

## LEAF AND ROOT FORAGE AND FODDER CROPS

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Production of Brassica crops and beets has been proposed for forage production for sites in areas where soils are not suited for production of alfalfa or corn. These are often the more difficult or neglected sites where forage can be produced, offering problems such as soil acidity, low available nutrient levels for plant growth, poorly drained and/or droughty soils and soils with topographical limitations. On hill land and droughty soils distribution of forage production over the growing season is poor with availability of forage being a serious problem in summer and fall. Minimal inputs of lime and fertilizer have been used on these suboptimal lands and while sheep, dairy replacements and non-lactating cows sometimes forage these fields, many continue to revert to forest.

Root and brassica leaf crops can be grown in a conventionally prepared seedbed and are also adapted to no-tillage or minimal tillage establishment. These crops, turnips, swedes, rape, kale and fodder beet will grow reasonably well in a wide range of soil and climatic conditions. Once established they require little attention and can be grazed *in situ*, or depending upon the crop, cut with a forage harvester (green chop) or roots can be lifted. They can be grown as main crop or catch crop, or as a crop while soils are being improved for establishment of perennial forages. They would be planted in May for summer feeding and as late as early-mid August for a fall crop.

Fertilizer requirements are quite high. Apply equivalent of 75-75-75 N-P<sub>2</sub>O<sub>5</sub> fertilizer per acre unless soil test results indicate P or K levels are high. While local sources of seed may be difficult to find, the quantity of seed required is quite modest. For root crops use seed at 1½ lbs per acre and for leaf crops, 3½ to 4 lbs per acre.

Weed control chemicals are available but the need for them will depend upon crop species and variety, and on the method of establishment. For no-tillage establishment of turnip or rape in runout pastures use a suitable herbicide (paraquat or glyphosate) to suppress sod competition for 5 weeks. Similarly, these chemicals can be used with the stale seedbed technique where the final seedbed is prepared to encourage weed germination and the crop is sown into this with the minimum of soil disturbance. The weeds are killed either before or after drilling preferably with a spray or paraquat. Similarly, crop can be established into crop stubbles using minimum tillage methods. Root crops can produce a high output per acre of succulent, palatable, highly digestible feed which can be grazed or stored and fed during the winter. The feeding value of rape and kales is influenced by variety and the proportion of leaf to stem. This ratio is affected by agronomic factors such as the date of sowing and harvest, seed rate and nitrogen level. Begin grazing or green chop (rape) 75 to 90 days after planting and expect at least 3 tons dry matter with digestible energy equivalent to 110 bushel corn or 1000 lamb grazing days per acre. At the Massachusetts Agricultural Experiment Station Farm, 28 different leaf and root crops are under current evaluation. Presently recommended varieties are Flora and Rangi rape and Green Globe, York Globe and Sirius turnip.

