

Extending the grazing season with warm season annuals

AT A GLANCE

Extending the grazing season with alternative forages can reduce hay feeding and decrease winter feeding costs.

The Situation

Feed costs make up over 60-70% of the costs in cow-calf operations. Cost per cow per day for grazable forage are approximately 1/2 to 2/3 that of costs for feeding hay. However, Idaho's short growing seasons limit the ability to use pastures for more than about six months of the year. Every month of additional grazing significantly reduces feed costs.

Our Response

An examination of growing degree days in the central Idaho mountain valleys indicated that growing warm season annuals under irrigation would be possible. So over multiple years, we conducted three experiments:

1. Which warm season annuals were the best species?
2. Sudex variety trial
3. Cow grazing studies

Program Outcomes

Yields of five different warm season annuals were examined in the first experiment. Species included corn, sudex (sudangrass x sorghum), teff, proso millet and German foxtail millet in replicated plots. Seed was



Warm season annuals can produce high tonnage for fall grazing. Photo by JB Hall.

planted on July 1 of each year. All plots were harvested after the first killing frost. In general, the warm season annuals had headed out, but had not formed hard seed.

Corn and sudex produced the highest yields (Table 1). These two species were used in future experiments. Based on the ability to plant sudex through a conventional drill or standard no-till drill, it may be easier for Idaho ranchers to plant this species without investment in corn planters.

Nutrient analysis of warm season annuals indicated that all species tested met or exceeded the nutrient requirements of cows in mid- to late gestation (Table 2). After weaning, cows in gestation need feed that is 8% crude protein and 49% to 53% Total Digestible

Nutrients (TDN). Therefore, these annuals can be grazed after frost with no protein supplementation.

In the second experiment, six varieties of sudex were tested for yield after fertilization with 30 or 60 units of nitrogen per acre (Figure 1). Increasing fertilization rate improved yields by 1.5 tons per acre. There was a 2 ton per acre difference between the highest and lowest yielding varieties.

Table 1. Yields (tons/acre) of different warm season annuals

Year	Corn	German Foxtail	Prossos	Sudex	Teff
2008	2.7	2.4	1.7	3.1	2.7
2009	4.8	2.6	1.7	3.2	-
2010	1.7	1.8	1.5	2.0	2.4
Average	3.1	2.3	1.6	2.8	2.6

Table 2. Percentage of protein and energy in warm season annuals.

Species	% Crude Protein	% Total Digestible Nutrients
Corn	10.4	57.6
German Foxtail	13.7	54.8
Prossos	14.7	56.1
Sudex	12.1	56.0
Teff	12.0	58.3

Over seven years, dry pregnant cows were strip grazed on standing sudex fields during November. Fields ranged from 16 to 32 acres and number of cows varied from 100 to 280. In each year, cows grazed for over a

month. This resulted in 180 to 200 animal grazing days per acre.

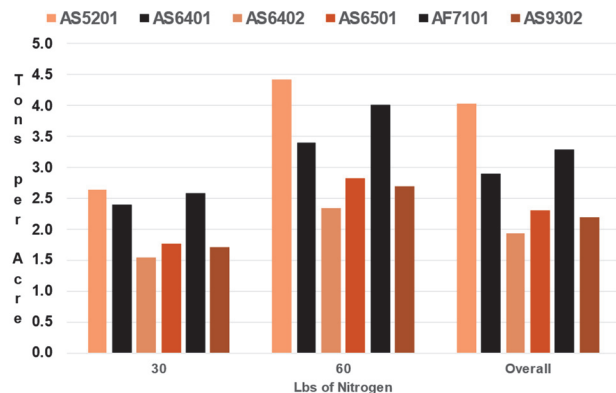


Figure 1. Sudex Variety Trial – Nancy M. Cummings Research, Extension and Education Center.

Summary

- Sudex or corn are the highest yielding warm season annuals for fall grazing.
- Ideal planting date is about July 1.
- Warm season annuals, that have just headed by first frost, will supply sufficient nutrients for dry cows.
- Sudex varieties respond well to fertilization but vary greatly in yield.
- Warm season annuals can supply 180 to 200 animal grazing days per acre.
- After first crop alfalfa harvest, warm season annuals can be planted no-till into killed stubble as part of hayfield renovation.

Cooperators and Co-Sponsors

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