THE PRICE CONTROL FACTOR IN THE PURE MILK PROBLEM.

SUMMARIZED BY
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FROM BULLETIN BY
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PUBLISHED BY THE DEPARTMENT OF AGRICULTURE.
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The Bulletins published by the Station will be sent free to any farmer applying for them.

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The Price Control Factor in the Pure Milk Problem.

F. H. Hall.

Under present conditions, dairymen cannot profitably produce good, sanitary milk to sell at wholesale for much less than four cents a quart. Many researches, made in several states, with data and estimates obtained from widely varying sources, unite upon approximately this figure. For example, in a study of the milk supply of an adjoining city of about 12,600 inhabitants, made by the bacteriologist of this Station, the following figures were secured for the investment required to supply the city with milk:

Capital Invested in Supplying Milk to City With 13,000 Inhabitants

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows — 600 at $80</td>
<td>$48,000</td>
</tr>
<tr>
<td>Land with buildings — 3,000 acres at $100</td>
<td>300,000</td>
</tr>
<tr>
<td>Equipment — 3,000 acres at $20 per acre</td>
<td>60,000</td>
</tr>
<tr>
<td>City distributors</td>
<td>50,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$458,000</strong></td>
</tr>
</tbody>
</table>

These figures are based upon most careful, conservative estimates and are believed to be below the actual figures that would be shown by a detailed census. This would place the amount of capital invested for each cow at $680 for the producer and $83 for the retailer. The 600 cows in the dairies supplying this city give annually approximately 2,800 quarts of milk each, a figure decidedly better than the average for the State, which is about 2,100 quarts. The Station herd for several years produced almost exactly 2,800 pounds per cow. Accurate records of the food cost required to produce the milk

*This is a brief review of Bulletin No. 363 of this Station, on The Financial Stimulus in City Milk Production, by H. A. Harding and J. D. Brew. Anyone interested in the details of the investigation will be furnished, on application, with a copy of the complete bulletin. The names of those who so request will be placed on our Station mailing list to receive future bulletins issued, popular or complete edition as desired. Bulletins are published at irregular intervals, not monthly.
in this herd for several years previous to 1908 showed that cost
to be steadily increasing so that in that year it was 2.09 cents per
quart. The producer must meet this expense and should be entitled
to 6 per ct. interest on his capital of $680 per cow. This adds 1.45
cents per quart, making 3.54 cents for two items only. If the dairy-
man gets only 3½ cents a quart for milk he must pay, from the veal
sold and the manure produced, a little loss on each quart of milk
as well as the expense for labor and supervision. At 4 cents a quart,
he has a margin of less than half a cent a quart, with the veal and
manure, to meet these necessary expenses and provide a profit.
The average producer "continues in business because he accepts
less than 6 per ct. upon his capital invested. His financial salvation
depends upon increasing the productivity of his land to the point
where it takes less than five acres to support a cow and increasing
the productivity of his cows so that they will produce more than
2,800 quarts per year. A part of the solution of his difficulties lies
in the possibility of an increased wholesale price for his product."

Even with a fair wholesale price for his product the dairyman
must handle each detail of his equipment with an eye to economy
if profit is to be secured. If there be enforced upon
him a demand for a product better than the average,
a product made and handled under good sanitary
conditions, his expenses must necessarily rise and
his margin of profit be lessened or disappear unless
he receives for the better product a correspondingly
higher price. To assure the producer of a price corresponding to
the nutritive and sanitary quality of his product is the best means
of securing improvement.

This was very strikingly shown in Bulletin 337 of this Station. In
that Bulletin are given the details of a movement, in the
city before referred to, to secure a better milk supply.

By the passage of certain ordinances, supervision
of the city milk supply was given to the Board of
Health, which was authorized to have the dairies
supplying milk to the city inspected and to publish
quarterly reports upon their condition. A sanitary inspector was
appointed to make the inspections, using as his guide the Cornell
University dairy score card; and the ratings of the points on the
cards were made by the Station bacteriologist, as a member of the
Board of Health. Influenced by publicity alone, the sanitary con-
ditions of the dairies improved; and when, a little later, the milk
handlers of the city united and agreed to pay producers for the
milk according to ratings based on the official score cards, advance-
ment was rapid. "Poor milk," that is, milk from dairies scoring
below 400 score card points, was not accepted at all; for "medium"
milk, from dairies scoring 400 to 450 points, 3 cents a quart, was to
be paid; for "good" milk (450 to 480 points) the price was to be
3½ cents; and for "excellent" milk, from dairies scoring 480 points or more, 4 cents was to be given.

By the united influence of the two factors, publicity and payment based on quality, an astonishing change was made in the quality of the city milk supply. When the work began, 90 per cent. of the milk sold came from dairies in the "poor" or "medium" class, only two of the 40 sources of supply scoring more than 450 points, or "good." In three years and a half, these figures were much better than reversed; for at the end of that time one-eighth of the dairies, furnishing two-fifths of the milk, were in the "excellent" class and all the others in the "good" grade, both poor and medium dairies having ceased to exist as sources of supply.

Which factor was most effective, the publicity or the bonus given for improved quality, could not be determined; but that the financial stimulus was largely responsible is shown by a later development of the milk situation in the same city.

**Change in conditions.**

The inspector selected by the Board of Health from a list provided by the city Civil Service Commission was not well qualified by training or experience for the position, but he rapidly improved under the instruction of the Board of Health member in charge, especially after taking a "short course" in dairying at Cornell University and eventually became an efficient inspector.

Early in 1911 the member referred to above withdrew from the Board of Health and later in the year the dairy inspector resigned to enter the postal service.

The vacancy in the position of dairy inspector has since been twice filled by the board of health from eligible lists furnished by the civil service commission. Neither of these inspectors has had anything which could reasonably be considered as a preparation for the technical work of sanitary scoring of dairies.

The character of these appointments and the results upon the milk situation which followed them indicate clearly that there must be a radical change in the prevailing point of view regarding the qualifications for municipal appointments before we shall have a public service which will command the respect and cooperation of the milk producers and retailers. Without such respect and cooperation practically nothing can be accomplished.

The position of an untrained inspector, made responsible for dairy scoring when the financial importance of his scoring is so great, was not an enviable one. His main source of guidance was the detailed scores of the dairies as they had been given by his predecessor. It was a natural assumption that these scores were fairly correct measures of the existing conditions. Under such circumstances fine distinctions were impossible and it was the natural tendency to repeat the gradings previously given.
The results of the inspections as given by the quarterly reports of the Board of Health indicated that the sanitary conditions surrounding the production of the milk supply had remained practically unchanged, the report for December 31, 1912, showing 10 per ct. of the dairies as "excellent" and 90 per ct. as "good." These reports were gratifying to the public since they indicated the continuance of satisfactory sanitary conditions and they were satisfactory to the producers since they insured the continuance of the prevailing prices for milk.

But subsequent investigations made by the Station, in following out other lines of work, indicate that conditions in many of the dairies were not accurately shown by the reports. The Bacteriological and Dairy Departments of the Station are engaged in a comparative study of various score cards. In August, 1912, they were being aided in this study by Mr. F. H. Bothell, of the Dairy Division of the U. S. Department of Agriculture, a man of wide experience in the sanitary scoring of dairies. In company with Mr. Bothell, the station bacteriologist, Dr. H. A. Harding, one of his assistants, Mr. Jas. D. Brew, and Mr. Geo. A. Smith, the Station dairy expert, inspected 15 of the dairies supplying this city, in connection with these score card studies. At this time it was evident that, notwithstanding the favorable reports given by the city inspector, the sanitary conditions surrounding the milk production had deteriorated very markedly.

The conditions were again determined by an inspection of the dairies by Mr. Brew during the last quarter of 1912, and all of the dairies were again visited during January and February of 1913. In each case the facts as they existed were noted at the time of the visit and the reduction of this to a numerical score was supervised by Dr. Harding. Using the same standard of cuts and making the scorings in all particulars as comparable as possible with the scoring made in March, 1911, when the results were 12.8 per ct. "excellent" and 87.2 per ct. "good," the inspections made in January and February, 1913, gave 18 per ct. "good" and 82 per ct. "medium."

The magnitude of this change in conditions is shown graphically by the diagrams on the title page.

The nature of these changes in sanitary conditions is extremely suggestive. In a number of cases the tuberculin test was not renewed within the year and the reacting animals removed; the cleaning of the cows was generally omitted and in some cases their bodies were allowed to become well coated with dried excrement; frequently little or no attention was given to the cooling of the milk; cobwebs, dust and general litter accumulated in the stables; the barnyards often became choked and muddy from the accumulation of manure. It should be noted that the failure to attend to these details saved
money or saved labor, which, under present conditions, amounts to the same thing to the producer. It should also be noted that with the exception of the tuberculin test there was no single day when any one of the above conditions could have been said to have changed from good to bad. The resulting bad conditions were the cumulative result of a gradual lowering of the standard of doing business.

In attempting to locate the cause for this marked deterioration in sanitary conditions it should be remembered that not a letter of the city milk ordinances has been changed, that the form of milk inspection has been continued, that the milk is still sold by the producer to the retailer under the same form of contract which was in force when advancement was most rapid. In short, every external form and legal enactment which accompanied one of the most striking recorded cases of municipal improvement of a milk supply is still in force and yet within less than two years the sanitary conditions surrounding the milk production have returned essentially to the condition in which they were at the beginning of the original improvement.

Under the sliding scale contracts as explained on page 4 the wholesale price of milk increased one-half cent per quart in passing from "medium" to "good" or from "good" to "excellent." As explained in Bulletin 337 the increased expense connected with bringing a dairy ranking as "medium" into the "good" class was ordinarily confined to that of the labor connected with keeping the cows and their surroundings cleaner and in cooling the milk. As the production of "medium" milk at 3 cents per quart was financially unprofitable and the expense attending the change to the "good" grade amounted to less than one-half cent per quart the dairies all came up to the "good" grade. In bringing the dairy up to the "excellent" grade the farmer not only incurred an increased expense for cleanliness and cooling of his milk but also faced the problem of maintaining a herd which would pass the tuberculin test. The extent of loss in connection with reacting animals was so uncertain that the majority of the farmers hesitated to take the chance even with a margin of one-half cent per quart. So far as information is available all those who took the chance found it financially profitable.

The situation which existed during 1911 may be summarized by saying that the farmers produced fairly sanitary milk because it was the quality which they could produce most profitably.

Under conditions which existed during the latter part of 1912, when the official grading of the dairies merely retained them at the highest grade which they had previously reached, the financial stimulus for the production of cleaner milk was weakened if not entirely removed. Although the farmers exercised progressively less
care in the production of milk they suffered no financial penalty. While the retailers were aware that the sanitary quality of the product as furnished them was deteriorating they could make no effectual protest since they were bound by their contracts to accept the official score as the basis for payments.

The former system of wholesale prices according to which milk was bought by weight or measure regardless of its commercial quality practically compelled the production of the cheapest and dirtiest possible supply.

**Conclusions.** cheapest and dirtiest possible supply.

At present prices the margin of profit in the production of milk is so narrow that the farmers can not afford to act the part of philanthropists by the production of a higher grade of milk than the market demands and is willing to pay for.

On the other hand the farmers have a business sense which quickly leads them to produce the grade of product for which they can obtain the largest margin of profit.

The important fact which stands out clearly in the present situation is that while the farmers are able and willing to produce sanitary milk whenever such production is the more profitable they can not be expected to continue such production whenever there is greater profit in the making of dirtier milk.

The lessons which have been taught by this five years' study of a municipal milk supply indicate fairly clearly that the farmers are prepared to produce any grade of milk which the market desires. They will produce it as soon as the market clearly states its wants and offers a price which will make the production reasonably profitable.

Under present conditions there is a demand for milk for three distinct purposes: for the feeding of infants, use by adults at table, and for cooking. The simplification of the municipal milk problem lies along the line of defining and establishing commercial grades of milk which shall correspond to these market demands.

Whenever it becomes possible to buy milk by such grades and feel sure that the milk is true to grade the supply upon the market will become just as clean and pure as the purchasing public desire it to be.