. The point of the story is that the investment paid for itself almost twice over; in a blight year there is no telling what would have been the returns on a spraying investment.

Considerable attention is being given to the needs of market gardeners in connection with other crops, and frequent trips are made by the vegetable specialist to market garden and trucking sections to solve cultural difficulties, and also to the various city markets of our own and adjacent states to aid in the solution of marketing problems.

POULTRY.

During the fiscal year of 1920-21 four poultry projects have been under way, namely; (1) Standardization or Community Breeding, (2) Culling and Selection, (3) Egg Candling and Production Schools, and (4) Farm Flock Demonstrations.

Standardization or Community Breeding. This project involves the distribution of pure bred hatching eggs during the spring months and the returning and auctioning of the pullets during the fall months. During the spring of 1921, 597,720 pure bred hatching eggs were distributed in 56 counties. White Rock eggs were distributed in 21 counties, S. C. Reds in 17 counties, Barred Plymouth Rocks in 11 counties and White Wyandottes in 7 counties. The growth of this standardization or community breeding work is shown by the following table:

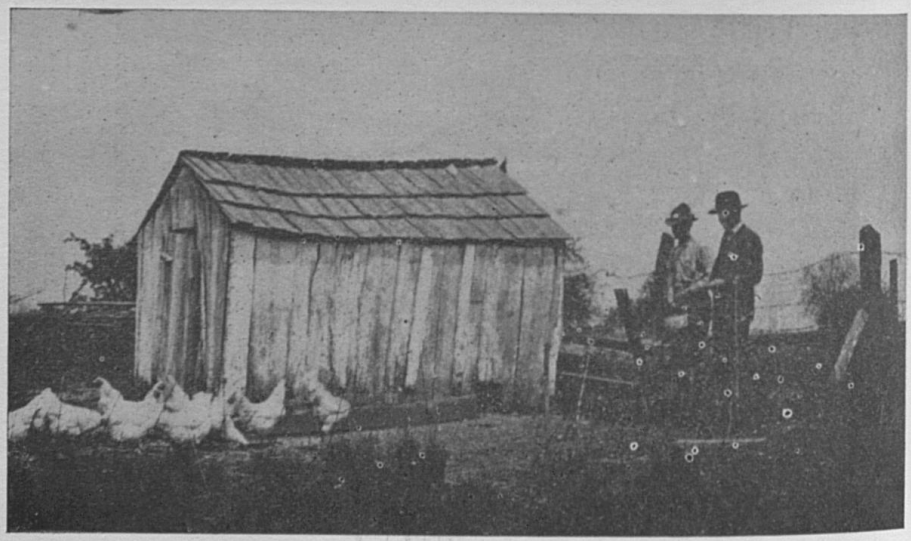
Year	Hatching Eggs Distributed
1915	19,000
1916	26,300
1917	86,400
1918	181,500
1919	461,945
1920	499,835
1921	597,720

No. 36. A standard-bred flock of farm poultry.

Practically all these eggs were distributed to people who have mongrel flocks and it is by this means that they are started in the raising of pure bred poultry. Each person receiving these eggs either pays cash for them or agrees to return one pullet in the fall for each setting of eggs he receives. A bank or some local business house takes his note without interest for the value of the hatching eggs. This note is redeemed when the pullets are returned. During the fall of 1920, five pullet auction sales were held to dispose of these returned pullets. Twenty of these sales are to be held during the fall of 1921.

As an example of the success of these pullet sales the following figures of the work in Warren County are given. In the spring of 1920, a bank at Bowling Green put out, thru the county agent and farm bureau, 678 settings of White Plymouth Rock eggs on the return pullet plan. On November 5, each farmer who had secured eggs in the spring brought in a pullet for each setting he had taken. These pullets were culled and graded by a specialist from the University. Seventy-five of the pullets were culled and sold to a local produce man by the pound. The remainder were divided into uniform lots of six and were auctioned off. They brought from $1.50 to $2.75 each, averaging $1.78 apiece.

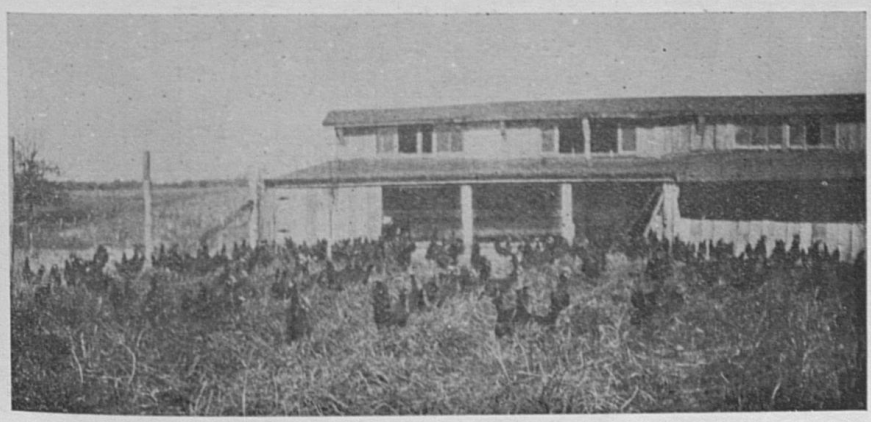
Assuming that five pullets are raised from each setting of eggs, it would mean that the standardization work in Warren



No. 37. A good flock of chickens but a poor poultry house.

County placed 3,390 pure bred pullets on the farms of that county, since practically all the pullets returned were sold within the county. This would mean that during the spring of 1921 over 200 farmers who had previously raised mongrels were raising White Plymouth Rocks.

Culling and Selection. The culling campaign was conducted from July 15 to October 1. During the fall of 1920, two hundred and ninety-nine demonstraitons were held at which 4,977 people were in attendance, 11,200 birds being handled of which 3,513 were culled. Assuming that one-fourth of the people in attendance at the demonstrations returnd home and culled their own flocks, this would mean that 1,244 additional flocks were culled as a result of the demonstrations. This would make a total of 1,543 flocks culled. The average size farm flock in Kentucky is 45 birds and since one-third of the flock, on the average, is culled, this would mean a total of 69,435 birds handled of which 23,145 were culls. As it takes approximately 80 pounds of feet a year to maintain a hen this would be a saving of 925 tons of feed, this feed to go to the more productive hens in the flock. The efficiency of the culling work is shown by the following example. The flock of Senator H. M. Froman, of Ghent, Kentucky, was culled, 31 out of sixty being discarded. When Senator Froman returned home and looked over the birds he remarked that it appeared as if the poultry specialist had discarded his best birds. However, upon keeping the culls separate for a week and feeding them well they failed to lay a single



No. 38. A better type of house.

No. 39. Farm poultry in Kentucky is being standardized into county breeds. See what section your county is in.

egg, whereas, the remainder of the flock produced as many eggs as the entire flock had before the culling.

Egg Candling and Production Schools. As this project was new this year it was carried on in only four counties, namely; Pulaski, Wayne, Russell and Clinton. Demonstrations and lectures were held at country stores in these counties, merchants and farmers of the surrounding community being the attendance. The advantages and methods of candling the eggs were demonstrated and explained and methods of increasing egg production were discussed. This work resulted in a number of farmers disposing of their male birds so that higher quality of eggs would be produced and also resulted in a number of merchants buying eggs on the quality basis, paying that farmer most who produced the best eggs.

Farm Flock Demonstrations. Forty-seven farmers of the State distributed in 25 counties have kept complete records as to the feed consumed, labor involved, and eggs produced by their farm flocks. These flocks have served as demonstrations for the farmers in the surrounding communities. These demonstration flocks have been cared for according to the recommendations of the University and thru them recommendations of poultry specialists have been disseminated. For an example the following letter from Mr. W. H. Rogers, County Agent of Warren County, telling of the efforts of Mrs. J. N. Harris, of Woodburn, Kentucky, serves to show the value of this work.

"Mrs. Harris asked me to tell you that she forgot to set down under 'remarks' the fact that the entire community of Woodburn is now following her system of feeding. She says she is called up morning, noon and night and her advice sought on feeding. This demonstration has succeeded beyond our wildest dreams. When we went to see Mrs. Harris she agreed to carry out the demonstration but was not especially enthusiastic, but now the entire family has the fever and they watch the egg score each day just like people in the cities watch the baseball scores. I don't know when a single demonstration has done us more good."

These demonstration flocks serve not only to show the value of the recommendations of the University but they also help the demonstrator in securing better results from his flock. This is shown by the following:

On December 1, 1920, A. J. Culver, Hopkinsville, Kentucky, started caring for his poultry farm as a demonstration flock in co-operation with the University. The first visit made by the poultry field agent found Mr. Culver with about 1,000 White Leghorn hens and pullets and fair equipment for caring for a flock of this size. His feeding practises, altho better than those used by the average Kentucky farmer, were not the best. His equipment for hatching and raising enough pullets to maintain a flock of this size was very incomplete as was also the interior equipment of his laying houses.

Upon the recommendation of the field agent he changed to a ration recommended in Extension Circular 66. Some feed hoppers for mash feeding were made and later a feed mill was purchased in order to use the grains grown on the farm in making up the ration. These changes resulted in not only higher egg production but also in the production of eggs at less cost. In the early spring two colony brooder houses were built and a larger incubator capacity was installed. These changes were sufficient for this year but more colony houses will be built next year and a 1,200-egg Buckeye incubator has already been ordered by Mr. Culver.

About 2,000 pullets were raised this year and 1,500 of these along with 500 selected breeding hens will be kept by Mr. Culver. In order to accommodate this large number an old cow barn was remodeled and made into a very good poultry house.

This one year's work with Mr. Culver has resulted in his doubling the size of his flock, adding some new equipment, and producing more eggs at less cost per dozen than ever before. It has also been a wonderful help in Christian County in stimulating interest in poultry work and has resulted in better care being taken of the poultry in that county as the results obtained on this farm have been outstanding.

Mr. Culver made the following statement: "The fact that I have kept accurate record of my poultry work and received the advice of a poultry specialist has made my work a success this year." He also stated that he had advanced farther as a poultryman this year than he had during the eight other years he had been engaged in the poultry business.

VETERINARY.

The duties of the Extension Veterinarian are varied and must of necessity cover a wide field. He aims to serve the community in that his attention is directed toward such cases as would affect a number of animals, or even spread from one farm to another, rather than to individual cases that can readily be handled by a local practitioner. He is better enabled to do this thru the aid of the county agents. So far as possible the work of the Extension Veterinarian is being carried out in the form of projects, which are outlined as follows:

1. Educational and demonstration work on the importance of tuberculosis eradication.
2. Farm sanitation.
3. General field diagnosis of infectious, contagious and parasitic diseases and preventive medicine.
4. To discuss with farmers the manifestation of disease, the importance of early recognition of sickness and the care of sick animals.
5. The promotion of co-operation among veterinarians, county agents and live stock interests.

The tuberculosis projects consists of educational work carried on in co-operation with county agents, local practicing veterinarians, State and Federal forces engaged in tuberculosis eradication, stockmen and other allied interests.

Tuberculosis is a serious disease of cattle and a herd in which there are infected individuals sooner or later becomes an economic loss. Further, bovine tuberculosis is directly transmissible to human beings, therefore the endeavor is being made to have the owners of dairy cattle realize that it is not only to their advantage from an economic standpoint to keep their herds free from tuberculosis, but also that having the milk supply of the country come from tuberculosis free animals, will materially reduce the number of cases of tuberculosis in humans, particularly in children. This work is being pushed since tuberculosis causes more deaths in Kentucky than any other disease, and having the cows tested often means the saving of human life. This being true, every effort should be made to have the milk fed to children come from healthy cows. Children are

more endangered, due to the large quantities of milk consumed and to the fact that they contract tuberculosis of bovine origin more readily than adults.

It is not an uncommon experience, however, to find a farmer who refuses to take the advice of the veterinarian, even thru the welfare of his family and entire herd of cattle are at stake. This was illustrated recently in the case of a farmer who requested the county agent to visit his farm along with the Extension Veterinarian, to examine a cow. The cow was off feed, coughing, showing rapid emaciation and extreme difficulty in breathing when exercised. In fact, it showed every symptom that indicated tuberculosis. However, in order to be positive, and as the cow was likely to die in a few days, he was advised that the animal be slaughtered and a post mortem examination be held. This would have given him definite information as to the presence or absence of the disease and indicated the necessity of having his herd tested. He refused on the ground that he wanted the State to pay for his animal; thus nothing was gained by the visit. The cow died three days later, was disposed of without a post mortem and he profited nothing. A photograph of the animal is shown herewith.

Education regarding the danger of tuberculosis and the assistance rendered by the State and Federal forces thru tuberculin tests has already helped reduce the deaths from this disease. When the milk and meat supply for the citizens of Kentucky is delivered to the consumer as free from tuberculosis germs as is reasonably possible, it is quite evident that cases of tuberculosis of bovine origin in humans, will be materially decreased.

The project on farm sanitation is an important phase of the work, since the recurrence of disease and serious economic losses may result from a failure to combat the causative factor of the more serious infectious and parasitic diseases, such as hog cholera, Johne's disease of cattle (infectious bacterial enteritis), tuberculosis, glanders, black-leg, sheep scab, scabies of swine and intestinal parasitisms. When the virus and animal parasites which produce these diseases are allowed to remain on the premises, in places not exposed to the sun, or without proper sanitation, they are often capable of causing subsequent out-

breaks, a fact which is sometimes hard to impress upon the farmer and stockman, since the organisms are too small to be seen with the naked eye. If, on the other hand, they were large enough to be seen, the importance of their destruction would be self-evident, and so would lessen the task of explaining the value of sanitation immeasurably.

Some of the factors responsible for spreading disease are:

1. Infected streams whose drainage is from farms where disease exists or has been harbored.
2. Disposition of carcasses of dead, diseased animals by throwing them into streams and sink holes.
3. Hog wallows.
4. Carcasses of animals allowed to lie in the fields for buzzards and dogs to eat and thus carry infection sometimes miles away.
5. Diseased animals driven over the public highways, and the passing of healthy animals thru public stockpens, which are usually infected.
6. Infected material carried on the feet of poultry and birds.

Much service has been rendered the stockmen and farmers by the Extension Veterinarian, thru visits to the farm to detect disease and determine its nature. If a positive diagnosis cannot be made from a study of the sick animals, it is advisable, when possible, to hold a post mortem examination. The animal slected for post mortem should be one suffering with a typical advanced form of the disease. It is often necessary to collect suitable material from a sick or dead animal and forward it to the laboratory for confirmation of field observations, or to establish a correct diagnosis. As soon as a positive diagnosis is made, proper prevention and treatment may be outlined. Field work in co-operation with the private practicing veterinarian is often of value to the Veterinary Department of the University in its various research projects. In counties where there is a farm adviser or county agent, the work of the Extension Veterinarian is carried on with less difficulty and with a better understanding between all parties than in a county without an adviser. For example, the value of this co-operation was demonstrated recently in one county where the tuberculosis project was being conducted, in that every farmer approached willingly consented

No. 40. A cow suffering from tuberculosis. Herds should be tested.

and even requested that his cattle be tested. This was due in a large measure to the confidence which the farmers had in their county agent, as they felt that unless the work was important he would not advise them to take it up.

Another opportunity given to the Extension Veterinarian by the county agent is to meet the members of the different organizations of farmers in the community. Thus he is enabled to present his projects to some he might otherwise never reach.

Much success is due directly to the educational policy which enables the live stock owner to understand his problems. Thus he is not only willing but anxious to co-operate with the Extension Service, the county agent, and the local practitioner. As stated in the introduction, it is not the purpose of the Extension Veterinarian to render service of a personal nature, but rather to give demonstrations and advice regarding the problems of those animal diseases that concern the live stock interests in a given community or in the State as a whole.

LIST OF EXTENSION WORKERS

July 1, 1920—June 30, 1921.

ADMINISTRATION

Thomas Cooper, Dean and Director.*
T. R. Bryant, Asst. Director.
N. R. Elliott, Leader of Specialists.
F. J. Keilholz, Editor, appointed Dec. 1, 1920.

AGRONOMY

George Roberts, Head of Department of Agronomy.*
E. J. Kinney, Field Agent in Agronomy.*
Ralph Kenney, Field Agent in Agronomy, appointed October 8, 1920.
R. E. Stephenson, Field Agent in Agronomy, appointed Dec. 3, 1920.

ANIMAL HUSBANDRY

E. S. Good, Head of Department of Animal Husbandry.*
W. S. Anderson, Field Agent in Animal Husbandry.*
L. J. Horlacher, Field Agent in Animal Husbandry.*
R. C. Miller, Field Agent in Animal Husbandry.
Wayland Rhoads, Field Agent in Animal Husbandry.
H. G. Sellards, Field Agent in Animal Husbandry.
J. O. Barkman, Field Agent in Dairying.*
E. M. Prewitt, Field Agent in Dairying.
J. H. Bardsley, Field Agent in Poultry.
A. S. Chapin, Field Agent in Poultry.
J. R. Smyth, Field Agent in Poultry.

COUNTY AGENTS

C. A. Mahan, State Agent.
A. C. Burnette, Agent in charge of Negro Work.
M. O. Hughes, Special Agent.
E. J. Kilpatrick, District Agent appointed from County Agent, Jan. 11, 1921.
B. G. Nelson, District Agent.
K. L. Varney, District Agent, resigned Feb. 28, 1921.
John H. Adams, Asst. County Agent, resigned Sept. 15, 1920.
A. M. Allen, County Agent, Union County.
L. M. Amburgy, Boyd County.
S. W. Anderson, Asst. County Agent, Jefferson County.
G. C. Baker, Lawrence County.
R. O. Bate, County Agent, McCreary County.

J. Robert Bird, County Agent, McCracken County, appointed Jan. 1, 1921.
W. E. Brohaugh, Asst. County Agent, Oldham County.
Leland Bunch, County Agent, Christian County, appointed August 1, 1920.
Ernest H. Cannon, Asst. County Agent, Shelby Co., appointed May 9, 1921.
Herman Carman, Asst. County Agent, Campbell Co., appointed Nov. 15, 1920.
H. J. Childress, County Agent, Marion County.
L. A. Clark, County Agent, Clay Co., appointed March 1, 1921.
J. A. Claybrook, Asst. County Agent, Nelson County, appointed April 1, 1921.
R. O. Cornelius, Asst. County Agent, Jackson Co., appointed March 1, 1921.
H. R. Cottrell, Asst. County Agent, Washington County, Appointed March 15, 1921.
Homer G. Cress, (Asst.) County Agent, Christian County.
Parnell Crum, Asst. County Agent, Martin County.
O. L. Cunningham, County Agent, Fulton County.
L. E. Cutler, County Agent, Webster County.
E. Frank Davis, Asst. County Agent, Whitley County, appointed Jan. 1, 1921.
J. S. Davis, County Agent, Bell County, resigned June 30, 1921.
W. C. Elliott, Asst. Co. Agt., Knox County, appointed March 23, 1921.
C. B. Elston, County Agent, Lincoln County, promoted from Asst. County Agent, April 11, 1921.
J. W. Farmer, County Agent, Knott County, appointed Nov. 5, 1920.
Robt. Ford, Asst. County Agent, Daviess County, appointed May 30, 1921.
P. M. Frye, County Agent, Owsley County.
W. R. Gabbert, County Agent, Fayette County, appointed Mar. 21, 1921.
J. B. Gardner, County Agent, Calloway County.
J. C. Gentry, County Agent, Mercer County.
Morris Gordon, County Agent, Hopkins County, appointed Jan. 16, 1921.
I. C. Graddy, County Agent, Todd County.
Richard Green, Asst. County Agent, Carroll County, appointed Feb. 22, 1921.
R. T. Harrison, County Agent Harlan County, appointed Mar. 1, 1921.
H. H. Harrison, County Agent Powell County.
J. W. Harth, County Agent, Breckinridge County.
H. J. Hayes, County Agent, Wayne County.
Robt Heath, County Agent, Washington County.
B. A. Hensley, County Agent, Carlisle County.
C. L. Hill, County Agent, Nelson County.
J. O. Horning, County Agent, Barren County.

Ivo D. Howard, Asst. County Agent, Nelson County, appointed April 1, 1921.

W. A. Humphries, Asst. County Agent, Graves County.

John Hunter, County Agent, Allen County.

L. B. Jett (Colored), County Agent, Mercer County.

J. W. Jones, County Agent, Larue County.

T. H. Jones, County Agent, Lee County.

Thomas Keith, Asst. County Agent, Clay County, appointed May 16, 1921.

N. O. Kimbler, Asst. County Agent, Henderson County, appointed June 1, 1921.

George Kirk, County Agent, Mason County.

J. E. Kuykendall (Colored), County Agent, Warren County.

H. A. Laine (Colored), County Agent, Madison County.

E. L. Lambert, Asst. County Agent, Campbell County, resigned Dec. 31, 1920.

C. W. Leforce, Asst. County Agent, Whitley County, appointed July 15, resigned Dec. 31.

Harold Link, County Agent, Campbell County.

Gambrell McCarty, County Agent, Oldham County, resigned Nov. 29, 1920.

James McCoy, Asst. County Agent, Breckinridge County, appointed June 1, 1920.

M. L. McCracken, County Agent, Ohio County.

B. B. McInteer, Asst. County Agent, Ohio County.

H. F. McKenney, Asst. County Agent, Fleming County.

B. G. Marsh, Asst. County Agent, McCracken County.

Donald W. Martin, County Agent, Henderson County.

Earl Mayhew, County Agent, Knox County.

J. L. Miller, County Agent, Taylor County.

B. H. Mitchell, Graves County, County Agent.

L. F. Morgan, County Agent, Breathitt County.

D. P. Morris, County Agent, Owen County.

John Moser, Asst. County Agent, Jefferson County.

Gordon B. Nance, County Agent, Jefferson County.

L. C. Pace, County Agent, Livingston County.

Thomas Payne, County Agent, Simpson County.

J. Stanley Pullen, County Agent, Hart County.

Everette Randall, Asst. County Agent, Powell County.

R. B. Rankin, County Agent, Morgan County.

W. R. Reynolds, County Agent, Jackson County.

J. B. Ricketts, County Agent, Fulton County.

W. H. Rogers, County Agent, Warren County.

G. C. Routt, County Agent, Carroll County.

R. R. Rudder, County Agent Whitley County, resigned Dec. 31, 1921.

Robt. Spence, County Agent, Madison County.
J. R. Spencer, Asst. County Agent, Hart County.
F. H. Spickard, County Agent, Butler County.
Russell L. Sunderland, Asst. County Agent, Daviess County, resigned July 31, 1920.
W. D. Sutton, County Agent, Boone County, reappointed Jan. 1, 1921.
R. B. Swanner, County Agent, Laurel County, resigned Mar. 31, 1921.
C. L. Taylor, County Agent, Henderson, resigned Jan. 31, 1921.
J. H. Taylor, Asst. County Agent, Christian Co., resigned Sept. 10, 1920.
Ross Taylor, County Agent, Washington Co., resigned Feb. 1, 1921.
F. O. Townes, County Agent, Muhlenberg Co., appointed Jan. 16, 1920.
Wm. Tye, County Agent, Knox County, resigned Dec. 31, 1920.
A. J. Walker, Asst. County Agent, Laurel Co., resigned Aug. 31, 1921.
C. E. Welsh, Asst. County Agent, resigned June 12, 1921.
E. A. Whalin, County Agent, Ballard County.
J. W. Whitehouse, County Agent, Daviess County.
W. R. Whitlow, County Agent, Logan County.
Carl Wicklund, County Agent, Kenton County.
Warren Williams (Colored), County Agent, Christian County.
Fred B. Wilson, Asst. County Agent, Laurel County.
W. C. Wilson, County Agent, Pulaski County.
W. B. Woodward, Asst. County Agent, McCreary County.
J. W. Worthington, County Agent, Shelby County.

FARM MANAGEMENT

W. D. Nicholls, Head of Department of Farm Management.*
Dana G. Card, Field Agent in Farm Management.
C. U. Jett, Field Agent in Farm Management.

HOME ECONOMICS

Mary Sweeny, Head of Department of Home Economics, resigned Nov. 30, 1920.*
Maybelle Cornell, Head of Department of Home Economics, appointed Dec. 1, 1920.*
Gertrude McCheyne, State Leader of Home Demonstration Agents, resigned Aug. 31, 1920.
Margaret Whittemore, State Leader of Home Demonstration Agents, appointed Dec. 1, 1920.
Eleanor Enright, Field Agent in Foods, appointed Nov. 5, 1920.
Helen Harriman, Field Agent in Clothing, appointed Nov. 29, 1920.
Margaret Jonas, District Agent.
Mary Lesh, Field Agent in Clothing, resigned Dec. 31, 1920.
Lulie Logan, District Agent.
Mary Mae Miller, Field Agent in Foods, appointed Jan. 29, 1921.
Irene Piedalue, Field Agent in Clothing, appointed Dec. 17, 1920.
Dora Sonnenday, Field Agent in Foods, resigned Jan. 31, 1921.

Isabelle Allabach, Home Demonstration Agent, Fulton County, appointed June 5, 1921.

Zerelda Baxter, Asst. Home Dem. Agt., Shelby County, appointed May 9, 1921.

Madie Beckerdite, Home Demonstration Agent, Henderson County, appointed June 1, 1921.

Margaret Bird, Home Demonstration Agent, Graves County.

Lois Brown, Home Demonstration Agent, Oldham County, resigned Jan. 31, 1921.

Else Brunhoff, Home Demonstration Agent, Jefferson County.

Mary Jo Crook, Asst. Home Demonstration Agent, Mercer County.

Octavia Evans, Home Demonstration Agent, Daviess County.

Elizabeth Farra, Home Demonstration Agent, Madison County, resigned Sept. 15, 1920.

Mary Fiemster, Home Demonstration Agent, Woodford County, appointed May 31, 1921.

Anna B. Goddard, Home Demonstration Agent, Mercer County.

Grace L. Grazier, Home Demonstration Agent, Henderson County, resigned Aug. 22, 1920.

Jennie C. Grubbs, Boyle County, Home Demonstration Agent.

Jacqueline Hall, Home Demonstration Agent, Harrison County.

Mary Harbison, Home Demonstration Agent, Shelby County.

Mrs. George P. Hatton, Home Demonstration Agent, Calloway County.

Angie Hill, Asst. Home Demonstration Agent, appointed July 1, 1920, resigned Aug. 31, 1920.

Bernadette Keller, Home Demonstration Agent, Union County.

Frances Y. Kline, Home Demonstration Agent, Livingston County, resigned Sept. 15, 1920.

Ozema T. Lyle, Home Demonstration Agent, McCracken County.

Mary Meguiar, Asst. Home Demonstration Agent, Simpson County, appointed June 11, 1921.

Willie Maude Meguiar, Home Demonstration Agent, Simpson County.

Brunette Money, Asst. Home Demonstration Agent, Jefferson County.

Mildred Ohaver, Home Demonstration Agent, Logan County, resigned June 30, 1921.

Hattie Peoples (Colored), Home Demonstration Agt., Madison County.

Roxie C. Perkins, Home Demonstration Agent, Whitley County.

Elizabeth Roberts, Home Demonstration Agent, Perry County.

Lucy Belle Settle, Home Demonstration Agent, Ballard County, resigned May 1, 1920.

Laura Spence, Home Demonstration Agent, Laurel County.

Joyce Syler, Home Demonstration Agent, Garrard County.

Katherine Taylor, Home Demonstration Agent, Oldham County, appointed Mar. 14, 1921.

Marian Tyler, Home Demonstration Agent, Henderson County, June 30, 1921.

Mary Jo Vandenburg, Home Demonstration Agent, Fulton County, resigned June 30, 1921.
Rhoda Rheda Wadlington, Home Demonstration Agent, Calloway Co.

HORTICULTURE

J. S. Gardner, Field Agent in Horticulture, appointed April 1, 1921.
H. R. Niswonger, Field Agent in Horticulture.
K. C. Westover, Field Agent in Horticulture, resigned Jan. 31, 1921.

JUNIOR CLUB WORK

C. W. Buckler, State Leader of Junior Club Work.
Anita Burnam, Field Agent in Junior Club Work.
J. M. Feltner, Field Agent in Junior Club Work.
M. S. Garside, Field Agent in Junior Club Work, appointed April 1, 1921.
M. L. Hall, Field Agent in Junior Club Work.
C. A. Mosgrove, Field Agent in Junior Club Work, resigned Dec. 16, 1920.

RURAL ENGINEERING

Earl G. Welsh, Field Agent in Rural Engineering.

VETERINARY SCIENCE

W. H. Simon, Field Agent in Veterinary Science, resigned Dec. 15, 1920.
T. P. Polk, Field Agent in Veterinary Science, appointed Jan. 10, 1921.

---

*Those whose names are followed by an asterisk devote only half or less than half their time to extension work. Their work is primarily that of investigation and resident teaching.

Nearly all members of each department, including the department heads, assist with extension work when needed, whether they are employed primarily for extension work or not.

RECEIPTS

Federal Smith-Lever	$118,955.57
State Smith-Lever	108,955.57
Federal Supplement	52,720.44
Total	$280,631.58

DISBURSEMENTS

	Admin.	County Agents	Home Econ.	Ext. Schools	Pub.	Junior Clubs	Agron.	Dairy	Ani. Husb.	Farm Manage.	Poultry	Hort.	Vet.	Rural Eng.	Markets	Total
Federal S.-L.	$7,096.38	$61,832.47	$20,323.88	$1,176.24	$1,513.96	$6,092.21	$2,085.48	$1,239.27	$3,096.60	$2,206.65	$3,134.87	$2,031.73	$2,753.22	$3,975.23	$397.58	$118,955.57
State S.-L.	20,097.90	2,692.60	34,272.98	50.63	46.82	14,229.48	5,953.75	3,310.97	9,753.72	5,259.26	6,535.12	4,413.74	464.13	475.11	1,399.36	108,955.57
Federal Sup.	.....	52,678.77	41.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52,750.44
Totals	$27,194.28	$117,203.84	$54,638.53	$1,226.87	$1,560.78	$20,321.69	$8,039.23	$4,550.24	$12,850.32	$7,465.91	$9,669.99	$6,445.47	$3,217.35	$4,450.34	$1,796.74	$280,631.58