

Dayneutral Strawberry Cultivars for Ontario Producers

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Dayneutral strawberries are relatively new to Ontario. A number of dayneutral cultivars are available but most were developed in California and, therefore, may not be well suited to Ontario. Dayneutral cultivar trials were established in 2005 at the University of Guelph Research Stations located at Cedar Springs and Simcoe in southwestern Ontario, and New Liskeard in northeastern Ontario. The trial was also grown under a Haygrove high tunnel at Cedar Springs resulting in four environments and six cultivars with four replications.

Four vegetatively-propagated cultivars and two seed-propagated cultivars were compared in the Ontario trials. Dayneutral strawberry plants produce relatively few runners, making it difficult to propagate them economically in the relatively short growing season in Ontario. Seed propagated F1-hybrid strawberry cultivars have been used on a limited scale in Europe. Dormant bare-root plants of Albion, Diamonte and Seascape were obtained from commercial nurseries. Seed of Elan and Milan F1 hybrids was obtained from the Netherlands and plug plants were produced in Simcoe for all four sites.

Twenty-plant plots were established with 20cm between plants and 30cm between rows on raised beds covered with black polyethylene mulch. Each plot consisted of two rows on beds at 1.5 and 1.7m centers in New Liskeard and Cedar Springs, respectively. In Simcoe, plots consisted of 4 rows on beds at 1.8m centers. The plots were planted May 6/05, May 30/05 and June 6/05 at Cedar Springs, Simcoe and New Liskeard, respectively. Trickle irrigation was located below the plastic and all plots received regular irrigation and liquid fertilizer applications. Cultural practices were adapted to the local soil and climate. In New Liskeard the plants were covered with straw mulch covered with a 1.5 oz/sq yd floating row cover for the winter. In Cedar Springs, a winter floating row cover only was used and, in Simcoe, the plants were not covered for the winter.

The blossoms were removed for the first six weeks after planting, and thereafter fruit was harvested twice weekly in the first and second year. Fruit was sorted into marketable (no rot and regularly shaped with a diameter greater than 1.5 cm) and unmarketable. The marketable fruit was weighed and counted, and berry weights were calculated.

The results depended on the year and environment. In the first picking year, the two hotter environments, Simcoe and Cedar Springs' tunnel had lower yields and berry size than the two cooler environments, New Liskeard and Cedar Springs outside (Table 1). Milan and Elan produced large numbers of moderate-sized fruits at Simcoe, whereas Tribute and Seascape performed better in the two cooler environments. The largest fruit was usually produced by Albion at all sites.

In the second picking year, Seascape and Tribute had the highest yields at all sites although the yields of Milan and Elan were only slightly lower (Table 1). Albion and Diamonte were large fruited but lower yielding. Diamonte had low winter survival at all sites averaging 74% plant survival (Table 2). At Simcoe, the plants were not protected for the winter and the low yields of Diamonte, Milan and Elan could be related to higher winter damage even though the plants survived. Albion had a much lower survival rate in New Liskeard than the other sites. The use of a tunnel at Cedar Springs increased the yields of Albion in year two.

The high percent unmarketable in New Liskeard tended to be due to tarnished plant bug damage, while in Simcoe, it was due to berry size and rot. Albion rated higher than Seascape for fruit quality in the ratings done in New Liskeard and Simcoe (data not shown).

Overall, Seascape and Tribute consistently produced high yields at all sites, but Seascape has larger fruit. Milan and Elan produced moderate yields, but the fruit was generally small. Albion and Diamonte produced large fruit but low yields. Of these two, Albion appears more adapted to southern Ontario conditions and its high fruit quality make it more suited to certain markets.

Of the cultivars tested to date, Seascape continues to be the most adapted to Ontario conditions. Albion has larger fruit and higher fruit quality than Seascape but it is later, produces lower yields and is not as winter hardy. It may be possible to adapt the cultural conditions to improve yields of Albion as it seemed to perform better in the tunnel at Cedar Springs in the second year.

Several new dayneutral cultivars have become available since 2005. These are currently being evaluated at trials in Cedar Springs and New Liskeard.

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Table 1. Total yields, percent marketable and average marketable berry weight of 6 cultivars at 4 sites in Ontario in 2005 and 2006.

Site	Cultivar	Total Yield (g/plant)			% Marketable		Berry Weight (g/berry)	
		2005	2006	Total	2005	2006	2005	2006
Simcoe	Albion	85	130	215	66	67	12.0	9.9
	Diamonte	66	46	112	50	48	10.3	10.6
	Elan F1	160	46	206	47	35	6.0	6.7
	Milan F1	191	51	242	49	46	7.1	7.4
	Seascape	82	195	277	67	62	8.4	7.8
	Tribute	73	159	232	48	50	6.9	7.2
Cedar Springs Tunnel	Albion	27	363	390	96	72	9.3	13.5
	Diamonte	17	233	250	98	69	7.8	14.4
	Elan F1	58	345	403	93	67	4.7	9.3
	Milan F1	89	358	447	89	67	5.1	9.7
	Seascape	21	437	458	98	74	4.6	10.5
	Tribute	87	442	529	94	71	4.8	9.6
Cedar Springs	Albion	95	241	336	90	75	11.2	15.3
	Diamonte	98	252	350	95	65	9.9	15.0
	Elan F1	60	273	333	95	60	4.8	10.8
	Milan F1	139	330	469	92	65	6.7	12.3
	Seascape	155	377	532	98	66	7.8	11.3
	Tribute	248	413	661	93	71	5.5	11.3
New Liskeard	Albion	103	107	210	65	55	14.7	13.4
	Diamonte	82	104	186	44	40	17.4	12.0
	Elan F1	157	282	439	51	41	7.4	8.1
	Milan F1	106	254	360	45	39	8.9	8.8
	Seascape	187	373	560	64	62	13.1	11.3
	Tribute	213	300	513	57	39	8.0	7.2

Table 2. Plant survival for 6 cultivars over the first winter.

Cultivar	% Winter Survival			
	Simcoe	CS Tunnel	Cedar Springs	New Liskeard
Albion	87	90	89	76
Diamonte	74	86	70	64
Elan F1	74	100	100	92
Milan F1	81	100	92	92
Seascape	99	100	100	91
Tribute	93	100	100	90