

Grazing Value And Management of CRP Land

[James L. Nelson, Animal Scientist](#)

[Lee J. Tisor, Research Specialist](#)

Abstract

Crossbred cow-calf pairs grazed on CRP acreage in Bowman County, ND for 120 days from May to September, in 1996. Cows gained 21.6 lbs./acre and calves gained 47.8 lbs./A on the season long (SL) system. Gains on the Twice Over Rotation (TOR) system were 26.02 lbs./A for cows and 45.5 lbs./A for calves.

In 1995, the TOR system produced cow gains of 14.2 lbs./A and calf gains of 47 lbs./A. The cows on the SL gained 13.3 lbs./A and their calves gained 50.97 lbs./A. The 1993 gains were similar with cows on the TOR gaining 17.3 lbs./A and their calves gaining 47 lbs./A. The SL cows gained 14.6 lbs./A and their calves gained 41.9 lbs./A.

Hay production yielded 1.62 tons per acre in 1996. The five year average yield is 1.84 tons/A. The quality of the hay improved since 1992 with the removal of substantial dead material found in the hay the first year.

Established stands of mixed grass in CRP acreage provided forage of sufficient quality to promote good gains on lactating cows and their calves during the period from 1992-1996. No difference in animal gain was observed between a Season Long or a Twice Over Rotation method of grazing during the trial. Utilization of forage was 53% in the TOR and 33% in the SL.

Objectives

The objectives of this study were to determine:

- The floristic composition and structure of CRP lands and to note changes in floristic composition and structure due to grazing and haying over 5 years.
- The production and utilization of CRP land vegetation under season long and twice-over grazing.
- The production and quality of hay from CRP lands.
- The success of game and non-game wildlife species on CRP lands.
- The erosion from CRP lands that have been variously grazed and hayed and to compare this with similar crop land.
- The economic returns from grazing and haying CRP lands.

This trial involved several other research centers and government agencies. This report covers that information gathered by the Dickinson Research Center. A complete report entitled [A Five-Year\(1992-1996\) North Dakota Conservation Reserve Program \(CRP\) Grazing and Haying Study](#) by William Barker, Paul Nyren et. al. will be available in 1997.

Materials And Methods

The fifth year of a co-operative project that studied the effects of haying and grazing on Conservation Reserve Program acres was concluded by the Dickinson Research Center in 1996. Mr. Tom Lambourn of Bowman provided the day to day care and checking of the cattle. He provided excellent help during weigh days, etc.

Twenty-two crossbred (AH) cows and their calves were allotted to a 131 acre pasture grazed for the entire season (SL). Thirty-five similar pairs grazed on three- 75 acre rotation pastures (TOR). The cattle grazed from May 28, 1996 to September 25, 1996, a period of 120 days. The cows rotated through the TOR pastures twice during the 120 day grazing period. The stocking rate was 1.49 acres/AUM (animal unit month) for the SL and 1.61 acres/AUM on TOR pastures.

The trial cows were artificially inseminated prior to the start of the trial on May 28th. Charolais bulls were with the cows for 37 days from May 28 to July 3, 1996. Angus bulls were with the cows from August 1st to September 25,

1996.

The cows were individually weighed and body condition scored at the start, on every rotation date, and at the end of the trial.. Individual calf weights were collected at the same time. The TOR cattle started grazing in pasture #3, rotated to #1 and then to pasture #2, back to 3, 1, and finished in pasture #2. (). Animal performance and body condition scores (BCS) for 1996 are shown in Bull weights are not included.

Results And Discussion

Both bred heifers and cow-calf pairs have made satisfactory gains during the 125 day (approximate) grazing period from May to September. Prior to the start of the trial, the pastures had been crop land that were seeded to a mixture of crested wheatgrass, intermediate wheatgrass and alfalfa. We were concerned that the amount of alfalfa in the grass mixture might cause the cattle to bloat. In 1993, one cow died of suspected bloat. However, an autopsy could not confirm the cause of death. Thereafter, Bloat-Guard (poloxalene) was mixed with the salt -mineral mixture in an effort to reduce or prevent bloat. No other cattle were lost during the rest of the trial and there were no indications or signs of bloat even though the cattle often were up to their knees in lush alfalfa.

Both the SL and TOR grazing programs provided adequate forage at the stocking rates used. Barker et al (1997) estimated forage produced on the SL pastures at 6,599 lbs./A and on the TOR pastures at 5,284 lbs./A. Utilization of the forage averaged 33% on the SL and 50% on the TOR during the five year trial period. Forage quality tended to deteriorate rather quickly after the first week of July. Late summer rains tended to revive plant growth and added measurably to the overall quality and quantity of the forage. Based on the amount of forage produced in early summer, this type of pasture would work well in a complimentary type of grazing system.

Hay production at the Bowman site has ranged from 5,740 lbs./A to 1,600 lbs./A with a five year average of 3,705 lbs./A or 1.85 tons/A. Two cuttings were taken in 1992, 1993, and 1995. This second cutting was mostly alfalfa and made excellent hay.

Cow and calf performance in 1996 is shown in Cows gained more weight in 1996 than in 1995 or 1993. Calves gained 284.3 lbs./hd on SL, and 292.5 lbs./hd on the TOR for the year. A three year summary of the cow and calf

performance is shown in . Cows gained on average from 0.86 to 1.0 lbs./day while calves gained from 2.45 to 2.51 lbs./day. Calf gain per acre averaged 46.9 and 48.3 lbs. respectively for the SL and TOR grazing systems. Based upon 166 observations, there was no significant difference in gain of cows or calves as calculated by the General Linear Models Procedure of the SAS System.

Bred yearling heifers grazed the pastures in 1992 and 1994. The heifers gained 195 lbs./hd on SL and 193 lbs./hd on the TOR systems. Gain per acre averaged 46.2 lbs. on the TOR and 39.5 lbs. on the SL system.

Hay yields over the five year trial period have ranged from a low of 0.8 tons/A in 1994 to a high of 2.87 T/A in 1992, the first year of the trial. The tonnage harvested in 1992 included considerable dead material from previous years. Yields and quality of hay are shown in and Table 3 an Table 3a.

Table 1: Cow and Calf Performance Grazing CRP Pastures in 1996		
	SEASON LONG	TWICE OVER ROTATION
Pasture size- Acres	131	225
Number of Pairs	22	35
Days Grazed	120	120
Stocking Rate- Acres/AUM	1.49	1.61
AUM's per Acre	0.67	0.62

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Date	Cow Weight	Period Gain	ADG	BCS	Cow Weight	Period Gain	ADG	BCS
May 28	1042.2	0	0	6	1080.4	0	0	6
Jun 14	1076.1	33.9	1.99	6	1118.1	37.7	2.22	6.2
Jul 3	1133.3	57.2	3.01	6.3	1144.7	26.6	1.4	6.2
Jul 25	1190.5	57.2	2.6	6.4	1248.7	104	4.72	6.4
Aug 14	1228.2	37.7	1.88	6.5	1296.1	49.37	2.47	6.7
Sep 5	1226.4	-1.82	-0.08	6.4	1277.9	-20.2	-0.92	6.4
Sep 25	1171.1	-55.27	-2.76	6.3	1247.7	-30.2	-1.51	6.5
Total Gain/Cow		128.9				167.3		
Cow Gain/Acre		21.64				26		
Gain/Cow/Day		1.07				1.39		
Date	Calf Weight	Period Gain	ADG		Calf Weight	Period Gain	ADG	
May 28	216.4	0	0		222.8	0	0	
Jun 14	264.9	48.5	2.85		267	44.2	2.6	
Jul 3	319.4	54.5	2.87		321	54	2.84	

Jul 25	372.1	52.7	2.4		391.2	70.2	3.19	
Aug 14	439.2	67.1	3.35		447.9	56.7	2.84	
Sep 5	480.1	40.9	1.86		494	46.1	2.1	
Sep 25	500.7	20.6	1.03		515.3	21.3	1.07	
Total gain/calf		284.3				292.5		
Calf gain/acre		47.8				45.5		
Calf gain/day		2.37				2.44		

Table 1a.- Three Year Combined Results of Cow-Calf Pairs Grazing CRP Pastures								
	SEASON LONG				TWICE OVER ROTATION			
Year	1993	1995	1996	Average	1993	1995	1996	Average
Cow Gain/hd	112.6	78.9	128.9	106.8	111.4	90.97	167.28	123.2
Cow Gain/Acre	14.62	13.26	21.6	16.49	17.32	14.15	26.02	19.16
Cow ADG	0.88	0.64	1.07	0.86	0.87	0.74	1.39	1
Calf gain/hd	322.6	303.5	284.3	303.47	336.6	302.14	292.5	310.41
Calf gain/acre	41.86	50.97	47.8	46.88	52.37	47	45.5	48.29

Calf ADG	2.52	2.47	2.37	2.45	2.63	2.46	2.44	2.51
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Combined Gains/Acre	56.48	64.23	69.4	63.37	69.69	61.15	71.52	67.45

Table 2.-Two Year Average Performance of Bred Yearling Heifers Grazing CRP Pastures						
	SEASON LONG			TWICE OVER ROTATION		
Year	1992	1994	Average	1992	1994	Average
Acres Grazed	131	131	131	225	225	225
Number of heifers	24	30	27	52	56	54
Days on trial	125	127	126	125	127	126
Gain / head	226	164	195	199	186	192.5
ADG	1.81	1.29	1.55	1.59	1.47	1.53
Gain / acre	41.45	37.52	39.49	45.93	46.39	46.16

Table 3. Hay Yield on CRP Acreage in 1996	
Date Cut	July 10

Acres	34.5
Large bales	117
Ave. Bale Wt. (Lbs.)	954
Total tons	55.8
Tons/Acre	1.62
Return/Acre @ \$45/T	\$72.79

Hay Analysis	
Protein	11.70%
Crude fiber	37.20%
Moisture	8.50%
Est TDN	51.40%
Est. NE lactation	504 kcal/lb.
Est. NE maintenance	215 kcal/lb.
Est. NE gain	504 kcal/lb.

Table 3a. Five year results of hay production on CRP acres south of Bowman, N.D.		
Year	1 st cutting	2 nd cutting

	----tons----	
1992	2.0	0.87
1993	0.8	0.63
1994	0.8	0
1995	1.91	0.52
1996	1.62	0
5 yr. Average	1.43	0.4
Tons/Acre	1.84	

Figure 1. Pasture arrangement on Section 26 and 35 of Township 130-Range 102, Bowman County, ND Tom Lambourn, Owner.

<u>Sec 26</u>	Season Long 131 A ○	
TOR #1 75A	34.5 A Hay	○ 75 A TOR #3

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