WATERMELON (*Citrullus lanatus*)
Fusarium wilt; *Fusarium oxysporum* f. sp. *niveum*

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Field evaluation of triploid cultivars for resistance to Fusarium wilt of watermelon in Maryland, 2014.

The experiment was conducted at the University of Maryland's Lower Eastern Shore Research and Education Center, Salisbury. The field of Fort Mott loamy sand had been planted to watermelon for many years and consequently had a high level of *Fusarium oxysporum* f. sp. *niveum* (FON). Races 1 and 2 of FON had been detected in the field in previous years. The experiment was conducted as a randomized complete block design with four replications. Plots consisted of single row beds, 21 ft long, on 7-ft centers, and covered with 1.25-mil black plastic mulch under which a single drip irrigation tube was placed in the center. Plastic was laid on 8 May. Each plot had 11 plants. Fertility was supplied by an application of 16-03-15 (N-P-K) + 0.2 B at 650 lb/A on 7 May. Ten triploid watermelon cultivars, which were selected because they were among the most frequently planted in the region, were evaluated. 'SP-5', which has resistance to FON race 1, was used as the pollenizer. Triploid cultivars were transplanted into the field on 28 May, 36 in. apart in the row with an application of 20-20-20 (N-P-K) as a starter fertilizer at 2.5 lb/150 gal water. Manganese toxicity was noted during the season and a 0-0-25 (N-P-K) solution was applied through drip irrigation on 25 Jul and 8 Aug for management. Additionally, Kocide (1.5 pt/A) + Manzate (2 lb/A) was applied on 3 and 23 Jul for foliar disease management. Fusarium wilt was assessed on 19 and 24 Jun as the number of plants in a plot that were wilted or dead. On 6 Aug whole plots were rated on a 1 to 10 scale where 0 = no wilt, 1= 10% wilt, 2 = 20% wilt, 3 = 30% wilt, 4 = 40% wilt, 5= 50% wilt, 6 = 60% wilt, 7 = 70% wilt, 8 = 80% wilt, 9 = 90 % wilt, and 10 = plots completely dead. All fruit were harvested, counted, and weighed on 11 Aug.

On 19 Jun, 'Crunchy Red' and 'Troubadour' had the fewest plants wilted compared to all other cultivars. On 24 Jun and on 6 Aug, 'Crunchy Red' and 'Troubadour' had significantly fewer wilted plants than any other cultivars tested. Even 'Seedless Sangria', a cultivar with moderate resistance to Fusarium wilt, performed poorly. On 6 Aug, 'Crunchy Red' and 'Troubadour' continued to perform the best, and 'Liberty' and 'Seedless Sangria,' were intermediate. No other cultivars performed significantly better than 'Tri-X313', which was included as the susceptible control.

		No. plants wilted or dead		Wilt severity rating	Yield
Cultivar	Seed Company	19 Jun	24 Jun	6 Aug	lb/plot
Tri-X313	Syngenta	4.3 a[z]	6.8 a	10.0 a	2.1 e
Exclamation	Syngenta	4.5 a	6.0 a	9.5 ab	2.6 de
SS 7187	Abbott & Cobb	6.0 a	6.3 a	9.5 ab	2.9 de
Fascination	Syngenta	4.8 a	5.5 a	8.8 ab	3.0 de
Sweet Polly[y]	Seigers	5.0 a	7.1 a	9.0 ab	3.3 cde
Captivation	Syngenta	4.5 a	5.5 a	9.3 ab	3.5 cde
Liberty	Nunhems	5.0 a	5.3 a	8.3 b	4.4 bcd
Seedless Sangria	Syngenta	5.9 a	5.8 a	8.3 b	5.1 bc
Troubadour	Harris Moran	1.5 b	1.0 b	2.3 c	6.1 b
Crunchy Red	Harris Moran	0.3 b	0.5 b	2.8 c	8.2 a
P value[x]		0.0001	0.0001	0.0001	0.0001

[z] Mean values within each column followed by the same letter are not significantly different at P=0.005 according to Fisher's protected LSD.
[y] 'Sweet Polly' had only two replicates because seed germination rate was low.
[x] P values $\leq$ 0.05 indicate significant differences are likely to exist among treatments.