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VIRGINIA

DAIRYING

Annual Report

1925

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REPORT OF W. D. SAUNDERS
DAIRY SPECIALIST

DAIRY AND CHEESE DEVELOPMENT WORK FOR YEAR
ENDING NOV. 30th, 1923.

Project # 5

REPORT OF W. D. SAUNDERS
DAIRY AND CHEESE DEVELOPMENT WORK FOR YEAR

Ending Nov. 30th, 1925.

To March 1st, 1925 I was only part time specialist, after that time on to Nov. 1st my entire time was given to the Extension work. From Nov. 1st to Dec. 1st only such time as was absolutely necessary was given Extension work. My time from Nov. 1st to March 1st, 1924 to be given to work with the Experiment Station.

Mr. H. F. Fralin assisted in this work until July 1st 1925 when he resigned. Arrangements were made, however, to get his services at times when needed in the event he could arrange to do the work at such times. Some assistance was given at times by Mr. I. G. Gibson but he also resigned about Nov. 1st.

The development of the cheese factory work in the state has occupied most of my time which has been available for this work. At the present time cheese is being made at nine different points where assistance has been given by the Extension Division here as follows:

Spring Valley Factory
in Grayson County.

Willoughburn Factory
in Grayson County.

Clover Creamery
in Roanoke City.

Powhatan Factory
in Powhatan County.

Cople Factory
in Westmoreland Co.

Minnieville Factory,
in Prince William Co..

Gold Ridge Factory.
in Prince William Co.

Catharpin Factory.
in Prince William Co.

Hickory Grove Factory.
in Prince William Co.

A factory is being built at Stone House in Prince William County and they expected to be making cheese in September, but delays for various reasons have prevented them from opening up and they may not make cheese now until next spring. There is still

another point in Prince William County, at Independent Hill, where a factory is being built, but somehow they have not been able to get started this season. We are expecting both these last two factories named to open up next spring for business.

There were three additions made to the factories in the state this season. The factory at Powhatan, the one at Hickory Grove and the vat put in at the Clover Creamery.

The Clover Creamery makes cheese only to use up a certain amount of surplus milk which appears to be increasing on them all the time. At the present time they are making about 2,000 to 2,500 lbs. of cheese a week, they still think they can put this surplus milk into cheese to about as good advantage as in any other manufactured product. The factory at Powhatan started in May and has been running regularly and without intermission ever since. This factory for the time it has been in operation has made a better record than any factory in the state. They will manufacture between four and five hundred thousand pounds of milk up to January 1st, 1924.

There will be some increased production on the part of the factories that were operating last year, but it will not be as much as had been hoped for and that too in spite of the fact that some effort has been made to have more cows added to the herds that are already producing milk for the cheese factories. An estimate for all the milk made into cheese would seem to indicate that it will be approximately 2,000,000 lbs. of milk and that two hundred thousand pounds of cheese will be made, something more probably than was made in 1922.

As the volume of the cheese made increases, its sale presents a greater problem. Up to this summer the sale of the cheese was made by the different factories in a more or less haphazard way and with such assistance as could be given by the Extension Division. Realizing that this trouble was becoming acute efforts were made to make some arrangement so as to have some regular agency to sell this cheese as it might become ready for the market. With this in view, Prof. Warner was asked to meet the representatives from the various factories in Prince William County and submit a plan for establishing a selling agency to dispose of their product. Several meetings were held and Prof. Warner submitted a scheme for establishing an agency to sell the cheese for all the factories. The factories in Prince William were not enthusiastic about it and in view of the fact that there did not appear to be a sufficient amount of cheese in sight to go into this marketing arrangement without adding too heavily to the cost entailed in selling the cheese, the scheme was not insisted upon. Another plan which seems to be better, certainly while the production is no more than it is at present, has been suggested and adopted to a more or less extent, and by all the factories. A broker, already engaged in selling food products has been engaged to sell the cheese for all the factories. He is kept in touch with their production and what they have ready to sell from time to time and as it becomes available for distribution it is sold, shipments being made from the various factories to the purchaser direct; the charge

for this service is one half a cent a pound which includes responsibility to the extent of ten per cent of the value of the cheese on the part of the broker where collections cannot be made, they agreeing to make collections.

The plan suggested by Prof. Warber would have cost the factories more than twice this amount to sell certainly while the production is not greater than it is now. We are insisting that all the factories sell through this brokerage concern, as offering the best arrangement for disposing of their cheese we have been able to find.

The grading and putting the cheese in cold storage as soon as possible after it is made during the summer months has also been taken up.

GRADING THE CHEESE

We find that in Wisconsin the grading of their cheese has assumed large proportions. A cheese which has been graded and stamped stabilizing its value materially, as well as protecting the distributor of Wisconsin cheese and in that way building up a reputation for cheese from that state. Believing therefore that it was the best thing to be done we have started grading our Virginia cheese. Any cheese scoring 90 points or better being put in the first grade and cheese scoring lower than that 90 points being placed in the second grade.

This grading has been of great assistance to the brokers in our Virginia made product in that up to the present time no complaint whatever has been made in connection with the sale of our first grade cheese. The cheese placed in the second grade is proposed to be sold through some Commission merchant or the same brokerage concern, but in some way so that the purchaser will know exactly what he is getting and our factories assuming no further responsibility in connection therewith. Another reason why we expect to arrange to stamp our better grade cheese is that any one handling it and up to the time it is out for distribution can tell where it is made or at least that it is made in Virginia, the factory brand we expect too to appear on each box of cheese, this to be stamped on the box at the factory and its quality to be determined by the brand stamped on it by the inspector when it is inspected.

STORING THE CHEESE.

We have found that the cheese kept in the storage rooms at the factories is subject to various things that affect to a more or less extent its value. As for instance rats and mice out into it. Weevils attack it and the skipper fly lays its eggs on exposed surfaces and the skipper hatches out, if the rind is broken makes its way into the cheese and further that the cheese loses considerably by shrinkage due to high summer temperatures, and even when paraffined the fat at temperatures up to and above 90° leaks from the cheese causing the paraffin to scale off thereby bringing about a condition making it

necessary to paraffin the cheese a second time, all of which takes time and adds to the expense of making the cheese. All these things can be avoided if the cheese is paraffined as soon as dry and as soon thereafter as possible be put in cold storage at about 40° F and higher or lower depending on whether the cheese is wanted fresh or with snap to it when it comes out of storage. The cost of keeping the cheese in the factory at the high summer temperatures costs more due to shrinkage than the charge the factories pay the cold storage people for their service and again cheese in cold storage ripens more satisfactory and better than at temperatures that obtain for the most part in our factories in summer. This is really the "storage argument" in favor of putting cheese in cold storage.

The grading of the cheese is also facilitated materially when put in cold storage because the grader can visit the cold storage plants after a lot of cheese has been put in, several tons for instance and with sufficient help to handle the boxes the grading can be done very rapidly. It being necessary to go into only one cheese of each days make. Cold storage has been found available at the following places: Fries, in Grayson County, Kansas in Prince William County, and Richmond in Powhatan County.

The dates on which each cheese is made is marked on the box and it is only necessary to examine one cheese made on that date. With sufficient help to handle the boxes the grader can get over a lot of cheese in a few hours as has already been stated.

Another thing in favor of putting the cheese in cold storage is that the price advances almost invariably towards the end of the summer and early fall; really cheese prices are more or less bearish during the summer anyway. All the cheese stored this last summer was sold at a considerable advance, on account of the advance in price, for the factories storing it, and this will make them more inclined to do the same thing another season.

FAIRS

We did not feel that it was worth the time and expense to go to the fairs with our cheese exhibit as we had done in previous years so contented ourselves with an exhibit at the State Fair at Richmond. We really had a more attractive exhibit there than we have ever had before. We were able to arrange for the installation and operation of a small refrigerating plant and some very modern cases in which to exhibit our cheese, the cases being mechanically refrigerated and a small tank with an ammonia coil providing ice water and this feature kept a crowd around that end of the exhibit all the time. The cheese sent in to the Fair was taken at random from the various factories and for that reason only represented about the average quality of our Virginia cheese, if that. The two best were found to be cheese of good quality and the others were only fair. The cheese after the Fair was over were all sold to the Dutch Market and were sold by them in Richmond to their trade. They were exhibited along with the ribbons taken at the Fair in their windows for several days before being offered for sale.

OTHER DAIRY EXTENSION WORK

A dairy barn and rest shed have been built at the Central State Hospital near Petersburg. Plans for the buildings were gotten up for Dr. Drewry some little time ago and I have gone over them with him several times and he informed me recently, being with him on the train for a few hours, that he had finally finished or about finished the two buildings. I have also taken up with the Supt. of the State Farm a rearrangement of conditions in the herd and dairy, and at my suggestion and recommendation enough Guernseys have been added to the herd to increase the per cent of fat to such an amount as is required for an A grade milk, the herd has also been tuberculin tested and are about ready now for accreditation. A steam boiler has also been installed in the milk room and a new double cooler put in and also a small refrigerating machine for cooling the milk.

In addition to the above equipment an insulated and refrigerated box has been provided and with sufficient capacity to hold all the night's milk and with little if any rise in temperature during the night. The result of this work has been that the milk produced at the State Farm is as good from a sanitary standpoint as any milk going into the Richmond market. It is all sold now as an A grade product, this makes a difference of between \$3,500 and \$4,000 in the income to the institution as the A grade sells several cents higher than the next best grade. The milk from the State Farm from now on should meet fully all the requirements of the Richmond market and be at or near the top of the list from the standpoint of quality and sanitary requirements. The use of the refrigerating machine makes it possible to make deliveries of milk in Richmond in summer at 40° F or below. This milk is sent into Richmond by truck and in jacketed cans and delivery made in about two hours after leaving the farm.

CONVENTIONS ATTENDED

I was able to attend the Cheese Makers Convention in Milwaukee in January, the discussions I heard were interesting and instructive. I was allowed to examine the cheese that scored highest and also the one scoring lowest, as well as some scoring between these. I could not find in the average cheese any quality that was much if any better than our cheese and not as good as some. The lower scoring cheese were very inferior in my judgement, probably not as good as some of our inferior cheese. After being in Milwaukee at this meeting I felt encouraged about our work in Virginia, it did not appear that we were trailing so far behind them after all.

I was also able to attend the National Dairy Show at Syracuse, N. Y. The cattle of the various dairy breeds shown and the equipment of all kinds used in the manufacture and handling of milk were most interesting, the large exhibits of cheese and butter too indicated the extent to which these products were manufactured in this country.

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I had the opportunity too to talk to some of the men engaged in making cheese and got some points in processing milk wherein the final product could be improved in our factories. After going over this matter with them it appeared that our cheese could take a slightly larger percentage of water and that to increase the moisture content slightly would not only add to its weight but also to its quality. Since returning from Syracuse I have had all the factories change slightly their manufacturing process and for the purpose of increasing to some extent the moisture content of their cheese. I have also called attention to the fact as the winter (cooler weather) approaches that their method in the manufacture of cheese must be changed somewhat, also the importance of having present in the milk the lactic acid forming bacteria in sufficient numbers to develop the acid as rapidly as might be desired in order that the cheese making process might not be unnecessarily prolonged.

Some of our cheese makers have not been making cheese a great while and are having some difficulty from time to time on account of lack of sufficient knowledge of the process. A visit at intervals, however, will usually get them straightened out. It appears important then that arrangements be made that some one visit these factories that are making winter cheese so as to keep them as far as possible from getting away from the method of making cheese which insures a good product. We have now a production of more than 800,000 lbs. of cheese a year. This production might be increased at the rate of 100% a year which in five years would mean an increase from year to year as follows:

300,000
400,000
800,000
1,600,000
3,200,000
6,400,000

Or at the end of the five year period a production of 6,400,000 lbs. Estimated on a basis of 4000 lbs. of milk per cow it would require 16,000 cows to produce the milk for that amount of cheese.

If we estimated for the milk produced (1923) this year on a basis of 3000 lbs. per cow, and that would be likely as much as got to the factories from each cow on an average, it would require approximately 700 cows to produce the milk that was made into cheese last year. That really sounds like very little when compared with some of the cheese manufacturing states, but it is a start and we have a good many people interested in its manufacture and we should be able to go along with it and increase production materially from now on.

The by-products of the manufacture of cheese, the whey cream and the whey also have value. The whey cream is being saved and marketed in two of the factories and amounts approximately to about 3 lbs. of fat per 1000 lbs. of whey or about ten pounds of fat from a vat of milk. This fat has been sold at from 40 to 45 cents a pound, amounting to about \$4.00 a day. When this cream is salvaged it about pays all the expenses of making the cheese, the whey being returned to the farmers for feeding

to their hogs for the most part. We are advising the installation of a whey separator where-ever the amount of milk coming to the factory would seem to justify it. Having a whey separator also enables the cheese maker to separate milk that comes in too high in acid to be put into the batch to be made into cheese and that is much better than returning this milk which always causes dissatisfaction and complications. To put this sour milk into cream enables the factory to realize about cost on it which is a great deal better than undertaking to penalize the producer by returning this milk to him. I had expected to be able to include in this report the amount of milk received and cheese made at the different factories, but in spite of the fact that requests have been made several times I have only been able to get three reports, and one of these not giving all the information wanted. The reports gotten would seem to indicate that two of the factories reporting, the Fowhatan Factory and the Spring Valley Factory, made about the same amount of cheese, in both cases about 43,000 pounds each or a total of about 86,000 for both. This estimate is for the year 1923 and from January 1st to January 1st.

A GOAL TO BE WORKED FOR AT THE END OF FIVE YEARS.

To undertake to carry the work forward so that at the end of each year each factory will have doubled its production, or rather each community in which cheese is being made will have added cows in sufficient numbers to double the supply of milk. This will necessitate the addition of new vats in factories now in operation, and also the building and equipping of other factories in communities in which there are factories being operated now. A survey can be made in each case and suitable places be found for other factories and as the supply of milk may appear to be sufficient for such additions to take steps to see that proper provision is made to take care of the increased milk supply.

This would mean that at the end of the five year period that between 15,000 and 16,000 cows be producing milk for the cheese factories. Considerable additions would be made to the herds after the first two years by reason of the fact that calves bred would be coming in. It is likely that at the end of the five year period the heifer calves bred and raised would amount to nearly one fifth of the required number of cows to be provided at the end of the five year period, when we would expect to have 16,000 cows.

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