

Quality Comparison of Windrow Grazing versus Traditional Haying Methods in Mountain Meadows

Beth LaShell, Doug Zalesky, Dan Selzer and Joe Brummer

Summary and Recommendations

Data from SPA (Standardized Performance Analysis) indicates that in order for cattle producers to increase profitability they need to 1) Increase the number of animals sold, 2) Reduce feed costs or 3) Generate additional income from given resources. The use of windrows has been used during open winters and in snow depths of over 2 feet with no apparent problems, high altitude implementation of windrow grazing in SouthWestern CO may yield differing results.

Quality comparisons of harvested hay, windrows and standing forage in both grass and grass/alfalfa meadows were obtained in this study. Results indicate that grass windrows are a better source of forage than standing plots in both Fall and Spring evaluations. While both methods resulted in a decrease in CP, as compared to the harvested hay, digestibility values when utilized in the Fall were acceptable. Standing grass plots when allowed to overwinter yielded digestability levels below 29%. These values make spring grazing difficult. The grass/alfalfa forage left in the field, either in windrows or standing, should be grazed in the Fall because of potential wildlife and frost damage. The CP values for both the windrows and standing plots were very similar to the harvested hay. Additionally, even though the plant material had remained in the field for nearly 3 months, the grass/alfalfa digestibility values were still above 55%.

Introduction and Objectives

In a normal year, the San Juan Basin Research Center (SJBRC) produces 600-900 tons of grass, grass/alfalfa and oat/alfalfa hay on 400 acres of irrigated fields. Research from Montana State University (Surber, March 1999) indicate that in addition to reducing summer labor requirements, windrow grazing could reduce feed costs by a minimum of \$16.00 per acre plus the cost of feeding. Research conducted in Tri-River Area of Colorado in Winter 1998-99 (LeValley, 1999) indicated that cost savings of \$13.50 per cow were possible by utilizing windrow grazing versus feeding harvested forages.

The objectives of this project were to obtain protein and digestibility levels of harvested, standing and windrowed forages at harvest, early fall and the following spring. Given the different types of hay grown in SouthWest Colorado, both straight grass hay and a grass/alfalfa mixture were evaluated.

Documentation as to the total effect of wildlife on windrow grazing is limited. Potential problems include consumption, scattering and crusting of the snow on top of the windrow.

Materials and Methods

The SJBRC is located in Hesperus, CO at an elevation of 7600 feet and receives 18.5 inches of precipitation annually. Crop varieties adapted to the 100-day frost free growing season have been limited to small grains, forage and hay crops.

Two meadows containing grass and grass/alfalfa were used in the study. For the grass/alfalfa field, first cutting was baled and removed in mid July. At second cutting, in mid September, a 200' by 3 windrow section and a 200' by 50' standing section was left in the field. The grass meadow was only cut and baled in mid August. A windrow and standing plot of the same size were left in the grass meadow.

Forage samples were obtained from both the grass and grass/alfalfa hay harvested in August. Field samples were taken October 10th from all four plots. Due to a lack of plant material, field samples were only taken from the grass plots in Spring 2001. All samples were dried at SJBRC and sent to the Mountain Meadows Research Center to be analyzed for Crude Protein (CP) and Digestibility.

Because we primarily wanted to look at change in nutritional value, none of the plots were grazed during the Winter of 2001. To determine the potential effect of wildlife on windrows and standing plots through the winter, a 30 x 30 area was fenced off in each of the plots. Visual observations of consumption and scattering were taken in the Fall and Spring in all plots.

Results and Discussion

As shown in Table 1, the Grass hay yielded 8.08% CP and a 52.3% Digestibility value. In comparison, the standing plot's Fall CP was significantly lower than the harvested hay at 2.9% CP with a corresponding lower value for digestibility. Because the plant was allowed to continue to mature through the fall, these values were expected. After overwintering, the CP values found in the standing plots increased to 4.4%. This increase is due to the soluble carbohydrates leaching out over the winter, causing the CP to increase. However, the digestibility dropped value for standing plots was the lowest of all samples at 28.5%.

The corresponding windrowed grass plots yielded 4.06% CP and 48.8% digestibility values in the fall. While the windrowed CP value was significantly higher than the standing plot, digestibility was no different. The following Spring, the CP value increased to 5.6% due to the carbohydrates leaching over the winter while the digestibility values dropped slightly.

Table 2 shows the Grass/alfalfa values for the harvested hay, standing and windrow plots. Harvested grass/alfalfa hay had a CP of 14.5% and 59.6% digestibility. These values were higher, as expected, than those found in the grass hay. The Fall values for the standing plots were lower than the harvested values. While the grass/alfalfa plants stood in the field for the same amount of time, the alfalfa held its nutritional value much better than the grass plants. The windrow Fall samples yielded 17.6% CP, which was higher than the harvested hay. The effect of the leaching of carbohydrates had already begun in the Fall as the digestibility had dropped to 55.2%. Because of extensive wildlife damage and plant deterioration, no plant material was available for Spring samples.

Observations of wildlife damage differed in the grass and grass/alfalfa plots. Little to no damage was observed in the grass plots. The plant material inside and outside of the fenced barriers were very similar. Additionally, both grass plots withstood the water and snow damage of the winter exceptionally well. However, in the grass/alfalfa plots, wildlife consumed, scattered and trampled the plots outside of the fenced barrier. Inside of the fenced barrier, water and frost damage destroyed the plant material.

Upon completion of this project, all grass plots were grazed off in the Spring. We saw no detrimental effects to grass regrowth in either of the plot areas.

Literature Cited

LeValley, Robbie. 1999. Windrow Grazing: An alternative to feeding hay in the Tri-river area of Colorado. Colorado Forage Research Technical Report TR00-6. pp 97-100.

Surber, Gene. 1999.

[Http://agadsrv.msu.montana.edu/extension/natural_resources/fact%20sheets/swath.htm](http://agadsrv.msu.montana.edu/extension/natural_resources/fact%20sheets/swath.htm)