USDA United States Department of Agriculture

Illinois Grazing Manual Fact Sheet

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Brassicas for Forage

General Information

Brassicas are members of the mustard family (crucifer) and are commonly used for sheep and cattle feed in Europe, Asia, and New Zealand. Brassicas can increase mid-summer forage availability but have a particular advantage for late fall-winter grazing. Thus, reducing the need for stored harvested forages. Forage brassicas, such as turnips, rape, kale, and swedes (rutabaga) are high yielding, high quality, fast growing crops. Dry matter yields of 7,000 lbs. (turnips), 8,000 lbs. (rape), and 12,000 lbs. (kale) have been recorded. The leaves and stems have tested 17 to 25% crude protein and 65 to 80% digestibility. The roots have 10 to 14% crude protein and 80 to 85% digestibility. Grazing may begin as early as 60-70 days with turnips, 60 days with kale, 150-180 days with swedes for maximum production. Number of grazings depends upon planting date, rainfall and growth rate.

Applicability

These crops maintain quality, if not heading, well into freezing temperatures. Grazing from mid-September to January depends upon critical temperatures and snow cover. Top growth generally can survive temperatures between 15-20 degrees F, while the roots are about 5 degrees hardier. The cold tolerant crop is not drought or heat resistant. Moisture requirements are relatively high; however, on waterlogged soils they have reduced winter hardiness and increased levels of root diseases.

Characteristics

Brassicas are very high in crude protein and energy, but extremely low in fiber. Their low fiber content results in rumen action similar to concentrate feeding; thus, proper roughage supplementation is necessary. They should never comprise more than two-thirds of the forage portion of the diet with the remainder provided by grass hay or stockpiled pasture. Adequate grass supplementation prevents animal health problems when grazing brassicas.

Establishment

Brassicas require good soil drainage and grow best on soils with a pH between 5.3 and 6.8 with medium levels of phosphorus and potassium. Apply 50-75 lbs. of nitrogen at planting. Brassicas can be no-tilled into a sod killed with glyphosate or seeded into small grain stubble. Clean till seedings work well but may have increase insect pressure. Use 1.5 to 2 lbs./A of seed for turnip and swedes and 3.5 to 4 lbs./A for rape and kale. Planting higher rates can cause smaller tuber development. Large tubers reduce choking and permit extended grazing. Drill the seed in 6-8" row spacing for no-tillage and conventional tilled seedbeds. Seed can be broadcast and incorporated by cultipacking. Planting depth should not exceed .5" deep. If broadcasting is an option, consider mixing the seed in fertilizer to keep the seeding rates low enough.

No-till seeding in sod is recommended for erosion control but the sod must generally be controlled by herbicides. Broadcast spray gramoxone extra will control the grass long enough for establishment. Brassicas can also be seeded with cereal rye which will protect the soil after grazing and add roughage to the forage mix.

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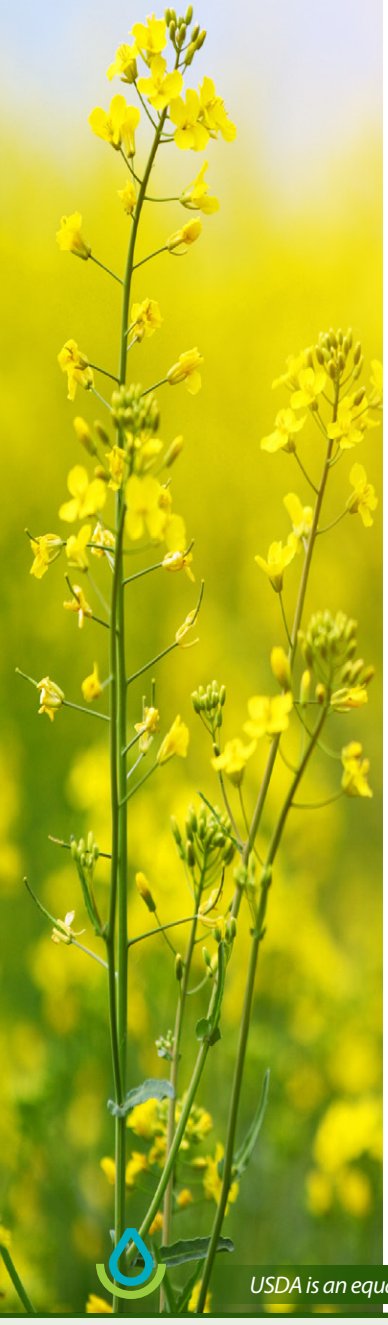

Turnips can be seeded any time from when soil temperature reaches 50 degrees F until 70 days prior to a killing frost. Seeding normally occurs mid-April through May for summer grazing or in mid-July to mid-August (eight weeks before the ideal wheat planting date) for fall/winter grazing.

Do not plant brassicas on the same site more than two consecutive years due to disease buildup. Insecticide for flea beetle control may be necessary in some years. Turnips at 60 days post planting.

Management

Strip grazing where forage is rationed every day or two provides the most efficient usage. Rape, kale and mustard have regrowth potential if not grazed below six inches. Turnips will regrow if the growing point at the top of the bulb is not removed. Two cycles may be possible with rotational grazing if rainfall is adequate.

Grazing can begin when the forage is about 12 inches tall (60-90) days after planting. The pasture should be grazed for a short period and the livestock removed to allow regrowth of brassica.

The forage quality is so high that it should be considered similar to concentrate feeds and precautions taken accordingly. Brassica crops can cause animal health disorders if not grazed properly. The main disorders are bloat, atypical pnuemonia, nitrate poisoning, hemolytic anemia (mainly kale), hypothyroidism, and polioencephalomalacia. These disorders can be prevented by good grazing management practices:

1. Introduce grazing animals to brassica pastures slowly (over 3-4 days). Avoid abrupt dietary changes from dry summer pastures to lush brassica pastures. Don't turn hungry animals that are not adapted to brassicas into a brassica pasture.
2. Brassica crops should not constitute more than 65-75% of the animal's diet. Supplement with dry hay or stockpiled grasses while grazing brassicas. No-tilling into grass sod or planting with rye can help to reduce potential grazing problems.

References

- Ohio State University (Bulletin 872-98) – Maximizing Fall and Winter Grazing of Beef Cows and Stocker Cattle
- Ohio State University (AGF-020-92) – Brassicas for Forage
- Pennsylvania State University (Agronomy Facts 33) – Use of Brassica Crops to Extend the Grazing Season
- University of Illinois (Agronomy Facts F – 51) – Winter Forage from Turnips, Swede, Rape, Chinese Cabbage Hybrids, and Kale
- University of Nebraska (NebGuide G89-933-A) – Supplemental Pastures for Sheep
- University of Wisconsin (FC 15.4.1) – Dan Undersander Extension Forage Agronomist – Use of Brassica Crops in Grazing Systems

Where to Get Help

For more information Brassicas for forage testing contact your local office of the USDA Natural Resources Conservation Service, listed in the telephone Directory under "U.S. Government," or the University of Illinois Extension.

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