

Wheat straw and rye straw are both rather low in feeding value and should not be used for feed if oat straw is available.

Notice the relatively high value of chaff as compared with straw, both in the case of oat chaff and wheat chaff. The plan of separating the chaff from the straw at the time of threshing, which used to be more common than it is at present, has a good deal to commend it.

ROOTS AND TUBERS.

These foods belong to what are known as succulent foods; that is to say, all the members of the group contain a very high percentage of water. The high percentage of water reduces the value of one hundred pounds of any of these foods, but the solid material which they furnish is usually very digestible and very palatable. In addition, these succulent foods tend to keep the digestive organs of the animal in better condition and consequently they have a value outside of their actual feeding value. All practical feeders recognize the importance of succulent foods as a means of keeping animals in healthy, thrifty condition.

Of the roots mentioned in the table, sugar beets have the highest feeding value, being especially high in nitrogen-free extract as compared with the other kinds of roots. Mangels and swede turnips are similar in value, the advantage, if any, being in favor of the turnip. White turnips or fall turnips drop a little below swede turnips, and carrots have a slightly higher feeding value than swede turnips.

Roots are valuable for all classes of stock including horses. Most feeders prefer carrots for horses though almost any kind of roots may be fed if judgment is exercised. Care should be taken not to feed many roots to a horse not accustomed to them and in all cases the roots should be sound. Decaying or mouldy vegetable matter is extremely dangerous to horses.

Mangels are usually preferred for dairy cattle as they are not so likely to taint the milk as are turnips. Many feeders prefer turnips to mangels for fattening cattle though experiments indicate very little, if any, difference in value. For sheep, turnips are undoubtedly safer than mangels and consequently are to be preferred.

The potato, which is a tuber and not a root, has a higher feeding value than the roots mentioned. Potatoes, however, cannot be grown profitably for stock feeding and it is only cull potatoes which are used for this purpose. For pigs, potatoes must be boiled before they are acceptable.

Danish experiments indicate that it requires about seven and a half pounds mangels or four pounds of sugar beets to be equivalent to one pound of mixed meal in hog feeding. No doubt the same comparison would hold true in the case of fattening cattle, but in the case of dairy cattle, where the proportion of protein is very important, very little difference in value will be found between sugar beets and mangels. Some other experiments have shown a much higher value for roots than that shown in Danish experiments, and in some cases less than five pounds of mangels have proved equal to one pound of meal. On the average, however, possibly the Danish estimate is not very far astray.

Potatoes may be said to have approximately the same feeding value as sugar beets, but in the case of pigs the expense of cooking the potatoes would have to be taken into consideration.