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The Use of Turnips for Extending the Grazing Season

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The use of short-season crops, such as turnips, is effective for extending the grazing season, following the harvest of small grains. A system of double cropping works particularly well if the intent is to provide a break in crop rotation. Turnips, which are in the brassica family, are fast growing and tolerate cold temperatures. Therefore, they are good for providing high quality and quantity forage for grazing livestock well into the fall (Figure 1).

Planting Rates and Dates

Suggested planting rates are from one to four pounds per acre, either broadcasted or drilled. Turnips can be flown on, but seeding rates should be increased to five to six pounds per acre. Planting dates are important in determining yield. Table 1 shows the yield from turnips planted on August 1 and August 15 in 2003 at Brookings, SD. Earlier planting dates take advantage of periodic summer rains. Planting even earlier, as soon as the small grains are harvested, is highly recommended. For example, dry matter production of turnip tops and bulbs planted on July 17 was 6400 lb/acre versus 3000 lb/acre when planted on August 8 in eastern Wyoming (Koch and Karakaya 1998).

Fertilization

Fertilization is another necessity for producing high dry matter yield. Turnips have a high demand for nitrogen fertilizer. Suggested rates, depending on soil tests, should be 50 to 100 pounds of nitrogen per acre. Nitrogen should be applied at the time of seeding. Turnips also require good phosphorus levels and soils should be tested to determine the amount to apply.

Forage Quality

Because of their frost tolerance, turnips retain their nutrient content late into the fall. Table 2 shows the neutral detergent fiber (NDF), acid detergent fiber (ADF), and crude protein (CP) from turnip tops and bulbs harvested in October and November 2003 at Brookings, SD. Turnips

are low in fiber and moderately high in CP. Caution should be exercised when moving livestock from poor quality pasture to lush pasture/forages. Cows are particularly susceptible to an acute respiratory disease called atypical interstitial pneumonia or fog fever (Epperson 2002). Yearlings, calves, and sheep are less susceptible. Therefore, an adaptation strategy should be considered, depending on your livestock, by limiting grazing in the lush pasture to a few hours per day, increasing gradually over a 10 day period.

References

- Koch, D.W., and A. Karakaya. 1998. "Extending the grazing season with turnips and other brassicas." *University of Wyoming, Cooperative Extension Service Bulletin B-1051*.
- Epperson, B. 2002. "Atypical interstitial pneumonia (AIP) in range cattle." *South Dakota State University, Extension Extra ExEx 11008*.

Figure 1. Purple top white globe turnips on October 15, 2003 from August 1 planting date in Brookings, SD



Table 1. Forage yield from turnip tops and bulbs planted in August 2003 and fertilized with 75 pounds of nitrogen per acre at Brookings, SD.

Plant Part	Planting Date ¹		SE ²
	August 1	August 15	
	----- lb/acre -----		
Tops	2910 ^a	360 ^b	202
Bulbs	1050 ^a	30 ^b	112
Total	3960 ^a	390 ^b	307

¹Means followed by same letter within a row are not significantly different at P<0.05.

²SE = standard error of the mean.

Table 2. Forage quality from turnip tops and bulbs harvested from the August 1 planting date in October and November 2003 at Brookings.

Plant Part	Harvest Date ¹		SE ²
	October 15	November 1	
	----- % -----		
Tops			
NDF	19.8 ^a	21.5 ^a	2.19
ADF	16.8 ^a	18.3 ^a	2.02
CP	15.3 ^a	14.5 ^a	0.79
Bulbs			
NDF	24.7 ^a	12.7 ^a	3.18
ADF	21.0 ^a	10.5 ^a	3.06
CP	15.4 ^a	12.8 ^b	0.24

¹Means followed by same letter within a row are not significantly different at P<0.05.

²SE = standard error of the mean.

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