



The Tenderfoot Farmer

It was one of these experimental farmers, who put green spectacles on his cow and fed her shavings. His theory was that it didn't matter what the cow ate so long as she was fed. The questions of digestion and nourishment had not entered into his calculations.

It's only a "tenderfoot" farmer that would try such an experiment with a cow. But many a farmer feeds himself regardless of digestion and nutrition. He might almost as well eat shavings for all the good he gets out of his food. The result is that the stomach grows "weak" the action of the organs of digestion and nutrition are impaired and the man suffers the miseries of dyspepsia and the agonies of nervousness.

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8½ acres, in high state of cultivation; good improvements and plenty of fruit; 1¼ miles west of Monmouth. Price \$2500.

10 acres well improved land; 3 acres orchard and berries, balance in crop; good water, good buildings, good fences, 2 miles north-west of Monmouth. Price \$2500.

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A HOME COURSE IN AGRICULTURE

XIV—Some Points on Stock Feeding

By C. V. GREGORY

Agricultural Division Iowa State College

IN order that the feeds fed to stock may be used to the best possible advantage it is necessary that they should be of the proper kinds and fed in the proper amounts.

One of the important things to take into account in determining the value of a feeding stuff is its digestibility. Some feeds, such as oat straw, are not more than 50 per cent digestible, while in the case of the corn grain over 90 per cent is used by the animal. Feeds with a high percentage of digestibility, like the grains, are called concentrates, while those with a large amount of indigestible crude fiber are called rough feeds.

Every animal must have a certain amount of roughage; otherwise the grain would lie in the stomach in a heavy, sodden mass, which could hardly be penetrated by the digestive juices, and indigestion would be sure to result. The crude fiber, while indigestible in itself, dilutes the more concentrated feeds and greatly hastens the process of digestion. The ruminants are able to obtain a large share of their feed from roughage. Horses use considerable, though owing to their smaller stomach they cannot use as large quantities as cattle do. Swine are usually regarded as grain eating animals, yet they, too, do better for having some roughage. Mature hogs will maintain themselves on a good rape or clover pasture without any grain at all, and fattening swine will make greater gain if fed on pasture.



FIG. XXVII—THERE IS NO FOOD BETTER THAN MILK FOR YOUNG ANIMALS.

In winter, when pasture is not available, hogs will eat considerable amounts of clover or alfalfa hay if they can get it and will be healthier and make better gains for having it.

Another important quality in a feed-stuff is its palatability. Stock will make greater gains on feeds that they like, even though they contain no more nutritive material than those that are not so palatable. Closely related to palatability is succulence or juiciness. Cows give a large flow of milk on pasture not so much because of its high feeding value, but because of its succulence and palatability. Stock of any kind will not make the best use of their feed if given nothing but dry hay and grain.

The most satisfactory means of providing succulent and palatable feed during the winter is by the use of the silo. Silage has a high feeding value and is cheap, since from eight to twelve tons can be raised on an acre. It finds its greatest use as a feed for dairy cows, but also makes a profitable addition to the ration of nearly all classes of stock.

The most important point to consider in preparing a ration is the relative proportion of the different constituents. Fats and carbohydrates are interchangeable and can be considered together, since they both go to furnish heat and energy or to build up animal fat. Neither of these substances, however, can take the place of protein, since neither of them contains nitrogen. To build up the muscles, organs and other parts of the body which require this element considerable protein must be fed. The ordinary feeds found on the farm contain too little protein in proportion to the other substances. To secure the best results a balanced ration—that is, one in which the amount of protein is in the proper proportion to the amounts of fats and carbohydrates—must be fed.

It can readily be seen that what is a balanced ration for one class of stock may not be for another. Young calves, colts and pigs require more protein and ash in their food than do mature animals. A work horse needs large amounts of fat and carbohydrates to supply him with energy, but he also needs considerable protein to repair his muscles, which wear out very rapidly. A fattening steer needs only a minimum amount of protein, since he is neither growing nor using his muscles. A milk cow needs a great deal of protein and ash to use in making milk, together with a liberal amount of the other constituents, to supply energy and to make into butter fat. A pregnant animal is in especial need of protein and ash to use in building up the bones and flesh of its offspring. All animals need larger quantities of the heat forming elements in the winter in order to keep the body warm.

Another important point, one that must not be lost sight of in preparing rations for any class of stock, is the cost. It makes no difference how digestible, palatable or well balanced a

ration may be nor how rapid gains it will produce, if those gains are put on at too great an expense the feeding operations will result in a loss. For the last two years, for instance, bran and shorts have been so high in price that it is doubtful if they could be fed at a profit. Bran produces a large milk flow when fed to cows, but silage and clover hay are just as good and cost only a fraction as much.

The question of how much a farmer can afford to spend for concentrated byproducts is always a perplexing one. Something is needed to balance the corn, which is the principal feed on most farms. If nothing else is fed with corn it will not be thoroughly digested and much of the nutriment which it contains will be wasted. When corn is cheap this does not matter so much, but when the price goes up to 50 or 60 cents a bushel it becomes an important consideration. This applies not only to corn, but to other grains as well, since all contain an excess of carbohydrates and fat. Dats come the nearest to being a balanced ration of any farm grain, but they are usually too expensive to be fed exclusively. Mixing oats with corn does not make a balanced ration, since the oats have scarcely enough protein to balance their own carbohydrates and fats. Another factor which must be taken into consideration is the health of the animals. This will surely suffer if they are compelled to live long on a single kind of feed, especially one that is as low in protein as corn is.

When grain is high in price the saving effected by the purchase of some supplementary feed rich in protein will usually much more than pay the cost. In buying feed to balance corn or other grain the chief consideration should be the amount of digestible protein which it contains. Ash is also important, especially if it is to be fed with corn, which is low in ash. By dividing the price per ton of a feed by the number of pounds of digestible protein in a ton the price per pound of protein is easily determined. Thus the comparative cost of protein in the different byproducts can be figured out and the one used which will furnish it in the cheapest form.

For hogs there is probably no better or cheaper source of protein than tankage or meat meal. A ration of one part of this to ten parts of corn is an ideal one for fattening hogs. For growing pigs the amount of tankage should be doubled and some skim milk added if it can be obtained. Milk is an almost perfect food for all young stock, and the farmer who has a large supply of it has a big part of his feeding problem solved.

Another feed that is invaluable for young pigs and calves is dried blood or blood flour. Nothing else will stop scours so quickly nor do so much toward starting along an unthrifty pig or calf. A heaping teaspoonful to a feed is enough for a young calf, with proportionate amounts for the pigs. The reason that these packing house byproducts are especially valuable for young animals is because of the large amount of ash which they contain. The use of such feeds insures strong bones and healthy, vigorous animals.



FIG. XXVIII—CLOVER PASTURE IS AN EXCELLENT FOOD FOR SHEEP.

A lack of ash is the chief fault that can be found with the corn byproducts, such as germ oil meal and gluten feed. For this reason these feeds are not so valuable for milk cows and young stock, although they are all right for fattening animals. Oil and cottonseed meals contain more ash than the corn products, but not so much as tankage. They are usually a cheap source of protein. Oilmeal is especially valuable for keeping the system in tone, the bowels loose and the coat sleek and glossy. Cottonseed meal should never be fed to hogs, as they often die from eating it.

There is nothing better than clover pasture to balance the ration of fattening swine. Clover pasture, with perhaps a small allowance of grain, is an ideal feed for milk cows, calves and colts. The little pigs will learn to eat it also, but will need considerable grain and skim milk in addition if they are to make rapid gains. Clover hay and corn is a ration for fattening cattle and sheep that cannot be beaten. Clover hay and silage with a little corn and oilmeal added is a first class winter feed for dairy cattle. Even for horses clover hay, if not dusty, is the best of roughage. Its liberal use for all classes of stock will reduce the cost of feeding and add to the profits. So it is evident that the wise farmer will not neglect to provide a clover pasture that is ample.

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