BEET (*Beta vulgaris*)
    Verticillium wilt; *Verticillium dahliae*

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Verticillium wilt in experimental sugar beet cultivars in Cassia County, ID, 2006.

    Experimental sugar beet cultivars were evaluated in a commercial sprinkler-irrigated sugar beet field near Heyburn, ID where winter wheat was grown in 2005. The field trial relied on natural infection of *Verticillium dahliae*. The plots were planted on 28 Apr to a density of 142,560 seeds/A, and thinned to 47,520 plants/A on 15-20 Jun. Plots were four rows wide (22-in. row spacing) and 34.5 ft long. The experimental design was a randomized complete block design with eight replications per cultivar. The field was cultivated on 8 and 20 Jun. The crop was managed by the grower according to standard cultural practices. The percentage of plants with leaves that had dead vein delimited sectors was recorded for the center two rows on 6 Sep. The center two rows were harvested on 25-26 Sep with the aid of a mechanical topper and small plot harvester. The sugar content of the beets was determined by the Amalgamated Sugar Co. laboratory, and recoverable sugar was estimated. Data were analyzed using the general linear models procedure (Proc GLM-SAS), and Fisher's protected least significant difference was used for mean comparisons.

    Yields from this trial were below normal for this growing region. Cultivars varied significantly for *Verticillium dahliae* symptoms and sugar content but no significant differences were recorded for root yield and estimated recoverable sugar. Root shape and root hair proliferation indicated that *Beet necrotic yellow vein virus* (BNYVV) was also present in the field although the foliar symptoms of this disease were not particularly evident. An interaction between BNYVV and *V. dahliae* may have been present and interfered with establishing differences in root yield and recoverable sugar. Based on Spearman's rank correlation coefficient, the means values for leaf symptoms did not correlate with those for root yield, sugar, or estimated recoverable sugar ($P = 0.3547$, 0.6212, and 0.5765, respectively). Good resistance to *V. dahliae* exists in some experimental cultivars based on the reduction in foliar symptoms.

Experimental sugar beet hybrid [z]	Symptomatic plants (%) [y]	Root yield (t/A)	Sugar content (%)	Est. recoverable sugar (lb/A)
Beta 5YK0028	20.8 a	20.9	13.65 g	4851.9
SX 1524	19.9 a	23.3	15.29 abcd	6278.9
Beta 4YK0025	14.9 b	22.7	14.92 abcde	5783.3
Crystal 594R	14.4 b	28.4	14.81 bcdef	7094.8
Crystal 599R	13.4 bc	21.7	14.55 bcdefg	5422.6
Beta 6YK0031	13.3 bc	27.2	15.40 abcd	7286.8
06HX620 R	11.7 bcd	22.4	15.25 abcd	5862.4
06HX626 R	11.6 bcd	20.6	14.92 abcde	5397.3
HM Owyhee	9.6 cde	21.9	14.79 bcdef	5783.7
06HX625 R	9.5 cde	24.9	14.82 bcdef	6401.5
Beta 6YK0030	9.5 cde	25.5	15.54 abc	6848.3
ACH Mustang	8.9 cdef	20.0	14.48 cdefg	4991.3
HM 1339 RZ	8.4 defg	22.2	15.18 abcd	5825.1
Beta 6YK0032	8.0 defg	23.8	15.46 abc	6364.0
06HX621 R	7.5 defg	23.2	13.81 fg	5443.4
Crystal 596R	6.6 efgh	23.3	15.56 ab	6241.6
SX 1525	5.7 efgh	20.4	14.47 cdefg	5105.0
Crystal 611R	5.3 efghi	22.6	14.83 bcdef	5776.4
SX 1523	5.1 efghi	23.8	14.37 defg	5858.6
05HX555 R	4.4 fghi	29.0	15.94 a	8055.3
Crystal 595R	4.2 ghi	23.2	14.76 bcdef	5892.7
06HX622 R	4.0 ghi	22.0	15.41 bcd	5872.1
06HX624 R	2.7 hi	22.9	14.89 abcde	5662.6
06HX623 R	1.5 i	24.5	14.10 efg	5828.5
Crystal 597R	1.4 i	26.4	15.58 ab	6971.6
$P > F$	<0.0001	0.1419	0.0110	0.1545
LSD ($P \leq 0.05$)	4.7	NS	1.07	NS

[z] HM Owyhee and ACH Mustang are commercial check cultivars susceptible to *Beet necrotic yellow vein virus.*
[y] Symptomatic = Verticillium wilt symptoms. Means followed by the same letter did not differ significantly based on Fisher's protected least significant difference value with $P \leq 0.05$. NS = not significantly different. $P > F$ was the probability associated with the F value. LSD = Fisher's protected least significant difference value.