

The evaluation of global market demand based products concepts for selected berry powders/extracts

Report

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Content

1	Bilberry and lingonberry production and export	3
2	Blueberry World Production	5
3	World Markets – organic, ecological and healthy	6
3.1	Nordic countries.....	6
3.2	Europe – Germany	7
3.3	Middle East – The United Arab Emirates	7
3.4	Asia – South Korea.....	8
4	Berry product development	8
4.1	Trends in product development.....	8
4.2	Customer driven product development	10
4.3	Certificates in food industry	12
4.3.1	ISO 22000 family - Food safety management.....	12
4.3.2	Hazard Analysis Critical Control Point (HACCP)	12
4.3.3	HALAL certificate.....	12
4.3.4	Kosher certificate.....	12
4.3.5	European Union organic certification	13
5	Food products	14
5.1	Frozen berries	14
5.2	Jams and jellies	15
5.3	Juices	16
5.4	Dried berries	17
5.5	Teas.....	18
5.6	Powder	19
5.7	Chocolate	20
5.8	Energy bars	21
5.9	Vinegar	21
5.10	Gift Box.....	23
5.11	Pets food	23
6	Non-Food Products	24
6.1	Dietary supplements.....	24
6.2	Sports nutrition	25
6.3	Cosmetics.....	26
7	Summary.....	28
7.1	Berries in Nordics	28
7.2	High quality premium products for export	30
8	Sources	30

Introduction

Centria University of Applied Sciences is coordinating the project INDUSTRY NORDIC – Towards Nordic Industrial Scale Non Wood Forest Product Manufacturing. The aim of the project is to enhance the selected Nordic berry business opportunities by improving the efficiency of sustainable industrial scale refining of selected Nordic berries and by optimizing lab and pilot scale green extraction technologies. The aim is also to develop market demand based product concepts from the Nordic biomass. Natural, wild raw materials can be utilized for example in food products, functional food and food supplements. Traditional non wood forest products are juice, jam, sweets and wine. Valuable compounds isolated from non-wood forest products can be utilized in the pharmaceutical and cosmetics industry as well.

The purpose of this report is to provide information on the natural product sector, product concepts, export opportunities and other opportunities to utilize the forest biomass. Anne Ristioja, ELY-keskus, Simo Moisio, Arktiset Aromit ry and Rainer Peltola, Luke, have given valuable comments and information.

The guide text is compiled by Lavango Oy.

1 Bilberry and lingonberry production and export

Healthy food is a global megatrend. Nordic countries have a very good reputation of food safety. European Union organic certification is widely known and recognized. In Finland clean forests are something considered self-evident and therefore we don't see value of organic berries. In global markets cleanliness of natural food is often questioned and it is important to underline our exceptional environment in export marketing

In 2017 about 11 million kilograms of frozen natural berries were exported from Finland. The value of exports was 23.9 million euros. This gives the average price per kilogram only 2.20 euros. The reason for relatively low price is the strong growth in competition and bush blueberry overproduction in the global market. (Arktiset Aromit ry).

Specifically, the quantities of cultivated blueberry on the world market, more than 650 million kilograms, reduce wild bilberry prices. The supply of other cultivated berries, such as farmed cranberries, is also reflected in the price level of wild lingonberry.

Reliable and detailed research data on Finland's exported bilberry and lingonberry products are not available since the export of processed products is classified as other product groups in customs statistics. Finland's annual bilberry and lingonberry wholesale market is about 18 million kilograms, of which part goes to fresh products and mass caterers. There is not much left over from the current yearly harvest to develop a global bilberry and lingonberry product portfolio. Only increase of yearly supply of berries can enable significant growth in Finland's berry export. To achieve this harvesting process needs to be developed across the country and sustainable availability of pickers must be guaranteed. In 2017 there was 25% less foreign workforce than in 2016. Berry companies need guaranteed supply of raw material before investment decisions of new product lines (Arktiset Aromit ry).



Markets of natural berries in a year in Finland (Arktiset Aromit ry)

Currently up to half of Finland's bilberry and lingonberry export is frozen berries which are processed abroad. With current bilberry and lingonberry supply export growth potential as refined berries is limited.

There are only few big companies in natural food business in Finland. Next table lists companies who are involved in natural products. For some of them natural products is only small part of total operations.

Taulukko 2. Toimialan suurimpia yrityksiä. Lähde: Asiakastieto 2018.

Yrityksen nimi	Liikevaihto €	Henkilöstö	Konsernin nimi
Polarica Oy*	42406000		Polarica
Dermoshop Oy*	26698000	54	Dermoshop
Ruohonjuuri Oy*	19552000	19	
MarjaBothniaBerries Oy	10609000	9	Marja Bothnia Berries
Oy Roberts Ab*	9426000	26	
Valioravinto Oy*	8764000	21	
Arctic International Oy	8455000	36	
Kaskein Marja Oy	7964000	24	
Leader Snack Factory Oy*	7392000	32	Leader Foods
Puhdistamo Real Foods Oy	7078000	40	
Aromtech Oy	5569000	25	
Hunajayhtymä Oy	3669000	8	Hunajayhtymä
Mesimestari Oy	2264000	3	
Toripiha Oy	2108000	3	
Tessacraft Oy	1856000	5	
Dalla Valle Oy	1706000	5	
Ravintorengas Oy	1438000		
Petri Lehtiniemi Oy	1241000	3	
Kiantama Oy	1225000	39	
Korvatunturin Marja Oy	1175000	26	Marja Bothnia Berries
Marja Carelia Oy	1138000	9	
Marjasasu Oy	1070000	4	
Repolar Pharmaceuticals Oy	956000	6	
Nordic Koivu Oy	902000		
Korpihön Hunaja Oy	728000	5	
Detria Oy	696000		
Ambroton Oy	671000	3	
Marjamarkkinointi Kauko Pesonen Oy	643000		
Kainuun Tuote Oy	544000	19	Marja Bothnia Berries
Lapin Sara Oy	511000	4	

*= taulukossa kuriositeettina mukana yrityksiä, joiden liiketoiminta pitää sisällään muutakin kuin luonnontuotteita: yritys mukana tilastoanalyysissä vain, jos pääosa liiketoiminnasta tulee luonnontuotteista

Companies in natural products business in Finland (Luonnontuotealan toimialaraportti, www.temtoimialapalvelu.fi)

Berry picking season is very short in Finland and yield is not guaranteed every year. This makes global mass volume export challenging because big retailers need predictable supply of all products. One way to change this as a benefit is to market bilberry like Champagne or Beaujolais Nouveau, exclusive and seasonal. It might help consumers to understand how rare and special bilberry is compared to blueberry.

2 Blueberry World Production

Blueberry is direct competitor of bilberry and therefore blueberry industry should be closely monitored. Same products and procedures can be used in bilberry export.

In 2016 world highbush blueberry production was 655 million kg, an increase of 16.3% over 2014. Processed highbush production is primarily American origin, as 76% of processed highbush blueberry production was located in North America in 2016.

Since 2012, China's highbush blueberry production has more than doubled, expanding to 28 million kg 2016. Most of China's highbush production is concentrated in fresh blueberries, with a 4:1 ratio of fresh to processed highbush blueberries in 2014. However, processed volumes doubled in 2016 to 8 million kg and now comprise 40% of China's total highbush production.

It is predicted that global highbush production would reach 813 million kg by 2019 and exceed 904 million kg in 2021, driven by sustained growth in Europe and South America and rapid growth in Asia & Pacific, namely in China. To maintain blueberry's good reputation blueberry industry recognises that more must be done to preserve product quality and enhance consumer satisfaction.

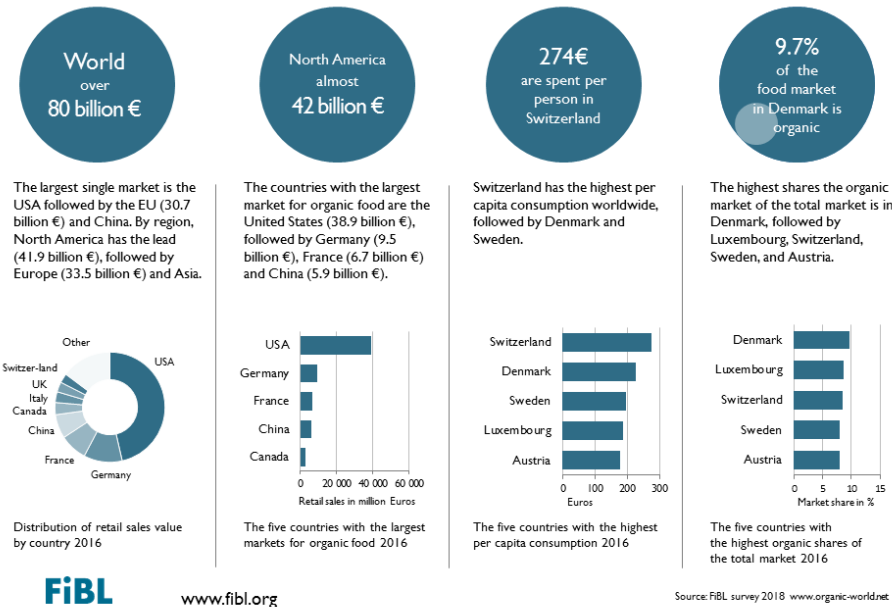
There are seven conclusions and trends observed in the global blueberry industry:

1. Blueberry utilization (production plus imports minus exports) is increasingly global, with the highest rate of category growth, volume, and value in Asia and Europe
2. Demand for fresh blueberries can now be filled during traditional growing off-seasons by new sources of supply, such as China, Peru, and Mexico
3. The move to proprietary and controlled genetics in fresh blueberries is accelerating, driven by an industry-wide shift from a supply focus to a quality and value proposition focus
4. Outside capital and investment continue to enter the blueberry supply chain, sometimes affecting asset values and the rate of industry growth
5. The processed blueberry market is troubled due to limited product differentiation, new product development, and large number of handlers in a fragmented market
6. Blueberry extract production has become an important competitive growing system in new and existing growing regions
7. There is a high desire for increased mechanization, especially in harvest, but progress in this remains limited

All of above trends have significant impact to Finnish bilberry export. Head to head competition with bulk products is impossible. Anyhow, market is growing in Asia and there is room for high quality premium products. Key marketing message should be differentiation from cultivated high bush blueberry.

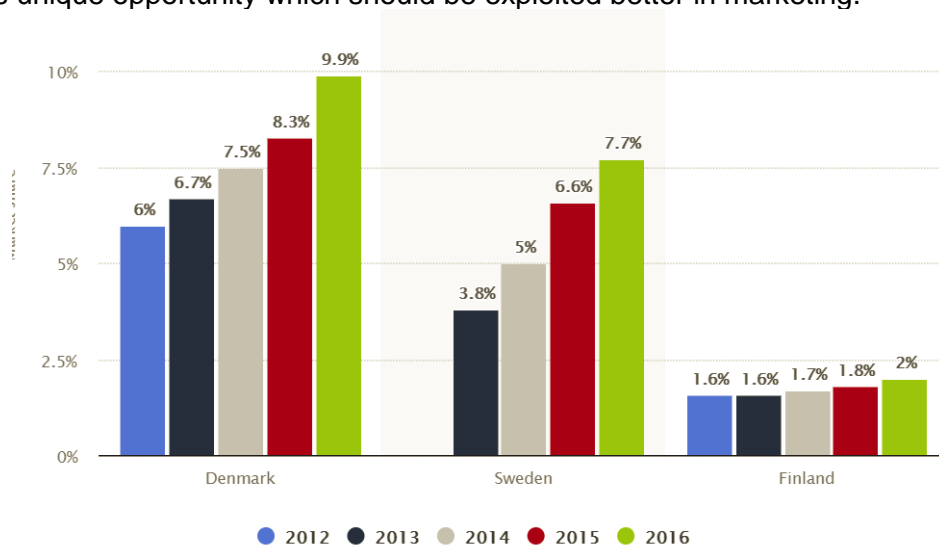
3 World Markets – organic, ecological and healthy

ORGANIC RETAIL SALES 2016



3.1 Nordic countries

Popularity of organic food consumption differs a lot country by country. We can see that clearly in Nordic countries. In Sweden and Denmark growth has been much faster than in Finland. There are almost 12 million hectares organic certified forests in Finland which counts about one third of certified area in the world. This gives Scandinavia an opportunity to become leading player in organic wild food production. Cleanliness and safety is unique opportunity which should be exploited better in marketing.



Organic market shares in selected Nordic countries from 2012 to 2016
(www.statista.com)

3.2 Europe – Germany

Health, sustainability and individualism are currently trending consumer values that create a growing market for natural food in Germany. In fact, the country now holds the largest organic market in Europe and the turnover of these products amounts to 7 billion euros.

Consumer behaviour in Germany is changing rapidly. An aging population needs more health food and wellness products. This can prevent adult diabetes, high hypertension and high cholesterol. Two-thirds of Germans see direct contact nutrition and health. The popularity of organic food products has stabilized in Germany. More and more consumers are seeking to promote their wellbeing and health through the use of healthy foods.

The value of natural food products is constantly growing as consumers become more and more conscious about their buying decisions. This creates huge potential for high quality Nordic products that already have a good reputation on the German market.

High potential for Finnish high quality products in Germany:

- Naturally healthy food such as products based on oats, berries or fish.
- Vegan and organic products.
- Super food with high nutrition values.
- Traceable products with a low carbon footprint.
- Products with unique selling points.
- Products, which are specifically prepared for the German market.

3.3 Middle East – The United Arab Emirates

Health awareness and wellness products has become an ongoing trend in the United Arab Emirates where the government keeps increasing its efforts to fight common health issues. As a result, the leading retailers expand their selection of healthy products to support the government initiatives and to respond to the growing consumer demand on the expat-dominated market. This creates new opportunities for natural Finnish products.

The United Arab Emirates have some of the highest rates of obesity, diabetes II and cardio-vascular diseases in the world. However, the combined efforts of the government, manufacturers and the media continue to address these issues and fuel the rising health awareness and healthy lifestyles among the country's consumers. Consequently, the markets for health and wellness food and beverages experience a significant market growth.

The sales of health and wellness food products in the United Arab Emirates is now around USD 1.25 billion and naturally healthy, organic and free from foods are all showing strong double digit growth. The current efforts also push the companies to introduce more health and wellness products among the packaged food as well as increase their offerings of healthy beverages.

The rising demand for organic and natural foods is prominent among leading retailers but at the same time, it boosts the emergence of specialised stores and new food service concepts. Many niche products are also experiencing striking retail growth and all major retailers are introducing own labels, thus creating new opportunities for white label producers.

Despite the fragmented market for health and wellness foods in the UAE there are both international and local, brands now starting to reach over 10 % market shares. As many affluent consumers see the country of origin and the quality of the product as the most important attributes, Finland has a very good brand reputation on this market:

- Berry-based products and berry-related ingredients (especially blueberry and cranberry).
- Healthy snacks
- Free-from products.
- Allergy and food intolerance related products (particularly gluten-free and non-dairy products).
- Healthy baby and children's products.

3.4 Asia – South Korea

The Korean food market is currently characterised by a growing interest for safe and healthy food as well as convenient online grocery shopping. Together with the rise in disposable household incomes, these trends create a growing market for quality products such as natural food.

An increasing number of Korean consumers are willing to spend money on good quality and healthy food as they are becoming more conscious of the food products' origin and content. This accelerating market for premium products is visible in such products' recent value growth on the Korean market.

As an answer to the demand, Korean food and beverage companies now increasingly seek produce that could be described as organic, natural, healthy and wild and that has no additives or preservatives:

- Organic berry/berry-based products and ingredients (powder, smoothie, juice, jam, etc.).
- Super grains such as oats, cereal or confectionery (grain cookies & snacks, etc.).
- Other health food products.
- Baby food.

4 Berry product development

4.1 Trends in product development

Ten years ago blueberry started its market entry globally. Nowadays the selection of blueberry products is wide. Food manufactures develop products with blueberries and new concepts continue to emerge at a steady pace.

Besides traditional items, new categories are growing including

- juices,
- pet foods,
- natural cosmetics,
- and other arenas.



In marketing it is important to point out that bilberry in products offer better value and quality than blueberry in products. The mere head to head competition between bilberry and blueberry is too crude. Some blueberry products are marketed as bilberry even they are not. This is in fact good sign because it means that bilberry's good qualities are noticed.

Market making for totally new products is very expensive in export markets even if there is strong latent demand. Blueberry manufacturers have done a lot of market studies and product development in past years. Innovative blueberry products which benefits from blueberry's health effects could be even better if made of bilberries.

Far East market entry is rather challenging due to enter established distribution channels, fierce price competition and high cost of brand marketing. Target customer segments for arctic natural food are young adults, health conscious senior citizens and mothers with young children. On-line food stores are growing trend in Asia and with innovative social media marketing they could be a practical entry point to the market.

There have been several food counterfeit cases in Asia, especially in China. Growing middle class has disposable income which they use for safe and healthy food. Original European food is considered as high quality and safe. Scandinavian natural food with EU organic certificate has strong market potential.

Growing claims in natural food marketing:

- No Additives/Preservatives
- Low/No/Reduced Sugar
- Beauty Benefits
- Low/No/Reduced Sodium
- Low/No/Reduced Allergen

In global markets brand image is very important for successful business. Because bilberry products are more expensive than similar made of blueberry they must target to high end product categories and exclusivity. Packaging is crucial part of consumer experience. New emerging trends in packaging are increasing focus on convenience and easy to use.

Top package type:

1. Tub
2. Flexible
3. Carton
4. Bottle
5. Flexible stand-up pouch

Top packaging material:

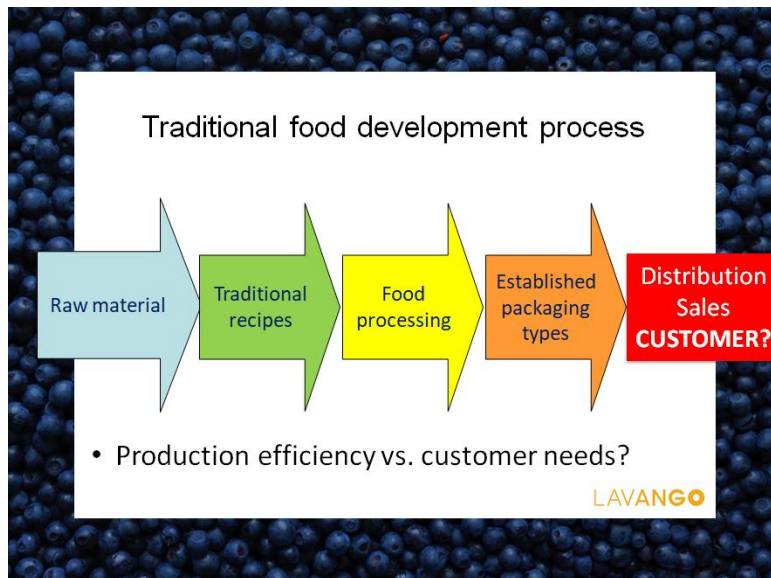
1. Plastic unspecified
2. Board plastic lined
3. Metallised film
4. Plastic polypropylene (PP)
5. Plastic polyethylene terephthalate (PET)

Note that in emerging markets ecological packaging is not yet mainstream but certainly it is coming more and more important. Micro-plastic problem is global and most probably plastic packaging will face hard times. Cigarette butts, plastic bags and food and beverage containers are the most common forms of plastic pollution found in the oceans. Leading U.K. supermarket Iceland, which specializes in frozen food, has made a commitment to eliminate plastic packaging from its own brand products by the end of 2023. For premium organic Scandinavian food products ecological packaging is a must.

Of the alternatives to plastic packaging, organic packaging is lucrative choice for premium organic food products. Organic packaging means that all components of the packaging are made of natural materials and can be composted without harming the environment. Common examples of organic packaging include paper-based candy wrappers, cardboard coffee mugs, plant-based materials that will biodegrade. Although organic packaging has not caught on a large scale yet, companies are beginning to investigate ways to incorporate these alternatives to plastic packaging into everyday production.

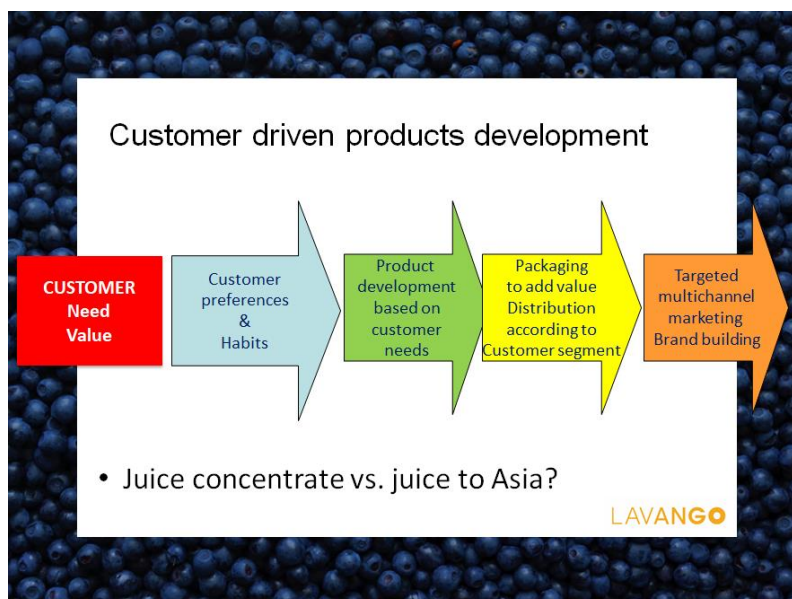
4.2 Customer driven product development

Finland market differs from other markets a lot because in Finland there is no real customer segmentation. This means that high end product offering and product portfolio renewal don't existing as they do in more dynamic markets. In Finnish food market key driver for purchase decisions is price and therefore new product categories come slowly and late to Finland. For example consumers prefer organic products but are not willing to pay premium. Below graph shows how food product development is done in Finland. The key drivers in development are effectiveness and low cost.



Finnish berries are expensive and the supply is limited. Food export should be targeted to high end customer segments. First we have to understand customer needs and behaviour. Tap water is not drinkable in Asia. It means that juice can't be concentrate but ready to drink. Households don't have large freezers and therefore frozen berries can't be sold in bulk packages.

Premium products are sold in packages which reflect the brand and quality feeling. Price per kilo of 200g bilberry in nice customer carton box is much higher than bulk IQF-berries.



4.3 Certificates in food industry

In Nordic countries we know and believe that our food is clean, authentic and produced with care. Even though Nordic countries image and reputation is good in export markets customers want to have more understanding of food quality and safety. Many religions have restrictions for food that can be eaten and customers need information about ingredients and background of new products. Certificates are very good way to demonstrate product's origin and production methods.

4.3.1 ISO 22000 family - Food safety management



The ISO 22000 family of International Standards addresses food safety management. The consequences of unsafe food can be serious and ISO's food safety management standards help organizations identify and control food safety hazards. As many of today's food products repeatedly cross national boundaries, International Standards are needed to ensure the safety of the global food supply chain. ISO 22000 sets out the requirements for a food safety management system. It maps out what an organization needs to do to demonstrate its ability to control food safety hazards in order to ensure that food is safe. It can be used by any organization regardless of its size or position in the food chain. (www.ISO.org)

4.3.2 Hazard Analysis Critical Control Point (HACCP)



HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product. (www.fda.gov/Food/GuidanceRegulation/HACCP/)

4.3.3 HALAL certificate



Halal certification is required to produce acceptable food and consumable products for halal consumers. That includes over 1.6 billion Muslims in the world. Halal certification is a process of having a qualified independent third party organization supervises the production of consumables, attesting that they were produced in conformity with the preparation and ingredient standards of the halal lifestyle. (www.hfce.eu)

4.3.4 Kosher certificate



Kosher is mostly used to describe food and drink that complies with Jewish religious dietary law. For a product to be kosher certified, and to qualify for a kosher certificate, each ingredient, food additive and processing aid used in its production must also be kosher. The production process must be suitable for kosher requirements and therefore it must be approved by a kosher auditor. (www.klbdkosher.org)



4.3.5 European Union organic certification

Organic farmers, processors and traders, must comply with strict EU requirements if they want to use the EU organic logo or label their products as organic. The EU requires an equally strict control system with checks carried out at every stage of the organic chain. Every operator (farmer, processor, trader, importer or exporter) is checked at least once a year, or more often on the basis of risk assessment. Evira is authorized to control EU organic certification process in Finland. (www.evira.fi)

Almost a third of the world's organic reserves, virtually from the forest, are located in Finland. Certified organic plant in Finland is about 12 million hectares, with over 39 million hectares worldwide.

Many countries have their own organic standards and certificates. EU organic is recognized in more and more countries. In some cases it could be beneficial to acquire target export country organic certification. In below graph you can see the plethora of organic standards worldwide. (www.ifoam.bio)

That's Organic - Worldwide.

GLOBAL

IFOAM IFOAM Standard
International Standard for Forest Garden Products (FGP)
Biocyclic-Vegan Standard

AFRICA

Tunisia Organic Regulation
East African Organic Products Standard
The SAOSO Standard, South Africa
Zimbabwe Standard for Organic Farming, Zimbabwe

ASIA

Asian Regional Organic Standard
Saudi Arabia Organic Regulation
China Organic Regulation
India Organic Regulation
Israel Organic Regulation
Japan Organic Regulation

Korea Organic Regulation
Diaoyutai Private Organic Standard, China
OFDC Organic Certification Standard, China
Sunshine Earth Organic Standard, China
HKORC Organic Standard, Hong Kong
Biocert International Standards, India
Japan Organic & Natural Foods Association Organic Standard, Japan
MASIPAG Organic Standards, The Philippines
DCCO, LLC International Standards, South Korea
ACT Basic Standard, Thailand
Vietnam PGS Standards, Vietnam

OCEANIA

National Standard for Organic and Bio-Dynamic Produce, Australia
New Zealand Organic Export Regulation
Pacific Organic Standard, Pacific Community
Australian Certified Organic Standard, Australia
NASAA Organic Standard, Australia

AssureQuality Organic Standard, New Zealand

EUROPE

EU Organic Regulation
Switzerland Organic Regulation
Turkey Organic Regulation

Bio Suisse Standards, Switzerland
Nature & Progrès Standards, France
The EcoWellness Standard, Germany
CCPB Global Standard, Italy
Krav Standards, Sweden

THE AMERICAS

Argentina Organic Regulation
Canada Organic Regulation
Costa Rica Organic Regulation
Ecuador Organic Regulation

USA Organic Regulation
Argencert Organic Standard, Argentina
OIA Organic Standards, Argentina
Bollicert Private Standards, Bolivia
IBD Organic Guidelines, Brazil
CCOF International Standard, USA

THE FAMILY OF STANDARDS
contains all standards officially endorsed as organic by the Organic Movement, based on their equivalence with the Common Objectives and Requirements of Organic Standards. Both private standards and government regulations are admissible.

www.ifoam.bio/ogs

Note: Applicant standards are marked in grey. Family Standards Frame: January 03, 2018. Click on each standard to see more details. Best viewed with Adobe Reader

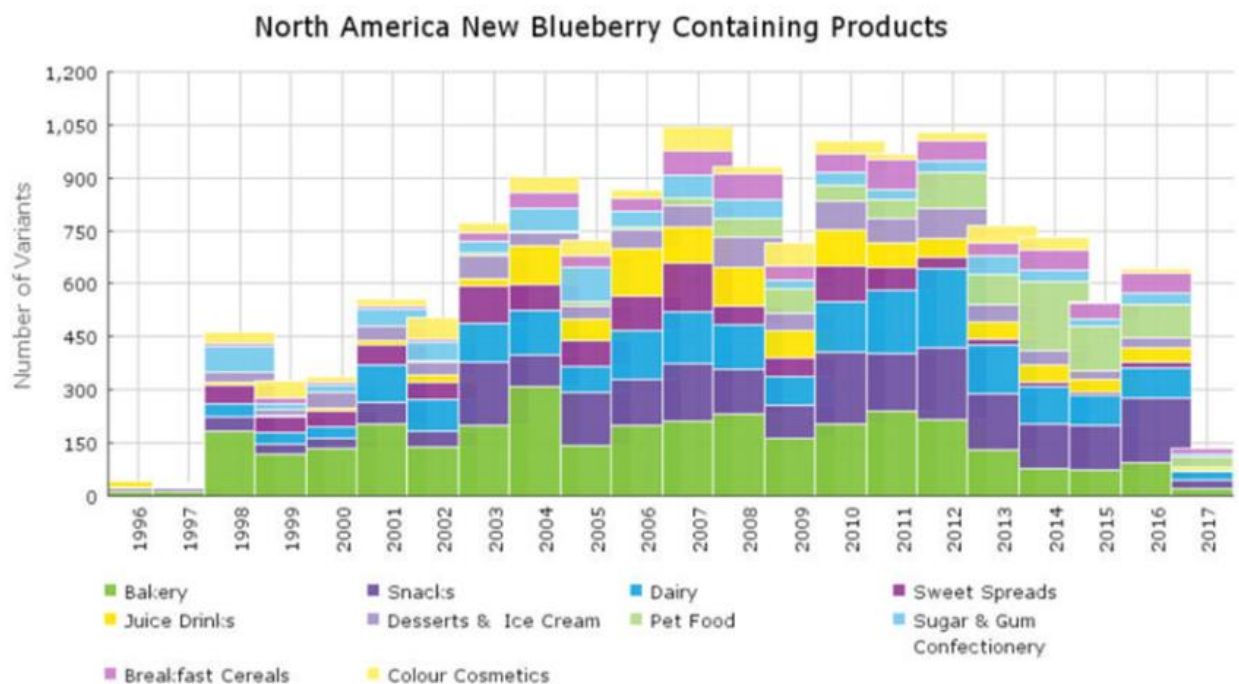
5 Food products

In the customer-oriented food development it is important to understand what kind of food products customers are used to consume. Therefore we have scanned existing blueberry product portfolio. The bilberry products will offer more health and pure ingredients than similar high bush blueberry product.

This should be the key marketing message when differentiating from existing blueberry products

Please find below different product categories with blueberries in North America:

March 2017 - Mintel Global New Products Database (GNPD)



Amount of food products containing blueberries in USA (www.blueberrytech.org)

Bilberries in food products can be divided into two areas: bilberry is the main ingredient or bilberry is an additive bringing taste or healthy additives.

5.1 Frozen berries

Many households in Finland are used to freeze bilberries in autumn at home. Frozen berries are also exported in volumes to be developed to products outside of Finland. But still there are not many customer friendly packed frozen bilberries available in the markets.

Although bilberry season is limited to about a month, frozen berries may be the way to go year-round.

New research from South Dakota State University

(www.sciencedaily.com/releases/2014/07/140722124810.htm) suggests that frozen blueberries deliver a bigger dose of disease-fighting antioxidants than fresh.

The ice crystals that form when the berries are frozen disrupt the structure of the plant tissue and make anthocyanins more available.



Polarica

- Organic Frozen Bilberries
- 225g
- 6,40 €

5.2 Jams and jellies

Jams and jellies are the real top users of blueberries in the world.



Wilkin & Sons Ltd

- Wild Blueberry jam
- Blueberry: 55g of fruit per 100g
- Sugar: 67g per 100g
- 340g
- 195 TW\$ - 5,38 €



Les Comtes de Provence

- Myrtilles
- 370g
- 280 TW\$ - 7,72 €



5.3 Juices

Bilberry and lingonberry juices are very traditional juices in Finland. Usually Finish people buy juices as bilberry and lingonberry concentrate and add needed water at home. But in most countries, there is no fresh tap water available and people want to buy juice on the road and therefore the juice concentrate is not a suitable choice. The juice needs to be ready to drink in shop.

Rabenhorst - Germany

- Organic Blueberry Nectar-Fruit Content: 75% min.
- Organic blueberry juice, water, organic raw cane sugar
- Ready to drink
- 750 ml
- In Europe - 7,49€



- TW\$ 525 – 14,48€ (Cranberry 10,48 €) and HK\$79 – 8,18 € (Cranberry 8,18 €)
- Note: the price difference between Bilberry and Cranberry in Taiwan, about 50%



BIOES - South Africa

- Organic 100%
- Wild Blueberry and Grape Juice Blended
- Ready to drink
- TW\$ 485 – 13,37€ (note: Apple 2,21 €)



5.4 Dried berries

In Asia and Middle East mothers are looking for healthy snacks e.g. into the lunch box for their kids. Dried berries are considered as a health and safe snack for their kids.



- Nice cans with lids



Oskri Dried Blueberries

- 80% Blueberries
- 19% Apple Juice
- 1% Sunflower oil
- Packing Type: Box (8 bags/box)
- a 100g bag
 - 48 US\$ - 39,25 €



Biokia Dried Bilberries

- 75% Bilberry
- Sugar
- Sun flower oil
- 50g
- 3,50€ – 4,25€



O'Natural

- Dried blueberries in a can with lid
- 170g
- 299 TW\$ - 8,24 €

Green Summer

- 238 TW\$
- 6,56 €



5.5 Teas

Teas are very common to be flavoured with berry and fruit. Therefore bilberry and lingonberry teas find very easily its place. Due to bilberry healthy effects consumers are even ready to pay higher price for it.



Bigelow

- Wild Blueberry with Acai Herbal Tea
- Case of 6 boxes (120 tea bags total)
- Caffeine Free
- 18.95 US\$ – 15,50 €



Forsman Bilberry tea

- India-Ceylon tea seasoned with blueberry and dried bilberries
- 60 g
- 2,39 €



Pakuso Pakuri-Bilberry tea

- Sri Lanka black tea
- Bilberry
- Pakuri
- 60 g
- 6,90 €

5.6 Powder



Indigo Nutrition

- Bilberry Powder (Slow dried fruit)
- Absolutely delicious and naturally sweet
- Great in breakfast smoothies
- Slow dried to keep vitamin content intact
- Re-sealable air tight, foil pouch.
- 100% pure botanical ingredients, absolutely nothing added.
- Quality Assured, Vegetarian and Vegan Safe
- 50g
- £7.99 - €11,23



Arctic Power Berries

- Blueberry Powder
- 100% Pure Blueberry powder, made with wild, hand-picked Arctic Blueberries (bilberries) from clean, unpolluted nature of Finland. Nothing added!
- Nutrient dense superfood: A teaspoon of powder is equal to a handful of fresh berries.
- 70g
- £8.99 - €12,64

5.7 Chocolate

Chocolate is considered also healthy snack when dark chocolate is used. Bilberry or lingonberry will add its health effects.



Brookside

- Whole blueberries covered in smooth dark chocolate
- a 155g bag
- 3,77\$ - 3,08 €
- 129 TW\$ - 3,56 €



Biokia

- 60 %milk chocolate
- 30% bilberry
- a 100g bag
- 3,90€



Suklaaparatiisi

- Whole bilberries in dark, white or milk chocolate bar
- 100g
- 5,50€



5.8 Energy bars

Energy bars with berries, bilberry or lingonberry are considered as healthy snacks.



Oskri

- Organic Blueberry bar
- The minimum weight of each organic fruit bar is 35 grams. Different bars have different density, so some may be shorter than others.
- Packing Type: Box (20 Bars/box)
- 40 US\$ - 32,71 €



Arctic Super Foods

- Bilberry and Birch Leaf
- 2,99 €

5.9 Vinegar

“Vinegar is used in cooking but also it is drunk as a health drink. Vinegar is seasoned with different fruits and berries but not yet with bilberry.”

- Market study in Kaohsiung International Food Show November 2015, Taiwan.





To drink:

- 3:1 Café Ace
- 4:1 Fruit Beer
- 2:1 Vinegar milk
- 3 bottles
- 1,200 TW\$ - 33,34 €
- 11,11 € / a bottle



Suja Organic Blueberry Lemon Drinking Vinegar

- Suja Juice is tapping into trend for all things fermented with the launch of organic probiotic-infused drinking vinegars targeting Millennials
- Organic, Cold-Pressed, Non-GMO, HPP
- billion CFUs of vegan probiotics for gut and immune health
- Coconut Vinegar blended with Cold-Pressed juice and vegan probiotics to support gut and immune health
- 13.5 oz. – 380 g
- 2,99 US\$ – 2,45 €

5.10 Gift Box



Food Gift Box

- Gifts have a big role in Asia
- Food Gifts are products where the margins are high
- Gift Box sold in Finland for tourists works also as marketing the berry products

5.11 Pets food



NORTHERN SMOKED FISH WITH BLUEBERRIES

- Omegas abound in this wonderful recipe of fresh, local Canadian fish including delicious trout, pickerel, and salmon.
- Antioxidant-rich North American whole blueberries are added to this healthy, hard treat.
- Excellent for skin and coat.
- Slowly baked with whole barley grown and milled locally.
- Trout is rich in Omega 3 fatty acids.
- 500g
- 10,99 CA\$ - 7,04 €



Wellness Core Grain-Free Superfood Protein Bars - Beef, Bison & Blueberry recipe

- Contain beef, bison, and blueberry - the perfect pairing of protein and superfood
- 100% natural with no animal by-products, artificial colors, flavors, or preservatives
- Only 16 calories per bar and with an amazing taste that your dog is sure to love
- 5.5 oz – 160g
- 8.99 US\$ - 7,35 €

6 Non-Food Products

There are thousands different non-food products including blueberry in the markets. Global established brands have much bigger production volumes which mean lower price levels. Market entry for new player without recognized brand is very challenging. Anyhow, on market there is still room for new products which use berries innovatively to add value for consumers. Bilberry marketing can use studies where blueberry and bilberry nutrition content is compared. In marketing messages it is important to point out that bilberry is better in all aspects compared to blueberry.

6.1 Dietary supplements

In Asia blueberry is considered and marketed by its health benefits. Main marketing messages are that blueberry prevents aging and it is good for your eyesight. There is hundreds years long traditions for eating berries as dietary supplements.

In Japan blueberry extract capsule market is worth of € 300 million. Blueberry extract capsule contains average about 15mg anthocyanin which is same as in 1g of bilberry powder. Consumer price for one capsule is about €0.20 and wholesale price €0.07 which means that bilberry powder price in capsules is about €70/kg. Of course packing, marketing and logistics are challenging in Japan. Partnering with global established brand is a potential market entry strategy.



Fancl Blueberry

- Tablet for Relief of Eye-strain
- 60 Tablets (30 Days)
- From Japan Fast Shipping and Ship Worldwide
- 16.80 US\$ - 13,75 €
-



TruNature Blueberry

- Standardized Extract 1000 mg per 2 Capsules
- 200 Softgels Servings
- Per Container: 100
- Blueberries are a superior source of phytochemical antioxidants.
- Anthocyanins are the phytochemicals that impart the deep blue color to blueberries and provide the antioxidant support that research has shown for anti-aging and overall good health.
- yen 3406 – 26,03 €



Sunkist – Blueberry

- Antioxidant for the maintenance of good health
- High ORAC value, making it very effective in fighting freeradicals
- Contains 2.5% anthocyanins per capsule
- Part of the Sunkist Grower Select line that include Grower Select Cranberry 36:1 Concentrate, 500 mg
- Also try webber naturals Lutein with Zeaxanthin, Maximum Strength, 40 mg, for healthy vision support
- yen 1978.00 – 14,70 €

Below example shows how blueberry extracts are marketed. Marketing statements are often in grey area where medical claims are used.

Product description

*Blueberries have been identified as a superior source of phytochemical antioxidants. When compared to other fresh fruits and vegetables, blueberries had one of the highest levels of antioxidant activity and were shown to exhibit a broad spectrum of health benefits. An excellent addition to daily diet, trunature Blueberry 1000 mg 36:1 Extract is ideal for everyone and is a convenient way to supplement your diet with the antioxidant benefits of blueberries. A gentle proprietary process is used to provide this 36:1 standardized blueberry extract (36 grams of whole blueberries equals 1 gram of blueberry extract), preserving all the active ingredients of whole fresh blueberries. It is the most convenient way to take advantage of the broad spectrum of health benefits that blueberries offer. Anthocyanins are the phytochemicals that impart the deep blue color to blueberries, and provide the antioxidant support that research has shown for anti-aging and overall good health. * *These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.*

6.2 Sports nutrition

In Finland more than 40% of sports nutrition is sold via grocery stores. Finland's strong dairy products sector is also on driver in sports nutrition. In In other countries sports nutrition is mainly sold in specialized stores and chains which impacts to products portfolio, marketing and sales margins.



Blueberry 4:1 Extract

250g (8.82oz)

SUPPLEMENT FACTS	
Serving Size: 800 milligrams	
Servings per container: 312	
Amount Per Serving	% Daily Value*
Blueberry Extract (4:1) (Vaccinium cyanocarpus) (fruit)..... 800 mg	
*Daily Value not established.	
**Based on 2,000 calorie diet.	
US STANDARD MEASURING SPOONS	
Spoon Size (level)	milligrams
1/3 teaspoon	800
2/3 teaspoon	1600
1 teaspoon	2400
Warning: This product is not intended for use by those with a serious medical condition or pregnant or lactating women. Consult your physician before use. KEEP OUT OF REACH OF CHILDREN! *These statements have not been evaluated by the Food and Drug Administration. **This product is not intended to diagnose, treat, cure or prevent any disease.	
Other Ingredients: None	
Free of: Sugar, soy, dairy, yeast, gluten or additives	
Directions: As a dietary supplement, take 800 mg (rounded 1/3 tsp) once or twice daily, or as directed by a physician. Best taken with a meal.	
Storage: Keep dry, cool & dark	
Distributed Exclusively by: BulkSupplements.com 7511 Eastgate Road Henderson, NV 89011	
Lot Number: Best Before	

BULK SUPPLEMENTS

- Blueberry 4:1 Extract
- 250g
- Amazon
- 14,96 US\$ - 12,24



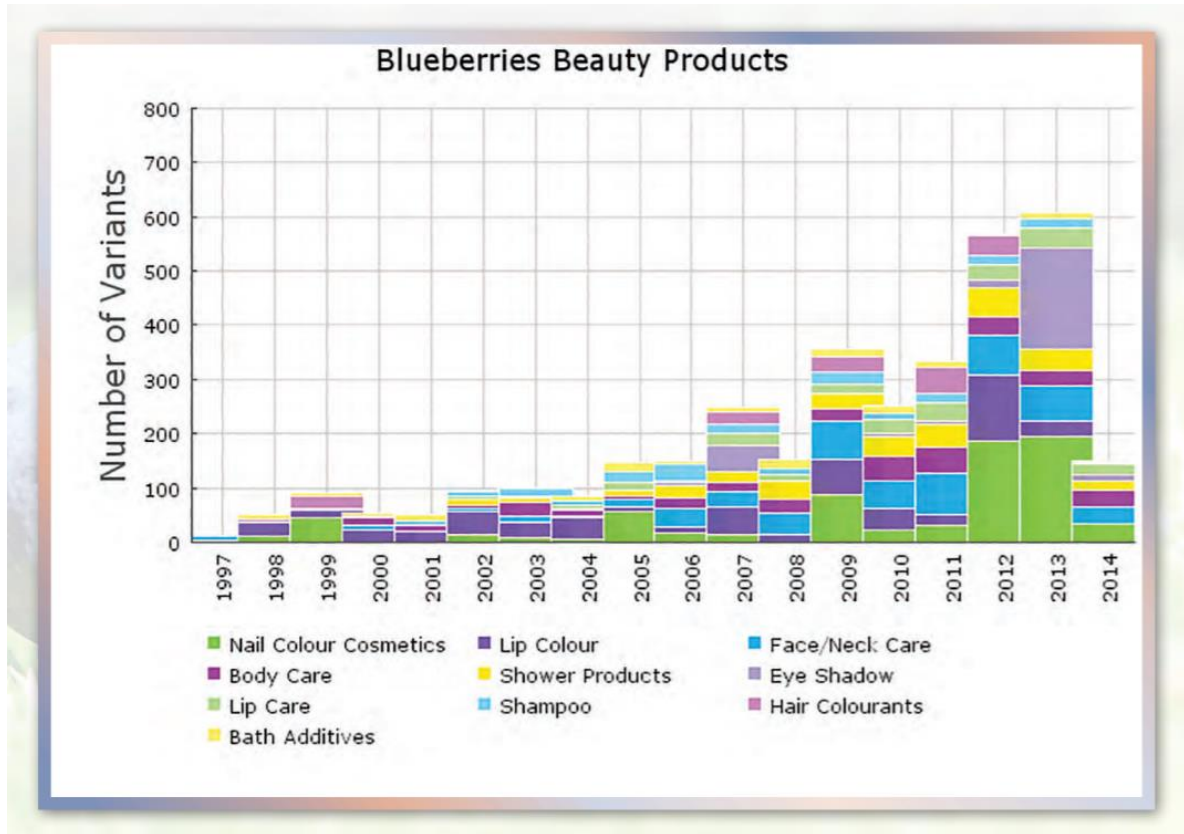
Sport Research

- 60 liquid softgels
- 800 mg
- Amazon
- 19.95 US\$ - 16,33 €

Sports nutrition has mainly focused on protein but new emerging trend overall health benefits alongside protein. Natural flavours are replacing artificial flavours, “healthy can taste good, too”. Smoothies with berries and natural food are used also as sports nutrition.

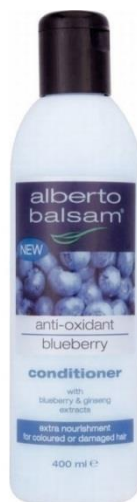
6.3 Cosmetics

Berries are used in cosmetics for their useful therapy features but also for creating colour and smell. In below graph you can see most common cosmetics product areas for blueberries. The amount of new products which use blueberry has been significantly increased in this decade. Reason is overproduction of blueberries and need for creation of new usage of berries. If berries are used only for marketing and colouring of products like shampoo blueberry has huge advantage over bilberry due to price. If product uses berries because of their nurturing features bilberry has an advantage. Challenge in cosmetics products is how to enter the market with new brand.



Amount of cosmetics products containing blueberries in USA
(www.blueberrytech.org)

Blueberry colour pigments can be utilized as substitutes for artificial colours. The reason is that blue food is a rare occurrence in nature and, aside from berries and a few blue-purple potatoes, “blue just doesn’t exist in any significant quantity as a natural food colour. Berries “have been identified as a source of commercially viable natural colourings”



alberto balsam

- conditioner
- 400 ml
- Amazon
- 3,59 US\$ - 2,94 €



- Yes To Blueberries Face and Neck Oil is a quick absorbing, nutrient rich formula to use morning and night
- Provides intense moisturization, absorbs quickly and won't clog pores!
- Formulated with organic blueberries and L22, a botanically derived system which helps deliver the skin lipid profile of a healthy 22-year old
- Blueberries are a natural source of antioxidants!
- €12.25 Amazon

In cosmetics blueberry's health effects of antioxidants and other ingredients are used a lot. European Union is very strict with health effects used in marketing. Therefore it is advisable not to use claims in marketing even competition in export market uses those methods. Good way to proceed is to compare Nordic berries' content to other competing berries.

7 Summary

7.1 Berries in Nordics

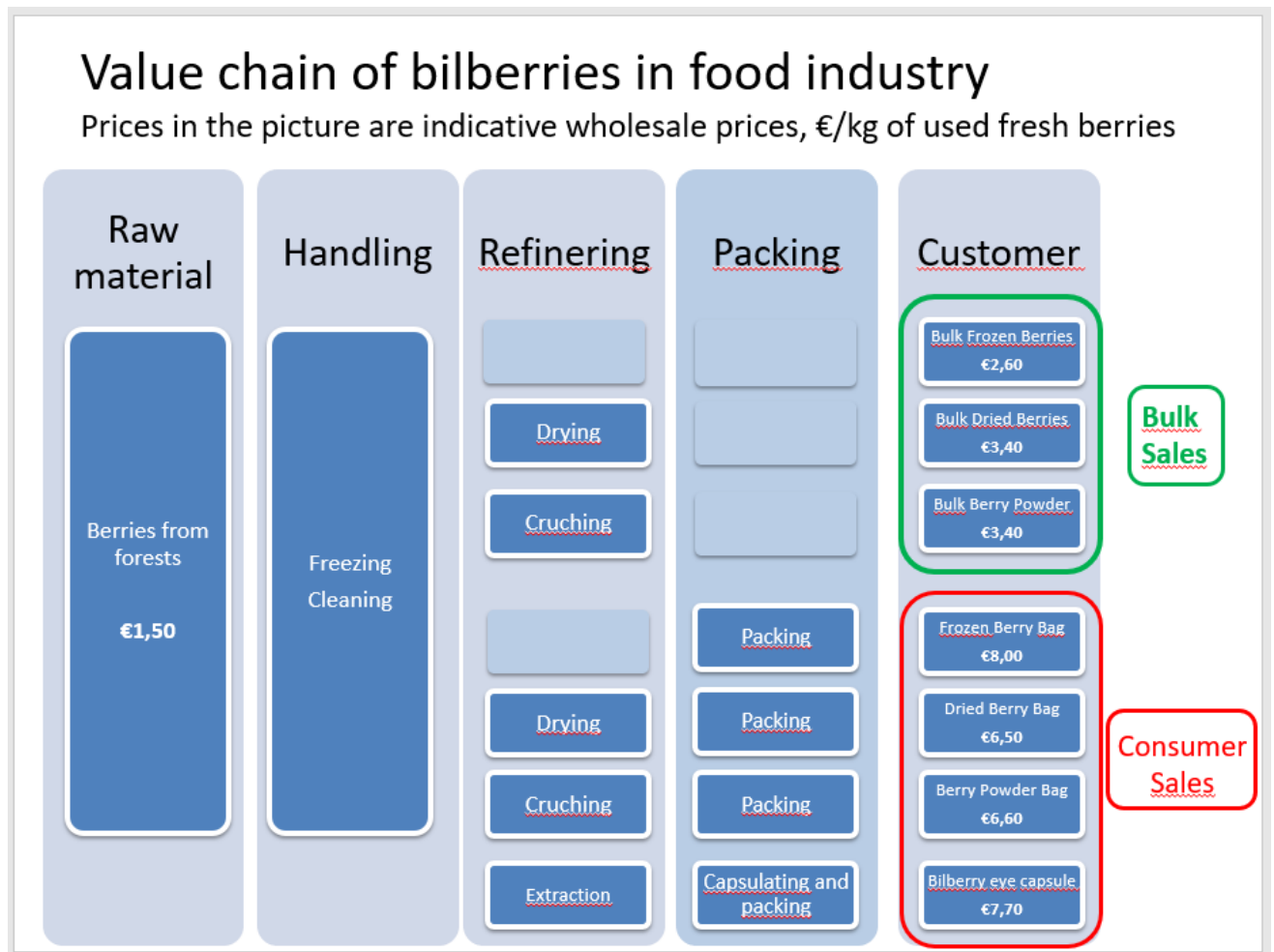
Most of the natural berries are not picked but left to the nature. At current bilberry and lingonberry prices the harvesting is hardly profitable. If we want to get a bigger part of the berries picked, the picking price of berries should be increased. Due to vast amount of household picking, berry prices do not have increase pressure in domestic markets. At present, the global market price for unprocessed frozen berries is largely determined by the price of similar berries such as blueberries and cranberries. Growing exports of IQF berries is not economically viable, but the berries need to be further processed after harvesting. Increasing exports of refined products is the only way to increase the use of natural berries from the forests.

Picking of berries is done manually and the season is short. The harvesting time changes slightly according to the annual weather conditions, which causes difficulties in effective early planning of needed workforce. Since the amount of harvest and the amount of annual yield vary, this must be taken into account when producing consumer goods. The development of the collection system only does not solve the profitability challenge, but the demand for the berries must be created in the form of products.

The value of bilberry can be doubled when exported as processed products. When taking in account costs of refining, packing, marketing and other costs it is very challenging for small companies to successfully start export. Co-operation between players across production chain is needed to share risks and to provide needed resources.

Berries have many valuable components. Extraction methods have to be cost effective when competing against other mass volume berries. Bilberry has much higher anthocyanin levels than bush blueberry but due to low price it is economical to extract

anthocyanin from blueberry. Anyhow, extraction is a viable alternative for berry refining because of logistics costs.



An interesting alternative is to create a national or co-Nordic "Organic Arctic bilberry / lingonberry Brand" under which the berries are globally exported. Manufacturers sign up for a consortium and they are required to have organic and quality certificates. Manufacturers undertake certain quality criteria and operate in accordance with the brand-specific guidelines. The operation is financed by small commission which companies pay.

The American Blueberry Council is active and supports blueberry manufacturers for export and marketing in general (<http://www.blueberry.org/who-we-are/>). The budget of the Blueberry Council is tens of millions and its website has information details of more than 3200 blueberry suppliers. (<http://www.blueberrytech.org/suppliers/suppliers-list.htm>)

Another famous food industry consortium is the Parma ham manufacturers: Consorzio del Prosciutto di Parma (www.prosciuttodiparma.com/en_UK/home), which includes 150 parma ham manufacturers. When you buy Parma ham you know what you get because Parma ham specification and quality are defined and manufacturers follow the brand guidelines.

7.2 High quality premium products for export

Due to the price structure of Nordic bilberry and lingonberry products that can fully utilize all their quality characteristics shall be developed. Bilberry's health content is clearly better than that of bush blueberries. It is worth to refine the bilberry products that emphasize the quality, purity and health impacts. Similarly, the lingonberry competes against cranberry. The nutritional content of Nordic wild berries is better than their competitors and their origin can be monitored. Above all, there are stories behind our berries that can be used successfully in marketing. In EU bilberry or lingonberry health claims are restricted. This limits marketing messages which can be used in global competition. World markets are virtually limitless and with co-operation in marketing across Scandinavia export market can be made successfully. The better the Nordic natural berries are known, the faster their need and the market will grow.

When creating a consumer product, the eating habits and conditions of the target market must be taken in account. Packaging size and usability must be tailored to the customer's lifestyle; domestic packaging does not always meet the requirements of the export market. Long logistic distances also affect product and packaging requirements. Products exported to the Far East often require 15-18 months shelf life left when the product arrives in the destination country. This means that the products shelf life should be 18 to 24 months when produced. It is also worth noting the high humidity of the climate, which affects the products both in transport and on the store shelves. Especially berry powders are vulnerable to high humidity.

When the berries are processed into consumer products, the price is doubled and the sales margin multiplies. Realistic refining options for small businesses are freezing, both air and dry-freezing, drying and powder making. However, the most important thing is to develop a product that provides enough added value to cover the costs of marketing, sales and distribution. The simplest option is snack-type consumer goods. The fastest growing market for these product groups is in the Far East. Investments in brand building and logistics cost a relatively high which makes it difficult for small businesses to take advantage of this opportunity without partnering.

8 Sources

- Lavango Ltd.
Market studies:
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 - Taipei Int. Food Show 2017
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- www.marketopportunities.fi
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www.blueberrytech.org/



Interreg
Botnia-Atlantica
Euroopan aluekehitysrachasto

