

South Dakota State University
**Open PRAIRIE: Open Public Research Access Institutional
Repository and Information Exchange**

South Dakota Cattle Feeders Field Day Proceedings
and Research Reports, 1979

Animal Science Reports

1979

Weed Crops for Silage

L. B. Embry
South Dakota State University

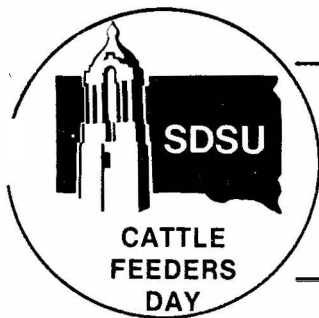
L. F. Bush

Follow this and additional works at: http://openprairie.sdstate.edu/sd_cattlefeed_1979

Recommended Citation

Embry, L. B. and Bush, L. F., "Weed Crops for Silage" (1979). *South Dakota Cattle Feeders Field Day Proceedings and Research Reports, 1979*. Paper 13.
http://openprairie.sdstate.edu/sd_cattlefeed_1979/13

This Report is brought to you for free and open access by the Animal Science Reports at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in South Dakota Cattle Feeders Field Day Proceedings and Research Reports, 1979 by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.



WEED CROPS FOR SILAGE

L.B. Embry and L. F. Bush
Department of Animal Science South Dakota State University
Ag Experiment Station A.S. Series 79-8

At times seedings of small grains, grasses and legumes become heavily infested with weeds because of inadequate cultural practices or weather conditions favoring growth of various weeds more than the seeded crop. Under such conditions, the weed crop may offer some potential feed for cattle and sheep if cut at the proper stage from the standpoint of weed control and the most potential as a possible feed source. Numerous questions have been asked in past years as to the feeding value of crops where weeds make up a major portion of the total forage. Questions are also raised as to harvesting and storage methods and how such potential feedstuffs might be used to the greatest advantage in rations for cattle and sheep.

Limited reported data are available because management practices are aimed at minimizing weed problems and quantities for experimental use are not frequently available. Also, species composition is variable making it difficult to have a feedstuff uniform enough in composition to describe and evaluate. Even with these limitations, feeding experiments with forage containing large amounts of various weeds can serve as a basis for recommended use.

Procedures

Both cattle and sheep were used in the experiment to evaluate a weed crop for low-moisture silage (haylage). Oat haylage harvested near the same time was used for comparative purposes.

Description of Forages

A 25-acre field was seeded to oats at 1 bushel per acre as a nurse crop for alfalfa in the spring of 1977. There appeared to be a good stand of oats and growth was progressing at a normal rate in the spring. About the middle of June, approximately 7 inches of rainfall was received in 1 week. Shortly thereafter, a thick crop of weeds began to grow rapidly. Lambsquarters, kochia, pigeon grass and Russian thistle made up the major portions of the weeds.

At time of windrowing on July 11, there was a thick stand of weeds with many being 4 to 5 feet in height. Estimated percentages of weight from visual appraisal were 40% lambsquarters, 30% kochia, 5% Russian thistle, 5% pigeon grass and 20% oats. There was considerable variation in various areas of the field. Seeds were beginning to form for lambsquarters and kochia, hard dough stage for pigeon grass and hard dough to mature for oats.

The forage was chopped on July 14. A long drying time was considered needed because of the heavy growth. Favorable drying weather and the fluffy nature of the windrows resulted in faster drying than expected. Dry matter of samples taken from the chopped forage averaged 72.82%.

The heavy windrows of coarse weeds presented problems in chopping. Windrows were divided with a side-delivery rake to facilitate chopping.

Because of the dry nature of the forage, water was added as the forage was blown into a concrete stave silo using a 4/8-inch garden hose and full pressure from a 1-inch hydrant. Yield of dry forage as harvested from the 25 acres was approximately 100 tons.

Forage used for comparison of the feeding value of the weed crop was oats harvested as haylage and stored in a Harvestore silo. This forage was stored at 52.36% dry matter. The oat forage yield was about 2 ton of dry matter per acre with a grain yield estimated at 25 bushels per acre. There was considerable variation in grain maturity because of dry soil conditions in the spring, resulting in considerable variation in emergence of plants, and from hail damage.

Animals and Rations

Twenty-four steers were allotted into four pens of six each for the study with cattle. The weed haylage was fed to the cattle in two pens and the oat haylage to those in the other two pens. Each forage was fed to appetite with free access to a calcium-phosphorus supplement and trace mineral salt. The cattle experiment was terminated after 77 days.

Eighty lambs (32 wethers, 32 ewes and 16 rams) were allotted into ten pens of eight each (4 ewes and 4 wethers or 8 rams per pen) on basis of weight. The weed haylage was fed to lambs in five pens and oat haylage to those in the other five pens.

In the lamb experiment, the forage portion was limited rather than feeding as the only feed with minerals as in the cattle experiment. Rolled corn grain was fed at 2 lb. per head daily with each kind of forage then being offered to appetite. This provided a comparison of forage consumption when grain formed a large portion of the ration. A calcium-phosphorus supplement and trace mineral salt were provided on a free-choice basis.

The lamb experiment was terminated after 72 days.

Results

Samples of each forage were taken at approximately weekly intervals during the experiments. Average dry matter was 65.88 (water added during filling the silo) and 49.50%, respectively, for the weed and oat haylages.

Cattle Experiment

Results of the cattle experiment are shown in table 1. Rate of gain was .69 lb. daily for cattle fed weeds in comparison to 1.38 lb. for those

fed oat haylage. Feed intake was higher for the oat haylage, but it had less dry matter. On a dry basis, daily feed intake was 1 lb. more for steers fed the weed haylage. Therefore, differences in performance would be from less efficient utilization of the weeds since palatability did not appear to be a problem.

On basis of feed efficiency, the weeds had only 47% (dry basis) the value of the oat haylage.

Lamb Experiment

Results of the lamb experiment are shown in table 2. Rolled corn grain was fed at 2 lb. per head daily after increasing to this level during the first few days of the experiment. Each forage was fed to appetite.

Lamb gains were essentially the same for the weed and oat haylages under the conditions of feeding. Dry matter intake was slightly higher for the weeds, indicating no problem of palatability when fed with the corn.

Corn per unit of gain was about the same for the two groups of lambs since weight gains were similar and each group was fed the same level of grain. Forage requirements (dry basis) were slightly higher for the weeds than for oat haylage. In this case the weeds had 80% (dry basis) the value of the oat haylage.

Summary and Comments

Steers fed haylage forage made from a crop of weeds (predominantly lambsquarters and kochia) gained considerably less than steers fed oat haylage. The oat haylage had a low amount of light weight grain (about 20% of forage dry matter and a test weight of 26 lb. per bushel). The gain when feeding oat haylage was low in comparison to that obtained in other trials with high quality oat forage. Feed intake (dry basis) indicated that palatability was not a problem. On basis of feed efficiency (dry basis), the weed haylage had a value of only 47% that of the oat haylage when either comprised the total ration with supplemental minerals.

When fed to fattening lambs with corn grain (about 60% of the ration), daily gain was about the same for the weed and oat haylages. Lambs fed the weed haylage consumed more forage dry matter. Feed requirement as corn was about equal for the two groups. Forage dry matter requirements were higher for the weed haylage. In this comparison, the weed haylage had a value about 80% that of the oat haylage.

While no comparisons were made of weeds as dry or wet forage in the experiment, the nature of such plants would indicate the silage route for best feed consumption and minimum waste. Considerable variation would be expected in feeding value depending upon kind and amount of weeds and stage of maturity when harvested.

Such off-quality feedstuffs generally have more value when forming a part rather than the major portion of rations. This is indicated in these experiments. Possible differences between sheep and cattle cannot be ignored. Sheep may make better use of such feedstuffs than cattle. However, sheep have appeared to be a good experimental animal in evaluating forage crops for ruminants.

Table 1. Weed Haylage vs Oat Haylage for Growing Cattle
(September 9 to November 23, 1977--77 days)

Item	Weed haylage	Oat haylage
Number steers	12	12
Avg init. shrunk wt., lb.	673	676
Avg final shrunk wt., lb.	726	782
Avg daily gain, lb.	.69	1.38
Avg daily forage intake, lb.		
As fed	25.1	31.4
Dry basis	16.5	15.5
Feed/100 lb. gain, lb.		
As fed	3638	2275
Dry basis	2397	1126

Table 2. Weed Haylage vs Oat Haylage for Finishing Lambs
(September 8 to November 19, 1977--72 days)

Item	Weed haylage	Oat haylage
Number lambs	39 ^a	40
Avg init. wt., lb.	86.6	87.0
Avg final wt., lb.	116.8	117.4
Avg daily gain, lb.	.421	.422
Avg daily feed, lb.		
As fed		
Corn grain	1.94	1.94
Forage	1.79	1.92
Dry basis		
Corn grain	1.68	1.68
Forage	1.18	.95
Feed/lb. gain, lb.		
As fed		
Corn	461	460
Forage	425	455
Dry basis		
Corn	399	398
Forage	280	225

^a One death loss during first month of experiments. Results are for the 39 head.