

CEREAL GRAINS.

A glance at the table will show that the cereal grains and their by-products have been grouped together. It will also show us that the cereal grains, as a whole, are characterized by only a moderate percentage of crude protein. For example, barley has 11.5 per cent., buckwheat 10.8 per cent., corn 10.1 per cent., emmer 11.9 per cent., oats 12.4 per cent., rye 11.8 per cent. and wheat 12.4 per cent. of crude protein. If we compare these percentages with the percentage of protein in many of the by-products of these same grains, we can easily see that the grains themselves are rather low in crude protein. As to fibre: wheat, rye and corn are very low in fibre. Barley has only a moderate amount of fibre, but buckwheat, emmer and oats run somewhat higher, owing to the heavy fibrous coating which encloses the grain.

Barley and Its Products.—Barley, as a rule, has not been regarded with any very great favor by feeders, but of late, since prices for all kinds of feed have gone very high, barley is being much more largely used, and the price has gone up accordingly. For hogs, beef cattle, and even dairy cows, barley is worth more per ton than buckwheat, emmer, or oats, and approaches in value very closely to corn, wheat or rye as a food for stock, especially for hogs. When fed alone it is not particularly palatable, and best results are obtained by feeding it in combination with other feeds. For hogs, the addition of wheat middlings to the barley adds very much to its palatability and its value. For cattle, bran combines well with barley.

Dried brewers' grains constitute a very important by-product from barley, and it will be noticed that the brewers' grains contain a high percentage of protein. It is true that they are also high in fibre, but the large percentage of protein which they contain more than compensates for this defect and makes brewers' grains worth more per ton than wheat bran.

Malt sprouts or malt combings are also high in protein and constitute a valuable food when properly used. They are extremely dry, as a rule, and are not very palatable. In using malt sprouts only a small quantity should be fed, and it is better to soak the sprouts in water before feeding. Brewers' grains and malt sprouts are probably best suited for dairy cattle though they may be fed to almost any class of stock, including horses, providing judgment is exercised in mixing other kinds of feed with these products. They are probably least suitable for hogs.

Oats and Their Products.—For a cereal grain oats stand up fairly well in regard to protein, but the great objection is they are high in fibre. For a cereal they contain a high per cent. of fat, and almost all classes of stock relish oats. Oats also contain a fairly high per cent. of ash, and consequently they make a most excellent grain to feed young growing animals. They are bulky in character and hence it is seldom that any injury is caused to animals through feeding oats. They are not particularly valuable for fattening except to include in mixtures to give bulk and palatability to other concentrates. Oats are regarded as the main concentrate for horses, though, with the use of judgment, other grains may be substituted for oats, even for horses. In the United States corn takes the place of oats almost entirely in many districts and seems to give very good satisfaction. No doubt a mixture of corn and oats would be better than corn alone. In other parts we find barley successfully taking the place of oats for horse feeding, and in some cases dried brewers' grains have been successfully substituted for a considerable portion of the oats in the rations of working horses. As a matter of