

Growing Haskap in Canada

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Why grow Haskap?

Good varieties of Haskap have a fresh raspberry/blueberry flavour with a special zing common only to Haskap. The plant has few pests and is the first fruit crop to ripen each season (earlier than strawberries by a few weeks).

The plant is well behaved: it doesn't sucker, has no thorns, needs little pruning in early years and tends to fruit when very young.

Too many names for such a new crop!

Common names for *Lonicera caerulea* include:

Haskap: an ancient Japanese name of the Ainu people (also spelled phonetically as Haskappu, Hascap, Hascup),

Blue Honeysuckle: descriptive translation from Russian

Honeyberry: coined by Jim Gilbert of 'One Green Earth Nursery,' Oregon

Sweet Berry Honeysuckle: an old common name from the 1940s

Swamp fly honeysuckle: a common name coined by botanists who found it growing in swampy areas
Not a recommended name for marketing purposes!

The species itself is commonly listed in old records of Canadian herbariums as:

Lonicera edulis

Lonicera villosa

Lonicera villosa var *edulis*

Lonicera villosa var *caerulea*

'Haskap' is being promoted as the name to use by the 'Haskap Canada' grower group to signify superior varieties descended from Japanese germplasm (see haskap.ca). It may become a brand for fruit that meets quality standards suitable for the Japanese market.

History

Lonicera caerulea is a circumpolar species native to northern boreal forests in Asia, Europe, and North America. It is mainly found in low lying wet areas or high in mountains.

Hokkaido Island in Japan has a history of using this berry that goes back hundreds of years.

Siberian horticulturists became interested in this plant in the 1950's. Collections of wild plants have resulted in breeding programs throughout the former Soviet Union. The Vavilov Institute has a tremendous collection in St. Petersburg.



Figure 1. 'Borealis' is a new cultivar recommended for home gardeners.



Figure 2. 'Tundra' is a new U of S cultivar recommended for fruit growers.



Figure 3. A Russian variety beginning to ripen. Wait for all berries turn blue on the outside. The inside will be purple (not green) when fully ripe.

Horrible tasting, ornamental versions of this plant were bred in the 1950's at a research station in Beaverlodge, AB which probably caused fruit breeders in North America to be completely disinterested in this plant.

In the late 1990's Dr. Maxine Thompson and Mr. Jim Gilbert (both of Oregon) began spreading the word at scientific and grower's conferences that there were flavourful versions of this plant in Japan and Russia. Dr. Thompson began her breeding program at Oregon State University, basing much of her breeding program on Japanese selections. Dr. Thompson's selections are being tested in several states and at the U of SK. Mr. Gilbert's nursery, 'One Green Earth' has been selling Russian cultivars with anglicized names that have the word 'Blue' in them. Notable are the varieties 'Blue Belle and Berry Blue which were our favourites in 2003.

The University of Saskatchewan planted 4 varieties that Mr. Gilbert was selling in 1998. In 2008, we have one of the most diverse collections in the world. We have 35 named Russian cultivars, 70+ 'Japanese-type' selections, hundreds of seedlings from Dr. Maxine Thompson's breeding program in Oregon, 6 Kuril Island types and about 600 accessions gathered from the Boreal Forest in Canada. We have approximately 8000 seedlings planted from controlled crosses as of 2008.

To date, Japanese types have been hardy here. We are anxious to see what hybrids will be like that have resulted from crosses between Japanese, Russian or Canadian parents. Often hybrid vigour results when plants from distant lands are intercrossed. Hybrid vigour can mean faster growing, larger plants with bigger fruit! We are attempting to bring together the best attributes from the different regions represented in our collection. Already we have combined worthwhile attributes from Russia and Kuril Island types.

In 2007 we released two named varieties '**Borealis**' and '**Tundra**' and 3 test selections: **9-91, 9-92 and 9-15**. These 5 are Russian / Kuril-Island hybrids. They have fruit much larger than Russian cultivars currently on the market in North America, taste better and have a nice round shape. The leaves have less powdery mildew than other varieties we have tested.

The recommendations below are based on my experience with Russian germplasm and the hybrids in the U of S breeding program..

Hardiness: The plants are extremely hardy. We have never seen winter damage on them. One winter we forgot to cover some plants in 3inch pots with woodchips (our usual procedure for nursery stock). All the plants survived. Our worst winter had a low -47C; no problem.

Hardiness is not just the ability to survive extremely cold winters. It may also involve the ability to stay dormant when warm weather occurs in the middle of winter. **If you live in a more southern location or on the west coast there is a good chance Russian or Russian/Kuril hybrids may attempt to grow during a warm spell.** This is the case in Oregon and the reason Dr. Thompson is working with Japanese types; they are much slower to come out of dormancy. Our breeding plan includes developing cultivars with a deeper dormancy for warmer areas and for a later season crop.

Spacing: Within-row spacing is recommended at 1 meter if you want the plants to grow into a hedge. At 1.3 meter they would probably remain as individual bushes.



Figure 4. Haskap bushes are well behaved. They don't sucker and have a nice rounded shape. When Haskap get older they need to be thinned.

Planting Depth

Haskap can be planted deeper than original depth (one to a few inches) to compensate for possible heaving or to establish a deeper root system. In the wild shoots sometimes fall over, get covered with leaves and then root. I think it would be possible to plant overlying long shoots sideways under the ground. This may make for a wider bush if shoots sprout from the underground buds along the stem.

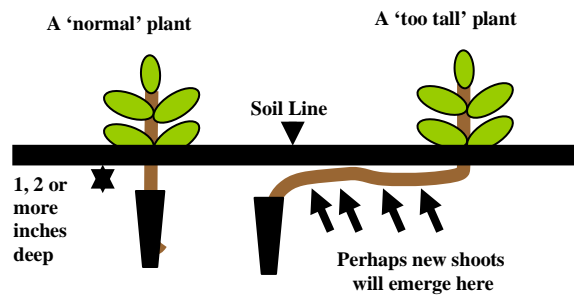


Figure 5. Planting a normal plant and an idea to try if you get plants with long shoots. The 'plug plants' depicted are what fruit farmers usually buy or what you might get from a mail order company. Retail nurseries are likely to sell older, bigger plants with multiple stems.

Pollination & planting several varieties

In Saskatchewan haskap bloom from late April to early May and can take -7C to an open flower without damage. Haskap needs two unrelated varieties in close proximity for good pollination. Almost any Russian variety will pollinate any of the new University of Saskatchewan varieties. There is an in-depth article on this subject on our website.

Soils and pH: One advantage that Haskap has over blueberries is adaptation to a wide range of pH. At the University of Saskatchewan the plants are growing on a clay soil with pH 7.9. I have seen Canadian Haskap growing side by side with blueberries which indicate a pH around 5.4. Russian researchers recommend a pH between 5 and 7.

In the wild Canadian Bluehoneysuckles are often found in boggy areas and near or in seasonal stream, typically with high organic matter such as peat. A plant ecology text indicates that the species can be found in mineral- rich wetlands so don't put them on nutrient deprived soils and expect them to flourish. However, just because Haskap can survive in wet areas, this does not mean that it prefers wet areas. I asked a few farmers to plant them near

wetlands and in nearby well-drained soils: all 3 reported they grew better on the well drained soil. Plants seem to do okay in the low spots on our university field plots and at our Bruno trial where water sits for a few weeks each spring. But certainly don't plant them in an area that has water sitting at the end of June when you want to harvest them.

Fertilizer: Many Prairie and Great Plains soils have adequate soil fertility to sustain haskap. If you get soil testing done, it is highly unlikely that any testing company will know what to recommend specifically for haskap due to lack of experience. However, Haskap is actually more closely related to potatoes and tomatoes than it is to other fruit crops. Perhaps ask for a tomato recommendation and let me know if it works out well for you. Soil testing and fertilizer incorporation prior to planting is recommended. Subsequent fertilizing should take place only during spring as rapid succulent growth later in the growing season is prone to winter injury. In Japan growers are using composted manure as the chief fertilizer.

Watering: During the first three years watering is extremely important for tree establishment. Irrigation is less critical for established bushes. The established haskap orchard at the U of S is seldom irrigated but we have heavy clay soil that holds moisture. If we were on sand we would probably be irrigating much more. Farmers often water once a week during the hottest part of the summer. As a general practice it is best to water a few times thoroughly to promote deep root growth. Watering frequently with small amounts of water results in a shallow root system. This can make a plant more prone to drought conditions, especially when you go on vacation and stop watering it! Keep in mind that it is very hard on a plant to use wilting as a sign to water. If your plants wilt every 6 days then you should water every 5 days.

Where irrigation is provided, it should be discontinued in fall to encourage dormancy development.

Grass Cover and Weeding: Grass between rows serves to reduce mud and to compete with trees for moisture at the end of the growing season. In dry areas it is best to maintain grass-free alleys between rows. Similarly, establishing trees should be kept grass and weed free. In areas with adequate moisture, grass can be permitted to fill in below established trees. Some growers keep orchards weed and grass free through July, but permit weeds and grass to grow in August to help reduce available moisture and facilitate snow trapping. Lower moisture levels will help induce dormancy in plants in late summer and fall. Long grass in winter may, however, provide winter cover for rodents that gnaw bark and girdle trees.

Glyphosate herbicides are not recommended. Most fruit species are highly susceptible to damage. It is possible to use herbicide but beware that a drifting mist can cause extensive damage.

Windbreaks: Protection to the west and north of any prairie orchard is highly recommended. Winter damage is often a function of desiccation caused by direct exposure to prevailing winds.

Pests: There are reports in our Herbarium that deer browse haskap bushes in the wild. We have not seen that at the University field. When deer get into our research plots they usually eat cherries and apples and have not been seen on haskap.



Figure 6. Help me!!!

Birds, particularly Cedar Waxwings, love Haskap. For 3 years they ignored our berries but then they wiped out 2 years of crops before we bought bird netting. I recommend using a ½ inch netting. If you buy the cheaper 1 inch you will have birds stuck with their heads in the net. It's pretty gross especially when they are dead. Waxwings will 'freeze' when trapped and it is fairly easy to remove them. They don't try to attack you. A grower suggested buying a type of bailing netting for round straw bales. I was told this may be 1/4th the price of regular netting but is likely to have a 1inch hole so you could have a bird problem. It might only last a year.

In Japan, they don't have bird problems in commercial orchards, but I did not see many birds when I visited. Perhaps they have lost habitat in southern nesting areas of Japan or the nearby Asian mainland where the human population is so dense.

In Canada many growers have reported bird problems. I have noticed birds tend to ignore Haskap when other berry crops such as Saskatoons begin to ripen. Perhaps in the future we can grow early varieties of Haskap for the birds and later varieties for us. Looks like for the time being bird netting is the way to go.

Diseases: The only diseases we have seen is powdery mildew which starts in the heat of July, well after harvest. Susceptibility varies tremendously between varieties. Some varieties are severely affected while others appear immune. Our new selections are very resistant except for 9-15. (9-15 had twice the yield and may have been particularly stressed that year from the heavy fruit load).



Figure 7. Mildew on a susceptible cultivar. So far the U of S has been highly resistant to powdery mildew but many varieties get it in mid July. This disease may not matter much to the farmer but could be rather ugly in your yard.

In some Russian varieties, powdery mildew is initially white for a few days, then the leaves become blotched with brown patches.



Figure 8. Sunburn? No diseases or pests were found that could explain this disorder. This too is highly dependent on what variety is grown. The new U of S varieties are highly resistant to this. It has been suggested by an American nursery that perhaps this problem is caused by high temperatures.

On some varieties we see a mysterious bronzing on leaves that may be sunburn. Our plant pathologist, Dr. Jill Thomson, found no evidence of any pathogen causing this discolouration. Perhaps this occurs when leaves unfold under many days of cloudy weather and are then subjected to long bright days? Like the mildew, we found some varieties get this more than others.

Pruning: I think it best to train haskap as a renewable shrub like saskatoons, dwarf sour cherries or high bush blueberries. Pruning should be undertaken in late winter or early spring. You should mainly thin out older branches when the bush gets too dense. Never remove more than 25% of a bush in any year. Haskap does not sucker so you won't have to worry about that.

If disaster strikes

If some unfortunate event occurs that kills the top of the bushes, say a major ice storm, unusual winter, fire, or someone runs it over with a lawnmower, it is quite possible the plant will come back from the crown. They are on their own roots so the regrowth will be the same variety.

Harvest: Bushes often bear a few fruit the year after planting but it will be 3 or 4 years before the bushes are big enough to get a few kilos per bush.

In Saskatoon we usually see our first fruit changing colour around the 1st of June. (June 1st is also our average last day for frost!) However, it is the 2nd or 3rd week in June when all the berries are purple and have begun to have a purple inside. Don't be too anxious: bite some berries in half, if they are green inside they aren't ready.

In 2006 & 2007 we left a row of plants unharvested to see how long the fruit would still be good. In 2006, which was a hot year, the berries tasted good until the second week in August. In 2007, which had the coolest August in 30 years, the fruit tasted good until early September. Selections that had big fat berries (like Borealis and Tundra) were the best, but thin tubular Russian types dehydrated by late July. Some varieties dropped their fruit easily and others (including our new varieties) held onto their fruit.

Uniform Harvest: Russian and Russian / Kuril hybrids have uniform harvesting; all the fruit is mature at once. This attribute may make them particularly adapted for mechanical harvesting. We have shaken fruit from young plants into umbrellas and when larger into kid's swimming pools. Japanese types are known to have uneven harvesting but these types of varieties are not currently available on the market.

Yield: Our oldest plants were bearing about 7 kilos / bush after 5 years. In Japan they expect their better plants to produce 3 kilos and I have read Russian papers that indicate 3 kilos are expected for yield. We haven't had our new varieties around long enough to know but I would think it would be a similar amount. Because Haskap produces its crop so early, I don't think it will ever be as productive per acre as later crops such as cherries or apples.

I would venture to guess that Haskap will be a very consistent crop from year to year because the plant will have most of the summer to prepare for winter. The crop will be harvested before hail starts in July and August and before insects have time to build up.

How long can my plants live?

We have some ornamental blue honeysuckles at the University that are over 30 years old. They are quite healthy despite being partly shaded by a large poplar tree. Many productive 30 year old plants were seen at Japanese farms.



The trunk of this 30+ year old Blue Honeysuckle looks similar to an old grape vine with a ‘shredded bark’ look. Although rather ornamental, it would be hard to shake the fruit off this bush because the trunk is 3 inches across. Hopefully growers will prune out branches when they begin to get too thick. Gardeners may opt to turn the plant into a bonsai-like plant with character, and hand pick each fruit!

Uses and Fruit Quality:

Haskap can be used in processed products: pastries, jams, juice, wine, ice cream, yogurt, sauces, and candies.

When frozen fruit is placed in the mouth it melts away. Seeds aren’t noticeable when eating but if you look for them you will see they are practically the same size and shape as those found in kiwi fruit. The skins simply disintegrate which has caused some excitement amongst ice cream and smoothie makers. The fruit also turns dairy products into a bright purple-red.

Haskap makes excellent wine, some say similar to grape or cherry wine. The wine will be a rich burgundy colour. Its juice has perhaps 10 to 15x more concentrated color than cranberry juice.



Haskap wine and juice has a deep burgundy colour.

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The Alberta Farm Fresh Producers Association albertafarmfresh.com and The Alberta Horticultural Growers Congress and Foundational Society albertahortcongress.com have given us grants related to Haskap production practices and health benefits.

For more information on haskap visit the University website USASK.CA and do an advance search on the word ‘fruit’ or visit the grower group website: HASKAP.CA.