



Progress Report 2008: Stone Fruit

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Introduction

Beginning in the 1970s, WSU Mount Vernon NWREC has responded to nursery growers, researchers, and hobbyists to investigate stone fruit cultivars that have the potential for high quality fruit production in western Washington. Interest in evaluating new stone fruit cultivars and selections has been reinforced by the search for potential commercial stone fruit crops for possible U-pick or farm markets. The current stone fruit trial of peaches, nectarines, plums, and apricots was established in 2000, and the trial plot of sweet cherries on dwarfing Gisela rootstocks (primarily Giesela 5) was established in 1998 with ongoing additions.

Methods

In 2008 the stone fruit trial plots included 27 peach, 10 nectarine, 40 plum and 29 cherry cultivars and selections. All remaining apricots were removed in 2008 due to lack of productivity. Evaluation of the sweet cherry cultivars in the Giesela cherry plot was concluded in 2008. Of the 40 plum entries, 11 are new cultivars and selections from the Geneva, NY breeding program planted in 2008. Entries are being screened for their suitability for either home orchards or commercial production in a cool maritime climate. The plots are non-randomized with 3 trees, although some entries are represented by only a single specimen. Observations are made annually of the plants' bloom time, bloom abundance, productivity, and general health. Fruit characteristics are evaluated on an ad-hoc basis as the need appears. Plots are drip irrigated 2 times per week for 3-4 hours, beginning in late May, and based on soil moisture irrometer readings. Weed control is a soil residual herbicide application targeted to problematic weeds.

In 2008 bloom data were collected on certain selected stone fruit kinds. Cherry evaluations consisted of collecting samples of 25 fruit from each variety, weighing them to determine fruit size, and testing juice from 5 randomly selected fruits for brix (sweetness). Observations were taken of fruit set, productivity, rot, and cracking in the field. To evaluate peaches and nectarines, fruit was harvested, sorted into marketable fruit and those showing external evidence of split pits, and counted. Data include total fruit, average number of fruit per tree, and percentage of split pits.

Results and Discussion

In 2008 weather conditions throughout the growing season were minimal for most of the crops evaluated. Spring bloom was very late, and the weather was cool and cloudy for much of the time, so many of the entries did not set as well as usual, attributed to poor pollination/lack of activity by pollinizer insects.

Observation and evaluation of cherry cultivars was completed in 2008, including fruit characteristics (Appendix, Table 1) and ratings of productivity and rot (Table 2). Most varieties were productive and the fruit of some cultivars had good quality and size, with potential for market appeal. Rainier was the largest (11.2 g/fruit avg) and sweetest (26.2 brix) but

productivity was low; Lapins, Vandalay, and BC 13N-7-39, a selection from Summerland, BC, also sized well and were productive. Although Hartland was smaller, size was adequate and productivity and quality were good even though the texture is somewhat soft.

Many peach and nectarine varieties set poorly or not at all in 2008 despite a good bloom abundance (Table 3), and most of those that did produce fruit showed much lower yields and higher percentage of split pits compared with 2007 (Table 4). The exceptions were Blazingstar and HW 272, both having low split pits and fair to good productivity. Frost was consistently productive and is still one of the best for home gardens due to its good resistance to peach leaf curl. Severe cracking damaged most fruit in the 2 nectarine varieties that did set a crop. Young trees of TriLite peach, which includes plum and peach in its genetic makeup, produced their first fruit. Quality was good though the fruit size was rather small. New plum cultivars added to the trial in 2008 included selections from Geneva, NY breeding program. These will not have fruit for evaluation until 2010 at the earliest and evaluation will continue until 2012. Evaluations of peach and nectarine continued in 2009. Data have been collected and a final report will be prepared over the winter.

Proposed Future Studies

Possible future work may include evaluation of new cherry dwarfing rootstocks, and culture of sweet cherry under rain covers or in high tunnels.

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APPENDIX**Table 1.** Cherry harvest dates, brix and fruit size recorded at WSU Mount Vernon NWREC in 2008, arranged in order by fruit size (average weight in grams/fruit).

Cv/Selection	Harvest Date	Brix	Wt. 25 Frt.	Avg. Frt. Wt.	Comments
Rainier	23-Jul	26.2	279.4	11.2	White flesh
Lapins	31-Jul	16.6	275.4	11.0	
BC 13N-7-39	31-Jul	21.4	268.4	10.7	White flesh
Schneider	23-Jul	17.6	264.8	10.6	
White Gold	23-Jul	17.0	256.9	10.3	White flesh
Black Gold	25-Jul	18.2	243.2	9.7	
Tehranivee	25-Jul	20.8	230.0	9.2	
NY 9295	23-Jul	17.2	220.0	8.8	
Bing	23-Jul	19.6	219.7	8.8	
Sweetheart	8-Aug	18.8	215.0	8.6	
Hudson	8-Aug	20.2	211.2	8.4	
NY 205	23-Jul	23.5	207.7	8.3	
NY 5288	23-Jul	17.2	200.9	8.0	
RN02-4-242	31-Jul	21.0	188.5	7.5	
Vandalay	23-Jul	18.8	184.2	7.4	
Kristen	23-Jul	18.2	175.0	7.0	
Governor Wood	23-Jul	22.0	174.7	7.0	Amorelle
Hartland	23-Jul	14.6	156.4	6.3	
Surefire	23-Jul	13.8	149.0	6.0	Morello
Emperor Francis	25-Jul	21.2	146.3	5.9	White flesh
Balaton	31-Jul	16.0	146.0	5.8	
Angela	23-Jul	18.4	142.0	5.7	
NY 518	8-Aug	24.4	135.5	5.4	All yellow
Danube Erdi B	25-Jul	16.6	124.9	5.0	Morello
Skeena	23-Jul	16.8	124.8	5.0	
Almaden Duke	23-Jul	21.8	85.7	2.3	Amorelle

Table 2. Cherry ratings for productivity¹, rot², and fruit cracking³ observed at WSU Mount Vernon NWREC in 2008, arranged in order by productivity.

Cv.	Rootstock	# Trees	Prod.	Rot	Crk.
Vandalay	G8 (148-9)	2	5	5	5
BC 13N-7-39	G5 (148-2)	2	4.5	3.5	5
Vandalay	G5 (148-2)	2	4.5	5	5
Emperor Francis	G5 (148-2)	3	4.3	5	5
Hartland	G5 (148-2)	6	4.3	5	4.4
Lapins	G5 (148-2)	4	4.3	4	5
BlackGold	G5 (148-2)	1	4.0	5	5
NY 242	G5 (148-2)	1	4.0	4	5
NY 518	G5 (148-2)	2	4.0	5	3
Skeena	G5 (148-2)	1	4.0	5	5
Sweetheart	G7 (148-8)	3	4.0	4.3	4.3
Surefire	G5 (148-2)	6	3.8	5	5
Hartland	G7 (148-8)	2	3.5	5	5
NY 205	G5 (148-2)	2	3.5	3.	5
NY 5288	G5 (148-2)	2	3.5	5	4
Tehrani-vee	G5 (148-2)	2	3.5	5	5
Bing	G7 (148-8)	4	3.4	5	4.2
Angela	G7 (148-8)	4	3.25	5	5
Bing	G5 (148-2)	1	3.0	5	4
Hartland	Krymsk 5	2	3.0	5	5
NY 7855	G5 (148-2)	1	3.0	5	5
NY 9295	G7 (148-8)	1	3.0	5	5
White Gold	G5 (148-2)	2	3.0	5	5
WhiteGold	G7 (148-8)	1	3.0	5	5
Kristin	G7 (148-8)	2	2.5	4.5	5
Rainier	G7 (148-8)	3	2.3	4.7	5
Almaden Duke	G5 (148-2)	1	2.0	5	5
Governor Wood	G5 (148-2)	1	2.0	5	5
Rainier	G8 (148-9)	1	2.0	4	5
Schneider	G5 (148-2)	5	2.0	4.2	5
Sweetheart	G5 (148-2)	1	2.0	5	5
Hudson	G5 (148-2)	3	1.7	4.3	5
Kristin	G5 (148-2)	3	1.7	4	5
RN02-4-242	G5 (148-2)	3	1.7	5	5
Danube Erdi B	G5 (148-2)	3	1.0	5	5
Hardy Giant	G5 (148-2)	1	1.0	5	5
Rainier	G5 (148-2)	1	1.0	4	5

¹Productivity: 5=very productive; 4=good commercial productivity; 3=moderate, acceptable commercial productivity; 2=low, unacceptable productivity for commercial; 1=little or no fruit.

²Rot: 5=no rot observed; 4=no rot observed in most areas of tree; 3=some rot observed in all areas of tree; 2=severe rot observed in most areas of tree; 1=severe rot all areas of tree.

³Cracking: 5=no cracking observed; 4=no cracked fruit observed in most areas of tree; 3=some cracked fruit observed in all areas of tree; 2=many cracked fruit observed in most areas of tree; 1=all fruit cracked.

Table 3. Observed full bloom date and bloom abundance¹ of certain stone fruit cultivars at WSU Mount Vernon NWREC in 2008, arranged in order of full bloom date.

Cultivar	Kind	Bloom Type ²	Abund.	Full Bloom
Earlimagic	plum		4.5	25-Mar
Beauty	plum		5	25-Mar
Shiro	plum		5	9-Apr
Obilnaja	plum		5	9-Apr
Kuban Comet	plum		5	9-Apr
Kuban Delight	plum		5	12-Apr
NJ PC2	plumcot		3	18-Apr
NJ PC5	plumcot		4	18-Apr
Starfire	peach	NS	5	11-Apr
K 56-4	nect	S	5	13-Apr
HW 110	nect	NS	5	13-Apr
HW 273	peach	NS	5	13-Apr
Coralstar	peach	NS	5	13-Apr
NJ 318	peach	NS	4.5	15-Apr
Harken	peach	NS	4	15-Apr
HW 111	nect	S	4	15-Apr
Early Loring	peach	S	5	15-Apr
H 4-44	peach	NS	4.5	15-Apr
Roseprincess	nect	S	5	18-Apr
L 7-176	peach	NS	4	18-Apr
H 14-126	peach	S	5	18-Apr
Allstar	peach	NS	4.5	18-Apr
TriLite	peach	S	5	18-Apr
Hardired	nect	S	5	18-Apr
Redstar	peach	NS	4.5	18-Apr
Redhaven	peach	NS	4	18-Apr
HW 272	peach	NS	5	18-Apr
J 19-18	peach	S	4.5	18-Apr
Early Redhaven	peach	NS	4	18-Apr
H 13-98	peach	NS	4	18-Apr
Contender	peach	NS	4.5	20-Apr
Risingstar	peach	NS	5	20-Apr
K 54-25	nect	NS	5	20-Apr
D 88-147	peach	NS	4.5	20-Apr
H 11-73	peach	NS	4	20-Apr
Betty	peach	S	4.5	20-Apr
Township	peach	S	4	22-Apr
Harbelle/Cit	peach	NS	5	22-Apr
Harbelle/Lov	peach	NS	4	22-Apr
Frost	peach	S	4	22-Apr
Blazingstar	peach	NS	5	22-Apr
Vivid	peach	NS	3.5	22-Apr

¹ Bloom abundance rating for all fruit kinds: 5 = very abundant, all areas of tree filled with bloom, 4 = abundant, most areas of tree in bloom, 3 = moderately abundant, some areas of tree lack flowers, 2 = sparse, most areas of tree lack flowers or dense clump of flowers and rest of tree bare, 1 = very sparse, few or none

²Bloom type (peach and nectarine only): S=showy flowers; NS=non-showy flowers.

Table 4. Average fruit per tree and observed percentage of split pits in peach and nectarine cultivars at WSU Mount Vernon NWREC in 2008, compared with 2007, arranged in order of 2008 harvest date (N=nectarine; Y=young trees).

Cultivar	Harvest Date	Avg. Fruit/Tree		% Split Pits	
		2007	2008	2007	2008
HW 272	22-Aug	---	74	---	8
Blazingstar	25-Aug	219	89	2	0
Township	25-Aug	66	41	6	31
Frost	25-Aug	97	111	2	22
Betty	25-Aug	121	59	1	17
Roseprincess (N)	25-Aug	97	37	8	34
HW 110 (N)	25-Aug	105	20	5	45
TriLite (Y)	25-Aug	---	4	---	13
Allstar	9-Sep	142	34	7	26
Contender	9-Sep	191	8	2	13

¹Not harvested in 2007