

THE COMPARATIVE VALUE OF FEEDING STUFFS.

By A. T. WIANCKO, B.S.A., Sparrow Lake, Ont.

In ordinary feeding the majority of our farmers pay too little attention to the real feeding value of the foods they give to their stock. They simply use whatever they happen to have on hand without much reference to whether that food is the most economical for the object in view or not. From force of habit a certain class of animals will be given a certain food. This I believe to be very often a great mistake, but one that is easily made even by an otherwise careful farmer and stock-feeder. In many cases the foods are well adapted to the use to which they are put; but they are not always the most economical that might be used. Now, whether other feeding stuffs may or may not be profitably substituted is a question that should receive the careful attention of every feeder.

In many cases it may not pay the farmer to haul to market and sell what was grown at home and with the proceeds buy something else. But when he must buy he should know what it will pay him best to buy. To do this he must be able to compare the actual feeding value of one food with another. The market value does not always tell us which is really the cheapest food. To be able to judge what food or foods will be the most economical to use, the feeder should know three things, namely: The feeding value, the fertilizing value, and the market value. Market values may vary a great deal, but the feeding and fertilizing values will always be relatively the same. The feeding value will always depend upon the total amount of digestible organic matter, and the fertilizing value upon the total amount of nitrogen, phosphoric acid and potash. In selecting our feeding stuffs we must, of course, bear in mind what use the animal to be fed can make of a certain food. Thus, the palatability and the proportion of nutrients that a certain animal can take out of a food must be considered. For example, to feed a pound or two of cottonseed meal might be very beneficial but to feed five or six might be both wasteful and injurious.

Apart from its nutritive ratio or suitability for making up feeding rations every feeding stuff has a value based upon its digestible ingredients. This we would call its *real* value, no matter what the market value may be. To estimate this we must know the percentage composition, or rather the percentages of digestible protein, carbohydrates and fat. Of these constituents protein is by far the most valuable. In fact we need pay but little attention to the other two, unless the difference is great, because (combining their values as carbohydrates alone) they are generally present in great abundance. It is the proper amount of protein that we are always at pains to obtain. Generally speaking then, unless the carbohydrates and fat vary greatly, we may safely compare the feeding value of foods according to the amount of digestible protein they contain.

Upon this basis let us now take a few examples, and we will readily see that the market value and the feeding value may be altogether out of proportion. Oats and bran are both feeding stuffs that are extensively used,

and one or the other may often be fed with the same object in view. At present prices, oat chop (as it is generally fed) is worth about \$18 per ton on the market, and bran \$10 per ton. A ton of oat chop contains about 182 pounds of digestible protein, and a ton of bran about 252 pounds. Now, for \$18 spent in oats we get 182 pounds of digestible protein, while for only \$10 spent in bran we get 252 pounds of digestible protein. Or, to make the comparison more simple, for \$1 spent in bran we get about 25 pounds of digestible protein, while for the same amount spent in oats we get only 10 pounds of digestible protein. Bran also has a greater value in balancing a bulky ration because of its narrower nutritive ratio. In this latter respect linseed meal is still more valuable, and we pay only about three cents per pound for protein.

As coarse fodders, timothy hay and red clover hay are both much used. For the purpose of a comparison I will place both at the same market value (\$8 per ton), though clover sells less readily on our markets than timothy. A ton of timothy hay contains about 60 pounds of digestible protein, while a ton of red clover hay contains about 130 pounds. Thus we can see that for \$1 spent in clover hay we get about 163 pounds of digestible protein,

contains the more will probably get to the field.

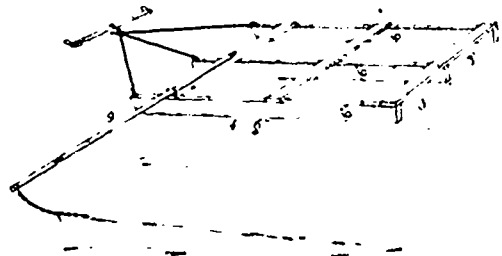
From what has been said we may conclude that it will pay us well, when determining what to feed, to consider carefully the amount of digestible nutrients and manurial constituents in the various foods that might be used for the object in view. There is certainly no doubt that to pay attention to these things will often add greatly to the profits of stock feeding.

CULTIVATION OF CORN.

To the Editor of FARMING:

In dealing with this subject, I do so from a practical, and not a theoretical, standpoint. As it is now conceded by all up-to-date dairymen that ensilage is indispensable to successful dairying, let us consider for a little space the best way of growing this golden crop so as to secure the best results.

I prefer a good sod, either after pasture, or crop of clover; plow in the fall, about last of October, five inches deep. Then in the winter draw out the manure as convenient, and put in square piles, flat on top, as near to the field intended for corn as possible, or at suitable distances on to the plowed land. Now in the spring as soon as the land is in a fit condition, harrow with whatever kind fancy or judgment



Corn Marker.

It will be seen at a glance how this works. You start on one side of the field and drive straight, say, start on the west side of field going south, the pole will be swung to the left hand, and the chain on the end of pole will make mark to come back by, and by keeping the centre runner on that mark will get over the ground rapidly. The runners are 17 in. in plate, 4 ft. 6 in. long, 7 in. high deep, with board nailed across so that the runners will be exactly 3 feet apart. There is a staple driven into the end of the pole and another in the centre of the pole so that it can be reversed from side to side, at each turn the pole is reversed. A spike is driven into each outside runner to keep the pole from swinging back.

while for the same amount spent in timothy hay we get only about 8 pounds. Other examples might be given where the difference would also be great, but the above fully illustrate the point.

Now, looking at the fertilizing value, we all know that the richer the food the greater is its manurial value. In the case of the oats we get, for \$1, 2.3 pounds of nitrogen, 0.9 pounds of phosphoric acid, and 0.7 pounds of potash, while with the bran we get, for \$1, 5.3, 5.7, and 3.2 pounds respectively. Timothy hay gives us, for \$1, 3.15 pounds of nitrogen, 1.32 pounds of phosphoric acid, and 2.25 pounds of potash, while in red clover hay we get, for the same money, 5.17, 0.95, and 5.5 pounds respectively. The three named substances in commercial fertilizers have each a certain market value, but to place that value upon them in the form of barnyard manure would be too high and rather misleading, for two reasons. First, taken together they are not nearly so readily available; and, secondly, more or less is bound to be lost entirely before the manure is placed upon the field. Nevertheless, the manurial constituents of a food have a considerable value, and, other things being equal, the food richest in these substances should be chosen, as the more the food

may dictate (I prefer the spring tooth) once or twice a week. This will tend to mellow the soil and preserve the moisture, which is very important. Then a few days before putting in the corn harrow well and deep, so as to have three or four inches of fine, loose soil. Then start at the manure, which, if it has been properly handled, can be forked right into the carts or wagon; if not, the heaps should be cut down with a sharp hoe, a fairly light coat will do, but quality and quantity must decide how much to apply, spread evenly, and harrow twice, preferably with a wheel spring tooth. This will mix the manure with the soil. When the top soil is dry roll with a light roller. Then mark off in straight rows three feet apart each way with whatever kind of a marker ingenuity may contrive. I send a rough sketch of a marker I use, that does good work and gets over the ground rapidly.

Procure the seed from a responsible firm and see that it has high germinating power. Then plant—we use the "King of the Field" hand planter. We put six to eight kernels to a hill.

After two or three days we go over the field with a harrow, which I designed myself, and is cheap and effective. It is made T shaped, 2x3 stud-ding halved and bolted together at the corners, and mitred at the front end,

and fastened with nails or bolts; ten feet wide, sides same length; use six-inch wire spikes, drive into side pieces six inches apart, in the cross piece one foot apart; fasten a chain about two feet from forward end to haul by (use one horse—this is one of the best implements on the farm. If all grain was gone over with it, even if up three inches, after a rain, to break up the crust and let the air and sun into the ground, it would be of great benefit to the crops). Harrow the ground about twice a week until the plants are three or four inches high, then make a smaller edition of the harrow to go between the rows about two feet eight inches wide, and keep it going twice a week as long as you can get a horse through without breaking down the corn; going, say, north and south one time, and east and west next time. Use a short swing. Run this harrow 1½ inches deep, and you will have a fine mulch, which, with the cultivation, will be as good as a coat of manure. Some may think that all this cultivation is unnecessary, but remember that with proper tillage we draw upon the reserves of plant food in the soil, and the labor expended is cheaper than buying fertilizers.

Pownal, P.E.I. A. A. MOORE.

LET US KNOW HOW YOU DO IT.

We would like a number of our readers, who supply milk to a cheese factory or creamery, to send us answers to the following questions within the next four weeks.

- (1) In what way do you guard against uncleanness when milking?
- (2) Do you strain the milk?
- (3) What plan do you adopt to have the milk properly aerated?
- (4) In what way do you keep the milk over night?

Make the answers as short as possible, and let us have your experience on these points.

ENSILAGE FOR HENS.

Norman Jamieson, a student at the Guelph Dairy School during the term just closed, gives the following method of preparing and feeding ensilage to hens which may be of value to poultrymen.

Take an ordinary coal oil barrel and burn it out, then cut green clover and sweet corn together, and when thoroughly mixed pack in the barrel. When filling the barrel put in a layer of clover and corn, and then sprinkle with charcoal, and continue in this way till the barrel is filled. When filled place the barrel under horse manure for a few days, then put away, covering with cut hay or straw. Feed twenty pounds to 100 hens at one meal with about the same amount of potatoes and ground oats. Boil together before feeding.

WHAT SOME OF OUR SUBSCRIBERS SAY:

"I appreciate your paper very much. . . It would be to the interest of the farmers in these parts to read your paper, and take a more lively interest in scientific farming." Jas. Luchart, Thompson, Ont.

Fowls thrive best in high and dry localities, with sandy or gravelly soil.