Rotational grazing demonstration with beef cattle on conservation reserve land in Adams County, Iowa, USA

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The United States Dept. of Agriculture's Conservation Reserve Program (CRP) is a voluntary program available to agricultural producers who will enroll erosive, marginally productive cropland for a 10 to 15 year period. In return, participants are provided annual rental payments and cost-share assistance to establish and maintain long-term, resource-conserving vegetative cover to improve the quality of water, control soil erosion, and enhance wildlife habitat. Since the inception of the CRP, policymakers, conservationists, farmers, and rural residents have been concerned about the likely fate of program land after the contracts expire. Most of the existing research, whether it relies on farm surveys or computer models, suggests that a significant proportion, perhaps more than 50 percent, will move back into row-crop production. Many rural residents in areas in which the CRP has significantly affected agricultural production would prefer to see the land returned to some form of agricultural activity, competitive with intensive row-crop production but with management and technologies that lead to acceptable environmental consequences.

The Adams County CRP Grazing Demonstration was initiated to demonstrate the production potential of well managed livestock grazing systems on highly erodible, marginally productive CRP land similar to 2.5 million hectares in the surrounding southern Midwest U.S corn/soybean 'belt'. The project is an interagency, cooperative effort sponsored by the Southern Iowa Forage and Livestock Committee.

The demonstration consists of three rotationally stocked grazing systems. A 4-paddock and a 13-paddock system were established in 1991. An 18-paddock system was added in 1992. Pasture vegetation is primarily perennial, cool-season grass-dominant. Two of the systems are stocked with crossbred beef cow/calf pairs, and the other with crossbred steers averaging 281 kg. Pasture management technologies demonstrated include: rotational stocking; pond water access using electric, solar and 'nose' pumps; dispersed paddock water stations; numerous types of temporary and semi-permanent electric fencing materials; improved lane design; fertilization and legume oversowing; the conversion of some paddocks to perennial, warm-season grasses; species composition assessment techniques; weed control alternatives; harvest and conservation of excess forage; sampling and testing for the tall fescue (Schedonorus phoenix (Scop.) Holub [= Festuca arundinacea Schreb.; also = *Lolium arundinaceum* (Schreb.) S.J. Darbyshire] endophyte (*Acremonium coenophialum*), and early calf weaning. The unreplicated demonstrations have continued for 13 years. This longevity has provided a visual performance of new pasture and grazing technologies over the range of environmental conditions occurring in this part of the U.S. The mean animal and pasture performance data for the demonstrations is contained in Tables 1 and 2.

Table 1 Performance summary of the 18-paddock steer grazing demonstration (1997-2003)

	Range	Mean
Area grazed (ha)	26-30	28
Steers at start	75-98	87
Mean initial weight (kg)	270-304	281
Initial stocking (steers/ha)	2.9-3.3	3.1
Steers sold mid-season	0-65	38
Steers grazing to season's end	25-76	48
Days on pasture	108-159	130
Steer gain (kg/ha)	251-355	288
Live weight gain (kg)	0.82-1.03	0.89

Table 2 Performance summary of cow/calf pairs demonstration (1991-2003)

	4-paddock	13-Paddock
Area grazed, ha	9.1	14
Ha/pair	0.68	0.64
Grazing Days	144	145
Calf ADG, kg	1.07	1.05
Mean calf gain, kg/ha	223	236
Cow wt. change, kg	35	28
Cow condition[1] change	+0.3	+0.3

[1]Body Condition Score System, 0-9 point scale

The outreach effort has reached the residents of the area. There have been 36 field days and tours conducted for producers, specifically highlighting the pasture demonstration area and its technologies. It has been used as a 'field classroom' for 15 grazing schools for producer and agri-business professionals conducted in the area and over 450 K-12 school students have used the demonstration site as a field classroom.