

Alaskan grown *Rhodiola rosea*: From raw materials to finished products, to enhance the Alaskan economy



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Objectives

- ❁ Brief overview of the ***Rhodiola rosea*** plant and reasons to cultivate it commercially in Alaska
- ❁ Description of **current cultivation** challenges in Alaska – what do we need to know to create a successful, consistent and sustainable crop?
- ❁ Objectives of the **Specialty Crop Grant 2019** – which is the title of this presentation
- ❁ **Product Development** – keeping it all in Alaska

Rhodiola rosea (Sedum rosea)

- * Group: Dicot
- * Family: Crassulaceae
- * Genus: Rhodiola
- * Species: over 60
- * Duration: Perennial
- * Growth habit: subarctic
- * Forb herb
- * Morphologically plastic



Male and Female



Rhodiola Range

Key
Species Range 
Range Extent Undefined 



R. Rosea



R. Rosea

R. integrifolia



- *There are many *Rhodiola* species, but only *Rhodiola rosea* contains rosavins
- * In the wild, may take 20 years to mature
- * Cultivated, it takes 4-5 years from seed to harvest



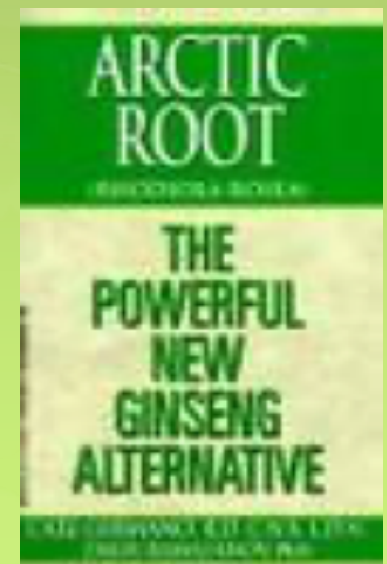
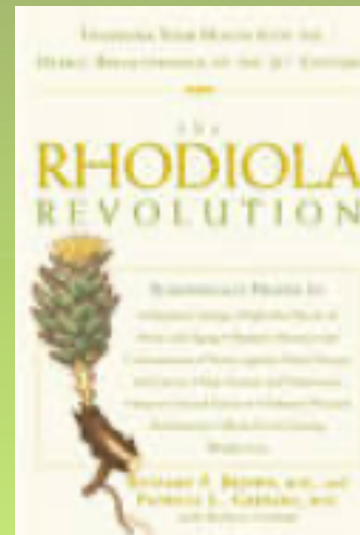
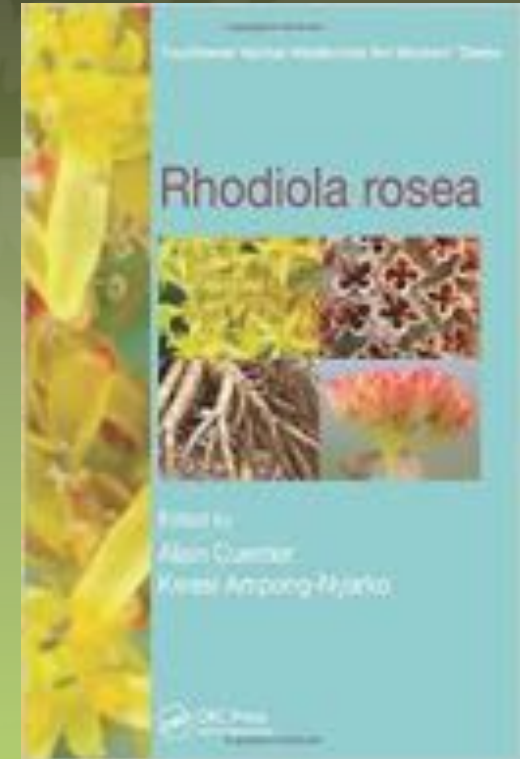
Traditional Use of R. Rosea

- ❁ Northern peoples have been using it for thousands of years for improving mental focus and physical performance of athletes and warriors
- ❁ Roots contain most of the ingredients, leaves and stalks much less
- ❁ Ingested as tea or extracted in vodka
- ❁ Used as an **adaptogen**
- ❁ Former Soviet Military Secret



Medicinal Properties of Adaptogens

- * Primary effect is to help the body adapt to STRESS by increasing resistance without disturbing normal biological functions
- * Very large body of scientific literature to support its beneficial effects
- * No known toxicity



Modern Medical uses

- ✿ Depression
- ✿ Anxiety
- ✿ ADD / ADHD
- ✿ Athletes
- ✿ Stress and fatigue management



Most of the worlds supply comes from wild harvest

- * Also known as Roseroot, Goldenroot, Arctic Root
- * Grows at high altitudes and sub-arctic environments
- * Well known and used in Russia, China and Scandinavian counties
- * Becoming very popular in US and Europe for anti-stress effects
- * Many companies do not want to use Chinese rhodiola, and Siberian roots are limited
- * Wild *Rhodiola rosea* is becoming threatened in many areas



Market Strengths of Alaskan Grown Rhodiola

- ✿ Customers want to know the source
- ✿ Customers want a sustainable, environmentally friendly story
- ✿ Alaskan Grown has huge market appeal
- ✿ Chinese products are often of poor quality and rejected by botanical companies
- ✿ Trade war with China and COVID 19 issues are further limiting Chinese supplies



PRICES ARE GOING UP

Cultivation History in Alaska

- ✿ First phase of our experiments (2009-2013) showed that *Rhodiola rosea* grows very well in Alaska
- ✿ Six successful harvests so far but different growers have had different results in root size and rosavin concentrations



Cultivation Challenges in Alaska

- ✿ The plant can grow in very poor soils but the key factors in producing high quality roots in Alaska are not well understood
- ✿ Fields next to each other can have different results – why?
- ✿ Do mature fields grow much larger roots than freshly cleared fields – and if so, why?
- ✿ Differences between plants grown from seed vs root propagation needs to be understood. How about tissue culture? Hydroponics?



Harvest and processing techniques are important

From a UAF grant in 2015, we have learned that it is important to harvest at the right plant age, during the correct growth cycle, and properly store prior to processing.



...but much still needs to be learned

What are key soil requirements in Alaska? Chemicals and microbial elements?

Best weed control?

High quality uniform seed stock?

Best seedlings production – from seed or root propagation?

Early greenhouse starts?

Hydroponics?

How will climate change affect rhodiola cultivation?



Rhodiola Specialty Crop Grant 2019

AK Rhodiola Enterprises LLC

- ✿ UAF Cooperative Extension Service
- ✿ Alaska Plant Material Center
- ✿ Individual growers



DNR grant / AK Division of Ag

- ✿ Two -year project
- ✿ \$22,525



Goal is to determine best basic practices for soil quality, weed control, seed selection, and seedling production.

Measurable Outcomes Study Objectives

- ✿ Soil amendments trials
- ✿ Weed control methods
- ✿ Seed selection for seed stock
- ✿ Tissue cultures
- ✿ Innovative seedling
production experiments



Most of the money will be spent on laboratory testing as UAF and PMC are contributing staff and field / lab space

Project Partners

UAF Matanuska Experimental Farm Cooperative Extension Service

✿ Steve Brown

UAF scientists

✿ Mingchu Zhang

✿ Jenifer McBeath

Alaska Plant Materials Center

✿ Rob Carter

Private Growers

✿ Patricia O'Neil

✿ Al Poindexter

Volunteer investigators

✿ Carl Edwards

✿ Bob Patton



THIS IS AN OPEN INVITATION FOR OTHERS TO JOIN

Marketing Alaska Grown Rhodiola



Perfect Time to develop Alaska Rhodiola

- ❁ The market is hot and growing
- ❁ According to 2015 Global Rhodiola market report in 2015, dried root and price was \$45,072 per metric ton (\$20.50 per pound).
- ❁ Price is projected to be volatile for several years due significant restrictions in from China.
- ❁ AK has a great marketing advantage – as does Alberta!
- ❁ Prices for certified organic AK Rhodiola
 - ✓ 2016-2018: \$ 25 pp
 - ✓ 2019: \$35 and \$40 pp

Prices are projected to continue to rise

Current Products made from AK Grown Rhodiola



Where to go from here



- **Scale up cultivation to meet larger demand**
- Develop domestic market**
- Explore product manufacturing in Alaska**
- Collaborate with Canadian growers**
- Sustainability issues ABC**
- **Host International Rhodiola Conference - 2021?**

The Future



- Alaska can become a major producer of cultivated rhodiola rosea in the world.
- By producing a high - quality product, millions of dollars can flow into the Alaskan economy.
- We can develop our own market of AK grown, AK made rhodiola products for additional economic impact.

Rhodiola

Partners



ARRGO visit summer 2012



QUESTIONS?

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