Introducing the Japanese haskap to North America, by Maxine Thompson

How did I discover the Japanese haskap? By chance, in 1998 a Japanese visitor brought one to a friend of mine in Oregon. This friend was a grape specialist, so he offered this plant to me because he knew I had been evaluating Russian forms of blue honeysuckle (*Lonicera caerulea spp. kamtchatica* and *spp. edulis*). As I was interested in new genetic variability, I planted it in my research plot and the next year I was thrilled to observe it bloomed about one month later than the Russian. Premature blooming, before bees are out, is a major problem that reduces yield of Russians in moderate temperate climate such as Oregon. This later bloom appeared to offer promising genetic material for development of cultivars adapted to these conditions. Therefore, in 2000, I planned a trip to Japan hoping to obtain additional genetic materials. This same friend introduced me to Dr. Keiko Kuroda at the Hokkaido Forestry and Forest Products Institute in Sapporo who kindly arranged a program for me in Hokkaido. The plan included visits with Dr. Mutsumi Takahashi and Dr. Shizuyuki Tanaka, both former haskap researchers. Both of these men were extremely generous of their time and knowledge of haskap. It is to these three scientists I owe my successful haskap breeding program that has been ongoing since 2001.

My first visit was a few days with Dr. Takahashi. He took me to several haskap enterprises near Bibai and Chitose, including farms, a processing plant, a cold storage plant, a winery, the Hokkaido Plant Genetic Resources Center, and a Laboratory for haskap product development. I was amazed at the creativity and wide range of products produced here.

The first stop was at a farm near Chitose where I was permitted to collect a few fruits from seeds from a bush called Selection #8. The second stop was at The Institute of Forestry and Forest Products in Sapporo. Then a train trip to Bibai where I visited the Plant Genetic Resources Center and I met the Director, Dr. Watanabe. Here, I was permitted to take seeds from a plant that had tasty fruits.

Next was visit to the Kikuchi family farm near Bibai. Mr. Kikuchi was very generous of his time and sharing his expertise about haskap growing. First, we collected fruits from Selection #7 and then he said that #8 was sweeter and offered us fruits of this selection. Plants grown from these seeds in Oregon have proven to be the best of all that we collected in Japan. Many thanks to Mr. Kikuchi for his suggestion.

To visit with Dr. Tanaka, I traveled to Kuneppo, his new location, and visited the Kitami Agriculture Experiment Station and met the Director, Dr. Kumaka Miyaura. Dr. Tanaka had been assigned to breed onions in this region where wild haskap is not found. Recalling his several years working with haskap selections in Sapporo, he enthusiastically provided me much information, including several haskap research publications. He also took me to Mr. Matsuda's farm that was growing only 'Yufutsu'. This variety is partially self-fertile and, with no pollinator variety the plants produce a light crop of small fruits with very few seeds. We collected a few fruits for seeds.

Keiko Kuroda and Mr. Sanada from the Forestry Institute took me to the Yufutsu Plains near Tomakomai where there used to be many wild haskap bushes. However, over the last few years the region had been drained for development and trees had grown up shading the few remaining old haskap bushes that bore no fruit. I was very concerned about the potential loss of genetic variability in this valuable crop plant. I was very pleased to learn from Shinji Kawai that considerable activities are underway in Hokkaido to preserve the wild haskap populations.

In January of 2001, I planted haskap seeds from 8 different sources in Japan in a greenhouse. Resultant seedlings were transplanted to the field in October. In 2002 and 2003, I evaluated all of these seedlings for flowering date, yield, bush size, and berry traits such as size, shape, strength of attachment, uniformity, firmness and taste. A few

outstanding selections were propagated for advanced trial plots. Also considered were overall fruit size and quality seedlings so I could concentrate on breeding the Japanese haskap.

As might be expected, there was considerable variation among the seedling populations from the 8 seed lots because the fruits from each mother plant varied in size, shape and taste. All seedlings grown from four sources were rejected at first evaluation; two from the Forestry Institute, one from the Botanical Garden in Sapporo and Yufutsu. This was not surprising because the first three of these mother plants had not been selected for good quality fruits as had the other four. Seedlings grown from seeds of self-pollinated 'Yufutsu' had very small fruits and very poor growth habit. Seeds from Selection #8 from Kikuchi farm provided the most promising seedlings. Four of these (21-14 21-89, 22-26 and 44-19) have been patented and released to nurseries. Another 4 patented varieties have seedlings from seeds of Selection #8 near Chitose as one parent. Seedlings grown for seeds of Selection # 8 from Chitose differed from those grown from seeds of Selection #8 from Kikuchi Farm, probably due to a different pollen parent. This family tended to have high production but smaller fruits. One patented variety was selected from this family (41-75) and one patented variety (57-49) has one parent from this family. Two patented varieties (88-102) and (67-95) have one parent from seedlings grown from seeds of Selection #7 from Kikuchi farm. In general seedlings from this source were productive and good size but tended to be softer and not as sweet as those from Selection #8.

All seedling populations exhibited a wide range of variability in all traits which provided good opportunities for selecting new varieties as well as plants with exceptional traits to use as parents in breeding. The highest yield I have seen is 4.5 kg on an 8 year-old bush. The largest berry I have seen is an average 2.2 g. The highest Brix is 18°. Berry shapes vary from round to long and thin, but I prefer short cylindrical fruits. Fruit firmness varies from soft and juicy to very firm. One selection, 44-19, is very firm and remains firm for one month in a refrigerator. Whereas most haskap plants are self-incompatible, 44-19 is partly self-compatible. It sets a full crop of half-sized fruit (0.8g) compared to 1.6g fruits in cross-pollinated plants. Studies are underway to determine if this self-compatibility trait is inherited in offspring of 44-19. Fully self-compatible varieties not requiring a pollinator would be a real advance in haskap production.

Finally, I want to express my sincere gratitude to all the Japanese contacts in Hokkaido that so graciously provided me information about growing and processing haskap and generously supplied me with plant materials. In honor of my main hosts I have applied a short version of their names in 4 patented varieties:

Taka for Takahashi, *Tana* for Tanaka*, Keiko* for Keiko Kuroda, and *Kuchi* for Mr. Kikuchi. A 5th patented variety, *Kawai*, is named after my dear friend in Oregon, Shinji Kawai, who has encouraged and assisted immeasurably in cultivation and promotion of haskap berry and my breeding program in Oregon.