

FEEDING GRASS STRAW TO WINTERING BEEF COWS

R.L. Phillips, M. Vavra and J.A.B. McArthur

Grass straw, a by-product of the grass seed industry, has had little value or use as a livestock feed in the past. New laws that restrict field burning have made it necessary to remove the straw from the fields by other means. The use of grass straw for wintering beef cattle would provide beef producers with a cheap source of roughage and grass seed producers could recover the cost of removing the straw. The purpose of this study was to determine if pregnant beef cows could be wintered on these straws with a limited amount of supplement. This report covers the completed 1972-73 trial and the 1973-74 feeding trial.

PROCEDURE

There was considerable difference in crude protein content of the Hard Fescue between the two years (Table 1). However, Hard Fescue fed in 1972 was raised under dry land conditions while that fed in 1973 was produced under irrigation. The Merion Bluegrass straw fed in 1972 was higher in crude protein than the 1973 crop. The orchardgrass-alfalfa hay used in both trials was harvested in 1972 from irrigated land.

During the 1972-73 feeding trial, Hard Fescue and Merion Bluegrass straws were fed in sufficient quantity that it was continually available to the animals. Orchardgrass-alfalfa hay was fed at the rate of 25 pounds per head daily and served as a control. Each cow in the Hard Fescue and Merion Bluegrass fed groups was supplemented daily with 1.3 and 0.5 pounds of cottonseed meal, respectively. Protein was supplemented liberally because at that time daily intake was not known. All groups received iodized salt and dicalcium phosphate mineral mix free choice.

On November 29, 1972, twenty pregnant Hereford cows were allotted to each of the roughage treatments. They ranged in age from 4 to 10 years. The cows were fed at these levels until January 30, 1973 (63 days on feed) with the exception that the cows receiving Hard Fescue were given an additional supplement of two pounds of barley per head per day from January 1 to 30, 1973. It was felt that the increase in energy intake might alleviate the problem of compaction that occurred in one cow.

The 1973-74 feeding trial was started on December 5, 1973 and twenty pregnant Hereford cows ranging in age from 5 to 11 years were allotted to each of the three roughage groups. Cows were allotted to the same treatment as the previous year. If a cow died or was culled during the first year, a replacement of the same age was made. Each cow was injected with one million I.U. of vitamin A. Intake and digestion data from a preliminary trial using steers indicated that wintering cows could not consume enough straw to meet their nutritional requirements. Cows fed the Hard Fescue were supplemented daily with 0.67 pounds of cottonseed meal and 1.33 pounds of oats per head. The

cows fed Merion Bluegrass were supplemented with 0.33 pounds of cottonseed meal and 0.67 pounds of oats per head daily. Cows were fed and handled the same as the previous year.

RESULTS AND DISCUSSION

Results of the 1972-73 study showed that cows fed Merion Bluegrass straw ate 7 pounds more straw than those fed Hard Fescue straw. Cows fed Merion Bluegrass gained the most (1.87 lbs/day) followed by cows fed orchardgrass-alfalfa hay (1.42 lbs/day) and cows fed Hard Fescue (0.73 lbs/day), (Table 2). Average birth weight of calves from the straw fed cows was the same, but the average birth weight of calves from the control cows was slightly higher. Practically speaking, there was no difference in weaning weights of the calves from the three groups of cows. There was a 100% conception rate for the cows fed Merion Bluegrass straw and orchardgrass-alfalfa hay, while 89% of the cows fed Hard Fescue straw conceived. With the limited number of cows in this study, it would be difficult to draw any conclusion concerning difference in percent conception between the groups.

Several problems occurred in the Hard Fescue group. One cow became compacted; another died of unknown causes; and a third cow appeared to be in a stupor, was unsteady on her feet and had a temperature of 105° F. Also, one calf was born weak and died after three days. A second calf was born with an apparent vitamin A deficiency, but responded to treatment.

Intake data and weight data for the 1973-74 trial are given in Table 3. Cows were on trial from December 5, 1973 to January 30, 1974 (57 days on feed). One cow from the Merion Bluegrass group aborted, however, there was no indication that abortion was related to treatment.

Cows fed Hard Fescue straw did not consume as much straw as did the cows fed Merion Bluegrass straw. The average weight change for all cows was small. One cow fed Hard Fescue died of a compacted abomasum two weeks after the end of the trial. Feed in the abomasum had not been sufficiently digested by rumen microbes, indicating a possible energy deficiency. The other cows were in good condition and should breed back.

In light of the problems that occurred when feeding Hard Fescue, more basic information is needed. A digestion trial using mature sheep is planned to determine the digestibility of the energy and protein. Also, more information is needed concerning the variation in straw quality raised under dry land or irrigation. Due to the yearly variation in protein it would seem necessary to have Hard Fescue analyzed for protein before an estimate of supplementation level necessary to meet cattle requirements could be made. The limited information presented in this report indicates that Merion Bluegrass can be fed to wintering beef cattle with no harmful side effects.

Table 1. Chemical analysis of Hard Fescue and Merion Bluegrass straw for the 1972 and 1973 crops.

	Crude protein	Acid detergent fiber
	%	%
Hard Fescue straw (1972)	4.36	46.37
Hard Fescue straw (1973)	5.76	48.21
Merion Bluegrass straw (1972)	7.55	34.63
Merion Bluegrass straw (1973)	6.34	44.17
Orchardgrass-alfalfa hay (1972)	10.78	38.67
Orchardgrass-alfalfa hay (1973)	10.78	38.67

Table 2. Results of feeding Merion Bluegrass, Hard Fescue, and orchardgrass-alfalfa hay to pregnant cows during the winter of 1972-73.

	Daily consumption (lbs.)	Weight on test 11-29-72 (lbs.)	Weight off test 1-30-73 (lbs.)	Average daily gain (lbs.)	Calf birth weight (lbs.)	Percent conception of cows
Merion Bluegrass straw	29.5	1176.5	1294.5	1.87	76.5	100
Hard Fescue straw	22.5	1179.5	1225.5	0.73	76.5	89
Orchardgrass-alfalfa hay	26.0	1186.0	1275.5	1.42	80.0	100

Table 3. Results of feeding Merion Bluegrass, Hard Fescue, and orchardgrass-alfalfa hay to pregnant cows during the winter of 1973-74.

	Average daily consumption of hay (lbs.)	Weight on test 12-5-73 (lbs.)	Weight off test 1-30-74 (lbs.)	Average daily gain (lbs.)
Merion Bluegrass straw	25.4	1267.3	1277.1	.18
Hard Fescue straw	20.1	1240.3	1219.6	-.37
Orchardgrass-alfalfa hay	25.4	1263.4	1296.8	.60