2011 Northern Hardy Fruit Evaluation Project Update
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The public has continued to show great interest in the Northern-Hardy Fruit Evaluation Project (fruit project). This year, 617 people participated in outreach activities where information about the fruit project was presented. Since its inception in 2006, the Fruit Project has provided information to over 1,400 eager home gardeners and fruit processors in North Dakota and the surrounding area. As there is little research being done with unusual fruits, we also fielded calls from South Dakota, Minnesota, Montana and Wisconsin.

This spring, for a second year, a member of North Dakota Grape Growers Association (NDGGA) coordinated the import of two types of hardy fruit plants to our state: Haskaps and hardy cherries. CREC assisted with the distribution and in total, 3,339 hardy fruit plants were bought by people who found out about them through the fruit project. Over the two-year period, the effort led to 4,580 new fruit plants being purchased and planted in the area.

Despite temperatures approaching 95 degrees and high humidity, approximately 80 people joined the fruit project tour at the annual field day event hosted by CREC on July 19th. With a travel grant provided by the NDGGA, University of Minnesota Horticultural Research Center vineyard manager, John Thull, and assistant, Jenny Bradley, spoke at the event. They offered pruning and training advice to the home gardener.

To continue to introduce these fruits, fruit was again distributed to the following food processors: Vintner's Cellar, Bismarck; Dakota Sun Gardens winery, Grace City; Berry Dakota, Jamestown; and Tongue River Vineyard, Miles City, MT.

Crops entered their third year of production in 2011. With above average snowfall and temperatures which were not severe, winter survival of the plants was good. Excess spring and summer rains had the plants looking pretty lush, though some diseases were enhanced by the moisture. Hail affected the crops for the first time. For the second year in a row, the weather pattern, overall, was slightly cooler than average and late-ripening fruits like grapes, aronia and elderberry were disadvantaged.

Apples: Flowering was very light in 2011as it was in 2010; only 'Hazen' and 'Harelred' produced a crop. No diseases were seen and bird damage was very light. 'Hazen' fruit was good and stored well for at least a month. 'Harelred' were very green tasting through several frosts. Did not pick for eating.

Aronia: Harvests decreased by 50 pounds overall as compared to the 2010 harvest. It is possible that pear sawfly (*Caliroa cerasi*) larvae damage in 2010 reduced the plants' energy stores that fall. Leaves were skeletonized again this August, but not as heavily as in 2010.

Canadian Dwarf Sour Cherry: Despite a good flowering period, the second year of fruit production was not as good as expected; there was less fruit. Additionally, hail damaged at least 10 pounds of cherries 10 days prior to harvest. Sheltered and secured rodent bait was placed among the plants last fall and consequently, we saw no damage to plants this spring. The bait was renewed this fall.

Black Currants: Pollination weather was close to ideal in 2011 and harvests were higher. Strigs of fruit could still be more full though. Due to high powdery mildew (PM) infection last year, a PM control trial was conducted with three organic products. Perhaps due to too much rain this year, PM was hardly a problem in the trial but did affect plants outside of the trial. White Pine Blister Rust prevalence was extremely high and early, affecting plants prior to picking.

- 'Ben Sarek' and 'Consort' were removed and replaced with the McGinnis Berry Farm cultivars 'Whistler' and 'Blackcomb'.
- 'Hilltop Baldwin' continues to exhibit some berry variation between plants.

Red and White Currants: Production in these plants was very high this year with 'Rosetta' producing 10 pounds of fruit pre plant. Dakota Sun Gardens Winery made a very delicious wine with the fruit. We were pleasantly surprised as there is almost no information about wine made from red currants.

American Elderberries: The four accessions we have now were hopefully killed in late summer. New, more suitable plants will be obtained in 2012.

Gooseberry: Due to powdery mildew and other leaf diseases, as well as the limited desirability of the fruit, the population of 52 original plants has now been reduced to eight plants.

Edible Blue Honeysuckle (EBH): The haskaps and honeyberries are doing well with no pests other than birds observed.

Russian honeyberries had excellent crops on the upright varieties.

- 'Blue Belle' showed a lot of shattering, with fruit on the ground.
- 'Blue Moon' and 'Blue Velvet' had almost no fruit this year and we did not pick it. This may be due to heavy pruning in spring 2010, but buds were developed later that summer.

Oregon haskaps had especially large berries this year. They also had a lot of shattering. Three of the six selections are no longer in Dr. Thompson's trials. We hope that they will be replaced.

Canadian haskaps had a small crop this year but developed into nice-looking rounded shrubs. 'Borealis', which should be the tastiest, was not. We will observe them in 2012 and 2013 and compare these initial plants to those obtained from a large propagator.

Juneberry: Fruit production increased again though some disease was observed this year. Now, only 7% of plants are considered to have low vigor due to past problems with wooly elm aphids. Hail and excess rains affected our crop and plants this year. Entomosporium affected the leaves late in the season.

- 'Thiessen', 'Martin' and 'JB30' berries were most affected by splitting after rain ended a dry period. They were closest to full ripeness.
- 'Smoky' had thrip damage to the flowers and then the fruits this spring.

Plums: Only 'Waneta' had fruit this year. The branches have become very long and will be pruned hard in 2012.

Sea Berries: With the discovery of four seedlings growing in another area of the orchard and a report of invasiveness in Alberta, CREC removed these plants in 2011.

Grapes: Grape establishment at CREC has been difficult. In the CREC vineyard, excellent soil conditions allow grape plants to acquire large energy stores in their roots. With advice from grape researchers at University of Iowa and University of Michigan, procedures are now in place to try to solicit a more disciplined growth habit from the plants. Nitrogen and water are being restricted by grass growth and a late summer cover crop. In 2011, three to five over-wintered canes were retained and allowed to carry fruit to drain excess root reserves. In the future, the number of canes will be decreased until only one trunk and set of cordons is being managed per plant.

Only white grapes fully ripened this year. Red grapes, including 'Valiant', just could not lower their acidity. Most varieties did seem to be hardening off in late fall and produced woody tissue with brown bark. However, 'Frontenac' and 'Frontenac Gris' plants were massive in size and looked overly vigorous despite their full crops of fruit and our vigor-dampening methods.

In addition to the grape variety trial there is a trial to determine whether 'grow tubes' either help, hinder or have no effect on the establishment of grapes. We are using the variety 'Frontenac' as it was the most widely planted grape when the experiment began in 2008. There are 5 experimental treatments which are randomized and repeated 4 times. Three years of data will be collected.

Overall Results: Each fall, variety trial and observational plantings are evaluated for the following parameters: Growth (height), crown width or trunk caliper, vigor, disease and insect damage. Yield, sugar content, ripening date and taste are evaluated for the fruit if practical. Results are in the table that follows. Overall, the plants seem to have excellent growth, health and winter hardiness characteristics. The exceptions are the several gooseberries which were removed due to leaf diseases, the elderberry selections which died back to the snow line and required a longer season to ripen, and the sea berries which were formidable to grow and harvest, and may be invasive.

Cooperators who have used the fruit successfully in commercial products include:

- Berry Dakota. Products: jelly from aronia, currants and jam from Juneberries.
- Vintners' Cellar, Bismarck. Products: wine from aronia, made with each of the four varieties.
- Dakota Sun Gardens Winery. Products: wine from aronia, black currant and red currant.
- Tongue River Vineyard. Products: wine from black currant and haskap/honeyberry.

Fruits distributed: Black Currant: '11 – 144lb, '10 – 57lb Aronia: '11 – 88lb, '10 – 145lb
Red Currant: '11 – 142lb, '10 – 57lb Haskap: '11 – 56lb, '10 – 19lb
Juneberry: '11 – 116lb, '10 – 24lb