

Conception to Consumption

New Zealand Nutraceutical Story

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It is good to see brilliant people and to see continuing to flower. It was held in New Zealand (NZ) in 2008 and it is good to see continuing to grow. I give you the colleague's company the colleagues and I formed through necessity mentioned about black currant (BC). What people put excitedly world with gets done to help problems. That's pretty answer. Initially, upcoming, we met another people. The colleagues and I had a little flower with. Last time, we talked about plant tolerance in NZ, and GEP. We don't have GEP.

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I want to quickly start and begin with what is family in NZ. Anger von Oeffelt and Ojebyn BC worldwide. We need new facility in market to target and market, excellent knowledge and teach. So, we start with to minimalize varieties to grow and claims in the green of life. Through they research by SCRI-James Hutton Institute, we started with company to begin with female plants of Oeffelt, Ojebyn, Ben Nevis and male plant of Ben Rua as parent cultivar. In 1989, we released Ben Ard in NZ. We didn't know and see how easy that grows. But we try and done.

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We mention Ben Ard. Consistently good yielding, yielder, variety. Average harvest date is mid January, 18th January. Holds on well when mature. Berry about size 67-72g, low acid, medium Vitamin C and very strong color. High resistance to leaf spot. We still use herbicide, pesticide in Ben Ard. We have to reduce it in mind. Susceptible to Botryosphaeria and Gall Mite. Requires high chilling hours, 1100-1500 hours. High in anthocyanin 200mg-600mg/100 mL, average 390mg/100mL. There are 15 anthocyanins in BC family from paper published in 2009. The number is changing in the world. Anthocyanins of delphinidin-glucoside, delphinidin-rutinoside, cyanidin-glucoside, cyanidin-rutinoside over 90% in BC. 3 main anthocyanins of delphinidin-3-glucoside, delphinidin-3-rutinoside, cyanidin-3-rutinoside in Ben Ard. Why was it that we do the highest anthocyanin from BC? The reason for this. That's because unfortunately that's not for human being, but for rice in NZ. In human respective, unfortunately we have hard skin

cancer in NZ. We got to cover skin in the summer to prevent from radiation. What we do is that we promote anthocyanin for skin of fruit and some vegetables. That's why we allied with NZ lab to agree. They excellently do using of NZ vegetable or fruit skin. The climate is tapped. Sky is very clear, temperature is very cold. In America, climate is high, also if you grow and you choose latitude between 41-45, Pacific side, for production of BC. NZ in the summer is cool enough. That's the reason for growing BC in the summer. On average around 2400m high else you grow BC in the summer. BC comes from particular fine chemical. Anthocyanin is one thing. There are many skins of fruits we extract. Juice, pollen, seed and skins go to labs.

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Just on anthocyanin. This figure is from 2011's paper in Japan. European average levels of anthocyanin 162-200mg/kg, Russian up to 160mg/kg, North America 300-411mg/kg, NZ 200-600mg/kg. So different. The reason is why we got actually pretty proud in NZ BC is a part of anthocyanin. NZ manufacturer instructed and produced Just the Berries. 4 formulations of 20%, 30%, 35%, 40% anthocyanin. Where well done is maximum own, actually 22% anthocyanin. We are sitting on chemical lounge of lab to take Just the Berries and another pharmaceutical anthocyanin products. Excellent daily dose in are announced and come out soon. So, we have in vitro and clinical. We have information about how to sell BC in the world. Market asked them. In vitro is fine. One other, for human is active, too. In anthocyanin in BC, Dr. Roger Hurst Team-Plant & Food Research-Brain, Gut, Muscle Recovery. Narrow and Wiesty, NZ Dr. June William from university in NZ-Diabetes. Dr. Abdul Molan- Massey University-Gut Health. Mark-Muscle Recovery. Tsuda-Metabolic Syndrome. Matsumoto-Vision, Metabolic Syndrome, too. Kallio in Finland, Turku University-Allergies. Also, through PMS and menopausal, we developed women's health products.

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Let's say about Dodd products. Brain Vitality we introduced into Asia, Malaysia, Indonesia to try to market Brain. Unfortunately, there are vitality health companies. In North America, there are vitality gymnasium companies and challenge us. We can't try to market the vitality. But, fortunately, we got through with wide range. Allergy Relief, Skin Hair & Nails and Brain Boost are all Brain can seed oil. There are all of the same products. Brain Health seed oil, Vision, Muscle Recovery are also

the same. 55 seeds, 500mg capsule of BC extracts falling seed oil in it. This is Ultra-Balance mixed of BC extracts in BC seed oil. Now overcoming packaging. We are labelling in different products to tell them. We sell on market. Several looking at Visions for an instance, the column on near the bottom, put the product sequence on it. Skin, Hair & Nails and Allergy are going to more health shop or health market. In Brain Boost and Brain Health, you look at object packaging of disease on it. That's why we get the wide range of products. We are also looking at women's health product soon. In Muscle Recovery, Brain Health and Vision, we are doing relabel to label to put the vision in an eye. Those products are 35 seeds of anthocyanin, 550mg capsule. These capsule is similar mg of vitamin C, 472mg BC extracts in each strength, which is levelled to 165mg of anthocyanin in each capsule in it. Once we get information from Roger in our team, Ultra-Valance is mixed of extracts and manufactured for eight months in a raw. We used really expensive raw vitamin B in it to stabilize those products. In that capsule, there is 60mg anthocyanin, 300mg of BC seed oil in soft jell.

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Challenges

Human trials-proven health benefits. On going work and financial resources. This is not only going, we also continue. Label recommendations. BC tells the story. There is new regulation taking in NZ and comes out in European authority, too. Marketing material. We try marketing. Global trade marketing. Registration by product. Returns to the grower. Volume of BC raw fruit. One thing is to produce kg of BC. Other thing is how many tons of raw fruit to produce 1kg of BC extracts.

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Positives

Encapsulation. Good shelf life. Easy transportation. Nutrient profiling scoring criteria-Nutritional Claims. Becoming internet regulation. General level health claims. We can't allow to high level health claims. The reason is you get through this reputation what you say that specific high level health claims. One might get health plant in NZ to accumulate chemical. That process took 18-20 years and a lot of money. We can't do it. That's why we don't allow to get high level health claims. International collaboration. Thank Richard team, Jim's team, Roger's team and also growers.