REPORT OF C. E. LEE, ASSISTANT DAIRY AND FOOD
COMMISSIONER AND DAIRY SPECIALIST

HONORABLE GEORGE J. WEIGLE,
Dairy and Food Commissioner.

SIR: I hereby submit a report of the work done for the year ending
June 30, 1917. I have had charge of the work of licensing operators
of butter and cheese factories and butter and cheese makers, and the
tabulation of dairy statistics for the year 1915, published in February,
1917.

Personally I assisted one of the inspectors in market milk inspec-
tion in three of the large places. In each of the cities where market
milk inspection work was done, conferences were held with the local
board of health, and in two cities, with the members of the city coun-
cil. One month after the investigation of the milk supply was com-
pleted, the council of one of the cities requested that an address be
delivered before that body that they might have first hand informa-
tion of actual conditions found. Suggestions were made to them as to
certain changes in the method of supervising the milk supply and
inspecting the dairy farms. The local newspapers gave splendid co-
operation in all of this work. In another city, at the request of the
Women’s Federation, I made a study of the source of the milk supply.
At the close of that work a conference was held with the health offi-
cials, city council, officers of the Women’s Federation and all of the
local milk producers except one. This meeting was the means of
bringing about a closer cooperation between the producers, consumers
and city officials. One of the dairymen remarked: “I now under-
stand the dairy laws, the city ordinance relating to the milk supply,
and it will not be a hardship to comply.” During “Baby Week” I
presented market milk problems before meetings held in two cities,
and at two other centers I presented the same material before the
Woman’s Clubs.

Much good has been accomplished; it has been favorably commented
on by producers and consumers alike and they welcome more frequent
inspection. The field is here; a cooperative spirit exists and the op-
portunity is offered to show to those who are interested in market
milk problems that the work of the department is constructive and not
destructive. More frequent inspection of market milk should be made.
As a class the producers of market milk are fair-minded, but in many
cases they fail to do their best because they are not in a position
to see their own faults and to make necessary changes unless they
are pointed out to them by inspection. The work of the department
should be enlarged so as to include bacteriological examination of milk sold in the cities.

Having charge of the work relating to inspection of butter and cheese factories, condensories, milk plants and dairy farms, a great deal of my time has been devoted to this work. All reports of such inspections have been closely studied by me. It has necessitated the reinspection by me of factories and dairies, located in various parts of the state, as well as conferences with some of the men in their respective territories. At the time of the epidemic at Galesville last March I made a thorough inspection of the source of the milk supply of that city. This work was done during the same week that the representatives of the State Board of Health conducted its investigation.

During the year I examined 1271 butter factory and 2944 cheese factory inspection reports which were filed at the office. I also examined 3281 dairy inspection reports.

There are a few operators of butter factories who do not seem to watch closely the water, fat and salt content of their product. This results in a finished butter that does not contain the required amount of butter fat. To check this evil I have collected several samples and submitted them to the chemist. Two manufacturers have been prosecuted, and one case is still pending.

There is an increasing demand upon this department for speakers at various local conventions, butter and cheese makers’ and operators’ meetings and various other community gatherings. The value of this work cannot be estimated. By this means the work of the department has been explained to a large number of dairymen and consumers of dairy products otherwise not reached. The cost of this work has been nominal, expenses being paid by those in charge of the various meetings addressed. I personally addressed thirty-five such meetings.

Many requests are received from various sources for assistance to determine if the testing of milk and cream for butter fat at butter and cheese factories is correctly done. The demand for this kind of work has increased, due to the greater value of dairy products as compared with former years, increased activity in cow testing association work and factory operators and dairymen watching details more closely. This work on the part of the inspectors has revealed the fact that very often complaints are made on suspicion only and not based upon facts. Operators of cheese factories very often have suspected low testing or possibly watered milk being delivered to their plant when a low yield was the only determining factor, the milk never having been tested for its fat content. It has also been found that there are a number of men operating the Babcock test who did not fully understand its correct use. The dairy industry would be greatly benefited if the state would in some manner regulate or supervise every operation of the Babcock test.
Market Milk Inspection

At a meeting of all the inspectors, held in January, of this year, problems involved in doing effective market milk inspection were considered. Each man was to make a systematic inspection of the milk supply of the various cities and villages in his territory and to make a report of such findings to the office. All of these inspectors realized that this work must be carried on in such a manner that it would improve the future milk supply of the state. They also realized that in a number of territories, dairymen often felt that it was to their advantage to sell milk to butter, cheese and condensing plants rather than to sell it direct to city consumers or local milk plants, because the extra inducement in possibly greater returns was not sufficient.

Dairymen are expected to produce for the people of the cities their required amount of milk and cream, hence it is an industry that should receive full consideration by the leading dairymen.

The city trade, as a market for good milk and cream, should at all times offer to the dairymen inducements which are equal or better than those offered by any other market, and the consumers must be willing to pay for quality milk a price that makes it profitable to the dairymen to produce milk under the best conditions. In selling milk in cities and villages, the expense to the producers is slightly greater than when selling to butter and cheese factories.

The consumers of milk and cream may be more exacting than the operators of factories, but no more so than the standard already maintained by the leading dairymen of every community. It is not the purpose of this department or of any of the inspectors to formulate a fixed plan as to how the milk in any city shall be handled because of the numerous problems and factors involved, but there is a fixed standard relating to cleanliness and sanitation of milk offered for sale as human food.

Manner of Making Inspection

The state is divided into ten districts, each one in charge of an inspector. Since the size of territory covered by each man is determined by the number of butter and cheese factories in operation, with little reference to the number of cities and villages, certain sections of the state may have been more thoroughly covered than others in making market milk inspection. For each city visited, if milk or cream is delivered by a dealer or a dairyman, a sample of his product is bought, a sediment test is made, very often in his presence; later an examination is made of the milk as to its flavor, fat content and solids not fat, and the sample of cream is tested for its fat content. If it is found that the milk falls below the legal standard (8.5%) of solids not fat and (3%) of milk fat, and the cream falls below (18%) milk fat, a sample is submitted to the laboratory for verification. All milk plants in the cities or villages visited are inspected with a view of determining the manner in which dairy products are handled and whether or not all utensils and buildings are maintained
in a sanitary condition. The general condition of the milk as it is delivered is also under inspection.

The farms owned by the dairymen who sell their product direct to the consumer, as well as some of the farms where milk for the city dealers is produced, are visited and a thorough inspection of the barn is made, also of the place where the milk is bottled or stored and the manner of cleaning and storing the utensils. In a few cities a meeting of the producers and the consumers has been held for the purpose of acquainting them with conditions found, whether changes are necessary, and if so, how they should be made.

For the year ending June 30, 1917, 210 cities or villages were visited by a representative of this department. Very little time was devoted to cities where a local milk inspector is employed aside from cooperation in the inspection of the dairies. In these cities 691 samples of milk were collected from nearly as many dealers or persons selling milk. In a few cases duplicate samples were collected
from some dairies if more than one wagon was used. The average per cent of fat in the 691 samples was 3.8. Only seven samples, or 1.01% of all the samples tested contained less than three per cent fat. Two hundred ninety-five or 42.69% of all the samples contained 4.0 to 5.6% fat. The 347 samples offered for sale as cream contained an average of 24.1% of fat, with 20 or 5.76 per cent of all samples containing less than 18% of fat. It was also found that 50% of the cream samples containing less than 18% of fat were bought in one large city where the dealers obtained their supply of cream from a creamery. A few of the other samples of cream found to contain less than the legal requirement of fat, were from factories selling a limited amount.

It is a credit to the milk dealers and to the dairymen when milk and cream of such high fat content is sold. A few of the samples of milk below standard—found to contain less than the legal requirement of fat, 3%, were the normal product of a herd.

**TABLE RELATING TO CITY MILK INSPECTION—1917.**

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Pasteurized milk and cream is sold in twenty six different cities. In one city there are five dealers who furnish 50 per cent of the milk sold and only one of these dealers sells a pasteurized product.

Manner In Which City Milk Is Secured Varies

In making a tabulation of the inspection reports it was found that the market milk supply of the various cities and villages was not reaching the consumers in the same manner, but all of them fall within the following groups:

Group 1—Cities where nearly all of the milk is handled by dealers who depend upon dairymen for their supply; the city of Milwaukee for example. These dealers, in most cases, have erected a suitable place for the proper handling of the product until it is delivered to the consumers' homes, hotels or restaurants. In other words these dealers act as middlemen or distributors, hence the work performed by the producers is reduced and their income is less per one hundred pounds of milk than if they bottled or delivered their own product. This is out of the question in the larger cities. When the dairymen sells his output to a dealer he is paid a fixed price per can or 100 pounds of milk delivered. The actual fat content of the milk may or may not be considered. A number of these milk plants are so equipped as to economically handle the surplus, either in the form of butter, ice cream or cottage cheese, etc. A large per cent of the milk is pasteurized before it is delivered to the consumers and the bottles sterilized before they are filled.

Group 2—Comprises the cities where possibly fifty per cent or more of the milk is distributed in the same manner as in Group 1, while the balance of the milk is delivered to the consumers by dairymen who sell their own product, bottled at the farm. Madison may be placed in this group.

Group 3—The large number of villages and cities of the state that do not have a milk plant are placed in this group. Possibly fifty per cent or more of the milk is delivered by dairymen who sell the product of their own dairy. The consumers not served by these dairies obtain their milk from neighbors, who may own one or more cows. The milk from these "family cows" is sold in bottles or in pails furnished by the person who sends for the milk within a short period after it has been produced.

Group 4—Consists of the villages or communities where the entire population depends upon families who own one or more cows. In a few cases families are supplied with milk by a dairymen who passes by enroute to the butter or cheese factory. At times the pail may be seen placed in a box located on a post near the roadside.

Consumers Demand Protection

There are two main questions generally asked by the people of the cities regarding the milk and cream supply, namely: What is the fat or cream content of the milk and will the cream whip? and, second, is the milk and the cream produced under cleanly conditions?
The consumers may not be more critical, but the increased price paid per quart of milk has made them more watchful and observant as to what they are paying for. Women's organizations in the larger cities, local editors and others have taken a hand in this problem and have enlightened the consuming public. Milk and cream are necessities in every home. There is a ready and constant market for the entire output of a number of large dairies. The amount of milk consumed by the city families will, in a measure, depend upon the satisfaction that the product gives. The future of market milk is therefore a problem that is of vital importance to the dairymen. In the larger cities the dealer or distributor may be doing his part well, but his efforts are fruitless unless he is assured of a clean product from the dairymen. It is the source of the supply that fixes the standard of market milk and increases the consumption.

The value of the work carried on by the representatives of the Dairy and Food Department and local inspectors to the dairymen who furnish milk to the people of the cities and villages cannot be estimated. It is the one assurance to the consumers that they are obtaining food that is reasonably safe. Inspection has practically eliminated adulteration of all kinds. It has made the careless milkmen see the necessity of producing milk under cleanly conditions and the importance of having laws dealing with sanitation. It is a protection to the dairymen who operate sanitary dairies. To them it is a guarantee against unfair competition.

A representative of the Dairy and Food Department when making regular inspections is in a better position to assist not only the dealers in pointing out the necessary changes to be made, but to show them the ideal manner of handling the product efficiently and economically. To the milk producers he can give an idea as to the methods followed by the leaders in his line. Very often Inspectors, in performing their regular duties, may be called upon to give an explanation of a certain article that a dairymen has read with reference to clean milk production, barn construction, proper lighting and ventilating of dairy buildings. At times dairymen desire to make changes in their barns and follow out suggestions made by the inspector regarding new floors, stall arrangements, etc.

*It Pays To Be A Model Dairymen And Produce Clean Milk*

There are a large number of farmers who may be classed as model dairymen, and they have made the production of market milk profitable. They realize that high standard of quality in dairy products has its beginning at the farm and that the milk for the table, be it for his own family or a city neighbor, must come from healthy cows and that they must at all times be fed on good, clean, wholesome food. It is this class of dairymen who say it pays, regardless of what
the law may be, to house the dairy cows in a barn that is reasonably clean and well-lighted and ventilated; barn floors so constructed and stalls so arranged that the cows may keep themselves clean. These men use an abundance of whitewash on the interior of the barn and other dairy buildings because of its sanitary effect. Whitewash adds to the appearance of the room, increases its value and lightens the dark corners. There should be on every farm a suitable place for storing milk until it is delivered. Certain cities have placed this as one of the requirements that must be met by the producers before the milk may enter a city. In the milk house there should be a suitable tank of water in which to place the cans of milk. When the milk is bottled at the farm, room must be provided in the milk house for the proper handling, washing and sterilizing and filling of the bottles.

According to the reports of the inspectors, dairy utensils used by the dairymen producing market milk were, as a rule, found clean but not sterilized. Many dairymen depend upon warm water and some cleansing compound to do the necessary work in cleaning pails, cans and bottles. This is not sufficient. Boiling water or steam should be used in the final treatment of dairy utensils after they have been thoroughly cleaned. Sunshine and pure air are two very necessary aids in the successful production of clean milk. Clean milk, properly cooled, stored and delivered in clean containers will insure maximum consumption of milk and cream. This is within the means of every dairymen.

In future market milk inspection it would be well to do a portion of the work during the summer months and to place greater emphasis on the need of sterilization of utensils. Some effort should also be made to interest city officials to control or in some measure supervise the milk supply.

It also seems pertinent that all milk dealers who buy part or all of their supply should be required to pasteurize all of the milk before it is delivered. I also believe that in the control of the future market milk supply this department should be given authority to formulate rules and regulations governing the manner in which it shall be produced, handled and delivered.

**WHEY CREAM PRODUCTION**

The production of whey cream in Wisconsin had its beginning in the Swiss cheese territory, because in the manufacture of that kind of cheese there is an unavoidable loss of approximately one-fifth of the total fat in the original milk. The introduction of the separator in a number of these factories for the purpose of recovering this butter fat, otherwise lost in the whey, has been the means of conserving a large amount of fat for human food.
In the manufacture of American cheese the loss of fat in the whey is only one-half of that lost in the making of Swiss cheese. The operators of these American cheese factories studied the problem and as a result whey separators were introduced in the larger factories. Naturally the production of whey cream has increased very rapidly until this product in smaller and larger amounts is produced in nearly every county where cheese is manufactured. According to reports furnished the dairy and food commissioner in 1915 by the operators of factories making cheese, 455,298 pounds of whey butter, valued at $113,273.07 was manufactured in factories located in twenty-two counties.

Other cheese factory operators reported that the value of other products, largely whey cream, was $636,728.16, or a total value of whey butter and whey cream of $750,001.23. In Manitowoc county, where
American cheese is made almost exclusively, whey cream or whey butter was produced in fifty two out of one hundred and eleven factories in operation. The income from this product was valued at $62,606.35. These fifty-two factories were patronized by 1451 patrons who delivered 96,362,672 pounds of milk. The value of whey cream or whey butter per patron amounted to $43.14, or a trifle less than six and one-half cents per one hundred pounds of milk. The fifty-nine factories that did not skim whey received 74,025,282 pounds of milk from 1731 patrons, showing that a number of the factories are too small to make the skimming of whey a profitable investment. In Green county, where Swiss cheese represents a very large per cent of the cheese made, there were 93 out of 161 factories that produced whey cream, valued at $83,486.98. Since these factories were patronized by 841 dairymen, the income per patron from whey cream was $99.27.

Whey cream production is a side line of the great cheese industry of the state and must receive greater consideration by the cheese factory operators and makers of the future than has been given to it in the past. In July, 1915, the dairy and food commissioner issued a leaflet for producers of whey cream. The final word in that manuscript was: "Good butter can be made from whey cream produced under sanitary conditions." This leaflet outlines the care of the cream and how it should be produced. The inspectors of the department for years have called the cheese makers' attention to the care of this valuable product. In spite of all of this work the manufacturers of whey butter have often made an article not of the best. This was not the fault of whey cream, but was due to carelessness on the part of the cheese makers in the handling of the product before it was made into butter or delivered to the churning plant.

During the past three months the inspectors have called on a number of plants where whey butter is made. They have explained the law and in a number of instances where the factory had on hand a large supply of cartons or wrappers, they have suggested a method of stamping or labeling that would meet the requirements of the law until a new supply is bought. They have also suggested how the cream shall be handled so as to result in butter of high quality, namely:

1. Skim whey cream so it will contain at least forty per cent of butter fat.

2. Provide a suitable place for the proper cooling of the cream immediately after the skimming is completed.

3. Store cream in a tank of cold water until it is delivered; stir thoroughly at least three times a day.
4. The tank of cold water used in holding the can of whey cream should be located in the factory make room or in a separate building.

5. Do not store whey cream in the cheese curing room.

6. Use clean cans.

7. Deliver the cream frequently and have it properly cooled when it leaves the factory.

8. Protect the can while in transit.

9. Thoroughly clean all utensils daily.

10. The cheese makers fail to "do their bit" in conserving the food supply when they do not produce whey cream of good quality.

Progress has been made in the short period that this law has been operative. Time will also eliminate the opposition that prevails against this regulation by the dealers in this product.

The Cream Buying Stations

The manner of regulating operators of cream buying stations remains unchanged. Since local boards of health have charge of the licensing of these stations there is no uniform system governing their control.

In certain sections of the state there is a need for local markets where the dairymen may sell their products for cash or in exchange for food necessities. These stations may also be an inducement for farmers to put forth greater efforts in cream production.

There are certain sections of the state where these stations are detrimental to the progress of the dairy industry because they divide the product of a community and make it difficult for the local factory to exist. The cost of manufacturing butter from only one-half of the butter fat of the community is nearly as large as if all of it was handled, hence a few of the patrons carry the burden. An example of this may be seen in that portion of the state from Prairie du Chien to Hudson.

In fairness to both the creamery industry and the operators of cream buying stations, there is need of a uniform system for all of the stations' operators to follow. It may not be possible for this to be accomplished until they are governed by one central body, which should be the Dairy and Food Department.
THE LICENSING LAW

The law relating to the licensing of operators of butter and cheese factories and to the makers of butter and cheese became effective January 1, 1916.

The actual inspection work pertaining to the granting of a license did not begin until April, because all of the inspectors, during the winter months of that year, devoted all of their time to market milk and dairy farm inspection. It was also found that time should be granted the operators of butter and cheese factories to become familiar with the law and the rules and regulations. A number of cheese factory operators do not open their plants until April.

The inspectors reported on first inspection that the license rules and regulations were being complied with by the operators of a large number of butter and cheese factories, while time was extended to another group of operators in order to make such changes as were suggested by the inspector. In this group the number was no larger than was expected. The operator may have been located in a building that was old and not in good repair, others had deferred making changes until they had had the advantage of a personal visit of the representative of the Dairy and Food Department.

The licensing system was a new problem, yet in the majority of cases the operators as well as the makers were found to be more than willing to comply. Those that felt the license rules and regulations were unreasonable changed their attitude when the intent of the law was fully understood.

For the period January 1, to June 30, 1917, there were 779 operators of butter factories licensed in 1916 who had made application to the department for the 1917 renewal, and 83 permits issued to new operators, making a total of 862 operators of butter factories. Application for a renewal of license had been received from 2138 cheese factory operators and 442 permits were issued, a total of 2580.

In 1916, licenses were issued to 1028 butter makers; 852 of these had applied for a renewal of license by June 30, 1917, and 106 permits issued to men not engaged as butter makers in 1916. Licenses were issued in 1916 to 2457 cheese makers; 2159 of these applied for a renewal of license by June 30, 1917, and 632 permits were issued.

The licensing law has been one of the factors at work that has given to the butter and the cheese industry new life. A number of the old buildings that long ago had outlived their usefulness have been replaced by new structures; others have been repainted both inside and out. In several factories more light has been provided in both the intake and the making room. Greater care has been exercised by the cheese factory operators in providing more suitable
and more convenient curing rooms. The free use of whitewash on
the walls of these rooms has given to them the appearance of new-
ness and greater cleanliness.

Prior to the licensing law very few of the butter and cheese fac-
tory operators had provided a ventilating system for the plant.
This feature alone required a great deal of the inspectors' time, but
it has been worthwhile. It has resulted in better work rooms for
the men who are required to spend several hours per day within
these buildings, besides providing pure air in the rooms where dairy
products are manufactured and stored.

The licensing law has made it possible to obtain repairs on fac-
tory floors where they were badly needed. Factory drains have been
trapped and the general system of handling the factory sewage has
been greatly improved. A number of factory operators requested
the inspector to assist them in planning a cesspool or septic tank,
while others have communicated with the office. In this work the
plumbing department of the state Board of Health has rendered
valuable service.

Improvements have been brought about in the manner of handling
whey at cheese factories where whey cream is produced. A suitable
place for the whey holding tank has been provided at a number of
factories; changes have been made in the style of piping used and
the manner of installing. The steam jets—impossible to clean—
used in elevating the whey to the storage tank, have been replaced
with a jet that may be taken apart and cleaned.

Greater care is being exercised by the cheese makers in the pro-
duction of clean flavored whey cream. At a number of factories a
suitable place for storing same has been provided. Aside from all
of these improvements the licensing law has resulted in cleaner fac-
tories, more careful makers and a better grade of raw material.
Indirectly this law has been the means of creating new life in the
factory industry of the state and awakening dairymen patronizing
these plants to their responsibility in the future quality of Wiscon-
sin's dairy products.

Butter and Cheese Makers

The progress of the butter and cheese factory industry is in a
large measure dependent on the ability of the men in charge of the
factories to do their duty well. The work that has been done
through inspection in the past, especially since the licensing law
became effective, has had a tendency to bring about greater uni-
fication in the methods employed.

Cooperative butter and cheese factories are, as a rule, managed
by one of the patrons or by a man who may be engaged in other
lines of work, hence they do not give a great deal of time to the
actual operation of the plant. The maker is therefore the man who
must look after the minor details as well as some of the larger problems involved in making the factory a success.

In many communities they are actual leaders in every activity that stands for progress. When the creamery or the cheese factory is a part of the community center, it is so largely because of the cooperation between the maker, the manager and the patrons.

The success of the licensing law is largely due to the spirit with which the makers entered into the work. They cooperated from the beginning in pointing out to the owner or to the management of the factory the changes that had to be made in order that the license law rules and regulations might be reasonably well complied with. In a number of instances the makers supervised the work of remodeling the factory, hence the experience they gained has been of value to them in the actual operation of the creamery or cheese factory and in maintaining the utensils in a sanitary condition. A large number of these men are interested in their work and more than willing to do their part in placing the industry they represent in the front rank among Wisconsin's agricultural activities. There are, however, men who are engaged in the work of making butter and cheese, that are careless and do not seem to understand the importance of cleanliness in the handling of dairy products used for human food. It is this class of men which should be watched more closely by the inspectors, and if necessary be eliminated from the ranks of licensed cheese or butter makers.

**Work of the Inspectors**

During the first six months of the year the men in the field devoted nearly all of their time to the inspection of butter and cheese factories. This work was necessary prior to the granting of a license to each operator for the year 1916. In all, 4215 visits were made. The length of time devoted to each factory depended upon the conditions found, whether or not the operator could be easily located and the distance the inspector traveled. At the close of 1916, the unlicensed factories were far apart, hence only one, or possibly two factories could be made in one day by one person.

The results obtained by factory inspection are given elsewhere in this report. In making market milk inspections the various men visited a large number of milk plants, examined the quality of the milk received and general condition of utensils used in handling the product; 3281 dairy farms were inspected. On a large per cent of these farms the milk was sold either to a milk dealer or directly to the city trade. On each of these dairy farms inspection was made of barn conditions, cleanliness of cows, milk pails, cans, strainer, etc.; also the method of caring for the milk until it was delivered to the consumer or factory.
In making factory and market milk inspection the men have examined a large number of samples of milk as to cleanliness by means of the sediment tester, besides making butter fat determinations of these same lots of milk.

A large number of examinations have been made of milk cans used by the dairymen in delivering their product to the factory.

The men have been called upon to judge exhibits of dairy products entered at county or state conventions and the state fair.

That progress has been made in each territory is evident from the reports received from the men in the field. J. D. Cannon reports that the licensing law has worked wonders in the improvement of cheese factories and creameries, and as a result of market milk inspections and the use of the sediment tests at cheese factories, the quality of the milk has improved. S. B. Cook refers to the number of new factories that have been erected in his territory, thus doing away with poorly constructed plants erected when the dairy industry had its beginning. S. J. Dufner calls attention to the cream buying stations and urges more drastic methods in the regulation of these institutions. He says: “These stations are operated at extra expense to the dairy industry and they are conducive to poor quality. There is a marked improvement in factory and barn conditions and the dairymen are producing a better grade of cream.” F. S. Hanson, who succeeded J. B. Linzmeyer, could not make a comparison of present and past conditions, but he is confident that dairy conditions are improving, and he also urges a more thorough inspection of the makers in charge of the factories handling dairy products.

A clean cheese or butter maker has a marked influence upon every dairymen who delivers milk to his factory. J. Lehnheir says: “Cheese makers do not take the pride that they should to make the factory attractive, hence I feel that something should be done to create an interest in beautifying factory surroundings. A law should also be enacted compelling dairymen who sell milk to erect a suitable place for storing it.” F. Marty: “Remarkable progress has been obtained with special reference to interior finishing of the make rooms, painting and whitewashing of these rooms and the curing rooms as well. Changes have been made in the location of the whey separator and the whey holding tank, and at many factories a sewage disposal plant has been installed.” R. B. Southard: “A large majority of the cheese factories and creameries are in good, clean condition, and the makers clean about their work. I find that there are very few rusty or open-seamed cans used.” J. Van Duser: “The cheese makers and butter makers have taken a new interest in their work since they have been placed under the license system. There is also a marked improvement in the general condition of the cheese and butter factories.”
Progress of the Dairy Industry

Dodge county was conceded in 1909 as having reached a high state of production, but has increased from 14,647,758 pounds of cheese for that year to 23,061,528 for the year 1915, and stands as the leading cheese producing county. Sheboygan county is second with 21,363,448 pounds, and Manitowoc county third with 15,587,573 pounds.

The north central cheese producing section, comprising the counties of Wood, Clark, Marathon, Lincoln and Chippewa has increased in cheese production from 7,724,538 pounds to 28,169,062 pounds for the six year period, 1909 to 1915. Clark county alone increased from 3,643,967 to 10,708,213 pounds, and Marathon from 2,472,174 to 10,579,553 pounds.
The figures for 1909 credited to the territory tributary to the western shores of Lake Winnebago and Green Bay showed a rapid increase over 1905, with Outagamie county in the lead, while in 1915 as compared with 1909 the increase has moved northward to the counties of Shawano, Oconto and Marinette.

INCREASE IN CHEESE FACTORIES BY COUNTIES, 1910-1916

There was an increase in cheese production in all except sixteen counties, eight of these being in the extreme north. The decrease in Kenosha and Racine counties was due to the demand in this territory for market milk. The southwest territory and the lake shore region has seen a goodly increase in number of factories in operation. The northwest territory comprising the counties of St. Croix, Polk and Barron has twenty-seven new cheese factories, while the north central territory has more than doubled in the number of
factories, namely 128 in 1910 for the counties of Clark, Marathon and Wood and 273 in 1916 with nearly a like increase for Shawano, Oconto, Marinette and Door, namely 120 in 1910 and 211 factories in 1916.

DECREASE IN CHEESE FACTORIES BY COUNTIES, 1910-1916

The production of butter in factories was reported in 1909 to be 165,307,356 pounds and in 1915, 124,636,071 pounds, an increase of nearly twenty million pounds. The total value of the production was $34,744,774.51. The butter factories of Dane, Grant, Jefferson and Sauk counties reported an output of more than five million pounds of butter each. The counties of Barron, Dunn, Fond du Lac, Monroe, Trempealeau and Vernon exceeded four million pounds each. The entire western and northwestern portion has had
an increase in butter production, but a slight decrease in the number of factories in operation. The north central territory has gradually changed from the manufacture of butter to the making of cheese.

SHADED PORTION SHOWS INCREASE IN BUTTER PRODUCTION BY COUNTIES, 1909-1915

The entire southern portion, from LaFayette county east, and including Jefferson and Waukesha counties, has decreased in butter production largely because the producers have felt that the selling of milk to cheese factories, condenseries and market milk plants nets greater returns than those afforded by the butter factories.

The total increase in pounds of butter made was due to the large increase in cream production in those sections where butter production prevails. Barron county as an example manufactured
2,650,615 pounds of butter in 1909 and 4,785,184 pounds in 1915. Dunn county increased its production from 2,580,444 pounds to 4,299,272 pounds, with a one-third increase for Monroe and Grant counties from 3,532,308 pounds to 5,122,722 pounds.

SHADED COUNTIES INDICATE DECREASE IN BUTTER PRODUCTION, 1909-1915

In the newly developed portions of the north, the creamery industry has enjoyed a healthy growth. The butter production in 1909 for all the counties located north of the counties of Polk, Barron, Chippewa, Clark, Marathon, Shawano, Oconto and Marinette was 2,390,240 pounds and in 1915, 5,751,355 pounds. This increase in butter production is an indication of what the dairy industry is amounting to in northern Wisconsin.
DECREASE IN BUTTER FACTORIES BY COUNTIES, 1910-1916
THE CONDENSING INDUSTRY

The growth of milk condenseries in this state since 1909 has been very rapid. This is also true with reference to market milk production for the cities of Chicago and Milwaukee. All of these plants furnish a market for the dairymen interested in the selling of the entire output of the dairy, rather than utilizing skim milk and whey as feed for hogs and calves. In 1909 the condenseries alone bought 229,958,000 pounds of milk, and in 1915, 396,607,-532 pounds. These institutions naturally have had a marked effect on the number of creameries and cheese factories in operation in the territory where they are located. In these counties butter and cheese production has not increased in the same ratio as where there are not condenseries. This, in part, accounts for the decrease in cheese factories in the counties of Green, Richland and Calumet, and only a small increase in the number of pounds of cheese made. In these three counties in 1909 there was made 24,428,786 pounds of cheese and in 1915, 25,437,707 pounds. Compare this increase with that of Dodge county, where only one condensery is located.

Patrons of condensed milk plants seem to be interested in greater milk production and they are also willing to make improvements in dairy barns and in the erection of milk houses demanded by these institutions. They are also willing to be educated along lines of better and more sanitary milk.

Respectfully submitted,

C. E. Lee,

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