

EVALUATION OF TURNIP (*Brassica rapa*) FOR FORAGE PRODUCTION

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Brassica rapa'NIN YEM BİTKİSİ OLARAK YETİŞTİRİLMESİ

SUMMARY: Turnip (*Brassica rapa*) was evaluated for its growth and adaptability to Wyoming. Forage yields ranged from 3.64 to 7.73 Mg/ha at two locations over a two year period. It is concluded that turnip could be grown as a forage crop in Wyoming.

ÖZET: *Brassica rapa* Wyoming'de (ABD) yetiştirilmesi, şartlara ve çevreye uyuma yeteneği yönünden incelenmiştir. İki yıl boyunca iki değişik bölgede ürün miktarı 3.64-7.73 Mg/ha arasında değişiklik göstermiştir. Çalışma sonucunda *B. rapa*'nın Wyoming'de yem bitkisi olarak yetiştirilebileceği ortaya konulmuştur.

INTRODUCTION

Providing cheap and high quality forage is an important goal for livestock production. *Brassica* forage crops are cold tolerant, high in nutrition and mature rapidly (Jung et al., 1986; Rao and Horn, 1986; Guillard and Allinson, 1988). In this study 'Purple Top White Globe' turnip (*Brassica rapa* L.) was evaluated for yield at two locations in Wyoming, USA.

MATERIAL AND METHODS

The experiments were conducted at the University of Wyoming Research and Extension Center at Powell, Wyoming and Honor Farm at Riverton, Wyoming during 1990 and 1991. For 1990 experiments trifluralin was applied to the plots at both locations before planting. For 1990 planting at Powell 50 kg/ha P and 56 kg/ha N were applied to the entire experimental area. Powell 1990 seeding was accomplished with a tractor-mounted cone planter on May 23. Ten rows were spaced 17.8 cm apart in two 91.5 cm beds. Plots were irrigated on May 24, June 30, July 10, July 28, and August 4. Harvest date was October 4. Riverton 1990 seeding was with a cone planter on May 22. Ten rows were spaced 12.7 cm apart with 25.4 cm spacing in the center of the plot. Plots were irrigated once in May, three times in June, once in July, twice in August and twice

in September. Harvest date was September 18. Seeding rate was 4.48 kg/ha of pure live seed for 1990 experiments. In Powell 1991 seeding ethafluralin was applied to the experimental area before planting. Planting date was June 13. Plots were irrigated on June 14, July 2, July 22, July 30, August 10, August 20 and September 3. Harvest date was October 5. In Riverton 1991 seeding trifluralin was applied to the experimental area before planting. Planting date was June 14. Seeding rate at Powell was 4.48 kg/ha and seeding rate at Riverton was 1.99 kg/ha. Plots were irrigated twice in August and twice in September. Harvest date was October 8.

RESULTS AND DISCUSSION

Turnip (*Brassica rapa*) grown at two locations quickly established and produced excellent yields. In 1990, yield of turnip at Powell and Riverton was 5.80 and 4.10 Mg/ha, 136 and 119 days after planting, respectively (Table 1). In 1991, 115 and 117 days after planting, yields were 3.64 and 7.73 Mg/ha for the same locations, respectively. Yields also included roots since both shoots and roots were consumed by livestock. Thirty-six to thirty-seven percent of the yield consisted of shoot yields; 63-64 percent of the yield consisted of root yields. Other researchers also found that root yield was

greater (Rao and Horn, 1986; Guillard and Allinson, 1988). Percent dry matter values were low ranging between 8-11 %. There were some weeds not controlled by the

Table 1. Dry matter yield of turnip grown at Powell and Riverton, Wyoming. Numbers are mean of three replications.

	1990		1991	
	Powell	Riverton	Powell	Riverton
Planting date	May 22	May 23	June 13	June 14
Yield (Mg/ha)	5.80	4.10	3.64	7.73
Harvesting date	October 4	September 18	October 5	October 8

herbicide. Weed yield ranged from 0.12 to 0.74 Mg/ha. A herbicide application might be necessary for crop establishment.

Bacterial soft rot of turnip roots caused by *Erwinia caratovora* and powdery mildew caused by *Erysiphe cruciferarum* was observed. These diseases were also detected in Eastern USA (Jung et al., 1986). Some larvae and aphid damage was also observed. However, these diseases and pests do not seem to affect much the plants under field conditions.

Turnip yields obtained in Wyoming were comparable to yields obtained at other locations in USA (Rao and Horn, 1986; Jung et al., 1986). It appears that forage turnip is adapted to Wyoming and could be a useful crop for livestock feeding.

LITERATURE CITED

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