Prepared for Pub Office

Agricultural Extension activities during the quadrennial extending from July 1, 1916 to July 1, 1920, may be divided into two periods, first the period of the war and second the period of readjustment following the war.

## WAR PERIOD 1917-1918

### Iowa Increases Food Production

Iowa produced more foodstuffs in 1917 and 1918 covering the war period than in any other two previous years in her history. The total average yearly production of corn, oats, wheat, barley, and rye for 1917 and 1918 was 661,013,000 bushels. The total average yearly production of the same grains for the ten year period immediately preceding the war was 522,882,300 bushels. The average increased yearly production for 1917 and 1918 over the average yearly production for the ten year period immediately preceding the war was 138,130,700 bushels or an increase of 26%.

The increase in meat production was also enormous. In the fall of 1917 Iowa was asked to increase the production of pork 25% the following year. A careful survey of the state in 1918 combined with a study of market receipts indicate that Iowa met the government request. Poultry products were increased about 11% and the increase in garden products was very great.

In view of the fact that up to the time of the signing of the armistice approximately 50,000 farmers, or one-third of those between 21 and 31 years of age, had been called for military service, the accomplishment of Iowa farmers in producing a greatly increased amount of food with a greatly decreased labor supply, will stand as one of the notable industrial achievements of the war. This increase was effected by increased production per man and by the field work

of women, boys and girls. The most important factor in increasing individual efficiency was the patriotic community cooperation stimulated by county farm bureaus which were organized by the Agricultural Extension Department. These organizations were extended to every community in the state and through them accredited food production representatives of the state and federal governments were in touch with every farm. This made it possible for the Agricultural Extension Department to present the appeals of the federal government for increased grain and live stock production in a personal way to practically every farmer in the state.

## Brief Statistical Summary

The biennium covering the war period brought about a marked development of organized effort. The number of counties to organize farm bureaus increased from 16 to 99 and included every county in the state. One county, Pottawattamie, organized two farm bureaus making 100 farm bureaus in all. The membership in farm bureaus increased to 33,187 men and 4,840 women or a total paid membership of 38,027. A farm bureau cooperator was appointed for each 4 square miles of land, or about 14,000 in all. On June 30, 1918, there were cooperatively employed by farm bureaus, the Agricultural Extension Department and the U. S. Department of Agriculture, 100 county agents, 41 county home demonstration agents, 55 temporary county home demonstration agents, and 3 county boys' and girls' club leaders, or a total of 199. In addition, 3 home demonstration agents were working in cities in close cooperation with farm bureaus.

In the spring of 1917 farm labor bureaus were established in every county in the state and a total of 20,000 laborers were placed on farms during the war period. A Volunteer Food Producers'

Asscciation was organized with 20,478 members, 6,000 boys were enrolled in the Boys' Working Reserve and 29,648 mostly city boys and girls were enrolled in the Junior Garden Club movement.

Extension specialists including local Boys' and Girls' Club workers delivered 17,090 lectures, conducted 8,587 demonstrations and judged 1,988 exhibits. The number of people reached in the above ways in the two years totals 1,324,221. County Agents during the same period received 157,365 calls at their offices and made 52,683 farm visits, held 10,640 meetings and reached 514,235 people. Home Demonstration Agents gave 6,702 lectures, conducted 4,196 demonstrations, judged 164 exhibits and reached 275,417 people.

In order to meet the demands of the government for increased production the Department issued 4,886,250 copies of bulletins, leaflets, report blanks and cards containing 28,464,250 pages.

## Seed Corn Campaign of 1917-1918

### General Situation

In the opinion of our oldest inhabitants, Iowa in the fall and winter of 1917-1918 faced the most serious seed corn situation in her history. A cold, wet summer held the corn back and kept it from maturing. Frosts in early September killed much corn in northeastern Iowa. Beginning with October 6th and continuing four nights, hard freezes occurred which killed or injured practically all of the corn in the fields and also killed much of the corn which had already been picked for seed.

The situation was further complicated by the fact that the high prices paid for old corn had apparently drained the country of this source of supply. The condition of affairs from every standpoint

was indeed serious and the question of where seed could be procured became one of absorbing interest, not only to Iowa but also to the federal government, because of the great war necessity for food and because of the important part Iowa plays in producing food.

In order to further understand the general situation, it should be remembered that Iowa normally plants 10,000,000 acres of corn, which requires approximately 1,500,000 bushels of seed to plant once over. However, in order to have enough corn for replanting, due to losses from cut worms, cold, wet weather, floods, etc., there should be a reserve of at least 750,000 bushels to be safe. The total amount of corn needed by Iowa farmers when planting time comes is, therefore, not less than 2,250,000 bushels, or over 2,250 bushels to the county.

To have imported large amounts of seed corn from outside of the state would have been little short of a calamity, not only for 1918 but for years to come. Corn imported from the south will not mature unless the season is abnormally long. Corn imported from east, west or north will not do as well as home grown seed. Thousands of tests go to show that the local seed will, on the average, yield from 4 to 6 bushels per acre more than can be procured the first year from imported seed. Therefore, Iowa had to find sufficient seed within her own borders in order to render the largest possible service to the country in producing food. To import seed could be justified only as a last resort.

## September Picking Campaign

It was evident in July that the seed corn situation would be serious. The Agricultural Extension Department therefore worked out a plan of campaign and presented it in August to the state seed stocks committee, the war emergency food committee, and the state council of

defense. This plan urged the early gathering of seed corn and called for a strenuous speaking and publicity campaign to be carried on in every county of the state. It was cordially endorsed and supported by the above named agencies. Governor Harding issued a proclamation urging the farmers of the state to gather their seed corn.

In September and early October, 60 department representatives including county agents and specialists, visited every county in the state, spent 761 days in the field and reached 39,728 people. During the same period, 765 farmers gave 1,424 seed corn picking demonstrations and reached 28,688 people. Literature to the extent of 200,000 seed corn reminder cards and 100,000 cards containing information concerning the selecting and storing of seed corn were distributed. The daily, weeklyand agricultural press gave much space to publicity. The campaign was quite successful but the results were largely lost because of the hard freeze of October 6th, which killed much of the corn gathered for seed and rendered worthless most of the corn remaining in the fields.

Early Winter Campaign

In October, November, and December a seed corn publicity and testing campaign was carried on in every county in the state. This campaign revealed a seed corn condition little short of desperate and undoubtedly resulted in the saving of stocks of corn from which seed might be procured. It made possible the success of the later campaign.

Late Winter and Early Spring Campaign

In January, February, March, and April a campaign for the purpose of locating, sorting, testing, and distributing corn was

carried on. This campaign was ushered in by Governor Harding's proclamation ordering a seed corn census and officially appointing 12,500 men, or one for each school district, selected by the county farm bureaus to take it. These men were designated seed corn census takers and ordered to report to the county agent in their respective counties.

The census located nearly one million bushels of old corn and also all seed corn for sale in farmers' hands besides large amounts of new corn from which seed might possibly be sorted. The county agent in each county immediately made preliminary tests of this corn and published lists stating where it could be procured. The county agents in 49 counties organized 95 testing stations and tested 288,672 bushels of corn for farmers.

Farm Bureaus through county agents purchased and tested 20,159 bushels of corn, making a total of 308,831 bushels of corn tested by testing stations. In addition, county agents made tests of 13,054 lots of corn for farmers, visited 8,824 farmers in search of seed, and held 1,127 seed corn meetings.

The newspapers of the state rendered a great service by publishing through their columns news concerning the location of seed corn and educating the public to the general situation.

The latter part of March the federal department of agriculture furnished funds to the Agricultural Extension Department for the purchase of seed corn to be held and sold later to the farmers at cost. About 16,000 bushels were bought in Iowa and 7,000 bushels imported. Approximately 6,000 bushels of the Iowa corn and 200 bushels of the imported corn were sold for seed. The amount sold, while not large,

was very helpful in relieving the situation in certain districts where replanting was necessary. The use of imported corn could only be justified as a last resort and it was, therefore, indeed fortunate that such a small amount of it was used.

Figures cannot be procured to show the amount of work done by farmers themselves under the stimulus of the campaign to procure good seed but unquestionably the unrecorded work of farmers far transcended the record of work already given. The emphasis of the entire campaign from start to finish was to the effect that each farmer must get his own seed. It seems certain that practically every farmer made some sort of test of his seed corn or had someone else make it for him. The only way to measure the work done by farmers is by actual results, which were as follows:

First: Confronted with the most serious seed corn situation in the history of the state in the winter of 1917-18, the farmers of Iowa procured one of the best stands of corn in the history of the state the following spring.

Second: With unprecedented hot winds over a large section of the state which reduced the yield by millions of bushels of corn, the final government report credited Iowa with a crop of 375,624,000 bushels of corn, or 44,000,000 above the average for the ten year period preceding the war and 24,000,000 more bushels of corn than her nearest rival among the states in 1918.

## Increased Wheat Acreage Campaigns

Because of the great shortage of wheat in allied countries the United States government asked Iowa as a war measure to increase the normal acreage pf winter wheat 25%. Twenty additional men were employed for a period of from three to four weeks to locate stocks of

seed and urge farmers to increase their acreage. A total of 316,687 bushels of winter wheat seed was located.

The farmers responded cordially to the request of the federal government and prepared to meet the increased acreage. However, the abnormally dry weather during the summer and fall over practically all of the winter wheat belt in Iowa made it impossible to sow winter wheat with any assurance of success.

Late in February the Department of Agriculture sent out another call asking for a greatly increased acreage of spring wheat. By this time every county had a farm bureau and practically every county had employed an agent. The completeness of this organization enabled the Agricultural Extension Department to get the request of the government into every community in a very short time. Governor Harding issued a proclamation urging the farmers of the state to grow wheat and sent a letter to the cooperators selected to conduct the seed corn census asking them to help in every possible way. The state and county councils of defense and the Food Administration also assisted. Since spring wheat in Iowa is a very poor crop at the worst and never as profitable as corn at the best, it was necessary to make a purely patriotic appeal. In doing so each farmer was asked to grow from five to ten acres. The response was magnificent. Within a few weeks' time the grain corporation of the Food Administration was drained of its supply of seed. The normal acreage of 250,000 acres was increased to 750,000 acres and would have been increased much more if seed had been available. Altogether 128,541 bushels of spring wheat were imported by farm bureaus from the Food Administration in Minneapolis, and 168,122 additional bushels were located and distributed by county agents, making a total of almost 300,000 bushels of seed distributed by farm bureau organizations.

## Pork Production Campaign

Late in the summer of 1917 the United States Food administration sent out alarming statements concerning the shortage of meat and especially of fats in England, France, Italy, and neutral countries. In the words of the Food Administration, "pigs were as essential as shells" in winning the war. Many of the states were asked to make definite increases in the pounds of pork produced. Iowa was asked to increase her production 25%. In view of the fact that Iowa normally produces more hogs than any other two states in the Union, an increase of 25% amounted to an enormous undertaking. A personal campaign was conducted. Prominent farmers, bankers, and others were furnished with literature and asked to speak personally to their neighbors or patrons requesting them as a patriotic measure to increase their pork production and setting forth reasons for doing so. In counties that had county agents the agent visited banks and farmers personally, explained the object of the campaign and enlisted their support. In counties that did not have agents a department specialist performed a similar service. Every county in the state was visited, 115,000 "Produce More Pork" cards were distributed, and 8,000 copies of mimeograph articles on the hog situation, containing statements from the Food Administration and other appeals, were distributed among banks and prominent farmers. The daily, weekly, and agricultural press gave great assistance by publishing timely articles.

The campaign was inexpensive and effective. The response of Iowa farmers was all that could be desired. They supported patriotically the government plan for increased production. A careful survey of the state in 1918 combined with a study of market receipts indicates that Iowa met the request of the government for a 25% increase.

## Campaigns to Save Corn Fodder

Two campaigns for the saving of corn fodder and the building of silos as the most effective method of attaining that end were conducted. In 1917 the Agricultural Extension Department furnished the state with literature and publicity through bulletins and the local press, pointing out the fact that converting the immature corn and fodder into silage was the only feasible way of saving it and that the saving thus brought about would go a long way toward paying for a silo.

Early in June, 1918, the Agricultural Extension Department arranged conferences with representatives of the State Council of Defense, State Dairy and Food Commission, State Board of Agriculture, StateBankers' Association, agricultural editors, and silo manufacturers for the purpose of organizing a unified "save the corn fodder" campaign. The silo manufacturers appointed a special committee and conducted a collective advertising campaign. The weekly, daily, and agricultural press used their columns generously by publishing silo information. The Agricultural Extension Department prepared a series of articles setting forth the value of silage as a feed and the importance of building silos at this time in order to conserve the feed, and these articles were sent to the county agents who, in turn, had them published in the local papers. Silo manufacturers, dealers and agents were supplied with silo argument giving effective information concerning the feeding value of silage. The banks of the state received similar information and were requested to talk personally with such of their patrons as were in a position to build silos. In addition to the above, a three day speaking campaign was carried out by the department specialists in each of fourteen counties. It is impossible to determine accurately just what effect these campaigns had, but it is known that Iowa

farmers built practically all the silos for which suitable materials were available.

War Garden Campaign--Spring of 1917

In view of the food shortage, a special effort was made to increase the number of gardens. Plans and literature were prepared during the winter and the campaign was pushed vigorously through the latter part of February and March. It was impossible to send special organizers to all communities and much of the work had to be done through correspondence.

A special effort was made to secure local leadership. School boards in a large number of cases paid the salaries of local leaders. The Agricultural Extension Department in many instances paid a small portion of the salary. Many people gave voluntary help. As a result practically every city and town in the state had some one in it who gave time to organizing the garden movement.

The Agricultural Extension Department issued plans of organization which were furnished to every city and town. The Department also issued and distributed 50,000 bulletins on gardening besides additional thousands of special bulletins on bean growing and on vegetable crops. Early in May it was apparent that so much garden truck had been raised that a special effort would have to be made to care for it. The canning and drying campaign was organized to meet the situation.

Canning and Drying Campaign--Summer of 1917

In view of the care needed in every part of the process of canning garden products such as peas, beans, etc., it was deemed best to send trained workers into the field rather than to rely solely upon

printed literature. Accordingly 25 additional trained workers were employed and given a week of intensive training before being sent into the field. Each worker was supplied with a canning outfit, roll of charts and printed material. Vegetables and fruits were canned at each demonstration. The demonstrator lectured while the canning process was under way.

Every county in the state arranged for demonstrations with the result that 1,702 demonstrations were held, 95,475 people were reached directly, 1,485 food conservation clubs were organized with a membership of 50,352 and 220,000 leaflets were distributed.

There is no way of determining the actual accomplishment of this campaign. Certainly the impetus to canning fruits and vegetables and to the saving of all kinds of foodstuffs was tremendous. It is estimated that between 15,000,000 and 20,000,000 additional quarts of fruit and vegetables were canned.

## Food Conservation Campaigns

The principal work of the home demonstration agents during the war was to organize the housewives of the state in order to carry out the appeals of the national government for food conservation as a means of increasing stocks of food available for export.

Beginning with the canning campaign in the summer of 1917 there followed meat saving, wheat saving, sugar saving, wool saving, and general conservation campaigns. This work was done in close co-operation with the Food Administration, the woman's section of the State Council of National Defense, the woman's clubs of the state and farmers organizations.

It is impossible to give exact figures showing the result of this combined effort. It is known, however, that the amount of food

saved in this state was enormous and that the women of the state made a very important contribution toward the feeding of allied and neutral peoples and thereby toward the winning of the war.

But while it is impossible to definitely state results for the state as a whole, statistics have been collected from many families which indicate the general trend. In the campaign for the purpose of using potatoes in order to save flour, home demonstration agents report that 26,048 families saved 2,288 twenty-four pound sacks of wheat flour by substituting potatoes; 968 families used no wheat flour at all; 440 families saved 253 twenty-four pound sacks of flour in excess of the saving required by the regulations; and 16,544 families reported savings but not definite enough for tabulation. It is a matter of common knowledge that food saving by families was almost universal.

In the wheat saving campaign carried out late in the spring, of which the potato using campaign was a part, home demonstration agents effectively reached 96 counties and 3 cities. Altogether 111,000 people were reached personally and 150,000 leaflets distributed.

War Garden Campaign--Spring of 1918

In October, 1917, a circular letter was sent to the mayors of the state urging the appointment of a city garden committee in each city and town. It was urged that the garden committee immediately locate vacant lots and other unused land within the city limits and arrange whenever possible to have such land fertilized and fall plowed. Letters were also sent to commercial clubs, Boards of Education, Rotary Clubs, Women's Clubs and other organizations urging their active co-operation in the movement.

The Agricultural Extension Department sent organizers to 227 of the larger cities and towns during February and March. Careful organization plans were mailed to smaller cities and towns which the

Department was unable to reach. Bulletins on gardening were distributed throughout the state. Timely articles were circulated through the press of the state calling attention to the fact that one of the most effective ways for city people to help in increasing food production was through the growing of gardens.

The response on the part of the people to the war garden movement was most cordial. The garden acreage planted to staples such as potatoes, sweet corn, and beans was very greatly increased. While it is impossible to report the results of the garden movement as a whole, it is possible to give facts concerning the garden work done by Boys' and Girls' Club members.

Altogether 230 Boys' and Girls' Club Garden Leaders were appointed. Of these, 115 were paid by their local school boards and 115 did their work voluntarily. Twenty-four received part of their pay from federal funds. Approximately 90 per cent of the local club leaders were teachers in public schools. All literature, instructions, reports, etc., were handled through these local leaders. A total of 18,572 boys and girls were enrolled in the junior garden work or an increase of 7,259 over the previous year.

## PERIOD FOLLOWING THE WAR

## November, 1918 to July 30, 1920

The signing of the armistice November 11th and the close of the war made it necessary for the Agricultural Extension Department to cancel a carefully worked out plan for the apportionment of crop acreages by counties and townships. The widespread epidemic of influenza made it impossible to hold many meetings or do much but individual work during the winter. However, notwithstanding abrupt changes in plans and the handicap of a terrible disease, the year proved a suc-

cessful one. Many of the county farm bureaus had been organized on a war basis and the farmers who made up the membership understood that their obligation ceased when the war ended. The fact that not a single county in the State dissolved its organization and that all made their organizations permanent stands out as the most significant event in Iowa agriculture during the months immediately following the close of the war.

## Farm Bureaus Federate

On December 27, 1918, the county farm bureaus of the state joined together and organized into the State Federation of Farm Bureaus. The following executive committee was chosen:

| | | |
|---|---|---|
| First District | William Kitch | Mt. Pleasant |
| Second District | C. F. Coverdale | Delmar |
| Third District | A. L. Middleton | Eagle Grove |
| Fourth District | L. S. Fisher | Edgewood |
| Fifth District | J. R. Howard | Clemons |
| Sixth District | J. E. Craven | Kellogg |
| Seventh District | Frank Justice | Berwick |
| Eighth District | J. H. Lynam | Corning |
| Ninth District | W. W. Latta | Logan |
| Tenth District | S. A. Barber | Kanawha |
| Eleventh District | Oscar Heline | Marcus |

This committee elected the following officers from their own number:

| | | |
|---|---|---|
| President | J. R. Howard | Clemons |
| 1st Vice President | A. L. Middleton | Eagle Grove |
| 2nd Vice President | Frank Justice | Berwick |
| 3rd Vice President | L. S. Fisher | Edgewood |
| Treasurer | J. E. Craven | Kellogg |
| Secretary | J. W. Coverdale | Ames |

The Director of Agricultural Extension and the State Leader of County Agents are ex-officio members of the executive committee without a right to vote.

Committees on Marketing and Transportation, Education, Legislation, and Organization were appointed.

The organization of the state federation of farm bureaus marks a forward step in the development of the agricultural interests of the state. Many problems not within the power or scope of a county farm bureau can be well taken care of by the state federation. Also the work of the individual county farm bureau can be greatly helped and strengthened by a state organization. The Agricultural Extension Department has received thorough going cooperation from the officers and committees of the State Federation.

## General

The following pages give a general idea of Extension activities. No attempt has been made to go into detail as this is contained in the published reports of the Department.

## Corn Variety Demonstrations

Corn variety demonstrations were started in 22 counties with the following objects in view:

a. To demonstrate the types of corn best adapted to local conditions.

b. To select types of corn most productive under local conditions.

c. To distribute seed corn from the most profitable varieties.

Similar work had been done in a number of counties in the past but was mostly discontinued during the war.

## Soy Bean Demonstrations

The plan of the test was briefly as follows:

a. To demonstrate which varieties of soy beans are best adapted to local conditions.

b. To distribute seed from the most profitable varieties.

Altogether 38 counties have taken up the work and 49 test fields have been established. The number of varieties tested was left to the decision of the farm bureaus and the number varied from 2 to 14 in different counties.

## Truog Acidity Soil Tests

The total number of Truog acidity tests made by county agricultural agents during the past year is 2,841. Of this number about 2240 fields were found to be acid and in need of application of limestone to make them sweet. During the past year about 6496 tons of limestone were applied on the soils of the state. This is equivalent to approximately 162 carloads.

Figures furnished by county agents show that on 412 acres of alfalfa over the state where limestone was applied, an increase of 656 tons of alfalfa was due to the limestone used. Figuring alfalfa hay as worth $25.00 per ton, the use of limestone resulted in an increase of $16,400 worth of alfalfa for the farmers of the state. On 960 acres of clover land where limestone was applied, a total increase of 852 tons of clover was produced due to the use of limestone. Figuring that clover hay is worth $18.00 per ton, the limestone made $15,336 worth of clover.

## County Livestock Breeders' Associations

The number of county livestock breeders associations was increased to 63. Livestock breeders associations have resulted in an increase of as high as 40 percent in the number of breeders of purebred stock in a county within three years' time. In one county the association has been the active agency in increasing the number of purebred sires in the country 45 percent in four years. Purebred sire campaigns are now contemplated by a number of county breeders' associations. Purebred calf, pig and sheep clubs have been organized by a number of county associations and will be started by many more this year. In most counties the breeders' associations are working with the county fair associations for the improvement of the county fairs. In several

counties these two agencies have cooperated to build sale and show pavilions for the joint purpose of housing association and public sales and for the county fair exhibits. Help has been given in the organization of five such sale pavilion associations.

## Iowa Fleece Wool Growers' Association

The Iowa Fleece Wool Growers' association was organized at Des Moines on January 14th. The object of the organization is to promote the interest of the sheep growers of the state in every possible way. Owing to the fact that Iowa sheep growers for the most part are not very well acquainted with wool values nor the reasons for different values it was decided to market the wool of members collectively on the basis of grade. Another object of the association was to definitely establish a market for Iowa wool.

A vigorous campaign was inaugurated to strengthen the sheep growers' association. Sixty-four county associations were organized. A total of approximately 3500 members were secured, and over a million pounds of wool were marketed thru one warehouse in Chicago. Each individual shipment was paid for on the basis of grade. This is a distinct educational advance over previous methods of buying and will undoubtedly accomplish much in the improvement of the quality of wool produced. Moreover, the association succeeded in establishing a market for Iowa wool as such with the large woolen manufacturers. This has resulted in getting better prices for all Iowa wool.

## Dairy Production Work

The summer and fall of 1918 registered a low point in dairy production work in Iowa. This was due to a situation created by the war. The general depression in dairying affected dairy Extension work.

The number of test associations dropped from 29 to 6 largely due to the fact that the testers were in the army. It became almost impossible to find anyone to do the testing work.

After the signing of the armistice, conditions began to improve. More interest was manifested in dairying. This interest was reflected in the increased prices paid for dairy cows. Dairy test associations began to revive, and by the end of the year 12 associations were in operation.

Milk marketing associations have been organized in a number of places thruout the state for educational and economic purposes. The oldest of these, established at Des Moines two years ago, has been instrumental in organizing a cow testing association in securing a fair price for milk based on butter fat content, and in improving the dairy situation generally. The opportunity for service for this type of organization is great and much good in the way of cleaner milk and more of it should result.

## Dairy Manufacturing Work

### Navy Butter

The increased size of the navy created an abnormal demand for navy butter. The butter used by the navy is made from pasteurized sweet cream. In Iowa there were 39 creameries which agreed to make this butter. In the creameries receiving whole milk the work was simple but in the creameries receiving hand separator cream the securing of sweet cream was very difficult.

Every creamery making butter for the navy paid from 2½ to 5 cents per pound more for sweet than sour cream. This could be done since the creameries were receiving three cents per pound premium on navy butter. Circulars were written for creameries, farm visits were

made and patrons met at creameries for the purpose of increasing the amount of sweet cream received.

The Titonka creamery standsout as a striking example of what can be done with proper cooperation. The last two weeks in May only 15 percent of the cream was sweet while the first week in September 95 percent was sweet. There was a gradual increase each week until the maximum was reached.

The navy butter work demonstrated to the Iowa creameries that there are excellent possibilities in grading. None of the creameries lost patrons due to grading, in fact a number of them gained patrons. The Manly creamery paid 2½ cents more per pound butterfat for sweet than sour cream and gained seven patrons. This was the rule and not the exception. The greatest drawback encountered when attempting to get a creamery to buy cream on grade is the fear of losing patrons. The navy butter contracts opened an opportunity to get into a number of creameries and help them in their method of manufacture. All but three of these creameries are now pasteurizing. The creameries which have continued to grade are receiving a premium of ½ to 1½ cents per pound for their higher grade butter.

## Veterinary Work

The value of livestock in Iowa is so great that the maintenance of animal health is one of the important agricultural problems. So important is it considered by the farmers themselves that practically every community in the state furnishes enough work to support a veterinarian.

The principal work of the Veterinary Extension specialists has been first, the disseminate information among farmers concerning

sanitation, ventilation and prevention of disease and second, to give helpful assistance to local veterinarians in difficult cases.

## Dual Orchard and Poultry Demonstrations

During the spring of 1919 there were carried on a total of 196 demonstrations in 60 counties with an attendance of 4835 or an average of 24.66 people per meeting. These dual demonstrations were carried on on farms and for the most part were attended by farmers. The roads and weather were such that it was almost impossible for some people to attend. The pruning work would be taken up first and while the orchard man was busy demonstrating the pruning of grapes, small fruits and apple trees, the poultry man would be preparing his part of the work. From the orchard the audience would go to the poultry house and while the poultry work was going on the fruit man would finish the pruning of the apple trees and get the spray pump ready. When the poultry work was over, the crowd would go back to the orchard where the spraying work would be given.

Statistics tabulated from 151 farms show that 10 percent more farmers sprayed their trees the year following the demonstrations than sprayed the year preceding the demonstrations. This increase can be credited to the orchard demonstrations. Such work has accomplished excellent results wherever it has been conducted.

## Orchard Summer Spraying Demonstration

In the summer of 1918 summer spraying demonstrations were carried on in 8 orchards. Sprayed trees averaged 6.978 bushels of apples while unsprayed trees averaged 2.484 bushels. Moreover the apples from the sprayed trees were of a better quality and would sell for a much higher price on the market. Valuing the apples from the sprayed trees at $1.75 per bushel and the apples from the unsprayed trees at $1.00 per bushel, and figuring the net cost of spraying each

tree at 53¢, the sprayed trees returned a net profit of $9.20 per tree over the unsprayed trees.

Reports received from 74 sprayed orchards show an average yield of 100.8 bushels per acre and a net return of $137.38 per acre. The average yield per acre of 22 unsprayed orchards was 23 bushels and the average net returns was $17.60 per acre. The evidence in favor of spraying is convincing.

## Culling and Selecting Poultry

The culling and selection project was carried out during September, October, and November, 1918. A total of 314 farm flocks were culled. Out of 150 farm poultry flocks taken at random, 12,020 birds were selected as profitable and 9,346 were found to be unprofitable from the standpoint of egg production. Out of a total of 160 hens in a flock on one farm, 120 were found to be poor producers and 40 were selected as profitable producers. The fowls were kept in two pens. The 120 hens designated as the poor producers were kept in one house and the 40 hens selected as profitable producers were kept in another house. The 40 hens produced as many eggs as the 160 hens before they were culled. At conservative figures it would cost $25.00 per month to feed 120 hens. If the fowls are confined for three or four months during the winter one can figure that it would cost between $75.00 and $100.00 to keep them.

## Egg Candling

During the past year candling demonstrations were conducted in 41 counties. The elimination of the male bird during the summer months was advocated and in many sections a "Rooster Week" was arranged. The approximate loss from bad eggs in this state during the summer months has been estimated at from $5,000,000 to $7,000,000. Accord-

ing to one car lot dealer, the number of bad eggs was reduced from 25 percent to 45 percent of their original number by one of the candling demonstrations.

## Blue Print Service

The demand for blue print plans of farm buildings increased 20 percent. These plans are being largely used over the state and the buildings once erected are copied by neighbors. There is not a county into which these plans have not gone, nor one in which ideas from such plans have not been incorporated in new buildings.

## Agricultural Engineering Service

Under this project 582 people have been reached by consultation on their own farms relative to proposed improvements. These improvements include buildings and building arrangements, water systems, house and farm equipment, drainage, sewage disposal, and problems of soil erosion. It is through this work with individuals that those things are done which later serve as examples in demonstrations.

## Farm Management Work

The income tax law which makes necessary the keeping of accurate business records, the food regulation and price fixing policies of the government during the war period, the increase in land values making necessary a larger net return per acre together with the high cost of labor, machinery, permanent improvements, in fact of everything that enters into the cost of producing farm products, have all contributed toward convincing the farmer of the need of studying farm organization and management more carefully. Naturally the first step for each individual farmer to take is to keep a business account of his own operations. By doing this he finds out the type of farming for which both he and his farm are best adapted.

In order to meet the needs of the farmers, a simple account book was prepared by the Agricultural Extension Department. This book was printed by a private printing concern and sold to farmers and banks at 10 cents per copy. About 40,000 copies were distributed. In addition to this, many thousands of copies of books were distributed by other concerns. While no facts are available bearing on the subject it seems reasonably certain that tens of thousands of farmers kept some sort of a business record of farm operations last year who have heretofore done nothing along that line. It was fortunate that the Agricultural Extension Department had a carefully prepared and simple method of keeping accounts to meet this demand.

The problem of teaching farm business and the keeping of accounts is a difficult and complicated one. Experience shows that quite often the younger members of the family, especially those of high school age, take more readily to the keeping of farm accounts and cost accounts than do the older people. The department is therefore working out careful plans to cooperate with the schools thru boys' and girls' club work in keeping cost accounts in different projects.

Marketing Extension work

The subject of marketing as taught by the Agricultural Extension Department includes a great deal more than the simple transfer of products from one party to another. There are also the questions pertaining to the proper packing of products such as fruits and vegetables, the location of buyers for surplus purebred livestock, and purebred seeds, the development of outside state markets for such products as Iowa butter and Iowa purebred livestock, and the general work of assisting in bringing the buyer and seller together to the mutual advantage of both.

## Farmers' Exchange

During the past year it is estimated that the total number of purebred livestock sold thru county and state exchanges was as follows: cattle, 4189; hogs, 8229; sheep, 2299; horses 817. In addition to this the exchange assisted in the transfer of a considerable number of grade livestock altho no figures are available as to the volume of business.

The exchange assisted materially in the disposal of seeds for planting purposes. The estimate for the total number of bushels of seed sold thru the county and state exchange lists is as follows: alfalfa, 1282; clover, 5737; timothy, 385; oats, 24,745; barley 12,555; wheat, 96,794; corn 138,755. The large amount of wheat handled is due to the increased wheat production campaign carried on during the early fall of 1918.

## Entomology Work

Iowa was visited by six severe outbreaks of insects injurious to cereal and forage crops during the past year, 1918. The acting state entomologist and field agent in entomology took careful note on the percentage of loss to crops by these outbreaks and estimated the damage at approximately $100,000,000. If the estimate of these specialists is correct, the loss is an astounding one and the question of insect control deserves much larger attention on the part of the people of the state than it has heretofore received.

## Beekeeping

The legislature of three years ago placed the state apiary work under the direction of the college. A printed annual report, required by law, is being issued which will contain a complete summary

of all inspection and extension work. The department adds a considerable sum of money to the state fund for extension work and the Department of Agriculture has cooperated in furnishing a specialist for the past nine months.

A project was arranged with the farm bureaus of 29 counties each of which agreed to hold five meetings and demonstrations. A total of 148 meetings and demonstrations were held with an attendance of 6127 people. These people were reached in a definite way and were almost altogether people who were interested in beekeeping.

A number of instances are at hand where unproductive colonies have been cleared of disease and made profitable. There is no data regarding increase of total production as the work is quite new in Iowa but records are now being kept so this information can be given later.

Ten counties formed county beekeepers' associations. These have proven a great help in ordering supplies, distributing information, and will in the future be a factor in marketing honey.

A correspondence course has been given consisting of 12 lessons. An enrollment of 172 beekeepers was secured. This work has been effective.

A circular "Seasonable Hints" has been distributed every two months reaching about 3000 beekeepers with each issue.

## Plant Pathology

During the year the Department of Agriculture supplied a plant disease specialist. His work was largely advising agents in the counties, especially regarding wheat diseases. An epidemic of black chaff caused considerable alarm as wheat was then such an important food crop. Agents were advised to select seed from disease free fields

and treat the seed. During the fall, exhibits were made at a number of fairs showing the method of treatment.

Plant disease work assumes great importance some years, and the Department should be able to supply expert advice on this subject at all times. At present the fusarium disease of corn and wheat is a problem that should receive careful attention.

## Milk Project

A milk essay contest was held among the school children of the state which aroused unusual interest. Forty-three counties took up this work and approximately 3000 children wrote essays. The fact that the children became interested in studying milk for the information needed to write an essay, was a benefit in itself.

In Des Moines, thru the cooperation of the home demonstration agent, a very intensive milk campaign was conducted in one of the city schools. A group of second and third grade children, 59 in all, were carefully measured, weighed and examined by a physician. Twenty-nine of the children were found to be 10 percent below the average weight. One-third of the children received little or no milk at home. They were then given a pint of milk apiece a day for a period of three months. At that time they were again examined by the same physician. Some had gained as high as five pounds during the period, many others four pounds, and all had made some gain except a few that had been sick. The doctors and nurses were all agreed that there had been a decided improvement in the physical development of the children. The teachers reported improved class room work, a very decided improvement being noticeable in some cases.

## Boys' and Girls' Club Work

The past year has brought about a forward growth in club work. During the war club work--as was the case with all other work of the department--was on a war basis. The regular work was modified to help increase production and provide for the conservation of food, thus sacrificing many of the club principles.

## Calf Club Work

The benefit does not lay entirely in the production of the members as the exhibits and other parts of the work has a large productive value. In 1918, at the State Fair, 111 baby beeves were exhibited by the boys. These animals won a total of $967.50 in prizes and the exhibit attracted a large amount of attention. A similar exhibit and record was made at the Interstate fair at Sioux City.

## Pig Clubs

Over 1800 boys and girls took part in the 1918 pig feeding club. The winner made a gain of 290 pounds in 121 days at a profit of $32.12, besides winning a number of prizes. This boy won the confidence of his father who was formerly opposed to new methods of hog feeding. This is only one of the many instances where club work has demonstrated its value in educating not only the young people but adults as well.

## Corn Clubs

Corn clubs were organized in 61 counties with an enrollment of 906 members. Those who made final harvesting reports had an average yield of 61.9 bushels per acre. When it is remembered that the average yield in Iowa in 1918 was but 36 bushels an acre, the value of this demonstration is apparent. All boys kept an accurate record of their work and this data contains many interesting facts, showing

the value of different methods of corn production.

## Girls Clubs

Canning, food and garment clubs formed most of the activities of the girls' work. A number of home demonstration agents have been active in promoting this work. A total of 212 canning clubs were organized in 1918 with an enrollment of 2318 members. These members canned 20,385 quarts of food at a profit of $3,399.30. There were 483 enrolled in the food club and 1357 in the garment club.

## Visual Instruction Extension

During the past year 427 meetings were held at which slides and charts were exhibited and 22,641 people were reached. Also 647 meetings were held at which films were exhibited and 181,645 people were reached.

The attendance for all lines of service totals 208,822. This does not, of course, mean different individuals as the same audience in circuits is reached by several different slides or films. The above number, however, does not include soldiers at Camp Dodge and Fort Des Moines where much service was given.