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## EC254 Using Soft Corn

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## USING SOFT CORN

(Animal Husbandry Staff, University of Nebraska)

Soft corn (corn which has been killed by frost before full maturity is reached) is lower in feeding value than sound corn because of its higher moisture content. Higher moisture means less total digestible nutrients per unit of weight. This same high moisture content increases the perishability of corn. Soft corn frequently molds or otherwise decomposes, which may also lower the feeding value.

### Feeding Soft Corn in the Field

Soft corn may be fed in the field by turning cattle, hogs or lambs in. It is usually necessary to cross fence, giving the animals about what they will clean up in two weeks. An electric fence is very good for confining cattle or hogs if they have been accustomed to it. They should have free access to dry roughage. Animals in the cornfield should be considered as being on a full feed of grain, and hence should be fed a reasonable allowance of high protein supplement.

As the animals clean up the corn, additional acreage should be allowed them. It is best not to force fattening animals to clean up the grain completely because they use too much energy gathering the last few kernels. After the fattening animals have finished in the field, stock animals may be used to clean up stray grain.

Lambs used to salvage soft corn will first eat the lower leaves and aftergrowth in the field. It may be necessary to break down a few rows of corn to accustom them to this new feed.

Results from feeding soft corn in the field may vary considerably with the weather. During a dry fall good returns may be secured, but in wet muddy weather some waste of corn may be expected.

### Some Results of Research

The South Dakota Experiment Station has carried on several years' work with soft corn. The results are published in South Dakota Circular 48 (revised). The following summary is taken from the circular.

1. A farmer who has soft corn usually will obtain a greater return from it by feeding it to cattle, lambs or pigs than by selling it as cash grain.

2. The soft corn in these trials was best utilized by yearling cattle, followed in order by lambs, pigs and steer calves.

3. Soft ear corn should be fed during the winter. When the soft corn was left in outdoor piles during the entire cattle-feeding period, it deteriorated during the warmer season. Its value for the entire period for feeding yearling steers was only 73% that of hard corn as compared with a value of 82% when fed during the winter. Likewise, when fed to calves, its value dropped from 76 to 57% that of hard corn.



4. Studies made on soft corn piled on the ground indicate that it can be so stored only during the winter. If a farmer has more soft corn than can be fed before the beginning of warm weather, it should be stored in narrow cribs to allow it to dry out rapidly with the coming of spring.

5. Soft corn can be fed without any special preparation such as drying, salting, shelling, crushing, or grinding. When broken ear corn is fed to cattle and sheep, wastage is reduced. Shelled soft corn and ground soft ear corn were eaten readily but were difficult to store as they heated and further molds developed.

6. The soft, moldy corn was palatable to cattle and sheep. When both kinds of corn were offered in separate bunks to other cattle on feed in 1943, the soft corn was always first to be consumed. The lambs fed soft corn usually cleaned their bunks more rapidly than those getting the hard corn.

7. No bad effects occurred in shifting livestock from a full feed of good quality grain to a full feed of soft, moldy ear corn. Twenty-nine steers on a full feed of shelled corn and barley were shifted in five days to a full feed of the soft ear corn without going off feed or showing any bad effects. The steers were fed the soft corn ration for four weeks and continued to make good gains throughout the period.

Ten yearling sheep on the full feed of No. 3 corn also were shifted to a full feed of soft, moldy ear corn with no indication of digestive disturbances; they were continued on this soft corn for a six-week period or until fattened for market.

## **Soft Corn for Hogs**

(The following suggestions regarding the use of soft corn for hogs were prepared by Don R. Warner, Animal Husbandry Department, University of Nebraska.)

1. Hog gains made on soft corn are not as rapid as those made on sound corn, but are as efficient on the basis of dry matter required to produce a pound of grain.

2. Soft corn can probably be best utilized by growing-fattening hogs weighing over 75 pounds, although soft corn may be safely and economically fed to brood sows.

3. If soft corn is fed to young pigs weighing less than 75 pounds, a portion (at least 50%) of the grain allowance should be of good quality.

4. Greater value will be obtained from soft corn if it can be fed during the winter.

5. In some instances scours and digestive disturbances may occur if the hogs' entire grain allowance is suddenly changed to poor quality, high-moisture corn. However, the South Dakota Experiment Station reported no bad effects from shifting hogs, cattle or lambs from a full feed of good quality grain to a full feed of soft, moldy ear corn.



6. Although the immediate utilization of soft corn is of primary concern, its feeding value may be estimated on the basis of relative moisture content, comparing it with the value of sound dry corn. Soft corn, not seriously deteriorated, having 30% moisture (70% dry matter) would have a calculated feeding value of 82% that of hard corn having 15% moisture (85% dry matter).

Example:

$$85: \$1.50 = 70 : X$$

$$85X = 70 \times \$1.50$$

$$X = \frac{105.00}{85}$$

85

X = \$1.23 per bu. for 30% moisture corn or  
82% of the value of 15% moisture corn  
at \$1.50 per bu.

At the South Dakota Experiment Station, in two winter trials, 1943 and 1945, soft corn containing 24.8% and 31.5% moisture respectively at the time of purchase was reported to have an average value of 76% that of No. 3 hard corn for growing-fattening hogs.

In table 1, the value per bushel of soft corn (20%, 25%, 30%, and 35% moisture) is shown when No. 2 hard corn (15% moisture) is worth \$1.00, \$1.25, \$1.50, \$1.75, or \$2.00 per bushel.

Table 1. --Estimating the value of soft corn on basis of dry matter content.

Price per bushel of

No. 2 corn (15% moisture)    \$1.00    \$1.25    \$1.50    \$1.75    \$2.00

Moisture in soft corn

20%	\$ .94	\$1.18	\$1.41	\$1.65	\$1.88
25%	.88	1.10	1.32	1.54	1.76
30%	.82	1.03	1.24	1.44	1.65
35%	.76	.96	1.15	1.34	1.53

## Soft Corn for Sheep

(The following suggestions regarding the use of soft corn for sheep were prepared by M. A. Alexander, Animal Husbandry Department, University of Nebraska)

Frosted corn may be ensiled and fed to sheep or the snapped ears may be ensiled after they are chopped relatively fine. Moldy soft corn may be dangerous to sheep, especially ewes with lambs. The soft corn if properly preserved will have about the same feeding value per pound dry matter as normal corn.

## Moldy Corn

Soft corn generally molds, bringing forth many questions about the harmfulness of such feed for domestic animals. Molds are a low form of plant life. Some are beneficial, for example those which produce penicillin and other antibiotics. Most of them are harmless. A very few are toxic. The casual user cannot readily determine which type he is feeding. Hence, it is good practice to regard all spoiled feed with suspicion. Such feeds may well be tried out on a few animals before being fed to large groups. The probability is that no harm will occur from feeding moldy corn to cattle or hogs. Moldy feed should never be fed to horses and probably not to ewes with lambs.

A soft corn crop generally creates a scramble for feeder animals of all kinds. The larger animals with considerable capacity and frame are in greatest demand.

Soft Corn for Hogs		Price per bushel of	
		No. 2 corn (15% moisture)	
		\$1.00 \$1.25 \$1.50 \$1.75 \$2.00	
		30% 35% 40% 45% 50%	
		1.00 1.10 1.20 1.30 1.40	
		1.50 1.60 1.70 1.80 1.90	
		2.00 2.10 2.20 2.30 2.40	
		2.50 2.60 2.70 2.80 2.90	
		3.00 3.10 3.20 3.30 3.40	
		3.50 3.60 3.70 3.80 3.90	
		4.00 4.10 4.20 4.30 4.40	
		4.50 4.60 4.70 4.80 4.90	
		5.00 5.10 5.20 5.30 5.40	
		5.50 5.60 5.70 5.80 5.90	
		6.00 6.10 6.20 6.30 6.40	
		6.50 6.60 6.70 6.80 6.90	
		7.00 7.10 7.20 7.30 7.40	
		7.50 7.60 7.70 7.80 7.90	
		8.00 8.10 8.20 8.30 8.40	
		8.50 8.60 8.70 8.80 8.90	
		9.00 9.10 9.20 9.30 9.40	
		9.50 9.60 9.70 9.80 9.90	
		10.00 10.10 10.20 10.30 10.40	
		10.50 10.60 10.70 10.80 10.90	
		11.00 11.10 11.20 11.30 11.40	
		11.50 11.60 11.70 11.80 11.90	
		12.00 12.10 12.20 12.30 12.40	
		12.50 12.60 12.70 12.80 12.90	
		13.00 13.10 13.20 13.30 13.40	
		13.50 13.60 13.70 13.80 13.90	
		14.00 14.10 14.20 14.30 14.40	
		14.50 14.60 14.70 14.80 14.90	
		15.00 15.10 15.20 15.30 15.40	
		15.50 15.60 15.70 15.80 15.90	
		16.00 16.10 16.20 16.30 16.40	
		16.50 16.60 16.70 16.80 16.90	
		17.00 17.10 17.20 17.30 17.40	
		17.50 17.60 17.70 17.80 17.90	
		18.00 18.10 18.20 18.30 18.40	
		18.50 18.60 18.70 18.80 18.90	
		19.00 19.10 19.20 19.30 19.40	
		19.50 19.60 19.70 19.80 19.90	
		20.00 20.10 20.20 20.30 20.40	
		20.50 20.60 20.70 20.80 20.90	
		21.00 21.10 21.20 21.30 21.40	
		21.50 21.60 21.70 21.80 21.90	
		22.00 22.10 22.20 22.30 22.40	
		22.50 22.60 22.70 22.80 22.90	
		23.00 23.10 23.20 23.30 23.40	
		23.50 23.60 23.70 23.80 23.90	
		24.00 24.10 24.20 24.30 24.40	
		24.50 24.60 24.70 24.80 24.90	
		25.00 25.10 25.20 25.30 25.40	
		25.50 25.60 25.70 25.80 25.90	
		26.00 26.10 26.20 26.30 26.40	
		26.50 26.60 26.70 26.80 26.90	
		27.00 27.10 27.20 27.30 27.40	
		27.50 27.60 27.70 27.80 27.90	
		28.00 28.10 28.20 28.30 28.40	
		28.50 28.60 28.70 28.80 28.90	
		29.00 29.10 29.20 29.30 29.40	
		29.50 29.60 29.70 29.80 29.90	
		30.00 30.10 30.20 30.30 30.40	
		30.50 30.60 30.70 30.80 30.90	
		31.00 31.10 31.20 31.30 31.40	
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		32.00 32.10 32.20 32.30 32.40	
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		33.00 33.10 33.20 33.30 33.40	
		33.50 33.60 33.70 33.80 33.90	
		34.00 34.10 34.20 34.30 34.40	
		34.50 34.60 34.70 34.80 34.90	
		35.00 35.10 35.20 35.30 35.40	
		35.50 35.60 35.70 35.80 35.90	
		36.00 36.10 36.20 36.30 36.40	
		36.50 36.60 36.70 36.80 36.90	
		37.00 37.10 37.20 37.30 37.40	
		37.50 37.60 37.70 37.80 37.90	
		38.00 38.10 38.20 38.30 38.40	
		38.50 38.60 38.70 38.80 38.90	
		39.00 39.10 39.20 39.30 39.40	
		39.50 39.60 39.70 39.80 39.90	
		40.00 40.10 40.20 40.30 40.40	
		40.50 40.60 40.70 40.80 40.90	
		41.00 41.10 41.20 41.30 41.40	
		41.50 41.60 41.70 41.80 41.90	
		42.00 42.10 42.20 42.30 42.40	
		42.50 42.60 42.70 42.80 42.90	
		43.00 43.10 43.20 43.30 43.40	
		43.50 43.60 43.70 43.80 43.90	
		44.00 44.10 44.20 44.30 44.40	
		44.50 44.60 44.70 44.80 44.90	
		45.00 45.10 45.20 45.30 45.40	
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		46.00 46.10 46.20 46.30 46.40	
		46.50 46.60 46.70 46.80 46.90	
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		48.00 48.10 48.20 48.30 48.40	
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		49.00 49.10 49.20 49.30 49.40	
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		117.00 117.10 117.20 117.30 117.40	
		117.50 117.60 117.70 117.80 117.90	
		118.00 118.10 118.20 118.30 118.40	
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		125.50 125.60 125.70 125.80 125.90	
		126.00 126.10 126.20 126.30 126.40	
		126.50	