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Seasonal nutrition content changes of stockpiled and standing *Leymus cinereus* forage

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Key words : seasonal nutrition content, stockpiled forage, standing forage, *Leymus cinereus*

Introduction Great Basin wildrye (*Leymus cinereus* Scribn. & Merr.), an indigenous, tall and robust grass species of the Intermountain Region of North America, has the potential to produce large amounts of forage, however, due to elevated meristematic growing points and a tendency to become coarse and unpalatable at maturity, it is often avoided or devalued as a forage resource. Stockpiled forages often retain higher nutritional quality than post-senescent forage of the same species (Buckmaster 1992; Strohbahn et al. 2004). Great Basin wildrye frequently occurs naturally in meadows, essentially as a monoculture, permitting the use of equipment for cutting and windrowing. This project evaluated the nutritional quality of Great Basin wildrye as both a stockpiled and a standing forage.

Materials and methods In a meadow located at the University of Nevada-Gund Ranch, Great Basin wildrye was sampled for nutritional analysis on June 1. A portion of the meadow was then windrowed with the cutter bar raised above the growing points (46 cm). On the first of each succeeding month, July-October, both standing and windrowed wildrye were sampled for nutritional analysis. Data were organized into paired t-tests that compared windrow and standing forage values by month.

Results Dry matter, as expected, was much higher in the windrow than standing forage ($P < 0.0001$) until October when they were equal. Acid detergent fiber (ADF) content was consistently lower in the windrow ($P < 0.0001$, Figure 1). In the standing crop, ADF increased from July to October, indicative of declining energy values. Crude protein was higher in the windrow throughout the test period ($P < 0.0001$). Crude protein decreased steadily from 12% in June to 4.6% in October in standing forage (Figure 2). Phosphorus was lower in the windrow than standing forage in July, however, it maintained that level, while phosphorus in the standing forage decreased from July to October, eventually containing less than windrow forage. Both hemicellulose and the neutral detergent fiber ratio (NDF/ADF) remained higher in the windrow (at a consistent level) than in the standing forage which decreased over time. There were no differences for NDF, nitrate-nitrogen, manganese, and sodium between windrow and standing forages. Potassium, sulfur, zinc, iron and copper contents were generally higher in the windrow forage.

Conclusions Cutting and windrowing Great Basin wildrye can be an effective management tool for improving the nutritional quality of a grass species that is often underappreciated as a forage source. Cutting the wildrye above the meristematic growing points avoids problems often associated with spring and summer grazing, while preserving forage quality for several months. At the end of the assessment period, the stockpiled forage was equal to that of standing forage in energy content (ADF) and higher in crude protein. Following this procedure will allow livestock producers to feed June quality forage during fall and early winter, long after the standing forage quality declines.

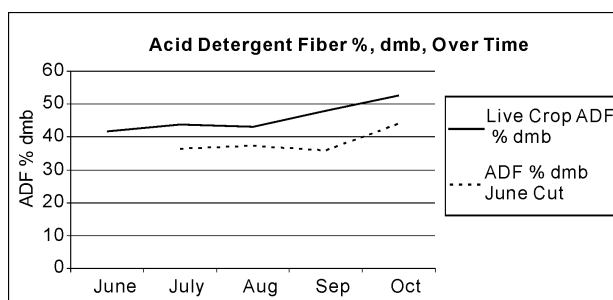


Figure 1 Change in ADF content over time.

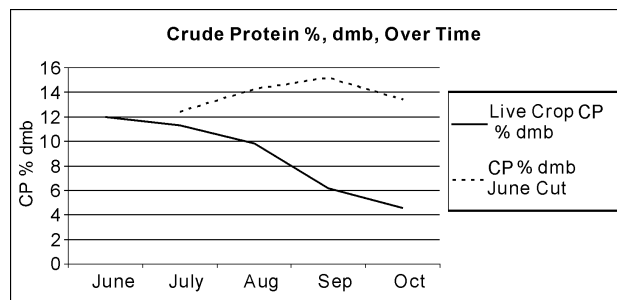


Figure 2 Change in crude protein content over time.

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