

ash. These two facts render it unsuitable to use as a sole ration for young growing animals. Pigs fed exclusively upon corn do not make satisfactory growth and sometimes become deformed owing to deficient development of bone and muscle. On the other hand corn is low in fibre, high in nitrogen-free extracts, and, for a cereal, it is high in fat. In addition to this it is relished by almost all kinds of animals. As a ration for fattening stock, fed in suitable combinations, it cannot be beaten, but it is always advisable to combine with corn some kind of food rich in protein, and, in the case of young, growing animals, rich in ash also. For dairy cows it is not particularly suitable, though it may be fed in moderate quantities, provided foods rich in protein are fed with it. For hogs it can be improved very much by adding about ten per cent. of a food such as tankage or linseed meal. Even the addition of wheat middlings will be found to make a marked improvement in its value. Its value for horses has already been mentioned and it can be quite successfully substituted for oats, or at any rate for the greater part of the oat ration for horses. Sheep are also fond of it and it makes a good fattening ration for this class of stock, especially when fed with clover or alfalfa hay, which help to correct its deficiencies in protein and ash. It has been stated by some authorities that corn is the best and the worst feed for animals. That is to say, when corn is properly combined with other feeds it makes one of the very best feeds for animals, but when it is not understood it makes one of the worst.

The best known by-product of corn in this country is gluten feed, which is a by-product from the manufacture of starch from corn. It contains all that is left of the corn after the starch is removed, except the germ. It will be noted in the table that there are two grades of gluten feed. High grade gluten feed is a very valuable product, containing a high percentage of protein and only a moderate amount of fibre. The low grade gluten feed is not worth so much by a good deal, and buyers should be on the watch in this connection and should see to it that a satisfactory guarantee as to composition accompanies the feed. Gluten feed is especially valuable for dairy cows for the purpose of increasing the protein content in their ration, and for this purpose it ranks with such feed as linseed meal, though not quite equal to linseed meal in value. It is not counted a satisfactory feed for pigs or sheep and may be regarded as especially suitable for dairy cattle.

Gluten meal is also of two grades, the highest grade being particularly valuable for dairy cattle. As a matter of fact gluten meal is seldom sold in this country although sometimes the term is applied to gluten feed. Gluten meal proper consists exclusively of the gluten of corn which is the residue in the manufacture of starch.

Germ oil meal is the residue from corn germs after the oil has been extracted. It will be noticed that it still contains a high percentage of fat, and a fairly high percentage of protein, and would be a very useful feed in dairy rations or for other purposes. Its value would be similar to that of gluten feed.

Corn bran, which consists mainly of the outer hull of the corn kernel, has not a high feeding value and is seldom sold alone.