

Manitoba Strawberry Variety Trials

Final Results and Recommendations 2005-2007

The objective of these trials were to test newly released strawberry varieties and advanced selections from University of Guelph, other fruit breeding programs in northern USA (Cornell, Minnesota) and Agriculture Agri-food Canada (Quebec, Nova Scotia) for their suitability for production in Manitoba. This trial would allow advanced strawberry selections to be evaluated under Manitoba's extreme environmental conditions. Funding was provided by Manitoba Rural Adaptation Council (MRAC), Prairie Fruit Growers Association and in-kind support from MAFRI Crops Knowledge Centre's Fruit Crop Program.



Strawberry cultivar trials were planted in 2005 and 2006 at Berry Hill Farm (Altona) and Blue Diamond Farms (St. Francois Xavier). The Altona site is in plant hardiness zone 3a in a clay-loam soil. While the St. Francois Xavier site is in plant hardiness zone 2b in a loamy soil. Experimental design was a Randomized Complete Block Design (RCBD) with 4 replicates. Measurements included yield, berry weight, runner production and percent plot survival.

Thirteen strawberry varieties were planted May 20, 2005 at Berry Hill Farm (Altona) and Blue Diamond Farm (St. Francois Xavier (SFX)). The varieties planted were University of Guelph new releases **Serenity and Sapphire**; industry standards **Annapolis, Honeoye, Kent, and Jewel**; AAFC St. Jean-sur-Richelieu, Quebec recent releases **Yamaska, St. Jean, Harmonie and St. Laurent**; Cornell University new release **L'Amour** and 2 University of Guelph advanced selections (**357RT25 and 50Y135**).



Five strawberry varieties were planted on May 18, 2006 at Berry Hill Farm (Altona) and Blue Diamond Farm (St. Francois Xavier (SFX)). The varieties planted were advanced numbered selections from New York (**NY 9921**), Minnesota **MNUS138- now called Itasca**) and Ontario (**31NL1 and 25V151**), along with 2 standards, **Kent and Jewel**. Jewel and 31NL1 did not establish due to poor transplant stock and were removed from the trial.



Harvest data was collected for the 2005 planting in 2006 at SFX site only. Due to flooding in 2005, the Altona 2005 planted site was terminated in 2006, while the SFX 2005 planting was terminated in 2007 due to weed problems in 2006. Both 2006 planting sites had harvest data in 2007.

Special thanks to our participating growers for hosting these variety trials: Berry Hill Farm, Altona and Blue Diamond Farm, St. Francois Xavier.

Funding and in-kind support provided by:

University of Guelph—Berry Breeding and Management Program, MRAC, MAFRI, PFGA



Results 2005-2006 MB Strawberry Variety Trial

Table 1: Yields and Berry Weights for 2006, SFX Location

Cultivar or Selection	Marketable Yield lbs/ ac		Cultivar or Selection	Average Berry Weight (g)
Serenity	11,700		Serenity	25.6
50Y135	10,700		St. Jean	19.3
L'Amour	5,800		Yamaska	18.7
Sapphire	5,700		50Y135	18.5
357RT25	5,500		Jewel	18.1
Kent	5,100		St. Laurent	18.0
Harmonie	5,000		L'Amour	16.3
St. Jean	4,700		Kent	15.2
Annapolis	3,900		Harmonie	15.0
Honeoye	3,300		Sapphire	14.9
St. Laurent	2,200		357RT25	14.8
Jewel	1,000		Annapolis	14.1
Yamaska	500		Honeoye	13.5
LSD ($P=0.01$)	500		LSD ($P=0.01$)	5.1

¹ Concentration of harvest is the time between 25% and 95% harvest dates.

Table 2: 25% and 95% Harvest Dates, and Concentration of Harvest for 2006, SFX Location

Cultivar or Selection	25% Harvest Date (1 = June 1)		Cultivar or Selection	95% Harvest Date (1 = June 1)		Cultivar or Selection	Concentration of Harvest (days) ¹
Annapolis	22		Jewel	32		Yamaska	7
Kent	23		Annapolis	33		Jewel	8
Honeoye	23		357RT25	33		St. Laurent	9
357RT25	24		Honeoye	33		Harmonie	10
Jewel	25		Yamaska	34		357RT25	10
Sapphire	25		Kent	37		Honeoye	10
Yamaska	27		Sapphire	38		St. Jean	10
50Y135	28		St. Laurent	40		Annapolis	11
Serenity	29		50Y135	40		Serenity	12
L'Amour	31		Serenity	40		50Y135	12
St. Laurent	31		Harmonie	42		Sapphire	13
Harmonie	32		L'Amour	44		L'Amour	13
St. Jean	34		St. Jean	44		Kent	14
LSD ($P=0.01$)	5.6		LSD ($P=0.01$)	10.1		LSD ($P=0.01$)	3.7

Table 3: Fruit Quality¹ in 2006, SFX Location

Cultivar or Selection	External Color	Firmness	Skin Strength	Brightness	Internal Color	Regularity	Flavour	Total ²
Sapphire	2.9	2.6	2.7	3.6	3.4	3.5	3.3	11.7
L'Amour	2.6	3.1	3.3	3.0	3.1	2.8	3.0	11.7
Honeoye	2.4	2.2	2.8	2.9	3.0	3.7	2.5	11.1
Kent	2.5	2.7	2.8	2.9	2.8	2.9	3.1	10.9
50Y135	2.8	2.7	2.9	2.8	2.9	2.4	2.5	10.8
Serenity	2.9	2.4	2.7	3.2	3.4	2.6	2.5	10.5
Annapolis	2.6	2.3	2.2	2.7	3.4	3.3	3.3	10.3
Jewel	2.0	1.5	2.3	3.3	2.7	2.6	3.1	8.5
357RT25	2.9	1.7	2.1	3.3	3.1	1.0	1.9	7.7
LSD (P=0.01)	0.3	0.3	0.3	0.2	0.4	0.3	0.3	0.7

Table 5: Number of runners for 2005-2006

SFX

Altona

Cultivar or Selection	# Runners per plot		Cultivar or Selection	# Runners per plot
357RT25	127		357RT25	108
Serenity	119		Annapolis	105
50Y135	91		Sapphire	103
Sapphire	90		50Y135	85
Annapolis	90		L'Amour	78
St. Jean	77		Honeoye	71
L'Amour	76		Serenity	70
Honeoye	61		Harmonie	63
Kent	59		Kent	54
Harmonie	44		St. Jean	43
St. Laurent	40		St. Laurent	27
Yamaska	26		Yamaska	26
Jewel	13		Jewel	3
LSD (P=0.01)	67.3		LSD (P=0.01)	49.3
Average	70		Average	64

Table 6: Percent of survival for 2006 trial at Altona location.

Variety	% Survival	Variety	% Survival
Annapolis	99	St. Laurent	57
Serenity	96	Harmonie	56
Sapphire	90	Honeoye	54
Kent	89	St. Jean	53
L'Amour	70	Jewel	16
50Y135	68	Yamaska	7
357RT25	65		

Conclusions: 2005-2006 MB Strawberry Variety Trial

Top performers in the 2005 strawberry trial were the varieties that combined high yield, fruit quality, winter hardiness and runner production, which were: **Sapphire, Serenity, Kent, L'Amour, Honeoye and Annapolis**. Due to poor transplant stock Jewel did not make this list, but has been grown in Manitoba successfully for many years.



Early-Mid Season: Kent, Honeoye, Annapolis



Mid-Late Season: Jewel, Serenity, Sapphire, L'Amour



Kent, Jewel, Honeoye and Annapolis have been used in Manitoba for many years by growers and should be considered industry standards. The two new varieties from Ontario, Sapphire and Serenity performed quite well in the evaluation and can be recommended for larger plantings. Sapphire has a classic strawberry shape, great flavour, Sinbar tolerance and high yields (long harvest period). Serenity is high yielding, uneven shape however with large to very large berries (25 gram average), ideal for u-

picks only. L'Amour is a new release from Cornell University in NY state, and should be considered for trial only at this time (test small scale first on your own farm). It showed good hardiness yields similar to Kent, good firmness, flavour and overall fruit quality, is susceptible to angular leaf spot (according to Ontario trials).

Conclusions continued: Quebec varieties had poor winter hardiness and should only be considered for trial purposes only. They are all late season producers with very firm fruit, a good trait for pre-picked and retail sales.



Sapphire plot at SFX, MB

Results 2006-2007 MB Strawberry Variety Trial

Table 1. Yield, days to harvest and berry weight for 2007 at SFX location.

	Yield (t/ha)	Days to harvest (June 01=day 1)		Berry weight (g)
		25%	95%	
Kent	12.5 a	23.6	43.8	15.11
Itasca	9.0 ab	24.6	41.9	12.21
NY 9921	7.6 b	23.7	36.2	15.91
V151	7.3 b	23.2	44.5	14.94

Table 2. Yield, days to harvest and berry weight for 2007 at Altona location.

	Yield (lbs/ac)	Days to harvest (June 01=day 1)		Berry weight (g)
		25%	95%	
Kent	10,500 a	25.3	40.5	10.37
Itasca	8,000 ab	25.2	41.8	10.18
V151	6,700 b	24.4	39.6	11.72
NY 9921	4,000 b	26.4	41.3	13.45

Yield means followed by the same letter (a,b) are significantly different statistically.

Table 3. Fruit quality for 2007 at SFX location.

	Total	Ext. Colour	Flesh Firm.	Skin Streng.	Skin Bright.	Berry Regulr.	Inter. Colour	Flavour
Itasca	19.4	3.6	2.8	2.4	5.6	5.0	3.0	4.0
NY9921	18.9	3.7	2.0	3.0	5.6	4.6	2.8	3.6
V 151	17.1	3.7	1.6	1.4	5.0	4.6	2.0	4.0
Kent	12.6	2.6	1.0	1.0	4.0	4.0	2.0	4.0

Table 4. Fruit quality for 2007 at Altona location.

	Total	Ext. Colour	Flesh Firm.	Skin Streng.	Skin Bright.	Berry Regulr.	Inter. Colour	Flavour
V 151	17.1	3.9	1.7	1.5	5.6	4.4	3.1	4.0
NY9921	15.7	2.8	2.0	1.4	5.6	3.9	1.4	3.3
Itasca	14.1	2.8	1.1	1.6	4.0	4.6	2.4	4.0
Kent	13.4	3.5	1.0	1.0	3.9	4.0	1.4	4.0

5 berries sampled on two dates, Total = Sum of (External Colour, Skin Strength, Berry Regularity, Skin Brightness) 5= good, 1=bad, External Colour 1=dark, 5=pale

Conclusions: 2006-2007 MB Strawberry Variety Trial



Itasca plot at Altona, Manitoba.

Top performers in the 2005 strawberry trial were the varieties that combined high yield, fruit quality, winter hardiness and berry size, which were: **Kent and Itasca**.



Kent and Itasca. Kent has been used in Manitoba for many years by growers and should be considered an industry standard. Itasca is a new release from the University of Minnesota that showed good winter hardiness, with yield, fruit quality and harvest times comparable to Kent (early-mid-season). Ontario testing indicated resistant to leaf diseases. Recommended for trial testing in Manitoba.



Itasca

For questions or comments on this project please contact Anthony Mintenko– Fruit Crops BDS, MAFRI at: Anthony.Mintenko@gov.mb.ca