

## **Introduction**

Beginning in 1997, WSU Mount Vernon NWREC has responded to nursery growers, researchers and hobbyists to investigate fruit kinds that are not commonly grown in western Washington. Some of these fruits were not considered viable in our maritime climate conditions. Other kinds were little known because they originated in eastern Europe, Asia, or Oceania, or were uncultivated native North American plants. Since 2000, the interest in evaluating new and unusual fruits has been reinforced by the search for potential high-return alternative crops by commercial growers. A screening trial of 24 unusual fruit crop species, some as specimen plants and others including several cultivars, was established in 1997, with some new plants being added up until 2003.

## **Methods**

The unusual fruit trial plots presently include 22 unusual fruit species that are being screened for their suitability for either home orchards or commercial production in a cool maritime climate. The plots are non-replicated; some species are represented by several cultivars, others by a single specimen. Observations are made annually of the plants' productivity, growth habit, bloom time, and general health. Fruit characteristics are evaluated on an ad-hoc basis as the need appears. Yield data, juice analysis and other data have been collected for some of the more promising cultivars. Some plants failed to thrive (e.g. pomegranates) and others were discarded as unproductive.

Plots are drip irrigated 2 times per week for 3-4 hours, beginning in late May, and based on soil moisture irrometer readings. No insecticides or fungicides are applied in these plots. Weed control is a soil residual herbicide application targeted to problematic weeds. Shrubs such as currant and aronia, and small trees with a spreading growth habit such as fig and pawpaw, are generally pruned to an open center; upright-growing trees such as shipova are pruned to a central leader. Grape vines and all kiwis are pruned according to standard pruning methods for their respective trellis systems.

A replicated trial of black, white and red currants was conducted from 1999 to 2001. In 2000 an evaluation of leaf damage by insects (primarily currant saw fly) was conducted. In 2001 juice brix was measured, observations on juice quality and extraction recorded, and a rating was collected of powdery mildew on the foliage. Yield data on this plot was not taken due to budget limitations, and the 4 replicated rows were reduced to 2 rows in 2003. A productivity rating was taken of the existing plot in 2008 (Table 2).

## **Results and Discussion**

A summary of the observations taken in the unusual fruit crops trial shows the species screened falling into 4 categories: 1.) crop potential favorable based on horticultural evaluation; 2.) crop potential appears suitable for limited uses; 3.) crop potential appears unfavorable; 4.) crop evaluation not yet complete (see 2007 report).

Not all the crops that are well suited horticulturally to production in our region are well suited for commercial production in this area. In some instances (e.g. aronia, currant) market factors are unfavorable, with cheaper product available from other regions. In other cases there are problems of

harvest (sea buckthorn) and processing for which technology or infrastructure are not readily available. Several crops such as hardy kiwi, fig, and table grapes have good potential, and work is proceeding toward a complete evaluation of productivity and quality of specific cultivars.(Table 1).

### Proposed Future Studies

Future work might include a trial of shipova (*X Sorbopyrus*) grafted on certain dwarfing pear rootstocks, to test whether the grafted trees are compatible with pear rootstocks, and if trees grafted on dwarfing rootstocks will be more productive and/or begin fruit production sooner. This very high quality fruit is not commercially viable at present due to the long time lapse between tree planting and fruit production, and the relatively modest yield from mature trees. A high tunnel trial of the most productive fig cultivars would examine the potential to ripen the second crop which does not normally mature in our climate.

### Acknowledgements

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**Table 1.** Crop observations recorded at WSU Mount Vernon NWREC in 2008.

<b>Crop</b>	<b>Notes</b>
Aronia	Produced consistently heavy yields on 2 plants, but plants were not netted so most of the fruit was taken by birds before the end of October.
Cornelian cherry	<b>Red Star, Pioneer</b> and <b>Elegant</b> produced good crops. <b>Olga, Sevetok,</b> and <b>Yevgenii</b> (planted 2003) produced fruit
Currant	Ratings were made of productivity and mildew susceptibility
Hardy kiwi	<b>Ananasnaja, Hardy Red</b> and <b>Ken's Red</b> all produced a crop but productivity was far lower than usual.
Mountain ash	Trees were removed in 2008 after evaluation.
Quince	<b>Aromataya</b> and <b>Van Deman</b> both produced moderate crops of fruit but much lower fruit set than usual was observed. No data collected.
Sea buckthorn	All sea buckthorn plants produced good crops of berries. No data collected.

**Table 2.** Productivity rating of currant cultivars and selections on trial at WSU Mount Vernon NWREC, July 23, 2008.

<b>Cultivar</b>	<b>Color</b>	<b># Plants</b>	<b>PRate<sup>6</sup></b>	<b>Comments</b>
Ben Connan	black	3	4.0	
Viking	red	3	4.0	
Rovada	red	6	3.5	one weak plant
Ben Alder	black	3	3.0	
Ben Sarek	black	3	3.0	
Primus	white	6	3.0	
Ben Lomond	black	5	3.0	
Ben Nevis	black	6	3.0	
Hilltop Baldwin	black	6	3.0	
Blackdown	black	3	3.0	nice fruity flavor
Blanka	white	6	2.5	weak dead stems
Ben Tirran	black	3	2.0	
Masons	white	3	2.0	v. sweet; one plant dead
Titania	black	6	2.0	vigorous plants
Magnus	black	6	2.0	
Prince Consort	black	3	2.0	one plant dead
Tsema	black	3	2.0	
Manaj Smiryou	black	3	1.0	
Minn 69	red	3	1.0	

<sup>6</sup>Productivity rating: 5=full heavy set, 4=good set and bunch size, 3=about 50% of bush fruiting, 2=light set, 1=few or no fruit