

the facts brought to light through the Secretary of Agriculture, Mr. J. C. Rusk, in the report of the United States Bureau of Industry. Questions addressed to thousands of breeders, most of them careful observers who have had long experience in the live stock business, elicited replies which show that the yield of milk by the offspring of native or unimproved cows coupled with purely bred bulls of dairy breeds is from 25 to 100 per cent. greater than that from unimproved or common native stock. The general average increase of yield of milk resulting from the use of such bulls on native cows, has been for the whole country 55.94 per cent. The yield of butter is increased by the same cause 69.78 per cent. It is to be remembered that these figures have been the outcome of wide and careful inquiry amongst all the farmers of the Union, and we may err on the side of safety in saying that the improving value of pure-bred bulls has been equally as high with us, for our herds of pure-bred stock will compare favorably with those of our southern neighbors. Materialize those figures still further, and it will be found that the offspring from a common cow giving 2000 lbs. per year (which is not making her very common, for the average is below that,) and a pure-bred dairy bull should give over 3100 lbs. of milk per year; that the offspring of a common cow yielding 150 lbs. of butter per year, and a pure-bred butter bull should give fully 250 lbs. of butter per year. These figures will be considered too low by those who have given most thought and attention to this question. No farmer can make a mistake in carefully choosing and economically purchasing a pure-bred dairy bull to improve his herd for dairy purposes. The strength of the testimony of experience is only equalled by that of observation in favor of this practice.

### The Most Profitable Dairy Cow.

The most profitable dairy cow does not belong to any one breed, at least it has never been demonstrated that she does. Over and over again it has been claimed by breeders in many lands that the particular breeds which they handle are the most profitable, but as yet, the claims put forth in this direction have not been sufficiently well supported by evidence to lead to anything like a consensus of opinion. At one time in the show-rings, an animal of one of the dairy breeds will carry off the palm for performance in the production of milk and butter, and at another time it is borne away by an animal of some other breed. This tends to prove that individuality in breeds is a more potent factor even than breed itself. The significance of this fact cannot well be over-estimated by those engaged in the production of dairy products. That it is easily possible to find a Holstein or an Ayrshire purely bred that will give a return in dairy products at least one-half greater than another animal of the same breed, taking an equal amount of the same kind of food, has been demonstrated over and over again. We must look for the explanation in the difference in the powers of digestion, or more particularly, in the difference in the powers of assimilation possessed by the two animals. The one assimilates for the production of milk of a certain quality, the other assimilates for the production of both meat and milk, and a third fails to assimilate successfully for either purpose. In the last mentioned instance, there is evidently incomplete digestion of the food, and consequently a waste. We find an illustration of this in the different effects obtained from food in the human family. One man will eat a much larger quantity than another, and yet will be lean and ill

favoured as compared to the other, evidently pointing to some imperfection of digestion. Because of the differences in this respect, and because digestive qualities are as easily transmissible as any other, it is easily possible to bring together a herd which will give a very much larger return on a given amount of food than will be obtained from another herd on an equal amount of the same. It is also easily possible to breed such a herd from a small beginning, but to do this requires time.

Why then, we ask, are our farmers contented with animals whose performance is far inferior to that of others, which cost them quite as much to keep? They should grieve over the loss of one-fourth or one-third of their earnings, and justly so, but many fail to see that the loss is just as real when they give food to animals that will give one-fourth or one-third less of a return for it, than would be obtained from other animals of the same breed.

This train of thought arose in our mind as we gazed upon a Holstein cow in the excellent herd of Smith Brothers, of the Credit Valley Stock Farm, at Churchville, Ont., which had made a milk record in 1889, of 10,607 lbs. Putting the low price of one cent per pound on this milk, we have the return of \$106.07 from this cow for the food fed to her. Now any farmer knows that the food given this cow did not cost anything like that sum, as she was given the same kind of ration as that given to other animals of the herd, that is in the winter a mixed ration of cut hay, straw, pulped turnips, and a quantity of bran and meal, and in the time of good pasture only grass. This cow had also produced a calf worth \$150, but this is a factor which is but a side issue in our argument, although of much importance in itself. But allow that this cow is one of the best in the herd, and divide her milk product by two, we have still over 5000 pounds of milk, which is easily attained in any dairy herd as an average, by any farmer who gives attention to careful selection and breeding. Now 5,000 pounds per annum is still a long way in advance of the average of attainment in dairy cows; why then should the farmers remain content with a cow that will give but 3000 or 4000 pounds of milk per annum, when they might just as well have cows that will give 5000 lbs. to 6000 lbs. on an equal quantity of food? When the farmer sets out seeking improvement in the direction indicated, he should not fail to remember, that although he may commence his herd on a common foundation he cannot improve upon their good qualities in their progeny, or even retain them, but by the use of a pure-bred bull of the right type, for such a male is far more capable of transmitting good dairy qualities in the progeny of a good dairy cow of common breeding, than the cow is herself.

Below a given return in milk there is loss in the keep of a cow. We are much mistaken if this loss does not occur in a greater or less degree in every instance where the milk return is under 3000 lbs. Nor does this loss include the labor of feeding and milking. The profits must therefore increase proportionately with the advance in the return beyond the actual cost of production, hence those who obtain the highest averages from their herds of dairy cows kept in a normal way, will certainly make the most money.

The following is selected as a sample from numbers of letters we are receiving every week:

Mr. J. D. Leamon, Charlottetown, P.E.I., writes: "Have been a subscriber to your paper for several months, and am more and more pleased with each succeeding number. The information already gained in stock feeding alone more than compensates for the subscription price."

## Poultry.

### The Feeding of Fowls.

[SECOND PAPER.]

The number of meals to be given fowls per day will depend upon a variety of circumstances. When confined in small runs they should receive three feeds per day, which seems to be the proper thing in feeding any kind of live stock, unless in the first stages of growth.

When a farmer's fowls can have free access to the barnyard, in the short days of winter two feeds may suffice, but only on the condition that they are able to find a considerable portion of food in the straw or litter, or in the apartments where other animals are fed. Ordinarily they do not have access to those apartments, as it is not consistent with a proper condition of cleanliness to have it thus. But when animals are kept in groups in pens, as in the case of sheep or swine, it may be no harm to allow the hens to go in at will and pick up what might otherwise be wasted. When the fowls roam about on the farm, at certain seasons they will get along admirably on one meal a day, as in time of grain drawing, but ordinarily they should have two all through the summer. But when confined in a fowl house, they, of course, should get food as frequently as those kept in close quarters in the heart of a city. Something, too, will depend on the number kept. When this is large they will require feeding three times a day, even when at liberty.

The morning meal should be given early, that is, when the fowls leave the roost, or at least soon after. This will depend upon the season and the nature of the place of confinement. They, of course, leave the roost much earlier in summer than in winter, and therefore should be fed earlier in the latter season. When confined they naturally look for food when they begin to stir, and they certainly require it after the fast of the long night. When not confined they hang about until feeding time comes without going far away, whereas if food had been given soon after they leave the perch, they would feel at liberty to go abroad and gather other supplies such as they require.

The time for giving the noon meal need not vary throughout the year, as during that portion of the season when they leave the perch early they return to the same with corresponding lateness; that is, the earlier they leave the perch in the morning, because of the soon approach of the light, the later they return to it in the evening because of its tardy departure.

The time of the evening meal will therefore be later in the long days, and should be given but a short time before the fowls go to roost.

It may seem superfluous to add that *regularity* in feeding should be observed with much care, but it is never amiss to say this to persons who feed when it is a matter of convenience to themselves, rather than at a set time. If they would but think of the discomfort they themselves feel when they have to wait for a meal beyond the usual time, they will have some idea of the discomforts felt by their dumb dependants when so circumstanced. The ruffled feelings of the household find vent on such occasions on the servants who may be blameworthy, or on someone else, but the poor fowls have no powers of utterance with which to reproach the negligent feeder who has kept them anxiously waiting for the tardy meal. The only possible punishment they can give they fail not to administer in the withholding of profitable returns.