

there is a roof overhead and the snow kept out, is not the same kind of chore that it is to dig it out of the drift outside.

Every fallen tree should, of course, and as promptly as possible, be made up into firewood. But many a tree that has not been blown down is losing, rather than gaining. Increase by growth has become very slight, and is much more than offset by decay in the top and in the heart or hollow of the trunk near the ground. They should not be allowed to stand until that stage is reached. It is wasteful. The tree becomes less valuable each year, and meanwhile occupies precious space in the forest that otherwise would be used to advantage by trees making rapid growth. If the amount required for fuel is not equal to what is ready for cutting each year, it would be wisdom to sell the overplus.

Our national tree, the maple, is the standard of excellence for fuel purposes. As Bottom (he with the ass's head), in "The Midsummer Night's Dream," says of hay: "Good hay, sweet hay, hath no fellow," so may we, in our modern form of speech, say, regarding maple, "Good, hard maple for firewood can't be beat." Ironwood is really better, but there is not enough of it to count. Canada is blessed with many other kinds of good fuel timber besides maple, however. Beech, which is not found west of the Mississippi, is but little behind it, if handled properly. And there are hickory, white ash, oak, rock elm and tamarac—all splendid woods. The softwoods, also, such as soft maple, swamp elm, black ash, not to mention spruce, poplar, basswood and willow, all make a good fire. For summer wood, indeed, the lighter sorts are preferred by some housekeepers.

There is another source of fuel supply besides the wood-lot that should not be left out of sight. When one begins to pick up the bits of board, ends of poles, half-rotten pieces of old timber, discarded stable-floor planks, etc., that gather around the buildings in some mysterious way, and the old fence rails, of which there are always a few—sometimes a big few—he is generally amazed at the size of the pile they make. Every bit of this stuff can be used. The most watersoaked stable plank or old pole with grass grown up through its split end, if cut, split and neatly piled, will dry out in time and make capital firewood. And the improvement in the looks of a place after these odds and ends are picked up is well worth all the trouble taken.

But why bother with wood at all? Why not cut down the bush, and, with the profits from the land cleared, buy coal? Many are asking these questions. "The Farmer's Advocate" has for years consistently maintained that the farmer's wood-lot pays; that it is not only a thing of beauty, becoming, alas, more rare, and a great convenience in emergencies, but that in cold cash reckoning it is profitable, when timber production, as well as fuel supply, is counted, and that every farm, therefore, ought to have at least a ten-acre private forest reserve of this kind. Without at this time entering into a discussion of the question, this can be said. Wood products are constantly advancing in price. So is coal. Year by year a steady increase is noticeable. Also, as information from reforested sections of Europe filters down to us, there has grown a clearer apprehension of the yearly output per acre of such lands. The whole question has assumed a new phase. It used to be conceded, without argument, that it was more economical, looking from a mere money standpoint and for the time then present, to buy fuel than to hold standing timber. Now, with even the most hardened iconoclast, the question is at least debatable. The winning side is altogether likely to be the one on which the tide is rising.

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With agriculture in nearly all parts of the country lamentably undermanned, and other industries and enterprises clamoring for help, the proposal to divert 40,000 lads into summer camps for military training, by the promise of free uniforms and expenses paid by the public, is somewhat disquieting in its tendencies. As a help to the youth of the country, it may have some effect, but it is not likely to be seriously hampering the youth of the country.

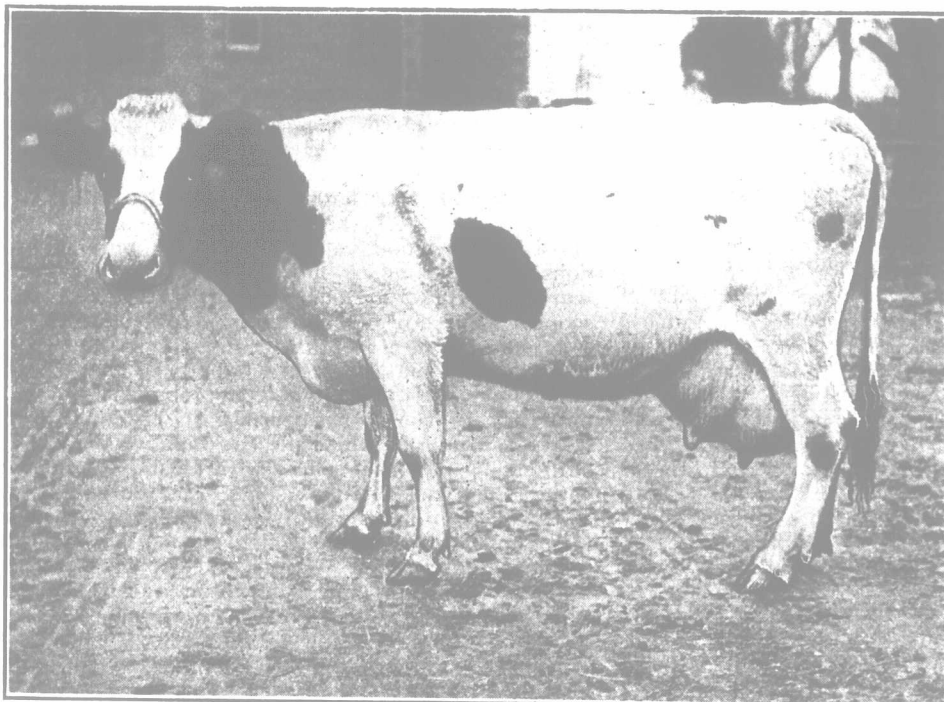
THE DAIRY

Factors Affecting the Percentage of Fat in Cream.

Compiled from Indiana Station, Bulletin 150; Missouri Station Bulletin 94.

One of the constant sources of friction between creameries and their patrons is the variations in the richness of cream. In order to arrive at a better knowledge of the factors affecting the percentage of fat in cream, experiments were conducted by O. F. Hunziker, of the Indiana Station, and C. H. Eckles and H. S. Wayman, of the Missouri Station.

In testing the effect of speed with five different makes of hand separators on richness of cream, the Missouri station found that, with one exception, set for thin cream, the greater the speed of the machine, the higher the percentage of fat in the cream, and this effect was much more marked when the cream screw was set for thick cream. Within ordinary limits, the greater the speed, the less the amount of fat remaining in the skim milk. This did not vary to any marked extent, whether the separator was set for thin or thick cream. The rate of inflow was uniformly increased by the speed. The explanation given for this is not that the greater the speed of the separator, the more milk will run through it in a given time, but that it is due to suction caused by the flow of air through the machine. The capacity of the separators did not vary to any extent whether set for thick or thin cream. By varying the speed of the separator, the Indiana Station found the cream to vary in fat content from 10 to 65.5 per cent. The work of both stations proved that,



Rideau Dellha's Lena De Kol.

Holstein cow included in Consignment Sale at Bedford Park, North Yonge street, Toronto, February 9th, contributed by R. F. Hicks, Newton Brook, Ontario.

contrary to the general assumption, the higher the temperature of the milk separated, the thinner the cream. This was found to be more marked when the separator was set for thick cream than for thin cream. The colder the milk separated, the greater the loss of fat in the skim milk. That the percentage of fat in the cream varies practically in direct proportion with the percentage of fat in the milk separated, or, in other words, that the ratio of cream to skim milk is not changed by the variation in the richness of the milk separated, was demonstrated by both stations. Prof. Hunziker found that, by varying the rate of inflow, the percentage of fat in cream varied from 23.5 to 70, the greater the rate of inflow, the thinner the cream. This was substantiated by Prof. Eckles and Wayman, who found that even the height of milk in the feed can affect the fat content of the cream to some extent. Acidity had but little effect, according to the Missouri Station, except that with sour milk there is a tendency for the percentage of fat in the cream to be increased, especially when the cream screw is set for thick cream. A small obstruction in the skim-milk tube, due to dirt or some other foreign substance, does not as a rule make any marked change in the operation of the machine. If the cream opening is partly closed, however, the cream becomes smaller in quantity and richer. The accumulation of separator slime sometimes results in a larger quantity and thinner cream, due to a partial obstruction of the skim-milk tube. To show definitely the effect of the amount of water used to flush the bowl on the richness of cream, Prof. Hunziker conducted experiments, with the follow-

ing results. When no water was used, the average percentage of fat in the cream was 37.8; with water equal in amount to the capacity of the bowl, 37.3; with sufficient water to cause the cream discharged to appear watery, 35; and when twice the amount of water needed was used, the percentage of fat in the cream was 33.5.

These experiments prove conclusively that, even though there is a wide variation from day to day in cream tests, it does not necessarily follow that the creamery is dealing dishonestly with its patrons. They also show the necessity for uniformity in the care of milk on the farm, especially as regards separation, and in the sampling and testing of cream at the creameries.

If cream is tested correctly, and if the tests of different lots of cream from the same patron vary, then these variations must be due to variations in the richness of the cream. It is impossible to procure cream of exactly the same richness from different skimmings from the gravity can. The richness of cream from a farm separator is primarily determined and regulated by the cream screw. The richer the milk, the richer the cream, if all conditions remain the same, for the ratio of skim milk to cream remains constant. During early summer months the milk is usually comparatively low in fat. Advance in lactation period and change from succulent to dry feed cause milk to become richer in fat. The first-drawn milk is much poorer in fat than the strippings. The greater the amount of milk running into a separator of a definite capacity per hour, the thinner will be the cream. The greater the speed of the separator, the richer the cream. If the speed is too low, a large amount of the fat is lost in the skim milk. Warm milk produces more and thinner cream than cold milk. The proper tempera-

ture to separate milk on the farm is 90 to 95 degrees F., and immediately after it is drawn. The more water or skim milk used to flush the bowl of the separator, the thinner will be the cream. The most satisfactory cream for the creamery is that which tests about 35 to 40 per cent. fat.

If the tests are to be uniform and accurate, the cream must be in such condition, when sampled, that a fair and representative sample can be taken. If, at the time of sampling, the cream is too thick, is tough, dry and leathery on the surface, is partly churned or curdy, it is very difficult to secure a fair sample, and tests of such cream are likely to be irregular, as well as inaccurate.

In order that the cream may be in proper condition for sampling and testing upon delivery to creamery, the farm separator should be thoroughly cleaned and scalded after each separation; after separation, the cream should be immediately cooled and kept cool by setting in cold water; the cream should be stirred occasionally; the cream should be delivered in clean cans not less than twice per week in winter, and three times per week in summer; in transit, the cans should be covered with a dry blanket or jacket in winter, and with a wet blanket or jacket in summer; cans should be reasonably full of cream in transit to prevent churning.

POULTRY.

Eggs that Do Not Hatch.

Editor "The Farmer's Advocate":

How very disappointing it is, after caring for a sitting "Biddy," or the more tractable "wood-en hen," for three long weeks of hopeful anticipations, to have a miserable failure at the end of the period of incubation! After one has been careful in the management of the sitter, and done everything possible to have a good hatch, and then a very small per cent. of the eggs only give us chicks, it seems almost as if time and effort had been wasted. Let us consider a few of the causes of discouraging and disappointing failures in the incubation of our eggs.

The head of the breeding pen may be responsi-