

Rotational Grazing Demonstrations with Beef Cows on CRP Land in Adams County

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Introduction

Two grazing systems have been demonstrated annually from 1991–2003 on CRP land near Corning, Iowa. This report summarizes the 2003 production data. A 13-paddock intensive-rotational grazing system and a 4-paddock rotational grazing system were established in 1991 to show economically feasible grass alternatives to row crops and CRP participation on steeply sloping (9–14% slope), highly-erodible land (HEL).

Results and Discussion

On a 13-paddock grazing system in 2003, 23 crossbred calves nursing crossbred dams gained 2.52 pounds per head per day for 130 days (Table 2). The stocking rate on this grazing system was 1.50 acres/cow-calf pair. Cow-calf numbers were the same as in the previous year and 1 pair above the 13-year average.

Grazing started on April 25 and ended on September 2 in 2003. To utilize excess early

forage production, three large round bales of hay were made on the 13-paddock system (Table 4). Eleven bales were also fed in late summer when the rains did not come (Table 1). A balanced mineral was fed free choice throughout the summer. No creep feed was fed to calves. Cattle were rotated to a fresh paddock 57 times during the 130 days of grazing. Rainfall at the Corning Hospital national weather service location was below normal for Corning by 8.95 inches in 2003 (Table 1). The largest shortage of moisture occurred during the hot summer months of July and August. Rainfall at the CRP grazing site mirrored the hospital data. Total calf production/acre in 2003 was 218.47 pounds. Amazingly, this was above the 13-year average of 211.17 pounds. Cows on this system gained an average of 47.10 pounds during the 2003 grazing period.

Grazing also started on April 25 and ended on September 2 in the nearby 4-paddock system (Table 3). The stocking rate was 13 cow-calf pairs or 1.72 acres/pair. This system produced 195.12 pounds of calf gain/acre. Calves gained an average of 2.58 pounds/head/day. Cows gained an average of 111.20 pounds/head. Five large round bales of hay were harvested from this system in May of 2003 and seven were fed in the late summer (Table 4). Cattle in this system were rotated to a fresh paddock 12 times during the grazing season of 2003.

Table 1. Precipitation at Corning, Iowa, 2003 (inches of rainfall)—2 locations.

| Month | Normal 1961–1990 | Corning Hospital 2003 | Deviation from normal 2003 | CRP Farm (2 sites averaged) 2003 | CRP Farm deviation 2003 |
|-----------|---------------------|--------------------------|-------------------------------|-------------------------------------|----------------------------|
| January | .88 | 0.18 (5 events) | -0.70 | NA | NA |
| February | .84 | 1.07 (5 events) | +0.23 | NA | NA |
| March | 2.34 | 0.90 (7 events) | -1.44 | NA | NA |
| April | 3.33 | 3.29 (10 events) | -0.04 | 2.63 | -0.70 |
| May | 4.41 | 4.68 (14 events) | +0.27 | 4.60 | +0.19 |
| June | 4.54 | 3.77 (8 events) | -0.77 | 3.08 | -1.46 |
| July | 4.45 | 2.32 (9 events) | -2.13 | 1.70 | -2.75 |
| August | 4.68 | 1.12 (5 events) | -3.56 | 1.25 | -3.43 |
| September | 4.69 | 2.59 (4 events) | -2.10 | NA | NA |
| October | 2.70 | 0.84 (3 events) | -1.86 | NA | NA |
| November | 1.88 | 4.98 (8 events) | +3.10 | NA | NA |
| December | <u>1.21</u> | <u>1.26</u> (5 events) | <u>+0.05</u> | NA | NA |
| ANNUAL | 35.95 | 27.00 | -8.95 | NA | NA |

Table 2. Adams County CRP Project 13-paddock grazing system production data with cow-calf pairs. 1996–2003 yearly data plus a 13-year average for the system.

| Year | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 13-year avg. (1991-2003) |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------------------------------|
| Acres in system | 34.60 | 34.60 | 34.60 | 34.60 | 34.60 | 34.60 | 34.60 | 34.60 | 34.60 |
| No. of pairs | 21.00 | 21.00 | 21.00 | 22.00 | 25.00 | 22.00 | 23.00 | 23.00 | 22.00 |
| Pairs/acre | 0.61 | 0.61 | 0.61 | 0.64 | 0.72 | 0.64 | 0.66 | 0.66 | 0.63 |
| Acres/pair | 1.65 | 1.65 | 1.65 | 1.57 | 1.38 | 1.57 | 1.50 | 1.50 | 1.57 |
| Days grazed | 160 | 141 | 145 | 156 | 140 | 119 | 153 | 130 | 145 |
| Calf beg. wt. (lbs.) | 157.62 | 131.67 | 126.14 | 126.00 | 134.00 | 171.45 | 132.09 | 122.70 | 138.51 |
| Calf ADG | 2.26 | 2.41 | 2.23 | 2.20 | 2.20 | 2.23 | 2.33 | 2.52 | 2.30 |
| Avg. calf gain | 360.86 | 336.71 | 322.71 | 343.60 | 310.30 | 265.09 | 356.00 | 327.7 | 333.57 |
| Calf gain/a | 219.02 | 204.40 | 195.87 | 218.85 | 224.86 | 168.85 | 236.65 | 218.47 | 211.73 |
| Cow beg. wt. (lbs.) | 1150.48 | 1107.90 | 1086.38 | 1166.00 | 1184.00 | 1081.05 | 1103.91 | 1316.90 | 1145.56 |
| Cow wt. chg. | 66.00 | 56.81 | 109.71 | 52.80 | -10.70 | 51.40 | 91.22 | 47.10 | 61.08 |
| Cow cond. chg. | 0.57 | 0.39 | 0.45 | 0.70 | -0.30 | -0.46 | +0.30 | +0.26 | 0.29 |
| Cow days/a | 97.11 | 85.58 | 88.01 | 99.19 | 101.16 | 75.66 | 101.71 | 86.42 | 91.78 |

Table 3. Adams County CRP Project 4-paddock grazing system production data with cow-calf pairs, 1996-2003 yearly data plus a 13-year average for the system.

| Year | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 13-year avg. (1991-2003) |
|----------------------|---------|---------|---------|---------|---------|---------|---------|--------|--------------------------------|
| Acres in system | 22.40 | 22.40 | 22.40 | 22.40 | 22.40 | 22.40 | 22.40 | 22.40 | 22.40 |
| No. of pairs | 13.00 | 13.00 | 13.00 | 13.00 | 14.00 | 13.00 | 13.00 | 13.00 | 13.23 |
| Pairs/acre | 0.58 | 0.58 | 0.58 | 0.58 | 0.63 | 0.58 | 0.58 | 0.58 | 0.59 |
| Acres/pair | 1.72 | 1.72 | 1.72 | 1.72 | 1.60 | 1.72 | 1.72 | 1.72 | 1.69 |
| Days grazed | 160 | 141 | 145 | 143 | 140 | 119 | 153 | 130 | 144 |
| Calf beg. wt. (lbs.) | 162.23 | 139.08 | 114.08 | 114.00 | 142.00 | 184.00 | 132.92 | 122.8 | 140.53 |
| Calf ADG (lbs.) | 2.28 | 2.29 | 2.18 | 2.33 | 2.30 | 2.27 | 2.43 | 2.58 | 2.35 |
| Avg. calf gain | 365.15 | 322.62 | 316.38 | 333.50 | 328.00 | 270.62 | 371.23 | 335.60 | 338.01 |
| Calf gain/acre | 211.92 | 187.23 | 183.62 | 193.90 | 205.00 | 157.34 | 215.45 | 195.12 | 199.42 |
| Cow beg. wt. (lbs.) | 1152.54 | 1118.31 | 1050.23 | 1196.00 | 1175.00 | 1047.85 | 1115.85 | 1269.2 | 1139.27 |
| Cow wt. chg. | 97.00 | 76.77 | 111.00 | 13.70 | 15.00 | 113.38 | 84.15 | 111.20 | 76.46 |
| Cow cond. chg. | 0.46 | 0.46 | 0.54 | 0.50 | -0.20 | -0.23 | 0.31 | 0.16 | 0.25 |
| Cow days/acre | 92.86 | 81.83 | 84.15 | 82.99 | 87.50 | 69.06 | 88.79 | 75.45 | 84.92 |

Table 4. Hay Production and use, Adams County CRP Farm, large round bales.

| | 1991 | '92 | '93 | '94 | '95 | '96 | '97 | '98 | '99 | 2000 | '01 | '02 | '03 | 13-yr. avg. |
|--------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|----------------|
| 13-paddock system | | | | | | | | | | | | | | |
| Produced | 9 | 9 | 0 | 0 | 11 | 26 | 6 | 10 | 0 | 0 | 15 | 6 | 3 | 7.3 |
| Fed | 8 | 16 | 9 | 0 | 4 | 10 | 6 | 4 | 4 | 0 | 4 | 6 | 11 | 6.3 |
| Net Hay | +1 | -7 | -9 | 0 | +7 | +16 | 0 | +6 | -4 | 0 | 11 | 0 | -8 | 1.0 |
| 4-paddock system | | | | | | | | | | | | | | |
| Produced | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 12 | 18 | 0 | 13.5 | 0 | 5 | 4.8 |
| Fed | 0 | 14 | 7 | 1 | 4 | 7 | 0 | 1 | 4 | 0 | 8 | 0 | 7 | 4.1 |
| Net Hay | 11 | -11 | -7 | -1 | -4 | -7 | 0 | 11 | 14 | 0 | 5.5 | 0 | -2 | 0.7 |