

A NEW DECADE: INNOVATIONS IN ALASKA
AGRICULTURE AND FOOD PRODUCTION

15th Alaska Sustainable Agriculture Conference



FEBRUARY 20-22, 2020



BP ENERGY CENTER,
ANCHORAGE



SPEAKER ABSTRACTS AND INFORMATION

THURSDAY FEBRUARY 20TH

Overview of Western SARE Grant Programs

Jim Freeburn, Regional Training Coordinator, Western SARE

Abstract

A very brief overview of the seven competitive grant programs available from SARE in the western region. Diverse grants available for farmers, scientists, agricultural professionals and more. Amounts from \$25,000 to \$350,00 per grant. Innovation, collaboration and a focus on sustainable agriculture are keys to receiving funds.

Live on a small ag operation near Fort Laramie, Wyoming. My wife Jolene and I have raised hay and run cattle for over 30 years. Have worked for University of Wyoming for 37+ years as a county agent, and at an ag research center. I have worked with SARE grants for 20+ years. I am an avid hunter and love the outdoors and wide-open spaces.

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Update from Extension

Dr. Milan Shipka, Acting Director of the Institute of Agriculture, Natural Resources and Extension

Milan Shipka, Ph.D., is currently acting director of the Institute of Agriculture, Natural Resources and Extension at UAF. In that role he serves as director of the Agricultural and Forestry Experiment Station and acting director of the Cooperative Extension Service. He is also a professor of animal science, and maintains research activity in animal science and sustainable agriculture. Among other roles, he is a member of the Western SARE administrative council and sits on the executive committee of the council. Through his career at UAF, for more than 20 years, he provided statewide leadership in reproductive and nutritional management of ruminant livestock species. He is the go-to person for questions from people with all other types of livestock. Milan has established an active research program in reproductive biology of reindeer and musk ox and has gained international recognition for his research work and documented scientific discoveries in both species.

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UAF Matanuska Experiment Farm and Extension Center Update

Jodie Anderson, Director of the Matanuska Exp. Farm and Extension Center

My name is Jodie Anderson and I am the Director of the University of Alaska Fairbanks (UAF) Matanuska Experiment Farm and Extension Center. A little about me and my winding path to get here – I almost finished a PhD in soil biochemistry, I earned a Master in Arts of Teaching Biology degree, and a Bachelor of Science Biology and Secondary Education degree. I taught chemistry and biology (and many other life sciences, too) at the high school and college levels for 11 years in North Carolina. We moved up to Palmer in 2003 and I worked for the University of Alaska Fairbanks in both the Cooperative Extension Service and the School of Natural Resources and Agricultural Sciences for eight years. While at UAF, I began and managed the Alaska Community Horticulture Program as well as research that focused on soil building, organic nitrogen soil supplements, compost development, and community gardening. In 2012, I went to work with an engineering and environmental consulting firm as a soil scientist for five years and then in 2016 I took a position with the Alaska Department of Natural Resources in the Division of Agriculture where I was the Alaska Farm to School Coordinator. My previous work at UAF afforded me many opportunities to travel around rural Alaska and develop collaborations and relationships with many teachers, growers, and communities. Now that I am back with UAF, I look forward to plugging back

into many of those to continue the great work Alaska expects from the Matanuska Experiment Farm and Extension Center.

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Agriculture Statistics for Alaska

Sue Benz, Alaska State Statistician for the USDA National Ag. Statistics Service

Abstract

USDA/National Agricultural Statistics Service collects data on a wide variety of topics ranging from yearly data on acres/production for barley, hay, cattle, hogs and other commodities to conducting the Census of Agriculture every five years. Learn the results of the 2017 Census of Agriculture, how to access the data and why agricultural statistics are important to Alaskan agriculture.

Sue Benz works for the USDA, National Agricultural Statistics Service and has over 30 years' experience working for the USDA in the fields of agricultural statistics and forestry. She has BS in Forest Engineering from SUNY ESF and MS in Applied Statistics from Michigan State University. She has been in Alaska since 2001 and has also worked for the USDA in Idaho, Washington, Nebraska, Michigan and Washington D.C.

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Alaska Division of Agriculture Update

Johanna Herron: Inspection and Market Services Manager, Division of Agriculture – Alaska Department of Natural Resources

Johanna is the Inspection and Market Services Manager at the Division of Agriculture. She has a BS in Anthropology and a MS in Community Nutrition. Johanna serves on the Alaska Food Policy Council Board, the and the National Farm to School Network Advisory Board. Johanna also manages the Specialty Crop Block Grant, Export, Alaska Grown, Food Safety Education, and Farm to School Programs.

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Alaska Farmland Trust

Amy Knapp Pettit, Executive Director for the Alaska Farmland Trust

Abstract

The Alaska Farmland Trust envisions a future with thriving local food markets that will give Alaskans access to fresh, healthy food and keep our farmers farming. We do this by preserving farmland, connecting landowners with farm seekers and educating Alaskans about agriculture.

Amy Knapp Pettit was born & raised on a cow-calf operation on the Southern Oregon Coast. She attended Oregon State University's satellite school in La Grande, Oregon earning a Bachelor's degree in Agriculture Business Management. Amy worked for the Alaska Division of Agriculture on the marketing & development team for 10 years and has been at the helm of Alaska Farmland Trust for 3 years. Amy's passion for local food, local connections and local fun bring a unique awareness to the importance of permanent land protection.

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USDA Natural Resources Conservation Service in Alaska

Amanda Crowe, Assist. State Conservationist - Programs, USDA NRCS in Alaska

Abstract

Natural Resources Conservation Service (NRCS) is the premier federal agency in the U.S. Department of Agriculture for supporting conservation on private lands. NRCS offers financial and technical resources to help farmers, ranchers, and foresters make conservation work for them. NRCS promotes a system of practices to help producers improve their operations, reduce the cost of production, and conserve our natural resources for the future. Learn more about financial incentive programs to implement conservation on private lands.

Amanda Crowe is the Assistant State Conservationist – Programs for the United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS). Amanda helps Alaska NRCS implement Food Security Act (Farm Bill) programs, in an effort to accomplish their mission of "Helping People Help the Land." Prior to moving to Alaska in 2017 Amanda worked for NRCS in

North Dakota and Wisconsin, where her favorite projects were locally lead initiatives working directly with partners from the community. Amanda holds a BS in Soil and Land Management from the University of Wisconsin – Stevens Point and a MS in Biological Systems Engineering from the University of Wisconsin – Madison. <https://www.nrcs.usda.gov> or Amanda.Crowe@USDA.gov

Obtaining Financing for a Farm Real Estate Purchase from an Ag. Lender

Jeff Curry, Ag. Prog. Mgr. for the USDA FSA in Alaska

Abstract

Land ownership is the single largest investment for most farm businesses. The debt associated with that land investment is also one of the hardest annual costs to cover out of cash flow from low margin farm businesses. Because of this, financing farm real estate purchases is one of the more difficult loans to obtain. This presentation will discuss the process of obtaining farm business financing and some tips on preparing for it.

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How Western SARE Helped Potato Farmers on the Kenai

Heidi Chay, Dist. Mgr., Kenai Soil and Water Conservation District

Abstract

In 2018, Kenai Soil & Water Conservation District received a Professional + Producer grant from Western SARE to trial a single-row harvester and tub-washer on five small-scale farms producing root crops, document the impacts, and assist producers in developing a cooperative marketing plan, all with the aim of increasing root crop production on the Kenai Peninsula.

Heidi Chay has served the Kenai Soil & Water Conservation District as District Manager since 2011. An important goal of the District is to develop market farmers and encourage sustainable farming methods by providing relevant research, workshops, peer-to-peer exchanges, rental equipment and outreach to buyers and consumers. Heidi manages the full range of District programs including sustainable agriculture/local food, habitat restoration and invasive plants. Prior to joining the District, Heidi worked professionally as a mediator and group facilitator (1996-2011) and radio journalist (1988-90 and 1996-97).

www.kenaisoilandwater.org

The State of Alaska Potato Program: Introduction, Purpose, Goals

Christine Macknicki, Microbiologist II at the Alaska Plant Materials Center (PMC)

Abstract

Potatoes have long been an important crop for the citizens of Alaska; impacting cultural practices, food security, research and the economy. The State of Alaska Potato Program supplies clean seed to the state's certified potato seed growers who in-turn supply quality, healthy seed to commercial producers, subsistence farmers and home gardeners. Thanks to geographic isolation, a harsh climate and the relative newness of large-scale crop production, Alaska is in the enviable position to protect against the introduction and establishment of pests and pathogens that have plagued the agricultural industry in the contiguous US. To further this effort, the PMC potato program maintains a tissue culture collection of approximately 250 potato varieties from which we produce generation-zero (G-0) seed, we provide research on topics of interest and we engage in educational opportunities to promote the Alaska Grown potato seed industry and good agricultural practices in the state.

Christine graduated from the University of Alaska Fairbanks with a BS degree in Biology. She partially funded her education with a student job in a marine invertebrate lab. After graduation she continued her career in laboratory sciences with work in chemistry, human gene therapy and plant virology before taking a job with the Alaska Plant Materials Center in 2015.

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Cover Crops in Peony and Nitrogen Release from Various Sources of Organic Inputs

Mingchu Zhang, Ph.D. Prof. of Soil Sci. and Agronomy, School of Nat. Res. and Ext.

Graduated from the Department of Soil Science, University of Alberta in 1993, Dr. Zhang worked as a research associate at the University of Alberta from 1993 to 1997, as a research agronomist from 1998 to 2003. In August 2003, he started to work as an assistant professor in the School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks, he was promoted and tenured to associated professor in 2008, and full professor in 2013. In 2009, he was elected as the department chair in the Dept. of High Latitude Agriculture, and served in that position until 2012. He now serves as a member in Circumpolar Agriculture conference, Chair for the UAF Faculty Senate Information Technology Committee. His research area includes compost/organic waste management, soil mineralizable N, small grain production system development etc. He has published more than 60 peer reviewed journal papers and numerous reports and presentations.

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Leveraging Natural Resources to Develop Food hubs and Promote Healing and Wellness in Rural Communities

Eva Burk, M.S. Student - Natural Resources Management: Sustainable Agriculture and Rural Development; Tribal Member and Shareholder

Abstract

There are numerous benefits to developing Tribal agricultural operations, including: food security, climate change adaptation, education and health improvement. Growing and harvesting food fosters resilience, promotes self-reliance and builds technical skills. With the right partners and business planning, economic development is another viable benefit. Reestablishing traditional and local food systems is a whole health approach, caring for the emotional, physical, spiritual, intellectual, social, occupational and environmental dimensions of every living being, plants, animals and humans alike. In addition to land holdings, there is a significant amount of financial and technical assistance available to Tribes throughout Alaska to develop agricultural operations, ranging from community gardens to biomass heated greenhouses and reindeer farms. There are several existing agricultural operations in rural Alaska (e.g. Ester, Bethel, Tyonek, Manley Hot Springs and Igiugig), which can be evaluated for factors contributing to or detracting from sustainability, such as collaboration with schools, health facilities, stores and restaurants. I am working with these producers to form collaborative partnerships and develop educational programs to assist with building farms scaled to local community and regional needs.

Eva Dawn grew up practicing her Denaakk'e (Koyukon) and Menhti Kenaga (Tanana) Athabaskan traditions of harvesting salmon, moose, waterfowl, berries and trapping with her family. Her family lived a nomadic lifestyle along the Tolovana, Kantishna, Tanana and Nenana Rivers, eventually settling in Nenana to attend school. Eva has a B.S. from UAF in Civil Engineering (2007) and worked for ASRC Energy Services as a Senior Project Engineer from 2007 to 2013. She worked on many projects involving pipelines, roads, broadband infrastructure, environmental studies, logistics, stakeholder engagement and renewable energy. Most importantly, she is a mother to four, and dedicated to realizing her family's dreams of returning to their subsistence lifestyle and opening a farm on their land near Manley Hot Springs. She has spent the last few years volunteering for her villages as a Wellness and Culture Camp Leader, Cook, Laborer and Fisherwoman.

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Developing a network of small, community-based farms in the Kodiak region- successes and challenges

Robbie Townsend Vennel

Abstract

The Kodiak Archipelago Rural Regional Leadership Forum (the Forum) is a consortium of about 50 leaders from the archipelago's small, coastal communities who work together to support long-term sustainability of Kodiak's villages. The Forum identified as a priority regional goal the establishment of small, community or tribally owned farms that would support community wellness and economic development. In 2015, the Kodiak Archipelago Leadership Institute (KALI), the Forum's sister non-profit, was awarded a 3 year US Department of Health and Human Services Administration for Native Americans (ANA) Grant to establish pilot farms in the communities of Larsen Bay, Old Harbor, Ouzinkie and Port Lions. The three main elements of the ANA project design included 1) the establishment of small, tribally or community owned farms with egg production, hoop houses to extend the growing season and outside growing areas, 2) a comprehensive training program with the UAF Cooperative Extension Service as primary technical support and, 3) farm business planning support. Challenges encountered over the three year project include 1) starting from scratch with no farming experience, 2) providing on-site technical support in a region with no large-scale commercial growers and no Cooperative Extension Service presence, 3) modifying business planning to meet community and tribal goals, and 4) overcoming the logistics of shipping to off-road system communities. Successes were in many ways responses to encountered challenges and included the establishment of a deep, regional team, identification of additional technical resources, development of community farming business models, and working together to overcome logistical challenges. All four farms are in operation and two are approaching financial sustainability. KALI has continued to provide technical assistance to an expanded audience that includes the farms and potential small farmers through the USDA 2501 Program with farmer requested topics.

Robbie Townsend Vennel has worked in Alaska for the past 34 years primarily in support of economic development for Alaska Native Corporations, Tribes and rural communities. From 1989 to 2002 she worked at Afognak Native Corporation starting as its Chief Financial Officer and ending as its Chief Executive Officer. Since leaving Afognak, she supported economic development in Alaska's rural communities including serving as coordinator and facilitator of the Kodiak Archipelago Rural Regional Leadership Forum or as we call it in Kodiak, "the Forum". Robbie developed the 2015 US Department of Health and Human Services Administration for Native Americans proposal and then when awarded served as the project director that established a network of small, community or tribally owned farms in four of Kodiak's off-road system communities. She continues to support Kodiak's rural communities through KALI and other organizations.

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Food Preservation Basics

Julie Cascio

Abstract

Alaskan food is harvested in large amounts during one time of the year. From fish to moose, bear to berries, vegetables to fruit there is a large variety. Preserving this food safely to enjoy in other

seasons becomes an important step in the process. This discussion will include the variety of ways to preserve foods in the home.

Julie Cascio has an ongoing enjoyment with growing, cooking, baking and preserving safe, healthy, nutritious food in the changing wonders of Alaska.

Starting a Cottage Food Business

Sarah R-P. Lewis, Assistant Professor of Extension UAF

Sarah Lewis is a lifelong Alaskan, a licensed Architect (University of Oregon, 1994), and a Master of Social Work (University of Alaska Anchorage, 2003). After several years on Juneau's Sustainability Commission, in 2013, she turned her professional focus to Extension education to help promote Southeast Alaska's local food resources and the many valuable skills needed for personal, family, and community resilience. Throughout Southeast Alaska, Sarah teaches hands-on classes to participants of all ages and experience levels, including food preservation, family emergency preparedness, local food resource use, and food entrepreneurship. She lives in Juneau with her husband, two kids, two dogs, and two boats.

712 W. 12th Street, Suite 1, Juneau, AK 99801

Beyond Compost — There are Other Ways to Build Your Humus

Ellen Vande Visse, Good Earth Garden School.com

Abstract

What if you could get more vibrant crops AND help reduce atmospheric CO2?

Well, you absolutely can! Learn how to be a Carbon-Sequestering Gardener/Farmer. No matter that we expect hotter and drier summers. Mobilize these strategies for more crop resilience, more colorful flowers, less irrigating, tastier veggies. Learn how to grow soil humus while stabilizing our climate.

Good Earth Garden School

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FRIDAY FEBRUARY 21ST

Risk and Risk Management for Agricultural Producers

Jenny Beiermann, Agriculture and Business Management Specialist, Colorado State University

Abstract

With the agricultural commodity prices and markets recently reaching record lows, it is important as a producer to prepare for the upcoming, uncertain times facing the agriculture industry. Risk management is essential for the success of any agricultural business. Learn how to develop a risk management strategy for your operation and remain financially resilient during the low cycles in agriculture.

Jenny Beiermann is an Agriculture and Business Management Economist with Colorado State University Extension in the Department of Agricultural and Resource Economics. She received her B.S. degree in Agricultural Business and her M.S. in Agricultural and Applied Economics at the University of Wyoming. Prior to joining CSU Extension in 2016, she worked in the livestock production industry, and with a leading Ag tech company, specializing in vertical aquaponics growing systems. Her expertise and professional interests include production economics, business management, and strategic financial planning.

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Before you start a peony farm, try it out--lease, work for, or market for an existing peony farm

Heidi Rader, Tribes Extension Agent, UAF Coop. Ext. Serv. and Tanana Chiefs Conference

Abstract

In the last decade, peony farms have blossomed across the state spurred on by headlines such as these, "The industry's about to explode: Peony market flourishes in Alaska" and "Alaska's peonies are the state's new cash crop". The number of peony farms has exploded in Alaska, but are those farmers making money? I talked to about a dozen peony farmers in Interior Alaska-- most of whom had not made any money—even those who had started over ten years ago. As it turns out, the niche timing is unreliable and could be disappearing with climate change. The Dutch have also infringed on the Alaska niche by chilling their flowers for longer. There are a variety of other reasons that make peony farming challenging to say the least. Successful peony farming includes three parts: 1) growing marketable peonies, 2) proper chilling and post-harvest handling, and 3) efficient marketing. Each piece presents its own challenges and unknowns. If you successfully reach the third level, you must continue juggling all of the challenges of the first and second levels as well. If you're interested in starting a peony farm, you should consider leasing, working for, or

marketing for a peony farm first. This will give you a chance to try out all aspects of peony farming before you invest in land and roots. If you decide you want to own a peony farm, there are plenty of opportunities to buy existing peony farms.

Heidi Rader promotes health, wellness and self-sufficiency through education on local foods and agriculture. She teaches webinars on these topics and offers the Alaska Master Gardener Online course. She provides hands-on workshops in the Tanana Chiefs Conference region. Rader created the Grow&Tell mobile app, writes monthly news columns and films YouTube videos. She also directs the vegetable variety trials in Fairbanks.

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When Innovation is Not a Choice

Kelli Foreman, Farm Manager Kodiak Baptist Mission

Abstract

Come along on our journey in becoming a Grade A Certified goat dairy in Kodiak, Alaska. Why we made this choice, the impact it is having and what it means for sustainable agriculture for our island community. Daily new challenges arise which push us toward innovative strategies that challenge the status quo and help grow the agricultural community. Our farm is a unique operation that focuses on teaching our next generation and works to incorporate our community into each season at the farm. How do we do this, why it's so important and what we are learning along the way will be discussed.

Kelli Foreman is originally from central Nebraska where she grew up on her family farm. She attended the University of Nebraska at Kearney and received a degree in organizational communication. Immediately following college she moved to Kodiak, Alaska which has been her home for the past 15 years. She is the assistant director and childcare administrator at Kodiak Baptist Mission and manages their farm and goat dairy operation. Kelli and her husband Stephen have three young boys and too many goats to count.

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Rhodiola rosea as a Commercial Venture

Nelda Radford, Managing Director, Alberta Rhodiola Rosea Growers Org. ARRG

Abstract

ARRGO (Alberta Rhodiola Rosea Growers Organization) is a cooperative of Alberta farmers with 50+ members actively growing the medicinal herb Rhodiola rosea. The Cooperative produces an average of 15 metric tonnes annually of dried root and exports to the US, EU, Australia and Asia. ARRG was established in 2007 and started processing and selling Rhodiola in 2009. ARRG markets its raw material as fully traceable and sustainable; grown and tested to the highest Canadian standards of purity and quality. ARRG focuses on selling the root as a raw material to companies who further process for supplements and health foods. ARRG has developed Rhodiola teas, tinctures and powder supplements and will market these as finances justify. Given the extremes in global demand and supply for this increasingly rare commodity there is ample room for entrepreneurs, small businesses, and large corporate facilities to succeed in Alaskan-grown Rhodiola rosea, root extracts, and unlimited value-added products.

Nelda Radford was born in Corpus Christi, TX. She finished both her B.S. and M.S. degrees in Geology/Geophysics at the Univ. of Kansas. In 1989 she moved to Alberta and married Mike, a farmer, rancher and carpenter. Mike and Nelda have three children, and a few cattle, llamas and alpacas. A portion of their hayland has been converted to grow certified organic Rhodiola rosea, black currants, haskaps and cherries. Nelda serves as Board Chair and Managing Director for ARRG. nelda@arrgo.ca

Extending the Growing Season and Maximizing the Production of Rhodiola

Daniel Shaul, UAF Research Assistant

Abstract

In the summer of 2019 my father and I did some research on Rhodiola. Our goal was to document some important aspects of Rhodiola rosea growth and development. One of the questions addressed in this study concerns Rhodiola's short growing season. Can this growing period be extended? Working from the hypothesis that if we trimmed the plant's Then we could cause the plants to enter into a second growing season. The data from this study supported our hypothesis. We were able to create a substantial increase in new growth as well as an extended growing season. During normal cultivation there are about 7 weeks of active growth. Trimming the stems, down to the root crown, at week 7, did indeed create a second growing season. Our study begs the question as to what this increase stem growth is doing to the rhizome and its adaptogens, salidroside and rosavins. In the future we are looking at potentially increasing the second growing season by taking the plant out of the ground, without cutting the stems, putting the plants into dormancy by refrigerating them at temperatures just at or slightly above freezing. The goal is to develop a method by which plants can be taken into and brought out of dormancy without a long wait. It has not escaped our attention that this short dormancy period would provide an opportunity to till the field, greatly reducing the weed problem.

Daniel Shaul is a High School student from the Mat-Su Valley. He has an interest in developing the *Rhodiola* industry in Alaska. His goal is to build opportunities for his generation, and for the future farmers of Alaska. He has been assisting Dr. Stephen Brown, Carl Edwards, and Brian Shaul in improving production of *Rhodiola*.

High Altitude Organic Farming of *Rhodiola rosea*

Bob Patton, Organic *Rhodiola* Grower

Abstract

Efforts to farm *Rhodiola rosea* usually occurs in areas close to the polar regions and not in the lower 48 states. This project has attempted to grow *Rhodiola rosea* in high altitude [8,000 feet and above]. The project objectives have been to 1) successfully sprout *Rhodiola rosea* from seeds; and 2) grow seedlings for a year prior to transplant. The location of the project is below Wolf Creek Pass in Southwestern Colorado, at 8,200 feet elevation. Temperatures range from 15 degrees Fahrenheit below zero in the winter to 85 degrees Fahrenheit in the summer. Snow varies between a low of 2 feet, to a high of 6 feet. Five open trays, 12 inches by 5 feet were used. Each contained a mixture of soil that was steam pasteurized at 170 degrees for 30 minutes, and then supplemented with equal parts vermiculite and compost. In addition each tray had varying supplements and seed treatments. In addition due to the high altitude sun, a series of steps, misting [24 hour], elevating the trays, and use of aluminized cloth overhead [45%] were used to lower the soil temperature below the 84 degree temperature at which point *Rhodiola rosea* denatures. The results of the above and discussion will be presented.

Having retired from being an officer of the court, I decided farming in rural Alaska would make sense. I attended the Alaska State Fair in 2015, where I met Dr. Stephen Brown. After an hour of being introduced to the world of *Rhodiola Rosea*, I was hooked. As it turned out, I needed significant training in farming, even though I had been raised in a farming community. Colorado offered a place to train for a year, which I did. While there, I discovered that a cousin of *Rhodiola rosea* grew in the high mountains. After clearing the idea with Dr. Petra Illig, I began the process of farming organic *Rhodiola Rosea*. I will detail the results in my talk.

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Year Two: Starting a *Rhodiola* Farm

Patricia O'Neil, Alaska *Rhodiola* Grower

Abstract

2nd year in review... what we did, lessons we learned.
Maybe 20-25 min including questions, if there's time.

Grew up on an almond farm. Went to Cal Poly and majored in Ag- business. Moved to AK in 2002. Worked in marketing at the Division of Agriculture for 3.5 years. Began clearing land for farming in 2018.

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What grows well where? Using a mobile app. called Grow&Tell and Vegetable Variety Trials to answer this question

Heidi Rader, Tribes Extension Agent, UAF Coop. Ext. Serv. and Tanana Chiefs Conference

Glenna Gannon, Variety Trials Coordinator with UAF Coop. Ext. Serv.

Abstract

Vegetable cultivar trials were conducted in the summers of 2017, 2018, and 2019 in Fairbanks, Alaska. The goal of the trials is to help gardeners and farmers choose varieties that perform well in Interior Alaska. We hope to expand to other areas in Alaska as well. The Grow&Tell app provides a complementary opportunity for gardeners and farmers to complement knowledge gained from the trials by allowing them to rate how different varieties perform in their own gardens and farms. The amount of data on vegetable varieties has the potential to increase exponentially as more gardeners, farmers and citizen scientists use the app. The app can be used for any location in the world. Corn, Brussels sprouts, snap beans, carrots, beets, watermelon, and celery have been trialed. Future trials will continue to focus on comparing vegetable varieties as well as researching other emerging issues related to farming in Alaska, particularly as it relates to climate change.

Heidi Rader promotes health, wellness and self-sufficiency through education on local foods and agriculture. She teaches webinars on these topics and offers the Alaska Master Gardener Online course. She provides hands-on workshops in the Tanana Chiefs Conference region. Rader created the Grow&Tell mobile app, writes monthly news columns and films YouTube videos. She also directs the vegetable variety trials in Fairbanks.

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Ag in the Liberal Arts: the Louise Way

Ben Swimm, Farm Manager of Alaska Pacific University Spring Creek Farm

Abstract

People often wonder what a liberal arts school without an Ag program is doing with a vegetable farm. This session offers some history and background about Alaska Pacific University's Spring Creek Farm, while also describing how agriculture can play an important role in liberal arts education by

offering students opportunities for scientific inquiry, ethical and cultural engagement, communications, and critical thinking.

Ben Swimm has worked on diversified production and educational farms in Vermont, New York and Alaska. From 2010-2011, he was the Assistant Farm Manager at APU's Spring Creek Farm, and he returned in 2019 as Farm Manager.

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What to Know About Importing and Exporting Livestock in Alaska

Dr. Robert Gerlach, Alaska State Veterinarian

Dr. Gerlach works for the Alaska Department of Environmental Conservation as the Alaska State Veterinarian. He is responsible for animal health regulations, animal disease surveillance, manages the State's Fish Monitoring Program and is the State's Fish Advisory Program Coordinator. Dr Gerlach graduated from the Pennsylvania State University with a BS in Veterinary Science; received his Veterinary Degree (VMD) from the University of Pennsylvania, and completed a Post-Doctoral Fellowship in patho-physiology and toxicology at the Lovelace Inhalation Toxicology Institute, NM. He worked in a food animal practice in Pennsylvania and a small animal practice in Alaska prior to working for the State of Alaska.

Nutritional Quality of Locally Grown Alaska Produce

Dr. Meriam Karlsson, Professor of Horticulture, Sch. Nat. Res. and Ext., UAF

Meriam Karlsson is Professor of Horticulture in the School of Natural Resources and Extension at the University of Alaska Fairbanks. Her research and teaching activities emphasize applications for crop production at high latitudes. She teaches college level courses in plant science, greenhouse management and sustainable agriculture. Special attention is placed on understanding effects and interactions of temperature, light and other environmental conditions for plant growth and crop productivity. Guidelines and protocols in support of local production including the use of season enhancements such as high tunnels, greenhouses and other modified environments are developed. University of Alaska Fairbanks, 303 O'Neill Bldg., PO Box 757200, Fairbanks, AK 99775-7200

Making the Most of the Alaska Pest ID App

Gino Graziano, Invasive Plants Specialist with UAF Coop. Ext. Serv.

Abstract

The Cooperative Extension Service has developed a free mobile application "Alaska Weeds ID" with plans to expand this to include insects and other taxa of agricultural and forest pest issues in Alaska. The current application is the most comprehensive electronic or print identification resource of weeds in Alaska. The app has an easy to use identification key that guides users with pictures through plant characteristics resulting in a list of potential weed species. The app allows interaction with CES agents and our extended invasive weed management community with a reporting and query function. Data collected from this app through reports of weeds on public lands is used to inform public land managers of issues they are concerned with. This session will walk participants through the app functions and utility, along with an overview of how submitted data is used.

Gino Graziano is an invasive plant specialist with UAF CES, and works on a wide range of projects. Most of the focus is on wildland weeds and their control, non-target impacts from herbicides, agricultural weed management, and forest health. Gino has been involved with creation of weed and pest identification and reporting services for many years first working with fliers, then to the web, and finally mobile applications.

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Timber Harvest and Preparation for Agricultural Land Clearing: Timber Sale Contracts

Glen Holt, Adjunct Forester, UAF Cooperative Extension Service

Abstract

Agriculture in Alaska has had a history of facilitated agricultural land projects throughout the state. Planning and preparation for the clearing of land to accommodate agriculture should include prior planning to dispose of and hopefully market forest products of all kinds prior to clearing to reduce expenses and the problems of excess biomass to be disposed of. This presentation highlights some of the thought processes used to liquidate timber first and gives participants an idea and example of "timber sale contracts" and timber sale administration for timely land clearing for agriculture projects.

Glen Holt earned degrees in Wildlife Biology and Forestry at Michigan State University. He has been employed by the Michigan DNR, USDA Forest Service, Alaska State Forestry, ADF&G Habitat Division and the UAF - SNRE as their Cooperative Extension Field Forester. Glen grew up in Wisconsin and Michigan working with his dad who was also a forester. Glen has worked in interior and south central Alaska as a forester & habitat enhancement consultant. He is currently employed by the UAF Cooperative Extension as their federal forestry grant adjunct forester.

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From Seed to Harvest — Identifying the Basic Agricultural Determinants of Successful *Rhodiola rosea* Cultivation in Alaska

Dr. Petra Illig, Manager Alaska *Rhodiola* Enterprises, LLC

Abstract

Prior to 2009, when *Rhodiola rosea* was first being grown experimentally in Alaska, little information was available regarding how to cultivate it successfully. Fortunately, the first couple harvests in 2013 and 2014 were of good quality. Other growers, however, were not as successful and the reasons for these differences are not clear. Growers have also noticed significant morphological variability among plants, including root size. The basic “best agricultural practices” for growing *Rhodiola rosea* in Alaska have not yet been elucidated. To better understand these basic necessities, Alaska *Rhodiola* Enterprises LLC obtained a DNR Specialty Crop grant to develop a quality seed stock and to determine basic soil requirements. This two-year project is in collaboration with UAF Cooperative Extension and AK Plant Material Resource Center, along with volunteer growers. We are currently at the “experimental design” stage and plan to have experimental fields set up at the UAF Matanuska Experimental Farm this summer. This presentation describes the outline of this project and its objectives. It is also an open invitation for others interested in *rhodiola* cultivation to collaborate in this endeavor.

Dr. Petra Illig first started experimenting with *Rhodiola rosea* cultivation in Alaska in 2009. Since starting a *rhodiola* farmers cooperative in 2010, she now focuses on marketing and product development. Her goal is to establish a sustainable agricultural industry in Alaska based on cultivated *Rhodiola rosea*.

www.AKRoseroot.com

Rhodiola Diseases and Management

Jenifer Huang McBeath, Professor of Plant Pathology and Biotechnology, UAF

Abstract

Rhodiola are perennial, herbaceous medicinal plants, native to northern Europe, circumpolar regions, central Asia, Mongolia and China. Many *Rhodiola* species are important remedies in traditional pharmacopeia. In China, *R. crenulata*, *R. kirilowii*, and *R. fastigiata* are recognized in the Chinese and Tibetan pharmacopeia. *R. rosea* is widely utilized in the West and Central Asian countries. The roots and rhizomes, used as stimulating, toning, stress-relieving, antimicrobial- and adaptogenic-agents, are taken from *rhodiola* plants in their native populations. Increasing demand and high prices led to overharvesting in wild habitats and seriously endangered the native population of *rhodiola* in many countries, including Russia and China. To curtail the rapid depletion of biodiversity, active preservation of endangered *rhodiola* species, including domestication and cultivation of *rhodiola*, has occurred in many countries. In the wild, *Rhodiola* is found susceptible to attack by many pathogens, including *Puccinia umbilici*. Under cultivation, diseases reported on *R. rosea* were seed rot (caused by *Pythium* spp) damping off (by *Pythium* spp., *Rhizoctonia solani*, and *Fusarium* spp.), crown and root rot (by *R. solani* and *Fusarium* spp), grey rot (by *Botrytis cinerea*), stem rot (by *Sclerotinia sclerotiorum*), powdery mildew, aster yellows phytoplasma and winter kill. In Alaska, although no evidence of diseases on *Rhodiola* has been reported, *B. cinerea*, *Fusarium* spp. *R. solani*, *S. sclerotiorum* are pathogens present in the State. In Alberta, one of the major *rhodiola* growing areas, recommended controls of diseases are seed treatment and chemical spray. In Alaska, the conventional, chemical-dependent, agricultural practice could have especially serious consequences for the environment and human health, because of the persistence of pesticides in cold soils and subsequent bioaccumulation in plant tissues. Disease control using biological-based and environmentally-benign products, such as cold adapted *Trichoderma atroviride* (Plant Helper™), discovered in Alaska, should be examined.

Jenifer Huang McBeath is a professor of Plant Pathology and Biotechnology, University of Alaska Fairbanks. She excels in innovative, effective and environmentally benign means of plant disease control. McBeath was recognized for her exceptional achievement in the development of lab-tested, disease-free seed potatoes for export. She was the only academician to negotiate and co-author the phytosanitary protocols for exporting U.S. (Alaska) seed potatoes in the US/China bilateral talks on agricultural products. Through her efforts, Alaska became the only state in the U.S. with agreements to produce lab-tested disease-free seed potatoes for export to China and Taiwan. Furthermore, McBeath discovered and developed the cold-adapted *Trichoderma atroviride* (Plant Helper™), a versatile beneficial microorganism which has proved to be efficacious in the control of a wide range of economically important plant pathogens in all climate regions. Among her many awards, she is a Fellow of the American Phytopathological Society.

Methods in Accelerating Growth and Yield of *Rhodiola rosea*

Carl Edwards, *Rhodiola* Grower

Abstract

The goal of this research was to search for methods to bring a high yield *Rhodiola* crop to market in as little time as possible. By growing *Rhodiola* in a highly controlled environment many factors have been discovered leading to increases in growth and development. Significant advances were made in shortening the time plants need to be in dormancy. This is important as winter dormancy, normally a six to seven months, is followed by rapid stem growth and crown expansion. Experiments and comparisons were also run in different methods of indoor growing of *Rhodiola*. Both hydroponic

and aeroponic methods were tested. In a hydroponic system, involving a small number of plants growing for slightly less than a year, seedlings grew rapidly, developed a large crown, produced flowers, and viable seeds. Plants continued to rapidly grow when transplanted in Coco Coir, obtaining a rhizome mass of 57 grams in a nine month time period. This established proof of concept for rapid indoor growth. Further experimentation with aeroponic growing systems showed even better results. Comparing seedlings sent through three months in an aeroponic system with seedlings growing only in sand or Coco Coir saw a nine-fold increase favoring aeroponic growth, sample size being almost 800 plants. This established a high degree of confidence needed for upscaling and refining methods specifically tailored for *Rhodiola* growth.

Carl Edwards was born in Oklahoma City, Oklahoma in 1952. Moved to Alaska at 3 years old. Graduated from Chugiak High School with honors. Honored as top science student of the class of 1971, awarded the Bosch & Lomb Science Award. Attended Howard Payne University in Texas for two years. Was honored as a Presidential Scholar and Honorary Member of the Texas Academy of Sciences. Graduated from University of Oregon with a BS in Biological Sciences. Received a Masters MAT from Alaska Pacific University. Taught High School Sciences, Biology, Anatomy and Physiology, Forensics and Chemistry for almost 40 years before retiring. Coached Science Olympiad for six years. Led Sci Oly teams to win first place state and national awards. Awarded Alaska Science Olympiad Coach of the Year 4 years in a row.

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Taking the *Rhodiola* Industry from Good to Great

Brian Scott Shaul, Author

Abstract

The *Rhodiola* industry in Alaska is poised to undergo some radical changes in the near future. Forces driving these changes will include economic factors. Alaska is prime to become a world leader in *Rhodiola* farming. Its climate is ideal for growing *Rhodiola*. In the book, “Good to Great”, the author Jim Collins talks about the “Hedgehog Concept”. Three overlapping factors needed to develop a great industry. To some degree, these traits already exist in the Alaska *Rhodiola* industry. Steps to find and implement what is known as “Technology Accelerators” are already beginning to find their way into the industry. Such accelerators include utilizing two growing seasons in one summer and growing seeds for 12 months before planting. These accelerators effectively double the crop yield in the 5th year. Other accelerators include growing *Rhodiola* indoors, with hydroponic, and aeroponic assistance.

Brian Shaul grew up in the Mat-Su Valley. He is an Author of three books. He has been a consultant, teaching principles of leadership, for businesses and nonprofits. Recently he has been working with the University of Fairbanks on improving the *Rhodiola* Industry in Alaska.

SATURDAY FEBRUARY 22nd

Livestock Parasite Management Workshop

Dr. Lisa Lunn, Associate Professor Veterinary Medicine and Coop.Ext. Serv., UAF

Lisa Lunn is a Veterinarian, specializing in Large Animal Internal Medicine, with an emphasis on Food Animal health and welfare. Promoting the One Health Initiative, as it relates to ruminant disease and public health, is important to Dr. Lunn and she uses this approach with her classroom teaching of veterinary students. As the first Veterinary Extension Specialist in Alaska, she is focused on mapping out diseases in the State and developing educational programs focuses on promotion of livestock health and productivity, food safety, and improving food sustainability in Alaska.

Livestock Nutrition, Feeding and Pasture Management Workshop

Michael Fisher, Pueblo County Extension Director, Colorado State University

Abstract

What makes the ruminant animal (cow, sheep, and goat) a ruminant? Does my cow really have four stomachs? How is their digestion system built? Why can a ruminant animal thrive eating grass when a monogastric animal (pig or poultry) can't? My horse eats grass, why isn't it a ruminant animal? What is the difference between energy and protein? What does feeding a high energy diet do to my livestock? What does feeding a high protein diet do to my livestock? How should I feed my livestock? Have you ever asked one of these questions to yourself? Come to the livestock nutrition and feeding presentation to learn the answer to these questions and more. And bring along your other questions about feeding cows, sheep, and goats.

Michael Fisher grew up on a diversified family farm in central Iowa that raised cattle, sheep, corn, soybeans, and hay. He received a BS in Animal Sciences from Iowa State University, where he was a member of the national champion Meat Animal Evaluation Team and worked with the carcass ultrasound research group. Following graduation, Michael worked for a beef cattle solutions company conducting feeding and equipment research on feedlots and in meat packing facilities throughout the country. Later, Michael worked for a livestock nutrition company in Nebraska. In 2001, Michael

returned to school to get his MS in Ruminant Nutrition from Oregon State University. Afterwards, he was the Meat Animal Evaluation Coach with the University of Georgia, prior to his fifteen-year Extension career in Virginia and Colorado. He has been with CSU almost 13 years. His research interests are in how nutrition impacts cattle performance and meat quality.

Non-Timber Forest Products and Shoulder Season Farm Income Opportunities

Glen Holt, Adjunct Forester, UAF Cooperative Extension Service

Abstract

Alaskan agricultural lands often continue to have a "woodlands" component of the landholding. These forested portions are often not suitable to agriculture due to topography, soil fertility or wetland issues. Yet they can be a seasonally productive part of the farmers income portfolio. This presentation seeks to introduce Agricultural Producers and other forest land owners to Non-Timber Forest Products from their land that are often more available than once cut timber sale receipts. This presentation offers insight with several Alaska NTFP being managed throughout the State.

Glen Holt earned degrees in Wildlife Biology and Forestry at Michigan State University. He has been employed by the Michigan DNR, USDA Forest Service, Alaska State Forestry, ADF&G Habitat Division and the UAF - SNRE as their Cooperative Extension Field Forester. Glen grew up in Wisconsin and Michigan working with his dad who was also a forester. Glen has worked in interior and south central Alaska as a forester & habitat enhancement consultant. He is currently employed by the UAF Cooperative Extension as their federal forestry grant adjunct forester.

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