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Alternative Feed Grains for Sheep

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South Dakota sheep producers have a number of alternative feed grains they may want to consider for use in meeting the nutritional needs of their sheep flocks. Within certain limitations, sheep are capable of utilizing all of the cereal grains produced in South Dakota. Sheep producers wanting to utilize a particular feed grain for any class of sheep need to consider the nutritive value of that feedstuff and the nutrient requirements of the animals to be fed. The typical composition of some feed grains that might be used by South Dakota sheep producers are shown in table 1.

Generally, the feed grains used will be utilized primarily as an energy source and the ration formulated will need protein and mineral supplementation. Because protein content of some feed grains is higher than in others, producers need to take this into consideration and provide supplementation where needed. As a general rule, cereal grains tend to be high in phosphorus content and low in calcium. Thus, in most cases, calcium supplementation is necessary. Some of the cereal grains are higher in fiber than others and are less suited for lamb finishing rations but work quite well in rations for other classes of sheep.

TABLE 1. TYPICAL COMPOSITION OF FEEDS FOR SHEEP

	Dry matter %	CP %	TDN %	ME Mcal/lb	NE_m Mcal/lb	NE_g Mcal/lb	CA %	P %
Corn	89	9.8	92	1.50	1.04	.68	.02	.34
Barley	88	13.0	80	1.31	.85	.56	.10	.40
Oats	89	12.8	74	1.22	.78	.50	.07	.30
Grain sorghum (milo)	89	11.9	88	1.44	.96	.65	.03	.32
Rye	87	13.8	84	1.38	.91	.61	.07	.36
Millet	90	12.9	87	1.43	.95	.65	.04	.34
Sunflower seeds	94	17.9	82	1.34	.87	.58	.18	.56
Wheat	88	13.9	89	1.46	.98	.66	.01	.34

Corn

Corn is generally the feed grain of choice and is often a major component of rations formulated for sheep, especially lamb rations. It is an excellent

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source of energy and serves as the base cereal grain for comparing other feed grains for sheep. Relative energy value of some feed grains in comparison to corn and recommended substitution rates are shown in table 2.

Sheep are capable of utilizing corn whole, and grinding or processing is only recommended for creep rations when lambs are less than 5 to 6 weeks old.

TABLE 2. VALUE OF CORN SUBSTITUTES FOR SHEEP

Energy source[a]	Relative energy value, %	Maximum replacement, %
Corn	100	100
Barley	90	100
Oats	80	10-100
Sorghum	85-100	100
Rye	85	50-100
Millet	75-90	25-50
Wheat	100	50
Sunflowers	--	--

[a] Compared to corn with a value of 100.

Oats

Many sheep producers in South Dakota consider oats an excellent feed grain for their flocks and they are justified in this concern because oats is well liked by sheep. It is especially suited for feeding to breeding sheep and lambs as a major component of the grain mixture.

Oats is also a good feed to use in starting lambs on feed because of its higher fiber content. However, because of its high fiber content, oats as the only cereal grain in a finishing ration will not give satisfactory gains. It may be used up to one-third of the total grain in a finishing ration when self-feeding lambs.

Although oats is higher in protein content than corn, it is considered to have 80% of the relative energy value of corn. The replacement value of oats for corn in sheep rations varies from 10 to 100%, the higher rate being for breeding sheep and the lower rates for creep feeds and finishing rations.

Oats can and should be fed whole to all classes of sheep, as there doesn't appear to be any advantage in grinding or processing.

Heavy test weight oats and high protein varieties would be of greater value for sheep, but the same guidelines should probably be followed when utilizing these types of oats.

Grain Sorghum

Grain sorghum or milo is used extensively in the southwestern United States as a feed grain for sheep. As a feedstuff for sheep, grain sorghum has a relative energy value from 85 to 100% of corn and it is considered to have a 100% replacement value for corn.

Some feeding trials indicate lowered rate of gain in lambs fed only sorghum grain as the energy source when compared to corn. Where possible, it may be advantageous for producers to mix sorghum grain with other feed grains when formulating lambs rations to obtain better overall lamb performance.

Because grain sorghum may not be as palatable as corn or barley, its use in lamb creep feeds may cause some problems in getting young lambs started on grain. Thus, it might be beneficial to start with lower levels of grain sorghum and gradually increasing the amounts after the lambs start eating creep rations.

No apparent advantages are obtained in grinding sorghum or milo. However, it is generally recommended that it be coarsely ground when used in lamb creep feeds until the lambs are 6 weeks of age.

Barley

Barley contains more total protein than corn, but, due to its higher fiber content, it has 90% of the relative energy value of corn. Barley can replace up to 100% of corn in sheep rations for all classes of sheep. When compared to corn for lambing finishing rations, gains will be nearly equal, but feed efficiency tends to be somewhat less.

Barley is highly palatable to sheep and results in few digestive disturbances. No benefits appear to result from grinding barley for sheep, so it is recommended that it be fed whole.

Light test weight barley would have a lower relative value in comparison to corn. Hence, producers should expect decreased performance when feeding light weight barley to sheep and may need to include some corn in these rations.

Wheat

Although wheat is considered to have an equal relative energy value in comparison to corn, it is generally recommended that it be fed at only 50% of the grain mixture for sheep. This is primarily due to the fact that sheep fed high levels of wheat are susceptible to digestive disturbances and founder. Ewe rations for late gestation and lactation may utilize higher proportions of wheat without any apparent problems.

Best results are obtained when wheat is not ground or crushed because processing tends to make it less palatable to sheep and produces less rapid gains in lambs.

Winter wheat varieties tend to be lower in protein content than spring wheat and this should be taken into consideration when formulating rations for all classes of sheep.

Rye

Rye is more palatable to sheep than any other class of farm livestock. In comparison to corn, it has a relative energy value of 85% and may replace from 50 to 100% of corn in rations for sheep.

Rye may be fed whole to sheep without any decrease in animal performance.

Millet

The value of millet as a feed grain for sheep is not well documented. If millet is to be incorporated into sheep rations, it is recommended that it not be fed whole but cracked or coarsely ground.

Millet's relative energy value is 75 to 90% that of corn. The protein content of millet is higher than corn. As a feed grain for sheep, millet would probably work best in ewe rations at a higher percentage of the total grain than in lamb rations.

Sunflowers

Although whole sunflowers are seldom grown for the specific purpose of a sheep feed, there might be instances where producers want to consider their use. The oil content of whole sunflowers gives them a relatively high energy content, but the hulls add fiber, yielding less relative energy value than corn.

General recommendations as to level of feeding and processing methods are not readily available. Best overall performance would probably be obtained if whole sunflowers were fed in combination with other grains such as corn.

Consider Availability and Cost

Availability and cost or value will more than likely be the determining factors when deciding whether or not to use an alternative feed grain in place of corn for sheep. When properly balanced rations are formulated, they should give satisfactory results if used within the guidelines discussed previously. One method to determine the approximate value of a particular feed grain compared to corn is as follows:

Example (using barley):

Corn sells for $2.50 per bushel or $4.46 per cwt.

What can you pay for barley if barley is considered to have 90% of the value of corn?

Multiply $4.46 per cwt. (price of corn) x 90% (value of barley). .90 x $4.46 = $4.01 per cwt. (what you can pay for barley).