

Comparing Haskap to other Berries

By Dr. Bob Bors
Department of Plant Sciences
University of Saskatchewan

Sister crops: There are economic advantages to additional crops that can be harvested at another time especially if the new crop can utilize the same harvesting or processing equipment. Better yet is if the new crop can also be used to make similar products. Not only can a factory be kept going longer but the sales staff have an additional crop to sell. It also provides steady work over a longer period for staff. It also reduces risk. If one crop has a failure, the others may be fine. Often crop failures are industry wide, so if there is a general shortage of a particular berry crop, won't buyers be looking for something to fill the gap?

Below are discussed some possible sister crops for Haskap and key similarities and differences:

Blueberries & Haskap: Most Haskap varieties have upright bushes similar in size and shape to commercial highbush blueberry cultivars. Likely they can be planted in a similar density per acre and pruned in a similar way. But Haskap has a much wider range of pH: from 5 to 8! But I understand that blueberries are beginning to be grown on a wider range of pH when attention is paid to getting a proper Calcium / Magnesium ratio.

Occasionally in the wild I have found Haskap and blueberry plants growing side by side. But I have never found haskap growing in thick natural stands like I have seen with blueberries. I doubt that Haskap could be grown and managed like wild low-bush blueberries. Haskap in the wild is found in wetter areas, possibly because this reduces competition from taller plants.

I'm guessing that early fruiting Haskap can be a month or 6 weeks earlier than blueberries. Why guess? We can't grow blueberries on the prairies so I haven't grow them side by side. In Saskatchewan, early Haskap ripens 2 to 3 weeks

before strawberries while late Haskap ripen towards the end of the strawberry season. Currently (2009) there are no late ripening Haskap varieties on the market. But the late types we are developing are ripe in mid July but can still be good into August or September depending on how hot the summer is.

The same harvesting equipment could be used for highbush blueberries and haskap but maybe the sideways harvesters (like Joanna) are better than upright harvesters. At least it worked for us, but we haven't tried other harvesters yet. This harvester causes less damage to the fruit since it pulls branches over to the side and fruit only falls a foot or less. Haskap fruit requires less pull force to detach but its fruit is more delicate than blueberries. If the harvester has adjustment for shaking it can be slowed down. While most blueberry varieties can be handled with machinery, only a few Haskap cultivars are adapted. But within Haskap varieties there are differences for how durable the fruit is. And likely there are differences on when you decide to harvest. Our new variety 'Tundra' was one of the few selections that held up to shake harvesting and running through sorting lines.

Blueberries and Haskap have the annoying trait of looking ripe perhaps 5 to 10 days before they are fully ripe. They should be tasted tested before being harvested. In the case of Haskap, the berry should be purple on the inside, not green.

Haskap is softer so the fruit can't be stacked as deep. But Haskap has a thick wax coat and could have a similar shelf life as long as it stays intact. The firmness of Blueberries is an advantage for products like pies where it is nice to have intact berries after cooking. But unlike blueberries, Haskap skin once frozen simply melts away in the mouth. This makes it smoother in dairy products. Both blue berries and Haskap make great muffins and jam.

Highly prejudiced Haskap growers claim Haskap makes better muffins than blueberries because the skin disintegrates when cooked. I'm fairly sure that the average person wouldn't be able to tell the difference in a muffin but the jam

would be obviously different. Haskap when fully ripe is deep purple throughout the fruit and its juice is intensely more colourful than blueberries. Finally, Haskap flavour is different than blueberries but most people say is most similar to blueberries + raspberries.

Nutritional studies are showing haskap to have similar or greater levels of antioxidants compared to blueberries. Blueberries already have many well documented studies showing them to among the most impressive fruit we can grow in Canada regarding antioxidants. Each fruit has its own assortment of antioxidants which have different and complex interactions in the human body. But to have another high-antioxidant fruit available for Canada will undoubtedly be exciting for health researchers and consumers.

Haskap vs. Cranberries

I have also seen Haskap growing with Cranberries in the wild and have noticed that Haskap Berries float. With Haskap's high tolerance for water, I wonder if they could be grown and harvested in a similar way to cranberries? The harvest day would be earlier and we'd have to breed plants to be more weeping and low to the ground.

All the commercial Haskap varieties and seedlings that we have from Russia and Japan are upright but cascading weeping plants are easily found in the wilds of Canada. Cranberry growers use flooding not only for harvesting but also for weed reduction. Perhaps occasional flooding of the Haskaps at harvest might serve to reduce weed pressure. But this idea is certainly high risk, since I don't think anyone has or will try such a thing in the prairies, but maybe some cranberry grower might?

But a farmer growing Cranberries might consider growing Haskap on drier land just to have another fruit to add to their production.

Cranberries are well known for being used in juice products and being blended with other fruits. Haskap juice is a deep purple colour that certainly could be used to colour juices. But little research has been done with Haskap juice at the University of Saskatchewan.

As I'm writing this I realize I could be a bad example to my children (if they were to read anything I write). I've made several batches of wine with Haskap but I never made a batch of juice! However, the wine turned out great. Amateur wine makers have claimed it to be the fruit most like grapes for making wine, but with a difference. Our haskap wine had a hint of spiciness with some similarities to cherry, but was preferred when compared to our cherry wine.

Haskap vs. Raspberry

Haskap bushes are quite different from raspberry since they don't sucker and Haskap doesn't have canes. So, cultural practices would be quite different for these two crops.

While raspberries are the easiest fruit to remove by shaking, some varieties of haskap are almost as easy. Saskatchewan's recently retired fruit specialist, Clarence Peters was quite convinced that harvesters designed for raspberries could also be used for Haskap. Raspberry harvesters are probably the cheapest of all fruit harvesters but until now the cheapest models can't be used on any other fruit crop.

But many raspberry growers hand pick their crops, especially if they are going after the fresh market. If a raspberry farm already has available labour for picking, it may be worthwhile to grow some of the larger fruited haskap varieties that are not suitable for mechanized harvesting. I suspect that these unusual shaped fruit could cause quite a sensation in the produce section or the farmers market. While the rounded haskap varieties suitable for mechanized harvest might be easily overlooked/confused with blueberries on the grocery shelf, fruit such as those below shouts out to consumers "I'm different!"



Figure 1. *The top three photos show selections not available on the market, but are being used as parents in our breeding program. The bottom is our test selection '9-92' being sold by a few of our propagators. Such unusual shapes are not good for mechanized harvesting but might be worthwhile for hand picking. For cleaning and sorting lines, more rounded or oval fruit is best because it can roll.*

While early Haskap might be a month or more earlier than raspberries, a later fruiting Haskap might coincide with Raspberry production. Perhaps mixed Haskap and raspberries in the same container would make a colourful, attractive combination. As mentioned earlier, Haskap flavour has some similarities to Raspberries so blending the fruit together could be a nice flavour combination.

Haskap vs. Saskatoons

Haskaps and Saskatoons have similar bush shape but Haskap is less vigorous and does not sucker. But they can be pruned in a similar way. While Saskatoons usually require pesticides and fungicides Haskap seems to have few pests and diseases. Good thing too since no pesticides are registered for this new crop. Harvest time of early Russian-type varieties would be weeks earlier than Saskatoons but late Haskap would coincide with them and last weeks later.

The firm Saskatoon berry retains its shape in pies but haskap disintegrates. Many products

made from Saskatoons could also be made with Haskap, such as ice cream, sauces, and candies.

Haskap vs. native berries

With many invasive weeds challenging farmers around the world, a major concern in any new crops is whether it could become invasive. Having searched and found about 800 wild Haskap plants across Canada in every province (except BC..its not there), I can say emphatically that it has never been a dominant plant in any location. There are other, non-edible Honeysuckle species that are rather aggressive but not Haskap.

But the wild Canadian haskap/blue honeysuckles berries are very small, perhaps one 1/5th or 1/10th the size of commercial varieties. Although tasty they are so infrequent that it is doubtful one could find enough berries to do anything commercial

Research for the future

In this article I have mentioned 3 types of Haskap that are not currently on the market, but which we are fairly certain we could achieve in our breeding program:

1. Late fruiting varieties suitable for mechanized harvesting
2. Large fruited varieties with unusual shapes for hand picking
3. Weeping low plants to try in cranberry operations.

#1 we are working diligently to achieve as we consider this type of plant to be very important for the fruit production industry. **We are quite happy to have this work funded by Saskatchewan Agriculture.**

As a by-product of breeding for commercial production, it is quite possible that some plants will be generated that are #2 and #3 types. But #2 and #3 are low on our priority list. However we recognize these types could also be desirable for home gardeners, and the nurseries that sell to them. If we heard from grower groups or nurseries especially interested in these types we might be more inspired to put more effort into breeding these, especially if funding was involved.