

The Editor has selected a series of articles of great value for cheesemakers. This 1st article on "Notes for Cheese Makers for July," is by Prof. James W. Robertson, Dominion Dairy Commissioner — third annual report. Other articles will appear in each succeeding number of the Canadian Cheese and Butter Maker. Notes for August, also September and October, also on "Fall Cheese Making," others on "Winter Cheese Making," fodder cheese, etc., all by the most eminent authorities in Canada.

NOTES FOR CHEESE MAKERS FOR JULY.

July cheese, like July butter, has a reputation for being the poorest of the summer. This year it should be exceptionally fine. The abundance of grass in June, with a too plentiful rainfall, will leave the pastures with richer herbage than usual. Suitable conditions for the production, preparation and preservation of the milk in a fit state for the manufacture of fine cheese can be continued by the patrons giving effect to these simple requirements:

It will be of quick and durable advantage to direct the attention of all patrons to the proper care of their milk.

When the yield of milk by the cows begins to shrink, the temptation to make up the quantity in some other way is increased. The Act passed by the Dominion Parliament to provide against frauds in the supplying of milk to cheese, butter and condensed milk manufacturers, is a piece of wholesome legislation.

It forbids the sending to any such factory (1) milk diluted with water, or (2) milk in any way adulterated, or (3) milk from which the cream has been taken, or (4) milk commonly known as skimmed milk, or (5) milk from which any portion of that part of the milk known as strippings has been kept back, or (6) any milk that is tainted or partly soured. The penalty for each offence against the provisions of the Act, upon conviction thereof before any justice or justices of the peace is a fine not exceeding fifty dollars, and not less than five dollars, together with the costs of prosecution.

The fine when recovered shall be payable, one-half to the informant or complainant, and the other half to the representative of the factory to which the milk was sent, to be distributed among the patrons in proportion to their respective interests in the product thereof.

Some of the qualities that are expected and desirable in the cheese of July are:

1. Rich, clean, creamy flavor.
2. Solid, firm, buttery body.
3. Fine, silky, flaky texture.
4. Bright, uniform color.
5. Attractive, neat, symmetrical, stylish appearance.

In order that cheese having just these qualities may be manufactured regularly, I make the following notes for guidance:

1. Thorough distribution of the rennet in the milk must be effected by diluting the rennet extract and by vigorous stirring.
2. Sufficient rennet to coagulate the curd into a steady fit for cutting in from 35 to 40 parts at from 86 degrees to 90 degrees should be used. When an extra quantity of rennet is used, a corresponding increase in the weight of salt should be added to the curd.
3. The contents of the vat should be perfectly still when coagulation commences. Vibration of the floor and of the vat during the thickening of the milk causes waste.
4. The horizontal knife should be used first in cutting, and active stirring should not commence until the cubes of curd become slightly heated.
5. The temperature should be raised gradually to 96 degrees or 98 degrees Fahr.
6. The stirring should be continued until the curd particles are so well "cooked" or "fried" that when a handful has been pressed for a few moments they will fall apart again as the result of any slight disturbance.
7. As soon as the presence of the acid is perceptible by the hot iron test, the whey should be removed. In the case

of gassy curds, a further development of acid before the drawing of the whey will be beneficial.

8. Hand stirring will be of advantage until the curd is firm.

9. The temperature should be maintained at or above 94 degrees.

10. The curd should be allowed to mat into one mass.

11. It should be turned so frequently that whey will not collect or stand in small pools in or on it.

12. If it becomes gassy it should be aired (if need be by grinding and stirring) and afterwards kept at a temperature above 90 degrees.

13. The gas formed in gassy curds hinders the development of acid; and the presence of acid prevents the formation of gas. The treatment should provide for the removal of the gas by aeration, and the maintenance of temperature by the application of hot water to the curd or steam to the vat or sink in which it is.

14. Close matting and packing of the curd are beneficial only after the curd is sufficiently dry and when aeration is provided for.

15. When the texture of the curd becomes stringy in its nature, it should be put through the cutter or grinder.

16. Aeration should be effected by the stirring of the curd before the addition of salt. Usually 15 minutes of such treatment will suffice.

17. Salt should be added at the rate of from 2 1-2 to 2 3-4 lbs per 1,000 lbs of milk, according to the dry or wet condition of the curd. A judicious variation in the quantity of salt should be made in proportion to the moist or dry state.

18. The "hoo,ing" of the curd should begin when the harsh surface, produced on each piece of curd by the salt, commences to give place to a sloppy, mellow quality.

19. Shoulders or projecting edges on cheese are unrightly evidences of careless workman, h.p. and lower their value from 2 to 3 shillings per cwt. in the English market. Careful pressing and bandaging and the turning of the cheese in the hoops in the morning will prevent their formation. The pressure should be continued for at least 20 hours. In that way cheese can be finished, having an attractive, neat, symmetrical and stylish appearance.

20. The sprinkling of cold water in the curing-rooms in the morning and just after noon, will reduce the temperature.

21. The curing rooms should be thoroughly ventilated and should be kept clean.

SEPARATORS AND THE SEPARATION OF MILK.

By Mark Sprague, Instructor of Dairy School, Guelph, Ont.

As cream separators are coming more into use every day in the creameries of the Province, we feel that a few hints as to their care and management would be welcomed by all who are interested in buttermaking.

As there are six or seven kinds of separators on the market, differing very much in construction, it would need as many sets of directions to make this part of our bulletin complete, but space will not permit of so full a treatment of this special department.

The principle of separation in each machine being the same, we will divide our separators into two classes, belt separators, and steam or turbine separators, the latter being driven by steam direct from the boiler.

1. Belt Machines.—A stone foundation is not required for those makes of separators that are built with a rubber ring around the upper bearing, but the best results are got from having all separators solidly placed or set. First, place the intermediate, or jack, in position. Level it and put it in line with the driving shaft. Then fasten it in position with bolts or lag screws, bearing in mind that it may be placed immediately under, or several feet either way from the centre of the driving shaft, as best suits the requirements, and taking care that the pulley on the driving shaft be of sufficient width to carry the belt, and allow of its being shifted

from the tight to the loose pulley of the intermediate, and vice versa, and of the proper size to give the exact speed required.

Next place the frame of the separator in position, far enough from the intermediate to give the proper tension to the endless belt. Level the machine both ways by placing your level on the top of the cast frame, which is turned true for this purpose. Line the separator with the intermediate by bringing the right hand outside surface of the spindle pulley in line with the centre of the face of the large intermediate pulley, having the vertical centre line of the spindle level with the under side of the intermediate pulley; then bolt the separator securely to the floor or foundation, unless it be one that has the spindle and bowl connected by a socket joint. If the spindle is so connected, bolting down will be unnecessary.

Bear in mind that the separator bowl should revolve or turn to the right, or with the sun, and that the intermediate should run from the separator. Never put the idler or tightener on the drawside of the belt. Where only one separator is used, put on all the belting and start the separator with the engine, taking from ten to fifteen minutes to reach the proper speed. Wipe all bearings to free them from dust or dirt, and see that all oil tubes are cleansed and free to allow the oil to flow to the bearings. Look carefully after this matter from day to day.

2. Steam or Turbine Separators. In setting a steam or turbine machine you have only to decide on the place to set it. This separator also must be set solid so as to free from the possibility of vibration, and must be levelled in the same way as the belt machines. Turbine separators are all fitted with three-quarter steam fittings, but if the separator be placed so that more than twenty feet of pipe is required to reach to the boiler, use a larger pipe to insure sufficient steam to drive it properly, adding one quarter of an inch in size of pipe for every twenty feet in distance. Take care to remove all scales and cuttings from pipes before placing them in position.

The exhaust pipe is usually made of galvanized iron, four inches in diameter. It may be conducted through the side of the building, provided it is placed so as to drain well, or it may be put through the roof. The latter method is to be preferred, as the danger of frightening horses is thus done away with. It should be long enough to reach higher than any point of the roof, in order that the draft may not be interfered with. When it is put through the roof, a drain pipe must be connected with the elbow at the lowest point to carry away the condensed steam. This in most cases may be put through the floor or be allowed to run into a pail. Next put the bowl and spindle in place, being sure to have all bearings cleaned and oiled. Then fill the bowl with water. If it be a separator that has steam turned directly against the bowl, this will keep the bowl cool until sufficient speed has been reached to cause a current of air around the bowl, which will keep it cool thereafter. Apply steam gradually, having the regulating valve set so that it will keep the pressure at from forty-five to fifty pounds on the steam gauge. If there is no safety valve, the pressure will have to be regulated by the globe valve.

After speed has been reached in either the turbine or the belt separator, the milk should be turned on full feed, until both the cream and the skim-milk flow freely; then it should be closed off till the cream is the desired thickness.

Milk separates best when fresh or new, and at a temperature of ninety degrees. But in creameries the usual practice is to bring the night's and morning's milk together to the factory. In such cases, if the temperature has fallen below eighty-five degrees, the milk should be heated to eighty-five or ninety degrees at least eight or ten minutes before going into the separator. This is done by means of a tempering vat, holding about 400 pounds, and attached to the receiving

vat, so as to have a constant and regular flow to the separator.

Heating increases the difference in the specific gravity between the serum and the fat of milk and thus facilitates the separation of the latter. Frozen milk separates better when heated five to eight degrees higher than that which has not been frozen.

After all the milk has been separated, the cream left in bowl can be forced out by putting in some skim-milk or water; about two pailsful will be needed for this purpose. Shut off the feed tap for a few seconds when about one pailful has gone through; then turn it on again.

Always allow the bowl to stop of its own accord after the power has been taken off — never apply any brake or friction to it. Wash in tepid water the bowl and all the parts that come in contact with the milk or cream, cleaning all foreign substances from the skim-milk tubes, etc. Then scald with steam or boiling water and allow to dry after which the parts may be put together for operation next day.

Two thicknesses of quarter-inch rubber packing placed under the outside edge of the base, before bolting the separator down, improves the running of any separator. Four rubber rings, one under each corner, also have a beneficial effect in making the separator run smoothly and quietly.

In conclusion, we would say to any one who gets a separator: If you are not familiar with it, get some person who has had experience to assist you in setting it up. The very high rate of speed at which cream separators run, makes them somewhat dangerous in the hands of inexperienced operators.

THE USES OF SALT.

Salt puts out a fire in the chimney. Salt in whitewash makes it stick.

Salt used in sweeping carpets keeps out the moths.

Salt in solution inhaled cures a cold in the head.

Salt on fresh ink stains will help to remove them.

Salt as a gargle will cure soreness of the throat.

Salt and soda are excellent for bee stings and spider bites.

Salt and vinegar will remove stains from discolored teacups.

Salt in the water is the best thing to clean willowware and matting.

Salt on the fingers when cleaning fowls, meats or fish, will prevent slipping.

Salt in the oven under the baking tins will prevent their scorching on bottom.

Salt thrown on a coal fire when broiling steak will prevent blazing from the dripping fat.

DAIRYING DOTS.

Mr. F. C. Harrison, bacteriologist at the Ontario Agricultural College, Guelph, has made a large number of analyses of Canadian cheddar cheese during the past two years, and has obtained a lot of valuable information in regard to the kinds of bacteria producing bad flavors in cheese. Last season Mr. Harrison received a sample of cheese from Instructor Publow, of the Eastern Dairyman's Association, containing a bad flavor which on careful investigation was found to be caused by undesirable bacteria getting into the cheese from the use of bad water at the factory. The cheese from which this sample was taken was made at the Ashton Union Factory. According to Mr. Publow's report everything about the factory was in good order and kept clean and tidy, only the water from the well had a very bad flavor. The cheese was good in every way except having a bad flavor. The water at the Ashton factory was condemned, and on discontinuing the use of the water from the well the cheese made afterwards was all right. Hence we may repeat what has often been said, viz., that factorymen should pay very close attention to the water supply in their factories, to see that it is clear, pure and good. Bad smelling water should never be used for setting vats. In all doubtful cases the water should be boiled, and then cooled to the required temperature.