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Manure and fertilizer effects on turnips for grazing in northern Peace region

Background: Turnip (*Brassica rapa L.*) is a root crop that has been used for livestock feed for over 600 years. There are several types of turnip on the market, which are classified in leafy-type and bulb-type categories. As for cattle use, it depends on the adaptability of the variety to a particular region and the time that the forage is grazed. Both leafy and bulb types have been grazed in the Peace region.

Turnips produce high-quality forage. With adequate rainfall for re-growth in northern Peace region they can be grazed 1-3 times in a season. In previous trials around Fort Vermilion, they have proven to be drought and cold tolerant, though establishment and re-growth is challenging. Late planting can provide extended grazing periods well into winter as cattle can pull turnips from the frozen ground.

Objectives: To compare the effects of manure and fertilizers on turnips for grazing in the northern Peace region of Alberta.

Materials and Methods: The turnip (Apin, leafy type) was seeded with a ConservaPak air seeder at a site south of the Experimental Farm on May 23 in 2006. The soil had been cultivated, ideal in theory since turnips need loose and well-aerated soil for good establishment. The seeding depth was targeted at 1/2". Half of the trial area had manure applied and fertilizer mix 25-6-5-5 (75 lbs/ac) was added to the rest of the area.

The site was monitored throughout the summer. Samples were collected to assess yield, 5 samples from each of the manure and fertilizer area. The area was grazed in July and again in late August.

Results and Discussion: The crop stand was not uniform, which was attributed to a deeper

seeding depth than desired due to the loose soil from cultivation and manure incorporation. Also, moisture was lost during cultivation and seeding.

The re-growth prior to the second grazing was poor, mainly due to the lower rainfall in late summer. At first the cattle were wary of eating the crop but they grazed it without exhibiting pickiness.

The yields were higher for the manured than granular fertilized area (Table 1).

Table 1. Total, tops and roots yield (kg/m²), and number of turnip plants under manure and fertilizer treatments.

Treat	Total	Tops	Roots	Plant/m ²
Manure	9.82	8.52	1.32	12.6
Fert	6.30	5.32	0.99	10.2

Their successful establishment is dependant on shallow seeding depths and fertility management. Their suitability to this region from past trials has been good but that has been directly dependant on adequate and sustained rainfall throughout the growing season.

Conclusions: Turnips can produce high-quality forage. They must be seeded shallow and sufficient moisture must be present for good establishment and regrowth. Manure produced more yield than fertilizers.

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