

tion. The cereal grains, as corn, oats, wheat, etc., are not sufficiently rich in protein to very materially increase its proportion in the diet. But these foods are rich in nitrogen-free-extract or carbohydrates, that are easily digested and are very useful when fed along with the coarser foods which contain much fibre.

MILL FEEDS

"Pea meal, linseed meal, gluten feed, wheat bran, and middlings are foods rich in protein and are, therefore, most valuable components for a ration intended for dairy cows. On the other hand, it is evident that oat hulls, dried beet pulp, corn bran, and such low grade materials cannot build up the protein side of a ration. They are also entirely unfit to be used as substitutes for linseed meal, gluten meal, gluten feed and such nitrogenous materials.

MUST HAVE PROTEIN

"When purchasing foods the percentage of protein they contain is of prime importance. The home-grown crops, especially the grasses and cereal grains, are more likely to be deficient in this than in any other constituent, but when clover or alfalfa hay are used as the coarse foods, the use of concentrates, especially rich in protein is not so necessary.

"The shortage of coarse foods and grains the last few years has been the means of causing many feeders of live stock, particularly dairymen, to consider the advisability of purchasing certain of these mill by-products for which, heretofore, they have had little or no use. Dairymen too are recognizing the fact that in order to secure the best results from their cows, they must feed a ration richer in protein than can, as a rule, be compounded from the grains, hay, and straw raised on the farm. The by-products best adapted to enrich the diet in protein are the residues from the manufacture of some specific product from the seed or grain, as, for example, oil from cotton seed and flax seed, starch and sugar from corn, beer from barley, and flour from wheat, rye, and buckwheat.

ARE RICH IN PROTEIN

"All these by-products which include cotton seed meal, linseed meal, dried brewers' grains, gluten meal, gluten feeds, and the various kinds of bran, middlings, etc., are very much richer in protein than the original seeds or grains, because the substance extracted from them consists of fat, in the case of the first two, and of starch, or products rich in starch, in the case of the others, thus proportionately increasing the protein in the residues. All of these by-products have been found to serve an excellent purpose in the building up of rations. They are generally palatable and healthful and, if judiciously used, do not contribute any undesirable qualities to the products, beef or milk. They possess the further advantage in that, in many cases, the cost of the ration is reduced by their use. Their intelligent purchase and economical use, however, requires that the purchaser shall possess a definite knowledge of their composition. He should know, first, only how much protein and fat the genuine products cotton-seed meal, linseed meal, gluten meal, gluten feed, bran, and middlings contain. But also whether there is reasonable uniformity or wide variation in respect to these compounds in the composition of the products of the same kind or name; secondly, whether any of them are liable to be reduced in value by the addition of cheaper substances.

FEEDS EXAMINED

"At the Guelph Agricultural College we have endeavored to collect some definite data regarding the character and composition of these by-products. We gathered a large number of samples and analyzed them, the results of which were published in Bulletin No. 138. Since this bulletin was published, we have analyzed many more

samples, and the results show that a large number of the various products offered for sale are of good quality, but that those of the same kind from different manufacturers vary quite widely in composition. In some cases there is a tendency to mix residues of one grain with another and sell them under a trade name, or to add low grade by-products to those with which the farmer is familiar, as, for example, oat hulls to wheat bran. The purchaser cannot form a correct idea of the composition or value of a food from the name given it.

ACTION NEEDED

"Steps should be taken to have concentrated feeds sold in such a manner that the percentage composition rather than name will be the guide to their value. Laws have been passed in many of the states of the American Union making it compulsory for the seller of these mill by-products to print on the bag the guaranteed maximum percentage of protein and fat and the minimum percentage of crude fibre, and, also, the grains from which the feed was made. In this way the farmer knows exactly what he is buying, and if he is familiar with the composition of his own feed stuffs and the requirements of the animals he is feeding, he can purchase his supply of concentrates intelligently and with every assurance that he is getting full value for his money.

"It will pay farmers in good hard cash to make a thorough study of the whole subject of cattle feeding. They should make themselves familiar with the nature of the various feed stuffs now on the market in order that they may not only feed more economically, but that they may intelligently assist in the procuring of laws similar to those now in operation in the United States, which would make it possible to purchase feeds with a guarantee as to the amount they contain of the essential food constituents."

Winter Care of the Colt

W. F. Kydd, Norfolk Co., Ont.

Those who desire to meet with success in raising horses, must be willing to go to some trouble to provide suitable places in which to raise the colts. Colts should have exercise every day throughout the winter, if the weather is not too cold. I prefer to have one or two small fields, of about one acre in extent, in connection with a small wooden building. The roof of this building should be weather proof and the sides sufficiently substantial to prevent the wind penetrating through the cracks. If possible, the door and window should open to the south. There are very few days in the winter, when the door should not be left open after nine or ten o'clock to permit the colts to go out and in as they feel inclined. Put in plenty of straw for bedding and feed oats and bran and as much bright clover hay as they will pick up clean. This, I consider, is an ideal way of wintering colts.

Do not put a yearling and a foal in the same place to feed unless the yearling is tied. Otherwise, the yearling, being older will consume the most of the grain. It is much more satisfactory to winter colts of the same age together. An outside shed such as I have suggested, is a better place in which to raise colts than a barn full of stock. If the colts are kept in the barn with other stock, they generally are kept so warm that they feel the cold too much when they are turned

out to exercise and, therefore, do not do as well.

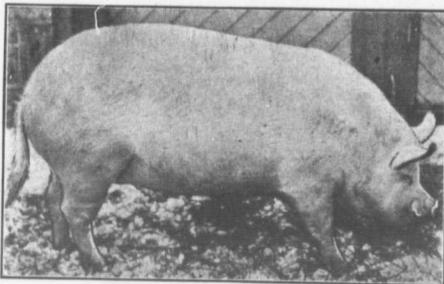
I never allow my foals to follow the mother while at work. About a week after the mare has commenced work, it is well to permit the foal to nurse during the middle of the forenoon and of the afternoon.

Feed the foal well the first winter on oats and bran. They are the best bone and muscle producing feeds and they can be fed in larger quantities than any other feed. Most other feeds have a tendency to produce fat. It is very necessary that the foal shall have an opportunity of exercising every day of the winter if it is not too cold.

Feeding Hogs Still Profitable

Geo. Martin, Mgr. House of Refuge, Waterloo Co. Ont.

Following is a statement re the raising and fattening of hogs for market. We have been in the business for nine years. The past year has



A First Prize Yorkshire at Guelph Winter Fair

Owned by J. E. Brethour, Brant Co., Ont. Note the trimness of the hog, its spring of rib, and its long, straight, even side.

been the most expensive in our experience to feed hogs, the feed being so dear. Still, I am of the opinion that where there is proper accommodation, plenty of good water, hogs well fed and cared for, that even last year they could be handled at a profit. We do not think that we lost money in the business.

On the 1st of Dec., 1907, we had hogs to feed, valued at.....	\$ 450 00
From then to 1st Dec., 1908, it cost us.....	561 33

Total for hogs and feed..... \$1,011 33

On 1st of Dec., 1908, we had hogs on hand,	\$ 417 00
Fat hogs sold during the year 1908,	\$ 770 84
Killed and used ourselves....	170 20

941 04

Total,

\$1,358 04

Which left us a profit of..... \$ 346 66

Naturally we had more milk and swill than any private farmer would have, but then we get between 40 and 50 loads of good manure, which will even up for milk and swill. Feeding hogs pays about as well as feeding other stock taking one year with another. Farmers should not quit the business; it enables us to feed at home all the grain that we grow and every month or two we dispose of porkers, and get the cash which in most cases comes in very handy.

We keep seven brood sows and a boar, pure-bred Yorkshires. I have thought sometimes it might be better to cross with some other breed, thinking perhaps we might be able to secure a class of pigs that would mature earlier—but I hesitate to drift off into mongrels.

It might be a good thing to send a commission to Denmark and learn how to carry on this pork business properly.