

Multi-Species Grazing of Native Range In Western North Dakota

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Introduction: Grazing more than one ruminant species is sometimes referred to as multispecies grazing. Basically, the objective is to increase the efficiency of transfer of nutrients from vegetation to animal products.

Cattle and sheep differ in their dietary preference for plant species, their ability to digest various types of forage, and their pattern of forage harvesting. Grazing sheep and cattle together increases the productivity of pastures both by achieving the plant species balance that produces the most forage, and by maximizing the use of the forage being produced. However, the results depend not only on the combining of sheep and cattle, but also vary according to the level of management practiced.

Ranchers need to know how to harvest and sell the forage they produce to the best advantage. Based on the physical nature of his ranch; the economic outlook for different kinds of livestock; and his personal likes and dislikes, a rancher can select cattle or sheep or some combination of them to turn his annual crop of grass and forage into the greatest net profit and personal satisfaction for himself.

Purpose: This trial was designed to measure and compare grazing native range with a single species (cattle) or multispecies (sheep and cattle). Since the native range vegetation is composed of grass, forbs and browse, stocking with both cattle and sheep should maximize the forage utilization, increase the overall net return and reduce the number of "weedy" forbs such as fringed sage, green sage, gumweed, thistles, etc. Expenses for such items as additional fencing and water development in order to run sheep on a traditional cattle ranch are being documented, as well as dog and coyote predation problems.

Procedure: A 640 acre native pasture at the Dickinson Research Center Ranch Headquarters, Sec. 16-143-96, was utilized for this trial.

On June 29th, forty-eight pair of crossbred (AXH) cows and their Charolais sired calves were weighed and allotted to either the west half (Control) or the east half (Multispecies) of Sec. 16. One two year old Charolais bull was

included in each herd. The herd grazing the east pasture was joined by a flock of 24 dry yearling white faced ewes, provided by the Hettinger Research Center.

The grazing season started on June 29th and ended on October 3rd, a period of 96 days. The bulls were removed on September 14th. On October 3rd, the cows, calves and sheep were individually weighed and removed from the pastures. Animal gains were calculated on the difference between initial and final weights. Gain per acre was calculated by dividing the total liveweight gain by the pasture size, in this case, 320 acres. The bull weight changes were not utilized in the calculations.

Prior to the start of the trial, each pasture was mapped based on soil type. Permanent exclosures were constructed on each of the soil types and included Clay; Clay Pan; Sand; Silt and Shallow. Small exclosure cages on each soil type allowed herbage production estimates to be made by clipping 1/4 meter squared frames both inside (ungrazed) and outside (grazed). Pastures were sampled prior to grazing (June 29) and again at the end of the grazing season (October 4). Three samples representing both grazed and ungrazed herbage were collected at each of the soil type sites. Each of the samples was sorted into a grass or a forb component while clipping. A permanent transect was established at each site in order to monitor changes in species composition during the trial.

The stocking rate for 1990 was reduced 30% from normal due to the dry conditions existing at the start of the trial. Including the extra 24 ewes on the east pasture increased the stocking rate by 20% over the control (west) pasture.

Results: The 1990 growing season started with marginal precipitation in April and May. During the month of June precipitation was recorded on 12 days and totaled 3.75 inches. However, July and August precipitation amounted to only 1.44 inches which was 2.49 inches below the long term average at the Dickinson Research Center.

Cow and calf gains were normal and better than expected given the dry conditions during the 96 day grazing period. (see table 1) The ewes gained on average 0.13 lbs. per head per day and were in excellent condition for rebreeding at the end of the trial.

Total herbage production per 320 A. pasture was 278,554 lbs. on the west pasture and 266,034 lbs. on the multispecies (MS) pasture. Total grass production was 197,769 lbs. on the MS pasture and 198,759 lbs. on the control pasture. Forb production was 68,265 lbs. vs 79,796 lbs. for the MS and control pastures respectively.

It was obvious from this trial that the current four and five strand barb wire fences designed for cattle would not adequately control the movement of sheep. A regular sheep sized water tank was installed in order to allow easy access to clean, drinking water.

Although coyotes were known to be in the area, there were no losses to predation.

Summary: Grazing sheep and cow-calf pairs on native range from June 29 to October 3, 1990 allowed both species to make normal growth without sacrificing either pasture quantity or quality. Savings in ewe feed alone could be estimated to average \$2.50 per month or roughly \$8.00 per ewe for the 96 day grazing period. Barb wire fences (4 - 5 strand) were not adequate for controlling the movement of the sheep. Data from several years will be necessary in order to show whether or not the control of undesirable forbs by sheep will be practical to cattle producers in western North Dakota.

Table 1. Results of Multispecies grazing on native pastures in 1990.		
	East	West
	Sheep and Cows	Cows
Acres grazed	320	320
Days grazed	96	96
Number of head		
Cow-calf pairs	24	24
Sheep (dry ewes)	24	---
Bulls-for 76 days	1	1

Weight gained lbs.		
24 Sheep	301.5	
Ave. per head	12.6	---
24 Cows	565.5	244
Ave. per head	23.6	10.2
24 Calves	5,802.5	5,588.0
Ave. per head	241.8	232.8
1 Bull	47	(-)152.0
Average Gain / hd / day*		
Sheep	0.13	---
Cows	0.25	0.11
Calves	2.52	2.43
*Bull weights not included.		