

GROWING AND UTILIZING TURNIPS AS FORAGES

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ABSTRACT

Turnips, a member of the Brassica family, can produce high yields of highly digestible forage for use by cattle and sheep. Turnips can be planted in late summer and early fall in Southern Idaho. This forage typically is intended to extend the fall grazing season into early winter. Planting rate should be approximately 2-4 lbs per acre and can be drilled, broadcast or aerial seeded with yields up to 60 ton per acre. Turnips are low in fiber, highly digestible and provide a good concentration of energy. Feeding concerns include bloat, atypical pneumonia, nitrate poisoning, hypothyroidism, polioencephalomalacia and choking. These disorders can be greatly reduced with proper feed management.

INTRODUCTION

Growing and utilizing brassicas as forages allows producers the benefits of increased crop rotation and nutrient cycling from a double cropping system. Producers are also given the opportunity in short water years to better manage their pasture rotations.

Planting

Turnips are planted in mid to late summer in Southern Idaho in soils that have a pH range of 6.0 to 7.6. Seeding rate is typically 2-4 lbs per acre and can be as much as 5-6 lbs for aerial seeding, yielding approximately 30-60 ton per acre (2.5-5 tons DM). The higher seeding rate will result in a higher proportion of leaves to roots in turnips. Turnips can be drilled, broadcast or aerial seeded. Oats and other small grains can be seeded with brassicas. Turnips can also be seeded into grain stubble while some producers have successfully aerial seeded into standing small grains (Koch, and Karakaya, 1998). By planting into stubble, producers may obtain benefits of any volunteer grain and prevention of soil erosion once the turnips are grazed. By mixing seed, studies have indicated improved animal performance over fields with straight brassicas. Forty to 50 pounds of nitrogen should be available for proper growth. Turnips could be grazed in approximately 60-90 days depending on varieties. As with any crop, weed control is very important, especially during drought years when weeds compete with crops for water. Turnips, being a shallow rooted crop, require frequent irrigation and are not drought tolerant. They typically require 12 inches of water for a mid summer planting.

Feed Value

The mature forage brassica maintains a high nutrient concentration into the fall and early winter. Turnips can be 80-90 % digestible. By comparison, dairy quality alfalfa hay is approximately 70% digestible. Fiber content of brassica crops is too low for proper maintenance of rumen activity; therefore, low quality forage should be supplemented. A benefit of seeding into grain stubble is that livestock will utilize the straw as part of their fiber requirement (Koch and Karakaya, 1998). Also, a complete mineral supplement should be available. The following table lists the feed value for turnips and the component tops and roots.

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Table 1. Feed Value of the Turnip.

Crop	DM	TDN	NEm	NEg	%CP	%ADF	NDF	Ca	P
Turnip ¹	9	84	.88	.61	14	15		.64	.21
Turnip Tops ²					15-25	20-24.6	22-26.9		
Turnip Roots ²					11-13	24	25		

¹ Nutrient Content of Alternative Feeds, 1999

² Koch & Karakaya, 1998

Grazing

Typically, livestock can graze turnips 60 days after planting. As with any lush, green forage animals need to be adjusted to the new feed before grazing. One way to do this is to feed long stem hay or straw just prior to turning out. Strip grazing small areas at a time provides the most efficient utilization. Grazing large areas increases trampling and waste of the available forage. Usually 1/3 of turnip roots are utilized unless they are removed from the ground. However, some animals will hunt and dig for the root. Grazing can continue until heavy snow or low temperatures kill the plant (10°F). Early snow may protect turnip roots thus extending utilization until after the snowmelts. Animals will eat frozen turnips; however, once roots thaw the crop deteriorates rapidly (Koch, 2002.). Turnips, if planted earlier in the year, can be grazed twice; the first grazing only utilizes part of the tops. Turnip re-growth is initiated at the top of the root, so this part of the plant should not be removed until the second and final grazing, usually 4 weeks after the first grazing (Hall, 2004). Furthermore, it is recommended to feed iodized salt to cattle grazing turnips (Hixon & Petersen).

Feeding Concerns

Brassicas have a low amount of fiber and should not constitute more than 75 percent of the animal's diet. Therefore, producers should supplement with a low quality forage (Hall, 2004). Brassica crops can cause health disorders in grazing animals if not managed properly. The main disorders are bloat, atypical pneumonia, nitrate poisoning, hypothyroidism, and polioencephalomalacia. Managing livestock by slowly introducing grazing animals to brassica pastures is the best management practice. In addition, some trouble with grazing turnips has occurred, including choking on the root. Producers should wait to graze turnips until the root has reached softball size (3.5-4 inches) or larger.

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