

USING STRAW IN COW WINTERING RATIONS

Past research at this station has indicated that small grain straw and adequate supplemental protein can replace up to two-thirds of the hay fed in wintering rations to pregnant beef cows.

In this trial a 100 percent mixed brome and crested wheatgrass hay ration is compared with a 50 percent hay - 50 percent oat straw ration for wintering pregnant beef cows. Both rations were fed in the long form. There was no supplemental protein fed to either of the ration groups.

The trial has been run for three winter feeding periods with the station's commercial Hereford cow herd.

In 1972-73 the calves were weaned about November 1, and the cow herd was grazed on good to excellent native grass range until the end of the month. During this one month period, despite supplemental feeding of protein blocks, the cows lost an average of 47 pounds of weight, with a corresponding loss of body condition. In 1973-74 the calves were weaned on November 1, and the cow herd was grazed on grain stubble aftermath until the end of the month. Cow weight loss in 1973-74 pre-trial grazing averaged 45 pounds per head. The 1974-75 pre-trial grazing was on good native grass pasture on the station's Pyramid Park summer grazing range in the Badlands. The cow weight loss in 1974-75 was 23 pounds per head.

On November 26, 1974 the cows were randomly allotted by age into two feeding groups. Group A was fed the mixed hay ration and group B was fed the 50 percent mixed hay - 50 percent oat straw ration. Both groups of cows had a salt-mineral mixture and water available free choice. As in past years, both groups were held in lots with a slotted board fence for protection from wind and weather.

On January 31, 1975, thirty days before the cows were scheduled to start calving the straw feeding was discontinued and replaced with the mixed hay ration fed to appetite. As each cow calved, she was moved into a post calving lot

and given two pounds of rolled oats in addition to the hay until the cows were turned on grass in early May.

Three years data on changes in cow liveweight, feed consumption, wintering costs, calf birth weight and calf mortality are summarized in tables 1, 2 and 3.

This information shows a ration of 50 percent mixed hay - 50 percent oat straw can be fed for a period of 60 days without adversely affecting calf birth weight and livability.

Young cows that were wintered on the 50 percent mixed hay - 50 percent oat straw ration lost the most body weight, which was expected. Cows that are carrying average to moderate condition can afford this weight loss without serious effect. Unless young cows, under 4 years old, have good body condition in the fall they should not be expected to compete and exist on the 50 percent straw - 50 percent hay ration.

Table 1 - Three year summary of cow weight change-wintering trial, 1973-75						
	Avg. wt on hay			Avg. wt. on hay & straw		
	3 yr. old	4-5-6 yr. old	7 yr. & older	3 yr. old	4-5-6 yr. old	7 yr. & older
Pre-trial						
Nov. 1, 1972-73	952	1085	1171	971	1107	1179
Nov. 1, 1973-74	913	1135	1166	914	1098	1192
Oct. 16, 1974-75	926	1028	1148	898	1036	1142
3-Year Average	930	1082	1162	927	1080	1171
Dec. 1, 1972-73	917	1043	1121	924	1054	1126
Dec. 1, 1973-74	906	1092	1098	890	1044	1116

Nov. 26, 1974-75	884	1005	1129	874	1025	1123
3-Year Average	902	1046	1116	896	1041	1121
Wt. change ¹						
1972-73	-35	-42	-50	-47	-53	-53
1973-74	-7	-43	-68	-24	-54	-76
1974-75	-42	-23	-19	-24	-11	-19
3-Year Average	-28	-36	-46	-32	-39	-49
Feb. 1, 1973	921	1052	1118	899	1037	1118
Feb. 1, 1974	912	1120	1145	920	1074	1164
Jan. 31, 1975	953	1069	1195	869	1013	1122
3-Year Average	928	1080	1152	896	1041	1135
Wt. Change						
Dec. 1 - Feb. 1, 1973	+4	+9	-3	-25	-17	-8
Dec. 1 - Feb. 7, 1974	+6	+28	+47	+30	+30	+48
Nov. 26 - Jan. 31, 1975	+69	+64	+66	-5	-12	-1
3-Year Average	+26	+34	+36	0	-.3	-13
¹ Weight loss on native grass pasture in 1972-73, 1974-75 and on grain stubble aftermath in 1973-74.						

Table 2 - Feed consumption and cost - cow wintering trial, 1973-75		
	Hay	Hay & Straw
1973 data		
Mixed hay, lbs.	69,300	43,350
Oat straw, lbs.	---	27,750
Feed/hd./day, lbs.	21.4	21.4
Feed cost @ \$18/ton, hay - \$10/ton, straw		
Per head/day	0.19 $\frac{\$}{\text{lb}}$	0.16 $\frac{\$}{\text{lb}}$
Per head, entire trial	\$11.71	\$9.79
Savings/cow/month	0.96 $\frac{\$}{\text{lb}}$	
1974 data		
Mixed hay, lbs.	76,320	37,274
Oat straw, lbs.	---	37,274
Feed/hd./day, lbs.	21.6	21.4
Feed cost @ \$30/ton, hay - \$15/ton, straw		
Per head/day	0.32 $\frac{\$}{\text{lb}}$	0.24 $\frac{\$}{\text{lb}}$
Per head, entire trial	\$19.08	\$14.22
Savings/cow/month	\$2.35	

1975 data		
Mixed hay, lbs.	68,796	34,175
Oat straw, lbs.	---	34,726
Feed/hd./day, lbs.	21.6	20.0
Feed cost @ \$40/ton, hay - \$15/ton, straw		
Per head/day	0.43 $\frac{\$}{\text{lb}}$	0.27 $\frac{\$}{\text{lb}}$
Per head, entire trial	\$28.08	\$17.80
Savings/cow/month	\$4.67	

Table 3 - Calf birth weights and mortality - cow wintering trial, 1973-75						
	Hay ration			Hay & straw ration		
	3 yr. old	4-5-6 yr. old	7 yr. & older	3 yr. old	4-5-6 yr. old	7 yr. & older
Heifer calves						
No. head 1973	6	10	10	8	10	9
1974	4	7	7	5	16	4
1975	6	14	8	5	8	10
Birth wt., lbs. 1973	61	64	65	53	62	66

1974	61	66	73	61	68	73
1975	61	67	72	58	68	65
Steer calves						
No. head 1973	2	12	8	5	13	6
1974	7	17	14	7	14	13
1975	3	8	8	3	15	7
Birth wt., lbs. 1973	56	66	65	67	68	69
1974	67	72	71	72	73	63
1975	71	71	74	66	72	71
Combined avg. birth weight, lbs.	Hay ration			Hay & straw ration		
All calves 1973	64 ¹			64 ²		
All calves 1974	70 ³			68 ⁴		
All calves 1975	70 ⁵			68 ⁶		
Three year average	68			67		
<p>¹One cow died, 2 cows open, 1 cow aborted, 1 calf died.</p> <p>²One calf born dead, 2 late calves - no birth weight.</p> <p>³One cow open, 2 cows died, 1 calf died.</p> <p>⁴One cow open.</p>						

⁵One calf died of pneumonia.

⁶2 calves born weak, died from exposure, 1 cow aborted, 1 calf born breach - died, 1 late calf no birth weight.

Summary: Straw can be used effectively in cow rations to reduce wintering costs, to aid stockmen in building a hay reserve for future years or sale or to stretch insufficient feed supplies.

Use of straw in the ration reduced wintering costs about \$1.00 per cow per month in 1973; \$2.35 in 1974; and, \$4.67 per cow per month in 1975.

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