

has noticed the same conditions in case of growing steers when fed on grain and corn stover. The animals rapidly tired of the stover, even more quickly than did the cows, making very much smaller weekly gains in weight than when fed more palatable coarse fodder.

Best Methods of Feeding Stover.

So far as mechanical condition is concerned, the best results will naturally be obtained with the shredded stover. A properly balanced ration for milch cows should consist of one-third grain mixture and two-thirds coarse fodder. For young stock one-fourth to one-fifth grain mixture and the balance coarse fodder. The writer's experience has indicated that not over one-half of the coarse fodder or one-third of the total daily ration should consist of stover. Fed in such quantities, animals will, as a rule, consume it for a long time, and it will give nearly, if not quite, as good results as an equal quantity of good hay. In addition to the stover, coarse fodder should generally consist of some kind of hay or silage. The writer prefers to feed animals but twice daily, giving about one-half of the grain and coarse fodder at each feeding. If the stover is fed at the same time as the silage, the flavor of the latter will be imparted to the stover, causing it to be eaten clean. Some good feeders moisten the cut stover with water and sprinkle the grain over it, making what is termed "chopped feed." This also imparts flavor to the stover, and will frequently induce animals to eat more of it with correspondingly satisfactory results. Another method for those who are able to practice it is to put the cut stover into a large covered wooden box, moisten with water, and mix about one pound of bran to four or five pounds of stover, and then turn in steam. The steam softens the stover and imparts the flavor of the bran to the entire mass. Thus prepared, it will keep several days, and if convenient a little steam can be turned in each day. A slight fermentation increases its palatability.

Rations Containing Corn Stover.*

The following rations containing corn stover are suggested for milch cows. The amounts stated are per head daily:

I.

- 3 pounds wheat bran.
- 3 pounds gluten feed.
- 2 pounds linseed meal.
- 9 pounds corn stover.
- 9 pounds hay.

II.

- 6 pounds wheat bran.
- 3 pounds gluten meal.
- 30 pounds silage.
- 8 pounds corn stover.

*In case of fattening animals, corn meal, oat-meal, or hominy meal should be substituted for a considerable portion of the nitrogenous grains.

III.

- 3 pounds Atlas meal.†
- 3 pounds corn meal.
- 3 pounds wheat bran.
- 8 pounds corn stover.
- 10 pounds hay of peas and oats.

IV.

- 4 pounds dried brewer's grains.
- 2 pounds cotton-seed meal.
- 20-30 pounds stover-bran mash.
- 6 pounds hay.

V.

- 4 pounds wheat bran.
- 2 pounds linseed meal.
- 3 pounds corn meal.
- 7 pounds cotton-seed feed.
- 15 pounds silage.
- 7 pounds corn stover.

The above rations are not to be followed blindly, the judgment of a practical feeder being always necessary to the greatest success. The grain rations can be used with any of the coarse-fodder rations. Not quite so much grain need be given if 25 to 30 pounds of the stover-bran mash is fed; 6 or 7 pounds would then be sufficient.

Fertilizing Constituents of Corn Stover.

The manurial value of corn stover should by no means be lost sight of. Two tons of cured stover—a good yield per acre—will contain, in round numbers, about 32 pounds of nitrogen, 10 pounds of phosphoric acid, and 50 pounds of potash. These materials ought to be returned to the soil to keep up its fertility, and passing them through the animal is the cheapest and quickest process of rendering them available as sources of plant food.

Conclusions.

1. Both chemical analysis and digestion experiments show that corn stover contains fully as many pounds of actual food materials as equal quantities of the best grades of hay.
2. The blades, husks, and stalks are all valuable for food; hence the entire plant should be cut when the corn is ripe, carefully cured, and housed.
3. One-third to one-half of the stover is very often wasted by improper methods of treatment and feeding.
4. In order that it be eaten clean, corn stover should be cut fine or shredded before being fed.
5. Stover very frequently lacks in flavor and is a one-sided or carbonaceous feed; hence it should not be fed alone.
6. Only about one-half of the total coarse fodder of the ration should consist of stover. It should also be fed in combination with by-products rich in protein.
7. The palatability of stover can be improved by moistening with water and sprinkling with bran. Steaming very much improves the mixture.

†A dried distillery feed.

CORN STALKS AND STOVER.

Their Food Value.

WASHINGTON, D. C., May 29, 1899.

EDITOR CONSERVATIVE:

Dear Sir: Your letter of May 25 regarding the food value of corn stover and pith was duly received. The Maryland station and the New York Geneva station have carried on a number of investigations along this line. A summary of the Maryland station work, including the composition of the ground stalk with the pith removed (called the new corn product), corn fodder and shredded corn fodder is given on page 13 of Farmers' Bulletin No. 84 (Experiment Station Work—VII) which we send.

The later work of the New York Geneva station indicates that removing the pith does not materially affect the composition or digestibility of the corn stover, as will be seen by the analyses given on page 696 of the New York Geneva Station Bulletin No. 141, "Digestion and Feeding Experiments" which we send.

The whole stover, the stover without the pith, and the pith have practically the same composition. On page 701 of the same bulletin the coefficients of digestibility of the stover with the pith and the stover without the pith are given. It will be seen that they are practically the same.

Ground Corn Stalks.

In view of these facts, it does not seem to us that a ton of ground stalks from which the pith had been extracted by the Marsden process, would have any greater value than a ton of stalks which were ground without the removal of the pith. The general opinion seems to be that it is desirable to shred corn stover before feeding, rather than to feed it whole. This is pointed out by Mr. Lindsey in the reprint from the Department of Agriculture Yearbook for 1896, which we send.

The ground corn stover possesses a possible advantage over shredded stover since it permits of the mixing of a ration which shall contain the desired amount of concentrated and coarse fodders. Thus oats or corn and the ground stover could be readily mixed in proper proportions and stored; for instance, for feeding when shipping cattle.

It seemed to us that Professor Jordan's work at the Geneva station was very carefully carried on, and since his results were published, we have felt that perhaps the claims for the ground stover after the pith was removed were rather exaggerated. Of course, if the pith can be sold for enough to pay for extracting it, it may pay to do this, and grind the remainder of the stalks for feeding, but unless there is a good market for the pith, there certainly seems no advantage in removing it before the stover is shredded or ground.

More tests seem desirable before it can be said with certainty that ground stover is preferable to shredded stover.

Respectfully yours,

A. C. TRUE, Director.