

DAIRY

Buttermaking.

Little butter is now made on the farm. The reasons are several. The labor cost of making is less when large quantities are handled together. Besides, when large quantities are to be made it becomes possible to employ for the work specialists, who, devoting their entire time to this business, acquire a degree of experience and skill which can hardly be expected of the busy farmer or his wife. The average quality of butter produced in creameries, partly as the result of the last mentioned consideration, but in part due to other reasons which may be pointed out, is better than the average quality of the product of the home dairies. That such is the case is evident from the fact that the quotations for creamery butter in our markets are higher than those for dairy butter. Where large quantities of butter are to be made, it becomes possible and necessary to bring all the conditions under better control than is usually possible in the home dairy. There, too, it will pay, as the quantity is larger, to use the very best forms of dairy apparatus, and the buttermaker, devoting himself solely to that work, can readily keep better informed as to the latest improvements and best practices in the art. It is not to be wondered, then, that butter is now, for the most part, made in factories. But still another consideration, doubtless, has considerable weight. The farmer himself is, in the majority of instances, too much occupied with other work to attend himself to buttermaking, and the farmer's wife, to an almost equal extent, is distracted by numerous cares and responsibilities, so that freedom from the work necessary for the production of good butter is welcomed in the large majority of instances. In some cases, however, the farm is not so located that milk or cream can be sent to the factory. In other cases, the farmer has built up a special trade for high-class products, which he finds exceedingly profitable, or perhaps he sees the possibility of building up such a trade. Under such circumstances, the butter must be made at home, and home buttermaking will, therefore, be briefly considered. Good butter can be made only from good milk and cream handled in such a way as to keep it as free as possible from sources of contamination of every kind. It is possible to make butter by churning the whole milk, but it is not possible to make from a given quantity of milk so much butter by this system as can be made where the cream is first separated from the milk. The first step, then, in buttermaking is the separation of the cream. Touching this matter are considerations which should be regarded in deciding upon the system of separation. It must be concluded that under most circumstances the centrifugal process should be employed, as, without doubt, more butter can be made from a given quantity of milk when the cream is separated by the centrifugal process than can be made when any other method of creaming is followed. Exhaustive churning, churning which recovers nearly all the fat that is present in the cream, is possible with creams of widely varying degrees of richness. Where the cream is separated by the submerged system, it will ordinarily contain from about fifteen to twenty per cent. of butter-fat. If the separator is used it is common to set it so as to secure a cream containing from about thirty to thirty-five per cent. Cream which has been separated by the use of the centrifugal machine must be quickly cooled, in order to make butter of firm, solid texture, butter that will stand up in warm weather. It seems to be essential that at some time before the ripening process is completed the cream shall have been subjected to a temperature below fifty degrees for at least six or eight hours. In the deep-setting system, this has already been accomplished when the cream is skimmed, but in the centrifugal and shallow-pan systems of creaming this has not been done, and this fact must be remembered. Where the quantity of milk is sufficient, the best results are obtained when it is churned daily, but if the quantity obtained in a single day is insufficient, or it is thought best for the purpose of reducing labor to churn less frequently, then it must be remembered that good butter is possible only when the cream is kept under the right conditions. The place must be clean, free from odors, and the temperature below fifty degrees. The low temperature is essential in order to prevent the action of the lactic acid germs, until cream enough for churning has been collected. Each time cream is added to the cream pail, the whole should be well stirred, in order that the lot may be kept as uniform as possible. It is not desirable that the cream should be kept more than three days. Churning twice a week may suffice, but three times would be better.

Perth Co., Ont.
 Dr. G. W. Gay, V.S., of the Animal Husbandry Department, Iowa Agricultural College, will leave Ames about April 1st for the Ohio State University, where he will be associated with Prof. Plumb, as Assistant Professor of Animal Husbandry.

Bran vs. Alfalfa in Ration for Dairy Cows.

At the Agricultural Experiment Station of the University of Tennessee, at Knoxville, experiments have been conducted for two years, and with different sets of cows, to determine whether in the place of bran in the ration for dairy cows, alfalfa hay might not be profitably substituted. Conditions are very different in the south from those existing in Canada, as very little grain is there grown, and the estimated price of bran, \$20.00 per ton, is much higher than with us, yet the conclusions arrived at by the experimenters are striking enough to warrant us in looking into the question also. We quote from a bulletin on the subject issued: "At the present time, the ex-

tests confirm this theory. The cows used in the tests were divided into three groups, Group I. being fed ensilage, bran and cotton-seed meal; Group II. received ensilage, alfalfa hay and cotton-seed meal, alfalfa taking the place of the bran fed to the first group; while Group III. got ensilage, alfalfa and wheat bran, alfalfa being substituted for cotton-seed meal in first ration. While any of the rations fed were fairly satisfactory, there is a marked difference between the best and the poorest, and the matter of chief concern to the farmer is the fact that the best ration is one that he can largely grow at home. The difference in favor of this ration is due chiefly to the fact that it costs less. The returns from Group II., where alfalfa was substituted for bran, were much better, when cost is considered, than from Group I., bran being valued at \$20.00 per ton, and alfalfa at \$10.00 per ton. The saving effected by thus substituting alfalfa for bran amounted to \$2.80 for every 100 lbs. of butter, and 19.8 cents for every 100 lbs. of milk. The farmer could thus afford to sell his milk for 18.8 cents a hundred less than he now receives, and his butter for 22 cents, as compared with 25 cents a pound. While the analysis of the two kinds of feed show little difference, yet it was found that in practice it was necessary to feed 1 1/2 pounds of alfalfa for every pound of bran to secure equal returns. It was noted also that some concentrated food was necessary for best results; roughage alone, no matter how well balanced a ration might be compounded, was not sufficient.

We would warn our readers not to accept the above conclusions as final. They may be much modified by other experiments, but this much may be taken as proved, that alfalfa is a very valuable food when fed judiciously, and one that can be cheaply produced.

Good Grade Cow Tested.

To the Editor "Farmer's Advocate":
 Sir,—I have taken the "Farmer's Advocate" for a long time, and would not be without such a very valuable aid to the farmer. We all enjoy reading it, and always want the mail the day when the "Farmer's Advocate" comes. I am interested in dairying, and have been watching the reports of dairy tests carried on, both public and private. I made a test of one of my cows, carrying it as far as I could, but as I have not a Babcock tester could not test the amount of butter-fat. She is a grade Holstein; age, nine years; record for ten months ending August 4th, 1904: Total pounds milk, 11,018; total number days milking, 304; average pounds per day, 36.69-304; largest flow for one day, 52 pounds; value of milk at 4c. per quart, \$176.21; rating 2 1/2 lbs. to a quart.
 L. L. PRICE.
 Addington Co.

Lay up Some Ice.

The first month of spring is here, and the man who has not got up his supply of ice cannot afford to procrastinate any longer. The packing of ice is a simple operation; locate the pile where the water will drain away from it, put about a foot of chaff under it, pack the sides with about the same thickness of chaff, keeping the packing in place with a frame of poles or boards, cover the pile with chaff and a rough roof, and one of the greatest comforts will be insured for the hot summer weather.

The farmer with the icehouse well filled with congealed water is in a good position to care for cream and butter as it should be. Cream, to be marketed satisfactorily, must be sweet, and the buttermaker getting sour cream has half the work he should control taken out of his hands, consequently he cannot make as good an article—a strong argument in favor of local creameries and frequent deliveries of cream.



Mr. Matt Richardson, Caledonia, Ont.

President Canadian Holstein-Friesian Cattle Breeders' Association.

periments indicate that the cost of a ration for the dairy cow can be greatly reduced by the use of one or more leguminous crops in place of a part of the concentrates. Thus, the most serious problem of the southern dairyman, namely, cheap grain, bids fair to be solved. Up to the present time, the investigations have been confined to the feeding of these foodstuffs in a dry condition in the form of finely-cut hay, mixed with silage. Before stating results of experiments, a few words on alfalfa may not be out of place. This plant is so rich in digestible protein, and so valuable a food, that every effort should be made to secure a stand of it where live-stock growing is a matter of considerable interest. From three to five tons of hay per acre may be expected each year. Its composition, as compared with bran, is as follows:

| | Dry matter. | Protein. | Carbo-hydrates. | Fat. |
|-------------------------|-------------|----------|-----------------|------|
| | Lbs. | Lbs. | Lbs. | Lbs. |
| One ton wheat bran... | 1,762 | 244 | 784 | 54 |
| One ton alfalfa hay.... | 1,832 | 211 | 746 | 27 |

Theoretically, it would seem reasonable that the substitution of alfalfa hay for bran could be effected within certain limits, and our practical



Group of Canadian Holsteins.

From a painting by J. P. Hunt, London, Ont. Hung in the Canadian display, St. Louis Exposition, 1904.