

COMMERCIAL-SIZED SUGAR BEET VARIETY EVALUATIONS IN CENTRAL OREGON, 1998

Marvin Butler and Neysa Farris

Abstract

Replicated small-plot sugar beet (*Beta vulgaris*) variety trials have been conducted in central Oregon since 1995. During 1998, six varieties were evaluated on commercial conditions. Unreplicated plots six rows by one half mile long were commercially planted to a stand and harvested. Emergence counts were taken from May 13 to June 10. A semi-trailer was harvested from each plot October 7, and yields adjusted by the area harvested. Ranger and Beta 8256 produced near 10,300 pounds of sugar per acre.

Introduction

There has been industry interest in evaluating popular varieties under commercial conditions where plots are planted to a stand using a precision air planter. In this situation both the quality of emergence and variety characteristics after emergence are combined to determine varietal performance. The objective of this project was to evaluate the performance of some of the more commonly used varieties when planted to a stand using commercial equipment for planting and harvesting.

Methods and Materials

A commercial-sized variety evaluation was established at Prineville in the same field as the replicated small-plot variety trial. Six commonly used varieties were planted at 6-in. spacing in 6 rows by 1/2 mile plots with an air planter on April 30. Seed boxes were cleaned out with a shop vacuum before changing varieties.

Emergence counts were taken from 50 ft of the four center rows at each end of the field. To determine emergence over time and total stand establishment, nine counts were taken from May 13 to June 10. Plots were harvested with commercial equipment October 7. A semi-trailer load was harvested from each plot. The area per truckload was determined using a measuring wheel, and the yield adjusted to a per acre amount.

Results and Discussion

Plant emergence for four representative sampling dates and harvest data are provided in Table 1. Emergence data are based on an average of eight, 50-ft plots. Significantly less plants emerged across all nine sampling dates for Beta 4885 and Canyon, including final stand counts on June 10.

The commercial-sized plots were unreplicated, so the yield data can not be analyzed statistically. However, the trend shows Ranger and Beta 8256 with similar high yields,

followed by Crystal 203 then Beta 4885. Yields then step down to Crystal 211, followed by Canyon. Although additional years of data are needed to establish confidence in these performances, these data provide a first look at side-by-side commercial-sized variety evaluations.

In the small-plot variety evaluations in the same field, Beta 8256 yielded 12,493 lb/a sugar, Beta 4885 was 10,581 lb/a, Canyon was 10,369 lb/a, Ranger was 10,353 lb/a, Crystal 203 was 10,168 lb/a, and Crystal 211 was 9,024 lb/a. The small plots are planted heavy and hand-thinned to 7 in. between plants, eliminating the effect of plant emergence. As expected, this moved Beta 4885 and Canyon up in the rankings.

Table 1. Performance of six sugar beet varieties in commercial-sized plots planted April 30 and harvested October 7 near Prineville, OR, during 1998.

Variety	Plant Emergence				Harvest		
	May 13 (no.)	May 16 (no.)	May 19 (no.)	May 24 (no.)	Yield (ton/a)	Sugar (%)	Total Sugar (lb/a)
Ranger	24 6 ¹	36 a	52 a	67 a	29.3	17.6	10,309
Beta 8256	33 a	41 a	53 a	64 a	27.4	18.8	10,286
Crystal 203	35 a	45 a	63 a	70 a	26.5	18.7	9,930
Beta 4885	12 b	17 b	29 b	39 b	26.2	18.6	9,759
Crystal 211	31 a	44 a	66 a	73 a	25.3	17.9	9,054
Canyon	9 b	15 b	22 b	28 b	23.4	18.5	8,659

¹Mean separation with Student-Newman-Keuls (P<0.05).

Table 2. Performance of six sugar beet varieties in the small plot variety evaluations planted April 30 and harvested September 30, near Prineville, OR, 1998.

Variety	Stand rate (1-5)	Yield (ton/a)	Sugar (%)	Total Sugar (lb/a)
Ranger	3.0 bcde ¹	32.1 abc	16.2	10,353
Beta 8256	4.0 abc	35.3 ab	17.0	12,493
Crystal 203	4.0 abc	31.7 abc	16.1	10,168
Beta 4885	1.5 e	31.1 abc	17.0	10,581
Crystal 211	3.5 abed	26.3	17.2	9,024
Canyon	3.0 bcde	32.1 abc	16.2	10,369

¹Mean separation with Student-Newman-Keuls (P<0.05).