

STATE OF IOWA
1920

REPORT OF THE
**DAIRY AND FOOD
COMMISSIONER**

FOR THE
YEAR ENDING OCTOBER 31, 1920

W. B. BARNEY
STATE DAIRY AND FOOD COMMISSIONER
DES MOINES, IOWA

Published By
THE STATE OF IOWA
Des Moines

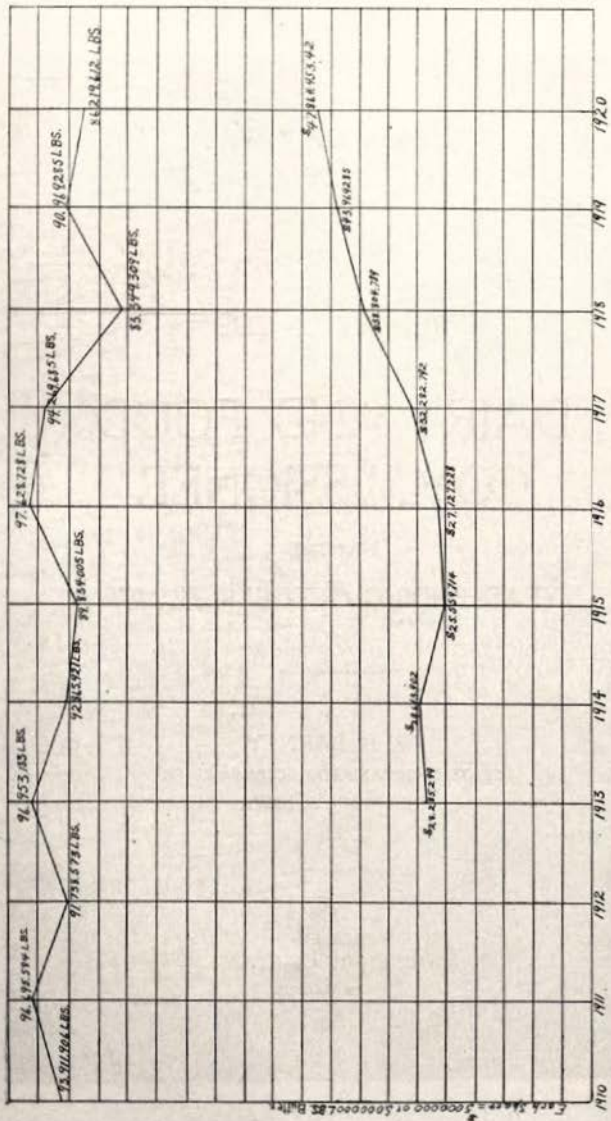


Chart Showing Production of Iowa Butter 1910 to 1920

LETTER OF TRANSMITTAL

HON. W. L. HARDING, Governor.

Sir: In compliance with the law, I have the honor to submit herewith the Thirty-fourth Annual Report of the Dairy and Food Commissioner.

W. B. BARNEY,
Dairy and Food Commissioner.

Des Moines, November 15, 1920.

OFFICERS AND EMPLOYES OF THE DAIRY AND
FOOD DEPARTMENT

Commissioner.....	W. B. Barney.....	Des Moines
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Assistant Commissioner.....	T. A. Clarke.....	West Bend
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Food Inspector.....	J. W. Milnes.....	Creston
Food Inspector.....	J. M. Morrow.....	Douds
Food Inspector.....	E. A. Countryman.....	Council Bluffs
Food Inspector.....	H. A. Stearns.....	Cedar Rapids
Food Inspector.....	M. W. Knapp.....	Aurora
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License Clerk.....	R. V. Barker.....	Des Moines
Stenographer.....	Elma Schnack.....	Des Moines
Stenographer.....	Minnie Benson.....	Des Moines
Stenographer.....	Catharine O'Connell.....	Des Moines

LAWS ENFORCED BY THE COMMISSIONER

Dairy Law	Turpentine Law
Pure Food Law	Weight and Measure Law
Agricultural Seed Law	Sanitary Law
Concentrated Feeding Stuffs Law	Cold Storage Law
Condimental Stock Food Law	Commercial Fertilizer Law
Paint and Linseed Oil Law	Calcium Carbide Law
Insecticide and Fungicide Law	Egg Law

REPORT OF COMMISSIONER

Economic readjustment has been the chief problem of the past year. Disturbed and abnormal conditions, the heritage of every great war, mean a trying period of reconstruction for every nation involved—a period of economic warfare between conflicting interests during which many suffer and few are benefited. Following every great crisis comes a period of high prices and great business activity during which extravagance is the rule of the hour and a false feeling of prosperity, induced by the circulation of tremendous amounts of deflated money, gives the wage earner in particular, a feeling of financial security which history does not show to be justified. This in turn is followed by a true period of readjustment, when, because of the inability of the great mass of consumers to pay the prices established by inflation, prices again seek their normal level. This has been the history of the past two years. The last year covered by a report of this department, i. e., the year ending November 1, 1919, was a period of extravagance and high prices; the past year, especially the last few months, have seen the beginning of the decline. Prices are still high, of course, but indications tend to show that in most cases a steady reduction will take place. This period of price readjustment will be a most difficult one, for neither the manufacturer, the producer of raw materials, nor the laborer can be expected to be content to return to old low levels. However trying it may be, there appears to be no reason why the country should not pass through this period without serious difficulty.

The same conditions which made 1919 particularly difficult for this department have continued this year. Not only have high prices of commodities resulted in a large number of complaints of illegalities being made which required the attention of the inspection force but the beginning of the break in prices made it even more difficult because of the feeling, particularly on the part of housewives, that individual merchants were not

reducing prices as rapidly as they believed justified. These complaints had to be traced and reported upon even when they fell without our jurisdiction for, coupled with them, in most cases, were charges that violations of other laws enforced by this department were being made. This placed a considerable burden upon department inspectors, for it was necessary to attend to these complaints in addition to caring for the already heavy routine work.

Despite the rapidly increasing work of the department, enforcing the fourteen laws assigned to it, there has been no increase in its personnel. While it will soon be imperative to increase the size of the force, at the present time I am more concerned with keeping the men who are already a part of it. Despite the salary increases granted by the Thirty-eighth General Assembly, resignations have been very numerous owing to the willingness of commercial firms to pay considerable larger salaries than are being paid by the state. About one-half of the men who were members of the force at the time of the last General Assembly have since resigned. The problem of keeping clerical and stenographic help is also a very acute one. Trained workers of this kind are naturally unwilling to remain in the employ of the department at the salaries offered when commercial firms in Des Moines gladly pay from \$25.00 to \$50.00 per month more. Not one of the stenographers whose names appeared in the last annual report are employed at the present time. Obviously something must be done, if the department is to retain its trained men and women. I might add here that it is only the feeling that he next General Assembly will recognize the necessity of revising salaries which is enabling the department to retain a number of the members of its personnel.

In general, the laws enforced by this department are satisfactory as they now stand and no radical changes will be sought this year. The classification of the wording of several laws, designed to facilitate their interpretation, will be requested, but in even these instances, the general purpose will not be changed. In this connection, the law requiring the pasteurization of skimmed milk before being returned to the farmers from the creameries will be asked to be applied to

butter milk as well. Most of the desired changes are taken up in the code commission bill, however.

An appropriation for the erection of a dairy building at the State Fair will be asked from the Legislature this winter. (See cut in fore part of Report.) That Iowa's great dairy industry should have only two small booths and a refrigerator display to represent it, at the greatest of all state fairs, is a matter of great surprise to visitors from other states. This apparent indifference to the dairy industry has been a source of considerable dissatisfaction to the various dairy organizations throughout the state. Complaints from exhibitors of dairy machinery and supplies are growing more numerous each year, until they have now reached the stage where threats to discontinue exhibiting are being heard. It is my opinion that this building should be second to none in the country. Besides ample space for the exhibiting of dairy machinery and supplies, it should be large enough to permit of the serving of dairy products and contain a working model of all phases of dairy manufacturing. By this, I mean that a creamery, market milk plant, ice cream factory, and cheese factory should be in actual operation each day of the fair. The opportunity to carry on educational work among the men of Iowa's dairy plants by model factories of this kind is very great. Not only would a building of this kind possess great educational value but it would be a source of considerable revenue to the fair board.

One misapprehension which exists widely in this state is that the fines levied against violators of the laws enforced by the department revert to it for its own use. This, of course, is far from the truth, as neither the funds collected in the form of fines nor the fees received for licenses are retained for our use. The fines are not handled by the department at all but are paid directly into the state school fund by the courts which assess them, while the license fees are turned over to the state treasurer. The salaries and expense monies of the department are approved by the legislature and can not be changed no matter how actively other funds are collected.

Another misunderstanding which should be corrected is the impression held by a few that there is unnecessary duplication of work done by the department inspectors. Criticism is

sometimes made that the same territory is covered by two or three inspectors when one would suffice. Statements of this kind are made without a true knowledge of the facts. While it is true that as many as three inspectors made the same territory, their work is entirely different. The inspectors of this department are specialists and each man is by training fitted to do a certain kind of work. I believe that men of this type will get far better results than men who are veritable "jacks of all trades." Since, as is brought out in another part of this report, the functions of this department are educational, as well as law enforcing, it will readily be seen that a man to be of any assistance to Iowa's industries must be fully informed in his own field. In other words, I believe that a trained dairy specialist, for example, can be of greater assistance to a creamery than an inspector whose knowledge is so general in its nature that lack of time prevents him from knowing any one subject well. This executive plan merely follows that in best commercial practice. Iowa cities frequently see as many as four or five salesmen from one company calling upon the same trade. Surely this must be done with a purpose, for no one is foolish enough to believe that any commercial house can afford to practice such methods merely for the purpose of creating positions for their friends. It is obvious, of course, that these men are specialists in a particular line and that these companies have found it more economical to operate under a system of this kind than to send out one salesman with superficial knowledge of all departments and a specific understanding of none. It will readily be seen that this same logic applies to a state department of this kind.

Attention might well be called, at this time, to the work of the various state organizations. The past year has seen a rapid growth in both membership and influence of these bodies and a recognition of their possibilities becomes general. Among them might be mentioned the State Dairy Council and the Iowa Retail Merchants' Association. These two organizations, in particular, have enjoyed a very rapid growth and are doing much to better conditions in their respective fields. There is room for a great amount of educational work on the part of both of these organizations and I believe that their influence for good will be tremendous.

A third movement, which while affecting this department less directly, is nevertheless one in which we take the keenest interest. It is the formation of the Farm Bureau Federation. Problems and possibilities confronting this great Federation are almost numberless, but with the loyal support which its members are giving their officers and the able manner in which these officers are conducting the affairs of the Federation, there is every reason to believe that these problems will, eventually, be solved. Not the least of these problems, in my estimation, is that of bringing its members to the realization that the inefficient farmer is no more entitled to consideration than the inefficient business man. There is no more justice in a farmer expecting assistance when he fails to conduct his farm efficiently than there would be in a poor business man's request for state aid. In other words, a farmer who demands that the Farm Bureau Federation obtain for him a price above cost of production when inefficiency brings these costs to an unnecessarily high degree, is asking something to which he is not entitled. Failure on his part to recognize this fact is placing a premium upon slovenly farm management. Farming, after all, is a big business, and those engaged in it should be given the same protection which is afforded to the recognized businesses. More than this he can not reasonably expect.

No state agency can come into as constant close contact with the consumer as does the Dairy and Food Department without having its attention drawn forcibly to the need of a State Marketing Bureau. While it is not my intention to discuss the subject at any length here, I feel that such a Bureau would prove of inestimable value to the state and that the attention of the Legislature might well be called to this subject again in the same manner as was done in the last two Gubernatorial Messages. Rightly organized and conducted, with sufficient funds available to carry on this work, a Market Bureau would prove of value, not alone to the consumer but to the producer and distributor as well. I can think of no recommendation of greater importance than this.

Tuberculosis eradication under the supervision of State and Federal officials has been going forward satisfactorily but from the standpoint of our department it appears that considerably larger funds should be appropriated in order that

this work might not have to be carried on over such a long period of years. This work is not, of course, carried on by this department, but we feel that we have a direct connection with it, inasmuch as farm animals furnish products which come directly under the supervision of this department. According to information which we have every reason to believe reliable, about nine per cent of the cattle examined have reacted to the tuberculin test. Obviously, then, this department is greatly interested in the eradication of tubercular cattle. Until such time as tuberculosis has been eliminated from our herds and laws compelling the pasteurization of dairy products are passed, no amount of careful inspection can give absolute assurance of safety. This subject is treated at greater length in another part of this Report.

In common with other state departments, printing difficulties have been a source of considerable annoyance to us during the past year. The last report of the department was delayed to such an extent that it was almost useless as far as general distribution was concerned, and the same is true in other instances. Inasmuch as the information contained in these reports and bulletins is of considerable interest to the various interests for whom they are designed, it is to be hoped that the Legislature will take steps to remedy the situation.

SUPPRESSION OF TUBERCULOSIS IN OUR DAIRY HERDS

As the attitude of the commissioner and this department toward the enactment and enforcement of laws having for their object the eradication of tuberculosis among our farm animals has been attacked without warrant or reason, I desire to have my position understood.

I have used the tuberculin test for more than thirty years in my own herd for the purpose of eliminating those animals that were shown by the test to be affected. I have encouraged and worked for the enactment of every law offered in the Legislature during that time, having for its purpose the control or eradication of this disease. As proof of this, I herewith submit a portion of my last year's report which was written about July 15, 1919. It reads as follows, and I feel can be easily understood:

In my opinion there was no act of the Thirty-eighth General

Assembly of more importance to the people of our commonwealth than the law controlling and suppressing diseases of domestic animals. In the cattle industry, Iowa admittedly, taking all things into consideration, surpasses all other states because of the number of pure bred herds within her borders. Besides this, she stands almost alone in the production of hogs.

This measure is sure to have a great influence on the production of both cattle and hogs in the future, as it will be reasonably easy to eradicate tuberculosis in our swine when our bovine kind are free from this dread disease.

Neighboring states have enacted similar laws and profited by their foresight. I have always felt that, since the public would be benefited, it was right and reasonable that they should, in a measure, share any loss that would come to the owner of the herd. This is especially true as it applies to breeding and dairy cattle, as it is reasonable to assume that the law as it was drafted contemplated caring for this class of cattle and bringing them within its scope, and it is perfectly right that it should.

I have never thought that the dairyman or breeder should be compensated in full for reactors as that would perhaps encourage carelessness and in some instances trickery and dishonest methods.

While the State and Federal indemnity is a great inducement to the cattle man to clean up, when you take the present value of cattle into consideration, it is not as large as it should be. This is especially true as it applies to the better class of registered or pure bred cattle.

After an experience of over 35 years in breeding cattle, I can draw but one conclusion; that a great share of our troubles with this disease would be eliminated by the use of clean, well-lighted and well-ventilated barns. I do not wish to be understood as saying that the disease can be eliminated under conditions of this kind without the use of the tuberculin test and doing away with the reactors. I do feel sure, however, that the percentage of loss on the first Federal and State test and tests thereafter will be much less under such conditions. It is surprising to me, that in this day and age, there are still many breeders who do not recognize the value of light and ventilation. The old filthy plank floor, poorly-lighted, ill-ventilated barn is the harbinger of disease, especially tuberculosis. There is nothing cheaper and better than sunlight. It is my opinion that the Almighty would not have supplied it in such generous quantities, had He known that the stockman and farmer had so small an appreciation of its value.

It is my judgment that it will be a difficult matter within a few years for the owner of a herd of pure bred, registered cattle to do any considerable amount of business, unless the herd is under Federal supervision or in the accredited list. I feel sure that cow's milk has saved a thousand children, where one has been made to suffer by its use. The bare possibility of one child in a thousand becoming affected

by its use, is a good and sufficient reason why our dairy herds should be cleaned up.

The breeder who ignores right methods and up-to-date practices is like the child playing with fire—you can't tell when either will be burned. We have had too many examples of this kind within the last year. I call to mind a breeder who was about to hold a sale. The date was fixed, and quite an amount had been spent for advertising. Just to put on the finishing touch, he called in a veterinarian and applied the test. About sixty percent of the lot reacted. No one wanted the balance, so the sale had to be declared off. Had a test been made a few years earlier the probabilities are a few reactors would have been found and if they had been taken out and a follow-up test made, the percentage of loss at time of sale would have been so small as to be of no consequence.

The tuberculin test measure may really be considered as an insurance. It helps care for a part of the loss that is sustained by the breeder or owner who is unfortunate enough to get his herd infected. It encourages the young breeder to go into the industry. It says to him, "If you will do so, the State and Government jointly will stand between you and a total loss if your herd becomes infected." The older breeder who does not take advantage of the law has a rather narrow vision and in my way of thinking, will find the business unsatisfactory and not at all profitable.

Though we are a little late in taking hold of a good thing, let us show our neighbors in Minnesota and Wisconsin that we are none the less in earnest than they have been, and we will soon have in Iowa a long list of accredited herds.

I desire to say at this time that wonderful progress has been made within the last year or since this law became effective. I hope that the Thirty-ninth General Assembly may comply with the request of the State Veterinarian and the Animal Health Commission for a substantial increase in their present annual appropriation, so that the work so well started and in hand may not be hindered on account of lack of funds. The State Veterinarian, in co-operation with the Federal authorities, has entire supervision over this work. This department has nothing to do with the enforcement of the provisions of this law. There is nothing in the law compelling the farmer or breeder to have his cattle tested. Where conclusive evidence is obtained that a certain herd is affected with tuberculosis, the State Veterinarian is empowered to order the herd quarantined. No such authority is vested in the Dairy and Food Commissioner. Ordinances excluding from distribution and sale milk other than from tuberculin tested

herds may be made by a city council (see Sec. 3595, page 1087). For further information see Sec. 1740, page 541, Compiled Code of Iowa, 1919.

I hope I have made my position on this subject understood. It has been the same for the last fifteen or twenty years.

DAIRY PRODUCTS

Conservative estimates of the income, received by the state, from dairy products, during the past year, place the figures at \$150,286,448.51, derived from the following sources:

Creamery butter	\$47,864,453.42
Ice cream	6,795,943.00
Market milk	28,875,000.00
Cheese	197,530.75
Cottage cheese.....	320,000.00
Farm dairy butter.....	19,500,000.00
Condensed milk.....	733,521.34
Skim and butter milk.....	16,000,000.00
Fertilizer	30,000,000.00

In practically every instance the foregoing figures show an increase over last year. In the case of creamery butter a decided increase is noted, despite the fact that a considerable decrease in the number of pounds manufactured was shown by reports. The consumption of farm butter remained about stationary, due to the high prices prevailing for the creamery product. While the use of good dairy butter upon the farm, or in towns adjacent to the place of its manufacture, is not to be condemned, I feel that in general Iowa dairy men would profit more and more by sending a good grade of cream to the creamery, instead of converting it into butter on the farm. This applies, particularly, to dairy butter, which is traded in at the country store for merchandise—a practice which is still in vogue in many parts of this state. In many instances, these country stores receive such a large amount of dairy butter, of widely differing grades, that the only means which they have of disposing of it, is to send it to the renovating plant, where it is manufactured into low grade butter. It is almost impossible to estimate the loss sustained from this practice but it is safe to say that it is very large.

As in previous reports, I shall again call the attention of

dairy farmers to the short-sighted policy involved in selling cream to the creamery and using cream check in purchasing oleomargarine. It is beyond my power to express my contempt for any such practice. Not alone is the family of the patron suffering but there is a distinct loss to the state, itself. Butter is an Iowa product and oleomargarine is not; butter fat is a continuous "cash crop" for Iowa farmers, cotton seed oil and cocoanut oil come from the southern states or from the islands of the Pacific. Iowa creameries can produce far more than enough butter to satisfy the demands of the state's population. The oleomargarine reaching Iowa is manufactured largely in factories located in other states. Iowa creameries are, for the most part, Iowa owned, the oleomargarine factories are owned by capital in other states. The profit from Iowa creameries remains in Iowa, the dividends from oleomargarine factories stay elsewhere. Last year Iowa creameries produced 86,219,612 pounds of butter, which they sold for \$47,864,453.42; 88½% of this amount, or \$42,360,041.28, was paid to Iowa farmers for the cream and milk containing butter fat; 9.3%, or \$4,441,394.17 was spent by the creameries for Iowa labor and power, and most of the remaining \$1,063,017.95 was distributed among Iowa farmers in the form of dividends from their creameries.

Another phase of this subject is worthy of the attention of Iowa creamery men; this is, the failure on their part to take advantage of the home markets offered. In instances almost without number, we encounter the incongruous situation where butter is being shipped from a local creamery to the New York market, while butter from distant points is being sold in town. The remarkable part of this paradoxical situation lies in the fact that in many instances these creameries are receiving less for their butter, by shipping it, than they would by selling it on the home market. Failure on the part of the creamery manager to recognize this fact is largely responsible for this condition, in making his calculations he fails to take into consideration the losses due to deterioration and shrinkage and the cost of transportation.

It is with particular pleasure that I note the growing use of pure bred sires, in our dairy herds. That there is room for greater improvement in our herds can be readily understood

from the fact that most of our dairy products continue to come from dual purpose members of uncertain breeding. It is stated that Iowa has only 285,000 Holsteins and 168,000 Jerseys, eligible to registration; in other words, the "red cow" continues to furnish most of Iowa's dairy products. However, as stated, the use of pure bred sires is encouraging, far more encouraging, at least, than the condition which prevailed a few years ago, when a large number of bulls, of pure breeding, were castrated and fattened for the market.

Largely through the efforts of the State Dairy Inspector and his assistants, calf clubs and bull clubs are growing in popularity, particularly among the farm children of the state. Cow test associations are, also, doing big work in weeding out unprofitable cows from Iowa herds.

That the marketing of the dairy products of the country has become international in its scope, is evidenced by the influence which the foreign money market situation has had upon the price of these products. During the calendar year of 1919 there were exported 34,556,485 pounds of butter, 14,159,721 pounds of cheese and 852,181,414 pounds of condensed and evaporated milk, according to the figures compiled by the United States Bureau of Markets. That there is a decided falling off in this foreign demand is shown by the following figures showing a comparison of the exports of butter, cheese and condensed and evaporated milk, for the first nine months of 1920 and 1919.

	Butter		Cheese		Cond. & Evap. Milk	
	1920	1919	1920	1919	1920	1919
Jan.	1,899,196	4,452,371	1,310,430	384,554	34,074,021	40,789,453
Feb.	4,268,360	3,726,840	1,193,648	387,016	40,789,433	49,399,574
Mar.	6,396,823	4,127,635	1,793,922	963,109	50,183,739	48,703,690
Apr.	779,216	8,475,618	1,842,317	1,722,721	51,503,609	94,068,780
May	886,552	759,803	4,408,948	1,732,286	45,776,613	76,387,474
June	696,323	810,763	2,199,437	2,331,799	44,401,322	114,835,626
July	576,892	633,764	550,000	988,788	27,688,649	64,447,367
Aug.	436,214	2,395,139	374,538	805,213	25,602,963	65,811,556
Sept.	327,482	1,387,148	362,791	671,334	21,342,313	62,558,786

That this decline, in foreign demand, should have its effect upon the price of our dairy products goes without saying; incidentally, the decline in the price of creamery butter has been less marked than any other dairy product, as far as Iowa is concerned, at least.

As was stated elsewhere, in the report, a larger sum should be appropriated for the carrying on of the work of eradicating tuberculosis from our dairy herds. An appropriation of the present size means that the work will have to be extended over a longer period of years than is desirable.

While the task of organizing an Iowa Dairy Council has been a tremendous one, the dairy men of the state are beginning to realize the importance of such a body and it is anticipated that ample support will be forthcoming for its continuance. As the activities of this Council are chronicled in another part of this report, it will not be necessary to discuss them at any length here.

CREAMERY BUTTER

Despite the fact that the number of pounds of creamery butter manufactured during the past year has decreased from 90,915,938 (production of 1919), to 86,219,612 pounds, the income derived from this source has increased from \$43,969,285.47 to \$47,864,453.42, a gain of \$3,895,167.95. This increase is due not alone to the increase in the price of butter, but to the fact that a much higher quality has gone to the markets, from our Iowa creameries, during the past year than ever before.

This improvement in the quality of butter has come very largely as a result of an active campaign carried on in the state for the betterment of raw material going to the creameries. An account of how this work is being carried on, is described in the following manner by Prof. A. W. Rudnick, of the Extension Division of the Iowa State College:

"For the last four years the Extension Division of the Iowa State College, in co-operation with the Iowa Butter-makers' Association, has been conducting a Cream Improvement Contest. This contest has for its object the establishment of better facilities for taking care of cream on the farm.

"The contest is carried on each year by a member of the extension department. Prizes have been offered each year and for this year \$150 in prize money is divided into nine prizes. The money being given by the Iowa State Dairy Association, the Creamery Secretaries' and Managers' Association and the Iowa Buttermakers' Association. The prizes are awarded according to the following plan: The buttermaker

who receives the largest number of points is given first prize, etc. Credit is given for installing cream cooling tanks, building milk houses and for moving separators from the cellar or barn to a more sanitary place. Fifteen points are allowed for each milk house, ten points for each cooling tank, and ten points for each separator moved. This work must be done within the year of the contest. The buttermaker is required to make a sworn statement of the list of patrons making such improvements. Each month a letter is prepared to the butter-makers urging them to do this work and then showing the progress of the work.

"In the four years of this contest about 3,500 cooling tanks have been installed. This in itself is not very much but when one studies the situation one finds that when one change has been made others follow. The cooling tank is by no means a new thing; it has proven, however, that it is one of the best and the cheapest methods of producing high grade cream. The creameries which have been working in the Cream Improvement Contest are not suffering from the big spread in the present market.

"In order to help some of the creameries with their cream improvement, the cream scoring contest has been carried on. The cream scoring contest is conducted by the Farm Bureau and the Extension Division. During the past year seven creameries have conducted such contests. The creameries conducting such contests are, Tenold Creamery, Northwood; Plymouth, Lake Mills, Forest City, Scarville, Clemons Grove, and Orange City. In each of these creameries improvement in quality of cream has been made but not to the same degree; however, the method of delivery is one of the factors which affects the improvement made. Where the farmer is delivering his own cream, the value of quality can be discussed as well as some of the difficulties encountered. At one creamery a patron was criticized for delivering cream which had an offensive taste. The patron asked for help, stating that everything was kept clean. The trip was made, everything was found clean, separator, milk house were not only clean but neat. The discovery was made that home-made soap was being used to scrub with, and this gave the flavor which was offensive. The cream was absorbing the flavor of that soap.

Mineral washing powder was substituted for the soap and now the cream from that farm is equal to any. Gasoline and fly spray often contaminate cream and it does not take much to give cream an offensive taste. In one case the wind was blowing the exhaust back through a window and by closing this window the trouble was eliminated. These are things which can be corrected by the scoring of cream.

"As has been stated, the cream scoring contest is carried on by the Farm Bureau and the Extension Department of the College. The creamery is visited from six to twelve times a year by a dairy specialist, who judges the cream according to the following score card:

Flavor	45
Acidity	25
Richness	20
Body and cleanliness	10
	—
	100

"The flavor is scored by taste, according to the quality of butter which can be made from it, under the best systems of manufacture.

"The acidity is measured by the Farrington acid test, all cream with an acidity of 2% or less is scored perfect, three points are deducted for each 1/10% increase.

"If cream tests 28% butter fat or more it is scored perfect. One point is deducted for each percent below 28.

"Body is judged as to whether cream is curdy, lumpy, frozen, churned, etc. Cleanliness from the appearance of the can and cream.

"These score cards are made out by the county agent and returned to the farmer so that he can see just how much his cream is worth. Very often it is found that the patron needs just a little coaching in order to furnish the finest kind of cream.

"In fixing the creameries premium, lists have been prepared and prizes will be awarded to the patrons receiving the highest scores. One creamery has a prize list running well over \$1,000. The day of scoring is not announced, the judge arrives at the creamery before the first patron arrives, some-

times one scoring a month is held, other times the scorings are held closer together.

"In creameries where there are routes it is more difficult to reach the patrons, so the work is slower. It will take at least two years to bring about the same improvement which can be made in one year in a creamery having home delivery. On the whole, however, the greatest share of the work must be done by the buttermaker and directors. No matter who does the scoring, if the buttermaker and directors do not follow up the work the contest will be a failure. Cream improvement requires complete co-operation all along the line, everyone must help, who is at all concerned with the problem. At the present spread of prices for the different grades of butter, no creamery should be satisfied unless they are making extra or better."

While great improvements have been noted in the quality of Iowa's butter, during the past year, there is still room for more. Iowa still sustains a large loss through the failure of its creameries to send butter to the market which will average extra in quality; however, it is gratifying to note that manufacturing costs have decreased considerably per pound during the same period. Reports from one hundred forty-five creameries give the cost as 3.75 cents per pound; this is nearly four-fifths of a cent less, per pound, than was reported for the preceding year. The losses due to the failure of the buttermakers to maintain a proper overrun have largely been eliminated. A compilation of 188 reports gives an average overrun of 22.4%—and in very few instances an overrun of less than 19% being obtained.

Quite interesting are the figures showing the salaries received by the buttermakers, employed in Iowa creameries. During the year 1919 the average salary received was \$130.00; 358 buttermakers reported an average salary, this year, of \$156.86, an increase of \$26.86. While this is an indication that creamery managements are coming to realize the importance of the buttermaker's duties, still, how many of them receive salaries commensurate with the work which they are expected to do. It is understood, however, that this situation will be adjusted by a plan which involves the reorganization of the Iowa State Buttermakers' Association. This plan outlines methods by which the buttermakers of Iowa will be

called upon to render greater service to their creameries, for which they will be compensated by a dividend salary understanding. A. W. Rudnick, Secretary of this Association, briefly outlines the plan of reorganization as follows:

"The Iowa Buttermakers' Association is undergoing a change in organization. A complete change in the character of the organization is scheduled to take place. The organization will be similar to those now in operation in Minnesota and Wisconsin. The buttermaker will have an organization which will function the year round. A schedule of meetings of buttermakers in small groups known as district meetings is being prepared. These districts will have a set of officers and will be responsible for the quality of work done in that territory. One of the big things is to place buttermaking on a high plane of efficiency and demand the members to give the very best service possible. Another idea is to do away with the practice of bidding for positions. There is no other industry which uses this practice and it has worked to the detriment of many creameries. A few cents saved in salaries were more than offset by the dollars lost through inefficiency and carelessness.

"Establishing a system of apprenticeship in co-operation with the Dairy and Food Commission and Iowa State College will also be one of the problems. To meet the requirements of creameries, high grade men must be trained and the Association, with the agencies named, can do a great deal toward solving this problem.

"These are some of the outstanding features. The ideal is that the reorganization will work for the benefit of the creamery industry and both the buttermaker and patron will gain from this."

Considering the complaints frequently heard regarding the price of butter, the cost of raw materials will be of interest. The cost of these materials is outlined in the following table:

	1914	1919	1920
Bran, per ton.....	\$25.80	\$47.50	\$52.00
Cotton seed meal, per ton.....	\$1.00	\$4.00	70.00
Corn .....	.69	1.32	.95
Oats .....	.40	.60	.45
Hay	16.30	16.50	17.90
Labor without board.....	40.00	71.00*	71.00*
Labor with board.....	30.00	55.00	62.00*

*Estimated.

The foregoing figures are from prices on September 15, of the years mentioned, as reported by Wallaces' Farmer. As will be noted, the price of butter is by no means disproportionate to the cost of producing the raw materials which it contains.

It is the hope of this department that through the co-operation of the Iowa State College a wider use of the State Brand can be brought about this winter. I feel that a large number of the creameries of the state are failing to take advantage of the results being obtained by campaigns carried on among their patrons, if they do not make every effort to qualify for the use of this brand. Butter, which can meet the requirements, commands a premium in New York and on the other large markets, and is always in demand; then, too, it offers great possibilities in the cultivation of a fastidious home market.

For several years past the department has conducted dairy campaigns in southern Iowa. There will be no campaign this year, for I feel that farmers in that part of the state are too little interested to warrant the expenditure of money needed. Instead, our energies will be devoted, largely, to working with creameries already established.

CONDENSED MILK

Iowa's two condenseries report a noticeable decline in the income received for their product, during the past year, as compared with 1919. The total for 1920 is given as \$733,521.34, while that of 1919 was \$965,647.70. While evaporated and condensed milk is a drug on the market, at the present time, I feel that this condition will be only temporary and that it will not be very long before the demand for this product will again be large. Even now, Iowa does not manufacture sufficient evaporated or condensed milk to take care of its demand. While I do not advocate the erecting of condenseries in established creamery districts, yet I do feel that if the farmers of southern Iowa were alive to their opportunities, that the introduction of a sufficient number of good cows and the establishing of condenseries would be looked upon with favor.

CHEESE

The manufacture of cheese in Iowa shows an increase of

134,000 pounds over last year and 17 factories are operating successfully. The northern half of the state contains practically all of these factories, but the southern part of the state is well suited for the successful operation of cheese factories and it is hoped that it will not be long until cheese making will become an important industry in southern Iowa. Iowa consumes many times as much cheese as it manufactures so that the market is unquestioned. The high nutritive value of cheese makes it a valuable article of food and should be eaten freely as a substitute for meat. It is estimated that Iowa makes and consumes 2,000,000 pounds of cottage cheese each year and its high food value and palatability entitle it to a prominent place in our dietary.

MARKET MILK

With the growth of the urban population of Iowa, the city milk supply is rapidly becoming a matter of tremendous importance. As our cities become more congested the greater will be the need of strict supervision of market milk. The time has actually arrived when it appears as though the present method of inspection should be changed. The amount of money placed at the disposal of the department for carrying on this work is decidedly inadequate.

While it is true that none of the cities under state inspection have suffered any epidemic of disease and that the milk supply is on the average quite good, there can be no guarantee of continued immunity under the present system.

Any system of inspection which places the inspectors on a part time salary basis can not be entirely satisfactory, yet in most instances this condition exists. The law permits state inspection of city milk supplies on a per diem basis, the number of days varying from ten to fifteen, according to the population. It is not my intention to advocate that inspectors be placed on a full salary at the expense of the state. A far better solution is to have the salary paid jointly by the state and city as is done in Des Moines and one or two other cities. If the cities will co-operate with the department in this respect, it would permit the securing of trained inspectors who could devote full time to this work. Adequate laws laying down strict rules of supervision, such as farm inspection, com-

MILK

the economical food

One Quart of milk is equal to the quantities of any of the foods shown here and costs less

8 EGGS	2 LBS. CHICKEN
6 LBS. SPINACH	3/4 LB. LEAN BEEF
4 1/2 LB. LOIN OF PORK	2 LBS. SAID CODFISH
3 LBS. TURNIPS	1 PINT OYSTERS
1/2 LB. OF HAM	4 LBS. OF LAMB

pulsory pasteurization, etc., could be made with assurance that they would be enforced.

As is true among other producers, milk producers are displaying considerable activity in organizing to market their milk as a group. While such a movement was at first looked upon with some trepidation in most parts of the state where these organizations were in operation, the result has been entirely satisfactory. Producers have shown their willingness to be fair in setting the price which the milk should bring, while on the other hand distributors find that the rules laid down by these organizations are of protection to them as well as the producers.

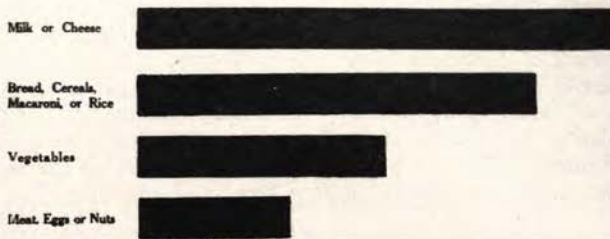
There is still a need for much work to be done in calling the attention of the people of the state to the value of milk as a food. Dietitians recommend the use of at least one quart of milk a day per person. In Iowa the consumption is somewhere about four-tenths of a pint per person per day. It is indeed regrettable that the residents of one of the greatest dairy states in the union should be so little cognizant of the value of these products. A steady use of milk will mean a healthier population and a saving on food bills.

An effort to stimulate consumption of milk was conducted among the school children of Iowa in twenty-nine counties by this department, the Iowa Dairy Council and the Extension Department of the Iowa State College, last spring, in a campaign lasting three weeks. During that time 387 schools were visited by 19 speakers and the story of milk told to 53,812 pupils and 2,709 teachers. Forty evening meetings of the parents of these children were also held in connection with this campaign, which were attended by audiences totaling 4,094 people. It is, of course, extremely difficult to accurately estimate the results of such a campaign but numerous reports from these sections tend to show that the results were surprisingly good. Other campaigns will be carried on in other counties and the scope of the work widened with a view of bringing home the message to nearly every man, woman and child in the state of Iowa.

It is entirely fitting that the attention of the milk dealers of the state should be called at this time to the necessity of doing their part in this great work. No matter how much edu-

Some Foods Supply Building Stones More Economically than Others

The length of the line opposite the food given below indicates the return in food value for the money spent



**A quart of milk
is the cheapest
food you can buy**

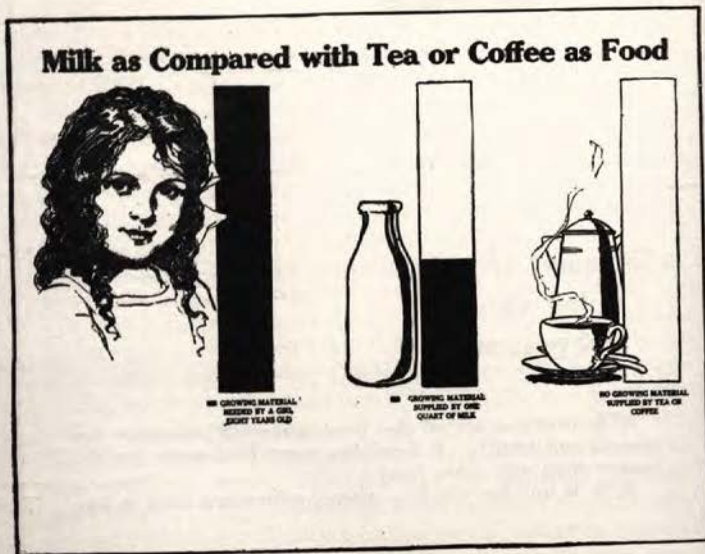
Milk contains all of the food materials necessary for growth and health. It furnishes more food value for the money than any other food.

Milk is not for children alone; grown-ups need it too.

Use plenty of milk in breakfast dishes, and in the form of cheese or cottage cheese.

A quart of milk is the cheapest food you can buy. A quart of milk goes farther than 3-4 pound of steak or nine eggs.

cational work is carried on or how much advertising is done it can not be fully effective as long as there is a feeling among consumers that the product is not absolutely pure. Telling mothers that milk is an ideal food for their children will have little effect as long as these mothers summon up pictures of myriads of dangerous bacteria in each drop. To obtain the greatest results from campaigns of this kind a dealer must, as an individual, follow them up with methods designed to bring home to the consumer the fact that his milk is free from contamination. To be in position to do this he must, of course, take pains to see that his plant is kept in an absolutely sani-



tary condition and that only high quality milk, preferably pasteurized, is put out by his plant. The same thing applies to all dairy products, it is true, but to none does it apply in the same measure as it does to milk.

While the general tendency in the past has been toward the amalgamation of small dairies into one or more large market milk plants, the past year has seen practically no con-

solidation of this kind. Iowa still continues to be a state where small milk men predominate. Most of our cities, even large ones, still obtain their milk supply from small dealers who either produce the milk themselves or buy from one or two neighbors. While this practice usually results in the milk being placed in the hands of consumers a short time after being produced, there is, on the other hand, the objection that small dealers seldom possess the equipment to safeguard the milk supply, which is found in large plants. From an inspection standpoint a city milk plant is much more easily controlled than numerous small individual farm dairies. These statements are made not with the intention of showing any favoritism toward the larger plants but merely to attempt to bring out some of the difficulties presented in properly controlling a milk supply coming from numerous small sources.

As stated elsewhere, a conservative estimate of the money expended for market milk in the state during the past year is very nearly twenty-nine millions of dollars. This figure may fall considerably below the amount actually consumed each year in the form of fluid milk. As a matter of fact, it probably represents only something over one-half of the annual consumption of milk, since it does not take into account the enormous amount used on the farms of the state. The three hundred and eighty-seven reports from which figures were compiled, include only the milk sold for consumption in cities and towns. Because of the fact that a great proportion of these reports were received from small dealers, duplication and other mistakes have probably made the figures a trifle high, but as stated, when the total consumption is considered, it probably falls short of the actual mark.

Because of the unsatisfactory manner in which many of these reports were returned, it has been almost impossible to tabulate careful statistics. Only a very small number of the small dealers keep accurate records and in many instances the report of receipts received from the sale of milk and cream, and like questions, were apparently very poor guesses. None of those reporting appeared to be modest about their claims for an average fat test of their milk. In checking over a large number of these figures with those received from the city milk inspectors it was found that the tendency was for

each man to give himself credit for richer milk than he was actually delivering.

As was expected, most of the dealers had a surplus of milk in the late spring and early summer months and suffered from a shortage during the winter months. Only a very small percentage of Iowa's market milk is pasteurized, according to the reports. An attempt to obtain figures regarding the number of cows furnishing milk for this purpose, proved decidedly unsatisfactory. In general, it was found that the milk was paid for on the Babcock test basis by the larger plants and by the gallon by the smaller dealer. While automobile delivery is apparently growing in popularity, a large number of horse-drawn vehicles are still in use, a number expressing the opinion that the frequent stops and starts necessary in retail delivery make the use of an auto truck too expensive.

While dealing upon the subject of milk distribution, it might be well to bring out two reforms which might well be brought about in the city milk business. One of these is the matter of delivery duplications and the other the question of milk bottle losses. Regarding the first point: While the tendency is toward the delivery of milk to the consumer by way of the grocer, the greatest amount is still delivered directly to the consumer by the "milk man." In some towns this means that as many as six different distributors are delivering milk in the same block. The waste involved in this method of distribution is enormous. If some plan could be worked out whereby deliveries could be combined, a great saving could be made which would prove to the advantage of both distributor and consumer. In regard to the second point, i. e., milk bottle losses, the establishment of milk bottle exchanges has proved very satisfactory in a number of cities in other states. By proper co-operation among dealers, this system will not only enable them to have their own bottles returned but it will also enable them to make stringent regulations regarding the return of milk bottles by grocers or consumers. Certain it is that with the present high cost of glass bottles, stringent measures must be adopted to reduce this phase of milk distribution cost or else it must be met by an increase in milk prices. This department is not inclined to be over-patient with users who fail to return these bottles to their

rightful owners. Information gathered from milk dealers shows that it is the grocer and not the consumer who is the greatest offender. Whether the grocer makes no effort to have his customers return these bottles or whether they are used for other purposes in his store, can not be determined, but the fact remains that he is the source of the greatest losses. While there is no desire on the part of this department to work any hardship upon anyone, it is almost inclined to recommend that such a high valuation be placed upon milk containers that the consumer or grocer could not afford to retain them.

ICE CREAM

The past year has probably been the most crucial ever encountered in the ice cream business. High priced raw materials (when, indeed, they were obtainable at any price) made it extremely difficult this year for the manufacturers of this product. The shortage and high price of sugar was a source of constant worry to those who were forced to meet competition of others who had succeeded in laying up a large supply of this product before the break in sugar prices. Some manufacturers were forced to pay almost any price demanded in order to obtain a sufficient supply to enable them to fill their orders. When the break did come, it found a large number with a big supply of high priced sugar on hand which must be used in competition with those purchasing it at a much lower figure.

Surprising as it may seem, the high prices which necessarily prevailed because of these conditions did not curtail consumption of ice cream to a great extent. Reports compiled by this department placed the consumption at 5,436,755 gallons, which sold for a total of \$6,795,943.00, an increase of nearly \$200,000.00 over last year. This in the face of a predicted reduced consumption.

The war tax placed upon the sale of ice cream is undoubtedly partly responsible for the failure of the public to consume a larger amount of ice cream. This is brought about through the tendency on the part of certain retailers to advance the price to the next even nickle when a war tax of one or two cents is placed upon each dish served. That is, a dish of ice cream retailing for twenty cents incurs a war tax of two cents. Many retailers simply advance the total price to twenty-five

cents and absorb the war tax. Needless to say, this extra three cents is not shared with the manufacturer, and from his standpoint is harmful, since there is no gainsaying the fact that this levying of an additional five cents does keep many people from making a purchase.

While it is still a little early to be making predictions, I feel assured that with the continued decrease of sugar and other raw materials that next spring will see a decline in the price of ice cream, particularly in those cities where the price has arisen to \$1.40 or \$1.50 a gallon wholesale. A price movement downward will be viewed with approval rather than regret by practically every ice cream manufacturer in the state, I feel certain, provided, of course, that it comes as a result of lower raw material and manufacturing costs.

FOOD AND SANITARY INSPECTION

Due to high food prices which prevailed during the past year it was found necessary to conduct even more rigid inspection than in former years. Certain dealers were unable to resist the temptation to dispose of partially decomposed food, in violation of the law, while others resorted to the use of saccharine to displace high priced sugar. During the period extending from January 1, 1919, to August 1, 1920, a total of 117 prosecutions were made by this department for violations of the food law. During the same period 95 prosecutions were made for violations of the sanitary law. Of the food violators, sixteen who were brought to trial were using saccharine in the manufacture of soft drinks. The Iowa law is very strict in its regulations as to branding and adulteration. The law requires that the labels on all packages of foods must not be misleading either as to their composition or statement of the quantity contained in the package. Pictures which are misleading are not permitted, for example, a picture of a maple tree with the sap flowing into buckets is not permitted on a can of imitation maple syrup, nor the picture of a Guernsey cow upon the label of a package of oleomargarine. If a food is made up of different ingredients the label must show a list of these ingredients printed in plain, legible type. It will be seen that the law provides that the consumer must be given sufficient information on labels of food products so that he will know what he is buying.

This is not an unreasonable requirement, for surely those who pay their money for foods are entitled to all possible information regarding their purity and composition as well as the quantity.

For several years after the enactment of food laws, manufacturers were with difficulty forced to truthfully label their products; many evasions were attempted. In many cases the statement of quantity was made in very small type or placed on the back or side of the package where it was not seen unless a search was made for it. The law requires that this statement must be made upon the main label and in plain, legible type. A search among package foods on the grocers' shelves will show a general compliance with the law.

ADULTERATION

In former years much of the cocoa sold was mixed with cocoa shells as they were a by-product in the manufacture of cocoa. These shells today are packed and sold as ground cocoa shells for making a low grade cocoa; as the law requires that cocoa mixed with shells must be labeled to show the presence of these shells and the manufacturer, realizing that this would affect the sale of his product, has ceased this practice entirely.

The mixing of chicory and roasted cereals with coffee, a common practice in past years, is now sold as a compound of coffee, chicory and cereal, often under the name of "Cereal Coffee."

Confectionery, at one time grossly adulterated with paraffine and inert materials and colored with dyes often injurious, is now made under sanitary conditions and of pure, wholesome materials and colored with dyes that are passed by the Federal and State authorities as perfectly harmless. Some states forbid the sale of foods colored with these dyes, but as long as the health is protected we believe the child should have his striped stick candy, his pink ice cream and red strawberry pop.

A large amount of sophistication existed in flavoring extracts. Lemon extracts were made with dilute alcohol, a trace of lemon oil or citral and highly colored to make the housewife believe it contained a large amount of flavoring.

Vanilla extracts were made of synthetic vanillin, coumarin and prune juice and sold as double and triple strength vanilla with a picture of a cluster of vanilla beans on the label. Banana, pineapple, etc., extracts were sold for double strength products. The law has rectified these conditions by defining an extract as requiring at least 5% of lemon oil in lemon extract, a definite amount of vanilla beans in vanilla and in the case of banana, pineapple, etc., they must be sold as imitations, as there is no true extract made from these fruits, they being made by mixing certain alcohols and ethers.

The mixing of cotton seed oil with olive oil is still practiced to some extent, the temptation being strong to get olive oil prices for the much cheaper cotton seed oil. Some dealers have even sold pure cotton seed oil for olive oil, with the picture of a cluster of ripe olives upon the label with French or Italian inscriptions.

It was a common practice also to ship American cotton seed oil to Europe, where it was mixed with olive oil and returned to the United States under a fancy brand of olive oil. There are now at the principal ports of entry into this country Federal imports laboratories where all foods offered for entry are analyzed and if found not to be in compliance with our food laws, are returned to their foreign owners. This has stopped all entry of misbranded and adulterated foods into the United States.

Spices did not escape the efforts of the adulterator. They were grossly mixed with ground olive stones and ground cocoanut shells. Cayenne pepper was mixed with gypsum and colored with a bright dye to hide the adulterant. Black pepper was much adulterated with pepper shells. As white pepper is made by taking off the outer shell of black pepper, the shells were a waste and much of them was disposed of by mixing them with the black pepper.

Standards established by our food laws require jellies, jams, preserves, etc., to be made from the fruit juice and cane sugar, but before these standards were established these products were made in many cases of starch, gelatine, glucose, an artificial fruit flavor, and colored with dyes.

Timothy and millet seed were in some cases used to imitate the seeds of the fruit. An apple base was much used in cer-

tain brands of these products and is still used, but now the label so states, while formerly it was labeled as being made entirely of the more expensive and desirable fruit. Apple juice is the most plentiful and cheapest of the fruit juices and being rich in pectin jellies very easily, while the juice of most of the common berries jellies with difficulty or not at all. These facts have led to the practice of using apple juice as a base for mixing with other fruit juices for jelly and jam. This practice is, of course, harmless and legitimate, but the label must show the consumer that the product has been made from these ingredients.

Table syrups did not escape their day of adulteration. Maple syrups were grossly mixed with cane syrup or made of cane syrup entirely and artificially flavored like maple. Glucose or corn syrup was also sometimes used in whole or in part. Dr. Wiley once made the statement that there was more maple syrup made in the city of Chicago than in the state of Vermont, which no doubt was true. However, a survey of the labels on this class of goods now on the grocers' shelves will show that they are branded "cane and maple syrups" or "pure maple syrup" and the statement can be taken as true as proven by samples analyzed by this department, as well as by the Federal authorities. Maple sugar was likewise adulterated but is now properly labeled.

Cane sugar has rarely if ever been adulterated; however, there is still some complaint from housewives that beet sugar has been substituted for cane sugar, but since they are alike chemically there is no means of telling if this is the truth.

Soda waters have never been subject to much adulteration, except that impure dyes were sometimes used and they were not always produced under sanitary conditions. Saccharine was and is still sometimes used as a substitute for sugar but the law forbids this practice as saccharine is considered injurious. The recent high price of sugar tempted many manufacturers of this class of goods to substitute saccharine, which is 500 times sweeter than sugar, for sugar and the department has prosecuted a considerable percent of these manufacturers this summer for this violation of the law.

Vinegars have been no exception to the manipulations of the manufacturer.

As cider vinegar has always been the principal vinegar of commerce and has commanded the best price, manufacturers have yielded to the temptation of adulterating it. A common form of adulteration, still practiced to some extent, is to mix distilled vinegar, which is a dilute solution of acetic acid, with enough cider vinegar to give it the odor and color of pure cider vinegar, sometimes adding color to intensify the deception. Again, distilled vinegar is colored and sold for cider vinegar. Malt vinegar has also to some extent been mixed with distilled vinegar. Distilled vinegar is made by passing dilute alcohol over vats filled with wood shavings impregnated with mother of vinegar, where the alcohol is converted into acetic acid. This is the cheapest vinegar made, hence is used for adulterating.

The sour principle of all vinegars is the same, i. e., acetic acid, and while none of these adulterations are injurious they are fraudulent and forbidden by law. In some states distilled vinegar can be colored and sold as "colored distilled vinegar," but the laws of this state forbid the use of color and it must be sold in its natural colorless state, because many grocers will sell it, if colored, for cider vinegar, thus perpetrating a fraud upon the consumer.

Canned meats have never been seriously adulterated, but it is interesting to note that prior to the enactment of pure food laws, potted ham was upon every grocer's shelves, while a search now will reveal in its stead cans labeled "Potted Meat, Ham Flavor."

Canned vegetables have been subject to much adulteration with water, but standards, which are rapidly being fixed, are correcting this evil by defining the amount of free liquid which will be permitted in cans of these products.

A practice of soaking dried lima beans and peas, and canning them under labels of the fresh products was at one time much in evidence, but since the law has required these to be labeled "Soaked Beans" or "Soaked Peas" they have become scarce.

Catsup was in many cases made from the trimmings of tomato canning factories, and hence contained many molds and bacteria.

Many manufacturers have had to answer in court for this

practice, but catsup like other foods is being standardized on the basis of percent of molds and bacteria present, with the result that the manufacturer is compelled to use clean, sound fruit to make a legal product.

In the preparation of rice for the market the outer hull is removed and the grains are polished by agitating them in suitable machines with talc (soapstone) and glucose. The law permits this practice but the package in which it is offered must state that it is coated with talc and glucose, to be removed by washing in water before cooking.

Many can, no doubt, remember the tub of oysters in the meat market or grocery with a liberal piece of ice floating in it, and you were compelled to pay oyster prices for a considerable amount of water.

This fraudulent practice is forbidden by law and oysters are now sold with their natural liquor only and this can not exceed 16 2/3%.

As we are all inclined to buy our foods largely by appearance, canners made a practice of coloring string beans, peas and pickles a beautiful green by using salts of copper.

These salts are injurious to health and their use was likewise forbidden by law in all foods.

The use of preservatives became a general practice and many of them were injurious. Boric acid and salicylic acid were used without regard to the health of the consumer, as it has been proven by experiment that these acids will produce derangements of digestion and health when taken with foods. The use of these is now forbidden by law and the only preservative now permitted is sodium benzoate, and this not in excess of 1/10 of 1%. Manufacturers contended that it was impossible to keep certain foods from spoiling without using strong preservatives, but they have found out that by using clean, sound products and preparing them under sanitary surroundings that they will keep indefinitely without preservatives.

It will be seen that prior to the passage of pure food laws that adulteration and misbranding were in general practice. The dollar was placed above honesty and health and the consumer had no means of knowing the quality of the food he was buying. Manufacturers vied with one another in seeing

who could produce an article of food the cheapest. The conditions created a demand for remedial legislation, which was furnished in the pure food law and the desired result has been accomplished. Dealers have been placed on an equal basis, dishonest competition has been destroyed and the consumer can buy honest goods honestly labeled.

CLEAN FOODS

When sanitary laws were first proposed many people considered it a fad of short life but time has demonstrated that there was real need for this sort of legislation. One can easily remember seeing candies spread out in great array upon long counters unprotected from flies, dust and the fingers of customers.

Bakery goods were likewise displayed in the open, where the flies flew from the dirt in the street or neighboring dung hill and fed upon unprotected foods which we were compelled to buy. Screens were often missing upon doors and windows of many places where foods were offered for sale.

Contract these conditions with what we find today. Candy and bakery goods, meats and all foods, unprotected with a rind, are in clean glass cases away from the flies and dust, reducing the danger of spreading disease to the minimum. It will also be noticed that street displays are raised at least two feet from the sidewalks. The open barrels and boxes of food have vanished from the grocery stores and appear in inviting sanitary containers uncontaminated with the dust of the street and store and the vermin of cats, rats and mice. The slaughter house where our meat is prepared has changed from the tumble-down shack to a real building, with cracks sealed and screens on the doors and windows and the awful stench of decaying waste is not noticeable. The health of the public is safeguarded by this law and the old order has gone never to return.

EGG INSPECTION

The Iowa Egg Law is generally conceded to be one of the best in the country. While its requirements are extremely moderate, they are nevertheless rigidly enforced as is attested by the fact that no fewer than fifty-eight dealers were prosecuted for its violation during the past year and a half. This law differs very little from the so-called Uniform Egg Law which has been agitated for some time. Missouri, South Dakota and

Illinois have also adopted similar laws, and when the other states have followed suit, it will greatly facilitate the regulation of eggs entering into interstate commerce.

The high price of eggs during the last two years has caused the appearance on the market of so-called egg substitutes under various trade names. This department has ruled that the word "egg" can not be used on packages of these products unless they contain at least 50% of dried egg. Our examination has shown that most of them contain little or no dried egg but are composed principally of corn starch with small amounts of rice flour, dried milk and sometimes baking powder. In the majority of cases they are a fraud, as they are in no sense a substitute for eggs. If the housewife wishes this kind of a mixture she has most of the ingredients in her kitchen. As long as these preparations are properly labeled, the department can not prevent their sale.

While reliable information showing the number of eggs produced is not available, Iowa probably ranks first as an egg-producing state. The total income received by the state from this source, during last year, probably amounts to about \$52,000,000.00. The average farm price for eggs during this period was forty-three cents, which means that 121,000,000 dozen of eggs were marketed. This does not take into account, of course, the large number consumed on the farms of the state.

The following tabulations showing the contrast between present egg prices and those of a few years ago, will be of interest:

AVERAGE PRICE PAID TO IOWA FARMERS FOR EGGS ON THE FIRST DAY OF EACH MONTH OF THE YEARS SHOWN

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910	28	28	21	18	18	17	16	14	17	20	22	25
1911	26	21	14	13	14	13	12	12	14	17	20	25
1912	27	28	23	17	17	16	15	16	17	19	22	25
1913	23	20	17	15	15	16	15	14	16	19	23	29
1914	27	26	22	16	16	16	16	16	20	21	21	26
1915	28	30	22	16	17	16	15	15	16	20	23	27
1916	28	27	22	17	18	19	19	20	21	26	30	34
1917	35	36	33	25	30	31	27	28	32	34	35	39
1918	42	47	38	30	31	28	28	33	33	39	42	51
1919	56	45	30	34	37	38	33	37	38	47	52	59
1920	55	45	39	37	38	33						

The world wide increase in the price of eggs is not alone responsible for the high market value of eggs today. Quality plays the important part, as Iowa eggs net an unusually high price on every market in the country. This proves conclusively that from the standpoint of the producer as well as the consumer, it is well worth while to rigidly enforce existing laws.

There is only one method for distinguishing good eggs from bad ones, or which can be used for the purpose of grading, and that method is candling. Of the numerous devices sold for this purpose, the single hole candle operated in a darkened room has proven the most satisfactory. Devices designed for handling more than one egg at a time permit mistakes and carelessness to creep in and, as far as this department is concerned, their use is not advised.

Since the question is often asked, "Who must be licensed?" the regulation pertaining to this subject is herewith re-printed:

"WHO MUST BE LICENSED!"

The law requires the following classes of dealers to take out egg dealers' licenses:

1. All merchants, hucksters and others buying eggs from producers unless such producers are also licensed egg dealers.
2. All dealers, regardless of the nature of their business, who sell eggs in quantities in excess of one case at a time.

The following are not required to take out a license:

1. Merchants who buy all their eggs from licensed dealers and who do not sell in lots greater than one case.
2. Farmers and other producers of eggs who do not sell or trade in eggs other than those produced by them or their tenants.
3. Bakeries, restaurants, etc., buying eggs for their consumption only are not classed as engaged in the business of dealing in eggs and are, therefore, not required to secure a license to buy the eggs consumed by them.

The licenses now in force expire March 1, 1921, at which time a new license must be taken out. A suitable blank for applying for the license will be sent to each dealer having a license expiring on that date, before it expires.

RULES AND REGULATIONS GOVERNING ISSUANCE OF LICENSE

1. After May 25th, it is necessary that all dealers engaged

in the business of buying, selling, dealing in or trading in eggs, except those retailers who buy direct from dealers, having an Iowa license, and who do not sell in lots greater than one case, obtain an egg dealer's license.

2. The license fee is \$1.00 for the period ending March 1st, each year.

3. A separate license must be obtained for each place of business where eggs are sold.

4. Each license is numbered and numbers are usually assigned in the same order as applications are received.

5. Farmers and other producers of eggs are not required to secure a license for the purpose of selling or trading in eggs produced by them.

6. Buying, selling, dealing in or trading eggs in violation of the egg law, by any person, firm or corporation, is an offense and renders the offender subject to a fine of not less than \$10.00 nor more than \$50.00.

WEIGHTS AND MEASURES

I have found it necessary to assign the entire time of three men to the duties of heavy scale inspection and to use such time of our Food and Dairy Inspectors as they could spare to the inspection of counter and cream scales in retail establishments and cream stations. With the prevailing high prices for all commodities, the necessity of accurate scales and weights is apparent. Demands from grain and stock buyers, farmers, canning factories, sugar refineries and merchants for emergency and periodical inspection of their scales have been exceedingly heavy. Mine owners and miners have also made frequent demands for this work. Dealers, consumers and workmen have all learned to have confidence in the accuracy of scales approved by this department, and insist on frequent inspection to insure fair dealing. The department is also called upon to make a large number of special trips for inspections for which private companies are willing to defray the expense.

As competition has grown keener and prices have risen higher, the number of requests for scale inspections has doubled and trebled. The department, with the number of inspectors at its disposal, has been unable to answer requests

as promptly as should be done. There is also a great deal of correspondence resulting from daily reports of inspectors, shortage reports from various sources, warning report, requests for scale inspection, prosecutions, complaints and reports of similar nature, which demand a large amount of attention from the Chief Inspector of Weights and Measures.

During the year ending November 1, 1920, the department inspected 3,247 "heavy" scales, that is, scales used by grain elevators, coal mines, retail coal dealers, railroad stock scales, sugar refineries, canning factories, etc. The revenue received by the State for the inspection of these scales amounted to \$9,838.15. The average charge for the inspection of wagon scales is \$3.00. The revenue received by the State for scale licenses is \$5,283.00. Of the number of scales inspected 323 have been condemned for repairs; more than 289 were adjusted or their operators were instructed to make changes that would render them accurate.

Since the law became operative, hundreds of scales and measures of various types have been confiscated and condemned. The use of the auto truck has been the cause of many new wagon scales being installed, as the capacity and construction of a great many scales is such that they are too light for the loads which are now being hauled. The department records show that there have been 4,300 platform scales, 4,800 counter scales, 4,000 creamery scales inspected. These items do not include the number of weights and measures submitted by cities, firms and individuals for verification as to their accuracy.

IMPORTANCE OF WORK

The Weights and Measures Departments throughout the United States, during the period of the world war, put forth every effort to do their bit, by checking more closely than ever before the weights and measures of the thousands of commodities so sold. The prices of commodities since the close of the war have soared even higher and hence it is necessary to increase our activities. Few people realize the importance and wide scope of the Weight and Measure Inspector's field. Iowa's billion dollar crop must be weighed. Her thousands of cattle, hogs and sheep must all be driven over the scales before being sent in to the market. The Dairy and poultry products,

garden truck, orchard crops, wool and the numerous other such products of Iowa are sold by the pound. Seven million tons or more of coal, hundreds of thousands of tons of sugar beets and sweet corn, and thousands of tons of gypsum rock mined in Iowa are weighed over scales whose accuracy is determined by the State Weight and Measure Inspectors, and still we have not mentioned the many millions of dollars' worth of groceries and dry goods purchased by Iowa citizens annually, nearly all of which are sold by weight or measure.

BREAD

The big discrepancy between the weight of a loaf of bread and the weight stated on the wrapper which developed in the last two years, led the department to take the matter up directly with the bakers, with the result that a conference was called of all the bakers in the state, at which meetings the bakers were advised that this practice must cease. The following ruling of the department was made May 13, 1920:

Ruling. To all Bakers and Those Interested in the Industry: Gentlemen—This is to advise you that on and after July 1, all bread wrappers must have plainly and conspicuously printed on the body of the wrapper the net weight of the package. The Attorney-General holds that expressions or statements like the following—"18 ounces or over" and "not less than 12 ounces" are meaningless and not in conformity with the law.

There appears to be some misunderstanding as to the requirements between now and July 1. The ruling was gotten out about May 1, and two months given in which to use up old wrappers. In ordering new wrappers, why not standardize the loaf to 12 ounces, 24 ounces, 32 ounces, then make the price to cover the different sizes, rather than to change the loaf to fit the price. There is little evidence of stability in the flour market and trouble will not be eliminated until the loaf is standardized.

W. B. BARNEY,
Commissioner.

The results have been an improvement in these conditions.

THE VIGILANCE OF THE PURCHASER IS NECESSARY TO SECURE HONEST WEIGHT AND MEASURE

Honest weight and measure can only be secured through the vigilance of the purchaser. The high cost of the necessities of life is very often due to the avarice of man and is not

caused by any scarcity of commodities. Those necessary foods must be protected so as to cheapen them to the consumer, yet this method of protection should not be burdensome to the dealer nor to the consumer. The abnormal conditions developed as a result of the war have inspired profiteers to seek enormous profits for the goods they sell.

High prices have resulted in a noticeable tendency toward short weighing on the part of a number of dishonest merchants. The fact that selling 15 ounces to the pound has proved a profitable source of income at present prices, was too big a temptation for some merchants to withstand. This department has attempted to impress upon the housewife and the public, in general, the necessity of buying by weight. The necessity of being especially careful in purchasing from street vendors has been impressed upon the consuming public, but despite all of our efforts, frequent cases of short weights continue to appear. To carry on this work effectively, more men should be added to our force. A common source of dishonest practice on the part of some merchants, generally considered reputable, was found to be the advertising of a certain commodity at an unusually low price and then making up the difference by short weighing on this particular commodity. In every instance where short weighing was found to be in vogue, the department inspectors were instructed to prosecute relentlessly, heavy fines usually resulting.

One important phase of this work which is necessary is neglected because of an insufficiently large force of inspectors is the work of cream scale inspection. With butter fat selling at its present high figures, it is easy to see that a faulty scale can mean considerable financial loss to either the buyer or the seller. This work, as stated, has been greatly neglected, inasmuch as we have been forced to depend upon our Dairy and Food Inspectors to make these inspections in addition to their routine work—something which they really have not time to do.

The department has done a great work in checking gasoline pumps and measuring devices, with the result that during the past year we have made a thorough survey of these pumps. Our investigations show that a very considerable number of these pumps are inaccurate and we feel that the public have

received a large financial benefit from these investigations. To assist us in the work the department has purchased a number of practical standard measures which have assisted us materially in our work.

We have had many complaints against coal dealers delivering less coal than was purchased and paid for and a special effort has been made to have the inspectors re-weigh loads of coal being delivered to consumers. In several cases dealers have been detected in this dishonest practice and have been prosecuted in the courts. Some of the shortages which have been detected are as follows:

590 lbs. short on 4,000 lbs.
675 lbs. short on 4,000 lbs.

The above two were both from the same dealer.

375 lbs. short on 6,000 lbs.
380 lbs. short on 4,000 lbs.

PEDDLERS WATCHED

The itinerant vendor, or peddler, has been the cause of more trouble to weights and measures men than any other type of merchant. This class of trade is made up of individuals of miscellaneous morals and dispositions, many of them honest and willing to do what is right, but, we are sorry to say, a great number with tendencies to increase their profits by trickery if given a chance. So it is that they are kept under the most constant surveillance at all times. Many of them persist in using incorrect equipment; others take chances and give short weight and short measure; however, where cases have been found to warrant, they have been severely dealt with and there is an increasing tendency towards betterment among dealers of this class. To give an example of the extent of fraud sometimes practiced by peddlers, it might be stated here, as a matter of interest, that during the past month the most glaring and largest discrepancy discovered originated with a vegetable peddler, who on a sale of ten (10) bushel lots of potatoes short-measured his customers two bushels on one and one and one-half bushels on the other. In each case they were prosecuted and paid a fine of \$20.00 and costs. Examples such as this strengthen our opinion and advice to the public

in general that, after all, the merchant with a permanent place of business is the best to trade with, for while his prices may appear higher than those of the peddler, who offers inducements in the way of low prices for his wares, depending on some dishonest method to make up the difference, full quantity is more likely to be received at stores in the majority of instances.

ECONOMIC SITUATION

In the discussion of an investigation of living costs which appeared in the last (1919) report of the department, these statements were made: "More than any other factor in lowering prices, however, will be the action of the consumer himself * * * just as long as they continue to refuse to consider the prices asked for goods will high prices continue * * *. The larger responsibility rests upon the buying public; if people would refuse to buy, prices would soon drop."

Recent developments have proved the truth of these assertions. Today the general trend of prices is toward normal. Flour is about the same or a little lower now than it was a year ago this time. Vegetables and fruits are lower; meat products are cheaper; coffee less than one-half the price of a year ago; sugar has declined from 10 to 12 cents a pound during the last few months; cotton, leather, hides, wool and silk have encountered heavy declines in price. Concussions of orders have acted with declines in raw materials to paralyze the markets for textile goods.

Restricted buying by the consuming public is the big reason for these declines. Increased production and other factors enter in, of course, but the unwillingness of the public to pay high prices is the chief factor in starting the downward movement. This refusal to buy articles of ordinary usage is reflected not alone in prices of these particular products, but in practically all others.

The general inclination of buyers to hold off for higher prices has caused a slump in the shoe industry. The same tendency is noticeable in the clothing industry, and it would seem that lower prices are almost certain to prevail next spring despite the statement of some manufacturers that orders for special delivery will not be made at any great reduction. Incidentally it would appear that such statements as these would be conducive to great discontent on the part of the consuming public. Rightly or wrongly, there is a feeling among certain consumers that these manufacturers are merely attempting to hold prices up by artificial means and that the

maintaining of these prices in the face of depressed markets in raw materials is not justified. Despite the assurances of manufacturers that the cost of raw materials is a small factor in his costs, and that labor, the chief item, is higher than a year ago, the farmer, for example, can not understand why he should be forced to pay war-time prices for shoes when hides bring him a greatly reduced price; why he should pay sky-high prices for clothing when his wool is a drug on the market; why he should pay high prices for meat in the face of less than one dollar a bushel for corn; why retail cotton goods are high when the cotton market has gone to pieces. Perhaps manufacturers of these staples believe that conditions justify the maintenance of these prices, but it will take considerable argument on their part to convince the consuming public that this is true, particularly in view of the fact that the cost of raw materials has been given as the cause of high priced staples so frequently in the past.

Whatever may be the justification for maintaining high price levels on manufactured goods, one thing is certain; the public mind is just as intent upon practicing economy at the present time as it was upon the reckless purchasing of articles, regardless of price, one year ago. There are several reasons for this: the money market is "tight," industrial employes are being discharged in rather large numbers, and there is a well-defined uncertainty as to what the winter will bring forth. Then, too, the public conscience has awakened stern protest against the mania of spending which ran rampant at the close of the war. This tendency of consumers to hold off buying has naturally caused an accumulation of certain stocks and a considerable degree of liquidation has taken place in merchandise in the last four months. From present indications these liquidations will continue for some time.

Secretary of Commerce Alexander apparently has well summarized the effects of these price slumps when he stated: "No fears need be entertained that these lower prices will be followed by a falling off in business, lessened production or any other dullness which characterized spring trade in many lines. On the contrary they will give such an impetus to retail buying as to offset any danger of over-production. In short, I believe that the let-up in buying has been due entirely to high

prices; a great demand still exists which will manifest itself when goods reach a lower price level.

"A discriminating public will not buy unless there is a very material reduction in prices. There is no lack of demand, but the trouble lies in the refusal or inability of the people longer to pay high prices. I believe that the output of our mills can readily be consumed at lower prices and am very gratified to note that a readjustment of prices has begun."

Whatever may be the hopes of labor, it appears almost certain that wages will fall in sympathy with the general downward trend of prices. Certain it is at least that competition for available jobs will cause production per man-hour to increase. While increased production on the part of labor is to be regarded as a healthy sign, it is to be hoped that the reaction toward lower wages will not be carried to undue lengths. That a reduction in wages, particularly of the unskilled class, should take place, is generally regarded as being necessary by manufacturers, farmers, professional men and that great class of workers who do not fall into any of these categories. However, as stated, it is to be hoped that the reduction will not be great enough to lower labor standards of living to an unjust degree. As in every other commodity, however, the inexorable law of supply and demand will undoubtedly be the deciding factor in determining wage levels.

It was especially fortunate that a fairly plentiful supply of labor was available at harvest time this year. With bumper crops prevailing in most of the food producing sections, it would have been almost impossible to garner them under such conditions as have been previously prevailing for several years.

While still not entirely satisfactory, the railroad situation has shown a decided improvement in this state, and farmers are experiencing less difficulty in securing cars with which to market their products.

The coal shortage is still acute in certain parts of the state, and with hints of lessened production during the coming months, the probabilities of obtaining this product in adequate amounts is one which is a source of considerable worry on the part of our manufacturers.

Taking up the economic situation as it deals more directly

with dealers in commodities operating under laws under the jurisdiction of this department, a number of interesting situations have arisen. For one thing, there is the paradoxical situation of grain prices, particularly corn, being forced to pre-war levels because of a large visible supply, while in certain other countries there is an acute shortage. Difficulties of transportation are not alone to blame for this condition. The chief cause, of course, is due to factors arising directly from the war, namely, declines in values of foreign money and foreign credit. European money has declined to such an extent that even with low prices prevailing in America it is almost impossible for Europeans to purchase our products for any reasonable sum after they have exchanged their depreciated money for ours. At best, few of the foreign nations have supplies of money available and with the sharp curtailment of credit on the part of both our government and our bankers, it is practically impossible for European nations to buy on long time payments. As stated, the result on prices of American farm products has been alarming from the point of view of the farmer. Nor does it appear possible that artificial standards or prices will suffice to guarantee the farmer what may be regarded as a fair return for his products. The return not only in this country but of other nations to pre-war conditions appears to be the only solution of the problem. To attempt to set an arbitrary price for any product in disregard of the law of supply and demand will eventually prove a failure.

While in the case of a number of products sharp declines have taken place since that date, a comparison of prices as of September 20th, 1920, and the same date last year will prove interesting. A comparison of a number of products in which Iowa is more intimately interested is given here:

	Sept. 20, 1920	Last Year
Flour, Minnesota Patent.....	\$13.25	†\$12.25
Wheat, No. 2 Red.....	‡2.68	*2.36½
Wheat, No. 2 Durham.....	‡2.68	*2.36½
Corn, No. 2 Yellow.....	1.46½	1.65¼
Oats, No. 2 White.....	.73	.77¾
Pork, Mess.....	31.50	49.50
Lard, Prime Western.....	21.70	24.80
Coffee, Rio.....	.08 & .08½	.15½
Sugar, Granulated.....	14.50 & 15.00	*9.00

Tea .....	.15	.22
Butter, Creamery.....	.60½ & .61	*.59½ & .60
Cheese .....	.29 & .29½	.30½ & .31
Petroleum, refined.....	.29	.17½
Hides, Natural straight.....	.30	.43

† c. i. f.

*Government figures.

Bradstreet's price index numbers are also interesting, being as follows on the dates mentioned:

Sept. 1, 1920.....	17.9746
August 1, 1920.....	18.8273
July 1, 1920.....	19.3528
June 1, 1920.....	19.8752
Sept. 1, 1919.....	19.4720

The London Economist commodity price index for about the same period reads as follows:

August 31, 1920.....	7743
July 31, 1920.....	7876
June 30, 1920.....	7847
August 31, 1919.....	6503

As will be seen, declines have been constant, for, as was stated, the reluctance of the buying public to purchase at present prices indicates that they will continue.

The following survey by Franklin K. Lane, former Secretary of the Interior, issued by the Federal & Deposit Company, of Baltimore, will also prove of interest. As they refer to this part of the country, some of the questions and answers are as follows:

"No. 1. Are building operations in your territory increasing or decreasing at this time?

Answer. Decreasing.

No. 3. What is the extent of the increase in the cost of labor over 1919?

Answer. 10 to 50 per cent.

No. 4. Is labor increasing in productivity per man?

Answer. No.

No. 5. Is there a shortage of labor?

Answer. No.

No. 7. How do wholesalers and retailers regard the prospects for fall and winter?

Answer. Good.

- No. 10. Is there a shortage of coal?
 Answer. Yes.
- No. 11. Is the shortage of freight cars being substantially reduced?
 Answer. Yes.
- No. 12. Are general transportation conditions improving?
 Answer. Yes.
- No. 15. What is the sentiment regarding Government ownership of railroads?
 Answer. Opposed.
- No. 17. What are the general conditions of farmers in your territory?
 Answer. Good.
- No. 18. Are they well supplied with funds as the result of the sale of this season's crops?
 Answer. Crops unsold.
- No. 19. What is the sentiment regarding farmers' co-operative movements?
 Answer. Favorable.
- No. 20. What is the general effect of the recent drop in grain prices?
 Answer. No effect.
- No. 21. Do the banks appear to have funds to lend and at what rates of interest?
 Answer. Yes—6 to 8 per cent.
- No. 22. Are the banks well loaned up?
 Answer. Yes.
- No. 25. Have the number of individual savings accounts increased or decreased?
 Answer. Increased.
- No. 26. If the sentiment is against the excess profits tax, what substitute is preferred?
 Answer. Various substitutes.
- No. 27. What is the sentiment regarding the sales tax?
 Answer. Divided."

THE HISTORY OF ADULTERATION AND METHODS OF DETECTION

By E. L. REDFERN, Chief Chemist

The history of adulteration dates back to the time of the Greek and Roman Empires, and began with the development of commerce. In primitive states of society there was knavish trickery and substitution of the inferior for the genuine. In some countries where the people lived in small colonies, raised their own food and made their own clothing from the wool of their own sheep, adulteration was unknown.

While there was some practice of adulteration and sophistication among the Greeks and Romans, it was immediately following the Middle Ages that it became copious.

The alloying of gold and silver with the base metals is justly an adulteration. The old story of the detection of base metals in the crown of Hiero by Archimedes two and a half centuries before Christ is probably the first scientific detection of adulteration.

Vitruvius in his work on architecture describes the adulteration of minium with lime. He also gave the following method for its detection, viz.: heat to redness on a piece of iron; if pure it will blacken, but on cooling return to its former color.

Discorides speaks of the adulteration of opium with gum and with the milky juice of Glaucium and other plants. His crude method for distinguishing between the pure and adulterated was to burn it—the pure giving a clear, bright flame—the adulterated burning with difficulty. He also mentions the adulteration of Styraex resin with Styraex sawdust.

Pliny mentions the adulterations practiced by bakers in putting a white earth, obtained from a hill near Naples, into their bread. He also speaks of the adulteration of verdigris and vitrol with shoemakers-black.

His method of detection was soaking a piece of paper in the juice of galls—if impure they would turn the paper black. Another method was to put the substance on a sheet of red-

hot iron—if iron sulphate has been added the iron becomes covered with spots.

The adulteration of wine in Athens was carried on to such an extent that a special inspector was appointed to detect and stop these adulterations. Greek history speaks of a man by the name of "Canthare," who was skilled in mixing and knew how to give new wines the flavor of age and maturity. Hence the old saying "artificial as Canthare."

In Rome it was difficult to get pure wines. Pliny states that even the rich could not get the natural wines of Falerno for they were adulterated in the cellars. Certain wines from Gaul were colored with aloes and other drugs.

In Europe, from the eleventh century on, bakers, brewers and vinters were most frequently accused of corrupt practices. However, the morality of the world at this time was generally low and it is not surprising that adulteration and deception were practiced as a pastime.

The "Assise of Bread" in England during the reign of John, while meant to regulate the price of bread and limit the profits of the bakers, encouraged adulteration until a law was passed prohibiting the adulteration of bread and was known as the "Sale of Food Act." The Assise of 1852 read as follows: "If there be any that by false means useth to sell meale: for the first time he shall be grievously punished, the second time he shall lose his meale, the 111 time he shall forswear the town and so like wise the bakers that offende. Also the bouchers that sell mesell porke or mosen flesh: for the first time they shall be grievously amersed, for the second time so offending they shall have the judgment of the pillory, for the third time they shall be comytted to prison until ransomed, and the 4th time they shall fore swere the town & thus ought other transgressors to be punished, as cookes, fore-stallers, regrators of the market when the cooke serve rosts, bake or any otherwise dresse, fysche, or flesche unwholesome to man's body."

The Assise of 1634 had stringent regulations with regard to musty or adulterated meal. One section read: "If there by any manner of person or persons, which shall by false ways or means, sell any meal unto the king's subjects, either by mixing it deceitfully or sell any musty or corrupt meal, which may

be to the hurt & infection of man's body or use any false weights or any deceitful ways or means and so deceive the subject, for the first offense he shall be grievously punished, etc."

This gives some idea of the punishment meted out to dishonest bakers during the Middle Ages. Conviction under the Assise was considered disgraceful and it was better to "fore-swere the town" than be found guilty.

The adulterations practiced were various; sometimes the bread was made wholly of putrid and decayed materials, sometimes good outside and bad inside. The detection of the more artful mixtures required the application of chemical science which at that time was not possessed. Brewers and vinters, as well as bakers, were guilty of gross adulterations and deception.

During the reign of "Edward the Confessor," the punishment of a brewer for selling adulterated ale is recorder. Many towns during the 16th century had ale tasters whose duty was to inspect the ale and beer. One crude method they had of testing for added sugar was to spill some of it on a wooden seat and sit in it for a short time; if they stuck to the seat, sugar had been added.

London records of 1553 state that adulterated wine was being shipped into that port. The poet Addison, in the "Tatler," alludes to a certain fraternity of chemical operators who raise under the streets of London choice French wines. "They squeeze Bordeaux out of the sloe and draw champagne from the apple."

The mixing and adulteration of drugs and spices was forbidden in London as early as 1316. Later the inspection of drugs was placed in the hands of a body of men, known as the College of Physicians. It was this body that in 1613 gave us the first Pharmacopea.

From early times France had laws to prohibit adulteration of foods. One statute dated 1292 in Paris forbade the adulteration of beer with pimento or resin. A statute of the same city during the 14th century forbade the mixing of ground corn with bran, peas, beans, etc. Wine was required to be drawn from the cask in the presence of the purchaser. In 1709, Paris had 200 inspectors of wines and drinks. In Paris, we

find the first law regulating the sale of butter. It forbade added color and the mixing of old and new butter. Phillip VI of France, as early as the 14th century, forbade the mixing of cheap articles with drugs. Early in the 19th century councils were formed in France, whose duty it was to look after the adulteration of foods, and one member of this body was always a chemist.

In Germany during the Middle Ages persons found guilty of adulteration were severely punished. Records relate of the expulsion of a false butcher from the city for one month. In some cities regular inspection was made by "Schaus"; for bread there was the bachershau, and for wine, the weinshau, etc. In one case a man was burned by the safronschau for selling false safron, and again two men and a woman were buried alive for the same offense. A false baker was ducked in a muddy pool. In the 15th century the Franks brought false wine into the cities. The law forbade the sulphuring of casks and the addition of coloring or sugar. In Beibrich on the Rhine a falsifier of wine was made to drink six quarts of his own wine, he dying from the effects.

In some cities the wine sellers were compelled to appear at regular intervals and swear before an officer of the law that he had not added clay, chalk, vitrol, mercury, etc., to his wine. Drugs, spices, etc., were strictly supervised and during the reign of Frederick of Prussia special inspectors of drugs were appointed by the king. The first general act legislating against the adulteration of food in England was passed in 1860. Bakers were forbidden to use alum in their bread and all the ingredients were specified.

The addition of opium, vitrol, honey, etc., to beer and porter were forbidden. In 1723, during the reign of George I, the counterfeiting and adulteration of tea were made punishable. This act was amended by George II and George III to include the substitution of foreign leaves for tea. An act of George I, in 1718, was the first to forbid the mixing of coffee with roasted peas, beans, grains, etc. Thus in England various laws were passed by Parliament from time to time until their laws are efficient and include all classes of food.

The history of the development of the methods of the detection of adulterations of foods, beverages and drugs is one

of the developments of the science of chemistry, physics, botany and medicine. Nearly all advancement in either of these sciences has contributed to the development of these methods.

The first general work on the adulterations was devoted to drugs rather than foods and the early works contain scattered notices of substitutions and sophistications. Saladin of Ascala—a physician of the Grand Constable of Naples—who wrote in the 15th century a work on the aromatic principles of drugs, described methods for the preservation of foods. In the 17th century, Bartoletus discovered milk sugar.

An Italian during the same epoch, San Francisco Radi, a poet, chemist and physician, published his detection of mineral substances in pepper and ginger, a sophistication which has been practiced within the last decade. Radi burnt 100 pounds of pepper and ginger and weighed the ash. The ash showed the presence of added mineral substances. This method is still in use, except that a much smaller amount is used—from one to two grams.

Robert Boyle was the first to write a treatise on methods for the detection of adulterations. This work was entitled *Medecina Hydrostatica* and showed how by the difference in specific gravity of bodies an adulteration could be detected. He took the specific gravity of pure rock crystal as a standard and showed how mercuric chloride weighed in this manner would be deficient and that Roman vitrol mixed with alum might be similarly detected. He observed that several forms of soluble salts were present in plants and that some of them were always cubical. He determined the per cent of total ash and soluble ash in about forty different vegetables.

An early work on the adulteration of drugs was published by Sande, a Frenchman. He not only described the external appearance but made alcoholic and ethereal extracts and determined the weight of these extracts. He also obtained various products by distillation. The invention of the microscope gave an impetus to the methods of detection, by showing the crystal forms of various salts. Van Leeuwenhoek, in the 17th century, did much work with the microscope and seems to have been the first to discover the active principle of tea and coffee. Speaking of the coffee bean, he says: "I placed some of the beans in a vessel over a fire and observed that in the

roasting a great quantity of oily substance and also watery moisture was expelled, and the roasted bean I broke into small pieces and after infusion in clear rainwater, I suffered the water to evaporate, after pouring it from the grosser parts of the coffee, and then I discovered a great number of oblong saline particles of different sizes, but most of them exceedingly minute, all of them with sharp points at the end and dark in the middle."

Judging from his description of these crystals, they could probably have been none other than crystals of caffeine and theine. He also obtained caffeine and theine from tea by sublimation. He describes globules of oil in thin sections of the coffee bean under the microscope. He likewise noticed the deliquescence of the ash of tea. He also extracted piperine from pepper. He distilled pepper and extracted an oil. He explained the difference between white and black pepper by saying that one was decorticated and the other was not. He observed that vinegar was neutralized with chalk but did not explain it. Dr. Ure was able to detect the different kinds of starch by the use of the microscope.

In the latter part of the 18th century chemistry was making rapid strides. Neuman Casper made experiments on milk, wine, butter, tea, coffee, etc. Berzelius published his papers and Scheele was conducting his researches, and Leibig analyzed various vegetable products. This advancement in chemical science led to more elaborate work on foods and for the first time it was possible to study the subject and apply a variety of methods for the detection of adulterations.

In 1820, Frederick Accum published a work on the adulteration of food. After giving a general review of adulteration and proving that the evil affects nearly every industry, he says, "woolen goods are adulterated with cotton, soap with clay, and provisions of all kinds with worthless or actually injurious substances.

"The eager and insatiable thirst for gain which seems to be the leading characteristic of the times, calls into action every human faculty and gives an irresistible impulse to the power of invention, and where lucre becomes the reigning principle, the possible sacrifice of a fellow creature's life is a secondary consideration."

About nine years after Accum's work in England, Bussy and Charlard in France published a work on the adulteration of drugs. Following this work was one by John Mitchell, an Englishman, on the detection of adulterants, but many of his methods are inexact and would hardly stand the test today.

In 1850 Chevalier issued a dictionary of adulteration which is still the standard French work. The same year Alphonse Normandy published a hand-book of commercial analyses and was the first to recommend the use of the microscope for the detection and discrimination of starches. This work also included the analyses of ores, soaps and agricultural manures.

The next year the papers of Dr. Hassall appeared in the "Lancet" and marked a new era in the investigation of foods and the technical application of the microscope.

In 1874 the establishment of the Society of Public Analysis gave a stimulus to analytical chemistry. They defined what was considered an adulteration and adopted the best methods for their detection. The proceedings first appeared in the "Chemical News" but later were and are still published in the special organ of the society, the "Analyst."

Less than fifteen years ago adulteration of food products in the United States was in full swing. Cayenne pepper was mixed with gypsum and colored with aniline dyes; black pepper was grossly mixed with pepper shells; jellies of various flavors labeled "pure fruit" were a mixture of starch, phosphoric acid, saccharine, aniline color and synthetic flavors; distilled vinegar was colored and sold for pure cider-vinegar; cotton seed-oil was sold as pure olive oil and colored cane sugar syrup artificially flavored was sold for pure Vermont maple syrup. Many honest manufacturers were compelled to put out spurious goods to meet the competition of the unscrupulous manufacturer, or cease business. The passage of the Federal Food & Drugs Act in 1906 came at a time when the food manufacturing business was in a chaotic condition and labels meant nothing. Many states which had refused to pass laws regulating the sale of foods and drugs until we had national regulation, now began to adopt regulations in close conformity with the Federal Act and the vigorous campaigns made against adulterated foods and drugs in the years following rectified many of the evils. The activities of the depart-

ment enforcing these laws have continued to the present day until it is exceptional to find a food that is adulterated. We have with us, and probably always will, men who are willing to put foods on the market which are adulterated, in the belief that they will be able to escape detection, but sooner or later they land in the toils of the law. Large amounts of money are spent annually by the Federal and State governments to seek out and detect adulterated foods and drugs and punish those who violate the law.

Methods for detecting present day adulterations are those adopted by the "Association of Official Agricultural Chemists" and require the skill of a trained chemist.

THE FUNCTION OF THE INSPECTOR

To the Iowa merchant an inspector of the Dairy and Food Department is either a friend or a foe—the honest man will find him a sincere friend; the dishonest man will find him an implacable enemy. The attitude of the inspector will reflect that of the merchant.

It has never been the policy of this department to regard itself as a police force. It has always aimed to bring about the observance of those statutes of which it has the enforcement by persuasion rather than by coercion. An effort has been made to impress upon each employee of the department that greater results could be accomplished by working in cooperation with the merchant rather than by attempting to wield a Big Stick.

It is believed that in practically no instance has an Iowa merchant been prosecuted without warning. It is not meant by this that each individual is warned that he is violating the law before being prosecuted, but it does mean that no prosecutions are made until efforts have been made to warn merchants as a class that new statutes had been passed or that certain violations of old ones are being made. If a merchant who believes that he has been unjustly prosecuted will make an investigation, it is believed that he will find that frequent warnings had been sent to the merchants from this office by means of trade and daily press, to say nothing of the large number of bulletins sent out by the department and the personal warnings given by the inspectors. While there are, of course, a number of instances where merchants have been prosecuted for unwitting violations of the law, a large number of prosecutions have resulted from conscious, flagrant violations.

Considering the large number of Iowa merchants and the huge volume of business transacted in foodstuffs and other commodities, the control of which is a function of this department, prosecutions have been relatively few in number. This speaks well for the business ability and integrity of the merchants of the state. It appears safe to say that the proportion

of prosecutions to the amount of business done will be ever smaller in the future.

One disappointment which the department experienced this year, was the attitude of a number of merchants toward the law requiring the candling of eggs. As is well known, the commissioner set aside a certain period of time when candling certificates should not be required. This open season was provided for to relieve the merchants of the necessity of candling at a time when practically no poor eggs are sold. It is, then, a ruling designed to assist the merchant and it would appear only fair that he should show his appreciation of such a ruling by recommencing candling promptly upon the date which is named as the one upon which the open season shall terminate. It is with regret that it is found necessary to state that a number of merchants did not co-operate with the department in this respect, but continued to buy and sell eggs without candling certificates, using as their excuse, when discovered, that they did not know that the open season had ended. It seems a little hard to understand just why these men should know when the open season started if they did not know when it had closed. When the announcement of the open season is made, the opening and closing dates are definitely stated, and it hardly appears logical to believe that there are many merchants who would remember the former and forget the latter. Most of the prosecutions brought for violation of the egg law came as a result of failure to obey the candling requirements, although a number of cases were filed for willful selling of unedible eggs, also.

The Dairy Law and its adjunct, the Dairy Container Law, was one of the five most frequently violated. Low test ice cream, low test milk, selling of substitutes improperly labeled, and failure to return containers, are the chief sources of violations of this law. Prosecutions under this law, apparently, are usually either willful or unwitting in nature, comparatively few careless violations being reported. Where large commercial ice cream companies, having modern testing equipment available, continue to manufacture ice cream from three to five per cent below the legal standard, it seems justifiable to consider such practices as willful infractions of the law. Among the unwitting violations, the sale of various milk compounds

which were not branded "Imitation Evaporated Milk," as required by the statutes, is perhaps the most frequent. While it is not the desire of this department to punish merchants who sell these milk compounds unwittingly, it has no other recourse. The attention of manufacturers and jobbers of these products has been called to the requirements of the law time and again, but despite this fact, a few, particularly jobbers, continue to ship these milk compounds into the state bearing labels which do not meet with the requirements. Since practically all of these companies are located in other states, the department has no means of punishing them other than by filing prosecutions against dealers handling their products, with the thought that the fines will either be passed on to the parties who are really guilty or that so much dissatisfaction will arise that they will either be forced to label these compounds properly or withdraw them from sale in this state. The decreasing number of illegal samples found is testimony that this method is proving successful.

Considering the large volume of Iowa business, violations of the Weight and Measure Law are comparatively infrequent, but are of especial importance because of the high price of products prevailing. In many instances where violations of this law were reported, it was found that the merchant was innocent of any attempt to defraud and that he was not aware that his weights and measures were incorrect. However, it is safe to say that in many cases where prosecutions were made for violations of this law, the merchant was either guilty of dishonesty or negligence.

The high price of materials is a temptation to certain dealers, particularly manufacturers, to use substitutes in violation of the Pure Food Law. Notable among these infractions was the use of saccharine in various soft drinks. A campaign carried on during the months of June and July, 1920, resulted in the examination of a large number of these soft drinks, about 25% of which contained saccharine. In a few instances it was found that the use of the artificial sweetener was continued even after a manufacturer had been prosecuted. Needless to say, that in cases of this kind, the inspector was instructed to request the judge that the second fine be placed high enough to discourage any future repetitions.

The last of the five laws most frequently violated, i. e., the Sanitary Law, continues to be an important feature in the routine of the department force. Under this law a number of prosecutions were also made for the failure on the part of dealers to return ice cream containers in a clean condition.

Prosecutions under the nine other laws enforced by this department, the Agricultural Seed Law, Concentrated Feeding Stuff Law, Condimental Stock Food Law, Paint and Linseed Oil Law, Insecticide and Fungicide Law, Turpentine Law, Cold Storage Law, Commercial Fertilizer Law, and Calcium Carbide Law, were infrequent. A large number of samples were seized and analyzed, but practically all of them were found to be up to the legal standard.

THE IOWA STATE DAIRY ASSOCIATION—ITS WORK

By E. S. ESTEL, State Dairy Expert

The annual report of the Iowa State Dairy Association has differed from year to year insofar as the demand for the different types of work have made it necessary. Those who were familiar with the early history of the Association will remember that its efforts were largely spent in carrying on propaganda work for the purpose of educating the Iowa farmer to the value of the dairy cow. This work is no longer necessary, however, and at the present time more of a definite personal touch has been necessary to assist those men starting in the dairy work.

During the past few years the dairy calf club work with the creameries and dairy interests of the state has proven very profitable and in increased demand. Dairy farmers have realized that they cannot longer continue with the original type of low producing cows found in the average community and there has been a strong demand for good dairy stock both in the form of calves and of mature cows. The calf club work was started around creameries or in sections where there is a good demand for milk and butter fat by the introduction of grade dairy heifers. These heifers were put in the hands of the boys and girls, the banks taking their notes similar to the organization of all forms of club work. These calves were carefully selected by competent judges in some of the dairy districts and have proven highly satisfactory. They are and have been in milk for a period of a year or more and are a decided improvement over the class of milk cows in the average section.

The first grade clubs were organized by the Association in 1917. At that time the work was new and it has been necessary since to make several changes in the rules and regulations which have governed the club members. We have found that wherever the interest locally was strong enough to give the proper amount of follow-up work the clubs have maintained a strong interest on the part of the members as well as dis-

interested parties in the community. The first grade heifers secured were purchased at the ages of from 6 to 8 months old—when they are off of milk. Following this first year's work a change has been made and all of the calves have been purchased when from 3 to 6 weeks of age. They have at this age been bought more nearly worth the money, the owners can, by proper feeding, develop them just as fast as they deem advisable, and there is not the danger of securing stunted calves. These younger calves are shipped in individual crates by express and can thus be purchased in any number.

Since 1917 the Association has distributed 1,482 high grade calves through the medium of the club organization. These calves have represented each of the four leading dairy breeds, the Guernsey, Holstein, Jersey and Ayrshire. The demand during the past two years, however, has been much heavier for the Holstein and Guernsey calves.

The grade clubs that have been organized thus far are as follows:

ORGANIZED BY	1917 LOCATION	No. of Calves
Farmers Savings Bank	Barnes City	40
Central Savings Bank	What Cheer	42
First Savings Bank	Sutherland	61
Brighton State Bank	Brighton	46
Leavitt & Johnson Bank	Waterloo	189
First National Bank	New Sharon	28
Iowa Savings Bank	Wellman	65
1918		
Farmers Co-operative Creamery	Britt	32
National Bank of Decorah	Decorah	169
Farmers Co-operative Creamery	Exira	84
Merchants National Bank	Grinnell	25
First National Bank	Iowa City	52
Farmers Co-operative Creamery	Klemme	38
Farmers Co-operative Creamery	Leland	46
All Banks Co-operating	Milford	64
Riceville Creamery Co.	Riceville	20
Saratoga Co-operative Creamery	Oresco	32
Supt. of Scholcs.	Strawberry Point	22
Farmers Co-operative Creamery	Victor	10
Bank of Woden	Woden	28
Farmers Co-operative Creamery	Clear Lake	12
1919		
Earlville Creamery Co.	Earlville	39
Perry Packing Co.	Perry	48
Farmers Co-operative Creamery	Templeton	18
Farmers Co-operative Creamery	Britt	17
Farmers Co-operative Creamery	Guthrie Center	61

Farmers Co-operative Creamery	West Bend	26
Farmers Co-operative Creamery	Worthington	27
Farmers Co-operative Creamery	Volga City	10
Gladbrook Creamery Co.	Gladbrook	16
Wadena Creamery Co.	Wadena	6

1920

Farmers Co-operative Creamery	Menlo	25
Farmers Co-operative Creamery	Manly	40
Farmers Co-operative Creamery	Ledyard	12
Consolidated School	Bode	17
Baird Creamery Co.	Lohrville	6
Kossuth Co. Farm Bureau	Titonka	25
Farmers Co-operative Creamery Co.	Ottosen	15
Winneshiek Co. Farm Bureau	Ossian	22
Audubon Co. Farm Bureau	Audubon	8

In 1919 the first club was organized in Iowa in which purebred heifers were used. Previous to this time all clubs had been organized with grade heifers with the idea in mind that in the future the time and place would be available for carrying the work a little farther by the use of registered heifers. It must be remembered at the start that Iowa is not primarily a dairy state and that there are only a few locations in which purebred heifers could be used and success be expected. Only those communities or counties where there are a number of purebred breeders or where the people are familiar with grade dairy cattle as well as somewhat of a general idea of the value of purebreds should be considered. Where at all possible all purebred clubs have been organized in counties where there were purebred breeders' associations. With these organizations already in the county the calf club can be made a definite program of work for the organization.

ESTABLISHES NEW BREEDERS

There is no doubt but that calf club work is one of the surest and most effective ways available for the breed expansion or the establishment of new breeders. Because of this fact all but one of the eight purebred heifer clubs have been organized through the county breeders' associations. This makes every individual breeder responsible to a certain extent at least in keeping up the interest of the members and doing all in his power to encourage them. We have found that this co-operation goes a long way toward making for a successful club.

The financing of the clubs which in some of the earlier

club work was more or less difficult, has been very easy to handle. There has not been a community in which the Association has attempted club work in which the bankers were not more than willing to co-operate to the extent of taking the boys' and girls' notes in payment for the calves.

THREE YEAR PERIOD ADVOCATED

The time period or duration of the clubs has varied. The Dairy Association has taken the stand that the club covering a period of three years makes possible more definite and beneficial results than the short time clubs. Where the heifers are kept in the possession of one boy or girl on one farm for a period of three years both the club member as well as the parents have an opportunity to realize the possibilities in the raising of purebred dairy cattle. If no hard luck is experienced at the end of the three year period there should be one or possibly two calves in addition to the original club heifer. Where the club is organized on a one-year basis such as has been the case in a great many states, we are of the opinion that the member has not received the real benefit which the club was organized to give. Unless bred heifers are used there will be no calves dropped during the one year the heifer is in the possession of the club member. The real possibilities in the breeding phase of the club have then been overlooked. The ideal arrangement and the one which the Dairy Association is encouraging is the three year club with a show and annual get-together at the end of each year. This keeps the people of the community more closely in touch with the work and gives them an idea also of the results being accomplished.

AGE OF CALVES

The age of the calves used in the club has always varied. The use of calves from 6 to 12 months of age has been advocated because we did not want to get clear away from the calf idea. The first important thing, I believe, is to buy the calves at an age old enough so that they may be secured subject to the tuberculin test. Calves purchased at the age of from 6 to 10 months can still be considered calves and are still considered such by the boy and girl members. Two different clubs were organized in which bred heifers were used. From the standpoint of actual profit to the club member and from the

quickness of the returns to be expected this is a more ideal arrangement, but it is our belief that the club member does not get the personal interest in a yearling or two-year-old heifer that he or she would in a younger calf. In Wisconsin the club work is carried on and the majority of calves selected when from 3 to 6 weeks of age. It is true that calves of this age can be bought at a much cheaper price and there is the advantage of the attachment the boy or girl gets for a younger calf but at the same time it is our belief that the risk run in no being able to buy them subject to tuberculin test is too great to be chanced.

FAYETTE COUNTY CLUB

The first purebred heifer club was organized in Fayette County in the spring of 1919. Fayette County is one of the leading counties from the standpoint of the number of Holstein breeders and they are an enthusiastic bunch. Their organization, through the work of the county agent, made this original club a pronounced success. Every breeder left the standing offer with all club members that he would be glad to furnish free services of his herd sire when the heifers came of breeding age. This interest of the breeders, together with the mighty effective follow-up work, kept the members hard at work on their calves.

The breeders considered that this club was more of an experiment and were not ready to take up the three year idea. For that reason the wind-up of the club in the form of a show and sale was made one year later. The heifers were brought into the sale in exceptional condition. I rather doubt if any of our purebred sales can boast of cattle that were uniformly better fitted than this bunch of calf club heifers. In accordance with the plan of the club every member was to have the right of buying back his or her heifer in the sale by the mere payment of the amount of the note. The sale was an exceptional success, making an average of \$610 per head, which was an average increase of \$460 over the purchase price. This sale price, however, is hardly a fair one, since all but a few of the boys and girls availed themselves of the opportunity of repurchasing their heifers. Buyers, however, were present and their demand for the stuff made the youthful owners pay

unexpected prices in order to retain their ownership. This club was a real success because first the calves got into the right kind of hands, were fed properly and given a chance to develop the way they should. They were all in calf to some of the very best herd sires in the state.

I have gone somewhat into detail on this club because I think that it illustrates the possibilities in the purebred heifer club work where they are properly organized and followed up and because it bears out the contention that the calf club establishes new breeders. In this club alone it is safe to say that the nucleus of at least six new herds was started.

1920 CLUBS

In 1920 the work has further expanded and has brought an ever-increasing demand for this form of club work. The first club of the year was organized in Kossuth County with the Holstein and Guernsey Breeders Associations of that county. The county club leader and a representative of the Dairy Association purchased 24 head of Holstein and 7 head of Guernseys from Waukesha County, Wisconsin. Due to the fact that the breeders of the county had done so much Federal testing, these heifers were all bought subject to a 60-day re-test.

Following the successful close of the first Fayette County club an increased demand was present for a second one and 16 heifers were distributed from Oelwein. The next club was organized at Dyersville in Dubuque County and is the first club organized up until this time which did not have a purebred breeders' association behind it. There was sufficient interest and enthusiasm, however, to warrant the organization of a club. Dyersville had for years been noted for its annual Dairy Day and they were of the opinion that this day could be further enlarged into something in the order of a county fair if there was some one project in which all were interested to build the fair around. It was decided that the purebred heifer club afforded just the interest needed for this purpose and consequently the first fair held during the month of September was built around the exhibit of purebred calf club heifers and was pronounced a decided success.

The Buchanan County Guernsey Breeders, although they were fewer in number than either the Holstein or Jersey, were

not to be entirely outdone and organized a club of seven members during the latter part of the summer.

The first Bremer County club was brought to a close at the time of the County Fair at Waverly in August. At this time a special calf club exhibit and show was made and a sale held on the last day. All of the original heifers and their calves were put through the ring. The sale, although coming at a rather slack time due to the closeness of money conditions, proved very successful. All of the cows and their calves which were sold made their owners a very satisfactory profit. Bremer county people are evidently strongly in favor of this type of club work for a second club has recently been organized and approximately 15 head will soon be distributed to 15 more boys and girls.

The purebred clubs organized during 1919 and 1920 are as follows:

1919		
ORGANIZED BY	No. of Calves	Breed
Fayette County Farm Bureau.....	17	Holsteins
Buchanan County Jersey Breeders Assn.....	32	Jerseys
Buchanan County Holstein Breeders Assn.....	17	Holsteins
Bremer County Holstein Breeders Assn.....	24	Holsteins
1920		
Kossuth County Farm Bureau.....	24	Holsteins
	7	Guernseys
Fayette County Farm Bureau.....	16	Holsteins
Dubuque County Farm Bureau.....	12	Holsteins
	1	Guernseys
Buchanan County Guernsey Breeders Assn.....	7	Guernseys
Bremer County Holstein Breeders Assn.....	15	Holsteins

Experience in the organization of calf clubs, of course, is gained with each succeeding club organized. The principle of the club work is fine and, where properly organized, has worked out just as satisfactorily as they are expected to. There are, of course, drawbacks toward making some clubs just the success they should be. The experience of the Association in the different clubs is that no association is just as satisfactory as it should be unless there is a club leader in the county or someone who can and will take sufficient time to give the work the proper amount of attention. The Fayette and Kossuth County clubs have been by far more successful and this success is entirely due, I believe, to the fact that there

is a club leader in the county who makes these clubs his specific duty.

A few of the other difficulties and drawbacks to the most successful operation of the club are poor care and feeding and allowing the heifers to run with the herd bulls and often getting in calf at too young an age. I think that the most of these difficulties can be gotten around by paying more attention to the farms from which the membership of the boys and girls is encouraged. The work proves more conclusively each year that the smaller clubs with calves placed in the right hands are of much more lasting benefit than the large clubs with the calves placed without careful consideration of the kind of care they are likely to receive.

In the short time that the purebred heifer club work has been handled in Iowa a remarkable increase in interest and enthusiasm has been noticed. Breeders are realizing that this type of work is one of the most effective ways of interesting people in the possibilities of the grade and purebred dairy cow. The demand for the clubs has been increased to such an extent that it has taxed the capacity of the Dairy Association in connection with the other routine work to handle the organization and the follow-up work effectively. I believe that the future of the dairy calf club work is very bright and the possibilities unlimited. There is not a community in the state in which sufficient breeders are located but where there is a sufficient interest and willingness to get behind the Dairy Association in organizing a club with calves of one of the dairy breeds.

YOUR HOUSE IN ORDER

The grocer perhaps as much as any other merchant unintentionally violates the law because he fails to familiarize and post himself upon the laws of his State and Country.

He should know when an article of food is offered to him, whether it is labeled to comply with the law, both as to net weight and composition.

The net weight must be stated plainly on all packages of foods, in terms of the largest denomination, i. e., a package weighing 18 oz. should be labeled 1 lb. 2 oz.

A jam or preserve made principally of apple with a small amount of other fruit is a compound and a list of the ingredients must appear upon the label. The source of an article must not be misstated—for example, Italian Olive Oil must come from Italy; Grecian Currants must come from Greece, etc. It is your business to know that the goods you handle comply with the law in every detail as you are responsible under the law and the laws of Iowa do not extend beyond its borders. If you buy your products from other states you are guilty if they do not comply with the law. You should know that a condensed milk made from skimmed milk and cocoanut fat must be labeled "Imitation Evaporated Milk," and must not be sold as condensed milk, for if you do, you will violate the law and be guilty of unfair practice. Also that oleomargarine must be labeled "Substitute for Butter" and sold without any color under the State Law and each package stamped with the weight and your name under the Federal Law.

New goods should never be placed in front of old goods on your shelves as goods will spoil or the labels will become soiled and faded with age and render goods less salable and cereals become infected with weevils, making them a total loss. Extracts should never be sold when there is a suspicion they are being used as a beverage.

Licenses which you receive should be tacked up on the wall where they will not be lost and can be seen by the members of this department when calling upon you. Poor business methods are prevalent among grocers. They have a poor cost

accounting system or none at all. They fail to charge up their own services and at the end of the year are unable to tell if they have had a profitable business.

The cleanliness of the store and stock is an important factor in handling foods. How inviting is a store that has its cheese and other unprotected foods in a clean glass case free from flies and dust; the shelf goods neatly arranged and free from any accumulation of dust; the floor of good material and clean, with baskets and barrels of cookies, crackers, etc., protected with a tight cover.

It has been a long, tedious task to stop the grocer from buying and selling eggs which were not edible, and in spite of the law forbidding this practice, and many prosecutions, some grocers still persist in handling bad eggs. If every grocer would let the producer know that there was no market for bad eggs, there would be none on the market. Proper candling and the return of all questionable eggs to the producer will correct this evil and bring a better price to the grocer and producer for his eggs. When we consider that the value of Iowa's eggs probably amounts to \$50,000,000 annually, it is evident that the elimination of the bad eggs will materially increase this sum.

Vegetables and fruits should never be bought or sold by the basket, but by weight. The law fixes standards for these commodities in terms of pounds per bushel and if sold by the bushel the legal number of pounds must be given. Accurate scales are an asset to your business and when obtained should have proper care to keep them accurate and prolong their life. When a scale is out of adjustment it is as apt to be against you as your customer.

REPORT OF THE STATE DAIRY COUNCIL

By W. A. WENTWORTH, Secretary

Herewith we are pleased to hand you a report of the Dairy Council movement.

At the outset we wish to refer to the work of the National Dairy Council. In a very complete report submitted by the National organization we find that during the past year they have distributed throughout all parts of the United States more than THREE MILLION PIECES of literature in the form of colored posters, booklets and leaflets. This material has gone into the homes, schools, educational and public institutions, and has been displayed at fairs, a large variety of conventions, and has been largely reproduced in the press. The demand has been so great for these that in several cases as many as four different editions have been printed. Had the Council finances permitted it would undoubtedly have been possible to distribute twice the amount of literature.

During this time a total of 15,000,000 people have been reached in the United States. To these people the story of milk and its products as an economical and essential food has been told once, twice and in many cases even oftener. This work should be increased until the total population is reached and told many times the truth of dairy products.

In addition to the number of people reached in the United States, requests have been received from many foreign countries, including among others Australia, England, France and Canada. This demonstrates the wide distribution of the publicity which is being handled by the Council. There is available, at this time, for distribution, an educational poster, on "Ice Cream, A Nutritious Food." Four posters in colors, respectively Use More Milk, Use More Butter, Use More Ice Cream and Use More Cheese, showing very strikingly the comparative values in dairy foods and ordinary staple foods, have been in great demand. Pamphlets entitled "The Dairy Recipe Book," containing 150 recipes of dairy dishes, an illustrated booklet, entitled "Food Facts," and another entitled "Milk, The Necessary Food," have received unusually wide

distribution. In addition to these, the Council is prepared to provide newspaper plates for use in commercial advertising. They have also a series of colored slides for use in motion picture houses, and at the present time have the Milk Fairy Plan on motion picture film, which can be secured and used in motion picture houses.

In all of this work the National Dairy Council has expended only about \$56,000.00. To obtain the same results in nation-wide newspaper advertising, an expenditure of more than half a million dollars would have been necessary.

STATE DAIRY COUNCILS

At the present time there are functioning in the United States twelve dairy councils, these being in the states of California, Oregon, Colorado, Idaho, Minnesota, Iowa, Missouri, Wisconsin, Michigan, Pennsylvania, Connecticut and the New England states. At a meeting held in Chicago on the 12th day of October, a plan was developed for closely federating these several state councils and effecting a successful relationship with the National. At the present time this matter has not been ratified by all of the states but will be submitted to the members as soon as definite ratification has been completed. This is in the hands at the present time of the officers of the various state councils and we feel is receiving very careful attention before ratification is effected.

THE IOWA DAIRY COUNCIL

The Iowa Dairy Council has been quite closely affiliated with the National in all of the work which it has done up to the present time and has used the material issued by the National organization.

A large share of the time during the past year has been devoted to furthering the organization. At the present time the work is being supported by one-half of the local creameries of Iowa, by all of the ice cream manufacturers, by the central creameries, most of the milk dealers and the milk producers in many localities. During the winter of 1920-21, it is planned as nearly as possible to complete the work of organization among all the branches of the dairy industry of the state. This should then make it possible to have sufficient funds within the state to make the work much more effective and at

the same time support to a considerable extent the National Dairy Council, which alone can reach the market upon which the butter of Iowa is sold.

To report the work which the Iowa Dairy Council has done during the past season in promoting the interest in the food value of dairy products, we cite you first to a campaign which was conducted through the schools of thirty-one counties of Iowa during the last three weeks of May. In this campaign the Dairy Council merely served as the directing force for speakers provided by the Dairy and Food Commission, the Agricultural Extension Department, the State Dairy Association, and the State University of Iowa. In this connection we wish to make acknowledgment to each of these for the very splendid support given. A total of nineteen speakers were used in this campaign. In a general way three speakers were employed for three days in a county with the county agent, the county superintendent of schools and the home demonstration agent being local directors of the work. Most of the schools in the counties covered were reached and a total of 53,812 school children and 4,094 adults heard the story. In this campaign 387 schools were visited, talks were made in factories, picture theaters, before commercial clubs and women's societies to the number of forty. There is much indication of very satisfactory results being obtained during this campaign as evidenced on the part of most people interested that this will be continued and increased another year.

The Iowa Dairy Rally was held at Waterloo in July to interest the county agents in the further activities in dairy production work. At this time many speakers of note were provided and quite a large representation of the county agents was present, as well as many members of the Agricultural Extension Department, the Home Demonstration Agents and members of the industry. Out of this meeting we have found that there seems to exist a closer relationship between some of the people engaged in education work and the dairy industry. There can be no denying the fact that in proportion to the importance of the industry to Iowa, it has not received the support from these forces as would be warranted.

During the county fair season thirty-nine fairs were provided with posters and other literature for display and dis-

tribution, largely by the county agents and home demonstration agents, together with some members of the Dairy and Food Commission. In a few cases county nurses have been provided with the same material. In addition to these fairs a booth was maintained at the Iowa State Fair and also one at the Iowa Dairy Cattle Congress, showing to the visitors somewhat of the value of dairy products in the way of graphic reproduction on a large scale of a milk bottle, print of butter, brick of ice cream, and a slice of cheese. The milk bottle, rotating, set forth concise statements regarding milk and its value, particularly to the child. The other replicas each told briefly of the value of the product which it represented.

During the Iowa State Teachers' Association convention held in Des Moines on November 4 and 5, it was arranged to have talks on dairy products made before several group meetings of the teachers. This appears to have been very successfully carried out by the ladies who spoke, for in the reports submitted following the convention this statement was made: "So far from every meeting there has been some one who wanted some definite work done" in their schools in the nature of further interesting the child in the use of dairy products.

We are at this time checking up the sale of butter in the local markets in the state of Iowa. There is no way, as yet, to determine how much butter is sold in Des Moines or large cities, but in towns of 1,000 or smaller, where one creamery supplies practically all the butter used, it is possible to get an idea of the amount sold. We can find out how much they are selling this year and how much they sold last year and before. We are establishing 1917 as the normal consumption, prior to the war. Then butter was selling at about 37 cents a pound and shortly the price began to rise, and what we want to know is how have sales continued during the past four years? We want to cover a good many more creameries before anything definite is said; however, in general, up to the present time, we find that in 1918 there was a decrease of about 16% under 1917 in the consumption of butter in these smaller towns of Iowa. That includes the patrons of the creamery and the store sales in the town. In 1919 the average increase is about 5%, that is, the stores bought and the patrons used about 5% more than in 1918. Now, in 1920 we find a

variation in figures and at the present time it is not safe to say that an average prevails, but every creamery visited shows increases varied from 2% to 16% over the sale in the respective towns during 1919—that with the price of about 1½ cents more than last year. Better knowledge of dairy products is increasing its consumption in Iowa. If it is accomplishing these results in Iowa, no doubt it is elsewhere.

In the Dairy Council work thus far sufficient progress has been made in organization that all of its present members should feel very optimistic in regard to the support which will be received. At the close of another year it will undoubtedly be possible to say that from seventy-five to ninety per cent of the members of the dairy industry are supporting the Council work. This we feel should cause every member who is now supporting to feel gratified that he is contributing to the work of an organization whose worth is recognized by all of those engaged in the dairy business and one which will continue to develop rapidly and establish its results upon the minds of the buying public in such a way that the dairy products market will be continuously satisfactory.



TAKE CARE OF YOUR HOME MARKET

By A. M. HEIN

You have learned a great deal of this industry that we represent since we have gathered at this convention. You no doubt have gathered enough pep by this time to go home and start something that will arouse your patrons so that they will sit up and take notice to what you have to say. You have learned that the time for Quality is at hand. They have picked me to tell you how to dispose of this butter with Quality to best advantage and realizing more money from same than heretofore.

Undoubtedly every creamery in Iowa has some kind of a home market for a part of the butter which it manufactures, regardless of the grade of butter which it may be. These creameries must also realize that butter disposed on this home market nets more money. Many operators seldom figure off freight, nor do they take into consideration shrinkage, deteri-

oration while in transit, and market conditions which affect the sale of goods on the eastern markets.

At the creamery the price, usually, is made according to market quotations from extras, one way or another. This is the price demanded from the home trade. The commission man sells our Iowa butter and the price is based on what the butter sells for. Very few creameries have a set price by which they will know just what to expect from the market, unless they turn out a uniform piece of goods the year around, and these are few, I believe. Is it not better, then, and more profitable, to sell as much butter on our home markets and make our own price and not take any chances on the butter while in transit, especially when it takes the length of time now required to get butter on the market from this part of the state?

This is one thing that our average co-operative creameries have overlooked in the past. Just because the bulk of butter made at these creameries is shipped to an eastern market, most creamery men pay little attention to home trade. Apparently, they feel that because they have the only creamery in town and because every store handles it, people who want creamery butter should know where to get it. So why should he worry about home trade?

Let me tell the creamery men something worth while: build up your home trade by making the best butter possible, something with Quality back of it, something that is in a class by itself, and you will then find the consuming public reaching out for this butter and willing to pay the price which you may demand. There are hundreds of different brands sold, but there is only one brand in this state that accomplishes just what it was created for, and that is the State Brand. Our creamery has sold butter under this brand for about a year, and has given it a fair trial during that time. We realize 2 cents above New York extras, net our station, which is a good price for our State Brand Butter. We also carry a No. 2 grade in stock at 5 cents lower. Ninety per cent of our patrons are getting 5 cents premium per pound on fat on the sweet cream which they furnish during cool weather. Our biggest trouble has been to get sweet cream enough in warm weather to take care of the trade which we have established on this

State Brand. The past three months we printed each month better than 10,000 pounds, most of it being State Brand. Trading has not fallen off one bit on the State Brand Butter since prices have advanced, but on the lower grade it has fallen off the same as usual this time of the year. The future outlook for a State Brand is so bright that I hardly know how I can express its worth to the creameries of Iowa.

I am very much surprised that in the last few years so few buttermakers have taken advantage of this great opportunity for their creameries. I cannot help but believe that some of them do not comprehend its meaning or they would have gone after it heart and soul until they received permission to use the brand on the best butter which they manufacture.

Surely our creameries do not take the same attitude toward this brand as many farmers did toward thoroughbred stock some 15 or 20 years ago; if a man paid a hundred or two hundred dollars for a high-grade hog, at that time, his neighbors thought him crazy. The same was true with high-grade cattle having good records back of them. They called it "humbug" in those days. When the hand separator first came into use and was getting a good start in this country and buttermakers were aware of the fact that these machines were ruining the quality of our butter, some of them could see it no other way but that the separator had to go to the junk pile and our creameries return to the whole milk system. Instead of the system of handling this product changing, it was some of the buttermakers who changed their occupation, and the rest have changed their minds. Let's get back to 1920. And what do we find? In nearly every community will be found farmers who specialize in some kind of high-grade stock. These men have all learned there is something in pedigree stock or we would not have men that pay from \$10,000 to \$40,000 for one hog or other animal.

As I have said before, we have in this state a Butter Mark or Brand, if you wish. Butter under this Brand must have a high record. Quality is the foundation. The goods manufactured and sold under this name protects the producer, the manufacturer and the consumer. On every package is displayed the pedigree which goes to show its superiority.

The consuming public grasps the idea, then why not the

creameries. It can be had only through you and me, and with the aid of the State.

If there is any creameryman who receives inferior cream at his creamery and who is not making plans to do something to improve this condition, he and his creamery will some day be fighting between life and death, while his patrons will look to him to remedy the situation—after it is too late. Grade and pay accordingly, and refuse a low grade of cream entirely is the only help that will save him. Our creamery sent out notices to our patrons soon after the market began to look gloomy on low grade butter that we would reject No. 3 grade cream from the first of November. The result was that we got a good share of it sweet since. Poor cream is due to neglect on the patron's part at this time of year, due to the fact that most cows are about dry at this time and little attention is given to small batches.

Some buttermakers who are grading and make more than one grade are disposing of their poor butter on the home market. This is a mistake. You cannot build up a sound, thrifty market for your trade unless you give them the best, and if some prefer the cheaper grade the price should be accordingly. If it takes a shipment of butter two or three weeks to reach the eastern market, even the best grades will deteriorate considerably. If this could be sold on a home market or some near-by town, the consuming public would get a direct benefit out of this good butter, which would otherwise be lost, and this is where extra money can be asked for. Work up a sound home trade and you will never regret it.

REGULATION RELATING TO THE OPERATION OF THE BABCOCK TEST

For the purpose of providing official supervision of the operation of the Babcock test in all licensed receiving stations, conducted for the purchase of butterfat, either in the form of cream or milk, to promote fair competition, and to protect the producer of butterfat, thereby giving more confidence to the producer, in the system of determining the per cent of butterfat in cream or milk, the following regulation has been promulgated:

"That all individuals, corporations and partnerships, authorized by license or permit to conduct the Babcock test in the state of Iowa, shall retain within the premises the exact, properly labeled samples of cream or milk from which the butterfat test has been conducted, until 6 P. M. of the day following the application of the test, where daily testing is practiced, and until 6 P. M. of the second day following the application of the test where composite testing of individual deliveries is practiced. In case of Sundays and legal holidays intervening, the samples shall be held one additional day.

"Upon such occasions as may be determined wise, this department or its inspectors may order any sample or samples held for a longer period than provided for by these regulations.

"This ruling will be effective on and after June 1, 1920."

The foregoing regulation will be of particular interest to a large number of Iowa merchants, especially those in the smaller cities and towns, where the buying of cream is extensively practiced by grocers, butchers, and other merchants.

The ruling is designed as a protection for the producer and the purchaser alike. Buyers who operate the test honestly and efficiently and pay accordingly, will welcome a measure of this kind. It will be found particularly valuable as a means of checking up station shortages. The object of such a ruling requiring samples to be held up is to enable an inspector of the Dairy and Food Department to check up disputed tests. The territories of the department inspectors are so arranged

that practically all of them can reach certain points in their territories within twenty-four hours, and thus if a complaint is made that a certain buyer is over or under reading the Babcock test, by using the telephone it will usually be possible to have an inspector on the ground to check up the test before the termination of the period which it must be held.

The work of the laboratory of the department is shown in the following table:

Cream and Milk.....	1,497	samples
Ice Cream.....	134	"
Miscellaneous Foods.....	210	"
For Attorney General and County Attorneys...	298	"
For Pharmacy Commission.....	23	"
Stock Foods.....	235	"
Seeds.....	31	"
Butter.....	87	"
For Executive Council.....	5	"
Paints and Oils.....	33	"
Total.....	2,553	"

During the past year the time of one chemist has been almost wholly taken up with the analysis of samples of beverages from the Attorney General's Office and the necessary attendance in court. A considerable number of samples are sent in during the year from the County Sheriffs and County Attorneys, which require a considerable amount of chemical work and often a good deal of time in the courts. The number of analyses made compares very favorably with the best laboratories in any of the states. Considering the fact that there has been but one assistant chemist during a part of the year, owing to the difficulty in obtaining a chemist at the salary offered, the record shows that the laboratory has been busy every day of the year. There is investigational work that should be done on certain products which come under the law but the laboratory has not had the necessary help to undertake it.

SUMMARY

During the year ending November 1, 1920, our inspectors have inspected a total of 21,514 establishments, as follows:

Grocery.....	4,932
Meat Market.....	3,004

General Store	2,688
Bakery	773
Slaughter House	73
Restaurant	1,719
Coal Dealer	58
Elevator	62
Feed Store	161
Ice Cream Factory	658
Creamery	1,190
Dairymen	1,264
Farm Dairy	667
Confectionery	620
Wholesale Grocer	48
Seed Dealer	42
Bottling Works	37
Cream Station	2,223
Produce	1,184
Miscellaneous	109
Total.....	21,514

DAIRY AND FOOD COMMISSION
FEES RECEIVED YEAR ENDING OCTOBER 31, 1920

Inspection Fee Tags.....	\$21,283.45
Seed Analyses Fees.....	16.50
Feeding Stuffs Analyses Fees.....	72.00
Stock Food Licenses.....	3,862.50
Egg Licenses.....	6,390.00
Babcock Test Licenses.....	7,337.50
Scale Tag Licenses.....	5,283.00
Scale Inspection Fees.....	9,838.15
Sanitary Law Licenses.....	15,377.00
Milk Licenses.....	3,498.00
Cold Storage Licenses.....	481.25
Commercial Fertilizer Licenses.....	460.00
Butter Trade-Mark Fees.....	55.44
Total.....	\$73,954.79

LAWS ENFORCED BY DAIRY AND FOOD COMMISSIONER

DAIRY LAW

The object of the dairy law is to insure the manufacture of clean, wholesome dairy products of uniform quality and possessing high nutritive value, and to encourage and promote all branches of the dairy industry, thereby securing for Iowa farmers a steady and fair market for one of Iowa's most valuable agricultural products.

FUNCTIONS OF ASSISTANT COMMISSIONERS AND DAIRY INSPECTORS

Inspection and educational work relative to sanitary conditions of dairy farms, cream buying stations, creameries, condensed milk factories, cheese factories, ice cream factories.

EDUCATIONAL WORK AT CREAMERIES

Instructs buttermakers in new methods of handling raw materials and manufacture of butter.

Confers with and addresses creamery boards and assists in moulding policies of the creameries.

Assists in the building of new and remodeling of old creameries, and installation of new equipment.

Periodically checks moisture content of the butter being made.

Periodically checks salt content of the butter being made.

Studies methods of manufacture at the creameries for the purpose of increasing the efficiency of the plant.

Checks cost of production and costs of marketing.

Advises creamery as to the best sources of equipment and materials.

Assists in securing frequent and regular transportation facilities.

Assists in securing satisfactory markets in eastern cities for butter.

Tests creamery scales, both test scale and platform scales, to insure accuracy and fair dealing.

Schools operators in conducting Babcock test.

Holds examinations to determine competency of candidates to hold license to perform Babcock test.

Checks and controls production of navy butter.

Checks and controls production of Iowa trade-marked butter.

Assists in the organization of cow-test associations and calf clubs.

Assists in educational work tending to promote greater and more economical production of milk and cream.

INSPECTION WORK IN THE FIELD

Inspects stocks of butter and butter substitutes at warehouses, stores, bakeries and restaurants to see that illegal butter and illegal butter substitutes are not carried on stock or offered for sale.

Investigates and conducts cases relative to testing of milk and cream by unlicensed Babcock operators.

Investigates complaints relative to unlicensed milk plants and milk depots.

Investigates complaints relative to false reading of Babcock test and other unfair practices.

Investigates complaints relative to the application of the anti-discrimination law as affecting the purchase of butter fat.

FUNCTION OF THE LOCAL MILK INSPECTORS

In charge of local milk inspection work under supervision of State Milk Inspector.

Inspects dairy farms supplying market milk to his district.

Inspects conditions, scores and keeps records as to sanitary conditions of dairies, milk plants and milk depots.

Periodically tests percentage of fat and solids in milk sold in his territory.

Periodically secures and forwards samples to the department laboratory for scoring and bacteriological analysis.

Investigates complaints as to quality of milk delivered and relative to violations of the laws pertaining to production and sale of milk in his territory.

FOOD LAW

The object of the food law is to prevent the manufacture and sale of harmful, deleterious and adulterated foods, or foods which are sold under false representation as to their quality or value.

FUNCTION OF FOOD INSPECTORS UNDER FOOD LAW

Inspect Iowa establishments where foods are manufactured to see that no harmful or fraudulent adulterant enters their composition.

Inspects conditions under which foods are stored, transported and sold to see that adulteration is not practiced.

Surveys and forwards to laboratory samples of foods which he suspects or concerning which he receives complaint as to quality, adulteration or short weight.

Inspects retail establishments to see that no illegal foodstuffs are carried in stock.

Inspects quality of eggs, poultry and other farm produce sold to buyers and handled through trade channels to see that these products are not spoiled or in a condition which would lead to their being spoiled before reaching the consumer.

SANITARY LAW

The object of the sanitary law is to insure cleanliness in the manufacture, distribution and sale of foods.

FUNCTIONS OF INSPECTORS UNDER SANITARY LAW

Determine sanitary conditions in establishments where foods are manufactured, prepared, stored and sold.

Sees that raw materials are in sound condition and that decayed or other unwholesome materials are kept out of food products.

Sees that no diseased persons are employed in establishments where foods are manufactured or sold.

Sees that foods are properly protected from dust, dirt, foul odors, filth, rodents and other contaminating agencies.

Sees that restaurants, hotels and other similar establishments maintain proper toilet and washroom facilities in order that employees keep clean.

SEED LAW

The object of this law is to prevent the sale of undesirable varieties of seeds, seeds of low germination, dirty seeds, seeds containing excessive amounts of weed seeds, and seeds which are short in weight.

FUNCTION OF INSPECTORS

Inspects seed houses to see that seeds are properly cleaned and graded.

Traces origin of seeds to see that undesirable and too slow maturing varieties are not imported.

Sees that packages of seeds are full weight.

Investigates complaints relative to fraudulent dealing in seeds. Samples stocks of seeds and sends samples to laboratory for analysis.

WEIGHTS AND MEASURE LAW

The object of the Weights and Measure Law is to secure full the true weight or measure of the commodity sold or purchased.

FUNCTION OF WEIGHT AND MEASURE INSPECTORS

Inspects and tests accuracy of all weights, measures and scales used in the purchase and sale of articles of commerce.

Checks weights and measures of articles bought and sold by

weight or measure to see that proper weights and measures have been given.

Inspects heavy wagon, elevator and mine scales to see that they are properly installed and kept adjusted.

Investigates complaints relative to false weights and measures and other violations of the weights and measure law.

CONCENTRATED COMMERCIAL FEEDING STUFFS LAW

The object of this law is to secure fair dealing in the sale of commercial feeds.

FUNCTION OF INSPECTORS

Examine stocks of feeds to see that they are properly labeled as to quality, etc., and to forward samples to laboratory for analysis and comparison of feeding value.

Inspects stocks of feeds to see that packages bear tax tags.

Other laws enforced by this department are:

Paint and Linseed Oil Law.

Egg Law.

Turpentine Law.

Cold Storage Law.

Commercial Fertilizer Law.

Calcium Carbide Law.

Insecticide and Fungicide Law.

The duties of inspectors under these laws are similar to their duties under the laws in which duties are set forth in detail.

DAIRY AND FOOD COMMISSION EXPENSES YEAR ENDING OCTOBER 31, 1920

NAME	Salary	Expense	Total
B. Barney.....	\$ 3,300.00	\$ 445.71	\$ 3,745.71
A. Gordon.....	2,600.00	228.90	2,828.90
L. Redfern.....	2,700.00	49.98	2,749.98
O. Brownlee.....	2,100.00	1,502.93	3,602.93
A. Clarke.....	2,100.00	1,244.82	3,344.82
H. E. Forrester.....	1,891.33	1,410.68	3,302.01
R. E. Clemons.....	175.00	89.57	264.57
G. M. Lambert.....	875.00	522.30	1,397.30
E. Ritter.....	1,884.94	1,104.96	2,989.90
W. Stephenson.....	2,100.00	1,289.86	3,389.86
O. P. Thompson.....	1,487.50	638.55	2,126.05
L. P. Anderson.....	1,750.00	808.41	2,558.41
C. Gilmore.....	1,847.01	1,721.65	3,568.66
E. W. Neasham.....	1,200.00	1,053.40	2,253.40
Roy Scoles.....	750.00	529.74	1,279.74
L. P. Shaffer.....	633.32	303.10	936.42
J. S. Bittner.....	1,096.40	393.88	1,490.28
A. Countryman.....	1,954.15	907.45	2,861.60
E. Flynn.....	2,100.00	905.74	3,005.74
M. W. Knapp.....	602.71	196.97	799.68
W. Milnes.....	2,100.00	1,052.55	3,152.55
M. Morrow.....	1,847.01	1,086.07	2,933.08
C. Ottosen.....	2,046.15	1,246.07	3,292.22
L. A. Stearns.....	1,924.97	994.76	2,919.73
O. Van De Bogart.....	2,100.00	723.70	2,823.70
S. Bogle.....	2,400.00	104.06	2,504.06
B. Briggs.....	2,100.00	1,421.84	3,521.84
J. Nolan.....	2,100.00	2,018.50	4,118.50
V. G. Jordan.....	2,100.00	64.53	2,164.53
H. D. Irish.....	1,321.47	.....	1,321.47
W. Day.....	1,866.64	.....	1,866.64
R. V. Barker.....	600.00	.....	600.00
R. V. Murphy.....	875.00	.....	875.00
Elma Schnack.....	1,015.40	.....	1,015.40
Rene Thorson.....	600.00	.....	600.00
Minnie Benson.....	1,000.00	.....	1,000.00
Ruth Cowdery.....	433.33	.....	433.33
Bess McCoy.....	166.67	.....	166.67
Vera Thompson.....	100.00	.....	100.00
Maurine Mack.....	69.25	.....	69.25
C. G. O'Connell.....	134.65	.....	134.65
Irene Day.....	211.14	.....	211.14
Lorraine Boling.....	328.84	.....	328.84
W. Lytton.....	1,090.00	.....	1,090.00
Laboratory Expense.....	.....	369.05	369.05
Weights and Measure Expense.....	.....	2,954.07	2,954.07
Miscellaneous Office Expense.....	.....	4,949.92	4,949.92
Milk Agents' Expense.....	.....	728.46	728.46
Milk Agents' Fees.....	.....	6,502.50	6,502.50
Inspection Fee Tags.....	.....	5,717.00	5,717.00
Telephone.....	.....	64.49	64.49
Telegraph.....	.....	30.20	30.20
Electricity.....	.....	38.66	38.66
Drayage and Express.....	.....	277.75	277.75
TOTAL.....	\$61,677.88	\$45,692.78	\$107,370.66

* Employed less than a year.

CITY MILK LICENSES

Table showing the number of milk licenses issued to city milk dealers for each year from 1911 to 1920. In each case the year ends on July 4th.

Year ...	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
Number	1,310	1,908	2,038	2,189	2,365	2,729	2,858	2,936	2,718	3,061

LOCAL STATE MILK INSPECTORS OF THE STATE OF IOWA

Cities	Inspectors
Boone	Maurice Healy, M. D.
Burlington	W. F. Schroeder
Cedar Rapids	Phillip Pray
Council Bluffs	W. M. Hendrix
Davenport	H. J. High
Des Moines	W. B. Barney, Jr.
Dubuque	J. N. Graham, D. V. S.
Ft. Dodge	Francis Ludgate, M. D. C.
Iowa City	C. S. Chase, M. D.
Keokuk	Geo. B. Narrley, M. D.
Marshalltown	R. M. Allen, D. V. S.
Mason City	A. L. Wheeler, M. D.
Muscatine	C. J. Hackett, D. V. S.
Ottumwa	Dr. E. F. Lowry
Sioux City	W. D. Hayes, C. P. H.
Waterloo	E. J. Eaves

CREAMERY STATISTICS OF IOWA

SHOWING POUNDS OF MILK AND CREAM RECEIVED, POUNDS OF BUTTER MADE AND DISPOSITION OF SAME, SO FAR AS REPORTED.

COUNTY	Number of Creameries reported	Pounds of Milk Received	Pounds of Cream Received	Pounds of Butter Manufactured	Pounds sold to Patrons	Pounds Sold Outside of Iowa	Pounds Sold in Iowa
Adair	2	44,336	590,323	210,051	45,573	126,455	67,000
Adams	1	.....	82,321	32,000	4,500	12,400	15,000
Albany	6	5,102,019	1,434,338	47,295	1,295,922	91,121	66,557
Appanoose	1	108,400	32,935	70,810	288	3,967	66,557
Audubon	6	48,848	986,700	371,075	26,473	245,336	43,216
Benton	3	5,199,109	491,859	371,337	1,655	199,502	56,410
Black Hawk	4	5,926,832	4,897,372	2,070,975	95,004	1,432,343	553,705
Boone	2	.....	123,133	73,580	.....	38,840	.....
Bremser	23	38,670,674	1,286,472	2,448,979	212,123	2,149,531	125,385
Buchanan	6	9,310,028	2,385,904	1,319,950	90,495	1,074,664	144,792
Buena Vista	3	304,623	843,098	320,327	18,823	95,674	7,350
Butler	11	3,840,091	3,432,106	1,357,050	71,842	1,136,095	134,066
Calhoun	4	89,864	332,032	229,419	23,475	113,159	92,653
Carroll	7	297,377	1,908,101	799,798	18,741	410,218	269,503
Cass	2	43,320	913,342	550,335	9,785	485,094	8,625
Cedar	6	.....	2,865,278	1,126,809	38,929	800,669	327,275
Cerro Gordo	7	948,022	7,874,540	2,519,280	52,817	2,650,059	291,690
Chickasaw	9	3,620,977	4,136,174	1,809,702	132,249	1,584,440	76,426
Clay	5	180,000	488,794	158,295	10,925	106,604	346
Clayton	13	13,852,768	7,733,109	3,001,932	119,204	2,718,532	100,546
Clinton	5	.....	2,569,297	1,897,867	33,311	2,064,323	67,387
Crawford	1	137,866	1,138,722	422,726	624	451,861	12,141
Dallas	.....	.....	59,297	.....	.....	.....	.....
Delaware	13	3,297,006	3,757,204	2,284,351	134,937	1,699,889	365,989
Des Moines	1	116,800	422,034	506,432	400	53,506	452,901
Dickinson	3	.....	9,999,956	504,272	18,030	375,271	129,001
Dubuque	14	7,074,036	5,722,448	5,245,725	88,094	1,131,659	354,770
Emmet	2	43,265	1,029,865	300,991	28,731	244,221	27,409
Fayette	18	21,433,268	7,218,814	3,488,738	178,618	1,995,141	184,558
Floyd	5	18,000	2,780,500	807,022	31,466	372,571	221,677

CREAMERY STATISTICS OF IOWA—Continued

COUNTY	Number of Creameries reported	Pounds of Milk Received	Pounds of Cream Received	Pounds of Butter Manufactured	Pounds sold to Patrons	Pounds Sold Outside of Iowa	Pounds Sold in Iowa
Franklin	6	62,813	2,328,537	983,353	374,179	540,179	20,636
Greene	1	98,400	138,170	55,480	.....	.....	.....
Grundy	3	397,338	611,933	413,023	28,082	394,431	1,490
Guthrie	4	30,086	563,658	249,525	11,337	92,727	121,903
Hamilton	4	585,531	211,770	849,785	110,875	12,314	765,503
Hancock	6	28,761	2,789,297	934,072	43,649	793,846	76,567
Hardin	10	160,335	3,267,201	1,401,548	84,433	1,035,205	288,885
Henry	9	.....	6,147,777	20,900	1,300	.....	20,000
Howard	1	.....	1,716,386	73,112	1,491,924	4,512	.....
Humboldt	4	200,000	943,166	362,812	27,007	262,368	73,227
Ida	1	.....	Not Churning	.....	.....	.....	.....
Iowa	3	169,427	415,452	128,921	12,194	67,421	51,108
Jackson	3	202,290	3,317,875	1,192,203	87,601	934,313	155,882
Jasper	8	.....	234,987	67,484	500	25,348	42,134
Johnson	2	1,051,693	844,572	334,541	.....	234,969	.....
Jones	6	366,279	4,872,903	1,823,622	103,672	1,582,576	121,974
Keokuk	2	.....	880,142	328,534	28,000	273,735	52,000
Keosauqua	13	677,829	3,736,129	1,151,358	136,699	1,327,273	121,437
Lee	2	.....	1,793,227	2,066,777	.....	1,927,817	140,474
Linn	6	107,800	4,285,789	1,872,760	46,788	2,016,107	21,500
Lucas	1	.....	.....	196,444	.....	30,000	166,444
Lyon	3	.....	624,330	568,673	16,670	207,650	15,500
Mahaska	2	876,125	294,034	226,423	4,230	91,602	130,340
Marion	3	7,995	99,438	125,944	.....	83,862	41,982
Marshall	3	930,648	1,412,456	660,781	23,724	348,872	228,183
Mills	2	.....	198,187	106,403	.....	74,800	.....
Mitchell	7	487,561	4,464,699	1,381,342	106,526	1,224,655	48,454
Monroe	1	95,124	127,487	48,961	588	39,952	.....
Montgomery	2	455,928	607,127	424,656	.....	78,194	166,552
Muscatine	1	27,720	388,070	116,772	6,923	27,678	61,134
O'Brien	4	183,314	1,781,228	468,371	32,220	442,151	131,612
Osceola	3	80,190	2,006,918	674,442	44,730	165,575	14,193
Page	1	.....	2,126,176	876,975	.....	846,971	26,000
Palo Alto	7	298,343	2,194,982	746,141	103,248	538,245	228,599
Plymouth	1	632,100	173,760	54,649	248	84,301	.....
Pocahontas	3	69,133	314,268	132,618	5,301	71,178	96,651
Polk	4	755,719	7,642,256	4,698,310	.....	2,192,498	2,743,828
Pottawattamie	2	441,825	1,030,354	1,237,921	100	949,277	287,121
Poweshiek	3	284,476	905,455	251,121	19,155	98,085	130,830
Sar	1	227,923	.....	152,243	.....	.....	.....
Scott	3	66,400	1,124,247	464,400	1,286,540	388,968	298,497
Shelby	2	.....	192,135	74,977	8,172	59,722	.....
Sioux	8	699,055	4,125,461	1,647,680	101,699	1,355,533	186,113
Story	7	563,778	1,694,262	534,456	82,104	330,319	142,033
Tama	3	.....	1,135,604	611,788	270	558,618	53,000
Taylor	2	.....	92,731	114,620	16,900	48,600	50,000
Union	2	21,180	664,284	761,197	1,642	1,642	38,912
Van Buren	2	.....	126,282	38,243	1,460	34,283	2,600
Wapello	3	150,000	6,172,131	2,337,941	756	938,374	328,898
Washington	1	.....	.....	19,351	.....	.....	.....
Wayne	1	.....	2,418,392	846,402	1,763	806,359	38,220
Webster	3	610,648	919,214	371,158	4,861	17,031	845,817
Winnebago	8	93,624	3,874,529	1,254,226	147,424	1,008,399	78,143
Winnebuck	9	.....	7,716,438	3,271,671	51,609	2,243,275	126,852
Woodbury	3	2,605,667	26,591,596	10,783,277	12,010	9,665,701	1,150,151
Worth	9	25,533	3,796,250	1,096,385	86,555	1,341,263	158,411
Wright	2	.....	362,316	189,136	8,937	101,995	85,204
TOTAL	401	123,998,277	206,329,546	85,955,547	3,886,238	64,023,666	14,833,913
Estimated on account Creameries changed hands. Reports unobtainable.	.....	.....	.....	224,905	.....	.....	.....
TOTAL	.....	.....	.....	86,179,612	.....	.....	.....

CREAMERY LIST

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
Adair County—						
1	Adair Co-op. Creamery Co.	Adair	D. J. Conden	Adair	J. T. Ryan	Adair
2	Greenfield Creamery Co.	Greenfield	W. A. Foster	Greenfield	W. I. Knodle	Greenfield
Adams County—						
3	Prescott Creamery	Prescott	Chris Lundhagh	Prescott	R. Reynolds	Prescott
Allamakee County—						
4	Arctic Spring Creamery Assn.	Quandahl, 9 mi. S. of Sp'g Grove, Minn.	O. C. Flatberg	Spring Grove, Minn.	O. Goodno	Spring Grove, Minn.
5	Calhoun Creamery Co.	Church	L. E. Kerndt	Church	Vern Sires	Church
6	Farmers Waukon Creamery Co.	Waukon	Tollef Johnson	Waukon	A. H. Hansmeier	Waukon
7	Ludlow Co-op. Creamery	Waukon	Henry Seibert	Waukon	W. P. Muth	Waukon
8	New Albin Co-op. Creamery	New Albin	R. G. May	New Albin	E. S. Rice	New Albin
9	Postville Far. Co-op. Cream. Co.	Postville	C. C. Sander	Postville	B. F. Schultz	Postville
Appanoose County—						
10	Strickler Creamery Co.	Centerville	F. T. Strickler	Centerville	F. T. Strickler	Centerville
Audubon County—						
11	Exira Creamery Co.	Exira	C. B. Petersen	Exira	C. B. Peterson	Exira
12	Audubon Twp. Creamery Assn.	Exira	L. P. Nelsen	Exira	L. P. Nelsen	Exira
13	West Hamlin Creamery Co.	Elkhorn, 6 miles East	Martin Nelson	Exira, R. 2	Carl Lynge	Exira, R. 2
14	Oakfield Twp. Creamery	Brayton, 3 miles West	Henry Dangaard	Exira, R. 2	M. Anderson	Brayton
15	Audubon Creamery Co.	Audubon	J. C. Albitrup	Audubon	A. V. Jessen	Audubon
16	Crystal Spring Creamery Co.	Kimballton	C. Christensen	Kimballton	P. Nielsen	Kimballton
Benton County—						
17	Farmers Creamery	Belle Plaine	Thriesen & Jensen	Belle Plaine	Peter Thriesen	Belle Plaine
18	Model Creamery	Newhall	Henry Stelling	Newhall	Henry Stelling	Newhall
19	Vinton Creamery	Vinton	C. G. Daniels	Vinton	C. G. Daniels	Vinton
Blackhawk County—						
20	Benson Dairy Co.	Benson	J. R. Dumond	Cedar Falls	J. F. Lorenzen	Cedar Falls
21	Cedar Falls Creamery Co.	Cedar Falls	Rundel & Jensen	Cedar Falls	L. H. Olsson	Cedar Falls
22	Cedar Valley Creamery Co.	Waterloo	J. H. Brandes	Waterloo	L. Johnson	Waterloo

*Central Churning Plant. c-Co-op. s-Stock. i-Individual.

CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
23	Co-op. Creamery Co. of Jubilee	Jesup	A. J. Widdel	Jesup	J. Antwine	Jesup
24	Crain Creek Creamery	Denver	Wm. Meier	Denver	Wm. Meier	Denver
25	Dunkerton Creamery	Dunkerton	Producers Milk Co.	Waterloo	C. E. DeWald	Dunkerton
26	C. A. Fosse	LaPorte City	C. A. Fosse	LaPorte City	R. O. Rae	LaPorte City
27	Mount Vernon Creamery Co.	Boies	G. H. Moeller	Denver	R. L. Baumgartner	Cedar Falls
28	Orange Creamery	Waterloo	C. Bechtelheimer	Waterloo, R. 1	R. W. Chadwick	Waterloo, R. 1
29	Union Creamery Co.	Finchford	A. R. Miller	Shell Rock	Thomas Saddler	Janesville
30	Hudson Co-op. Dairy Assn.	Hudson	Henry Lafrens	Hudson	Wm. McFarland	Hudson
Boone County—						
31	Rosendale Co-op. Creamery Co.	Story City	L. C. Peterson	Story City, R. 4	J. M. Gertsen	Story City, R. 4
Bremar County—						
32	Artesian Creamery Co.	Denver, 4 miles North	Henry Seegers	Waverly, R. 5	C. J. Meier	Waverly, R. 5
33	Bremar Creamery Co.	Bremar	F. A. Bortz	Waverly, R. 2	R. J. Allenstein	Bremar
34	Climax Creamery Co.	Sumner	H. Sell	Sumner	A. L. Nichols	Sumner
35	Dayton Creamery Co.	Denver	F. E. Hatch	Sumner	J. G. Nichols	Sumner
36	Denver Creamery Co.	Denver	Geo. Rockdaschel	Denver	O. H. Buehrer	Denver
37	Excelsior Creamery Co.	Sumner	Geo. Rockdaschel	Sumner	C. A. Day	Sumner
38	Frederika Creamery Assn.	Frederika	Leigh Alcock	Tripoli	J. H. Ambrose	Frederika
39	First Masfield Creamery Co.	Denver	H. C. Griese	Denver	H. C. Koeneke	Tripoli
40	Fremont Creamery Co.	Tripoli	K. A. Chapin	Tripoli	C. W. Zell	Tripoli
41	Janesville Creamery Assn.	Janesville	B. O. Squires	Janesville	B. O. Squires	Janesville
42	Klinger Co-op. Creamery Co.	Readlyn	Henry Hgo.	Readlyn	Henry Segebarth	Fairbank
43	Knittel Creamery Co.	Readlyn	J. Strottmann	Readlyn, R. 1	F. H. Wehling	Readlyn, R. 1
44	Little Valley Creamery Co.	Sumner	Chas. Krueyer	Sumner, R. 1	Fred Witts	Sumner, R. 1
45	Mellinger, J. & Son	Plainfield	G. Mellinger	Plainfield	R. Anderson	Plainfield
46	Potter Siding Creamery Co.	Tripoli	W. H. Barry	Tripoli	E. M. Guiney	Tripoli
47	Readlyn Creamery Co.	Readlyn	E. A. Griese	Readlyn	H. A. Griese	Readlyn
48	Sumner Creamery Co.	Sumner	E. J. Dubsodoff	Sumner	A. E. Zierath	Sumner
49	Spring Fountain Creamery	Sumner	Wm. Zell	Sumner	F. H. Bremer	Sumner, R. 6
50	Siegel Creamery Co.	Tripoli	Fred Rodemeyer	Tripoli, R. 2	J. W. Wedemeyer	Waverly
51	Tripoli Creamery Co.	Tripoli	B. B. Bennett	Tripoli	F. H. Harnes	Tripoli
52	Washington Creamery Co.	Waverly	J. D. Monaghan	Waverly	C. L. Gamm	Waverly
53	Western Douglas Creamery Co.	Plainfield	Carl Oberhen	Plainfield, R. 1	Ernest Hasse	Waverly, R. 1
54	Grovehill Creamery Co.	Oran	J. J. Kane	Fairbank, R. 3	W. J. Sourbeck	Fairbank, R. 2

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CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
Buchanan County—						
55	Fairbank Farmers Creamery Co.	Fairbank	A. J. Langley	Fairbank	C. E. Brant	Fairbank
56	Hazleton Farmers Creamery Co.	Hazleton	C. E. Riede	Hazleton	M. McDonwall	Hazleton
57	Jesup Creamery Co.	Jesup	C. L. Bright	Jesup	Earl Morris	Jesup
58	Wapsie Valley Creamery	Independence	C. V. Rosenberger	Independence	Roy Stewart	Independence
59	Winthrop Creamery Co.	Winthrop	J. C. Guthrie	Winthrop	J. S. Slaughter	Winthrop
60	Lamont Creamery Assn.	Lamont	O. C. Gladwin	Lamont	E. A. Cole	Lamont
Buena Vista County—						
61	Farmers Creamery & Pro. Co.	Newell	J. C. Aroe	Newell	N. C. Olson	Newell
62	Plain View Creamery Co.	Storm Lake	Hussey & McCreery	Storm Lake	Paul Moerman	Manson
63	Albert City Dairy Produce Co.	Albert City	B. A. Peterson	Albert City	Earl E. Post	Albert City
64	Clover Leaf Dairy	Alta	L. H. Hatch	Alta	Viggo Killsholm	Alta
Butler County—						
65	Clarksville Creamery Co.	Clarksville	H. W. Stine	Clarksville	M. A. Jones	Clarksville
66	Community Creamery Co.	Parkersburg	C. J. Rohde	Parkersburg	A. Shepperd	Parkersburg
67	Dumont Creamery Co.	Dumont	Reed Bros.	Dumont	R. O. Reed	Dumont
68	Farmers Co-op. Creamery Co.	Greene	J. Jacobsen	Greene	J. Jacobsen	Greene
69	Farmers Co-op. Creamery Co.	Allison	Wm. Allen	Allison	Roy Sweet	Allison
70	Aplington Creamery Co.	Aplington	R. Meyer	Aplington	E. E. Brooks	Aplington
71	Albion Co-op. Creamery Co.	Parkersburg 8 miles N. E.	W. H. Chapman	Parkersburg	W. H. Chapman	Parkersburg
72	Jefferson Creamery Co.	Shell Rock	A. Freese	Allison	R. Wagner	Shell Rock
73	New Hartford Far. Mut. Cream.	New Hartford	R. L. Farnsworth	New Hartford	P. W. Petersen	New Hartford
74	Shell Rock Creamery Assn.	Shell Rock	D. C. Austin	Shell Rock	Frank Daniels	Shell Rock
75	White Rose Creamery Co.	Austinville	S. L. Patterson	Austinville	P. F. Anderson	Austinville
Calhoun County—						
76	Baird, A. & Co.	Lohrville	Hugh Baird	Lohrville	J. J. Stamen	Lohrville
77	Cedar Creek Creamery Co.	Somers	S. P. Petersen	Somers	A. M. Knudsen	Somers
78	Pomeroy Creamery Co.	Pomeroy	H. A. Albrecht	Pomeroy	George Froom	Pomeroy
79	Bork Creamery Co.	Manson	J. J. Bork	Manson	Paul Moermen	Manson
Carroll County—						
80	Dedham Creamery Co.	Dedham	H. Lauridsen	Dedham	Wm. Mesheck	Dedham
81	Farmers Co-op. Creamery Co.	Breda	A. J. Polking	Breda	J. E. DuCharme	Breda
82	Halbur Creamery Co.	Halbur	M. J. Wagner	Halbur	M. J. Wagner	Halbur

*Central Churning Plant. c-Co-op. s-Stock. i-Individual.

CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
83	Jensen's Creamery Co.	Coon Rapids	Jens Jensen	Coon Rapids	Carl Hestbech	Coon Rapids
84	Manning Creamery Co.	Manning	J. A. Brack	Manning	Paul Border	Manning
85	Rose Valley Creamery Co.	Rosselle	M. Friedman	Carroll, R. 4	M. Friedman	Carroll, R. 4
86	Templeton Creamery Co.	Templeton	John Biese	Templeton	F. J. Domayer	Templeton
Cass County—						
87	Central Iowa Poultry & Egg Co.	Atlantic	Conron Bros. Co.	New York, N. Y.	J. P. Jensen	Atlantic
88	Swift & Co.	Atlantic	G. G. Jeck	Atlantic	Wm. Hoenke	Atlantic
Cedar County—						
89	Durant Farmers Creamery Assn.	Durant	A. R. Lamp	Durant	Clarence Rasck	Durant
90	Golden Star Creamery Co.	Bennett	A. R. Christensen	Bennett	S. P. Rasmussen	Bennett
91	Lowden Far. Mut. Co-op. Cream.	Lowden	Kossuth Pauls	Lowden	W. L. Sloan	Lowden
92	Massillon Co-op. Creamery Co.	Massillon	Peter H. Schneider	Massillon	Peter White	Massillon
93	Tipton Creamery Co.	Tipton	A. J. Barth	Cedar Rapids	O. Wichman	Tipton
94	West Branch Creamery Co.	West Branch	W. C. Phelps	West Branch	O. W. Albright	West Branch
Cerro Gordo County—						
95	Dougherty Co-op. Creamery Co.	Dougherty	R. J. Mullen	Dougherty	P. J. Goetzinger	Dougherty
96	Higley, E. B. & Co.	Mason City	W. S. Wilcox	Mason City	R. E. Adams	Mason City
97	Plymouth Co-op. Creamery Co.	Plymouth	J. L. Stevens	Plymouth	C. N. Hart	Plymouth
98	Rockwell Co-op. Creamery Co.	Rockwell	F. C. Sigfried	Rockwell	J. S. Smith	Rockwell
99	Thornton Creamery Co.	Thornton	G. & H. Assink	Thornton	Henry Assink	Thornton
100	Ventura Farmers Creamery Co.	Ventura	J. E. Sawyer	Clear Lake	E. R. Conway	Ventura
101	Farmers Mut. Co-op. Creamery	Clear Lake	W. F. Paul	Clear Lake	Guy Thomas	Clear Lake
Chickasaw County—						
102	Alta Vista Far. Co-op. Creamery	Alta Vista	Geo. J. Scholz	Alta Vista	L. Jorgensen	Alta Vista
103	Farmers Co-op. Creamery Assn.	Nashua	H. N. Wayne	Nashua	Monroe Bull's	Nashua
104	Fredericksburg Butter Factory	Fredericksburg	C. L. Whitcomb	Fredericksburg	Chris Russler	Fredericksburg
105	Ionia Farmers Creamery Assn.	Ionia	J. F. Cagley	Ionia	F. W. Stickman	Ionia
106	Jerico Farm. Mut. Co-op. Cream.	Jerico	L. O. Knutson	New Hampton	F. W. Nelson	New Hampton
107	Lawler Creamery Assn.	Lawler	Ray Nulty	Lawler	J. Finnegan	Lawler
108	New Hampton Creamery Assn.	New Hampton	J. W. Krieger	New Hampton	D. W. Mohler	New Hampton
109	Saude Farmers Mut. Cream Assn.	Lawler	J. P. Landsverk	Waucoma	J. E. Flaskerud	Lawler
110	Williamstown Creamery Assn.	New Hampton	C. M. Burmaster	Fredericksburg	C. I. Gray	New Hampton

*Central Churning Plant. c-Co-op. s-Stock. i-Individual.

CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
Clay County—						
111	Farmers Co-op. Creamery Co. c	Dickens.	R. E. Stone.	Dickens.	Ben Cordroy.	Dickens
112	Langdon Mut. Co-op. Cream Assn. . c	Langdon.	Martha Peterson.	Langdon.	M. C. Peterson.	Langdon
113	Royal Creamery Co. s	Royal.	J. E. McCaffrey.	Royal.	J. E. McCaffrey.	Royal
114	Spencer Dairy Produce Co. p	Spencer.	Jensen & Christensen.	Spencer.	E. Jensen.	Spencer
115	Webb Creamery Co. i	Webb.	Birdsall & Anderson.	Webb.	Harry Stow.	Webb
Clayton County—						
116	Crowa Brand Creamery Co. i	Elkader.	J. T. Leonard.	Elkader.	J. T. Leonard.	Elkader
117	Farmers Co-op. Creamery Co. c	Edgewood.	W. A. Robinson.	Edgewood.	W. H. Eischeid.	Edgewood
118	Farmers Creamery Co. c	Osterdock.	John White.	Garber.	S. R. Dotson.	Osterdock
119	Farm. & St. Olaf Co-op. C'my Co. . c	St. Olaf.	Wm. Fuhrman.	St. Olaf.	J. T. Fisher.	St. Olaf
121	Garber Farmers Co-op. Cream. Co. . c	Garber.	R. F. Smith.	Garber.	O. R. Ball.	Garber
122	Garnaville Creamery Co. s	Garnaville.	A. J. Kragel.	Garnaville.	J. N. Gilbertson.	Garnaville
123	Hatch, D. H. & Co. i	Edgewood.	A. P. Hatch.	Edgewood.	R. E. Firman.	Edgewood
124	Littleport Farm. Co-op. Creamery. c	Littleport.	G. C. Ruognitz.	Elkport.	Earl Batchelder.	Littleport
125	Millville Creamery Co. c	Millville.	H. G. Friedlein.	Turkey River.	Howard D. Ash.	Turkey River
126	Strawberry Point Far. Creamery. . c	Strawberry Point.	W. A. Carrier.	Strawberry Point.	H. C. Ladage.	Strawberry Point
127	Union Farmers Co-op. Cream. Co. . c	Monona.	C. E. Hazlett.	Monona.	P. A. Jordahl.	Monona
128	Volga Far. Co-op. Creamery Co. . . c	Volga.	A. E. Olinger.	Strawberry Point.	Fred Gernaud.	Volga
129	Northern Iowa Produce Co. s	McGregor.	C. M. Nelson.	McGregor.	H. Clough.	McGregor
130	Luana Farmers Co-op. Cream. Co. . c	Luana.	Harry Koth.	Luana.	Ben Frank.	Luana
Clinton County—						
131	Charlotte Creamery Co. s	Charlotte.	Martin Nielsen.	Charlotte.	C. Christensen.	Charlotte
132	Clinton County Central Creamery. i	DeWitt.	O. C. Capper.	DeWitt.	O. C. Capper.	DeWitt
133	Farmers Co-op. Creamery Co. c	Wheatland.	W. A. Templeton.	Wheatland.	R. E. Long.	Wheatland
134	Farmers Co-op. Creamery Co. c	Toronto.	Henry Struck.	Toronto.	R. L. Little.	Toronto
135	Swift & Co. s	Clinton.	Chicago Office.	Chicago.	Harry Ames.	Clinton
Crawford County—						
136	Nicholson Ice & Produce Co. s	Denison.	J. G. Handford.	Denison.	M. G. Hanson.	Denison
Dallas County—						
137	Farmers Co-op. Creamery Co. c	Dexter.	W. L. McMenamin.	Dexter.	W. L. McMenamin.	Dexter
Delaware County—						
138	Colesburg Co-op. Creamery Co. . . . c	Colesburg.	Robert A. Gull.	Colesburg.	A. L. Landis.	Colesburg

*Central Churning Plant.

c-Co-op.

s-Stock.

i-Individual.

CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
139	Farmers Creamery Co. s	Ryan.	Henry Brayton.	Manchester.	W. I. Dilger.	Ryan
140	Farmers Mutual Creamery Co. . . . m	Sand Springs.	John L. Batchelder.	Hopkinton.	John L. Batchelder.	Hopkinton
141	Greeley Farmers Co-op. Creamery. c	Greeley.	Chas. E. Hansen.	Greeley.	R. C. Wilson.	Greeley
142	Hazel Green Creamery Co. c	Ryan.	Daniel King.	Delhi.	Alex Graham.	Manchester
143	Hopkinton Creamery Assn. c	Hopkinton.	D. H. Johnston.	Hopkinton.	R. D. Fierstein.	Hopkinton
144	Manchester Co-op. Creamery Co. . . c	Manchester.	Elmer J. Reed.	Manchester.	Elmer J. Reed.	Manchester
145	Masonville Co-op. Creamery Co. . . c	Masonville.	J. Wellman.	Masonville.	Mark Lyden.	Masonville
146	Petersburg Farmers Creamery Co. s	Petersburg.	J. Dingbaum.	Earlville.	J. E. Taylor.	New Vienna
147	Silver Spring Creamery Co. c	Delhi.	J. W. Swinburn.	Delhi.	R. J. Saveraid.	Delhi
148	Thorpe Farmers Co-op. Creamery. . c	Thorpe.	M. E. Blair.	Manchester.	G. Stussi.	Manchester
149	Earlville Creamery i	Earlville.	Hutton & Bunning.	Earlville.	A. L. Bunning.	Earlville
Des Moines County—						
150	Burlington Creamery Co. s	Burlington.	N. J. Nelson.	Peoria, Ill.	E. H. Griffith.	Burlington
Dickinson County—						
151	Lake Park Co-op. Creamery Co. . . . c	Lake Park.	J. G. Chrysler.	Lake Park.	E. E. Starr.	Lake Park
152	Milford Far. But'r & Cheese Assn. s	Milford.	Fred W. Born.	Milford.	Fred W. Born.	Milford
153	Spirit Lake Produce Co. p	Spirit Lake.	Clark & Dean.	Spirit Lake.	V. Welter.	Spirit Lake
Dubuque County—						
154	Beatrice Creamery Co. s	Dubuque.	A. F. Ulrich.	Dubuque.	W. C. Davis.	Dubuque
155	Balltown Far. Co-op. Creamery. . . c	Balltown.	L. J. Sigwarth.	Waupeton.	Al Barker.	Waupeton
156	Cascade Co-op Creamery Co. c	Cascade.	P. J. Conlin.	Cascade.	Clarence Kolsrud.	Cascade
157	Farmers Golden Star Cream. Co. . . c	Dyersville.	Ralph Burkle.	Dyersville.	D. T. Broers.	Dyersville
158	Globe Creamery Co. c	Luxemburg.	John Langel.	New Vienna.	J. P. Crippen.	New Vienna
159	Hague Creamery. i	Zwingle.	H. S. Hague.	Zwingle.	H. S. Hague.	Zwingle
160	Hawkeye Farmers Creamery Co. . . s	Farley.	C. B. Hanna.	Epworth.	T. E. Landis.	Farley
161	Hickory Valley Creamery Co. . . . c	Dyersville.	Frank Osterhaus.	Farley.	J. J. Crippes.	Farley
162	Holy Cross Creamery Co. c	Holy Cross.	T. J. Maiers.	New Vienna.	John Dawson.	N. Buena Vista
163	Iowa Dairy Co. s	Dubuque.	A. Fleutsch.	Dubuque.	H. Williamson.	Dubuque
164	New Vienna Central Creamery. . . s	New Vienna.	H. F. Smith.	New Vienna.	M. O. Buroker.	New Vienna
165	Sherrill Mut. Co-op. Creamery. . . c	Sherrill.	J. C. Boleyn.	Dubuque.	Fred Koeller.	Spechts Ferry
166	Swift & Co. s	Dubuque.	Chicago Office.	Chicago.	C. D. Robbins.	Dubuque
167	Worthington Far. Creamery Co. . . . c	Worthington.	W. D. White.	Worthington.	C. N. Beahler.	Worthington
Emmet County—						
168	Farmers Creamery Co. c	Wallingford.	O. O. Refrell.	Wallingford.	Wm. Helgason.	Wallingford

*Central Churning Plant.

c-Co-op.

s-Stock.

i-Individual.

CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
169	Ringsted Co-op. Creamery Co.	Ringsted	S. C. Hoiem	Ringsted	J. C. Jensen	Ringsted
Fayette County—						
170	Alpha Farm. Co-op Cream. Assn.	Alpha	A. A. Belknap	Alpha	W. E. Rizer	Alpha
171	Center Valley Creamery Co.	Sumner	R. O. Dietel	Sumner	Ted Slack	Sumner
172	Clermont Valley Creamery Co.	Clermont	O. A. Olson	Clermont	Amon Erickson	Clermont
173	Elgin Farmers Dairy Co.	Elgin	M. Luchsinger	Elgin	Ed Hanson	Elgin
174	Farmers Co-op. Creamery Co.	St. Lucas	G. H. Hackman	St. Lucas	J. T. Mogle	St. Lucas
175	Fayette Mut. Creamery Assn.	Fayette	Pete E. Jubb	Fayette	C. H. Finch	Fayette
176	German Creamery Co.	Westgate	W. H. Buhrou	Westgate	E. H. Rohrsen	Westgate
177	Harlan Far. Mut. Co-op. Cream.	Maynard	J. C. Lewis	Maynard	Frank Bowdish	Maynard
178	Hawkeye Creamery Co.	Hawkeye	H. F. Hauth	Hawkeye	E. B. Olds	Hawkeye
179	Oran Creamery Co.	Oran	J. N. Getz	Oran	B. F. Bentley	Oran
180	Oelwein Farmers Creamery	Oelwein	F. M. Briggs	Oelwein	G. A. Hanson	Oelwein
181	Richfield Creamery Co.	Sumner	Alfred Morf	Sumner	John Zbornick	Sumner
182	Riverside Creamery Co.	Wadena	Wm. McGuiness	Wadena	Wm. McGuiness	Wadena
183	Westgate Co-op. Creamery Co.	Westgate	F. S. Coleman	Westgate	L. C. Barnes	Westgate
184	West Union Far. Creamery	West Union	W. E. Halsted	West Union	George Hauer	West Union
185	Waucoma Farmers Co-op. Cream.	Waucoma	B. I. Nulty	Waucoma	T. F. Shipton	Waucoma
186	Farmers Creamery Co.	Arlington	Floyd Finney	Arlington	E. E. Mittlestadt	Arlington
187	Scott Far. Mut. Co-op. Cream. Co.	Stanley 5 1/2 miles N. E.	L. G. Gleim	Arlington	Ralph Porter	Stanley
Floyd County—						
188	Charles City Creamery Co.	Charles City	M. H. Nelson	Charles City	John Lundering	Charles City
189	Niles Creamery Co.	Colwell	Frank Brunner	Colwell	Chas. Jenath	Colwell
190	Nora Springs Cream. & Prod. Co.	Nora Springs	W. F. Miner	Nora Springs	C. Erickson	Nora Springs
191	Ridgeway Creamery	Ridgeway	O. C. Fosse	Ridgeway	F. Sanderson	Ridgeway
192	Rockford Co-op. Dairy Assn.	Rockford	J. E. Herzog	Rockford	J. E. Herzog	Rockford
Franklin County—						
193	Farmers Co-op. Creamery Co.	Popejoy	E. E. Akers	Dows	H. J. Binger	Popejoy
194	Farmers Creamery Co.	Dows	C. A. Nicholson	Dows	A. O. Larson	Dows
195	Farmers Creamery Co.	Alexander	W. F. Dunn	Alexander	Ellery Baxter	Alexander
196	Hamilton Co-op. Creamery Co.	Coulter	Geo. Dohmann	Hampton	L. Anderson	Coulter
197	Latimer Co-op. Creamery Co.	Latimer	O. Johnson	Latimer	R. Nelson	Latimer
198	Swift & Co.	Hampton	Chicago Office	Chicago	F. C. Koening	Hampton

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CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
Greene County—						
199	Jefferson Creamery Co.	Jefferson	Brunner Bros.	Jefferson	Brunner Bros.	Jefferson
Grundy County—						
200	Beaver Center Creamery Co.	Stout	A. J. Meyer	Stout	F. E. Dilger	Stout
201	Buck Grove Creamery	Parkersburg	H. G. Kramer	Aplington	H. G. Kramer	Aplington
202	Fern Creamery Co.	Parkersburg	W. H. Henning	Parkersburg	B. T. Stoiles	Stout
Guthrie County—						
203	Casey Creamery Co.	Casey	J. H. Smith	Casey	F. L. Laughlin	Casey
204	Farmers Creamery & Produce Co.	Guthrie Center	L. H. Shippy	Guthrie Center	M. J. VanDorn	Guthrie Center
205	Panora Co-op. Creamery Co.	Panora	F. F. Wilcox	Panora	F. F. Wilcox	Panora
Hamilton County—						
206	Ellingson, Mathre & Co.	Webster City	Ellingson, Mathre & Co.	Webster City	E. L. Hall	Webster City
207	Randall Farmers Creamery Co.	Randall	L. E. Nelson	Randall	L. E. Nelson	Randall
208	Thompson Creamery Co.	Jewell	Fred Thompson	Jewell	Fred Thompson	Jewell
209	Webster City Dairy	Webster City	W. R. Lloyd	Webster City	W. R. Lloyd	Webster City
Hancock County—						
210	Britt Creamery Assn.	Britt	H. A. Schaper	Britt	G. G. Kolthoff	Britt
211	Crystal Creamery Co.	Crystal Lake	H. P. Stahr	Crystal Lake	R. O. Rasmussen	Crystal Lake
212	Farmers Co-op. Creamery	Garner	J. Klesel	Garner	C. R. Conway	Garner
213	Kanawha Co-op. Creamery Co.	Kanawha	Henry Africa	Kanawha	Ben Swanson	Kanawha
214	Klemme Co-op. Creamery Co.	Klemme	V. Josten	Klemme	A. D. Gimer	Klemme
215	Woden Farmers Creamery Co.	Woden	Adolf Orthel	Woden	Geo. Breen	Woden
Hardin County—						
216	Alden Co-op. Creamery Co.	Alden	E. C. Edwards	Alden	Floyd M. Kidd	Alden
217	Ackley Creamery Co.	Ackley	R. R. Hadley	Ackley	A. Gudvangen	Ackley
218	Cleves Creamery Co.	Cleves	W. F. Sharp	Ackley	J. F. Sharp	Cleves
219	Concord & Scott	Radcliffe	D. H. Bobb	Radcliffe	D. H. Bobb	Radcliffe
220	Eldora Creamery So.	Eldora	Herbert Soballe	Eldora	T. Andreasen	Eldora
221	Farmers Co-op. Creamery Co.	Owasa	R. H. Johns	Owasa	R. H. Johns	Owasa
222	Hubbard Creamery Co.	Hubbard	H. K. Granner	Hubbard	Fred Herzog	Hubbard
223	Steamboat Rock Creamery	Steamboat Rock	A. M. Whitney	Steamboat Rock	A. M. Whitney	Steamboat Rock
224	Swift & Co.	Iowa Falls	Chicago Office	Chicago	J. D. Fiete	Iowa Falls

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CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
225	Iowa Falls Creamery	Iowa Falls	G. H. Fredericks	Iowa Falls	J. R. Jones	Iowa Falls
226	Henry County— Pleasant Dell Dairy	Mt. Pleasant	R. C. Campbell	Mt. Pleasant	R. C. Campbell	Mt. Pleasant
227	Howard County— Cresco Creamery Co.	Cresco	Palmer & Nelson	Cresco	L. A. Palmer	Cresco
228	Farmers Co-op. Creamery Assn.	Chester	John M. Hughes	Chester	C. C. Plummer	Chester
229	Farmers Co-op. Creamery	Protivin	W. C. Dostal	Protivin	C. W. Chyle	Protivin
230	Farmers Creamery Co.	Cresco	J. J. House	Cresco	J. Heyberger	Cresco
231	Maple Leaf Creamery Co.	Elma	D. Lane	Elma	N. W. Frae	Elma
232	Saratoga Co-op. Creamery Assn.	Saratoga	John Zidicky	Riceville	Hans Witzke	Saratoga
233	Schley Creamery	Schley	J. V. Ptacek	Cresco, R. S.	L. C. Yeoman	Cresco, R. S.
234	Whelan Product Co.	Elma	J. P. Whelan	Elma	Earl Kelly	Elma
235	Elma Co-op. Creamery Co.	Elma	Mary T. Dunton	Elma	Clyde Cumings	Elma
236	Humboldt County— Bode Creamery Assn.	Bode	H. C. Olson	Bode	I. J. Shursen	Bode
237	Humboldt Creamery Co., Inc.	Humboldt	W. F. Priebe, Jr.	Chicago	Watson Shick	Humboldt
238	Thor Creamery Co.	Thor	J. E. Lonning	Thor	B. E. Lonning	Thor
239	Waconsta Creamery Co.	Ottosen	C. O. Lomen	Ottosen	L. J. Bremson	Ottosen
240	Ida County— Holstein Co-op. Creamery Co.	Holstein	G. D. Wehde	Holstein	J. D. Suiter	Holstein
241	Iowa County— Victor Co-op. Creamery Co.	Victor	W. E. Coots	Victor	Wm. Boyle	Victor
242	Marengo Creamery Co.	Marengo	Ady & Sullivan	Marengo	A. V. Ady	Marengo
243	York Creamery Co.	Williamsburg	H. W. Hudepohl	South Amana	M. Greenfield	Williamsburg
244	Jackson County— Bellevue Co-op. Creamery	Bellevue	H. B. Pogeman	Bellevue	C. W. Rouse	Bellevue
245	Farmers Union Co-op. Creamery	Maquoketa	M. W. Joiner	Maquoketa	H. C. Thompson	Maquoketa
246	Hanson Produce Co.	Maquoketa	L. B. Hinman	Maquoketa	G. S. Wing	Maquoketa
247	Monmouth Mutual Creamery Co.	Monmouth	F. A. Coffin	Monmouth	Geo. Denton	Monmouth
248	Preston Creamery Assn.	Preston	Max Ehler	Preston	A. J. Spohn	Preston
249	St. Donatus Creamery Co.	St. Donatus	J. L. Henricy	St. Donatus	G. P. Byrne	St. Donatus
250	Springbrook Creamery	Preston	A. J. Negus	Preston	Ed Rubsaman	Preston

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CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
251	Sterling Creamery	Lamotte	Hoffman Creamery	Lamotte	J. M. Hoffman	Lamotte
252	Jasper County— Dairyland Dairy Co.	Newton	G. M. Lambert	Newton	W. Anderson	Newton
253	Johnson County— Iowa City Produce Co.	Iowa City	A. J. Feney	Iowa City	Jos. Klemmer	Iowa City
254	Sidwell's Dairy	Iowa City	A. B. Sidwell	Iowa City	W. E. Hunter	Iowa City
255	Jones County— Amber Co-op. Creamery	Amber	A. B. Daly	Amber	Orville Bailey	Amber
256	Anamosa Farmers Creamery Co.	Anamosa	Henry Morey	Anamosa	C. A. Miller	Anamosa
257	Farmers Creamery Co.	Center Jct.	C. A. Burmeister	Center Junction	Harry Johnson	Center Junction
258	Farmers Mutual Creamery Co.	Monticello	O. W. Brazelton	Monticello	Fred Lehman	Monticello
259	Iowa Creamery Co.	Oxford Jct.	L. F. Sutton	Clinton	Herman Schneider	Oxford Junction
260	Langworthy Mutual Creamery Co.	Langworthy	C. W. Siebels	Langworthy	C. W. Siebels	Langworthy
261	Keokuk County— Griffin Creamery & Produce Co.	Sigourney	C. A. & G. Griffin	Sigourney	S. Clary	Sigourney
262	Reisman Produce Co.	What Cheer	S. E. Reisman	What Cheer	S. E. Reisman	What Cheer
263	Kossuth County— Algona Co-op. Creamery Co.	Algona	D. A. Wallace	Algona	M. P. Christiansen	Algona
264	Bancroft Co-op. Creamery Co.	Bancroft	F. R. Fangman	Bancroft	H. E. Thies	Bancroft
265	Burt Co-op. Creamery Co.	Burt	M. E. Warner	Burt	Paul Macauley	Burt
266	Fenton Creamery Co.	Fenton	C. F. C. Laage	Fenton	Fred Rucker	Fenton
267	Germania Co-op. Creamery Co.	Lakota	J. E. Smith	Lakota	H. W. Jarchow	Lakota
268	Hobart Co-op. Creamery Co.	Hobart	A. W. Isaacson	Hobart	Joel Blomster	Hobart
269	Ledyard Co-op. Creamery Assn.	Ledyard	P. A. Wessman	Ledyard	H. M. Dyer	Ledyard
270	Lone Rock Creamery Co.	Lone Rock	W. J. Christensen	Lone Rock	G. C. Boettcher	Lone Rock
271	Lotts Creek Co-op. Creamery Co.	Lone Rock	O. Wichtendahl	Lone Rock	Harold Smith	Lone Rock
272	Swea City Co-op. Creamery Co.	Swea City	S. V. Carter	Swea City	J. C. Sorensen	Swea City
273	Titonka Co-op. Creamery Co.	Titonka	J. C. Neville	Titonka	John Pouelson	Titonka
274	Whittemore Farmers Cream. Co.	Whittemore	M. W. Fandel	Whittemore	Albert Fenger	Whittemore
275	Lee County— Fort Madison Creamery Co.	Fort Madison	B. K. Peter	Fort Madison	J. W. Peter	Fort Madison
276	Swift & Co.	Keokuk	Chicago Office	Chicago	Robert Merritt	Keokuk

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CREAMERY LIST—Continued

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Linn County—						
277	Blue Valley Creamery Co.	Cedar Rapids	G. T. Guthrie	Chicago	Randers Strand	Cedar Rapids
278	Central City Butter & Ice Cr'm Co.	Central City	L. J. Reed	Central City	Paul Wright	Central City
279	Coggon Creamery	Coggon	M. I. Ware	Coggon	L. C. Popeuhagen	Coggon
280	Springville Creamery Co.	Springville	Earl George	Springville	Chas. Huettner	Springville
281	Valley Farm Creamery Co.	Central City	E. E. Henderson	Cedar Rapids	W. A. Stone	Central City
282	Walker Creamery	Walker	Palmer & Gwynne	Oedar Rapids	Emil Hoereth	Walker
Lucas County—						
283	Douglas Ice Cream Co.	Chariton	L. P. Douglas	Chariton	L. R. Rolison	Chariton
Lyon County—						
284	Farmers Creamery Co.	Inwood	A. W. Willander	Inwood	A. W. Willander	Inwood
285	George Creamery Co.	George	C. A. Rasmussen	George	Ed Wilson	George
286	Rock Rapids Creamery Co.	Rock Rapids	W. J. Purchas	Rock Rapids	A. E. Robertson	Rock Rapids
Mahaska County—						
287	Gasper Creamery Co.	Oskaloosa	M. & J. Gasperi	Oskaloosa	M. Gasperi	Oskaloosa
Marion County—						
288	Pella Creamery	Pella	Ben Kuyk	Pella	H. F. Lenocker	Pella
Marshall County—						
289	Jackson Dairy Co.	Marshalltown	Jackson Dairy Co.	Marshalltown	Geo. L. Richardson	Marshalltown
290	Minerva Val'y Co-op Cream. Assn.	Clemons	C. C. Schindele	Clemons	W. P. Hughes	Clemons
291	State Center Far. Cream. Assn.	State Center	Chris Jessen	State Center	Chris Jessen	State Center
Mills County—						
292	Glenwood Creamery Co.	Glenwood	C. M. Gray	Glenwood	C. M. Gray	Glenwood
293	Malvern Cold Storage Co.	Malvern	Bruce Boehner	Malvern	John Goodman	Malvern
Mitchell County—						
294	Little Cedar Creamery Co.	Little Cedar	Hans Larson	Little Cedar	Hans Larson	Little Cedar
295	New Haven Creamery Co.	Osage	Julius Brunner	Osage, R. 4	Julius Brunner	Osage, R. 4
296	Osage Creamery Co.	Osage	John Torsleff	Osage	Geo. Burdett	Osage
297	Riceville Creamery Co.	Riceville	W. A. Lutz	Osage	W. A. Lutz	Riceville
298	Rock Creek Co-op. Cream. Assn.	Osage	H. K. Klimesrud	Nora Springs	M. Mikkalson	Osage
299	Staceyville Creamery Co.	Staceyville	W. A. Schrandt	Staceyville	A. F. Matson	Staceyville

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CREAMERY LIST—Continued

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300	St. Ansgar Creamery Co.	St. Ansgar	M. A. Tollefson	St. Ansgar	Wm. Matters	St. Ansgar
Monroe County—						
301	Kreger Creamery Co.	Albia	Kreger & Kreger	Albia	M. S. Flyktjier	Albia
Montgomery County—						
302	Lee Blue Creamery Co.	Red Oak	Lee Blue	Red Oak	W. E. Coonley	Red Oak
303	Tyler Bros. Creamery Co.	Villisca	R. F. Tyler	Villisca	R. F. Tyler	Villisca
Muscatine County—						
304	West Liberty Co-op. Creamery Co.	West Liberty	Emmett Buckman	West Liberty	W. H. Sampson	West Liberty
O'Brien County—						
305	Archer Creamery	Archer	B. G. Rensick	Archer	B. G. Rensick	Archer
306	Hartley Creamery Co.	Hartley	A. Togge	Hartley	H. R. Schultz	Hartley
307	Sutherland Creamery Co.	Sutherland	A. Christensen	Sutherland	C. W. Green	Sutherland
308	Sheldon Co-op. Creamery	Sheldon	L. E. Woodiwiss	Sheldon	L. E. Woodiwiss	Sheldon
Osceola County—						
309	Ashton Creamery	Ashton	E. den Herder	Ashton	E. den Herder	Ashton
310	Johannes Produce Co.	Sibley	J. F. Johannes	Sibley	J. F. Johannes	Sibley
311	Melvin Creamery Co.	Melvin	Lyle Daggett	Melvin	Fred Petrick	Melvin
Page County—						
312	Swift & Co.	Clarinda	Chicago Office	Chicago	E. Gustafson	Clarinda
Palo Alto County—						
313	Emmetsburg Creamery Co.	Emmetsburg	L. Striehmer	Emmetsburg	W. A. Thayer	Emmetsburg
314	Farmers Creamery Co.	Graettinger	J. Anderson	Graettinger	Henry Hansen	Graettinger
315	Farmers Co-op. Creamery Co.	Ruthven	M. P. Junker	Ruthven	M. P. Junker	Ruthven
316	Lost Island Creamery	Graettinger	A. C. Christiansen	Graettinger	A. P. Anderson	Graettinger
317	Mallard Butter & Cheese Assn.	Mallard	T. C. Truvig	Mallard	Roht. Bliss	Mallard
318	Silver Lake Creamery Co.	Ayrshire	C. G. Nelson	Ayrshire	C. G. Nelson	Ayrshire
319	West Bend Co-op. Creamery Co.	West Bend	A. L. Frye	West Bend	O. W. Dubbs	West Bend
Plymouth County—						
320	LeMars Creamery Co.	LeMars	Purity Ice Cream Co.	Sioux City	F. B. Toner	LeMars

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CREAMERY LIST—Continued

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Pocahontas County—						
321	Palmer Creamery Co.	Palmer	E. V. Johnson	Palmer	V. A. Johnson	Palmer
322	Pocahontas Creamery Co.	Pocahontas	Gust Wehler	Pocahontas	Gust Wehler	Pocahontas
323	Laurens Creamery	Laurens	J. H. Hinn	Laurens	F. W. Johnson	Laurens
Polk County—						
324	Beatrice Creamery Co.	Des Moines	H. R. Wright	Des Moines	S. R. Pemberton	Des Moines
325	Des Moines Creamery Co.	Des Moines	J. F. Dawson	Des Moines	A. L. Larson	Des Moines
326	Farmers Produce Co.	Des Moines	L. O. Loizeaux	Des Moines	J. F. Petersen	Des Moines
327	Swift & Co.	Des Moines	Chicago Office	Chicago	J. W. Cotter	Des Moines
Pottawattamie County—						
328	Bloomer Cold Storage Co.	Council Bluffs	Fred E. Hurd	Council Bluffs	G. L. Superman	Council Bluffs
329	Superior Creamery Co.	Council Bluffs	H. O. Perner	Council Bluffs	W. C. Miller	Council Bluffs
Poweshiek County—						
330	Brooklyn Creamery Co.	Brooklyn	E. C. Kamoss	Brooklyn	E. C. Kamoss	Brooklyn
331	Maplehurst Dairy Co., Plant	Grinnell	E. G. Squire	Grinnell	G. C. Hussong	Grinnell
332	Grinnell Creamery & Cold Stor.	Grinnell	J. W. Fowler	Grinnell	J. W. Fowler	Grinnell
Sac County—						
333	Sac City Creamery Co.	Sac City	H. F. Lange	Sac City	A. G. Redman	Sac City
Scott County—						
334	Bell-Jones Co.	Davenport	J. A. Bell	Davenport	Geo. Ferris	Davenport
335	Pioneer Creamery Co.	Davenport	E. E. Amos	Galesburg, Ill.	L. Rasmussen	Moline, Ill.
336	Tri-City Butter Co.	Davenport	P. J. Lyngholm	Davenport	A. C. Norskow	Davenport
Shelby County—						
337	Buck Valley Creamery Co.	Kimballton	H. H. Jorgensen	Harlan, R. 5	C. W. Andersen	Harlan, R. 5
338	Harlan Ice & Cold Storage Co.	Harlan	M. Aukerstjerne	Harlan	M. Aukerstjerne	Harlan
Sioux County—						
339	Alton Creamery Co.	Alton	C. J. Miller	Alton	H. E. Collins	Alton
340	Farmers Co-op. Creamery Co.	Boydton	L. C. H. Vogts	George	H. J. Wargowsky	Boydton
341	Farmers Mutual Creamery	Hospers	H. W. Grootenhues	Hospers	H. F. Summers	Hospers
342	Farmers Co-op. Creamery Assn.	Hull	J. W. Smit	Hull, R. 2	A. M. Hein	Hull
343	Farmers Mutual Co-op. Creamery	Orange City	J. A. Ver Steeg	Orange City	F. J. Havens	Orange City

*Central Churning Plant. c-Co-op. s-Stock. i-Individual.

CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
344	Farmers Mutual Co-op. Creamery	Sioux Center	A. Yonker	Sioux Center	A. Yonker	Sioux Center
345	Hawarden Creamery	Hawarden	Emil Zarr	Hawarden	Emil Zarr	Hawarden
346	Rock Valley Creamery Co.	Rock Valley	E. E. Corwin	Rock Valley	A. T. Johnson	Rock Valley
Story County—						
347	Dairy Dept. Iowa State College	Ames	Prof. M. Mortensen	Ames	F. C. Hinze	Ames
348	Farmers Co-op. Creamery Co.	Slater	J. H. Wald	Slater	C. Clark	Slater
349	Huxley Far. Co-op. Creamery Co.	Huxley	S. Maland	Huxley	O. A. Jensen	Huxley
350	Roland Farmers Creamery Co.	Roland	C. E. Rod	Roland	L. H. Larson	Roland
351	Story City Creamery Co.	Story City	Fred Miller	Story City	Fred Miller	Story City
352	Zearing Creamery Co.	Zearing	C. P. Bean	Zearing	C. M. Peterson	Zearing
353	Nevada Ice Cream Factory	Nevada	O. H. Case	Nevada	C. J. Wolle	Nevada
Tama County—						
354	Gladbrook Creamery Co.	Gladbrook	G. W. DeWolf	Reinbeck	Albert McCardle	Gladbrook
355	Neil Creamery Co.	Tama	R. G. McFarland	Tama	C. Christensen	Tama
356	Traer Creamery Co.	Traer	John Erickson	Traer	E. Erickson	Traer
Taylor County—						
357	Bedford Creamery Co.	Bedford	Frank Dunning	Bedford	Leslie Klopp	Bedford
Union County—						
358	Afton Creamery Co.	Afton	U. O. Williams	Afton	U. O. Williams	Afton
359	Swift & Co.	Creston	Chicago Office	Chicago	E. L. Woodward	Creston
Van Buren County—						
360	Blue Grass Creamery Co.	Stockport	S. C. Morris	Stockport	John Dahm	Stockport
Wapello County—						
361	Buxton Creamery Co.	Ottumwa	F. G. Buxton	Ottumwa	P. N. Keltner	Ottumwa
362	Swift & Co.	Ottumwa	Chicago Office	Chicago	Louis Neilson	Ottumwa
363	Yorkshire Creamery Co.	Ottumwa	R. N. Morrell	Ottumwa	R. P. Burns	Ottumwa
Washington County—						
364	Reistter, W. S. & Sons	Washington	W. S. Reister & Sons	Washington	W. J. Hays	Washington
Wayne County—						
365	Humphrey, J. L. Jr.	Humeston	J. L. Humphrey Jr.	Humeston	M. W. Bixby	Humeston

*Central Churning Plant. c-Co-op. s-Stock. i-Individual.

CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
Webster County—						
366	Fort Dodge Creamery	Ft. Dodge	A. B. Saylor	Ft. Dodge	B. Jensen	Ft. Dodge
367	Gowrie Co-op. Creamery Co.	Gowrie	J. E. T. Johnson	Gowrie	P. T. Christenson	Gowrie
Winneshiek County—						
368	Buffalo Center Co-op. Cream. Co.	Buffalo Center	B. B. Brukus	Buffalo Center	H. P. Engen	Buffalo Center
369	Forest City Co-op. Crem. Assn.	Forest City	J. E. Read	Forest City	J. B. Frisbie	Forest City
370	Lake Mills Creamery Co.	Lake Mills	O. T. Groe	Lake Mills	C. H. Hovland	Lake Mills
371	Leland Co-op. Creamery	Leland	O. Michaelson	Leland	S. O. Rusley	Leland
372	Lincoln Co-op. Creamery	Rake	A. A. Sheldon	Rake	L. K. Bjerke	Rake
373	Scarville Creamery Assn.	Scarville	J. E. Hermanson	Scarville	S. Kristensen	Scarville
374	Vinje Creamery Assn.	Scarville	Ole Strom	Scarville	Albert Knudson	Scarville
375	Thompson Co-op. Creamery Co.	Thompson	M. M. Tapager	Thompson	Bennett Lovik	Thompson
Winneshiek County—						
376	Burr Oak Co-op. Creamery Co.	Burr Oak	A. C. Erickson	Burr Oak	Floyd Ferris	Burr Oak
377	Calmar Creamery Co.	Calmar	A. A. Olson	Calmar	F. D. Warner	Calmar
378	Decorah Farmers Ice Cave Cream.	Decorah	N. O. Bendickson	Decorah	N. O. Bendickson	Decorah
379	Festina Co-op. Creamery Co.	Festina	H. J. Schupanz	Festina	Mike Hauer	Festina
380	Highland Creamery Co.	Highlandville	Bidne & Akre	Highlandville	P. J. Bidne	Highlandville
381	Lincoln Creamery Co.	Ridgeway	O. O. Rue	Ridgeway	J. H. Bakken	Ridgeway
382	Nordness Creamery Co.	Decorah	Wm. Linnevold	Decorah, R. 1	V. V. Johnson	Decorah, R. 1
383	Pleasant Co-op. Creamery Co.	Decorah	G. A. Lundy	Decorah, R. 7	Albert Kraby	Decorah, R. 7
384	Silver Spring Creamery Co.	Ossian	W. R. Cornell	Ossian	O. O. Hauge	Ossian
Woodbury County—						
385	Artie Cream Co.	Sioux City	S. S. Hamilton	Sioux City	Fred Mason	Sioux City
386	Blue Valley Creamery Co.	Sioux City	G. T. Guthrie	Chicago, Ill.	C. L. Smith	Sioux City
387	Hanford Produce Co.	Sioux City	J. H. Whittemore	Sioux City	U. O. Wheelock	Sioux City
Worth County—						
388	Farmers Butter & Cheese Assn.	Northwood	M. D. Johnson	Northwood	L. H. Beach	Northwood
389	Farmers Creamery Co.	Grafton	E. M. Glassel	Grafton	P. Refsdahl	Grafton
390	Farmers Creamery	Manly	C. J. Hill	Manly	Ray Trebil	Manly
391	Far. Co-op. Cr'my Assn. of Tenold	Joice	O. K. Storre	Kensett	H. C. Stendal	Northwood
392	Fertile Co-op. Dairy Co.	Fertile	J. A. Johnson	Fertile	J. A. Johnson	Fertile
393	Hanlontown Creamery Co.	Hanlontown	E. A. Gudvangen	Hanlontown	E. A. Gudvangen	Hanlontown
394	Hartland Creamery Co.	Northwood	H. L. Boe	Northwood	N. O. Dahlien	Northwood

*Central Churning Plant. c-Co-op. s-Stock. I-Individual.

DAIRY AND FOOD DEPARTMENT

CREAMERY LIST—Continued

Number	NAME OF CREAMERY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Buttermaker	P. O. Address of Buttermaker
395	Joice Creamery Co.	Joice	L. L. Skutle	Joice	Oliver Koale	Joice
396	Kensett Creamery Co.	Kensett	Geo. Haberman	Kensett	Geo. Haberman	Kensett
Wright County—						
397	Farmers Co-op. Creamery Co.	Belmond	G. F. Euler	Belmond	C. H. Jennings	Belmond
398	Goldfield Co-op. Creamery Co.	Goldfield	John Roberts	Goldfield	John Roberts	Goldfield
399	Clarion Creamery Co.	Clarion	M. Andersen	Clarion	C. W. Larson	Clarion

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REPORT OF COMMISSIONER

CHEESE FACTORY LIST

Number	NAME OF FACTORY	Located at or Near	Name of Proprietor, Secretary or Manager	P. O. Address of Proprietor, Secretary or Manager	Name of Cheesemaker	P. O. Address of Cheesemaker
Adams County—						
1	Nodaway Factory	Nodaway	F. M. Eastlack	Nodaway	N. B. Eastlack	Nodaway
Allamakee County—						
2	Cherry Mound Factory	Waukon, S. E.	D. J. Murphy	Waukon	F. W. Hatch	Harpers Ferry
3	Dorchester Factory	Waukon, N. W.	D. J. Murphy	Waukon	P. A. Johnson	Dorchester
4	English Bend Factory	Waukon, N.	D. J. Murphy	Waukon	H. J. Murphy	Dorchester
5	Forest Mills Factory	Waukon, S.	D. J. Murphy	Waukon	H. E. Austin	Postville
6	Hanover Factory No. 1	Waukon, N.	D. J. Murphy	Waukon	Frank Jones	Dorchester
7	Hanover Factory No. 2	Waukon, N.	D. J. Murphy	Waukon	F. W. Hendrick	Waukon, R. R.
8	Rossville Factory	Waukon, S.	D. J. Murphy	Waukon	A. S. Klemme	Waukon, R. R.
9	Volney Factory	Waukon, S.	D. J. Murphy	Waukon	R. Gerber	Monona, R. R.
Bremer County—						
10	Janesville Co-op. Factory	Janesville	R. H. Allen	Janesville	Chas. Bye	Janesville
Clayton County—						
11	Elkport Cheese & Cream Co.	Elkport	Geo. L. Gifford	Elkport	O. Steinhart	Elkport
12	Farmersburg Dairy & Prod. Co.	Farmersburg	Otto Fuelling	Farmersburg	O. Brogstadt	Farmersburg
Howard County—						
13	Jamestown Factory	Riceville	John Stettler	Riceville	John Stettler	Riceville
Humboldt County—						
14	Elma Factory	Renwick, W.	W. Keller	Renwick	A. Keller	Renwick
15	Pioneer Factory	Renwick, N.	W. Keller	Renwick	W. Keller	Renwick
Warren County—						
16	World Cheese Co.	Norwalk	L. Cristiani	Norwalk	J. Mancryo	Des Moines
Winneshiek County—						
17	Frankville Factory	Waukon, S. W.	D. J. Murphy	Waukon	M. Gotthadr.	Postville

*Central Churning Plant. c-Co-op. s-Stock. i-Individual.

DAIRY COMMISSIONERS

NAME	County From Which Chosen	Date of First Appointment	Years Served
Henry D. Sherman	Jones	May 1, 1886	1886—1890
Augustus C. Tupper	Mitchell	May 1, 1890	1890—1894
William K. Boardman	Story	May 1, 1894	1894—1898
*Levi S. Gates	Delaware	May 1, 1898	1898—1898
Byron P. Norton	Howard	Nov. 8, 1898	1898—1902
Herbert R. Wright	Polk	May 1, 1902	1902—1906

* Died October 11th, 1918. Byron P. Norton appointed to fill vacancy.

Note: Name of Office changed by Act of Thirty-first General Assembly to Dairy and Food Commissioner.

DAIRY AND FOOD COMMISSIONERS

Herbert R. Wright	Polk	July 1, 1906	1906—1910
William B. Barney	Franklin	May 1, 1910	1910—