Gravity creaming

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GRAVITY CREAMING.

FRED L. KENT.

We are often asked how much loss there is in setting milk in cans or pans as is customary with farmers in general who have but few cows or are at a considerable distance from a creamery. Many experiments of this sort have been made and we will only add our testimony to what has already been written. The table below is the average result of four separate trials, made with the best of farm conditions, viz.: Ice water in which to set the milk, a place where the milk would be undisturbed, and setting of the milk soon after being drawn from the cow.

The trials were made October 17 to 20 with a portion of the mixed milk from the cows on the college farm, most of them being well along in the period of lactation. Two cans were set each time, both containing the same quantity of milk. One of these cans was skimmed in about fifteen hours, the other allowed to stand about twenty-four hours. Cooley creamery cans were used and the skim-milk and cream separated by drawing off the skim-milk from the bottom of the cans with the siphons made for that purpose. One inch of skim-milk was left with the cream in each case:

<table>
<thead>
<tr>
<th>SET 15 HRS.</th>
<th>SET 24 HRS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature of milk when set—degrees.</td>
<td>87</td>
</tr>
<tr>
<td>Temperature of water—degrees.</td>
<td>40</td>
</tr>
<tr>
<td>Per cent of fat in whole milk.</td>
<td>3.25</td>
</tr>
<tr>
<td>Per cent of fat in first inch skim-milk drawn.</td>
<td>.45</td>
</tr>
<tr>
<td>Per cent of fat in third inch below cream.</td>
<td>.64</td>
</tr>
<tr>
<td>Per cent of fat in second inch below cream.</td>
<td>.76</td>
</tr>
<tr>
<td>Per cent of fat in whole skim.</td>
<td>.57</td>
</tr>
</tbody>
</table>

These results indicate that there is very little gain from setting milk more than twelve to fifteen hours when ice is used. Had the milk been set before cooling to 87 degrees it is probable that the loss of fat in the skim-milk would have been less. As it was, the loss in these cases will seem to be about one-sixth of the original amount of fat in the milk.

By the table it will be seen that a considerable less quantity of fat is found in the skim-milk from the bottom of the can...
than from that near the cream. Hence the practice of many
dairymen of skimming off the cream only is wasteful. The
first inch below the cream line in these trials was taken with
the cream, and hence was not tested, but other tests have shown
that this first inch contains from two to four per cent of fat.
Therefore when the skimming is done so as to take as little
milk as possible there is a considerable loss which might be
avoided by taking more of the milk. I would advise taking
not less than one inch of milk with the cream, and if the
whole milk is quite rich when set so that there will be con­
siderable cream to remove, it would be well to take one and a
half to two inches of the skim-milk in the skimming.

As already stated these trials were made under the best pos­
sible farm conditions, except that the temperature fell somewhat
before the milk was set. This and the fact that the cows were
well along in the period of lactation may account for the loss in
the skim-milk being greater than has been found at some other
stations.

In proportion to the absence of favorable conditions will both
increase in the loss of fat. Milk set in running water at a
temperature of 60 degrees will show a loss in the skim-milk of
about twice that given in the table, while in cases where the
milk is allowed to stand in the same water all day or perhaps
longer, the loss may be three and some times four times
as much as under the most favorable conditions. I have tested
samples of skim milk from farms where only a few cows were
kept which showed over two per cent of fat, a loss of fully one­
half the fat originally present in the milk.

Remarks.—From the above it will be seen that the loss of
fat in creaming by gravity is very heavy if many cans are kept.
It should also be remembered that the above conditions are
much more favorable for thorough creaming than those on the
average farm. With the “Baby” separator which we use in
the dairy building we can save all but the slightest trace of fat
in the skim-milk. There is no question but that where many
cows are milked, money spent for one of these small separators
is well invested. After having been at the expense of produc­
ing fat the dairy farmer should strive to save the greatest pos­
sible amount of it. Butter fat is too costly to feed to calves
and pigs, good results can be secured by the substitution of
cheaper fats.

Henry C. Wallace.