A-125 (revised)

NORTH DAKOTA STATE UNIVERSITY
3 0109 00919 0672

JULY 1988

Russian Thistles and Kochia for Forage

J. L. Helm
Agronomist

LaDon Johnson
Livestock Specialist

Russian Thistles for Hay

Russian thistles should be regarded as an emergency feed crop that may be used when there is an extreme shortage of feed, and not as a desirable feed for use under normal conditions.

The best time to cut Russian thistles for hay is when they are in bloom, before the spines form or harden. Hay from thistles cut after the spines harden has very little feeding value and may prove harmful. The thistles should be cured in the windrow in much the same way as alfalfa or other hays but should have enough moisture at time of stacking to cause sweating.Stacking the thistles immediatley after cutting, especially if mixed with grain stubble or straw. Russian thistles mixed with straw make a fairly satisfactory hay. The dry straw takes up some of the extra water in the thistles.

Feeding Value

Russian thistles contain about twice as much ash or mineral salts of an alkaline nature as alfalfa or prairie hay. The laxative action of the thistle is due to these salts. Because of the high ash content the use of salt in stacking the thistles can not be regarded as a good practice.

Russian thistles, cut in the blossom stage and carefully cured as hay, contain about the same amounts of protein as alfalfa. The total digestible nutrients have been estimated at 10 to 15 percent less than those in alfalfa hay.

The experience of many farmers is that Russian thistle hay of good quality, free from spines, can be safely fed to dry and milking cows, to calves and older stock animals, and can be used for fattening cattle, sheep and horses.

If it is impossible to cut the thistles before the spines harden it is still possible to use them for silage and also for hay, provided the hay is sprinkled thoroughly with water 10 to 12 hours before feeding. This will soften the spines and make the hay usable.

Because thistles are less palatable and digestible, they probably have about one-half the feeding value of alfalfa hay when fed with non-laxative feeds. However, some experiments indicate that good Russian thistle hay fed as a part of the ration may be equal to alfalfa.

At the Hays Experiment Station in Kansas two groups of 20 mature cows each were wintered from December 20 to March 29—100 days—to test rations of Russian thistle and alfalfa hay. Cattle in the one group ate 9.4 pounds of Russian thistle hay, 11.9 pounds straw and 15 pounds silage and the other 9.6 pounds alfalfa hay, 11.4 pounds straw and 15 pounds silage per head daily. The cows on the thistle hay lost 82 pounds in weight. Those on alfalfa hay lost 88 pounds. Both groups were in good condition for the spring calf crop. In this test the thistle hay was equal to alfalfa.

A test at the Colorado Experiment Station with fattening lambs showed that Russian thistle hay was 94 percent as valuable as whole cane fodder, while ground thistles were about 5 percent more valuable than ground cane fodder.

Russian Thistles for Silage

Very little experimental work has been reported on Russian thistle silage. Such reports as are available both from experiment stations and farmers indicate that sometimes a very good silage is obtained and at other times a very poor silage. Russian thistles alone frequently give a very dark, foul-smelling silage. This is probably due to the

4.3
1
25
8

NDSU EXTENSION SERVICE
North Dakota State University, Fargo, ND 58105

AGR

high water and protein content of the young thistles cut before the spines form.

If the thistles are free from stubble or other dry material, and are cut before or in the early blossom stage, it may be well to allow them to wilt a little before putting them into the silo. This will get rid of the excess water. On the other hand, if the thistles are grown on stubble it may be necessary to add water when they are put into the silo.

Mixing the thistles with green corn or other green crops such as oats, barley, wheat or millet makes a better silage than thistles alone.

The New Mexico Experiment Station issued this report on a silage test:

"Silage made exclusively of Russian thistle was found to have a disagreeable odor when fresh and to deteriorate rapidly upon exposure to air, but silage made from a mixture of Russian thistle and corn meal (100:1) proved satisfactory and maintained the body weights of five cows fed no other feed for 20 days. At the end of test each cow was eating about 40 pounds per day."

If dry roughages like straw, hay or dried corn fodder are used, enough water must be added to allow thorough packing. Thorough packing of the material is always important.

Adding corn or other ground grain to the thistles at the rate of 20 to 30 pounds per ton of **green** material at the time of ensiling should improve both the palatability and general feeding value of the silage.

A number of farmers have made silage of the thistles and report that they prefer the silage to the hay.

Some important points to consider in making silage from thistles are these:

1. The material should have enough water or sap so the stems and leaves are soft and pliable - they should be wet enough to permit "wringing out" water.

2. **The material must be thoroughly packed** in silos with airtight walls and doors so as to exclude air. Air causes spoilage.

3. To facilitate packing, chop the thistles with an ordinary silage cutter. In the trench silo where tractors are used for packing, it is not necessary to chop the thistles before ensiling.

4. Cover the silage with chopped wet straw, dirt or other material that will keep the surface moist and exclude air.

Silage from Russian Thistle Hay

Thistles cut for hay after the spines have hardened may have so many spines that the hay is practically worthless as a feed. Such hay can be rendered fit for feeding by making it into silage. The hay should be chopped on a feed cutter and packed in the silo with enough water added to wet the material thoroughly and permit thorough packing. In the trench silo where tractors are used for packing it is not necessary to chop the hay. Dry hay or fodder will require from 1½ to 2 tons of water for each ton of hay. This is equivalent to 360 to 480 gallons of water. If the hay is only partly cured or dried, less water is required.

A better quality of silage is obtained by mixing 50 to 75 pounds of ground corn or other grain to each ton of **dry thistles** at the time of ensiling.

Russian Thistles for Pasture

Both cattle and sheep have been successfully pastured on Russian thistles up to the time the spines begin to harden. It is reported that cows have maintained a good milk flow on pastures consisting almost entirely of Russian thistles, up to the time when the spines begin to harden. Ewes with lambs have been pastured and maintained in good condition in stubble fields where the vegetation consisted almost entirely of Russian thistles.

The Williston Station reports that 35 head of sheep were pastured all summer on 3 acres of Russian thistles in 1918. The following year 52 head were pastured on 10 acres. Both years the sheep came off the pasture in the fall in excellent condition.

Sheep apparently are better adapted to pasturing on the thistles than cattle, but cattle will also do well on the thistles in the younger stages of growth.

Tips for Feeding Thistles

1. Russian thistle hay should not be fed as the only roughage if other hays or silages are available.

2. Russian thistle hay should be limited when possible to one-third or one-half of the roughage in the ration. Some feed the thistles only once a day using other roughages to complete the ration. Fed in this way the thistle hay will go a long way toward meeting the feed shortage and at the same time keep the stock thrifty.

3. If the hay was cut a little late, after the spines had hardened, it should be sprinkled thoroughly with water 10 to 12 hours before feeding. This softens the spines and makes the hay usable.

4. As the thistles are laxative, they should be fed with non-laxative feeds like straw, corn fodder, prairie hay and the like.

5. Russian thistle silage can be fed the same as other silages except that it may be necessary to feed less on account of its laxative action.

Kochia for Forage

The long narrow leaves of kochia are resistant to shattering in the haying operation. Management skills used to produce good quality alfalfa should be adequate to produce good quality kochia hay.

Kochia pasture is readily eaten by cattle, sheep and hogs. A few reports of photosensitization have been reported but documentation of only kochia or some other plant or plants in the pasture as responsible is lacking.

Silage made from kochia has been satisfactorily used over the years. Again, those management skills used to produce good silage from other sources should produce good quality kochia silage.

Kochia Feeding Value

Kochia hay has often been reported to be equal to alfalfa. Studies in South Dakota report kochia hay to have protein, fiber content and nitrogen-free extract content similar to alfalfa. Kochia had higher ash contents. It is not known whether its ash content is too high for good livestock feed. Kochia silage has been satisfactorily made and is of good nutritional quality. Kochia should be cut for hay or silage when 20-26 inches in height and before it has produced seed.

The following data on kochia are from South Dakota State University research published in their station bulletin #384, now out of print.

1. Protein content range from 11 to 22 percent.

2. Yields are in the range of 1 to 3 tons of hay per acre.

3. Cut at the recommended stage, hay contains up to 60 percent leaves.

4. Hay has good aroma.

5. Total digestible nutrients in kochia hay is slightly higher than in equal quality alfalfa hay.

6. Palatability is better than grasses like brome and western wheatgrass, but a little less than alfalfa.

7. No objectionable milk flavor is caused by feeding kochia hay. There have been reports of off-flavors in the milk of cattle pastured on kochia; however other plants in the pastured areas may have been responsible.

Helping You Put Knowledge To Work

NDSU Extension Service, North Dakota State University of Agriculture and Applied Science, and U.S. Department of Agriculture cooperating. William H. Pietsch, Director, Fargo, North Dakota. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. We offer our programs and facilities to all persons regardless of race, color, sex, religion, age, national origin, or handicap; and are an equal opportunity employer.