

cent of butter fat and also the yield of milk. Whenever the cow suffers for lack of food, water, or proper care there is a decrease in the amount received from her.—*Hoard*.

PASTEURIZED MILK FOR CHEESE MAKING.

Thus far the cheese maker has not been able to use pasteurized milk in his business, owing to the fact that the heat in some way changes the nature of the casein, and consequently the rennet does not act on it in the usual manner. This fact has prevented the cheese maker from making use of pasteurized milk to improve the quality of his product, as the butter maker has been able to do so successfully. The *Milch Zeitung* publishes the results of some experiments, which were made to see if this objection could not be overcome, as follows :

"This investigation was suggested by the practice of pasteurizing milk for butter making and the resulting difficulty of utilizing the skim milk for cheese making. Three series of experiments were made, including a large number of trials in each. In the first series the separated milk was heated to 167° F. for fifteen minutes ; to 185° for ten minutes in the second series ; and to boiling point for two minutes in the third series. In each experiment about five gallons of separated milk were used, varying proportions of calcium chloride being added in some cases, and none in others. A small cheese was made in each case.

In the first series, where the milk was heated to 167° F., it was found that there was little difficulty in making cheese from the milk, either with or without the addition of calcium chloride, but the investigators recommend adding to such milk about fifteen grains of calcium oxide (lime) per two and one-half gallons of milk to facilitate the curdling.

The cheese made from milk heated to 185° F., and treated with calcium chloride, resembles in many respects that made in the first series of experiments. The yield of cheese was in all cases greater where the calcium chloride was used than in the control experiments. The green cheese also contained more water, but even on the basis of dry matter the yield was greater. The greatest difficulty in making cheese from this kind of milk was found to be the time required for the complete separation of the whey from the curd.

The use of calcium chloride was also found to restore the ability of milk heated to boiling point to curdle, but to accomplish this in the same time two and a half times as much calcium chloride was required as in the first series. The separation of the whey was very slow and difficult, and the curd itself was unusually rich in water, and was changed to a greyish-white appearance and a finely granulated condition, with very little tendency to adhere together. The addition of larger quantities of calcium chloride improved the adhesive qualities of the curd, although it did not entirely remove the difficulty. Experiments made subsequently, scalding to 104° F. to hasten the separation of the whey, and to make the curd more adhesive, resulted favorably, and this is to be the subject of further investigation.

In a later note in the *Milch Zeitung* it is stated that all difficulties in making cheese from milk heated to 185° have been overcome, and that the process is rendered as simple as ordinary cheese-making."

If these experiments are successful, and it is found that pasteurized milk can be used in cheese-making, it will be a long advance towards the ideal, fine-flavored cheese that we are all looking for.—*Hoard*.

The Poultry-Yard.

(CONDUCTED BY S. J. ANDRES).

ARTIFICIAL INCUBATION.

Cooling the Eggs.

Cooling the eggs, or aerating them, as it is generally termed, is a very important part of incubation, and careful attention to it will be repaid by an increased percentage and stronger chicks.

"I do not need to cool the eggs," says some one, "my incubator has all the ventilation it needs." It may have plenty or too much ventilation, yet, for best results, the eggs should be cooled once a day, beginning on the second day and continuing to the eighteenth day, both inclusive.

The hen leaves her nest once a day, if allowed, and, in exceptional cases, where she does not do so voluntarily, she should be taken off once a day.