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## Utilizing Wheat Straw and Wheat Tailings with Beef Cows

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### Summary

Ninety-one Simmental-Hereford and Hereford cows in early gestation were used to compare three rations in a 106-day trial: (1) wheat straw, (2) wheat tailings, and (3) soaked wheat straw. Each was fed to groups of lactating and nonlactating cows. Cows fed the soaked wheat straw and those fed wheat tailings out-gained those on wheat straw by 28 and 16.7 pounds, respectively. All cows' condition score decreased during the trial period. Two-year-old heifers did not perform as well as the mature cows on the straw rations. Dry cows out-gained the lactating cows on both straw and tailing rations.

### Introduction

Reducing cow feed costs is a major concern of cattlemen. One feeding alternative to offset high feed costs is use of crop residues. Development of large, package harvesting systems has made stored crop residue more appealing and useable in cow herd operations.

Both dry cows and lactating cows in early gestation were used to evaluate wheat straw and wheat straw tailing residue as a feedstuff.

### Experimental Procedure

The wheat residue was harvested in two methods: straw was collected in large round bales soon after the grain was harvested, and wheat straw tailings collected at harvest by Foster Buncher Wagon attached behind the combine. Both materials were ground before feeding. Grinding was to eliminate feed wastage to get a better measure of consumption.

Ninety-one Hereford and Simmental-Hereford cross cows in early gestation were allotted by weight and condition into three groups, then divided into each group (dry and lactating) for the 160-day trial. Cows were weighed on and off trial after no feed or water for 14 hours. These cows are maintained in drylot the year round.

The three forage groups were wheat straw, wheat tailings, and soaked wheat straw. The straw was soaked by adding water to chopped straw to runoff. Average dry matter of the soaked straw at feeding was 36 percent.

<sup>1</sup>Appreciation is expressed to the Foster Mfg. Co. for funding support and equipment.

The rations were formulated and fed daily.

As the cows were weighed on and off test, each cow was visually appraised for condition by three persons. Each cow was scored between 1 and 10: 10 = very fat; 1 = very thin. The three scores were averaged to give each cow a condition score.

Wheat straw and wheat tailings, both, were analyzed for crude protein, calcium, phosphorus, and acid detergent fiber.

### Results and Discussion

Analysis of the composition of the wheat straw and wheat straw tailings is shown in Table 18.1. Crude protein ran approximately 2 percent higher and calcium ran .2% higher for wheat tailings than for wheat straw. Phosphorus content for the straw and tailings were approximately the same. Acid detergent fiber analysis for wheat tailings ran 2 percent lower than wheat straw. A lower acid detergent fiber indicates an increased amount of energy.

Dry matter intake of all six rations is shown in Table 18.2; cow performance, in Table 18.3 and 18.4. All cows in the trial gained weight. During the 106 days the cows on either soaked straw or tailings out-gained those on straw, 28 and 16.7 pounds, respectively.

Although cows on each ration gained weight, all decreased in condition. General appearance of the cows visably decreased suggesting that additional energy and protein were needed in their rations.

The dry cows, as would be expected, out-gained the lactating cows through the trial.

Soaked straw was eaten in half the time it took cows to clean up straw or tailings.

Table 18.1. Composition of roughage fed cows in drylot.

Nutrient	Wheat straw	Wheat tailings
Crude protein, %	4.00	5.85
Calcium, %	.268	.402
Phosphorus, %	.114	.145
Acid detergent fiber, %	59.74	57.77

Table 18.2. Daily intake of indicated rations by dry and lactating beef cows.

	Intake, lbs. of D.M. fed			Cow supplement*
	Residue	Alfalfa	Milo	
<u>Dry cows</u>				
Wheat tailings	13.83	2.78	1.86	.5
Wheat straw	13.06	2.83	1.86	.5
Soaked wheat straw	13.06	3.03	1.86	.5
<u>Lactating cows</u>				
Wheat tailings	12.21	3.48	5.24	.5
Wheat straw	12.55	3.33	5.24	.5
Soaked wheat straw	12.7	3.54	5.24	.5

\*Cow supplement consisted of lbs./ton soybean meal, 1070; rolled milo, 491; salt, 200; bone meal, 134; urea, 64; 2-10 trace mineral, 20; aurofac 10, 15; vitamin A, 6; wet molasses, 40.

Table 18.3. Effects of type of wheat residue on cow performance.

	Wheat straw		Wheat tailings		Soaked wheat straw	
	Lactating	Dry	Lactating	Dry	Lactating	Dry
Number of cows	14	17	14	17	13	16
Average starting weight (lbs.)	1010.3	992	1000	1009.2	1004.8	1020.4
Average ending weight (lbs.)	1045.3	1040.4	1041.1	1083.1	1049.2	1111.8
Total weight change (lbs.)	35.0	48.4	41.1	73.9	44.5	91.4
Average starting condition*	5.5	4.9	5.1	4.8	5.3	4.8
Average ending condition*	4.7	4.0	4.7	4.3	4.4	4.5
Total condition change*	-0.8	-0.9	-0.6	-0.5	-0.9	-0.3

\*Condition score is an average visual appraisal by three men with 1 = extremely thin, 10 = extremely fleshy.

Table 18.4. Summary of effect of type of residue.

	Wheat straw	Wheat tailings	Soaked wheat straw
Number of cows	31	31	29
Average weight change (lbs.)	42.35	59.08	70.38
Average condition change*	-0.85	-0.55	-0.6
Advantage compared to straw, lbs.		+16.73	+28.03

\*Condition score is an average visual appraisal by three men with 1 = extremely thin, 10 = extremely fleshy.