Teff Grass for Livestock

Teff (*Eragrostis tef*) is a relatively new forage crop that is attracting much interest among hay growers in the United States and Utah. Teff plants have fine stems, shallow roots and are not frost tolerant. This annual, warm-season grass grows best during the hottest months of the year when cool-season grasses suffer their "summer slump". Since teff does not compete directly for acreage with traditionally grown cool-season grasses, an increasing number of agricultural producers, including Cache Valley growers, are integrating this grass into their crop rotations.

Teff can be harvested multiple times during a growing season. The first harvest for teff will normally occur within 45 to 55 days after planting, depending on location and year, and the second cutting 40-50 days thereafter. Over two cuttings and with good production practices, teff in Utah should yield 4-5 tons per acre with 10-14 percent protein. Inputs of seed, fertilizer, water, and pest control are quite low for teff as compared to other warm season grasses like corn and sorghum. An added benefit of teff when compared to other warm-season grasses is that teff is not known to have concern with prussic acid or nitrate accumulation.

As a short-season crop and a plant that grows best during the hot summer months, teff can fill the role of an "emergency" forage crop in the event of delayed planting, poor stands, or winter kill of another crop. Teff grass also opens the window to the potential for "double-cropping". If, for example, an alfalfa stand is in decline, Utah growers can take a first cutting of alfalfa, remove the stand, and then rotate to teff for an additional two cuttings. Another option is to plant a small grain in the fall, harvest it for forage in the spring and then plant teff in June.

Grazing timing and intensity are of utmost importance with teff. Teff is a shallow rooted, annual plant, so grazing before the root system has fully developed, or on wet or sandy soils have the potential to uproot plants and destroy the stand. Growers should consider taking the first cutting for hay and then graze the regrowth to ensure proper root establishment. Also, teff requires a 4 inch stubble height for rapid regrowth, so overgrazing will limit future production.

As a relatively new forage to Utah and the United States, very little information exists on feeding teff in livestock diets. To date, most teff hay has been produced for the horse hay market, where it has been marketed as having a similar nutritional profile to timothy. One study was conducted in Pennsylvania to look at Teff hay harvested at three different stages of maturity. Researchers found that feeding only teff hay was sufficient to meet 90 to 97% of the nutritional needs of mares, especially at the boot and early heading stage. Also, because of the lower non-structural carbohydrates (NSC), it was suggested that it would be a good hay source for obese horses and those with metabolic problems. Scientists at Utah State University conducted a recent study to determine growth performance and ruminal fermentation of growing beef steers and dairy heifers when fed teff hay-based diets.

Twelve growing beef steers and 12 dairy heifers (~400 lb) were used in a 12-week study comparing rations containing alfalfa hay with teff grass. Because of the differences in hay composition, rations were formulated to meet the dietary needs of the animals on the study. In beef steer diets, the alfalfa-based diet contained 20.5% alfalfa hay and 43.0% corn silage (% of diet on a dry matter basis), whereas the teff hay diet contained 44.0% teff hay and 20.7% corn silage. In dairy heifer diets, the alfalfa-based diet contained 54.1% alfalfa hay and 24.8% corn

silage (% of diet on a dry matter basis), while the teff grass diet had 8.5% alfalfa hay, 42.0% teff hay, and 11.3% corn silage. All animals were in individual pens.

Intake of DM significantly increased by feeding the teff grass diet to beef steers and dairy heifers (P= 0.01). Dietary treatments did not affect body weight gain or average daily gain (ADG) of beef steers. However, feeding the teff grass diet to dairy heifers increased body weight gain and ADG (P= 0.02).

The dairy heifer rations were a little more involved in order to meet their nutritional needs. Using a cost for alfalfa of $220/ton; the teff hay ration becomes equal to the alfalfa hay ration at a teff cost of $185/ton. Less than this would be an advantage for teff. Researchers concluded that teff grass can be a viable, lower-cost, palatable alternative to feeding alfalfa in growing beef steers and dairy heifers. Authors also speculate that teff grass would also be a good feed source for other ruminants such as sheep and goats.