'Prairie Dawn' Fresh-market Tomato Inbred

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'Prairie Dawn' is an early to midseason, determinate, inbred fresh-market tomato (*Lycopersicon esculentum* Mill.) that sets a high percentage of crack-free fruit when grown under overhead irrigation in the central United States.

Origin

'Prairie Dawn' is an F₁₀ selection from a cross between 'Campbell 28' (Moore, 1971) and the hybrid 'Duke'. 'Prairie Dawn' was evaluated in trials as IA 10009 and in the 1992 and 1993 Southern Tomato Exchange Program (STEP) as STEP 742.

Description

'Prairie Dawn' is a determinate (*sp*) cultivar. Plants tend to be 10 to 15 cm shorter than 'Mountain Pride' when grown on stakes. Reduced height eliminates the need to prune plant tops but may require the adjustment of string intervals on stakes to achieve optimal support.

Fruit are deep oblate to globe in shape, similar to 'Campbell 28' (Fig. 1). Nonripe fruit possess a glossy finish and are uniformly light green (*u*). Fruit pedicels are jointed. Externally, fruit develop a bright-red pigmentation [*L* = 66.12, *a* = 27.91, and *b* = 7.91]; internal color values were *L* = 39.59, *a* = 30.17, and *b* = 14.20. Fruit samples of 'Prairie Dawn' and 'Merced' were provided to farmers' market customers for firmness and flavor evaluations before tomatoes were purchased. Based on sales volume after sampling, 'Prairie Dawn' was preferred over 'Merced'. 'Prairie Dawn' juice has a pH of 4.29; a soluble solids concentration of 3.9%; and color values of *L* = 36.12, *a* = 30.95, and *b* = 13.51.

'Prairie Dawn' produced U.S. combination grade fruit yields (U.S. no. 1 + U.S. no. 2) similar to the fresh-market hybrids 'Merced', 'Sunrise', 'Mountain Spring', 'Mountain Supreme', and 'Sunbrite' (Table 1). The mean individual fruit weight of 'Prairie Dawn' was

less than the fruit weight of some of these hybrids in at least one of the years that they were compared (Table 1). 'Prairie Dawn' also exhibits resistance to fruit cracking. In 1993, when rainfall in Iowa was classified as more than a once-in-200 year event, 'Prairie Dawn' produced less radial or concentric cracked fruit than 'Merced' or 'Mountain Spring'. In 1994, 'Prairie Dawn' cracked less than 'Sunbrite'.

'Prairie Dawn' fruit mature 81 days after transplanting, requiring 1625 heat units at >10C. In general, vine-ripe fruit are harvested 1 week earlier than those of 'Mountain Pride'.

'Prairie Dawn' contains *Ve* and *I* genes that

confer resistance to race 1 of *Verticillium albo-atrum* Reinke & Berth. (verticillium wilt) and race 1 of *Fusarium oxysporum* f. sp. *lycopersici* (Sacc.) Snyd. and Hans. (fusarium wilt), respectively.

Uses

'Prairie Dawn' is adapted to vine-ripe production when grown on the ground or upright on stakes. It has performed well in research center trials across Iowa (Castana, Ames, and Muscatine) and in STEP trials.

Availability

'Prairie Dawn' was released by the Iowa Agriculture and Home Economics Expt. Station on 8 Feb. 1995. Small seed samples of 'Prairie Dawn' are available from W.L.S., Iowa State Univ., Dept. of Horticulture, Room 251, Ames, IA 50011-1100 (e-mail: summers@iastate.edu).

Literature Cited

Moore, J.F. 1971. Campbell 28, an early processing type tomato. Campbell Inst. for Agr. Res. Lflt. 2.

Fig. 1. Fruit of 'Prairie Dawn' fresh-market tomato. The diameter of the fruit is 82 mm.

Table 1. Total marketable yield and fruit weight of 'Prairie Dawn' compared with commercial fresh-market hybrids in replicated vine-ripe trials at various Iowa locations.^z

Cultivar	U.S. no. 1 + no. 2 fruit yield (t·ha ⁻¹)		Fruit wt (g/fruit)		Cracked fruit (%)	
	1992	1994	1992	1994	1992	1994
Merced, F ₁	78	57	279	256	24	20
Prairie Dawn	71	56	184	187	14	2
Sunrise, F ₁	60	68	172	186	24	1
Mountain Spring, F ₁	79	52	218	238	17	7
Mountain Supreme, F ₁	---	52	---	178	---	20
Sunbrite, F ₁	---	44	---	208	---	48
LSD _{0.05}	13	31	61	25	17	29

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^zTrials were conducted at Ames, Castana, and Muscatine.