

## Brassica Fodder Crops for Fall Grazing

Stephen J. Herbert, Masoud Hashemi, Rahman Barzegar, Xiaobing Liu and Wen Xu  
Dept. of Plant and Soil Sciences

Use of alternative forage crops such as Brassica fodder crops could allow farmers to extend the grazing season, and be more self-sufficient in home-grown feed and fodder. Brassicas (e.g. fodder kale, fodder rape, swede, and turnip) are high in dry matter digestibility at 85% to 95%, increase the availability of certain minerals, and are also high in protein. Leaves contain 18% to 25% crude protein, while the root of turnip and swede contains about 10% crude protein. These quality traits are important reasons why these leaf and root crops have been commonly grown in New Zealand and Europe as nutritional fodder for sheep and cattle.

The most promising aspect of Brassica usage is for late summer or fall grazing. Once established, Brassica crops require little attention and can be grazed in situ, or depending on the crop, cut with a forage harvester (green chop) or roots can be lifted. Brassicas retain their nutritive value well into freezing temperatures and can be expected to be grazed in most years as late as the end of December, and even longer in coastal regions of Massachusetts. Forage rape and turnip reach their maximum yields 90 to 100 days from planting, while swede and kale may require longer.

Four plantings of forage Brassica were made in 2002 as part of a Specialty Crops grant from USDA through Mass. Dept. of Food and Agriculture. The first planting of 16 varieties/species of forage Brassica was seeded June 20, 2002 at the UMass Agronomy Research Farm in Deerfield. A second planting was seeded July 19, 2002 at this same location. Two additional plantings of all 16 varieties/species of Brassica were made on cooperating farms. The first was established July 21 in Amherst and the second August 13 in Hubbardston. Each field demonstration was established using a complete randomized design with 3 replicates.

Brassicas grown included kale, rape, swede (rutabaga), and turnip supplied by Ampac Seeds (Apian turnip, Major Plus swede, Winton swede, Kestrel Kale), Barenburg Seeds (American Purple top rutabaga, Barkant turnip, Barnapoli rape, Purple top turnip, Rangi rape, Rangiora rape, Sampson turnip, Seven Top turnip, Tyfon), and Seiger Seeds (Royal Crown, Topper - hybrid turnips). Seeding rates for Brassicas range from 1.5 to 4 lbs/acre, with seed prices ranging from \$3.00 to \$6.00/lb. Hybrid turnips which are used mostly as vegetable crops have higher prices.

Harvest samples for yield evaluation were collected from the first planting at UMass on September 10, at the Amherst location on September 20, and at the Hubbardston location on November 5. Data from these harvests has been processed and results are summarized in figure 1. Yields from these studies ranged from almost 40 ton/acre to less than 10 ton/acre. Moisture contents at harvest ranged from 84% to 91%. The lowest yield was for Kestrel kale and was because of wildlife grazing preference for this variety. There was considerable variability in yield as a result of varying locations, little or no fertilizer used, times of planting and dry conditions in the summer of 2002. Considering these factors, Brassica forages do offer a good alternative for sheep producers to extend the grazing season with low input costs.

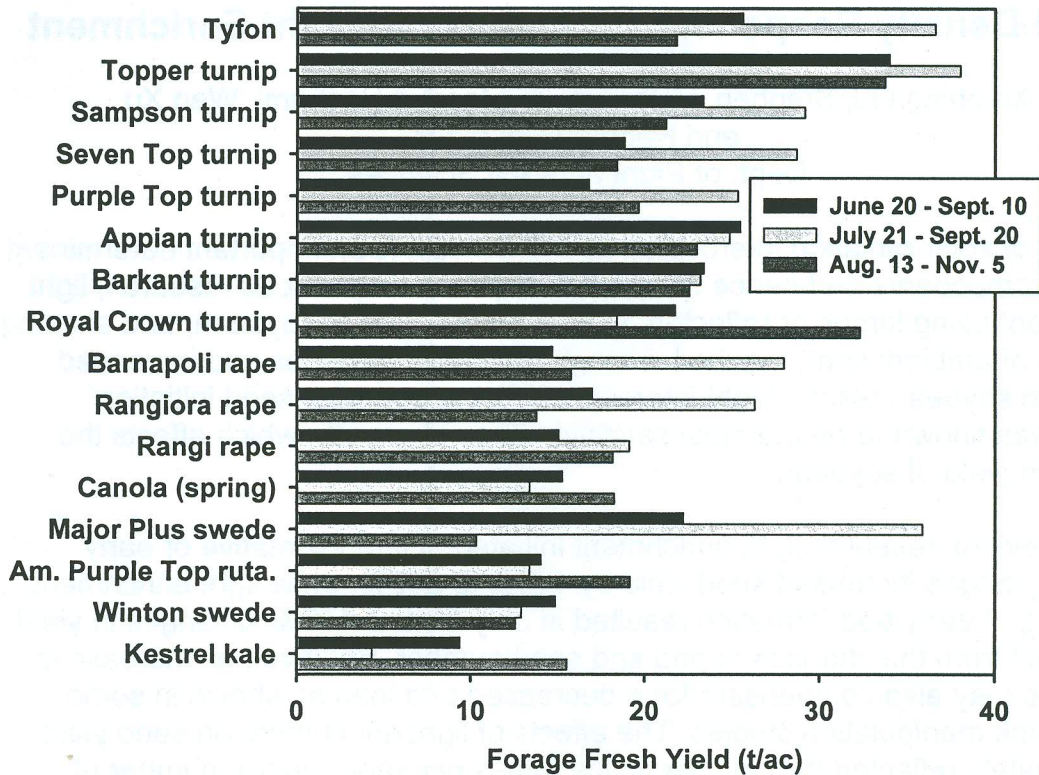
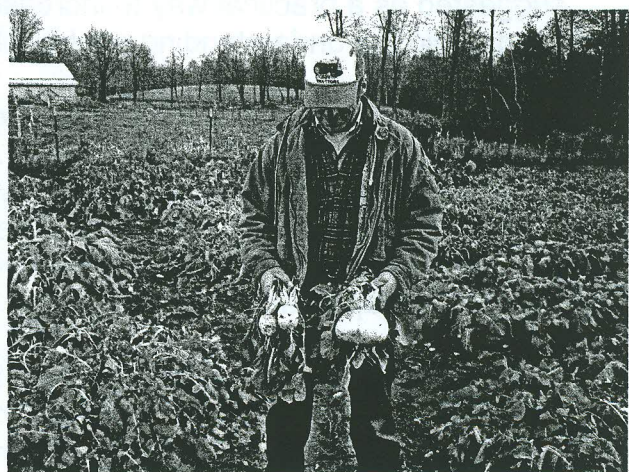


Figure 1. Brassica fresh weight yields from 3 Massachusetts farm locations in 2002.



Figures 2 and 3. Brassica field plots seeded August 13, 2002 on day of harvest November 5, 2002 at farmers field in Worcester County.