



# **Scandinavian Wildberry Learning Tour Final Report**

**January 2010**

**Prepared By: Labrador Straits Development Corporation**

## EXECUTIVE SUMMARY

In the fall of 2009 representatives from private business and Regional Economic Development Boards from Southeastern Labrador and the Labrador Straits participated in a 10 day wildberry learning tour of Nordic countries. The tour was one initiative among many that aim to increase knowledge and identify opportunities within the wildberry industry. Other previous and current initiatives include wildberry conferences hosted in the region, several wildberry research development initiatives in cultivation and harvesting, product research and development activities of private enterprise, and market expansion of existing private label wildberry products.

In 2007 *Barry Sheppard Consulting* researched and identified several private companies and research facilities operating in the northern areas of Sweden, Norway, and Finland which have had significant experience in the industry and marketplace. They were selected given their leadership in the industry and as a result of their scope of experience both in wildberry research and wildberry product development. Based on the report from the consultant, and in consultation with local participants, a proposal was developed outlining the tour objectives and anticipated outcomes. Local participants included REDB personnel and private enterprise representation. In addition, research partners including the Dept of Natural Resources, NRC, and the Marine Institute were invited to participate.

In late 2008, ACOA, the Department of Industry Trade and Rural Development, private business, and each REDB partnered to support the learning tour. Prior to the tour, contact was made with Nordic partners outlining the purpose and objectives of the tour. These Nordic partners assisted in further developing the tour by organizing meetings and tours with operators, researchers, and manufacturing facilities within their respective local regions. Their assistance proved invaluable and supported further the objectives of the tour. From Sheppard's report and from the assistance of Nordic partners a tour itinerary was developed.

This report is an overview of the results of the 10 day study tour. It is a collaborative effort of all participants and aims to provide an overview of, and reflection on, the discussions, observations, and lessons learned that can be applied to the future development of the wildberry industry within Labrador.

## PURPOSE OF THE STUDY TOUR

Representatives from private enterprise, The Great Labrador Company and Labrador Preserves, the Labrador Straits Development Corporation and the Southeastern Aurora Development Corporation traveled to Norway, Finland and Sweden to learn about the Scandinavian experience in the wildberry industry. This learning was focused on research, harvesting, production, innovations and partnerships that have occurred in these regions that may provide insights into developing and growing the industry in coastal Labrador. In addition the group was interested in exploring potential areas of private business partnership or public partnership between the two regions.

## TOUR PROGRAM

The learning tour included visits to a number of facilities along with meetings, discussions and presentations with local representatives from research, private enterprise, and public development agencies. The tour program included the following facilities and meeting delegations. A full itinerary and Labrador Straits presentation can be found in the Appendices.

### *Norway*

#### ***Holt Research Station***

*Arctic Agriculture and Land Use Division of  
Bioforsk, Norwegian Institute for Agricultural and  
Environmental Research*

Tromso, Norway

*Dr. Inger Martinussen, Senior Researcher*

*Oystein Ballari, Director*

*Eivind Uleberg, PhD candidate*



Bioforsk is one of the several research facilities located in Norway. They specialize in the plant production chain research including plant breeding, variety development, production, soil science and harvesting. The facility works with research partners and private enterprise.

#### ***De 5 Vindermakeran***

*Mr. Guttorm Isaksen*

*Tromso, Norway*

A private company producing a variety of berry based wine products with low alcohol and higher alcohol contents. Production is approximately 20,000 bottles per year. Current production is manual with plans to mechanize in the future.

### **Reisa AS**

*Mr. Hermod Larsen*

A small scale private company outside of Tromso manufacturing berry based syrups and jellies

## **Finland**

### **University of Kuopio: Institute of Applied Biotechnology**

*Dr. Harri Kokko*

Kuopio Finland

The institutes focus is research and development in the fields of health, environment and well-being, with particular strengths in biotechnology, biosciences and molecular medicine.

### **Kuopio Region Centre of Expertise, Centre of Expertise in Health, Environment and Well Being**

*Dr. Marja-Leena Laitinen, Development Director*

Kuopio, Finland

This centre coordinates international high level research and education expertise with business knowledge and is involved in research and development of food and health products and innovations. Their focus is to assist SME's to apply knowledge in the food industry.

Kuopio, Finland

### **Kasvis Galleria Oy**

*Tarja Peltola, Managing Director*

Kuopio, Finland

This private company develops and produces a variety of food products from vegetables and berries for the vegetarian market. These ready to serve products are sold in restaurants, hotels and retail outlets. They have won several food innovation awards.



### **Wildberry Plant Farm**

Kuopio Region, Finland

An independent grower of berry plants sold to independent farms.



### **Pakkas Marja**

*Tapio Rautiainen, Director*

Kuopio Region, Finland

A cooperative of berry farmers who own and operate a facility that packages and manufactures frozen berry products, purees, syrups, oils, concentrates and sauces. The company operates year round and uses northern berries only to maintain quality.

### ***Aromtech***

*Mr. Vessa-Pekka Judin, Managing Director*

*Ms. Leena Korteniemi –Customer Service Manager*

*Mr. Petri Maatta – Production Manager*

Tornio, Finland

This high-tech company processes and refines the valuable nutrients from berries and plants to produce a variety of health, well-being, and beauty products. The company accesses seeds including wildberry seeds from a variety of harvesters across many countries. They have developed their own in house technology to extract seed oil. Products are sold throughout Europe and North America.

### ***Sweden***



### ***Polarica***

*Tommy Innala, Managing Director*

*Sebastian Nyaiesh*

Happaranda , Sweden

This private company packages and supplies a variety of products from wild berries , reindeer meat, wild birds and deer to restaurants and manufacturing companies including those in the food and pharmaceutical industry. Products include frozen raw product as well as smoked and cold cut varieties of wild game.

## PARTICIPANTS



***Bradley Hancock, Manager, PureLabrador***

Pure Labrador produces cloudberry, lingonberry, and blueberry spreads and syrups. They have 4 fulltime employees and their products are currently sold through Sobey's stores in Atlantic Canada and Alberta and at specialty shops throughout North America.

***Sheila Downer, Director, Great Labrador Company***

GreatLabrador Company is an emerging company that has completed Research, Development and market testing on a unique partridgeberry juice product. The company combines partridgeberry powder with iceberg water to produce a unique nutraceutically rich beverage without any chemical additives.

***Barbara Marshall, Executive Director, Labrador Straits Development Corporation***

***Roxanne Notley, Executive Director, Southeastern Aurora Development Corporation***

The Labrador Straits Development Corporation and the Southeastern Aurora Development Corporation are regional economic development agencies operating in the Labrador Straits and Southeastern Labrador (Zones 4 and 5). One of the functions of these REDB's is to work with local stakeholders, which include private business, to support and advance economic opportunities in their regions.

# OBSERVATIONS, LEARNINGS AND FUTURE DIRECTIONS FOR THE LABRADOR WILDBERRY INDUSTRY

The learning tour provided the opportunity for participants to gather a wealth of information about the development of the wildberry industry in Nordic countries. If future wildberry research and development work is to move forward in the southern Labrador there are number of considerations including research, harvesting, production, innovations and partnership development.

## **Research**

The delegation visited a number of research facilities. Discussions centered on the types of research conducted, results of research, the variety of mechanisms research partners and private enterprise utilize to ensure active research happens and is continued between the business community and academia.

It was clear these regions have developed comprehensive research agendas and have developed mechanisms to include private enterprise in establishing research agendas and research work. Research was completed in a variety of settings. In larger enterprises on site research was completed, smaller enterprises generally depended on relationships with academia to complete research. Generally private enterprise on site research focused on niche or specially product development. This was true of Aromtech who specializes in extracting seed oil from a variety of seeds.

Some of the mechanisms that encourage ongoing and active research include the location of research facilities. The delegation observed that private enterprise was closely engaged and informed on wildberry research and this can be partly attributed to the strong relationship between research facilities and private enterprise. In addition, the proximity of research facilities and expertise to the resource proved to strengthen this relationship. The delegation learned, especially in Norway and Finland, research activities and facilities were spread throughout a number of rural jurisdictions. These facilities had areas of specialty or were “centers of excellence” in particular research topics. They were often smaller facilities which were a part of larger organizations including universities.

## *Labrador Berries vs Nordic Berries*

The delegation inquired whether research completed on Nordic berries could be applied to Labrador berries. The general feedback was that growing conditions including climate and soil were different and therefore research would have to be completed specifically on Labrador berries. There was a general feeling that “northern” berries had unique properties that were more marketable in terms of health benefits and cultivation, than berries from southern climates. Bioforsk expressed an interest in collaborative research on northern berries.

It was clear to the delegation that private enterprise was quite knowledgeable about research results. They understood the benefits of the chemical properties in their raw material and utilized this knowledge for product development and marketing.

## General Observations:

- University research stations are located in northern regions and work with farmers, secondary producers, municipalities, large and small
- All participants and Nordic partners discussed the common interest in learning and exploring further how northern climate influences product quality in terms of nutritional and health benefits

- Labrador requires more research on local wildberries
- Low temperatures increase the quality of cloudbberries
- Flowers on cloudbberries do not mean there will be more berries most important factors are the ratios of male and female berries, bees for pollination (not blackflies), and wind
- Frost is bad for cloudbberries at the flowering stage
- Nordic manufacturers are well educated in the properties of berries and are quite engaged with publically funded research institutes. In Norway a local wine maker engaged botanist to help solve some product difficulties.
- Mandate of innovation centre in Finland to work with SME's to apply knowledge in the food industry.
- The lingonberry is poised to become the new super fruit. Finland looking at lingonberry science.
- Interest shown in Finland from medical schools on berries and their use in conditions such as obesity and diabetes.

## **Harvesting**

The Nordic companies and organizations visited voiced some similar concerns as Labrador around harvesting. In Finland much harvesting is completed by immigrants who move around farms<sup>1</sup>. These immigrants would come from places such as Russia, Poland and Thailand for seasonal work and are paid by production. Wild berries are harvested on lands that are open and still accessible to the local population. Norway indicated harvesting costs were high primarily due to labour costs. Many companies access their raw product berries from foreign countries including Russia, Poland and China. Some companies clearly stated they market themselves on berries picked in northern arctic pristine environments and do not obtain raw product from China.

Aromtech, a high technology company focused on processing and refining the valuable nutrients contained in Arctic berries and plants, access the seeds only from these plants.

Berry famers in Finland formed a cooperative to increase their profits. Traditionally their revenues came primarily at harvest time and they had wanted to increase their revenues throughout the year. Berries are frozen and sold raw or used in a variety of secondary products including purees, concentrates, and oils.

Additionally, there are farms whose focus is to grow berry plants which are sold to individual farmers. The one visited by the delegation is a seasonal operation. Plants are grown in greenhouses that are deconstructed at the end of the season.

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<sup>1</sup> Farms are often large areas of open land which an owner may use for harvesting wild berries. This is not to be confused with cultivated farms.

### General observations:

- Research is required to determine the volumes of berries in Labrador and their accessibility.
- Less than 10% of wildberries available are harvested in these countries
- Harvesting labour costs are high in all three countries
- 75% of companies in the industry are small scale. Discussions in Norway indicated there are no organized mechanisms for harvesting.
- Finland brings harvesters from Thailand and Russia and they move from farm to farm.
- In Finland and Sweden many berries utilized for manufacturing are imported from Poland and Russia.
- Harvesters are paid by production more often than an hourly rate
- Some companies refuse to use Chinese berries. There was a sense this was attributed to China's poor reputation in food quality control
- There are wildberry plant farms which are areas of open public land where farmers have permission to harvest raw material. Local pickers are also permitted to come on the land to pick for personal use.

### Production

The delegation visited a number of production facilities. Some provided raw wild berries to other manufacturers, restaurants, hotels etc. and some were engaged in secondary processing that included a number of products including wines, purees, syrups, candy, dessert, and entrée products, as well as pharmaceutical and nutraceutical ingredients. The delegation discussed production and quality control issues with operators and had an opportunity to view their facilities. Most production was mechanized with some manual labour used especially for quality control purposes.



### General Observations:

- One best practice was the use of transparent labels on wine products. This enables the customer can see the color and body of the product
- Pakkas Maria has extended their production to a year round operation by developing frozen berry products into purees, sauces, candies, syrups, concentrates etc.
- Pakkas Marja purees contain skin and seeds because the nutrients are contained there. There are no sugar additives.
- Polarica has advanced and strict procedures developed for quality control. This included automated and manual processes.
- Berries obtained by Polarica were blown clean by automated processes at the production facility and not cleaned by pickers.

## Innovations

The delegation had the opportunity to discuss and view a number of innovations in the industry. Innovations could be classified in terms of products, processes, research, and partnerships.

### Research

- In Norway, Bioforsk was cultivating berry plants in a controlled environment (greenhouse). The research aimed to determine how controlled environment cultivation can increase production of the berry plant (i.e. Cloudberry plants can produce 4 times a year)
- Cloning research of cloudberry plants ongoing at Bioforsk in Norway

### Products

- Kasvis Galleria Oy using vegetables, fruits and berries to develop a variety of food products for the vegetarian market. They have developed over 300 products and are in the process of selecting their best selling products.
- Kavix Galleria Oy has developed unique quality products and packaging that appeal to the hotel and restaurant marketplace.
- In all Nordic countries a wide variety of products with wildberry ingredients and bases were available both at local supermarkets, specialty shops and restaurants. These products included juice concentrates, desserts, carbonated beverages, candies, chocolate bars, alcoholic beverages, and incorporated into a wide variety of entrees.
- The group observed anecdotally that berries were a part of many recipes in restaurants and food products.



## Processes

Aromtech has developed a technical process of extracting oils from a variety of berries and plants to be used in the cosmetic, pharmaceutical, and nutraceutical industry.



## Partnerships

The learning tour participants observed examples of partnerships in the Nordic countries. There was a sense that partnerships were especially critical to local developments in the industry. In addition, smaller enterprises seemed to utilize partnerships for research, product development, marketing, and distribution. Research partnerships focused on cultivation, development of food, nutraceutical, pharmaceutical products and research on chemical properties for marketing and product development purposes.

- In Finland one innovative example of partnership was the farmer and producers cooperative Pakkas Marja. This cooperative was started in 1982 and involves approximately 60 local farmers and producers.
- Manufacturers in Norway worked together through a marketing and distribution partnership. De 5 Vindermaken shared shipping with a neighbouring milk production facility.
- Regionally managed innovation programs Norway and Finland supported the industry. One example is the Kuopio Centre of Excellence whose mandate is to promote cooperation between corporate and academic world to generate new business innovations in the health, environment and well being sectors. This Centre helps establish networks, coordinates development projects, provides venture and seed funding, and support for the application of knowledge in industry development.
- *Innovation Norway* helps set up businesses and then Bioforsk works with these businesses

## RECOMMENDATIONS

Based on the observations and discussions of the learning tour the participants have developed a number of recommendations for action in developing the wildberry industry in southern Labrador. Wildberry industry developments in Southern Labrador require investments and supports in research capacity, business development, and partnership development.

### **Recommendation #1**

**A Southern Labrador Wildberry Institute (Centre of Excellence) steering committee be established.**

This would involve a team of people who promote collaboration and use of best practices in the wildberry industry. The committee would develop a mandate and plan of action for the development of the wildberry industry.

Action: LSDC and SADC identify members and establish committee

### **Recommendation #2**

**Continue to stay abreast of developments in the Northern Wildberry Industry.**

This would include building networks among northern countries involved in the industry by attending conferences, becoming active in online research communities, and registering with industry associations. Ongoing events include the Circumpolar Agriculture Conference (see Appendix C) and the biannual wildberry meetings held among the Baltic States, Canadian Food Pavillions.

Action: Work with Department of Natural Resources, INTRD and NRC to discuss the participation of the Wildberry steering committee's participation and these events and secure funding to subsidize travel expenses.

### **Recommendation #3**

**The Labrador Wildberry Institute Steering Committee (LWISC) investigate the possibilities of collaborative research with Bioforsk Research Station in Norway.**

Bioforsk has expressed an interest in collaborative research to include Canadian Northern berries.

Action: The LWISC follow up discussions with Bioforsk Research station to identify research initiatives

Action: The LWISC investigate the regulatory requirements and processes necessary for international research in this field.

#### **Recommendation #4**

##### **Promote the use of wildberries in local restaurants and food establishments**

Action: Engage local, regional and Labrador tourism partners to develop a plan to develop training in berry menu products.

Action: Develop initiatives to engage top chefs to create recipes with local berry ingredients to be offered at local restaurants.

#### **Recommendation # 5**

##### **The LWISC develop a research agenda in collaboration with provincial and national research partners.**

Action: Request secondment of research expertise to assist the region in support of its research agenda.

Action: Ensure the research agenda includes research on:

- The properties of Labrador berries
- Volumes of raw product supply available
- Best growing conditions for maximum yields
- Comparative studies of Labrador and other northern berries
- Viability of cultivating wildberries in Labrador
- Climatic factors affecting wildberry yields

#### **Recommendation #6**

##### **Support the development of a wildberry harvesting plan for the southern Labrador region.**

Action: Present findings of the ongoing harvesting plan to the LWISC committee and industry stakeholders.

Action: Promote the sharing of information and harvesting strategies among southern Labrador and Nordic partners through the participation in networking events and mechanisms.