

Increase speed gradually at first, taking from 10 to 15 minutes for large machines. When the speed is up to the proper number of revolutions start the milk into separator, slowly at first. The speed of separator should never slacken during the run unless forced to do so. Keep the separator well oiled, but do not have the oil running in streams down the floor, as this is simply waste. Keep the separator perfectly clean; after washing set bevel under steam pipe and steam the inside for a few minutes. Catch a sample of the skim-milk every day and have it tested; any separator leaving more than 1% in skim-milk should not be used as you will soon lose enough to buy a new separator. In order to get a fair sample of skim-milk have a little hole made in skim-milk pipe where a drop will come out about every minute, there you may set a jar and get a fair sample.

Run speed of separator about 500 revolutions more than the number which is marked on the bowl, we find we can do better skinning by so doing. Do not let milk be dropping or spilling around the floor; see that all pipes and joints and taps are perfectly tight and have everything in good shape.

The cream should contain from 30 to 34 per cent. fat. Put about 10 or 12 per cent. of good starter into it, which will reduce it to 28 or 32 per cent. This I have found to give good results when churning. The starter may be added as soon as cream starts into the vat.

RIPENING THE CREAM.

Ripen the cream at a temperature of from 70 degrees to 75 degrees or have the cream started to thicken in 6 hours from the time it has been separated. Quick souring will improve the flavor of butter. As soon as cream is thick it should be cooled down quickly to a temperature of 60 degrees, say in one hour's time, then gradually down to 50 or 52 and should remain at that temperature for 3 or 4 hours before churning in order to harden the globules of fat properly. Cream should be thick 10 or 12 hours before it is churned. During the ripening process it should be well stirred occasionally to ensure even souring; the cream vat should also have a cover to help keep the heat even and keep any taint out.

CHURNING.

Scald the churn thoroughly; have water not less than 180 degrees; revolve churn five minutes, then draw water and cool the churn by adding cold water. Always stir the cream well in the vat just before removing it into the churn, and, when at all possible, run it in by gravitation. The cream, of course, should be strained into churn. For export butter color will hardly be required. The temperature for churning will depend on the richness of the cream; have cream rich enough to churn at 50 to 54 degrees Fahr., time of churning varying from fifty minutes to one hour.

When the butter is about to break, the churn should be stopped and the temperature taken; if the cream has warmed up a little put a pailful of cold water into the churn, but if it is cool enough do not use water too cold, but in all cases water should be used at this stage, as it will aid in getting a better separation. A loss of butter fat is often due to cream being too warm at this stage and temperature not being lowered. Churn until granules are as large as grains of wheat; then stop the churn.

After allowing it to stand five minutes, draw off the buttermilk, then wash with plenty of pure water. The temperature of the water for washing butter may be about two degrees lower than butter. If the butter is in good condition once washing will be enough, otherwise wash twice, or until water runs off perfectly clear; a little salt may be added to the washing water. This will give the butter a bright color, and help the separation. Keep temperature of butter room about 55 degrees.

WORKING THE BUTTER.

When the butter has been properly washed it should be allowed to stand for thirty minutes, at least, before working. The amount of salt used will be gauged entirely by the requirements of the market. Where butter is made in a trunk churn and worked on a separate worker, the butter

will be weighed before salting and salted accordingly. But when salted in churn or combined butter churn and worker, the weight of salt may be calculated from weight of milk; salting should be uniformly done, especially for export trade. When salting butter in churn one-eighth ounce more should be used per pound butter than salting on table. When butter is worked once, working should be carefully done. All little particles should be incorporated into the mass, and not left lying around the table.

When butter is worked by number of revolutions of worker be careful not to overwork it. You may find out the proper number of turns to give worker by a careful examination of butter forty-eight hours after it has been worked; if it has been over-worked it will be greasy and show injured grain. If not worked enough, it will be streaked.

PACKING.

If butter is made for export, nothing but a first-class package should be used; it should be lined with parchment paper. A little salt may be put in bottom of box.

After paper has been brought over the top of butter, a little more salt may be sprinkled on, the cover of package should rest tightly on this. Butter should be tightly packed and the package should be air tight. Keep the packages clean by using canvas sacks, which will aid in selling the butter. Give the creamery business your most careful attention. Keep everything scrupulously clean and success will surely follow.

Leaks on the Farm*

By A. W. Peart, Burlington, Ontario.

There are so many different departments in agriculture, its operations are so varied and complex, and it is under the control of such diverse and innumerable laws, some of which are within our command, and others again that are not, that it would be an utter impossibility to provide against every source of loss. Still there are some leaks for which we ourselves are alone to blame, and it is to a few of those I wish to direct your attention.

INATTENTION TO OUR OWN BUSINESS.—Owing to the keen competition in every line of work no man can expect to succeed if he wastes his time on matters that have no connection with his business. If you profess to be a farmer, be one, first, last, and above all things, and give your farm the best of your thoughts and time. Do not leave the management to incapable, though perhaps well meaning heads, nor the work entirely to your help. Look the world over and you will find that the most successful men, financially, are those who are generally found in the heart of their business. We cannot afford to neglect our farms, and should we habitually do so, sooner or later we shall be awakened by the shock of a crisis in our affairs.

LACK OF SYSTEM.—The more perfect are the parts of a machine both in themselves and in their relation to each other, as a whole, the more effective is the work in quality as well as quantity. What we want is well directed energy, not blind force, and to use our brains as well as muscle. Some of us appear to be guided by rules as yet unknown. Whatever work we start to do we plunge blindly on towards its end without taking the trouble to think, "What is the best way to do this?" Rather than examine for ourselves whether or not it will pay to do a certain thing, we sometimes take the word of someone else for it and go ahead. Now, unless our venture is based upon sound and well tried experience, it will probably end in disappointment. Everything is in disorder around us; nothing is done at regular hours; there is no stated time for work, for rest, or for anything. Whether our work is done in season or out of season it seems to be all the same to us. But it is not all the same; for every violation of the law of order we suffer a loss. Some keep more help than would be necessary with good management. Wages are high in this country, and here is room for a big

*A synopsis of an address prepared for Farmers' Institute meetings in Ontario, condensed for publication by the Superintendent.