UNIVERSITY OF KENTUCKY

COLLEGE OF AGRICULTURE

Extension Division

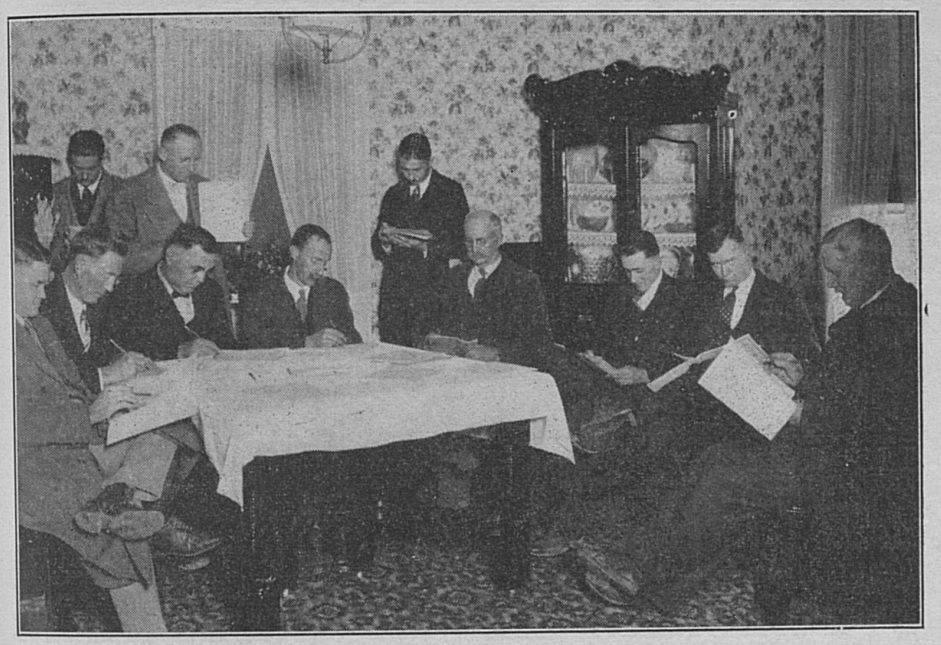
THOMAS P. COOPER, Dean and Director

CIRCULAR NO. 221

ANNUAL REPORT

FOR THE

YEAR ENDED DECEMBER 31, 1927



Group of farmers being instructed in keeping farm accounts at the home of a community project leader.

Lexington, Ky.

July, 1928

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.

Letters of Transmittal

Lexington, Kentucky.
January 3, 1928.

President Frank 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 December 31, 1927. In this report will be found a statement of the various activities of the past year, a list of publications and a financial statement of receipts and expenditures.

Respectfully,

THOMAS COOPER, *Dean and Director.*

Lexington, Kentucky.
January 10, 1928.

Honorable Flem D. Sampson,
Governor of Kentucky.

Sir:

In accordance with an act of the Legislature of the State of Kentucky, approved March 15, 1916, I herewith submit the annual report of the Division of Agricultural Extension of the College of Agriculture, University of Kentucky, for the year ended December 31, 1927.

Respectfully,

FRANK L. MCVEY, *President.*

EXTENSION CIRCULAR NO. 221

REPORT OF EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS FOR THE YEAR 1927

T. R. Bryant, *Assistant Director*

Extension work in Agriculture and Home Economics in Kentucky is making a healthy, normal growth. While obstacles are encountered in a few places, the work in general is progressing satisfactorily. The reports of individual workers for the year 1927 were noticeably free from references to difficulties, being devoted to a narrative of what had been accomplished in their particular fields.

One indication of the healthy condition of the work is found in the fact that during the year the number of county agricultural agents increased from 74 to 78, with 7 other counties having their money ready to employ agents as soon as suitable men could be found. In order to effect such increase with all the funds at the disposal of the University already allotted, it was necessary to require the counties to provide a slightly larger proportion of the funds required, which made it possible to place agents in new counties.

Local Leadership

The progress in Extension work is not so correctly indicated by the increased number of agents as it is by the increase in volume and quality of work made possible by the assistance of public spirited local people who are willing to assume, without compensation, the duties of local leadership in certain phases of work. One agrees to lead the poultry project in a given county or community, another sponsors the work in dairying, and so on for other branches. The good results of the work of

these people can hardly be overestimated, and unlimited gratitude should be extended to these workers who give freely of their time and labor to help others. Their work multiplies many times the efficiency with which extension agents can prosecute their work.

The efficiency of the work of these leaders has been greatly increased by frequent local conferences or training schools conducted for their benefit and, thru them, for the benefit of others. Some of these leaders devote their efforts to assisting in the boys' and girls' club work, others to work with adults, and some to both.

The integration of the extension work with the research or experimental work of the Agricultural College has proved most beneficial. Both the Experiment Station and Extension Workers have their offices and laboratories in the same building. The research facilities of the Experiment Station are in this way made immediately available to the Extension Service, which in itself is an outgrowth of the investigational and experimental work of the Experiment Station. Both the Experiment Station and the Extension Service are under the direction of one man, which eliminates any lost motion or other difficulties that might arise if the two institutions were in any way separate.

Cooperating Agencies

A large factor of success in Extension work is its ability to cooperate with other existing agencies. For example, the schools, banks, railroads, farmers' and breeders' organizations, civic clubs, Y. M. C. A., newspapers, boards of health, fair boards —including the State Fair—stockyards, parent-teachers' associations, and business houses, as well as others have helped in various ways, both morally and materially, to accomplish the purposes for which the Extension Service is erected. The adaptability which the Extension Service has exhibited, and its ability to cooperate with these agencies which are so willing and generous, has enabled the College to extend its activities and reach many more people in a more effective way than would have been possible without such helpful cooperation.

Examples of assistance rendered by some of these agencies are found in the junior club division of the work. The L. & N., L. H. & St. L., I. C., and C. & O. Railroads and the Consolidated Coach Corporation have donated cash, prize trips and other considerations totaling a cash value of about $12,000. The Bourbon Stock Yards of Louisville, the Fair board, banks and business houses have contributed or helped to secure funds to approximately a like amount. Not the least far-reaching in actual service has been the recent provision of a permanent fund by Louisville and Lexington business houses, the income from which, amounting to $1,200 annually, is divided into six scholarship prizes of $200 each, to be given to six worthy boys and girls who desire college education. A noticeable feature of all the gifts mentioned, and many others, is that they are not circumscribed by such restrictions as to hamper or otherwise impair their proper use by the University authorities, but are given on simple conditions, reasonable and just.

One of the greatest needs for making more effective the Extension work in the individual counties is an effective organization of farm men and women in each county. In this respect the women are perhaps more effectively organized than the men, thru their County Homemakers' Associations, which are now effectively working in about twenty counties. A better arrangement for all counties would doubtless be a joint organization devoted to the improvement of the farming business and home improvement, especially since such organizations function better in matters of community improvement.

A demonstration on a farm can, with comparative ease, be shown to provide an increased cash return. This makes an immediate appeal, and this character of work has in the nature of the case made more rapid progress than has the work in Home Economics. It must not be forgotten, however, that in the last analysis the comfort of home and improved living and social conditions in the community represent the things that bring the greatest contentment in living and make most for stability and satisfactory living conditions in the country.

The removal of a certain percentage of older boys and girls to the cities is perhaps only normal and need not cause undue alarm, but care should be taken that home and community conditions are made such as to hold the interest and engage the best efforts of the brightest and ablest of the young men and women, so that the draft of the cities upon the young people of the country will not be heaviest upon the most promising boys and girls. If the brightest young people are to leave the countryside, nothing can be foreseen but rural communities populated by the left-over class. One farmer described his community as "a fish pond from which all the game fish had been fished out, leaving only the bullheads and suckers." This description may have been extreme, but any approach to such a condition should be regarded with the greatest concern, and all possible means should be exerted to make country homes and country communities the best possible places in which to live. This is one of the undertakings of the Extension Service of the Agricultural College.

COUNTY AGENTS

It is easy to understand that without an agent to follow up demonstration work started in a county it is difficult to begin work or to prosecute it with the greatest success; however, specialists in the various lines from the College, together with district workers, have succeeded in conducting a considerable number of convincing demonstrations in such areas.

Pursuant to this idea the Extension Service, upon entering a county, undertakes to build "Community programs of work." Men and women who are potential leaders are called into conference at some convenient place, often in a home, and the situation is thoroly discussed. The business of farming, obstacles to profit-making, low yields, scrub stock, and other such matters are discussed and proposed remedies are suggested, leaders to work with the county agent are selected and started to work. Home improvement and community problems are taken in turn and work for betterment is definitely planned and put in motion. These community plans are usually consolidated

into a county plan of work with leaders selected for each line of endeavor. One of the best things in connection with this procedure is that it works and is now in successful operation in a majority of the counties of the State. In 1927, 593 such community programs were put into operation.

THE PRINCIPAL STATISTICS OF COUNTY AGENTS' REPORTS FOR 1927 ARE AS FOLLOWS:

	1926	1927
No. counties with agents	74	78
No. communities building extension programs	516	593
No. community leaders in community-built programs	4,209	5,116
No. dems. by County Agts. and com. leaders	18,184	21,094
No. result demonstrations carried thru year	11,336	12,570
No. farm visits made by Agents	38,427	41,675
No. farms visited	18,537	19,459
No. office calls relative to work — office	56,831	63,897
No. office calls relative to work — telephone	43,697	44,758
No. individual letters written	47,974	56,135

MEETINGS HELD

No. training meetings for local leaders	251	347
Attendance of local leaders	2,146	3,602
No. demonstration meetings held	5,327	4,826
Attendance	87,590	66,905
No. farmers' institutes and short courses	138	126
Attendance	10,284	8,470
Junior Club camps assisted	27	25
Total attendance (including adults)	18,258	24,066
Other Meetings	4,300	4,903
Attendance	305,229	281,205

MISCELLANEOUS

No. breed associations organized, dairy cattle	3	5
No. breed associations organized, other stock	12	18
Total number members in purebred sire campaign	3,450	3,537
No. farms installing drainage systems	89	56
Acres drained	1,670	1,293
No. water systems installed	50	53
No. lighting systems installed	21	11
No. farms clearing land	105	85
Acres of land cleared	670	615

The successful operation of community and county plans of work is frequently aided by preliminary surveys which tend to reveal actual conditions. An advantage gained by periodic surveys is found in the assistance rendered in measuring the progress of work. All workers need encouragement, and if progress is actually shown by surveys, such encouragement is afforded. A survey in Shelby County in 1924 showed only 100 acres of alfalfa. A subsequent survey in 1927 found 2,000 acres, also a similar increase in sweet clover, and 7,000 acres of lespedeza. A survey in Knox County showed only 4 persons shipping cream, whereas a later survey, conducted during 1927, found 128 shippers. Such findings encourage further work and asssist the measurement of results of extension work.

More important, perhaps, than the increase in volume of extension work has been the increase in efficiency and thoroness or a consolidation of the ground gained. Illustrative of this point has been the increase in the percentage of junior club members who actually complete the projects undertaken. In 1926 the percentage of completions was 66.5, but in 1927 it was raised to 70.1. The total number engaged remains about constant—approximately 18,000 for the State—as this represents the number that can be efficiently handled by the present force, but with the constant increase in number and efficiency of volunteer local leaders it is hoped that not only the quality but eventually the quantity of work can be considerably augmented. The training schools for local leaders offer promise in this direction.

Tours and Special Days

Excellent examples of the great advantage of the close relationship of the Extension Service to the Experiment Station are provided in the special days and tours arranged by the Extension Service when large delegations of farmers and their families visit the Experiment Station at Lexington or the substations at Princeton and Quicksand, or the eight experiment fields located on the different soil types of the State. On such occasions the experimental work in progress is inspected and

studied and special lectures and demonstrations are arranged. Poultry Day, Lime and Legume Day, Tobacco Day, Sheep Day, and other such occasions draw large groups of people from various sections. It is sometimes necessary to prolong the exercises to the second day, and when this is done the attendance and interest increase on the second day. The most elaborate of these exercises is the midwinter Farm and Home Convention, more extensive in scope than the others, strictly state-wide in the nature of the matters taken up and constantly tending to increase in attendance and the number of counties sending delegations.

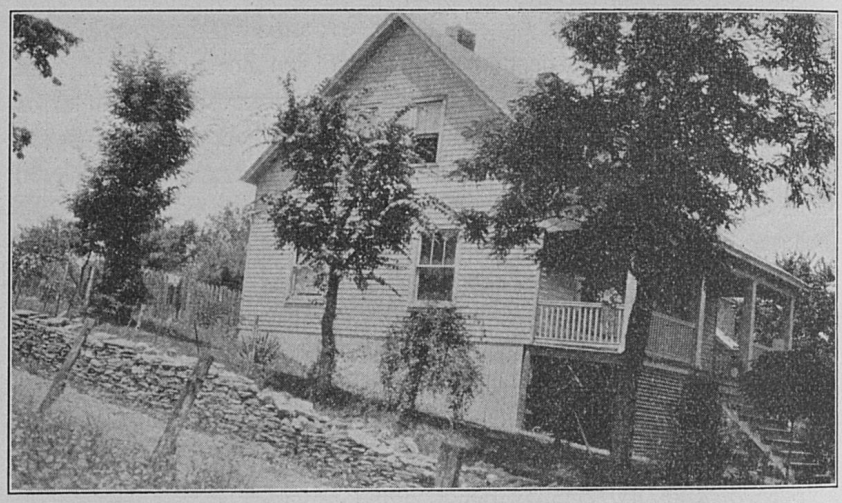
Tours held within counties are becoming more and more popular. Sometimes these are arranged in the interest of beef cattle production, again in the matter of improved kitchens or in poultry husbandry or horticulture. Such tours are so arranged that the people interested travel in automobiles from farm to farm where worth-while demonstrations of the subject in hand have been made. On each farm or in each home the work is inspected and is fully explained. At times the train of cars reaches a mile in length and the people have to be divided into groups to get the full benefit of the matters being shown and explained. This constitutes an excellent means of demonstration teaching.

The tour idea was carried even to the extent of conducting a group of 180 farmers from western Kentucky to the Bluegrass Section for a tour of observation, acquaintance and good will. The benefits of such a tour can readily be comprehended.

At the experiment fields the crowds are nearly always so large as to necessitate groupings. The advantage of the Extension Service having the entire facilities of the Experiment Station, substations and experiment fields put at their disposal can be readily seen. In the fall of 1927 the Extension Service cooperated with the railroads, boards of trade, banks and others and arranged special excursions to the National Dairy Show at Memphis, with the result that nearly 3,000 Kentucky farmers attended that Exposition and gained a wonderful amount of information and inspiration in matters pertaining to dairying.

Work With Negroes

A matter of interest to many is the fact that, in Kentucky, negroes operate a total of 11,709 farms, embracing 439,657 acres. It is therefore considered proper to provide, in certain of the counties with the largest numbers of negro farmers, special agents—negroes—who supplement the efforts of the white agents in ministering to the needs of the colored farmers. It is to be understood that in all counties the white county agents serve all farmers, both white and colored, but under certain circumstances a negro agent enjoys advantages over a white agent



Home of Vick Wilson, colored, Fayette County. Example of farm home improvement. Note paint, flowers and shade trees with garden in rear.

in working among colored people. As a matter of fact, these negro agents, in addition to work in strictly agricultural matters, have proved to be quite adept in such projects as home conveniences, gardening and, with the help of selected leaders, even in the matter of canning and preserving fruits, vegetables and meats.

Negro agents are employed in Christian, Fayette, Madison and Warren Counties.

During the year 45 definite soil demonstrations were started and 41 were successfully completed, while in crop work 766 adopted improved practices. A special effort has been made to

get certain farms in each county to carry on a more or less complete program according to recommended methods. Each agent now has two or three such farms in his county. The results are gratifying. The negro farmer is just as alert and willing to adopt a worth-while idea and put it into practice as is the white farmer.

Colored people have taken considerable interest in horticulture, including gardening, fruit culture and home beautification. Four hundred and sixty-four farms have taken part in this work. They preserved and canned 9,700 quarts of fruit and 13,990 quarts of vegetables. In one instance a club garden for boys was cultivated on a rather large scale. The total value of products was $761.50, costing $310.00 including labor, leaving a net profit of $451.50.

In community activities the colored people have been quite active. They were largely responsible for securing two consolidated schools, and thru junior club work equipped sixteen schools with drinking water systems. Three of the four counties held community fairs. These were well attended and the products exhibited attested the quality of the work that had been done. At one of these a clinic for colored children was held, where six leading doctors donated their services to make the examinations and furnished each child a report to take home. One junior camp was held with 35 children in attendance.

The following figures are extracted from the supervisor's tabulated report:

County-wide extension organizations	4
Officers and volunteer leaders	481
Communities conducting extension programs	52
Adult local clubs	56
Junior local clubs	51
Club members entering normal schools or colleges	58
Community fairs	16
County fairs	3
Training meetings, juniors	24
Training meetings, adults	18

HOME DEMONSTRATION WORK

The problem of Home Demonstration Work has been attacked mainly thru the agency of the homemakers' clubs. These clubs are organizations of farm women whose potential leaders are consulted by the home demonstration agent, looking to the perfecting of an organization thru which the women can secure instruction and training in many of the things that are especially significant to them. Thru this organization and its work they learn to fix more definitely in their own minds and those of their associates just what they need most, and how to get it. Definite programs for the year are laid out, embracing work in foods, clothing, home management, and certain definite projects looking to improvement of the community, all of which plans are made definite and specific, with certain leaders in charge of each project. The plan works, and is never abandoned when the results have once been demonstrated. The work itself during its progress gives opportunity for social expression which is very gratifying, especially in rural communities where, from a social standpoint, life is likely to become more or less monotonous. The work is also adapted to command the interest of those in more favored communities who appreciate just as keenly the advantage of better homes and more wholesome community enterprise.

No doubt the organization will be more useful when definitely related to the work of active farmers' organizations, so that the whole of farm and community life may be more effectively helped. This is well illustrated by the problem of bad roads, which can be improved only when the question is taken up by all the people in concerted effort. Examples of accomplishment in this matter are not lacking, where it has been made the object of community enterprise. The same rule applies in the matter of school improvement.

The revelation of talent existing but dormant in rural communities is encouraging and gives a genuine thrill to the people. Two counties put on pageants during the year, and others have had similar or just as worth-while activities. Some real artists in various lines have been revealed by these community activi-

ties, and this means much, especially in a community where little initiative has ever been shown and where the people are accustomed to go elsewhere to get social and intellectual enjoyment or recreation.

The homemakers' camps give opportunity for the wife and mother to get a vacation which she has not had for years. Lectures, demonstrations, motion pictures, handcraft, music and other such activities absorb her attention at these camps. In the average rural district there is seldom any one event which definitely calls the farm homemaker from her labor to refreshment, both physical and mental. The camp is an event with a definite date, with an excellent program of entertainment and instruction to make the week worth-while. The most important object is rest, and the camp managers handle this in such a way that the women get the rest while they feel that they are really engaging in a full day's activities. The recesses, "rest periods," etc., are made sufficiently frequent and long to accomplish the purposes of rest and recuperation.

The effect of these camps is very impressive. The things that some of the women have to say about them borders on the pathetic. Four years ago one such camp was held as an experimental attempt. The success encouraged the holding of two the following summer, still on an experimental basis. Assured of success, there were six the following summer, and in 1927 there were eleven.

Master Farm Homemakers

During the year a contest was held to select the five farm homemakers who were doing the best work at their profession. All the attributes of a farm homemaker in relation to her family, the home and the community were studied carefully in the cases of a large number of women nominated for this honor. The gold badge awards were provided by one of the leading farm home journals of the country. The undertaking proved much more difficult than it first appeared, due to the number entered, the closeness of the scores attained, and the careful study that was made necessary in order to insure fairness. At

all events the final scores resulted in awards being made to the following five women: Mrs. R. E. Tipton, Fayette County; Mrs. John Moore, Boyd County; Mrs. Theodore Posey, Henderson County; Mrs. L. L. Wright, Graves County; and Mrs. Arthur Plain, McLean County.

Home Economics With Girls

Where possible, arrangements are made with local homemakers' clubs for the women to sponsor the club work with girls. An adult leader for each project group of girls is necessary, and the homemakers' clubs have become a fruitful source of such leadership.

The work with girls is divided into three general groups: foods, clothing, and room improvement. Each of these general lines of work is divided into definite projects or exercises. As in all extension work, definiteness of the tasks assigned and specific direction for their execution are most important. "Plan your work and work your plan" is good for all, and the junior groups are no exception.

One field worker from the home office held fifty-four training meetings for women who were engaged in leading groups of girls. By this means they came to understand clearly what the work was and how to execute it. This leadership, supported by the county home demonstration agent, is responsible for the higher percentage of girls who completed the projects undertaken. It also aids in keeping the girls in club work, encouraging them to work year after year completing the four units of the clothing work, three in food preparation, and three in food preservation, and one on room improvement. Girls quite frequently engage in the gardening and poultry projects, and sometimes in raising calves and pigs, but in such work they are more often under the guidance of the county agricultural agent and the leaders whose assistance he has enlisted.

The "Demonstration Teams" constitute an attractive feature of girls' work. These teams prepare definite demonstrations of canning, meal preparation, butter-making, and a multitude of other home practices. Competition for places on these

teams is keen and the teams are in great demand to demonstrate before local groups and even at State and National gatherings of various kinds. In these exercises, as well as in judging team work, the Kentucky girls have stood well at the International Live Stock Exposition, the National Dairy Show, and elsewhere. The same can be said of their competitive exhibits of their products at such shows.

Learning to make fiber stools.

Home Equipment

The general Extension Work in Home Equipment and Beautification is conducted under three general divisions: Home Furnishings, two units; Home Crafts and Testing Circles, one unit each. An idea of the scope of work undertaken may be gained from the following abbreviated synopsis of subjects:

Home Furnishing, Part I.

I. Walls and their decoration.
   1. Use of paints, varnishes, enamels and stains of various kinds.
   2. Use of wall paper of proper design.
   3. Borders and bindings.
   4. Picture molding.

II. Windows and their decoration, rods, draperies, shades, etc.
III. Doorways.
IV. Floors and their proper treatment.
V. Care of woodwork.
    1. Decorative paints and enamels.
    2. Cleaning floors, woodwork and furniture.
    3. Treatment of various kinds of wood, including cleaning and finishing.

Home Furnishing, Part II.

I. Principles of good taste.
    1. Harmony.
    2. Proportion.
    3. Balance and arrangement.
II. Uses of color in the home.
    1. Color harmony.
    2. Effect of various colors.
    3. Colors suitable to living rooms, dining rooms, bedrooms, etc.
    4. Proper colors for accessories.
III. Selection and arrangement of pictures.
    1. Background.
    2. Framing.
    3. Relation to furniture, walls, etc.
    4. Hanging.
    5. Cleaning and refinishing frames.
IV. Decoration.
    1. Flowers, their placing, containers, etc.
    2. Candles, lamp shades, mantels.

Home Crafts.

I. Caning chairs.
II. Upholstery.
III. Lamp shades.
IV. Baskets.
V. Pillows and work with fabrics.
VI. Use of dyes, paints and stains.
VII. Rugs, chair mats, etc.

Foods and Nutrition

"What shall we have for dinner?" The housewife of the olden days answered this question by consulting her pantry shelf. A breakfast of pork sausage, coffee, fried potatoes and wheat cakes; dinner of roast pork, potatoes, baked beans, mince pie, and more coffee; and supper, of the warmed-over dinner, was all that could be desired. That tired feeling in the spring, poor digestion, frequent colds, minor illnesses, low resistance were never for an instant associated with the food habits of the family.

During the past year 7,533 women and girls who were enrolled in Homemakers' and 4-H clubs have been studying the selection, preservation and preparation of food. "What shall we have for dinner?" These seven thousand women, and many others who have previously studied the problems of family food supply, are answering this question by seeing that their pantry shelves are provided with the foods which the family needs. These homemakers know that lime is needed to build strong bone and teeth, that iron is needed to make good red blood, that other minerals and vitamins are required for growth, vitality and resistance to disease. They know that the human machine requires not only fuel foods to make it go, and protein to rebuild and repair muscle tissue, but regulating foods to keep it in smooth running order, and they are learning what foods furnish these required elements. As a result there is an increased consumption of dairy products, fruits, vegetables and whole cereals, and a decreased consumption of fried foods, rich pastries, sweets and meat. Homemakers are reporting that the health of their families is improved, doctor bills are decreased and colds are less frequent as a result of well planned meals. Undernourished children have been brought up to weight, and overweight individuals have been able to reduce without loss of health, by following carefully planned diets.

Not only are foods being more carefully selected, but they are better prepared and more attractively served. Vegetables are not being overcooked and soaked with grease as formerly. Fewer foods are fried. Meals are being more attractively served.

All of this improves digestion, tempts the palate and tends to make the family meal hour a happy, friendly hour.

The following statistical table summarizes the food work and gives an idea of the results achieved:

Project clubs or groups in food preparation	158
Members enrolled in food preparation	2,864
Individuals adopting improved practices in breadmaking	1,197
Individuals adopting improved practices in meat cookery	1,452
Individuals adopting improved practices in meal preparation and service	1,394
Homes adopting improved practices relative to food preparation work	9,554
Individuals adopting improved practices in vegetable cookery	1,349
Individuals adopting improved practices in preparation of dairy product dishes	681
Homes budgeting the family food supply	32
Project clubs or groups in nutrition	97
Members enrolled in nutrition	2,036
Result demonstrations started or under way	286
Result demonstrations completed or carried thru the year	212
Individuals balancing family meals according to approved methods for first time	1,267
Individuals preparing better school lunches	535
Schools induced to serve a hot dish or school lunch	22
Children involved in preceding question	951
Homes carrying out improved practices in child feeding for the first time	493
Children involved in preceding question	1,000
Total number different homes adopting improved practices	2,434

Testing Circles

The purpose here is for homemakers to become familiar with the best and most suitable types of home equipment on the market. The articles under test are passed from the home of one leader to another, each using it with any desired instruction and demonstrating it before the members of her group and passing it on to the next leader. This makes possible the thoro testing of the article and permits a large number of women to become familiar with its advantages and disadvantages.

Leaders and Training Schools

Four leaders' training schools were held under each of the above projects.

Leaders from the 137 Homemakers' clubs carrying the projects attended. The information given to these leaders was given by them to their clubs before the next meeting of the training school the following month. This is the best method known at present for accomplishing a wide spread of influence. The leaders are fully equipped with leaflets and instruction in methods as well as in subject matter.

Learning to cane chairs.

Tabulated Summary

Home Furnishings	
No. clubs carrying project	29
Leaders trained	45
No. result demonstrations	203
No. individuals improving selection and arrangement	136
No. individuals improving walls, floors and woodwork	447
No. individuals repairing and remodeling furniture	313
No. rooms improved	2,661
Home Crafts	
No. clubs carrying home crafts as a major project	41
No. leaders trained	82
No. sanitas sets made	228
No. chairs caned	58
No. pieces of furniture refinished	263
No. miscellaneous articles made	832
Follow-up Work in Kitchens and Equipment	
No. pieces new equipment	8,627
No. kitchens planned and rearranged	120
No. water systems and sinks installed	108

Clothing

The purposes of extension work in clothing are:

1. To develop in rural women an appreciation for the beauty of simplicity in clothing, a feeling for real values, and a true conception of what is meant by being "well-dressed;" in order that thru the adoption of better clothing habits and the consciousness of being well-dressed they may attain the confidence and poise essential to greater usefulness in their communities.

2. To enable women to effect an economy of time and money thru the adoption of simpler and better methods of sewing, and at the same time make clothes that do not bear the stamp of "home-made."

3. To develop a spirit of cooperation and helpfulness among rural women thru the use of local leadership.

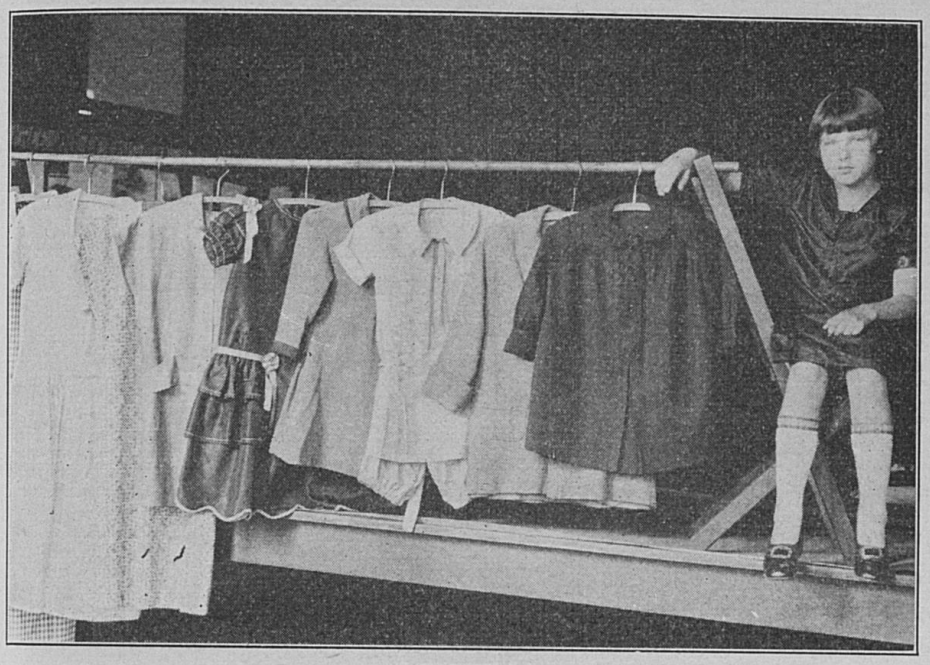
4. To influence as many women as possible to adopt comfortable and hygienic clothing for themselves and families, and to lead them to see the relation between correct body posture and health as well as the style effect of a garment.

5. To lead them to plan in a systematic manner the clothing for each member of their families.

6. To reduce the amount spent for clothing thru more thoughtful selection, proper care, and more thoro utilization of all articles of clothing.

The phases of the work undertaken are:

1. Renovation and Remodeling of used woolen materials and garments.
2. Elementary Dressmaking.
3. Clothing Selection.
4. Millinery.



Children's garments made from adults' garments, Christian County.

Method of Procedure

Again the local leader becomes one of the important factors. The home demonstration agent arranges a meeting of potential leaders and has a specialist from the University to give the training lessons. Four leaders' training schools are conducted in each course in the county. These groups are made up of two leaders from each club. About four hours are given to each class.

The specialist provides outlines, subject matter and, whenever possible, illustrative material for use of leaders.

One lesson in each sewing course is devoted to a study of constructive processes best suited to the materials used and to the garments being made. Each leader assumes the responsi-

bility of making a definite number of these models, so that at the end of the day, usually, a set of models is completed. These are left with the home demonstration agent, who takes them to local meetings, thus making available for all a complete set of models.

Leaders also make final reports on projects. These are summarized by the county project leader, who then reports to the specialist and the home demonstration agent.

The results obtained and the interest taken by women and girls in clothing and millinery work are perhaps due primarily to the fact that they are conscious of being better and more tastefully dressed, especially when they go away from home. The savings are so great, due to home manufacture and the work in remodeling, that even with less cash paid out for clothing, the women and girls have better and more appropriate clothing and greater variety than before.

Encouraged by the success of the work and the interest shown, two new courses will be offered during 1928, one in advanced dressmaking and another special course in children's clothing.

Summary

Dresses and coats made	5,701
Woolen garments made over	883
Undergarments made	5,576
Leaders' training classes	126
Leaders attending	1,434
Hats made or remodeled at leaders' training schools	151

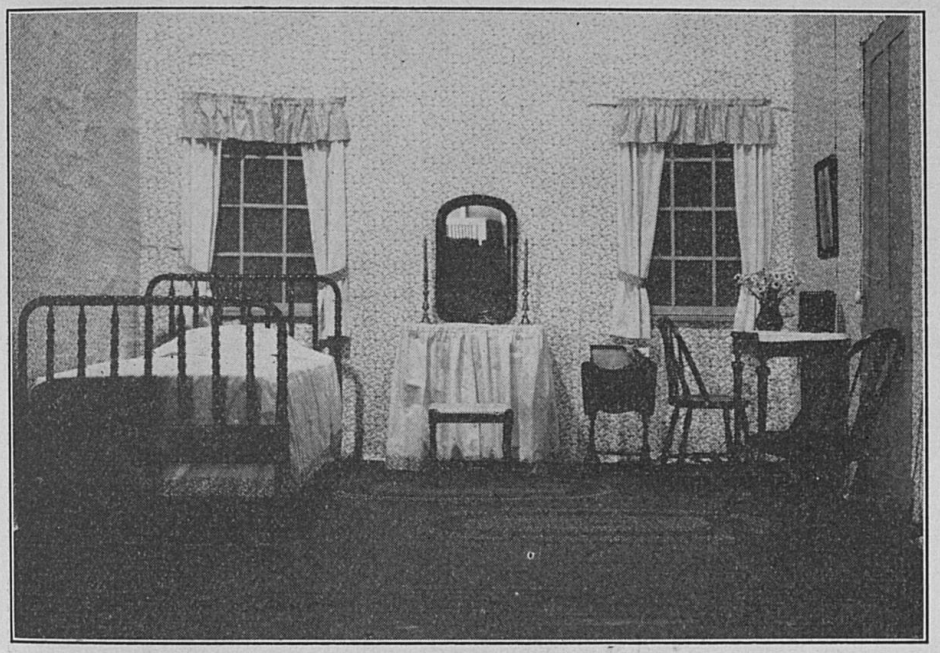
These figures are not all-inclusive, for it is impossible to secure adequate reports of all pieces of work done when the leaders have carried the work back to the clubs. Only those included in the reports obtained are counted.

JUNIOR 4-H CLUB WORK

Enrollment and Leadership

Boys' and Girls' Club Work was carried on in an organized way in 836 rural communities in 1927. The membership of these clubs was 15,868. Seventy per cent of those enrolled completed their work. This is an increase of 4.2% in completions over 1926.

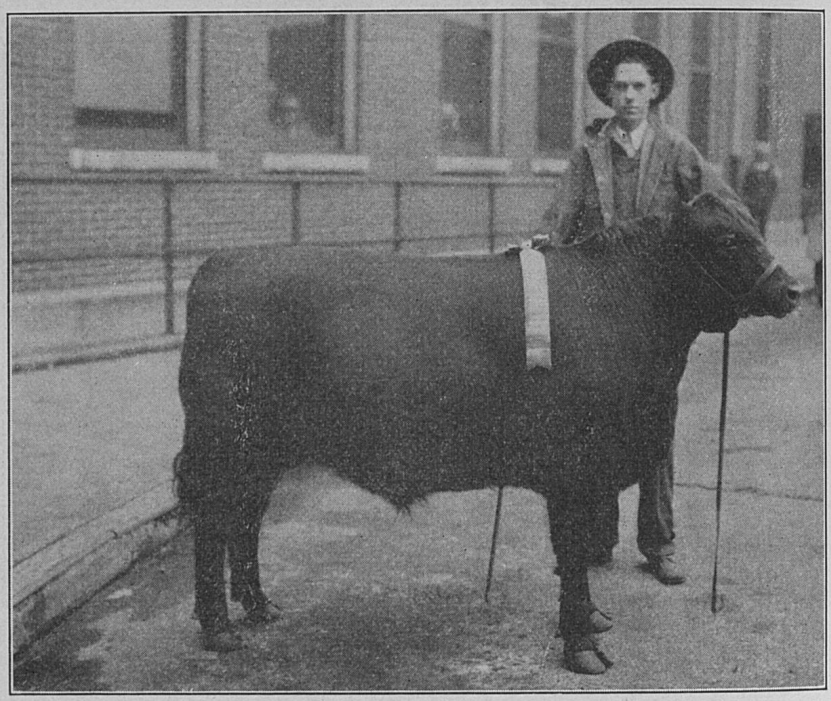
The ninety-eight county and home demonstration agents are directly in charge of club work in their respective counties, but they could not have carried on the volume of work accomplished this year if they had not had the active support of a



Junior Club—Room Improvement Project.

large group of men and women, known as local club leaders, who gave freely of their time and worked untiringly for the success of their clubs. Some of these leaders directed the general activities of the club and others taught technique in carrying out projects. One thousand seven hundred and fourteen leaders assisted in pushing forward the club program last year. This is an increase of 11% over the year before. There was also an increase of 3.3% in the number of organized clubs, due largely to the increased number of leaders.

The "Project Captain" was a new feature of junior leadership tried out in several counties with good success. The project captain is an active club member, who is selected by the members of his project group to act as their leader for the year. The duties of the project captain are to assist the members of his group in any way he can with their project, keep informed as to their progress and report at each meeting the status of his group. The project captain also assists in getting in the record books at the close of the project. The training for future leadership is an outgrowth of the use of project captains.



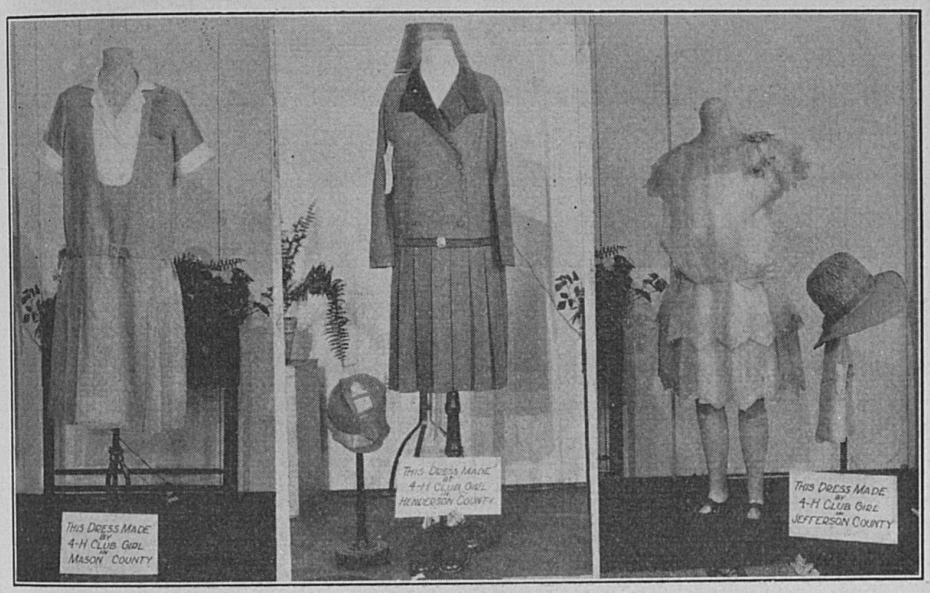
Julian Bourne, Garrard County, and his grand champion baby beef.

Projects

The major club projects for last year were baby beef, dairy cow and heifer, sheep and lamb, pig, poultry, corn, tobacco, soybean, clothing, canning, foods, and room improvement. Eighteen thousand and eighty-nine projects were started last year and 12,717, or 70%, completed.

Four hundred and seventy-seven baby beeves were fed and exhibited by club members last year. The proficiency these club members are attaining in the selection and feeding of their calves is reflected in the quality and finish of the calves exhibited each year. In competition with the best adult feeders in the State, the grand champion individual and carload awards were won by club members.

The club members in the dairy project own one thousand purebred heifers and cows. The bankers, service clubs, dairy manufacturing firms and others are helping to make this project a success. The bankers and service clubs assist in financing the project and the dairy manufacturers offer educational trips to



Costumes made by 4-H Club girls, displayed at the State Fair. Left to right: linen school dress, tailored wool dress, summer afternoon dress of organdy.

the State Fair and National Dairy Show to stimulate greater interest and enthusiasm. The American Jersey Cattle Club and others offer premiums in county shows, and very liberal premiums are offered in club classes at the State Fair.

More than two thousand ewes are owned by club members in the sheep and lamb project. Two state junior sheep shows are held annually, one for fat lambs and the other for purebred sheep and lambs.

Approximately 30,000 head of poultry were raised by club members this year.

The 1927 junior corn champion produced 133 bushels of corn on one acre.

The girls enrolled in clothing project made 12,000 garments for themselves and other members of their families.

The canning club girls canned 9,000 jars of fruits and vegetables.

The total value of products made and grown by club members this year exceeded $350,000.00.

The Fourth H.

Special health work was undertaken with four clubs this year with the cooperation of the Nutrition Specialist and the State Board of Health. The growth work was carried on in conjunction with the regular project work. It was started in June and completed in November. The county agent and leaders of the Annville Club report the following:

One hundred and fourteen boys and girls started the work and 87 completed. Forty club members who were under weight at the beginning brought their weight up to normal. Seventy had their eyes tested; 55 had dental work done; 23 took the Dick test for Scarlet Fever; and 14 had inflamed eyelids treated. Records were kept by each member of his or her food and health habits.

Junior Week

Five hundred and thirteen club members and 44 volunteer leaders attended Junior Week this year. Forty county demonstration teams competed in the State contest; 224 demonstration teams were trained in the State. The purpose of demonstration teams is to teach a needed new or improved farm or home practice.

Judging Contests

A junior poultry judging contest was put on this year for the first time at the State Fair. This did not take the place of the regular livestock judging contest, but was an added feature. The judging was based on production only, and all birds judged had trap nest records.

Colby Lee Forsee, Owen County, Kentucky State champion in the sheep breeding project, 1927.

Club Camp

Twenty-five club camps were held, to which 64 counties sent 1,854 club members and 184 leaders.

Six scholarships in the College of Agriculture were offered to club members this year. The value of each scholarship is $200.00, and the scholarships were awarded on quantity and quality of club work done. Five of the six students would not be in school if they had not won scholarships.

CLUB ENROLLMENT—1927

	Enrolled	Completing	Per cent Finishing
COUNTY AGENTS			
Livestock			
Poultry	4,055	2,856	
Swine	2,038	1,458	
Sheep	473	388	
Baby Beef	263	238	
Dairy Calf	821	702	
Crops			
Corn	407	268	
Alfalfa	4	4	
Soybeans	227	189	
Potatoes	290	181	
Cotton	18	16	
Tobacco	114	77	
Miscellaneous	777	480	
Girls' Work			
Food	128	121	
Clothing	1,800	1,244	
	11,415	8,222	72%
HOME AGENTS			
Food	1,104	826	
Clothing	2,996	2,003	
Miscellaneous	906	442	
	5,006	3,271	65.3%
COLORED AGENTS			
Corn	102	87	
Potatoes	103	77	
Tobacco	70	53	
Dairy Calf	1	1	
Baby Beef	10	10	
Swine	136	88	
Sheep	1	1	
Poultry	593	410	
Miscellaneous	107	77	
Food	405	340	
Clothing	140	100	
	1,668	1,244	73.3%
Grand Totals	18,089	12,737	70.2%

PUBLIC INFORMATION

A service is maintained at the College whereby the daily, weekly and farm papers are given first-hand reliable information concerning things done by Extension Service, or of worthwhile events in any place if they are of direct interest and educational benefit to farmers. The routine news items numbered over 1,200 for the year. The papers and magazines readily use the material as it is prepared by a trained man who understands news values and knows the proper length and style for a given item. In addition to the routine material many special articles were prepared, sometimes for certain papers, and series of articles on selected topics were conducted thru the year. Ordinarily there are considerable objections to series articles, and it was planned to discontinue the garden series, but its popularity was so great that it had to be kept up. A check up showed that 65 per cent of the newspapers of the State make use of the information service of the College every week. The material finds ready acceptance at the hands of the national press associations. The value of this helpful relationship between the Extension Service and the press can be readily understood. In emergency cases it means direct and accurate information to nearly all the people of the State without any delay.

MOVABLE SCHOOLS AND EXHIBITS

The movable school is an outgrowth of the farmers' institutes which were formerly held in Kentucky. The effort is made to do the work more thoroly by admitting only such numbers as can be properly handled and to make the work more specific. To this end there is a tendency to confine the work to one or two subjects instead of dealing in farm generalities. For example, 17 poultry schools and 24 for farm management were held, each lasting one or two days. The remainder of the 55 movable schools held during the year dealt with two or, in a few cases, with a greater number of subjects. Liberal use is made of illustrative material in the effort to provide the highest type of instruction.

An educational exhibit was installed at the State Fair setting forth work in fourteen distinct branches of agriculture and home economics. The interest shown by visitors was greater than ever before. Competent attendants were constantly on hand to answer questions and to discuss problems with visitors. In this way valuable contacts were established which lead to definite and specific work later on. Perhaps the increase in interest is partly due to the fact that farmers have come to regard the College Exhibit as an annual affair and have learned that they can inspect it to their benefit and profit.

Part of crops exhibit. Bankers' Day, Experiment Station Farm, June 22, 1927.

Frequent requests were received for sections of the exhibit for use later at county fairs, with the result that College exhibit material was used in thirteen counties.

A special exhibit was installed at the Experiment Station farm on June 21 and 22 when the State Bankers' Association held its annual convention at the College. As a rule the banker is closely in touch with farm conditions, deeply interested in farm prosperity and nearly always ready to aid in a helpful enterprise, such as better stock and better farming in general. The message of the College was delivered thru the medium of striking exhibits rather than thru speeches, and the method proved very effective. Representative bankers were in attend-

ance from ninety-four counties. Entertaining the Bankers' Association was clearly a function of the Extension Service, but here again is an illustration of the great advantage of the close integration of the Extension Service with the Experiment Station, since the Station provided the livestock pavilion as a cool and delightful meeting place and gave the use of their animals and other equipment as an aid in setting up the most striking exhibits.

Motion Pictures

A motion picture is a most effective method of teaching. During the year three new films were added to the fifty already in the College collection. These films are kept moving from county to county for use of county agents in various kinds of meetings held among rural people. Four portable machines are likewise sent from place to place and twenty-five agents have secured machines for their home counties. These were purchased by local people for the use of their agents, the money being secured in various ways.

The same department that arranges for the movable schools and other illustrative work, including exhibits, has also undertaken a considerable program of landscape improvement, mainly for schools, in cooperation with Parent-Teacher Associations. All told, 109 schools were provided with definite planting and beautification plans, nearly all of which have been partially or completely carried out. Plans are also provided in many cases for homes. In Fayette County the work has been done largely thru the homemakers' clubs. The home of one representative of each club has been used as a demonstration, and meetings have been held at these homes in order to spread the influence of these demonstrations in landscape improvement.

AGRONOMY

Soils

As in past years, the efforts of the extension workers in the department have been devoted chiefly to promoting the use of legumes in the cropping systems and pastures of the State, and to the larger use of liming materials and phosphate fertilizers.

The general adoption of these practices by the farmers of the State would result in greater improvement and profit than any other lines of work to which the extension specialists in Agronomy could address themselves.

Experiments conducted on all of the important soil areas of the State serve as a basis for procedure in extension work, and the results amply justify the emphasis that is being placed on these primary requirements for soil improvement. Ten soil

A portable crusher grinding from a quarry. Bourbon Co., Ky.

experiment fields have been in operation outside of the Bluegrass Region from 5 to 15 years, seven of which are now in operation. The average increases per acre for the use of lime and superphosphate (acid phosphate) for all these fields for the time they have been in operation are, leaving out fractions and odd numbers: Corn, 16 bushels; soybean hay, 1,600 pounds; wheat, 10 bushels; clover hay, 2,250 pounds; tobacco, 400 pounds. In the case of tobacco the increase has been 550 pounds with lime and complete fertilizers.

The average unfertilized yields for the same time have been: Corn, 28 bushels; soybean hay, 2,300 pounds; wheat, 9 bushels; clover hay, 900 pounds; tobacco, 500 pounds.

It has been shown that such results can be obtained on practically all the worn soils of the State, while on the better soils

that do not grow clover, equal if not greater improvement can be made. It seems that this must be our chief line of effort until these practices have become general thruout the State.

Liming Materials

Marl. Thru the efforts of field agent in soils, and the co-operation of the county agents, marl has been found in about sixty counties in the State. The composition varies from low grade to practically pure calcium carbonate, with an average neutralizing power equal to 47 per cent calcium carbonate as an average of 2,000 samples taken from 53 counties. Two tons of marl of this average composition is easily the equivalent of one ton of pure ground limestone—and probably more than equal, for it disintegrates into a much finer condition than it is practical to grind limestone. It is estimated that there are two and a half million acres of land in Kentucky that can be limed with marl within a three-mile haul. Much land can be limed with marl outcropping in the field where it should be used.

It is difficult to convince many farmers that marl has any value, yet in general they are rapidly coming to see its value thru demonstrations conducted by county agents, 11,000 tons having been spread under their direction in 1927.

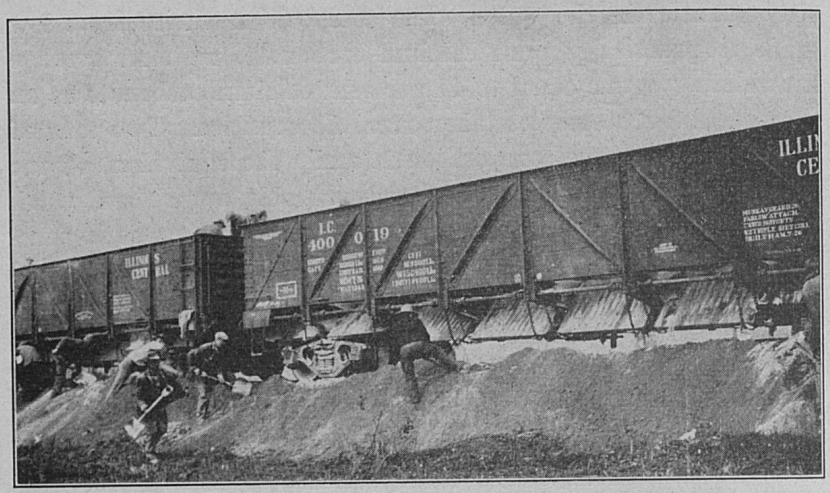
Limestone. Very good progress is being made in the use of ground limestone, 132,000 tons having been used in county agent counties in 1927. Bourbon County led with 21,000 tons, and Fayette was second with more than 11,000 tons.

One of the chief problems in extending the use of limestone is to provide a readily accessible retail supply to which farmers can go for any amount they may want at any time. Lime producers and dealers are beginning to recognize this fact, as there were 39 retail dealers in the State in 1927, whereas a few years ago no retail dealers could be found. There were 163 portable limestone grinders in county agent counties in 1927.

Burned Lime. Only 7,500 tons of burned lime were used in county agent counties in 1927. The price of burned lime has been so high that it has not been used much. One plant has been established in Taylor County for burning agricultural lime

with natural gas, and is putting out a product at a price that makes it compare favorably in cost with ground limestone. It has been stated that more such plants will be established in that section.

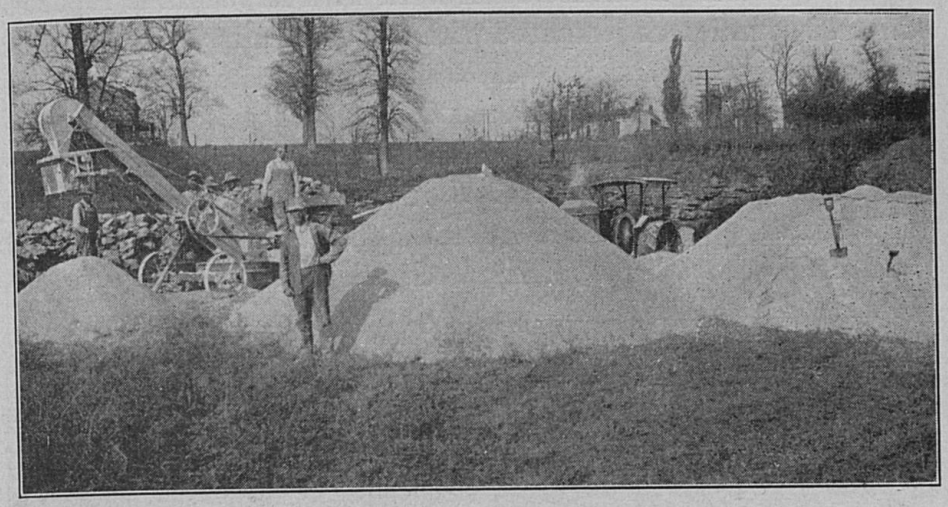
County agents' reports indicate a greater interest in liming and other soil improvement practices than at any previous time in the history of extension work.



Unloading Kentucky's first limestone train of 17 cars in Webster County.

County agents continue to report good results with finely ground limestone or burned lime and acid phosphate mixed in the ratio of about 2 to 1 and used at the rate of about 1,000 pounds per acre of the mixture. On many soils of the State this is sufficient lime to produce a crop of clover. This mixture could be used when grain is sown to be followed by clover or clover and grass. It is safe to drill in the mixture with the seed when limestone is used, but caution should be used with the burned lime until more is learned of its effect on the germination of the grain when drilled in direct contact.

Fertilizers. The emphasis in fertilizer work has been placed on getting farmers outside of the high-phosphate area of the Central Bluegrass Region to use a phosphate fertilizer in liberal quantities on all grain and hay crops, whether the soil has been



A portable crusher grinding an old stone fence.

limed or not. In the case of tobacco, farmers are advised to use high-grade complete fertilizers, with emphasis on high nitrogen content. These recommendations are based upon the results on the soil experiment fields.

Crops

Soybeans. Soybean demonstrations were conducted by county agents in 74 counties.

25,360 acres were reported planted with corn
3,250 acres were reported planted for seed
73,525 acres were reported planted for hay

The late, wet spring and lower prices for cowpea seed somewhat reduced the acreage, but the combined plantings of soybeans and cowpeas were probably greater than last year. In 31 counties there was an increase in soybean acreage.

Sweet Clover. County agents in 54 counties reported a sowing of approximately 30,000 acres of sweet clover.

Alfalfa. Demonstration work with alfalfa was reported from 56 counties, with about 28,000 acres of new seeding and about 9,000 acres of alfalfa mixed with clover. The total new seeding for the State is estimated at near 40,000 acres.

Lespedeza. Demonstration work with lespedeza is reported from 62 counties, as compared with 50 counties last year. Agents from these counties report 31,000 bushels of seed sown for the year. They also report 7,500 bushels of seed saved in the State the previous year. More than 4,000 farmers cut lespedeza for hay. Lespedeza was reported sown in more than 17,000 acres of bluegrass pasture. It is estimated that from 35,000 to 40,000 bushels of seed were sown in the State.

Perry McWhorter, Atlanta, Kentucky, is the owner of this 40-acre field of clover. Mr. McWhorter cleared it of "whizzer briars" and sumac bushes two years ago; he then turned the land and applied ground limestone at the rate of one ton per acre; some phosphate was spread with the limestone. Crop yields have been more than doubled as a result.

There is a widespread active interest in lespedeza, because it is a legume that grows under all soil conditions in this State and produces good grazing and hay and improves the soil.

On plots on the Mayfield Experiment Field, devoted to a three-year rotation of tobacco, wheat and clover, and which have been fertilized at the rate of 200 pounds of acid phosphate per acre per year, the average yield of tobacco has been 1,040 pounds per acre for 11 years; of wheat, 16 bushels (for 6 years, rye previously used); and of lespedeza hay, 2,300 pounds for 10 years. The yield of a set of untreated plots with the same rotation, except red clover is used instead of lespedeza, has been: Tobacco, 615 pounds; wheat, 4 bushels; and hay 960 pounds.

AGRICULTURAL ENGINEERING

The work accomplished during 1927 in Agricultural Engineering Extension was very gratifying. The many requests for assistance received by the Department indicated that farmers appreciate that there are many problems on the farm requiring the services of an agricultural engineer. Considerable time this year was spent on four projects:

1. Drainage
2. Terracing
3. Farm building
4. Sanitation

Limestone being crushed for Mr. Robert Meteer of Bourbon County. Mr. Meteer first gave an order for two hundred tons. Later he studied more of the value of lime for his land and kept the lime crusher until seven hundred tons were crushed. There is an ample supply of high-grade lime rock outcropping on practically every farm in Bourbon County. Ground limestone from quarried rock cost the farmer $2.50 per ton. The men operating the crushers think they may be able to lower the cost next year.

In addition, combined harvester demonstrations were held and farm machinery demonstrations and exhibits were featured at the annual Soils and Crops Meeting.

Drainage

The two chief problems in drainage in Kentucky are the lack of well distributed sources of drain tile, which causes excessive tile costs in certain sections of the State, due to the

freight charges, the lack of appreciation of the benefits to be derived from draining land and the importance of accuracy in planning and installing drainage systems.

Records show that special surveys for drainage systems were made on 17 farms, that one new source of tile was established and that drainage systems were installed on 56 farms.

The results secured from tile drainage demonstrations have been very good. George Johnson, of Muhlenberg County, is draining a 75-acre plot of land by installing each year, a portion of a system planned for the entire area. Ten acres were drained in 1925, 12 more in 1926, and the total increased to 35 acres in the spring of 1927. The total cost of draining the 35 acres was $1,400. The total value of the three crops harvested was $3,634. Mr. Johnson leases the land to a tenant and receives one-third of the tobacco and one-half of the corn, the value of which totaled $1,600 for the three crops. This is $200 more than the cost of the drainage work. The tenant's share, $2,034. The three crops of corn averaged 54 bushels per acre.

Terracing

Erosion is one of the chief problems confronting many of our Kentucky farmers. An enormous amount of fertility is lost each year from this cause. In the extension program effective methods of control are being taught, putting special emphasis on terracing. This year terracing work was done on 133 farms, terracing approximately 2,000 acres in 27 different counties in the State. The demand for this work has increased to a point where it was deemed advisable to provide in the counties trained men who could do terracing work. With this idea in mind a terracing contest for Junior Agricultural Club boys was conducted under the supervision of the specialist in Agricultural Engineering. Twelve counties entered teams consisting of two boys each. The teams were scored on a basis of 250 points as a perfect score, divided as follows:

Quiz on general knowledge of terracing	75 points
Accuracy and speed in setting up a level	25 points
Accuracy and speed in testing a level	50 points
Accuracy and speed in staking out a terrace line	100 points

County contests were conducted by county agents for selection of terracing teams in which 75 boys received training in terracing work. Handsome prizes were awarded to the four highest scoring teams. Each of the other teams was given a cash prize of $5.62. The work done by these junior teams was of such a high character that no boy entered scored less than 188 out of a possible 250, and thus each was entitled to a certificate of merit in terracing.

Farm Buildings

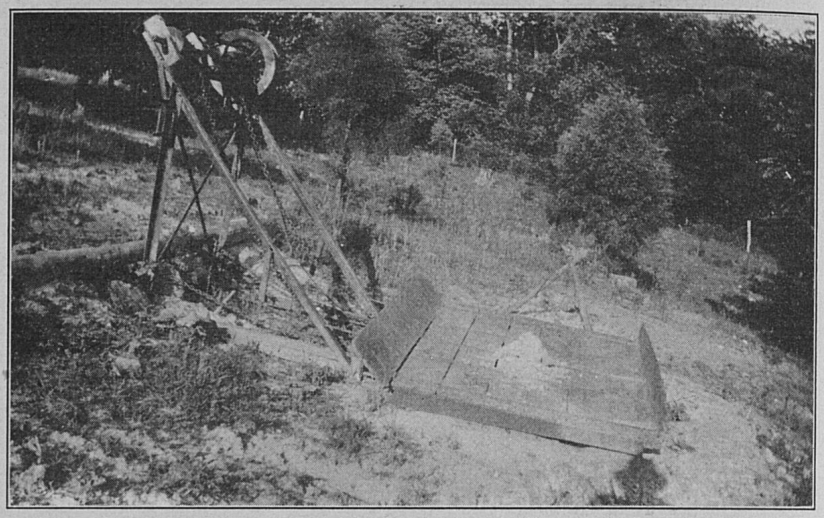
There is a continuous demand for assistance with farm building problems. The development of the dairy industry in the State has created new problems. Many farmers entering the dairy business are building new barns or remodeling old ones. The people are demanding cleaner milk, and many of the towns and cities have passed standard milk ordinances. These factors are compelling many of the dairymen to remodel their old barns to meet the sanitary requirements.

In conducting the building program, emphasis is placed on the following points:

1. Proper arrangement of barn and installation of equipment to save labor.
2. Correct amount of space to provide for comfort and health of animals and workers.
3. Proper utilization of storage space for hay and other feeds.
4. Careful selection of building materials and proper utilization of same to keep down costs and still secure durable, adequate buildings.

It is the purpose to have available for distribution plans of all kinds of farm buildings and equipment suitable for Kentucky conditions. This year eight new plans were prepared, making available a total of 111 different sets of plans. Office records show that 516 sets of plans were sent out during the year, upon requests, into 79 different counties in Kentucky and into 19 different states and one foreign country. The county agents reported as follows on the number of buildings other than dwellings constructed according to plans furnished during 1927:

Barns	148
Hog houses	213
Poultry	1,091
Silos	35
Other buildings	188



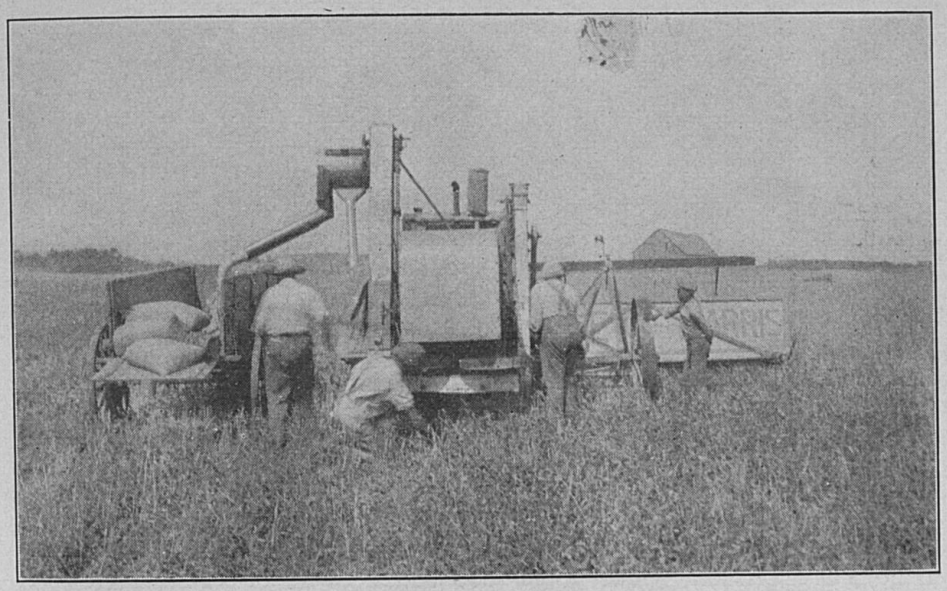
Loading device used on the farm of Gottbrath Bros., near Westport, Oldham County, Ky., for loading marl.

Sanitation

Outside the central Bluegrass counties there are few farms having bathroom fixtures requiring a septic tank system of sewage disposal. There are, however, many small villages and county seat towns which have water supply systems but no public sewage systems. There is a large field for extension work in these places. In Greenville, Muhlenberg County, the county agent has furnished twenty residents with plans for septic tanks with subsurface disposal systems. A development company outside of the city limits near Lexington is providing all of the homes constructed, with septic tanks, subsurface disposal beds and grease traps between kitchen sinks and disposal systems. Eleven installations have been made in the subdivision this year. Until Agricultural Engineering extension work was started seven years ago, the common method for disposal of

sewage, where no sanitary sewer was available, was thru the use of cesspools.

Some educational work was done regarding schoolhouse sanitation. Several school boards were assisted in planning septic tank sewage disposal systems for county high schools. During the previous year the Public Service Laboratories at the Experiment Station had tested 2,905 samples of water, 2,535 of which were from schools and home water supplies. Sewage contamination was present in 66.1 per cent of the samples taken from wells; 78.3 per cent from springs; 40.7 per cent from cisterns, and 60 per cent from miscellaneous sources of supply.

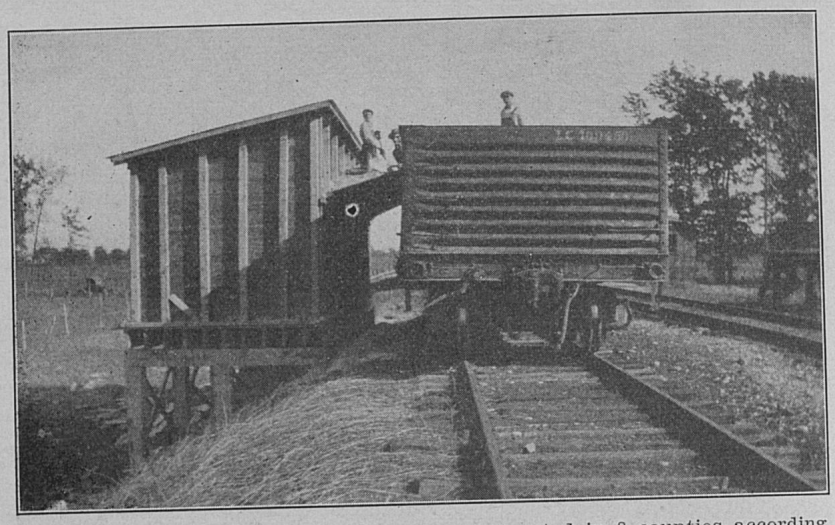


The first combine harvester owned in Kentucky was purchased and operated by S. R. Ewing, Jr., of Christian County during the summer of 1927.

Combine Harvester Demonstration and Tests

In order to gather information regarding the possibilities of using the combine harvester in Kentucky, the Department, in cooperation with one of the implement companies, arranged to conduct some demonstrations and tests. On July 7 and 8 wheat was harvested with a combine on the Experiment Station farm at Lexington and 175 farmers were present. On October 11 soybeans were harvested in Woodford County by the same machine and a total of 75 men saw the demonstration. More

tests should be made before making any definite recommendations regarding the harvesting costs and use of the combine in Kentucky. The farmers present were very well pleased with the ease with which the outfit could be operated, the success with which it picked up fallen grain, and threshed and cleaned. Two other machines were sold and used this summer in Kentucky for harvesting wheat and sweet clover.



Eleven cooperative lime sheds were constructed in 8 counties according to plans furnished by the Agricultural Engineering Section.

Soils and Crops Meeting

On the theory that Kentucky farmers should make greater use of machinery, since labor and machinery costs represent 60 per cent of the total cost of producing crops, farm machinery talks, exhibits and demonstrations were especially featured at the fourth annual soils and crops meeting held August 3 and 4 at the Experiment Station. In cooperation with five local dealers and different machinery companies doing business in the State, haying machinery, lime spreaders, lime pulverizers, and a combine harvester were exhibited and demonstrated. A representative of the Horse Association of America demonstrated horse hitches, which created considerable interest. Approximately 1,200 farmers from 55 counties in Kentucky and five different states attended the meetings.

ANIMAL HUSBANDRY

Beef Cattle

The work in beef cattle extension has been carried on along the following lines: (1) improving rations for cattle finished in the dry lot, (2) improving winter and summer rations for cattle carried thru the winter and finished on grass, (3) production of fat cattle on farms adapted for that purpose replacing the production of feeders, (4) improving and establishing beef cattle herds.

In beef cattle demonstration work in the Bluegrass Region, emphasis has been placed on the necessity of supplementing corn with some feed carrying a high per cent of protein for cattle fattened in the dry lot. The matter of underfeeding cattle during the winter, which were to be finished on grass the following summer, has been to a large measure corrected. In wintering steers for grazing it was found that in some cases there were actual shrinkage between fall and spring, which is unprofitable on high-priced land. From the results of extension activities in beef production, many farmers who have raised feeder cattle in the past have changed their operations by better care and more feed, so as to produce either baby beeves or fat yearlings, resulting in an increased profit. Those who are now raising beef cattle in Kentucky are disposing of them at an earlier age than formerly.

During the year 90 beef cattle demonstrations were carried on in 16 different counties. Those conducting demonstrations made profits of $12 to $25 per steer. In a few instances the profit was as high as $100 per head, due to the large margin received between buying and selling price. In one case a margin of $10.25 per hundredweight was received for cattle sold at the Fat Stock Show at Louisville.

During the year 304 purebred beef bulls were placed in 52 counties, also 123 farmers in 32 counties were aided in securing purebred females, and in some cases purebred herds were established for the first time. Beef cattle field meetings were held in Hancock, Oldham, Fayette, Madison, Boyle, Caldwell, Montgomery and Bath Counties.

Better Sires Work

More time was allotted to the better sires work than in previous years. Some better sires work was done in most of the counties of the State. The outstanding achievement of this work this year was the eradication of all grade and scrub bulls from Russell County and replacing them with purebreds. Russell County was the third county in the United States to accomplish this task, Union County, Kentucky, being the first. The county agent had as his major project the replacing of all grade and scrub bulls with purebred bulls. All of the 51 bulls in Russell County are purebreds and registered with the registration papers in the hands of the owners.

As a result of a better sires campaign in Pendleton County, 108 men who previously used scrub and grade bulls agreed to dispose of them and use purebred bulls. Up to date 93 men have actually made the change, and the others who agreed to the plan will soon secure the animals desired.

There were four purebred beef herds in Pendleton County at the beginning of the work, and five more had been added by its close. During the last two years 122 grade and scrub bulls have been replaced with purebreds in Campbell County.

Trimble County replaced 40 grade and scrub bulls with purebreds during the year.

The following number of purebred sires were placed during the year: Beef bulls, 304; dairy bulls, 549; farms on which purebred beef cows and heifers were placed, 163; purebred boars, 427; farms where assistance was given in locating purebred roosters, 2,278.

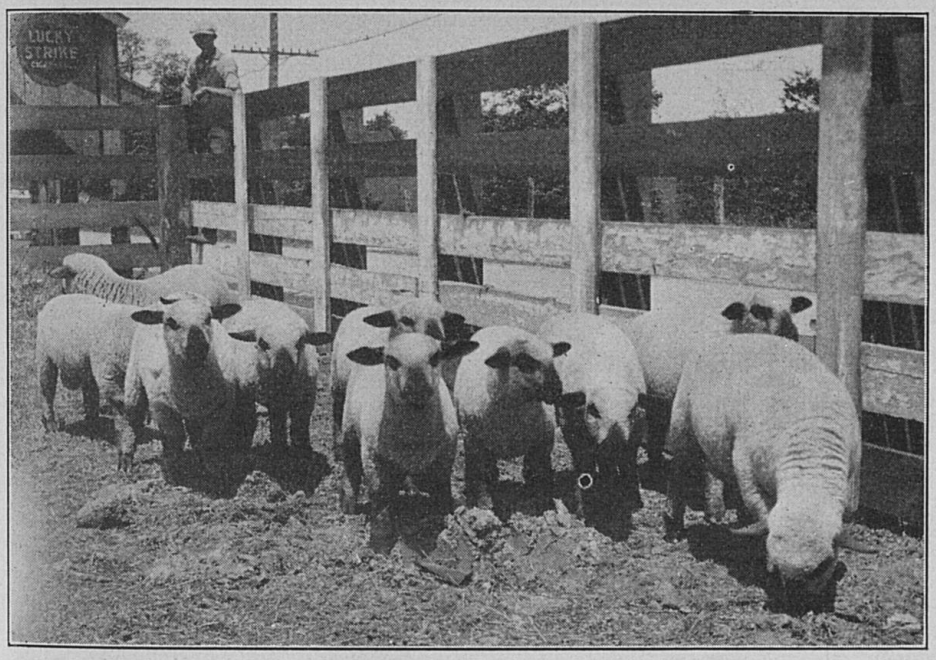
The county agents, assisted by specialists, were the principal factors in helping to organize and prosecute the Better Sires-Better Stock work. Newspapers, bankers and representatives of livestock breed associations give generous support to the movement.

Kentucky is still leading all the other states in the total number of persons enrolled in the Better Sires project.

Sheep

The Kentucky Lamb Standardization program, from its beginning in 1920, has been prosecuted along definite plans, with the result that each year has been marked by progressive improvement in value to farmers. The Standardization program is being prosecuted along four main lines, as follows:

1. The use of purebred rams as flock heads.
2. Trimming lambs so they may be marketed in car lots as ewes and wethers.
3. Control of stomach worms by periodicals drenchings and rotation of pastures.
4. Better feeding and management.

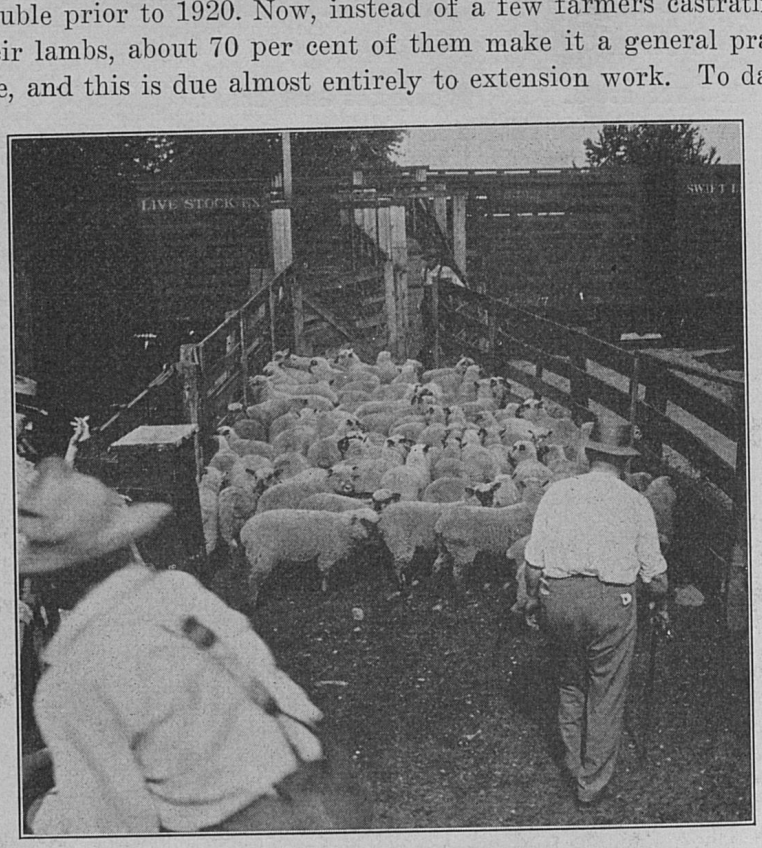


Hampshire lambs from an accredited flock.

The work has been carried on both in agent and non-agent counties. When lamb standardization was first started, several of the leading sheep counties in Kentucky were without agents. The majority of these have employed agents since that time.

Castrating and Docking Lambs

The "bucky lamb" has long been a disturbing factor in the native lamb trade. While the packers vigorously protested the marketing of lambs as bucks, very little was done to remedy the trouble prior to 1920. Now, instead of a few farmers castrating their lambs, about 70 per cent of them make it a general practice, and this is due almost entirely to extension work. To date



Standardized lambs, well bred, properly fed, docked and castrated.

the sheep specialist has conducted 857 demonstrations in docking and castrating lambs, in which nearly 70,000 lambs were handled. Sixty-four of these demonstrations were held during 1927. Thru these demonstrations, and others put on by county farm agents, the methods of performing these operations have become so familiar to farmers that most of them can do the work without assistance.

Somach Worms

The biggest single problem in sheep production in Kentucky is the control of internal parasites, particularly stomach worms. With the system of handling sheep almost entirely on permanent pastures, it is necessary to change pastures often and to drench the flock at frequent intervals during the hot weather if they are to be kept in a healthy condition. The drenching of flocks has become a general practice with the best sheep men since the beginning of lamb standardization work in the State. Many breeders now say it would be impossible to maintain the health of their flocks without drenching.

The sheep specialist conducted 52 drenching demonstrations during 1927, and practically all farm agents gave demonstrations to farmers in their respective counties. Several treatments were used, all of which were more or less efficient. While many factors relating to the control of stomach worms under Kentucky conditions are not well understood, the standardization work has demonstrated the importance of beginning the treatment early and continuing at frequent intervals thru the hot weather. Scientific investigations along this line are badly needed in Kentucky.

Purebred Flocks

Aside from a few central Kentucky counties, relatively few farmers used purebred rams at the heads of their flocks of grade ewes prior to 1920. Thus it was necessary from the beginning of the lamb standardization compaign to emphasize the importance of purebred rams in the production of market lambs. As the campaign progressed, the demand for purebred rams greatly exceeded the supply. In order to meet this situation rams were purchased in other states and in Canada. During the past year eight carloads of purebred sheep were selected, with the assistance of the extension field man, for use in Kentucky. This runs the total number of purebred sheep brought to the State since 1920 well over 3,000 head. At first there was some opposition to the purchase of these sheep on the ground that it would hurt the demand for Kentucky-bred sheep. But as most of these

sheep went to sections of the State where farmers were not generally using purebreds, the improvement in the flocks so greatly stimulated the demand for purebred sheep that instead of a lower market for home-bred animals, the demand for good individuals has grown from year to year.

The Kentucky Accredited Purebred Sheep Breeders Association, which is an outgrowth of extension activities, has done much in stimulating interest in more and better purebred flocks. During the year the association conducted two purebred sales, one at Lexington at the time of the annual meeting, and another at Madisonville. The Madisonville sale is the first sale of purebred sheep ever held in Western Kentucky, and the success of this sale has led to a plan for conducting an animal sale in that section of the State. Plans for the coming year call for four sales, to be held in Lexington, Maysville, Louisville and Madisonville.

Judging Schools

At the annual meeting of Accredited Association in July, plans were made for judging schools to be conducted jointly with the Extension Division of the College of Agriculture at centers of sheep production thruout the State. The primary purpose of these schools is to acquaint the breeders with breed type, a thing that is sadly lacking among the majority of our purebred breeders, particularly those who have started flocks within recent years. The secondary object is to train breeders of purebred sheep as judges of sheep at county and community fairs. The first of these schools was held in Grant County the first week in December. While the weather was severe, forty breeders were enrolled, indicating great interest in the work. The sectional schools are to be followed during the summer of the coming year with a State school in Lexington in which it is expected to enroll two hundred breeders.

Golden Hoof Club

A sheep club, called the "Golden Hoof Club," for adults, was organized three years ago for the purpose of promoting interest in better feeding and management of sheep. The club was

first organized in Hopkins County, and a thoro trial of the plan was made before attempting to organize other sections of the State. The result in Hopkins County far exceeded expectations and has thoroly demonstrated the feasibility of the plan. Two other counties have been organized this year, and counties will be organized as rapidly as possible.

Meetings

A total of 172 meetings were held during the year. These included county and district lamb improvement conferences, demonstrations in docking and castrating lambs, drenching sheep for stomach worms, grading market lambs, and judging sheep. More than nine thousand people were in attendance at these meetings.

Swine

While the ton litter, swine sanitation, and the home pork projects have received most attention during the past year, assistance has been rendered to 4-H Club members in many sections on the feeding and management of hogs, demonstrations of treating hogs for worms have been given, many hogs have been located for prospective buyers of breeding hogs, including some that went to 4-H Club members, and a considerable amount of judging work has been done.

Ton Litter Work

Ton litter work has been carried on in the State for four years, and it is still one of the most popular swine extension projects. This year 66 contestants finished their projects on ton litter feeding; 54 of these furnished the Department with cost records on the litters in the contest, 43 of this number producing ton litters or above, in 180 days. A summary of these records reveals that the 54 litters were produced at an average cost of $163.74 each and sold for an average of $236.74 each, thus returning their owners a net profit of $73 per litter. (Cost items included feed, labor and pasture.) The average number of pigs raised per litter was 10.64, and the average 6-months weight per litter was 2,279 pounds. An interesting and val-

uable contrast was provided in a comparison of the records of the 43 litters weighing a ton or more in 180 days, and the records of the 11 litters that failed to reach the ton mark in the allotted time. Altho the cost of the pork produced by the 11 "under ton" litters cost $6.71 per hundredweight as compared to a cost of $7.27 per hundredweight for the pork produced by the litters weighing a ton or more at selling time, the 43 litters that weighed over a ton returned to their owners a profit of $4.09 per litter more than the "under ton" litters. Disregarding the 5.1 cents a hundredweight selling advantage of the ton litter group, and then figuring their selling price and the number of pigs per litter the same as that of the "under ton" litter group, the profit per litter remains $3.18 greater in favor of the ton litter group. The factor accounting for this difference in profit was the greater volume of business done in the case of the ton litter group of pigs. The average weight per litter of the ton litter group was 2,372 pounds and of the "under ton" group that entered the contest, 1,708 pounds per litter.

Proof that ton litters are serving well as demonstrations of proper hog raising practice is brought out in statements such as the following from county agent reports: "Ton litter work this year seems to be more attractive than it has been in other years to men who themselves are not in the contest. Because of the finish of 5 out of 9 ton litters in this county there was present a group of neighbors to see the hogs and hear the story. It is expected that this project will be even more popular in 1928." One of the ton litter feeders of this year says that the experience was worth $500 to him, and that he never knew how to feed hogs until he fed a ton litter. He has told several neighbors of his experience. Three of them already have been to the office and ask how their neighbor fed his ton litter, saying that they expect to put in practice the ton litter plan of feeding.

Swine Sanitation

In a ten-day series of meetings in which Dr. H. B. Raffensperger of the United States Department of Agriculture assisted the field agent in initiating a concerted drive to interest

Kentucky hog raisers in adopting swine sanitation as a standard practice in their swine management program, much interest was evidenced by the 696 farmers who attended the seventeen meetings. Of this number 137 stated definitely that they expect to adopt the plan as outlined. A follow-up check on the project indicated that a large per cent of these men are carrying out the plan. One extensive hog raiser has spent $500 in rearranging his equipment so that he can put into practice the sanitation system. At the meetings 17 pigs were autopsied, each animal having present from 3 to 10 different species of internal parasites. Dr. Raffensperger stated that Kentucky swine are suffering more seriously from internal parasites than those of any other section of the United States which he has visited. These findings indicate that this project is perhaps the most important project in which the hog raiser can take part.

Cutting and Curing Pork

Since the bulk of the work on killing and curing the home pork supply, of necessity, must be done in the month of December, only a part of the work on this project is included in this report. Arrangements have been made whereby the field agent will give 34 demonstrations of properly trimming the home pork supply. Two such demonstrations were given in January. In addition to these demonstrations, a farmer in one county, in showing his neighbors how to trim pork in accordance with recommendations, gave 18 such demonstrations. The agent in this county says that he notices material improvement in the home pork supplies of the sections of the county in which this work has been carried on. This improvement has been effected both in the method of trimming the pork and in the method of curing.

Purebred Breeding Hogs

Assistance was rendered in the location and inspection of 168 purebred breeding hogs, most of these being bred sows and gilts. The bulk of these were bought by adult farmers, 4-H Club members getting some of them.

Dairying

Work in dairy production has embraced such branches as cow testing associations, introduction of purebred sires, co-operative bull associations, boys' and girls' dairy clubs, and register of merit and semi-official testing.

Purebred Sires

This work is a continuous process. During the past five years, 1,850 purebred sires have been placed in the State, 244 having been placed during the past year. The number of purebred females brought in as a result of this same work has been in excess of the number of males. The purebred animals purchased have been of excellent pedigrees with extraordinary production records among the ancestors of many of them. The work continues, as shown by large numbers of orders placed for breeding stock, but not yet filled.

Breeder's Association

In Western Kentucky particularly, interest in dairying has increased in the last two or three years. The expansion of capacity at Paducah and the new condensing plants at Bowling Green and Mayfield have been both evidences and causes of this expansion.

In Calloway County the improvement work has been placed upon an especially high plane by the Jersey Breeders' Association, composed of 48 members. They have over 400 head of excellent registered cattle and their principal projects are Register of Merit work and junior dairy calf clubs. Some of the animals that have been brought in are the best that the breed affords. The banks offer any reasonable amount of money necessary to get the right kind of cattle.

Cow Testing Associations

Two associations have been reorganized, one new association started and several others brought into immediate prospect. Register of merit work has been successfully begun in Calloway and Marshall Counties during the year, with 50 farmers participating.

Junior Work

New clubs have been organized in four counties. The principal problem is found not in getting club members, but in securing suitable animals. Several other clubs have been organized, but their work has been delayed temporarily by difficulty in locating suitable heifers.

Purebred Bull Associations

The 21 Bull Associations have been kept in good running order and the increased capacity of the daughters over that of their dams is beginning to become apparent. This fact will increase the demand for better sires quite rapidly. The favorable testimony of dairymen who have had this experience is one of the most gratifying evidences of the progress and benefit of this work.

Milk condensing plant at Mayfield, Ky. The floor space is soon to be increased from 12,000 to 45,000 square feet. When complete this plant will handle 200,000 pounds of whole milk daily.

Cooperative Activities

Assistance had been given by the breed associations, notably the Jersey, the State Fair and other agencies. One result of such cooperation was a show of 284 head of Jerseys at the State Fair, 84 Holsteins and 46 Guernseys. The cooperation resulted in the giving of $300 by the Jersey Association to the junior club show at the State Fair.

The gratifying results of dairying upon soil fertility, bank deposits and general prosperity has been a great encouragement. The coming of three condensing plants to the State, with cheese factories and other related industries in sight, has given added impetus to dairy extension work. The College has devoted more time to improvement than it has to expansion, and the comparative production figures for 1920 to 1925 show an increased average production per cow of 44 gallons.

Poultry

The ultimate goal in poultry extension work is to make every flock of poultry in the State more profitable. The immediate objective is to reach as many people as possible with recommendations that will enable them to secure increased returns. The project of having good demonstration flocks in each community is proving to be the most fruitful of results in this direction.

Poultry improvement is taught most effectively thru a program built around two agencies — demonstration flocks and county poultry associations.

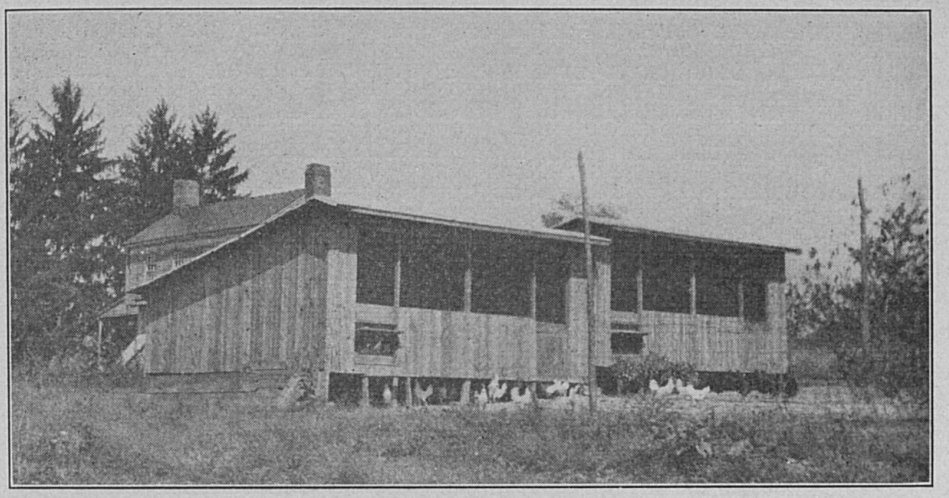
The general plan of work embraces five principal divisions:

1. Standardization, or Community Breeding
2. Culling and Selection
3. Winter Egg Laying Projects
4. Farm Flock Demonstrations
5. Certification of Poultry Flocks

The chief problem is low egg production and high cost due to poor stock and improper management.

Standardization, or Community Breeding, is designed for the purpose of distributing purebred stock and hatching eggs. The eggs are put out by the county associations or individual breeders upon the plan of having one pullet returned in the fall for each setting of eggs put out in the spring. This project, after several years of successful operation, has become a matter of established practice and, so far as the College is concerned, can soon be left to run itself.

Culling and selection is taught by culling demonstrations held on farms where a group of neighbors are gathered to learn the practice. This plan proved especially valuable in new territory, because the difference in laying between the culls and the selected hens was so striking and so immediate as to convince the most skeptical. At first this comparatively simple operation was conducted by specialists, but the county agents learned quickly and alert poultry raisers themselves soon qualified for the work so that this project, in turn, has become an established routine practice.



Shed roof laying house, 20x40 feet, for 200 hens.

The winter egg laying project is designed to stimulate interest in better feeding during the winter and to encourage the keeping of records. The cooperator is furnished a "poultry calendar," upon which he agrees to keep a simple but accurate record of feed, costs and production, and report at the end of each month to the county agent.

Farm flock demonstrations are put on by owners who have made good records in the winter egg laying project and have good stock, equipment and system of management. These demonstrators not only keep complete records, but also agree to follow as closely as possible the recommendations of the county agent. On these farms are held meetings designed for the observation of correct methods as well as the results being secured.

These farm flock demonstrations continue to grow in popularity. More cooperators were enrolled and the flocks were of better quality than ever before. Of the 341 flocks enrolled, 255 successfully completed the year's work. Four of these flocks made averages of over 200 eggs per hen, and a large number made flock averages above 175.

The certification of flocks was designed to make available more breeding stock from fowls of known egg laying ability. During the year 1927 the Kentucky Certified Poultry Breeders' Association took over this work after it had been carried safely thru the formative period by the Extension Service. The College remains in an attitude of close cooperation with the poultry association. A flock to be eligible for certification must serve at least a year as a successful demonstration flock and must meet the requirements of the association. All certified hens are mated to male birds from hens with records of 200 or more eggs. These certified flocks provide centers of distribution of hatching eggs, chicks, and cockrels of a quality that bids fair to improve the stock of the community quite rapidly. During the year five new county associations were organized as a direct result of standardization work in those counties. Twenty-one meetings were held with these associations to outline their work. These meetings had a total attendance of 897. During the winter, 13 two-day poultry schools and 17 one-day schools were held, with an attendance of 2,204.

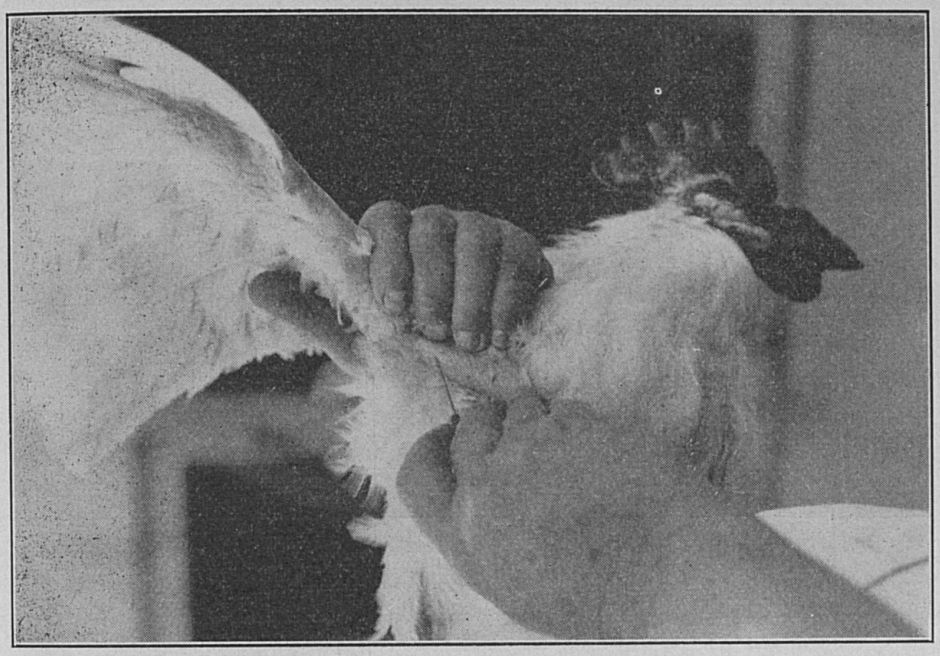
Veterinary Science

The purpose of this service is to acquaint farmers and stockmen with the proper methods for the prevention and control of disease. The field agent, a trained veterinarian, cooperates with local veterinarians and all other agencies interested in livestock production.

In order to reach the greatest possible numbers, the effort has been made to gather people into groups where lectures and demonstrations can be used as teaching methods. At such meetings use is made of charts, illustrations, and preserved speci-

mens, including animal parasites, as aids in teaching. Despite this it has never become possible to discontinue farm visits. This year 176 such visits had to be made.

The diseases which demanded most attention during the year were hog cholera, bacillary white diarrhea of poultry, poultry parasites, Johne's disease, tuberculosis and infectious abortion in cattle, and rabies as affecting all classes of livestock.

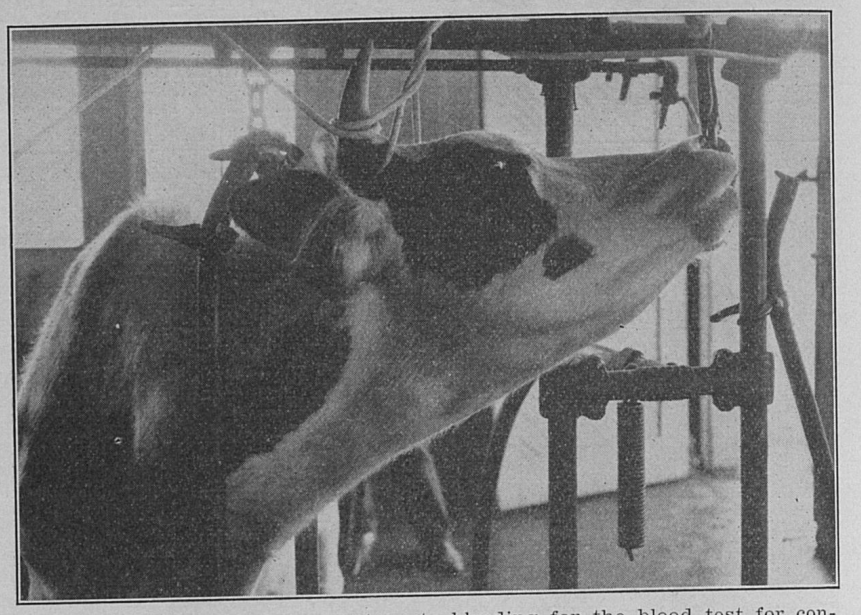


Collecting blood sample for the bacillary white diarrhea test.

It is to be understood that the Extension Service does not perform a routine veterinary practice, but does educate. This includes such matters as diagnosis, demonstrations, handling infected herds, eradicating infection, and precautions to prevent contraction of disease by healthy herds.

Bacillary white diarrhea of fowls has become alarmingly prevalent and has caused much concern and heavy losses. Meetings for discussing this matter have been held in 41 counties, where the method of bleeding for the test was demonstrated. There were 2,493 birds bled at these demonstrations, which resulted in teaching farmers to do this work themselves. Very

favorable laboratory arrangements were made for testing the samples, and this resulted in 19,000 tests during the year. About 20 per cent of the flocks examined showed infection, and in those flocks the death rate among young chicks was 40 to 90 per cent.

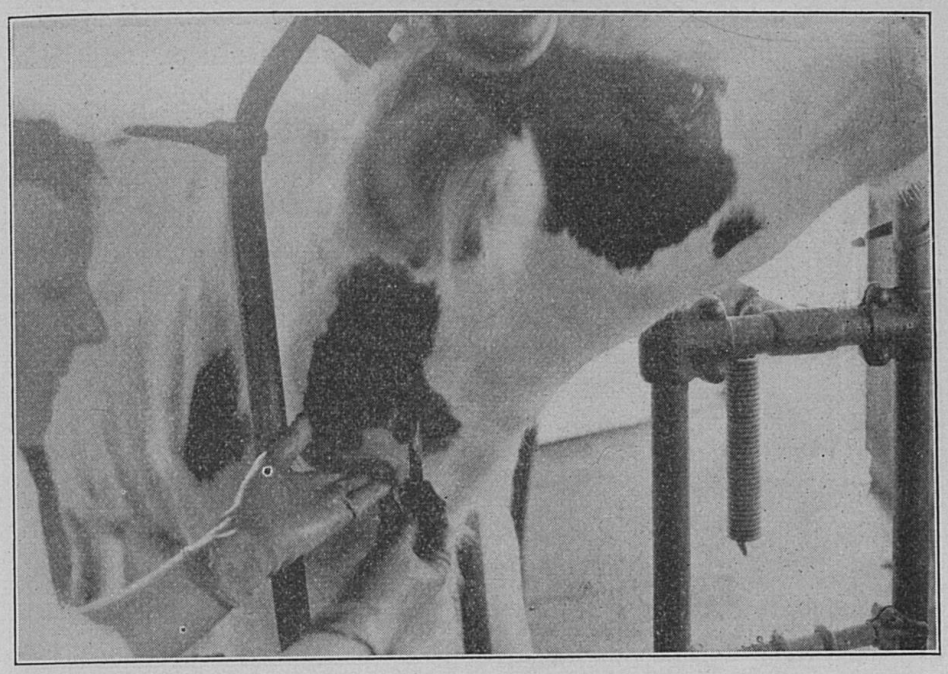


Securing an animal preparatory to bleeding for the blood test for contagious abortion.

Parasites of fowls as well as other farm stock are attracting increased attention on account of the severe losses that they entail. Educational work is the most effective means of getting at this question, and the work is being prosecuted vigorously. Post-mortem demonstrations are very effective in this work. Similar methods are made use of in connection with tuberculosis, contagious abortion, rabies, and other infectious diseases.

SUMMARY

Consultations with farmers and stockmen	559
Farm visits made	176
Counties visited	102
Consultations held with veterinarians	69
Cattle tested for infectious abortion	396
Poultry bled for method demonstrations	2,466
Meetings addressed	86



Jugular vein is pierced at this point to collect the blood sample.

FARM ECONOMICS

The chief object of the work in farm economics has been to bring about a better understanding of the principles underlying economical and profitable farm organization and management and more a general adoption of business practices. Constant pressure has been put upon the fact that farm profits are the difference between total receipts and total costs. For the reason that production costs vary so widely between different farms, and the further reason that costs are so much more under the control of the individual than are the receipts, a special line of work dealing with production costs has been carried on. In addition to this project, most of the other work has been on farm accounting and farm inventories.

It is believed that the farm inventory represents the first step in placing the farm upon a business basis. In the intensive campaign for farm inventories which was conducted early in the year, the cooperation of several agencies was quite helpful, notably that of the bankers and the newspapers. This resulted

in taking 2,273 inventories in 89 different counties. A special inventory book had been prepared by the College, and this facilitated the work greatly.

Farmers valuing hogs. Farm inventory demonstration on a Fayette County farm.

Farm Accounting

Over 3,000 farmers kept records in the improved account book furnished by the College. Study groups were organized in thirteen counties and group analyses of the accounts were carried out and the results used to determine the chief factors of profitable farm organization and management.

The farm business schools furnished an effective means for the systematic analysis of farm accounts. The finished farm account books were brought and a complete analysis and summary were made. Each farm was charted and an array of the factors of success or failure was made to show each man his strong and his weak points. During the year 22 such schools were held. The business of 455 individual farmers was analyzed and summarized in this way.

An example of the analysis of the individual farm business taken from the records of two Taylor County farms is shown on page 61. This analysis serves to point out the strong and the weak points and is suggestive of steps to be taken in correcting the weaknesses.

COMPARISON OF A SUCCESSFUL AND AN UNSUCCESSFUL SMALL FARM

Farm Year ending March 1, 1927.

	Farm No. 1	Farm No. 104
Net earnings	$2,065	$ −75
Productive acres	82	64
Total investment	5,818	6,696
Items:		
Land & buildings	4,000	5,000
Machinery	259	373
Feed	150	356
Dairy cattle	495	230
Hogs	112	70
Sheep	233	.....
Poultry	269	82
Work stock	300	580
Crops:	Acres	Acres
Corn	15	30
Wheat	8	....
Oat hay	15	10
Redtop hay	6	11
Tobacco	1	2½
Pasture	37	9½
Other land	3	12
Rate earned on investment	33.3%	−1.3%
Receipts per productive acre	$32.00	$14.20
Net returns per acre operated	21.00	−3.30
Expense per $100 receipts	19.00	108.00
Receipts per cow	104.00	82.00
Receipts per hen	4.88	2.34
Livestock returns per $100 feed fed	640.00	96.00

	Farm No. 1	Farm No. 104
Total receipts	$2,626	$908
Items:		
Dairy cattle	520	330
Hogs	467	75
Sheep	173	.....
Poultry	1,015	152
Tobacco	229	38
Feed	.....	123
Other receipts	222	190
Total expenses	$561	$983
Items:		
Other labor	16	400
Seed and fertilizer	55	79
Feed	43	.....
Repairs	50	10
Depreciation	57	90
Taxes and Insurance	42	47
Interest	291	335
Other expenses	7	22
Receipts per $100 invested in hogs	$417	$107
Price per pound tobacco	14¼c	2c
Value per acre tobacco	$229	$15
Tobacco yield per acre	1,600lb	760lb
Corn yield per acre	35bu.	35bu.
Hay yield per acre	1T.	1¼T.

HORTICULTURE

Pomology

The work in Pomology has been directed along five main projects:

1. Orchard management
2. New orchards
3. Further development of cooperative peach packing organizations in the Purchase Region
4. Cool storage for apples
5. Small fruit culture—strawberry, dewberry and raspberry.

Some of the questions confronting the fruit and small fruit growers in 1927 were as follows:

1. Insect and Disease control.
   a. The advisability of substituting a combination Bordeaux-oil emulsion dormant spray for peaches for the long-recommended lime-sulfur solution.
   b. Will the set of apples be as good when lime-sulfur is applied in the pink and cluster bud season as it is when dust or Bordeaux is used?
   c. What change should be made in the codling moth spray in order to grow apples free from worms, and what orchard sanitation methods shall be recommended?
   d. How can a part, at least, of the "cat-face" injury to peaches be eliminated?
   e. *Bacterium pruni.* Is it reasonable to expect to find control measures, and will increased vitality of the tree help to reduce the damage?
2. Cultivation vs. sod and mulch for bearing apple orchards.
3. To what extent will additional farm storage for apples help solve our apple marketing problems?
4. Can a gradually increased acreage of strawberries be successfully grown and marketed thru the present organizations?
5. The advisability of planting a sufficient acreage of dewberries in the purchase so as to make carload shipments.

The County Fruit Growers' Associations furnish a medium for the teaching of subject matter. These associations are maintained in all the counties of the State where commercial fruit and berry production is of importance, not for the purpose of buying or selling, but strictly for educational purposes. During the early part of the year and at such other times as seem advisable, meetings, both field and indoor, are held in the various counties for general and special discussions of problems on such subjects as planting, varieties, sites, pruning, spraying, fertilization, culture, harvesting, packing, and, in fact, all phases of orchard management.

The severe freezes late in April did great damage, completely destroying the orchard fruits in central and eastern Kentucky, but those orchards in western Kentucky that were located on well selected sites, protected from frost, had fair crops and returned handsome profits, peaches selling for $3 and more at the shed, and apples bringing $2 and over. Virtually the same things were true concerning strawberries and raspberries.

The importance of proper spraying was brought out clearly in consequence of unfavorable weather which interfered with the dormant peach spraying and the pre-pink and pink apple spraying. In some of these peach orchards the dormant spray was applied in spite of the weather, and in such cases no leaf curl appeared, but in those not so treated defoliation occurred and the crop was a total loss. The control of apple scab presented a similar situation.

The planting of new peach and apple orchards made some progress in spite of a discouraging season. Webster, Carlisle, Graves, McCracken and Hopkins counties jointly report 125 acres of new apple orchards and 423 acres of peaches.

During 1926 the damage from codling moth became alarming and as a consequence determined efforts were made to prevent such a recurrence in 1927. Many meetings were called to discuss plans. A general program of orchard sanitation was put into action. Rough bark was scraped from the trees, collected and destroyed. Crates, boxes, etc., were scalded or fumi-

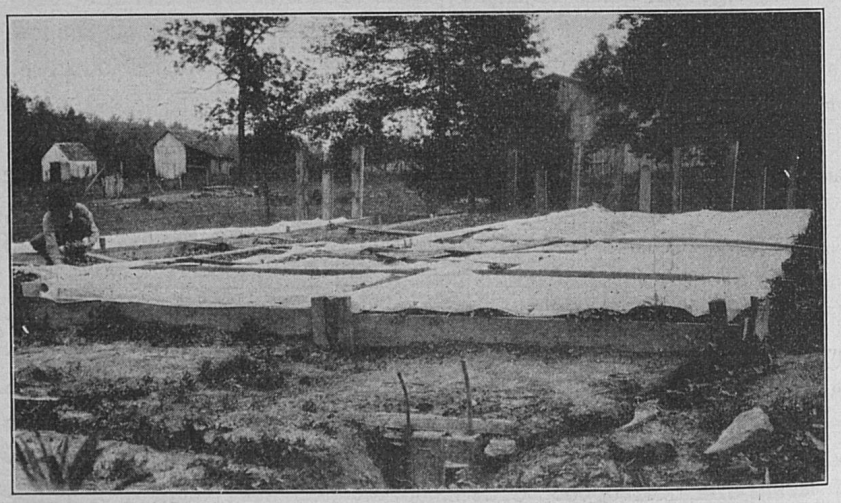
gated, and in bad cases burlap bands were applied to the trees to trap and collect larvae. A thorough spray schedule was prescribed. This full program gave a 93 per cent control. The omission of the calyx spray alone reduced the control to 78 per cent, and neglect of the whole schedule in certain portions of large orchards reduced control to 35 per cent.

A Demonstration Peach Orchard

The one acre demonstration orchard of Mr. B. W. Scott, Kenton County, has been operated exactly according to recommendations since it was planted in 1919. It has yielded six consecutive crops. In 1927 the acre yielded 433 bushels at a total cost of $318.09. The crop sold for $1,125.80, leaving net profit of $807.71.

The properly selected site, plus a complete system of orchard management, has made this orchard successful.

In one of the large orchards in Henderson County a demonstration of pruning is being carried over a number of years. The value of moderate pruning over severe pruning, and over the system of very slight pruning, is being clearly shown, considering both the size and the quantity of fruit, not to mention the additional labor involved in heavy pruning.



Sweetpotato bed of Judge Lawwill, Danville. Note "firebox."

Farm Storage of Apples

A large saving was made by apple growers in the early winter and spring of 1927 by means of their storage houses constructed in the fall of 1926 to handle the heavy crop of that year. Plans for such houses were furnished by the College. In a heavy crop year apples cannot be sold in any considerable quantity at prices that warrant picking, but by using these storage houses farmers are able to keep apples successfully until winter, or even spring, when good prices prevail.

Peach Packing Demonstrations

The cooperative packing of peaches, so necessary to uniformity and to the establishment of a good reputation, is being successfully worked out in the Paducah peach section. The previous training that the growers have had in cooperative work with berries has helped greatly in the work with peaches.

Strawberries

Commercial strawberry growing is reaching a high state of development in certain localities. In the Purchase region, for example, the number of growers has increased in the last three seasons from 593 to 2,100, and the acreage has increased from 1,200 to 4,500. The returns convince the growers that this departure from the usual Kentucky crops has been profitable. A club has been organized whose purpose it is to produce 200 or more crates per acre. The winner of the contest, Mr. Andrew Hovercamp, of Paducah, had a cash return of over $800 per acre.

Strawberry growing lends itself admirably to junior club work.

In orchard work, inspection tours prove interesting and helpful. Such meetings were held in sixteen counties, with over 1,200 people taking part. These tours, whether they have to do with one farm or home practice or another, are very effective because of the favorable conditions under which the people mingle, and also on account of the object lessons which are placed at their service.

Truck Crops

In truck crops the principal problems attacked were as follows:

1. Low yields of potatoes prevail, and scab is quite troublesome. Varieties of low quality are frequently used.
2. The sweet potatoes store poorly because of black rot, and because of inadequate storage facilities. Yields are also low, in some instances.
3. With canning crops replacing surplus tobacco acreage, the problem is to assist farmers in making the transition.
4. Home gardens lack in variety and in many cases, in yield.
5. Cucumbers are a very erratic crop because of the cucumber beetle and because of poor methods of fertilization.

The goals set were as follows:

1. Potatoes. The ultimate goal is, obviously, to make Kentucky a self-sustaining if not a surplus shipping state, of high-class potatoes.
2. Sweetpotatoes. The goal is not yield, for that can be made to take care of itself, but to produce better quality and to provide means to prevent dumping on an inopportune market. The goal for 1927 was to have all commercial acreage set to slips from treated seed; all plants offered for sale to be from roots treated for black rot.
3. Canning Crops. The ultimate goal in the Bluegrass district is an average yield for tomatoes of 400 bushels; in the Purchase 300 bushels. The goal for 1927 was 10 demonstrators in the Purchase, and 3 at each plant in the Bluegrass, a total of 24.
4. Cucumbers. The ultimate goal is the universal practice by growers, of means to control insects and disease; that for 1927, 3 closely supervised demonstrations for each salting station.

Potatoes

This is a very important crop, especially in certain sections. Thru meetings and field demonstrations, as mentioned above, great interest has been aroused in the use of certified seed. Records have been obtained showing 68 cars of certified seed that were shipped into the State. In addition, the Jefferson

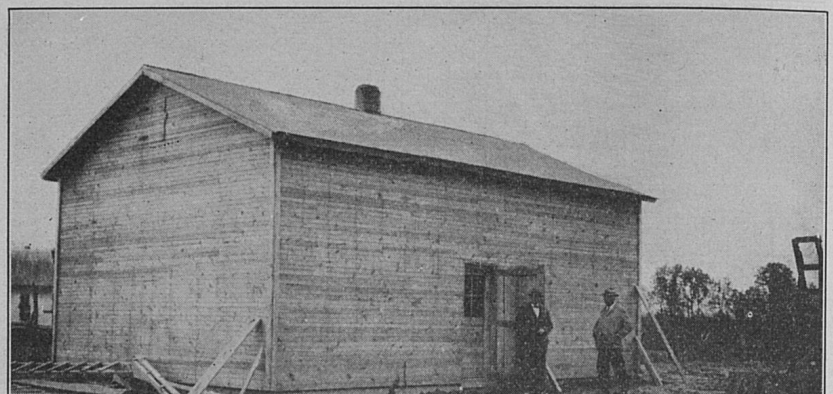
Potato certification work. Treating seed with corrosive sublimate.

County Association itself shipped 5½ cars, and the Fayette County Association 1¾ cars. The acreage under certification was increased 32 per cent. Data on 42 demonstrations show an increased yield of 60 per cent for certified seed over common varieties.

Sweetpotatoes

The same methods of teaching seed treatment, etc., were used with sweetpotatoes. In southwest Kentucky 1,100 acres, grown for canning and shipping, were set to slips from seed treated against black rot. Improved methods of constructing inexpensive flue-heated plant beds were demonstrated by the field agent and resulted in improved plants for the growers and substantial profits for those who planted the beds. Assistance was rendered in severe losses that occur in sweet potato storage, and this returned good profit to the owners.

Sweetpotato growing is becoming an important industry in some sections. It adds to the diversity of cropping and is another source of revenue.



Sweetpotato house of L. A. Dowd, Carlisle County.

Canning Crops

Despite the abnormally wet and backward season and consequent abandonment by farmers of many demonstrations that had been planned, 32 demonstrations were completed in a satisfactory manner. These demonstrations had to do largely with fertilization and spraying. Also the advantage of growing tomatoes or some other canning crop as an added diversity to the cropping system and as an additional source of cash was brought out clearly. For example, land capable of producing an estimated 60-bushel corn crop produced 363 bushels of tomatoes that brought $145.20, or the equivalent of $2.42 per bushel for the corn had the land produced the estimated 60 bushels. Very poor corn land was treated with 5 tons of manure and 500 pounds of superphosphate, and returned as good yields as the better corn land when untreated. When the poor corn land was fertilized as above and the crop was sprayed twice with Bordeaux, a yield of 408 bushels of tomatoes was produced that sold for $163.20 per acre. The use of superphosphate returned amounts that varied from $4.90 to $8.12 for each dollar expended for the phosphate. The advantage was particularly noticeable in such a season as that of 1927. An added advan-

tage was found in the earliness produced by the use of phosphate, as it caused tomatoes to reach peak production 17 days earlier than on untreated land. There was also a marked advantage in quality which reduced greatly the percentage of rejected tomatoes.

Home Gardens

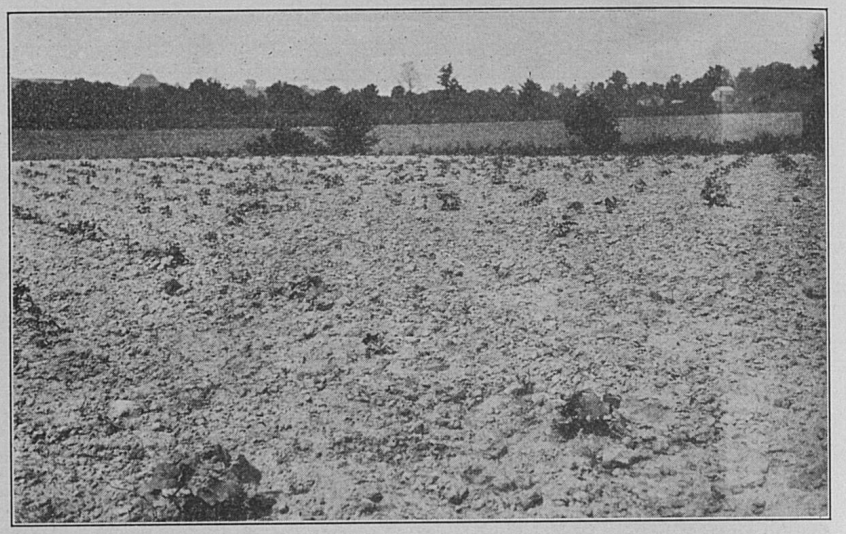
This project was not conducted with the purpose of keeping records either of the number or definite results, but consisted mainly of a weekly service of garden articles furnished to all local papers, and a series of sheets "What to do in the Garden." While definite reports were not asked for or tabulated, large numbers of voluntary reports were received stating that due to instruction and encouragement the home garden was "better than ever before."

Cucumber field protected against the cucumber beetle following a program prescribed by the Extension Service. Gross receipts $268.15.

Pickles

The work of the Extension Service with cucumbers this year was confined mainly to demonstrations of the value of dusting to prevent damage from cucumber beetles. For the sake of comparison, one grower's record was included where the grower declined to use any dust. Others, in some cases, dusted as many

as nineteen times during the season. The results showed a total of $18 received from an untreated acre and $268.15 per acre where the maximum number of dustings were given. The "Ohio formula" of 20 pounds gypsum to 1 pound calcium arsenate was used.



Cucumber field in all respects similar to the one shown in the preceding figure, but without any attempt at cucumber beetle control. Gross receipts $18.00.

Gardeners' Clubs

Three commercial gardeners' clubs were formed during the year. These clubs held regular meetings. Ten outstanding questions were prepared for discussion at each meeting and the subjects were treated by the field agent, or by successful growers. The "research committee" of each club suggested projects to be taken up or matters which they wished the Experiment Station to investigate.

Definite assistance was rendered to an unique project undertaken by a club of colored boys under the supervision of a colored county agent. The 18 acres, operated at a total expense of $1,017, yielded a cash return of $2,240 besides the summer food used, and stored potatoes, sweet potatoes, canned vegetables and growing kale, turnips, beets and parsnips valued at $892.

MARKETS AND RURAL FINANCE

The primary function of extension work in this department is to suggest ways and means by which farmers can improve their marketing and financial practices. The fundamental principles underlying market conditions, prices, production and consumption trends, grades and standards and the like, must be studied and analyzed for this purpose. Studies of sources, kinds, amount and costs of credit must support the work in rural finance.

Notes on the agricultural situation in Kentucky have been prepared by this department about once each month and issued in mimeographed form. These circulars have been designed primarily for county agents, giving them information regarding market conditions, price movements, trends in production and the like.

A marketing exhibit was prepared for use at the State Fair and was designed to demonstrate the value of grading farm products for sale. The importance of producing high quality products was stressed by giving specific illustrations of quality and price differences.

Important problems involved in marketing tobacco, Kentucky's leading cash crop, are overproduction, poor quality, and lack of understanding of the principles of marketing. Overproduction usually occurs when prices have been relatively high. It is especially pernicious because it frequently results in a crop of low quality tobacco.

Poor quality is caused by carelessness or lack of proper information in selecting tobacco land, variety of tobacco, handling of seed, crop rotation, use of fertilizer, preparation of plant beds, handling of plants, cultivation, cutting, housing, curing, classing, bulking or delivering. Carelessness or improper handling at any point in the process of producing a crop of tobacco, results in poor quality leaf and correspondingly low prices. Much of the carelessness and improper handling are due to the fact that many tobacco growers try to raise more than they can handle properly.

Efforts have been made thru the extension work of this department to teach growers how to produce better quality tobacco by more careful and efficient methods of handling, especially with reference to curing, classing and preparing for market and by such reduction of acreage per man as may be necessary to make possible an application of these methods; to explain causes of low grades and how they may be prevented, and to stress correct marketing principles and the value of cooperative marketing.

Grading and classing demonstrations have been carried on in warehouses during the marketing season, and curing demonstrations have been conducted in tobacco barns. Further information has been disseminated thru meetings, circulars and posters.

The need for general economic information among farmers and agricultural workers cannot be overemphasized. In view of this fact the members of this department have spent much time in accumulating information dealing with the outlook for agriculture and for specific farm products. Charts and mimeographed circulars were prepared for use in a series of meetings covering about forty counties in the State.

In addition, from time to time, information has been furnished to persons interested in organizing cooperative marketing associations or to those actively engaged in conducting the affairs of such associations. Frequently requests for information of this character necessitate special study of specific problems involved in each individual case. Farmers are becoming more familiar with this type of service which the department can render and requests are becoming more numerous and more specific in nature.

LIST OF PUBLICATIONS ISSUED DURING THE YEAR

Circular No. 56. (Revised) Lessons on Farm Crops
Circular No. 59. (Revised) Liming the Soil
Circular No. 67. (Revised) The Home Vegetable Garden
Circular No. 106. (Revised) Baby Beef Project
Circular No. 110. (Revised) Hatching and Raising Chickens.
Circular No. 120. (Revised) Hotbeds and Cold Frames
Circular No. 137. (Revised) Laying Pullets
Circular No. 144. (Revised) Clean Cream Production
Circular No. 145. (Revised) Care of the Cream Separator on the Farm
Circular No. 152. (Revised) Stomach Worms in Sheep
Circular No. 157. (Revised) Brooding Chicks Artificially
Circular No. 158. (Revised) Peach Borer
Circular No. 188. System of Scoring Rural Communities
Circular No. 190. Food Manual
Circular No. 191. Windows and Their Decoration
Circular No. 192. Homemakers' Association
Circular No. 193. Pig Project
Circular No. 194. Junior Clothing Project
Circular No. 195. Junior Home Project in Clothing
Circular No. 197. Cutting and Curing Pork
Circular No. 198. Sunlight Movable Hog Houses
Circular No. 199. Touching up the Old Furniture
Circular No. 200. Value of Farm Accounts
Circular No. 201. Selection and Use of Commercial Patterns
Circular No. 202. Potatoes
Circular No. 203. Control of Farm Expenses
Circular No. 204. Market Outlook for Kentucky Strawberries
Circular No. 205. The 4-H Club Girl's Room
Circular No. 206. Competitive Home Economics Exhibits for County and Community Fairs
Circular No. 207. Selected Books for Club Work
Circular No. 208. Annual Report of Extension Work 1926 Announcement of Boys' and Girls' Club Events
Circular No. 209. Grapes for the Home
Circular No. 210. A Manual for Officers and Members of Homemakers' Club
Circular No. 211. A Profitable Plan in Producing Pork
Circular No. 212. A Kentucky Cow Testing Association and A Cooperative Bull Association
Circular No. 213. Keep a Brood Sow
Circular No. 214. Handbook for Leaders of Junior 4-H Community Clubs

Circular No. 215.	**Outlines for Organizing and Conducting Junior 4-H Community Clubs**
Circular No. 216.	**Commercial Strawberry Growing in Western Kentucky**
Circular No. 217.	**Raising Turkeys**
Circular No. 218.	**Sweet Clover for Kentucky**
Circular No. 219.	**Producing Good Eggs for Market**

LIST OF EXTENSION WORKERS

January 1st to December 31st, 1927.

ADMINISTRATION

Thomas Cooper, Dean and Director
T. R. Bryant, Asst. Director
D. H. Peak, Business Agent
S. K. Slaughter, Secretary

AGRONOMY

George Roberts, Head of Department
Ralph Kenney, Field Agent in Crops
S. C. Jones, Field Agent in Soils

AGRICULTURAL ENGINEERING

J. B. Kelley, Field Agent in Agricultural Engineering
Earl G. Welch, Field Agent in Agricultural Engineering

ANIMAL HUSBANDRY

E. S. Good, Head of Department
Wayland Rhoads, Field Agent in Animal Husbandry (Beef Cattle)
R. C. Miller, Field Agent in Animal Husbandry (Sheep)
Grady Sellards, Field Agent in Animal Husbandry (Swine)

CLOTHING

Irene Piedalue, Field Agent in Clothing
Isabelle Story, Field Agent in Clothing
Edith Lacy, Field Agent in Home Economics

DAIRY

E. M. Prewitt, Field Agent in Dairying
J. O. Barkman, Field Agent in Dairying

FARM MANAGEMENT

W. D. Nicholls, Head of Department
Harry Ward, Field Agent in Farm Management

FOODS

Mary May Miller, Field Agent, Foods
Dixie Harris, Field Agent, Foods

HORTICULTURE

W. W. Magill, Field Agent in Horticulture (Orcharding)
J. S. Gardner, Field Agent in Horticulture (Truck Crop)

JUNIOR CLUBS

J. W. Whitehouse, State Leader of Junior Club Work
J. M. Feltner, Field Agent in Junior Club Work
M. S. Garside, Field Agent in Junior Club Work
Anita Burnam, Field Agent in Junior Club Work
G. J. McKenney, Field Agent in Junior Club Work
E. E. Fish, Field Agent in Junior Club Work

MARKETS

Gordon Nance, Field Agent in Markets
Erle C. Vaughn, Field Agent in Markets

MOVABLE SCHOOLS

N. R. Elliott, Leader of Specialists

PUBLIC INFORMATION

C. A. Lewis, Editor

POULTRY

J. H. Martin, Field Agent in Poultry
J. R. Smyth, Field Agent in Poultry
J. E. Humphrey, Field Agent in Poultry
C. E. Harris, Field Agent in Poultry

VETERINARY SCIENCE

T. P. Polk, Field Agent in Veterinary Science

COUNTY AGENTS

C. A. Mahan, State Agent
I. C. Graddy, Assistant State Agent
E. J. Kilpatrick, Assistant State Agent
H. F. Link, Assistant State Agent
W. C. Wilson, Assistant State Agent
A. C. Burnette, Agent in Charge of Negro Work
Willis Abner, County Agent, Pike County
L. M. Amburgey, County Agent, Boyd County
S. W. Anderson, County Agent, Jefferson County

*W. J. Ashbrook, County Agent, Green County
J. H. Atkerson, County Agent, Allen County
†G. W. Bacot, County Agent, Hickman County
J. C. Beavers, County Agent, Christian County
*D. S. Bishopp, County Agent, Adair County
K. J. Bowles, County Agent, Laurel County
Stuart Brabant, County Agent, Logan County
L. C. Brewer, County Agent, Fayette County
John Brown, County Agent, Owen County
C. V. Bryan, County Agent, Taylor County
*H. M. Christian, County Agent, Nelson County
F. D. Crutcher, County Agent, Hardin County
*Carl B. Day, County Agent, Casey County
C. O. Dickey, County Agent, Webster County
*R. S. Dunn, County Agent, Spencer County
*J. M. Dyer, County Agent, Henderson County
C. B. Elston, County Agent, Nicholas County
H. R. Forkner, County Agent, Boone County
C. E. Gabbard, County Agent, Morgan County
G. W. Gardner, County Agent, Washington County
J. B. Gardner, County Agent, Muhlenburg County
*C. L. Goff (Assistant) County Agent, Shelby County
†P. H. Gooding, County Agent, Todd County
J. F. Graham, County Agent, Caldwell County
R. M. Greene, County Agent, Mason County
*R. T. Harrison, County Agent, Harlan County
H. J. Hayes, County Agent, Wayne County
R. M. Heath, County Agent, Franklin County
*H. E. Hendricks, County Agent, Marshall County
C. L. Hill, County Agent, Pendleton County
*Ray C. Hopper, County Agent, Meade County
J. O. Horning, County Agent, Barren County
†C. E. Houk, County Agent, Garrard County
W. M. Howat, County Agent, Campbell County
W. B. Howell, County Agent, Oldham County
H. R. Jackson, County Agent, Shelby County
W. C. Johnstone, County Agent, McCracken County
*S. J. Jones, County Agent, Mercer County
T. H. Jones, County Agent, Lee County
*J. R. Killinger, County Agent, Bracken County
R. H. King, County Agent, Carter County
J. E. Kuykendall (Colored), County Agent, Warren County
H. A. Laine (Colored), County Agent, Madison County
Harry B. Lane, County Agent, Anderson County

*Appointed during year.
†Resigned during year.

*Fred Lawson, County Agent, Floyd County
R. H. Lickert, County Agent, Fleming County
H. S. Long, Asst. County Agent, Jefferson County
J. E. McClure, County Agent, Daviess County
*R. B. McClure, County Agent, Garrard County
H. F. McKenney, County Agent, Grant County
†Donald Martin, County Agent, Henderson County
R. J. Matson, County Agent, Gallatin County
Earl Mayhew, County Agent, Knox County
Chas. E. Miller, County Agent, Boyle County
†J. L. Miller, County Agent, Bracken County
J. C. Nageotte, County Agent, Montgomery County
M. P. Nichols, County Agent, Ohio County
†G. B. Nance, County Agent, Oldham County
L. C. Pace, County Agent, Ballard County
*J. E. Parker, County Agent, Bath County
Jno. Parsons, County Agent, Lawrence County
H. S. Patterson, County Agent, Grayson County
*D. B. Redman, County Agent, Greenup County
*Harry D. Rice, County Agent, Henry County
W. R. Reynolds, County Agent, Jackson County
G. C. Routt, County Agent, Graves County
M. H. Sasser, County Agent, Russell County
C. C. Shade, County Agent, Jessamine County
E. R. Sparks, County Agent, Clay County
Robt. Spence, County Agent, Madison County
W. D. Sutton, County Agent, Hopkins County
E. P. Tichenor, County Agent, McLean County
R. V. Trosper, County Agent, Breathitt County
O. B. Travis, County Agent, Breckinridge County
Clyde Watts, County Agent, Carroll County
P. R. Watlington, County Agent, Bourbon County
*W. E. Weems, County Agent, Larue County
*O. R. Wheeler, County Agent, Hancock County
*H. W. Whittenburg, County Agent, Simpson County
C. A. Wicklund, County Agent, Kenton County
W. C. Williams (Colored), County Agent, Christian County
F. B. Wilson, County Agent, Pulaski County
J. E. Wilson, County Agent, Grant County
P. H. Wilson, County Agent, Calloway County
R. O. Wilson, County Agent, Harrison County
*A. A. Wood, Asst. County Agent, Montgomery County
*Ralph Woodfin, County Agent, Wolfe County
†L. H. Woodhouse, County Agent, Jefferson County

*Appointed during year.
†Resigned during year.

HOME DEMONSTRATION WORK

Myrtle Weldon, State Leader Home Demonstration Agents, Lexington, Kentucky
Lulie Logan, Asst. State Leader Home Demonstration Agents, Lexington, Kentucky
Zelma Monroe, Asst. State Leader Home Demonstration Agents, Lexington, Kentucky
*Elizabeth Aaron, Home Demonstration Agent, Campbell County
Ruby M. Barlow, Home Demonstration Agent, Christian County
Vashti Cave, Home Demonstration Agent, Oldham County
†Mary Rudy Clark, Home Demonstration Agent, Campbell County
†Eula Conner, Home Demonstration Agent, Graves County
*Derl Cress, Home Demonstration Agent, Garrard County
†Ruby Dalzell, Home Demonstration Agent, Boyd County
Mary Ellen Fuller, Home Demonstration Agent, Mercer County
Zilpha Foster, Home Demonstration Agent, McCracken County
*Hazel Graves, Home Demonstration Agent, Boyd County
Jennie C. Grubbs, Home Demonstration Agent, Boyle County
Lulu Holmes, Home Demonstration Agent, Ballard County
Catherine T. Johnson, Home Demonstration Agent, Jefferson County
Bruce K. Lorch, Home Demonstration Agent, Fayette County
Florence McKnight, Home Demonstration Agent, Lee County
*Alma Moore, Asst. Home Demonstration Agent, Jefferson County
†Beatrice Moller, Home Demonstration Agent, Muhlenberg County
†Ethel Nice, Home Demonstration Agent, Garrard County
Roxie C. Perkins, Home Demonstration Agent, Harlan County
†Ruth Robertson, Home Demonstration Agent, Calloway County
Ruth Reilley, Home Demonstration Agent, Woodford County
Anna Streed, Home Demonstration Agent, Henderson County
†Laura Spence, Home Demonstration Agent, Laurel County
Hazel Vincent, Home Demonstration Agent, McLean County
Helen M. White, Home Demonstration Agent, Daviess County

RECEIPTS AND DISBURSEMENTS FOR FISCAL YEAR ENDED June 30, 1927.

Receipts

Federal Smith-Lever	$152,241.30
State Smith-Lever	142,241.30
Federal Supplementary	45,100.93
Total	$339,583.53

*Appointed during year
†Resigned during year

Disbursements

PROJECT	Federal Smith-Lever	State Smith-Lever	Federal Supplementary	Total
Administration	$7,381.04	$12,129.99		$19,511.03
Publications	5,931.27	742.50		6,673.77
County Agent Work	66,824.88	12,545.65	$45,100.93	124,471.46
Home Demonstration	19,993.22	37,544.50		57,537.72
Clothing	2,998.60	6,666.65		9,665.25
Foods	2,088.79	4,047.21		6,136.00
Movable Schools	3,536.89	4,510.00		8,046.89
Junior Clubs	11,875.80	19,628.29		31,504.09
Agronomy	2,398.22	7,115.26		9,513.48
Dairying	1,870.08	2,769.16		4,639.24
Animal Husbandry	4,354.69	9,591.13		13,945.82
Markets	1,421.75	3,159.99		4,581.74
Farm Management	3,012.95	4,325.99		7,338.94
Poultry Extension	4,410.36	7,931.65		12,342.01
Horticulture	3,183.43	5,958.33		9,141.76
Veterinary Science	4,128.35			4,128.35
Rural Engineering	5,451.05			5,451.05
Public Information	1,001.03	3,575.00		4,576.03
Farm and Home Week	378.90			378.90
	$152,241.30	$142,241.30	$45,100.93	$339,583.53