

THE DAIRY.

SELECTING DAIRY COWS.

Mr E. W. Stewart, one of the editors of the *National Live-Stock Journal*, has lately published a large volume on "Feeding Animals," which forms a practical treatise on the laws of animal growth as specially applied to the rearing and feeding of horses, cattle, dairy cows, sheep, and swine. We reproduce Mr Stewart's views on selecting dairy cows:—

Look first to the great characteristics of a dairy cow—a large stomach, indicated by broad hips, broad and deep loin and sides, a broad or double chine—these indicate a large digestive apparatus, which is the first essential requisite to the manufacture of milk. Secondly, a good constitution, depending largely upon the lungs and heart, which should be well developed, and this is easily determined by examination; but the vigour and tone of the constitution is indicated by the lustre of the hair and brightness of the eye and horns, and the whole make-up. Thirdly, having determined her capacity for digesting surplus food for making milk, look carefully to the receptacle for the milk—the udder—and the veins leading to it. The cow may assimilate a large amount of food which goes mostly to lay on flesh and fat; but if she has a long, broad, and deep udder, with large milk veins, it is safe to conclude that her large capacity for digestion and assimilation are active in filling this receptacle. In fact, the udder is the first point to look at in a cursory examination of a cow, for Nature is not apt to create in vain. If it reaches to the back line of the thighs, well up behind, reaches well forward, is broad and moderately deep, with teats well apart, and skin soft and elastic, it may be inferred that Nature has provided means for filling it.

If the udder be a small round cylinder, hanging down in the front of the thighs like a six-quart pail, the cow cannot be a profitable milker, whatever digestive apparatus she may have.

A yellow skin and a yellow ear (inside) is almost universally regarded as present in a cow that gives rich yellow milk; but after you find the indications mentioned above, you may admire as many other points as you please, such as a first-class esentchoon, a long, slim tail, a beautifully turned dishing face, a drooping, waxy horn, a small, straight, slim leg, or any other fancy points; but do not look for these till you have found the essentials.

Again, when you have found all these essentials, if the cow is five years old and does not yield 5,000 pounds of milk per year, she is not worth possessing as a milker or breeder. Let good appearances be coupled with performance; yet if the cow be five years old, and actually yields 6,000 or more pounds of good milk, you may safely buy her without regard to her points. She must digest the food to make it, and her machinery is so far above criticism.

But the length of her period of lactation must not be forgotten; this is a quality inherited as much as her capacity for quantity. A cow that, well fed, will not milk for ten months, is not to be desired. A moderate and nearly uniform quantity continuing for ten months will produce a larger aggregate yield than heavy milking for a short period. Twenty-three pounds per day for ten months will give 7,000 pounds; while a short period of seven months would require thirty-three pounds per day. Nearly all great annual yielders of milk have long periods. This is a matter of so much consideration that a cow having a short period of lactation should be rejected as a breeder, as this would be inherited by her offspring.

Still another important consideration, even in the selection of a common blood cow, is her pedi-

gree. If you can find her descent from a large-milking dam, grandam, and great grandam, this will greatly increase the probability of your success in breeding her to a thoroughbred bull from deep-milking ancestors.

Now, a few cows selected with all these requisites will lay the foundation for breeding such a herd of dairy cows as will be a source of perpetual delight and profit to the owner. On the other hand, it is simple folly to rear a calf for the dairy from a poor milker. It is bad enough to keep an unprofitable cow for a season, but it is deliberately throwing away good food to breed from such a cow, with the proof before you that the heifer will never pay for her keep. Of course, no males will be kept of such crosses for breeding purposes.

A thoroughbred male must always be used to insure any proper measure of success. A large dairyman may replace his herd with cows of his own breeding on this plan, by having one-third to one-half of his cows selected for breeders. But the calves from these selected cows, sired by a thoroughbred bull, must also be selected after they have grown to sufficient age to determine their qualifications. This process of selection should be also rigidly enforced in thoroughbred breeding. Had this been done rigorously with all our pure dairy breeds, it would now be simply necessary to purchase a Jersey, an Ayrshire, or a Holstein to possess a good cow of either particular breed; but they have been bred so indiscriminately and all their progeny kept till a thorough weeding-out is necessary.

Let no dairyman be content to purchase the first male or female he may find of either of these breeds, but in all cases learn the actual performance of the animal and its ancestors. A poor Jersey or Ayrshire is no better than any other poor cow; and if it be a male, he is likely to do great harm by distributing his worthless blood, and thus bringing disappointment to the purchaser and discouragement to the extension of the breed. The male in a system of improved breeding is chosen for his prepotency; and it is not sufficient that his blood is of the breed desired, but he must bring with him the blood of a long line of ancestors, proved, by actual performance, to possess the qualities desired. The only pedigree of real value represents performance in the ancestors of the animal. It is necessary to make this point strongly, because breeding, for the last twenty years, has had little reference to anything save purity of blood and sundry fancy points. We have entered upon a realistic period, which demands real merit first, leaving fancy where it belongs—in the rear. Witness the tests of butter cows for the last few years; the great prices brought by those having the great butter yielders in their line of ancestors.

FEED FOR MILK.

The following are the conclusions reached at the Iowa Agricultural College:—

The supply of milk depends essentially upon the rapid growth of new cells in the milk glands. These cells consist largely of proteine. The caseine and fat (cheese and butter elements) are formed from the proteine; hence profitable dairying must depend largely on the amount of proteine contained in the food and made on cheap food. Where rations rich in proteine are fed, such as clover and oil meal, the following results may be noticed:—

1st. A decided increase in the quantity of milk and very little shrinkage for a long time.

2d. Considerable gain in the solid matter of the milk, as shown by chemical tests, or by the increased butter and cheese production.

3d. Again in the quality of the milk, where feeders rich in carbohydrates and fats are given.

The slight increase in quantity and richness of the milk is not due to any direct action these have, but to the assistance they afford the proteine in preventing its oxydation. Animals fed mainly on sugar beets, potatoes, or corn will give considerable milk; but it is done at the expense of the proteine of the body, and after a while the animal will suddenly waste away.

In view of these well-established facts, what shall be the economical milk ration for farmers?

Calculated upon the basis of the amount of proteine contained in each, and taking corn as the unit of value, when corn is worth fifty cents per hundred pounds, the following articles will approximately be worth per hundred.

Corn.....	\$ 50
Oats.....	60
Barley.....	55
Wheat.....	65
Wheat bran.....	70
Oil meal.....	1 45
Clover hay.....	80
Timothy.....	60
Potatoes.....	10

This is not absolutely correct, because the carbohydrates and fats in some of these would materially aid the proteine, and hence would be worth relatively more than above represented.

It is, however, sufficiently correct to show that the cheap foods for milk in Iowa are well-cured clover hay, wheat bran with a little corn meal and oil meal added.

DEVELOPMENT OF MILKING CAPACITY.

Farmers often hesitate whether to have their heifers come in a two or three years old. The purpose held in view in raising them may decide this question. If the object is to make the best possible milking animals, it will be better to have them come in at two years old. If the purpose is to make beef animals as well as milkers, then it would be preferable to have them come in at three years old, or even later. The development of deep milking capacity is an artificial acquirement, so to speak. It is the result largely of training. It is also aided by feed and breeding. Manipulations of the udder, as in hand-milking, are the foundation or starting-point for the very wonderful milking capacity of the domestic cow.

In a wild state, the cow, like the buffalo, gives only milk enough to sustain her young, and that only for a few months. No extraordinary productions of milk ever occur in wild animals, though they are as well fed and as healthful and vigorous as in a domestic state. The cattle which have been turned out on the plains of Texas, where they have an abundance of food the year round, have their milking qualities run down to a low standard in a few generations, showing that hand-milking is as necessary to sustaining an abnormal secretion of milk as it is in developing it in the first place.

Cows derive their milk from the food they consume, and large quantities of milk can only result from high feeding; but such feeding must be done understandingly and at the proper time, or it may have an effect quite the reverse of what is aimed at and desired. To feed a cow high when she is not in milk—that is, to give her more food than would be necessary to maintain a healthy and vigorous condition—a quantity which would produce fattening or an extraordinary development of flesh—tends to check rather than to develop milk secretion.

The rage for Jersey cattle continues unabated among many American farmers. The *Country Gentleman* is keeping up the boom with zeal, and each successive issue of that journal teems with articles on Jersey stock. One thing is certain, the absurdly high prices now being paid for fancy animals cannot long be maintained.