Practical Notes from the O. A. C. Dairy Department.

SILAGE FOR SUMMER FEEDING OF DAIRY COWS.

SIR,—I was pleased to notice in your number for August 15th that the veteran dairyman, Mr. J. A. James, Nilestown, Ont., has recommended corn silage for summer feeding. We have given it a thorough test during this past season and find that our cows never milked so well during the summer as when getting 20 to 30 lbs. of corn silage which was made in 1897. This milk has been used for both butter and cheese making, and so far we have not noticed any objectionable flavor on the milk. Our men prefer taking corn from the silo for feeding rather than hauling green corn from the field, and the cows eat the silage as well as the green corn. We also feed two to four pounds of meal per cow per day, as there has been little pasture for a month until recently when we turned into a clover field. The clover for the first few days gave a decided taint to the milk.

FLY MIXTURES FOR COWS.

The horn fly was due to leave us this year according to the prognostications of entomologists, but he is still with us; in fact, the flies are more numerous than ever. We have been experimenting with several mixtures during the past season, and find that a mixture of lard, tar, crude carbolic acid and coal oil is about the most satisfactory. For 25 cows melt 10 to 12 pounds of lard or any other grease, and into this pour one pint of pine tar, three tablespoonfuls of crude carbolic acid and a pint of coal oil. Mix the whole and apply in an oily condition with rag or sponge. It will take two men about one to one and a half hours to go over 25 cows. This mixture will keep the flies off for about a week. Lard at five cents per pound is cheaper than fish oil at 80 cents per gallon. Ten pounds of lard is about equal to one gallon of the oil. It will pay to relieve the cows from the torrent of flies.

DIFFICULTY IN MILK COAGULATION.

We have received letters telling of difficulty in getting the milk to coagulate properly when the rennet is added. This trouble is likely caused by an alkaline condition of the milk, due to patrons adding soda or some similar substance to milk to keep it sweet, or it may be a natural alkaline conditon of the milk. Any cheesemaker can see the effect of alkali on milk coagulation by adding half a teaspoonful of baking soda to eight ounces of milk before making a rennet test. Milk that will coagulate in twenty seconds from the vat will require one minute or longer to coagulate if soda be added. Patrons should be warned not to use soda or any preservative whatever in milk sent to a cheese factory, as it will cause the maker trouble. Where this difficulty is experienced the milk should be ripened more before adding the rennet, while the use of a good sharp, clean-flavored starter will neutralize the alkali in the milk. This must be done before adding the rennet.

SUB EARTH DUCT FOR CHEESE CURING ROOM.

During the past season we have had an opportunity to test the value of a sub-earth duct in our curing-room. With a properly constructed duct there is no need for a properly built curing-room getting above 70 degrees in the hottest weather. At the present time (Aug. 23) our room remains at about 66 degrees. One difficulty we have experienced from the duct is that the room has almost constantly 90 to 95 per cent. of moisture, which causes the growth of a great deal of mould. We have been experimenting with formalin solutions sprayed on cheese to prevent mould. Early in the season we commenced spraying one cheese with a two per cent. solution of formalin and leaving another of the same day's make unsprayed. We found that a two per cent. solution was useless to prevent mould. We then tried a three per cent. and then a four per cent., and we are now working with a ten per cent. solution, which so far has prevented mould growing on the cheese. The weaker solutions were valueless.

MOTTLED CHEESE.

Our experiments on this question lead us to conclude that the trouble known as mottled cheese is caused by a something which attacks the coloring matter which is added to milk, as we have not been able to get any white cheese which showed signs of the trouble. If makers are troubled with mottled cheese, make white or uncolored cheese. (This is another argument in favor of discontinuing the practice of coloring milk for cheesemaking.) There also appears to be some connection between the whey tank and mottled cheese, but so far we have not been able to secure the missing link. Starters made from the whey tank almost invariably produce mottled cheese. Cultures made in the bacteriological laboratory have not produced the mottling to any extent. Many cases of slight mottling disappear after a time.

PASTEURIZATION OF MILK OR CREAM.

We are being asked very often nowadays, Would you recommend pasteurizing milk or cream for the winter creamery? To this we answer yes, if there is likelihood of bad flavors in the milk, and these are almost certain in the average milk sent to a winter creamery. With a proper milk pasteurizer, proper methods of cooling the cream, and a maker who understands his business, and especially the making and use of starters or cultures, we think that patrons will be better satisfied with the skim milk. The separator will do closer skimming and the quality of the butter will be very much better by adopting this system. It is useless with a careless maker.

The export demand is for a mild-flavored, light-colored, light-salted butter. Pasteurized milk or cream is an important aid in securing the first two.

EXHIBIT BY DAIRY SCHOOL AND EXPERIMENTAL DAIRY.

Many of the points brought out by our experimental work during the past season will be illustrated in the dairy exhibit at the Industrial Fair, Toronto.

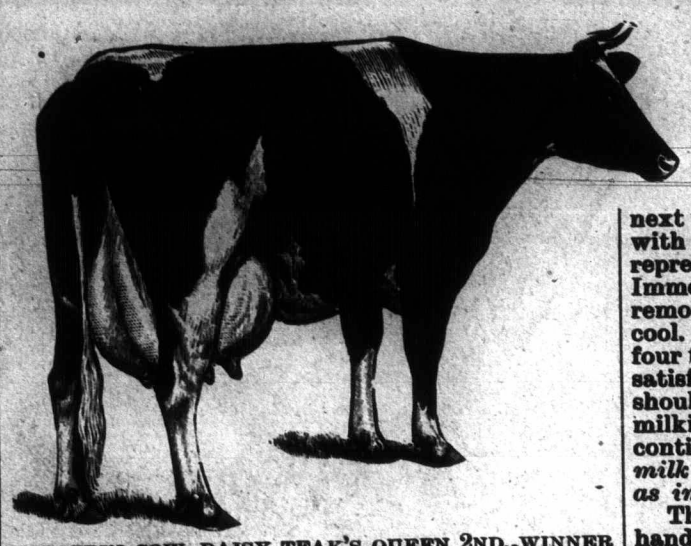
H. H. DEAN.

Production and Care of Milk on the Farm for Creamery Buttermaking.

BY F. J. SLEIGHTHOLM, SUPT. WESTERN DAIRY SCHOOL.

The creamery industry in Canada is experiencing a very considerable development. Its expansive possibilities are great. Many are taking up this work. Supply houses are doing a very largely increased business in creamery apparatus. Exporters and local dealers are alive to the possibilities and actualities of creamery work in this progressive country. In short, the iron is hot and we strike. The farmer's side comes first, as the man who supplies the original product.

The Food Supply.—The milk supplied to the creamery department of the Western Dairy School dropped 4,000 lbs. daily in less than twenty days this past summer (July). Our experience in this respect is one with probably all other creameries in Canada. This great obstacle to success is the result chiefly of three combined forces—insufficient food and water supply, heat, and flies. The first can be remedied in one of two ways. Either green fodder or silage can be fed, and *one or the other, or both, must be fed if full profit is desired.* The green fodder will be such as suits the land of the farmer, and does not injure the product. Green peas and oats (always use combinations); tares and oats; peas, tares and oats; peas, oats and barley;—all make excellent combinations and excellent milk. The writer has used every one of these combinations



HOLSTEIN COW, DAISY TEAK'S QUEEN 2ND, WINNER OF 1ST PRIZE AND SWEEPSTAKES FEMALE OF THE BREED, ALSO SPECIAL 1ST PRIZE AS BEST DAIRY COW ANY PURE BREED, WINNIPEG INDUSTRIAL EXHIBITION, 1898. RECORD: 72.25 LBS. MILK IN ONE DAY ON FAIR GROUND, AND 2.62 LBS. BUTTER, 80% BUTTER-FAT. PROPERTY OF JAMES GLENNIE, LONGBURN, MANITOBA.

with good results. Generally speaking, we prefer them to silage, but silage is good. So much for quantity; next, the quality. Avoid swamp pastures, turnips, rape, green rye, decayed roots or vegetables of any kind, mouldy fodders, etc. Feed the choicest fodder grown to the milch cows.

Just a further word on this part of our subject. We are all well aware of the effect of the quality and quantity of the food upon the *quantity* of the milk product; but what of its effect upon the *quality* of it—*i. e.*, its per cent. of fat. We tread here upon disputed ground, but we believe in untrammelled discussion and plain statement. We firmly believe that food does affect the per cent. of fat in milk. We believe that the better a cow is fed, the richer in fat will that milk become. Two of the foremost experimental stations in England and at least one in the United States uphold this view. We quote as follows from Stewart's "Feeding Animals," a book of much merit: "An animal that under normal feeding made one pound of butter from thirty pounds of milk, gave in the same season, under increased feed (in quality and quantity) one pound of butter from twenty-eight pounds of milk, and in the following season, *having been well fed while dry*, gave, soon after coming in, one pound of butter from twenty-three pounds of milk." He also cites other instances equally strong. Again, it is noted that heifers do not give as rich milk during first season as afterwards. This looks as if the feed when not needed for frame-building had effect upon the milk. Again, observers have noted that cows that pasture upon our finest grass lands usually give a milk quite high in per cent. of fat. The writer noted when testing milk from cows feeding on the fine grass pastures of our Laurentian soils, that the tests were usually higher than on some other soils at the same season, and cattle of similar breeding. Again, nine out of ten farmers and dairymen believe that feed affects per cent. of fat in milk, and while these men may not consider all the data concerning the matter, there is such a striking unanimity of opinion based upon actual experience, that it is at least worthy of consideration. Therefore, dairymen should feed the best foods obtainable, cost considered, at all seasons of the year, whether the cow be milking or be dry: pasture grass, red clover, white clover, green oats, peas and tares, and green corn in summer time; ground oats, peas, wheat, barley, corn, red clover hay, well saved oat or barley straw, cornstalks, and ensilage, with mangels and carrots for the winter time. Any cow that does not give two hundred pounds of butter-fat on such fodders ought not to be kept in the herd.

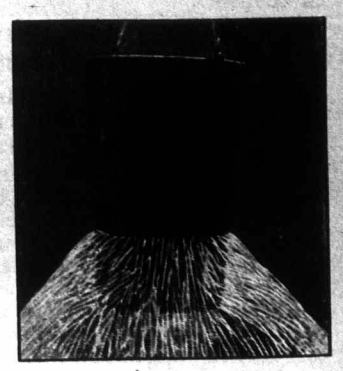
The Water Supply.—It must be plentiful, pure, and easily accessible—that is all. There is usually plenty, but not always purity. Pond water is an abomination on a farm, and a positive danger to the health of the community. The cows stand in them to keep off flies and heat; they befoul the water and then drink the filthy stuff, even though better water be accessible. Their udders become fouled, and the milk gets the benefit (?) at milking time. Swamp water is another form of the same thing, and has caused much trouble at the creamery, as the writer well knows.

Salt.—As much as the cows care to eat, whenever they care to eat it, is a safe and necessary rule. We do not think rock salt is as good as loose salt.

Management.—Kindness always; quietness too. No dog should ever come in contact with the dairy herd. In a late number of an American journal is an article showing where a little yelling and barking, etc., just before milking, caused a falling off of forty per cent. of butter-fat, a direct loss of $1.26 at a single milking. Cows should be milked in the stall, not in the yard. But what of the heat and flies mentioned earlier in this article? The writer is a firm believer (and his belief is born of actual experience) in the stabling of cows during the summer months, in all the older settled sections of this country at least, excepting where effective shade is at hand. Space will not permit giving detailed proof of the soundness of the position taken, but whenever tried it is approved. A liberal use of whitewash in the stable, say twice a year at least, assists much in the production of finely-flavored milk. Keep the floors and gutters scrupulously clean.

The Care of Milk.—Milk rapidly, quietly and cleanly. The whole udder and side of cow next the milker should either be brushed or wiped with a damp cloth. Milking on the hands is a most reprehensible and wholly unnecessary practice. Immediately after milk is drawn it should be removed from the stable, strained, aired and set to cool. (Strain through canton flannel or three or four thicknesses of cotton. Wire strainers are not satisfactory. After being cleaned, cloth strainers should be wrung out in boiling water.) After the milking is done, the airing, or aerating, should be continued at intervals until cooled. *Always air milk while it is warm, and remember that it is just as important to air milk well as it is to cool it.*

This point needs special emphasis. A long-handled dipper, an inverted milk pan with a handle long enough to reach the bottom of the milk can, the bottom punctured with a number of small holes, or a pail about 12 in. or 14 in. deep, 7 in. wide at top, and 5 in. at the bottom, with ordinary handle, punctured with small holes up the sides about 3 in. and a few in the bottom, are as suitable aerators as any, are cheap and effective. The last mentioned aerator—the pail—(herewith illustrated) is a most excellent article for airing milk. The pail is pressed down into the milk in the can and lifted up, about 300 fine streams shooting from sides and bottom, the milk receiving a much more perfect airing than by either of the other modes. We first saw this aerator in use on the farm of Mr. Alex. Rankin, of Oxford County, and immediately introduced them among our patrons here. It is very necessary that milk be aired where the air is pure. The worst milk in point of odor that we were ever offered at a creamery door was from a farm where the milk was aired just across the lane from a filthy hogpen. The farmyard, stagnant ponds, etc., are fruitful sources of trouble in this connection. Morning's milk should be kept separate from night's milk until the drawer comes around, unless cooled to the same temperature previously.



AERATING PAIL.

When the can arrives home with its contents of hot (pasteurized) skim milk, empty it at once, rinse out with cold or tepid water, scrub with brush (costing about 15c.) and hot water until perfectly clean inside and out, scald with boiling water and set to air, turned upside down or on the side so that the sun can shine into them. This is the proper method of cleaning all tinware, and is the method followed in all first-class creameries. Cloths should not be used for this purpose; they are not efficient and are difficult to keep clean. A little salt or