

Haskap Rumours *by Bob Bors*

Some people assume haskap is too good to be true and that there must be some hidden evil. We know perfection doesn't last very long on planet Earth. If someone is too perfect they ascend to heaven or disappear under a Bodhi tree. If something is perfect, it will be hunted or polluted or a chemical imitation will be made to replace the real thing. Over the years I've encountered a few individuals who either heard something wrong or assumed something was wrong with haskap. This article is an attempt to put some rumors to rest.

Haskap are definitely not GMO.

Years ago, I received a rather brief email from someone who enquired if haskap was GMO. I emphatically responded that they definitely were not. In return, a rather intense email came back admonishing me for not mentioning anywhere on the program website that haskap is not GMO. I wondered, were they reading the entire website to find a cause to fight against? It never occurred to me to list all the things that haskap is not. GMO was not mentioned because it was never part of the picture for breeding haskap. Furthermore, I guess I should also mention that neither I nor my staff are the result of GMO experimentation.

There are of course many people who believe GMOs are everywhere. They spontaneously come up with this idea. People think many fruit varieties are genetically altered. I've only heard of one apple variety that was GMO, but in that case it was genes from one apple inserted into another variety. None of the fruit breeders I have known were creating GMOs. In the last 15 years I've been on several panels to evaluate several dozen breeding programs of Horticulture crops in North America and none of them were making GMOs.

I used to say in talks that haskap tastes like a hybrid between raspberries and blueberries. (I now leave out the word 'hybrid'). Some half-attentive person must have sneezed, got a text message, or picked their nose during the words 'tastes like'. At our annual 'Gardenscape' show, attended by 20,000 to 25,000 each year, two girls were dishing out haskap ice cream. When people asked, "what is haskap?" they told people they were GMO hybrids between raspberries and blueberries! They may have told that to hundreds of people! I confronted them to say haskap is not a GMO and that I was the haskap breeder. I had to repeat myself many times, show my business card, and even show my listing as a speaker for the event before I thought they might believe me. I was so frustrated with them! They kept saying their boss told them that. (How come my employees don't believe everything I tell them?) I don't know if they changed their story. I'm not even sure they knew what a GMO was because I got blank looks when I talked about making "traditional crosses". Perhaps they thought I was making religious jewelry?

On the U of SK fruit website, www.fruit.usask.ca, we have posted full documentation about how we do our breeding program. There are over 300 pages from 3 grant reports covering 9 years of breeding and there is no mention of GMOs because there are no GMOs! Those reports are all about finding wild plants, getting plants from Japan, Russia, Poland and evaluating varieties, using the best in breeding, selecting the best seedlings, etc.; all very traditional breeding activities.

As a further note I should mention that making GMOs is a very expensive business. Usually it is attempted on the most wide-spread crops where so much breeding has been done that it is hardly possible to make more improvements through traditional means, or if some new horrible disease is about to wipe out the crop. With haskap we have no impending doom to avoid. We are having a great time making improvements all the time with traditional methods. There is no need, no desire, and we don't have the money for such a thing anyway.

Haskap are not poisonous, not even in Sweden

I've been told by a fruit researcher from Norway that in Sweden there is or used to be websites that advised people who may have eaten a few berries of *Lonicera caerulea* to visit their physicians and get treated to counter the poison. This seems ludicrous to those of us who have been eating haskap in Canada for the last decade. How much more crazy it must seem to Russians who began cultivating it in the 1950s or to Hokkaido residents who have been partaking of haskap for possibly hundreds of years and extoling it as a key to longevity?

The Swede who came up with the poisonous haskap concept was likely more aware of other *Lonicera* species and was aware of the flavour of their own version of *Lonicera caerulea*. Russian botanical literature indicates that wild *Lonicera caerulea* from northern Europe is mostly bitter but as one travels east to Asia the flavour improves. Most likely it is the Asian version of haskap that populated Canada as our version of the plant usually tastes good or boring but very rarely bitter. I've tasted fruit from hundreds of wild Canadian plants and can verify this. There are versions of *Lonicera caerulea* that taste like tonic water from Europe and western Asia. Although tonic water tastes disgusting to me and many others, it does not kill. Oh contraire, those bitter compounds are actually super strong phenolics and antioxidants. Tonic water and bitter versions of haskap were both used as treatments for malaria before more modern drugs were invented.

I once was foolish enough to taste a golden berry of *Lonicera japonica*. Boy was that terrible. Maybe someone could poison themselves with that berry, but it would have to be someone with no taste buds because no one with taste buds would eat more than one. I had to rinse my mouth several times with milk to get out the taste.

Haskap are not a solanaceous crop

We occasionally get inquiries from people who are worried haskap might be a solanaceous crop. Solanaceous crops can cause or aggravate arthritis. But haskap is not a solanaceous crop. The leaf shape of the garden huckleberry (*Solanum melanocerasum*) is similar in shape to haskap, but the huckleberry is an annual crop and has perfectly round berries in clusters. To get botanical on you, it has alternate leaves. Haskap is a perennial shrub with pairs of fruit occurring with opposite leaves.

Since soil testing labs don't know what fertilizer to recommend for this new crop, in the past I have suggested that fertilizer appropriate for tomatoes might be a good recommendation. I know from experience that tomatoes given too much nitrogen won't be very productive. But I also know that haskap doesn't need much nitrogen and roots can easily get burned if too much is fed to them. I wasn't

making the recommendation based on being closely related. Haskap's closest relative is the elderberry; both are in the Caprifoliaceae family not the Solanaceae family.

Haskap genetics were not stolen from anywhere or anyone

The haskap germplasm we have accumulated and use in breeding at the U of Sk program have all been acquired through cooperative activities and we have reciprocated in return. We received many varieties and seeds of haskap from the Vavilov Institute in Russia. In return, we have given an extensive collection of Saskatoon berry seeds from cultivars and superior wild plants and wild Canadian *Lonicera caerulea*. We also arranged for the fruit germplasm curator from Russia's Vavilov Institute to come to Canada twice and he was able to take back seeds of interest both times. Maxine Thompson has given us much germplasm from her program to use in breeding. In return we have helped evaluate her program, put up nets on her plants, taken photos for her and helped send prospective propagators her way. She hasn't asked for much germplasm in return but any germplasm she wants from us we are willing to send it. When I was on sabbatical and got haskap seeds from farms and stores in Hokkaido, I gave a large sample of each type of seed collected to the fruit breeder at the University of Hokkaido. The wild *Lonicera caerulea* I gathered across Canada were gathered from 'Crown Land' which is land owned by the country of Canada. During that sabbatical I deliberately avoided looking for wild versions of haskap on first nation lands. Even so, we have shared samples with scientists from Agriculture Canada for their research.

Haskap are just too good

I guess haskap are just too good to believe. People may feel there must have been strange things happening in labs for this crop to come about. If some mad scientists made this crop, they may have put special genes in it to take over the world? Happily, the movie "the Fly" is a complete work of fiction, it could never happen. That's just as impossible as making a blueberry raspberry hybrid. Haskap was a crop living in swamps that no one wanted to visit. Ripening when mosquitos are at their peak, it took a while for people to notice that there were berries on the edge of wetlands. Berry size of wild North American plants are the size of lentils so it wasn't worth the effort to pick them. But, in Japan and Russia some wild haskap had fruit much larger and in certain areas it was worthwhile to gather them. That's why Japan and Russia have a longer history with this crop.

Haskap is full of good nutrition as the result of nature. Haskap's native environment is very harsh. Farther north there are longer days in summer and reduced ozone in the atmosphere resulting in more UV light. Extreme cold winters and living in wetlands are other stresses faced by haskap plants. These caused the species to evolve naturally more antioxidants and healthy compounds to survive.

Throughout history as man domesticated various plants and animals, huge improvements were made in the early stages. That's what we are seeing with haskap today. Within a decade or 2 we will likely see haskap varieties become 2, 3 or 4 times better than when we started breeding in the year 2000. Likely by 2050, it will be very hard to make varieties 5 or 10% better.

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