

to produce a big specimen. I practice fertilizing a few of the first bloom that come, when I think the vine is strong enough to grow a good specimen, by cutting off some of the fresh false bloom, trim the corolla or flower leaf off, and rub the stamen in around the fresh fruit bloom; this is necessary when fruit bloom opens on a morning that is unfavorable for bees to do their work, and it assures the setting of the specimens just where you want them. It also gives extra vigor to the growth of fruit to be well pollenized. When the perfect specimens have set well, say four or five inches in diameter, cut all other fruit and blossoms off and nip the ends of vines and all bloom that shows twice a week, so that the vine is not exhausted with the great quantity of false bloom that would naturally come. Now, while the great growth of the squash is going on I use liquid manure twice a week along three or four of the principal vines of each hill. I expect all have heard of feeding squash, but this is a silly humbug. The only thing that will increase the size of the fruit comes out of the vine, and the vine must get its support from the natural roots."

Lennox and Addington Co., Ont.

ROY EMBURY.

The Value of Underdrainage.

EDITOR "THE FARMER'S ADVOCATE":

What has struck me most of late is the value and importance of tile drainage, and how little farmers avail themselves of the opportunity of improving their land in this manner. I will quote a few particular instances of the effect of tile drainage that I have come across.

Our farm has a certain amount of tile-drains where they are most needed, but has by no means a thorough system. They were put in before my time at the rate of about one drain a year. A field we had in corn last year was always wet on the south side when the rest of the field was fit to work, and consequently was seldom worked up well, and, on account of this and its low-lying condition, never raised more than half a crop. A few years ago a five-inch drain was put through it, and although this did not drain it thoroughly, this part of the field always raises one-third better crops. Last year was wet and we had the field in corn. At one time, on such a year, there would have been practically nothing on this strip but the tile did the business, and it went 100 bushels to the acre and the rest of the field about fifty.

Another field was in oats last year and seeded down to alfalfa. There are several drains running across the field, but at quite a distance apart. When I mowed the field I received an object lesson. A few rods on each side of the tile drains there was a fine, thick crop, but farther away the alfalfa was badly winter-killed and hardly worth cutting. If the field had been thoroughly under-drained it would easily have yielded two loads per acre. As it was it barely went a load to the acre and almost all of that came from over the tile drains.

We intended to put two fields in oats this year. They were both good fields and of similar soil. One is well underdrained, the other has no drains in it. The drained field was fit early, worked up nicely, and was one of the first sown in the vicinity. The other field was wet and stayed wet until it got too late for oats, so we decided to plow it and plant it in corn. The weather suddenly changed to the other extreme and became hot and dry. We were finishing another corn field and by the time we were ready to plow this field it was too hard and remained so until it was too late for corn. So in this instance lack of tile drainage meant the loss of a crop. These are just a few of many similar personal experiences in this line.

Now, I may be wrong in making such a general assertion, but from my personal experiences tile-drainage means at least one-third better crops, or an increase in production of 33 per cent. Now by a recent law in Ontario a farmer without sufficient funds can, I believe, borrow up to \$1,000 from the township for the purpose of tile drainage, and be charged interest on it in his assessment, together with his other drainage taxes, at the rate of 6 per cent. If he can invest this money at a profit of 33 per cent., and only pay 6 per cent. for it what better investment could he desire? Why is he so slow to avail himself of this golden opportunity?

Essex Co., Ont.

REGINALD JUKES.

THE DAIRY.

The Dual-purpose Cow is the Farmer's Cow.

A Visit to the Hill Herd.

Dual-purpose cattle have aroused considerable controversy. Dairymen, straight beef producers and a few sceptic authorities will say, "There is no such animal as a dual-purpose cow." They will inform you that there is no place in agriculture for them and that they cannot be made to breed true. They believe in the single standard, the beef breeds to produce the meat and the dairy breeds to supply the milk and butter. They are of the opinion that beef raisers should have one standard and should gauge their breeding operations accordingly, while the dairy cattle breeders should have another, that in harmony with the heavy milk production. Claimants of this system do not give consideration to economic facts, and hence leave no room for an animal of a dual-purpose nature.

The weakness in this system lies largely on the side

of meat production. At the present time the great bulk of meat is produced on the range or in semi-range conditions where land is cheap and the expenses entailed are small. When the range has become higher and higher in price, where then will the beef be produced? It is apparently a fact that beef cannot be economically raised on good arable valuable land from beef cows. It will not be done, because the expenses entailed in keeping a cow for her calf alone are too costly and cannot compete with the cow which produces a fairly good calf for beef, besides yielding considerable milk and milk products for sale. In other words straight beef production will necessarily be relegated to the cheaper land not fit for dual-purpose cattle, and thus limited in extent. In brief, on high priced land no dividends can be secured with cows that do no more than raise their own calves, and the beef will come from the source that is more profitable, which is nothing more nor less than from a dual-purpose cow located on small fenced farms. We have heard men argue that with the elimination of the range that beef will go higher in price sufficiently to warrant the maintaining of beef cows to produce beef alone. This is really no argument since by such a condition the remuneration from the dual-purpose cow would be still greater and hence would afford more strenuous competition than the beef proposition could withstand. Finally, the average farmer will continue to produce both beef and milk, satisfying the demand for meats and deriving considerable revenue from the milk line. The sum total of food elements produced by the dual cows is greater than from the beef animal and, therefore, justified in the higher returns.

Even the dairy industry, which in its legitimate location can flourish at present on higher-priced land than the dual-purpose herd, may on the passing of the range find keener competition than in the present or past. The elimination of the cheap source of meat from the range may cause the dual-purpose cow to be more lucrative. The other statement often made, that it is not possible to breed for dual purpose is absurd, since laws of breeding hold as true with the dual as with the beef or dairy. It is possible to breed almost anything. In breeding dairy cattle we select for a certain type based on milk production, and it varies in accordance with the individual ideals of the various breeders. It will be just so in dual-purpose Shorthorns that while the general type is in harmony with moderate meat and milk productivities the type will vary with the individual leanings of the various breeders at work.

In proof of the above statements may we enquire what type of cattle the average farmer of the continent on high priced land is breeding? It is none other than the dual-purpose Shorthorn. It is so in Eastern Canada and in the United States. It is so because the average farmer has found them better revenue producers than the straight dairy or the beef, it is this authority of the great mass of farmers who are practical commercial breeders without favor, for the money in the business, that we can't afford to ignore and who have adopted the type of breeding cattle that will best yield a revenue. The fact that we find few cows maintained for the beef calf alone is an index of its ability to compete. When the ranges have passed into history we have no reason to believe that the beef proposition will be able to then contend successfully except in the cheaper and rougher districts. The farmers of Ontario and of the United States have maintained herds for their dual qualities and found them to their economical advantage against great odds which threatened to engulf the industry. These obstacles centered in the breeding fraternity which have not until recent years recognized the dual-purpose field. The Shorthorn breeders have been trailing

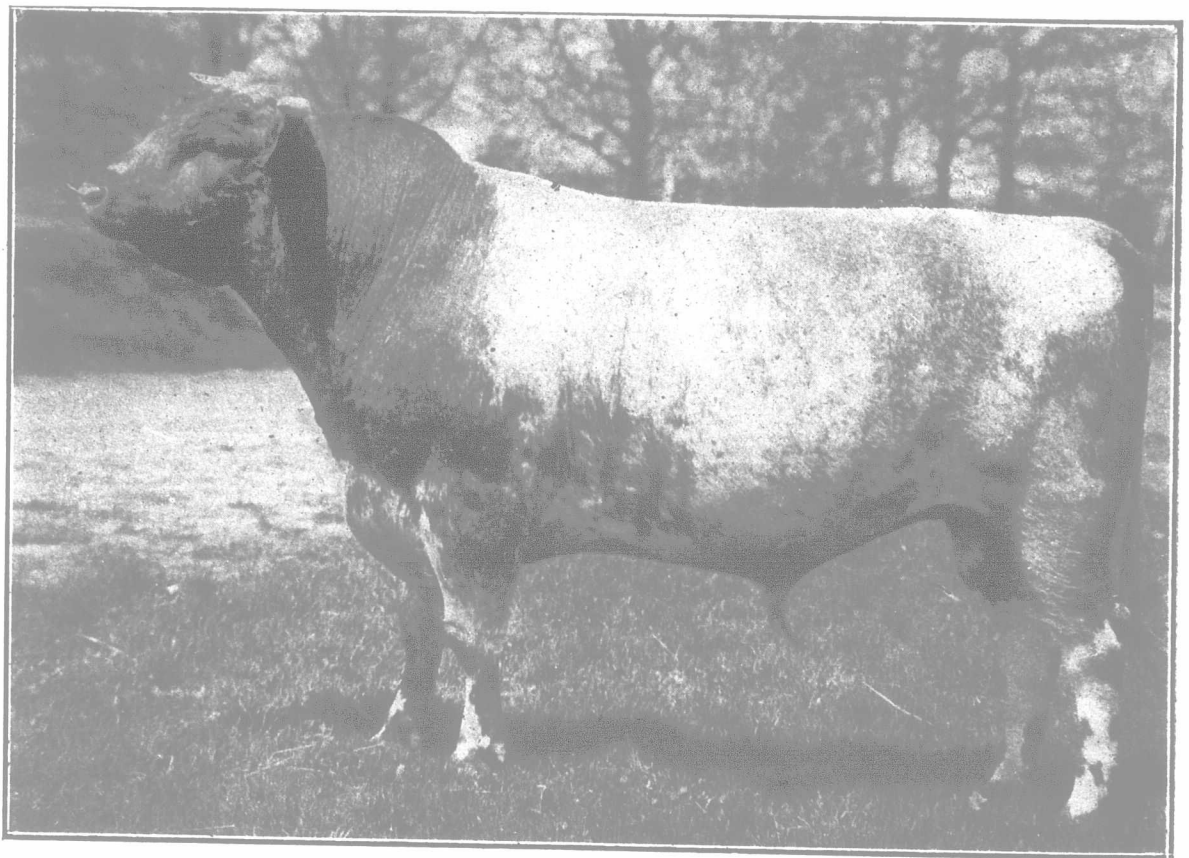
the breed into competition with the distinct beef breeds. They did not recognize the average farmer's need which Shorthorns were originally intended to meet. They sacrifice the deep-milking tendencies to get perfection in beef production. In spite of this fact farmers continued to use the Shorthorn for its dual qualities. We can remember back 15 or 20 years ago when the Shorthorn cow was more of a dual type than she is to-day. We can remember when the farmers commenced to criticise because the bulls were too beefy and the young stock was not so good at the pail as their mothers. In spite of this faulty breeding the average farmer did not find a better money making system and continued with the breeding system against him to do business at the dual-purpose stand. In some sections of the East and in the United States farmers even at some distance from markets entered the dairy industry while others commenced to use dairy sires, largely because of the obstacles met. However, now that Shorthorn breeders are commencing to view the situation more clearly and are giving attention to milk production, in other words stepping back into the field for which the Shorthorn was originated, the dual-purpose herds will gain in favor and make greater progress. It is almost ludicrous that Shorthorn breeders should have made such a mistake, yet the fact remains they have, and now it is being rectified. Through the lack of dual-purpose ideals in pure-bred Shorthorn establishments a mint of money has been lost by the farmers on small holdings. The questions arises that if the dual-purpose system on the farms could hold its own encumbered with faulty breeding what could it do if assisted by a dual-purpose ideal in our pure-bred Shorthorn herds?

Not only is the dual purpose adapted to the intelligent farmer but also the unintelligent. The former can bring the milk yields up to a fairly high standard and also turn off some well finished beef steers. If the demand for baby beef is strong he can turn a couple of calves on a cow and milk by hand the other half of the herd. The haphazard farmer can undoubtedly make more from a dual-purpose than he could from either straight beef or straight dairy. His cows under miscellaneous treatment will yield almost as much as a poorly-cared-for dairy herd and he has the beef steers besides. The system seems in actual practice to work well with farmers of all degrees of intelligence.

In this outline we have endeavored to circumvent the situation with respect to dual-purpose cattle. We have referred more particularly to the Shorthorn because they have more closely woven themselves into Canadian agriculture than any other dual-purpose breed. The pioneer work which was done by Thos. Bates from 1800 to 1840, and which on this continent has been abused by breeders, is now approaching a saner basis in harmony with our agriculture.

The Great Minnesota Herd.

On a recent American trip the writer was privileged to see one of the best dual-purpose Shorthorn herds on the continent, that owned by the late J. J. Hill at his North Oaks Farm near St. Paul, Minnesota. It is a herd composed of 55 head, comprising 9 bulls and bull calves, 4 steers, 15 heifers and 28 cows. It is not a herd the progeny of this continent, but largely imported from the noted establishments of Great Britain. It is one got from the home of true dual-purpose Shorthorns and with very long ancestry of dual-purpose breeding. In viewing the various cows in this herd one was forcibly impressed with the similarity of type, which consistent breeding had stamped upon them. They did not vary in type any more than many other pure-bred breeds of a single standard. What variation there was, centered



Tamony.

One of the dual-purpose Shorthorn bulls used in the Hill herd.