

extra chore, as on most farms the milk and water both have to be carried to the orchard or other place used as a calf pasture. The extra work in any case, is to my mind, offset by the advantage of having the manure where it can be loaded up and applied where most wanted.

My method may not appeal to very many, but it may be of use to someone, so I pass it on—it is the result of experience and thought on my part, and by its use I can raise good calves, far better animals than I could raise by the method I used previously.

Middlesex Co., Ont.

A. C. B.

Hogs and Skim-Milk.

Nearly every feeder recognizes that skim-milk is a valuable feed for swine, but few will agree in any valuation of skim-milk for feeding purposes. Skim-milk is particularly valuable as a supplement to grain and is probably able to bring about larger gains than any other supplement that is at the disposal of the feeder. It carries plenty of mineral matter and is rich in digestible protein for which reason it should never be fed alone, but always in combination with such starchy feeds as corn, barley, wheat and other cereals. For economical fattening and for growth a combination such as this for pigs is difficult, if not impossible, to beat.

An instance of the successful feeding of skim-milk came to our notice a few days ago when, on the farm of Robert McCulloch, Peel County, we saw a very fine litter of eight market hogs just ready for the buyer. Noting their excellent condition we inquired how and what they had been fed. We soon found that skim-milk had formed a very important part of their ration and for the last while back this pen had been getting about 100 pounds daily. The hogs would weigh probably from 225 to 250 pounds and although thought to be of nearly pure Yorkshire blood, looked very much as though a not far distant ancestor belonged with the Chester Whites. However, this litter had been purchased at weaning age (although still on the sow) for \$60. This was on September 16 and it will be remembered incidentally that it was just prior to this date that hogs took such a slump from the sky prices of midsummer.

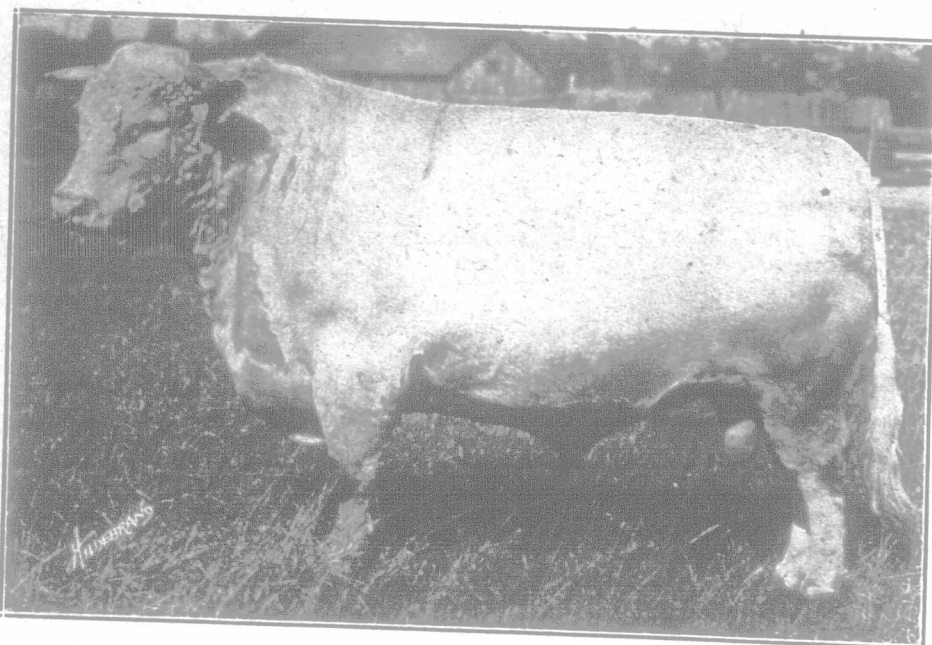
asked the same question thought 80 cents about right, although he was sure it had been worth at least that with the litter of pigs we have referred to. Just how to arrive at a fair price is difficult to say because there are several rules given and it is rare that any two will agree. All of them, however, are either based on experimental data or on long years of experience by notable live-stock men or students of feeding problems. We are outlining these rules and when working out according to each, the money value of skim-milk, corn will be taken as worth \$1.90 per bushel or \$68 per ton, mixed grain at \$3.25 per 100 pounds and the market value of hogs at 18 cents per pound live weight at country points.

The first rule is an old and simple one. It places the value of 100 pounds of skim-milk when fed along with corn to fattening hogs at half the market price of corn per bushel. Thus we would get a value of 95 cents, per 100 pounds by this rule.

Another rule assumes from the average of experiments that about 525 pounds of skim-milk are required to displace 100 pounds of corn or other grain. Here we get a value of 65 cents per 100 pounds.

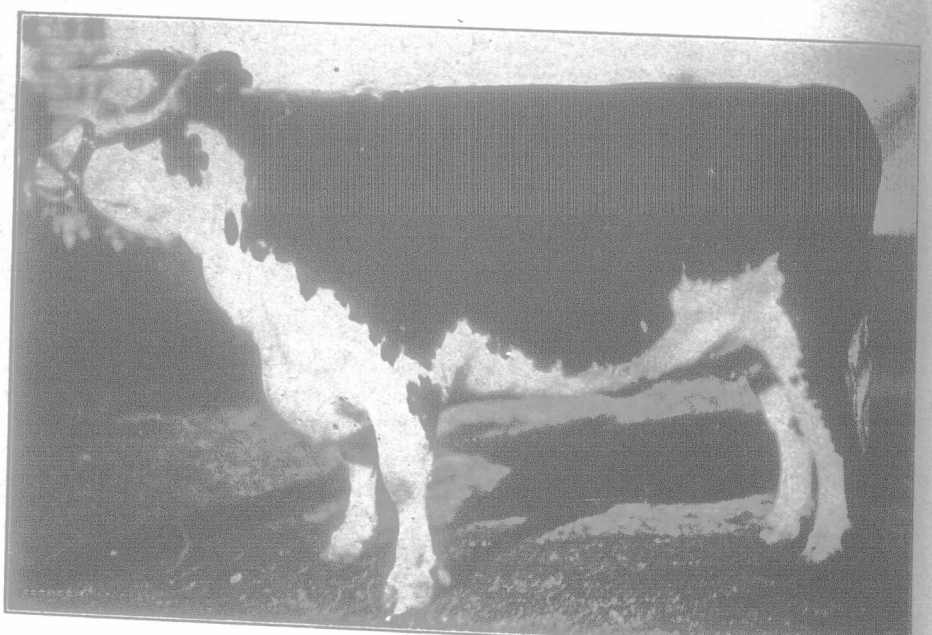
A third rule works on the basis that whey is half as valuable as skim-milk and that 1,000 pounds of whey is worth as much for feeding pigs as 100 pounds of mixed grain. This is practically the same rule as the last and gives a value of 65 cents per 100 pounds.

Henry conducted 19 trials at Wisconsin that showed clearly the highest value of skim-milk to be, when not over 3 pounds of skim-milk are fed with each pound of corn to pigs weighing 100 pounds or over. From these figures was deduced a money value of skim-milk where from one to three pounds are found with each pound of corn meal. We are told that when the market price of corn is \$30 per ton or 84 cents per bushel the value of 100 pounds of skim-milk is 46 cents per hundred. With corn at \$1.90 per bushel therefore, skim-milk should be worth \$1.04. Where all trials were averaged, however, with different proportions of skim-milk to corn, the value was much less and would figure out to 72 cents. Just here it might be noted that for pigs just after weaning Henry recommends from 4 to 6 parts of skim-milk to each part of corn.



Burnbrae Sultan.

The herd sire in A. G. Auld's herd, Guelph, Ont.



A Hereford Heifer of Show-ring Renown.

We cannot have too many beef cattle of this conformation.

During the intervening five months (our visit was on February 18) this litter averaged approximately 1.4 pounds gain daily per head, assuming that the average weight at weaning time was 30 pounds. Mr. McCulloch ships cream from a herd of about twenty-five milking cows and consequently had plenty of skim-milk to feed. He informed us that these hogs got practically no water and as mentioned before, got, latterly, about 100 pounds daily of skim-milk. The grain ration was made up of one part barley to two of oats with a small amount of bran added. Probably the amount of bran was no more than was considered essential because of the scarcity of this feed in that locality. About fifty pounds per day of the grain mixture was being fed at the time of our visit. Altogether 2 tons of grain had been fed at \$65 per ton.

When one comes to consider the money value of skim-milk for feeding pigs it is, of course, necessary to remember several things. One important point is the age of the pigs and another is whether skim-milk is being fed alone or in combination with other grains. We have already said, however, that skim-milk is far more valuable when fed in combination. For young pigs skim-milk is worth more than for older pigs and incidentally it might be mentioned that experiments in feeding skim-milk to young pigs indicate danger of our feeding. It is also shown that while older pigs are more thrifty when fed sour skim-milk, this is not the case with very young pigs. The reason skim-milk is more valuable for young pigs is because of its richness in protein and ash which are especially valuable for building the muscles and frame work of young animals. During our visit to Peel County we asked several dairymen what value they would place upon 100 pounds of skim-milk for feeding pigs and the answers ranged from 40 cents to \$1.50. Mr. McCulloch when

The last rule that we know of is to multiply the market value of live hogs by 6 where skim-milk is fed in combination with corn or barley. The present value by this rule is \$1.08.

From these five rules or suggestions we get varied results as has been noted, but the average is 84 cents, the lowest being 65 cents and the highest \$1.08 per 100 pounds. It will be noted that the average corresponds very closely to Mr. McCulloch's estimate and that his actual practice corresponds with Henry's experimental results in that he fed 2 pounds of skim-milk to one pound of meal.

Breeding With an Aim.

Judging from the class of stock placed on our markets and to some extent in sale rings there are many breeders who have no definite aim in view, other than to increase the flock or herd, when mating animals. Indiscriminate breeding is too much in vogue for the best interests of the live-stock industry. If the idea is not to improve the quality then this great industry will stagnate. Breeders of pure-bred stock are calling for quality, character and finish, the butchers want quality and the consumer is willing to pay a premium for choice meats. A glance reveals the fact that comparative few cattle are in the select category; far too many are classed medium must not forget that feeding is also an important would grade higher than they do. Some calves never have a chance, yearlings are allowed to shift for themselves the greater portion of the year and the two-year-old bullock is not fed a ration that will finish an animal for the block. We need better breeding stock, but better feeding is required as well.

In the commercial herds there is a tendency towards too much crossing of the breeds. The first cross of some breeds gives good feeders but the second cross very often gives a nondescript so far as quality and character are concerned. These seldom have the square blocky form nor the inherent quality of economically converting feed into meat. Market toppers are breeders which is a conclusive argument in favor of having rich blood coursing in the veins of the feeders.

No matter what breed is used the first requisite to success is to get a sire of the right type, quality and character. If he fills the eye then his breeding is likely to be all right. However, one should pay attention to the ancestors, as, if these are not up to the mark, their weak points may crop out in succeeding generations. When a person has a uniform lot of females the securing of a bull that is particularly strong where they show a slight weakness is important. If the sire has a weakness in the part where the females are deficient then it will be accentuated in the progeny. Constructive breeding should be the aim of every one keeping animals. Whether pure-breds or grades are kept the road should lead towards perfection of form and quality. Weak points need to be strengthened, and roughness of form made smooth. This requires that a breeder decide on a definite aim and secure sires, regardless of price, that conforms nearest to his ideal of the perfect animal. If this is done and the heifers showing the greatest promise are kept in the breeding herd improvement is assured. The steers from such herds will be sought after to meet an elite trade. Much time and energy has been spent over the nondescript animal which if turned to breeder stock would have yielded more remunerative returns.

THE FARM.

Fertilizer Facts and Fancies.

By B. LESLIE EMSLIE, FORMERLY SUPERVISOR, INVESTIGATIONAL WORK WITH FERTILIZERS, OTTAWA.

In this short series of articles an endeavor will be made to discuss briefly and intelligibly the principles of manuring, fertilizing and liming with a view not so

much to encourage a more extensive use of fertilizers as to show the need for a greater degree of discrimination in their selection and application.

As commercial concentrated cattle-feeds, rich in protein and fat, serve to supplement the farmer's home-grown grains and fodders, so fertilizers have a place as supplements to manure or to the less readily available sources of plant food in the soil.

War-time conditions caused serious impediments to the fertilizer trade, and, while some of these have now been removed, the war-aftermath in strikes, shorter working hours, increased wages and higher freight rates has prevented the decline in prices, which the return of Peace might have been expected to bring.

The enforced restrictions and rigid discipline in food economy experienced during the war have not been without enduring benefit to some who formerly paid but scant attention to the small details which count.

The high prevailing prices of feeding stuffs and fertilizers have taught the studious farmer to be more cautious and deliberate in the purchase of these supplementary materials and to exercise greater care in the conservation of fertility in manure.

PLANT-FOOD SUBSTANCES.

Crops require for their nourishment and growth about a dozen plant food substances which they take in solution from the soil. Only three of these tend to become deficient in quantity for crop needs in the average soil. They are nitrogen, phosphoric acid, and potash, each of which performs its own peculiar function in the plant. Nitrogen promotes chiefly the development of the stem and leaf and is especially beneficial during the earlier stages of growth.

Phosphoric acid has an important influence on root development in the early stages and on fruit or seed