

FEEDING VALUE OF CORN STOVER.

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Corn or maize stover may be defined as that part of the corn plant remaining after the matured ears have been removed. The name is meant to include the entire stalk, leaves and husks.

In 1895 the farmers of the United States planted about eighty-two million acres of land with Indian corn, which would yield about ninety million tons of field-cured corn stover. Supposing this stover to have the average feeding value and to be properly cured and housed, it would feed all the milch cows, oxen and other cattle in the whole country for, approximately, one-fourth to one-third of a year. It is therefore of the utmost importance that the farmer should have a thorough understanding of the composition, digestibility, and practical feeding value of this fodder stuff.

Composition of Corn Stover.

While, from causes to be mentioned hereafter, corn stover varies more or less in quality, the average of a large number of analyses shows it to contain its several constituents in the following proportions:

Constituent.	Whole stover, field cured.	Water-free substance.				
		Whole stover.	Leaves.	Stalks.	Husks.	Timothy hay, for comparison.
Water.....	Per cent. 40.1	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Ash.....	3.4	5.7	7.9	3.6	3.5	5.1
Fiber.....	19.7	33.0	30.6	34.8	32.2	33.5
Fat.....	1.1	1.7	1.9	1.6	1.4	2.9
Protein.....	3.8	6.4	8.6	5.9	5.0	6.8
Nitrogen-free extract.....	31.9	53.2	51.0	54.1	57.9	51.7
Total.....	100.0	100.0	100.0	100.0	100.0	100.0

Corn stover varies very much in the amount of water it contains. When brought under cover with fairly good weather for curing, it will contain from 30 to 40 per cent of water. After it has remained under cover for two or three months, if it is loosely packed, considerable water will have dried out, reducing the percentage to 20, below which it rarely goes.

In order to compare the composition of one coarse fodder with another, it is customary to leave water out of the calculation, comparing the actual dry matter only. This has been done in the preceding table. For comparison, the average composition of timothy hay is also shown. It will be seen that there is a very close correspondence between the whole stover and its various parts, the only essential difference, aside from the ash, being that the leaves contain somewhat less fiber and more protein, and, other things being equal, they should be slightly more valuable as a source of nourishment. The whole stover shows a composition practically identical with that of timothy hay.

The fiber and nitrogen-free extract of a fodder are frequently classified together

under the name of carbohydrates, performing the same functions in the process of nutrition, namely, the production of animal heat, energy, and fat. Corn stover, containing fully 86 per cent of such substances, may well be termed a carbonaceous or starchy feed.

A feeding stuff is valuable as a source of nourishment only so far as its various parts can be digested and assimilated by the animal. A chemical analysis shows the total amounts of constituents making up the feeding stuff, but this alone does not show the ultimate value of the material as a source of food. For this, knowledge of the proportion of the constituents digested is necessary.* The following figures show the percentages of the different constituents which the average animal is able to digest from the whole stover and its several parts, and from timothy hay and oat straw for comparison:

Digestibility of Corn Stover, Oat Straw, and Timothy Hay.

Constituent.	Whole stover.	Leaves.	Stalks.	Husks.	Oat straw.	Timothy hay.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Dry matter.....	62	65	67	72	54	57
Fiber.....	67	78	74	80	54	52
Fat.....	52	56	80	33	33	60
Protein.....	52	35	21	30	30	48
Nitrogen-free extract.....	64	68	69	75	44	63

water and in 1 ton of timothy hay gives the following result:

Amounts of Digestible Ingredients in 1 Ton of Stover and 1 Ton of Timothy Hay.

Constituent.	Corn Stover.	Timothy hay.
	Pounds.	Pounds.
Fiber.....	353.7	296.1
Fat.....	13.5	33.1
Protein.....	53.1	55.4
Nitrogen-free extract.....	544.6	553.6
Total.....	964.9	938.2

Assuming that an acre of land planted to corn will yield, in addition to the ears, 2 tons of stover, and that an acre equally well cultivated will produce 2 $\frac{1}{4}$ tons of timothy hay, a simple calculation shows that the stover will contain about 1,930 pounds and the hay 2,111 pounds of digestible food ingredients. Taking into consideration the average

weather conditions affecting both crops, as well as the loss suffered by the stover in the process of curing, it would probably be safe to assume that the stover from an acre of land will furnish on the average, approximately, as much digestible matter as the timothy hay from a similar area.

Losses of Corn Stover.

In many sections of the country the idea seems to prevail that the stover has comparatively little feeding value. In different localities very different methods of harvesting are followed. In some sections the corn is topped above the ear and the leaves below the ear stripped off, while the stalk below the ear is regarded as of little or no value and is allowed to go to waste. Again, many farmers leave the entire stover uncut in the field, and in the late autumn or winter turn the cattle in and let them eat what they will, the idea being that this is cheaper than harvesting it. That such methods are very wasteful must be clear to everyone. Reliable experiments teach that of the entire corn stover the portion above the ear (tops) contains 27 per cent of the total digestible matter, the blades below the ear, 13 per cent; the husks, 26 per cent, and the stalks below the ear, 34 per cent. By leaving the stalks below the ear in the field, one-third of the entire feeding value of the stover is lost. Again, if the stover is not cut till very late, the leaves dry up and are blown away by the winds.

Conditions Affecting the Value of Stover.

The value of the stover varies to quite an extent, according to time of cutting,

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