BEET (*Beta vulgaris*)
    Beet curly top; *Beet curly top virus*

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Evaluation of commercial sugarbeet hybrids for resistance to beet curly top in Canyon County, ID, 2004.

The experiment was conducted in a commercial sprinkler-irrigated sugarbeet field near Nampa, ID in an area where *Beet curly top virus* had been a problem in previous years. The field trial relied on natural infection and was planted on 19 Mar. The plots were planted to a density of 190,000 seeds/A, and thinned to 35,640 plants/A. Plots were four rows wide (22 in-row spacing) and 36 ft long. The experimental design was a randomized complete block with eight replications. The crop was managed by the grower according to standard cultural practices. The weather during the growing season was cooler than normal. Disease data were recorded on 14 Sept by three raters using a disease index of 0 to 9 (no symptoms to dead). The three ratings per plot were averaged prior to analysis. The center two rows were harvested on 20 Oct using a small plot harvester. The sugar content of the beets was determined by the Amalgamated Sugar Co. laboratory, and the recoverable sugar (lb/A) was estimated. Data were analyzed using the general linear models procedure (Proc GLM-SAS), and Fisher's Protected LSD was used for mean comparisons.

Yields were above average and disease pressure was uniform and moderately severe. The commercial hybrids response to *Beet curly top virus* ranged from acceptable (slight leaf curl to most leaves with moderate curling) to severely affected (most larger leaves becoming prostrate). Analysis of variance indicated there were significant differences among hybrids for diseases index, root yield, sugar content, and estimated recoverable sugar. Our disease ratings positively correlated ($r_s = 0.913$, $P < 0.0001$) with those from the 04 Curly Top Nursery in Kimberly, ID. Based on Spearman's Coefficient of Rank Correlation ($r_s = -0.737$, $P < 0.0001$), there was an inverse relationship between estimated recoverable sugar and disease index.

Commercial hybrids	Disease index*	Root yield (T/A)	Sugar content (%)	Estimated recoverable sugar (lb/A)
Beta 8600..	3.88	49.07	16.24	14039
HM Alliance	3.42	47.25	16.20	13585
HM Oasis..	3.00	47.91	16.03	13541
Beta 4490 R	4.24	45.44	16.69	13403
HM 2986 RZ..	3.33	47.25	16.01	13369
Cascade	3.08	46.56	16.20	13359
Acclaim R...	3.67	47.94	15.85	13260
HM PM21	2.83	44.90	16.46	13063
HM 2980 RZ..	3.88	46.74	15.84	13026
Beta 4199 R	4.09	44.34	16.42	12876
Puma	3.21	44.99	16.07	12785
Crystal 217 R	5.16	46.07	15.77	12676
Meridian R	3.79	46.05	15.67	12662
HM Owyhee..	2.95	44.11	16.20	12636
HM 2984 RZ..	3.46	44.98	15.82	12597
ACH Mustang..	3.92	44.99	15.92	12516
Beta 8220 B	4.08	44.48	16.03	12499
Phoenix R...	4.42	45.34	15.58	12464
HM 1642	4.58	42.14	16.51	12363
Crystal 333 R	5.29	43.34	15.97	12097
HM 2989 RZ..	4.33	42.32	16.23	12082
Eagle R	4.50	43.77	15.55	12007
HM 2988 RZ..	4.50	40.76	16.28	11789
Raptor RZ..	5.00	41.85	15.77	11640
Beta 4035 R	4.21	42.80	15.28	11479
Beta 4773 R	5.14	40.48	15.91	11308
HH 142 R...	4.58	39.55	15.87	10992
Crystal 9906 R.......................................	5.00	39.56	15.56	10921
Beta 4614 R	5.92	36.63	14.17	9134
$P > F$**	<0.0001	<0.0001	<0.0001	<0.0001
LSD ($P \leq 0.05$)	0.27	2.68	0.39	742

* Disease index scores were analyzed after the means score for each plot (three ratings per plot) were determined. The disease index scale ranged from 0 = no symptoms to 9 = dead plant.

** $P > F$ was the probability associated with the F value. LSD = Fisher's protected least significant difference value.