Title:	Holloway, P. 2013. Horticultural Crop Production for Alaska. Cooperative States Research and Extension Service HATCH report Acc. 0190422

Sponsoring Agency	NIFA	**Project Status**	CHANGED
Funding Source	Hatch	**Reporting Frequency**	Annual
Accession No.	212474	**Project No.**	ALK-08-01
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Reporting Period Start Date	10/01/2007	**Reporting Period End Date**	09/30/2013
Submitted By		**Date Submitted to NIFA**	

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Performing Department

High Latitude Agriculture

Non-Technical Summary

Horticulture is the largest agricultural industry in Alaska amounting to more than 80 percent of cash receipts for all agricultural crops in the state and 40 percent of all agricultural commodities including aquaculture, livestock, and agronomic crops. The value of major horticultural crop plants in the most populated areas of Alaska is estimated at $20 million. Four horticulture specialties are emerging as the most important research focus areas to support commercial enterprises in Alaska: organic and sustainable horticulture; controlled environment horticulture especially season extension and moderation using high tunnels; field-grown cut flower production and Alaska wild berry cultivation and management for food and neutraceutical industries.

Accomplishments

Major goals of the project

The objectives of this research program are three-fold: 1) to evaluate annual flower and perennial landscape plant materials from commercial sources, botanical gardens and wild collections; identify plants suitable for use in the greenhouse/nursery/landscape industry through multi-year trials; 2) to conduct experiments with field-grown peonies for fresh cut flowers for export markets; and 3) to establish cultivated fields for lingonberry and Alaska bog blueberry (Vaccinium vitis-idaea and V. uliginosum, respectively) and evaluate wild-collected germplasm for it value in fruit production in Alaska.

What was accomplished under these goals?

Most Alaskans and visitors know that this northern climate produces stunning flowers. The huge blooms and vibrant colors are certainly the talk of summer visitors, gardeners and landscapers. In 2001, the University of Alaska Fairbanks Agricultural and Forestry Experiment Station (AFES), received a grant from the US Department of Agriculture (federal grant) to study the potential for developing an export industry in specialty cut flowers. We planted peony roots, enlisted the help of undergraduate senior thesis and graduate master's students in analyzing the feasibility of growing peonies as cut flowers in Alaska. At the same time, we contacted growers, flower distributors, florists, marketing specialists in the "lower 48" and New Zealand to learn the potential of this fledgling idea. We were encouraged even further when, in 2004 we were contacted by the largest cut flower distributor in London who insisted on purchasing at least 1 million stems to be transported (at his expense) on jets loaded with fresh Alaska salmon headed for London restaurants. Through efforts of the UAF Experiment Station and Cooperative Extension, a small group of Alaskans began growing peonies, and in 2007 the first ever commercial export of peonies from Homer was sent to florists in the "lower 48". The first delivery was fewer than 1,000 stems, but it was highly successful. Today, there are 90 peony growers; 67 growers have commercial quantities of peonies in the ground; the rest are starting small, entering this market with a healthy dose of caution. The largest grower in Soldotna has more than 10,000 plants in the ground. There are peony growers in Fairbanks, North Pole, Delta Junction, Nenana, Central, Trapper Creek, Palmer, Wasilla, Kenai, Soldotna, Homer and a few places in between. Through a combined effort of researchers, extension personnel, and growers, the world is waking up to the fact that Alaska has high quality peonies for sale. In 2011, Alaska peonies were shipped to Japan, many locations in the Lower 48, and even Hawaii with demand far exceeding supply. Every grower with peonies to sell was inundated with phone calls from all over the world this past summer. This business also has attracted outside investors; two Alaska farms are now custom growing peonies for the largest Midwest flower distributor in Chicago. A new industry has begun in Alaska, and all indications are, it will grow just as fast as Alaskans plant peonies. Growers have formed the Alaska Peony Growers Association with a website of cut flower availability (http://alaskapeonies.

org/). In 2012 nearly 25,000 high quality Alaska fresh cut stems were sold in Canada, Taiwan, Hawaii and the contiguous 48 states. Growers routinely receive from $3.00 to $9.00 per stem. Projected yield by 2015 is over one million stems. It is anticipated that this will inject approximately $2,750,000 into the Alaska economy.

What opportunities for training and professional development has the project provided?

This industry was started as a direct research project at the University of Alaska Fairbanks Agricultural and Forestry Experiment Station (AFES), and only because the UAF Cooperative Extension Service (CES) held a conference, invited people to attend and exchange ideas. This project is the perfect example of how the system should work – public dollars being used to explore opportunities that promote economic development and well being of Alaskans.

How have the results been disseminated to communities of interest?

Through publications, impact statements, poster presentations, The Alaska Peony Growers website (http://www.alaskapeonies.org/), the Georgeson Botanical Garden website (http://georgesonbg.org/research/peonies/index.html) and the School of Natural Resources and Agricultural Sciences blog

What do you plan to do during the next reporting period to accomplish the goals?

{Nothing to report}

Participants

Actual FTEs for this Reporting Period

Role	Faculty and Non-Students	Students within Staffing Roles			Computed Total by Role
		Undergraduate	Graduate	Post-Doctorate	
Scientist	0	0	0	0	0
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Administrative	0	0	0	0	0
Other	0	0	0	0	0
Computed Total	0	0	0	0	0

Target Audience

The Alaska Peony Growers Association and other specialty cut flower growers, national and international commercial seed businesses, Alaska market gardeners and Alaska's agri-tourism industry. UAF graduate and undergraduate students in natural resources management, Alaska homeowners, commercial horticulture businesses, Alaska Mater Gardeners Association, numerous Alaska garden clubs, agencies including: Alaska Department of Natural Resources Division of Agriculture, UAF's Cooperative Extension Service.

Products

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2011	YES

Citation

Barney, D. and Holloway, P. 2011. Plant Collection Report. Fairbanks, Alaska Region. July 24-30, 2011. Report. USDA Agricultural Research Service. National Clonal Germplasm Repository. 25p.

Type	Status	Year Published	NIFA Support Acknowledged
Conference Papers and	Published	2011	NO

Citation

Holloway, P. 2011. Specialty Cut Flower Industry, Alaska. Invited Presentation. American Peony Society, Portland, OR. 25 May.

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2011	NO

Citation

Holloway, P. 2011. University Trials. Peony Update. Invited Presentation. Alaska Peony Growers Association, Homer, AK 19 Aug.

Type	Status	Year Published	NIFA Support Acknowledged
Conference Papers and	Published	2011	YES

Citation

Holloway, P. 2011. Horticulture in Alaska: Ethnobotany. Berry pigments and peonies. Invited Presentation. USDA National Clonal Germplasm Repository, Corvallis, OR. 26 May.

Type	Status	Year Published	NIFA Support Acknowledged
Conference Papers and	Published	2011	NO

Citation

Holloway, P. 2011. Revegetation of North Slope, Alaska. Invited Presentation. Oregon State University. 26 May.

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2009	YES

Citation

Willison, M.S., P.S. Holloway and S.D. Sparrow. 2009. Reclamation of disturbed arctic wetland sites with native sedges. University of Alaska Fairbanks Department of High Latitude Agriculture. School of Natural Resources and Agricultural Sciences Leaflet. 2p.

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2008	YES

Citation

Holloway, P. 2008. Hardiness of woody ornamental and conservation plant materials in Fairbanks, Alaska. Contract Report. NC-7 Ornamentals Subcommittee. USDA Plant Introduction Station, Ames, Iowa. 10p.

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2008	NO

Citation

Holloway, P. 2008. Babula Children’s Garden. Contract Report. University of Alaska Georgeson Botanical Garden. 9p.

Other Products

Product Type

Physical Collections

Description

Conducted research that led to the development of the Alaska specialty cut flower industry beginning with the peony; fostered the development of the Alaska Peony Growers Association.

Product Type

Protocols

Description

Developed protocols for commercial field cultivation of lingonberry (lowbush cranberry) currently used in

Alaska, Washington and Oregon and the wild blueberry in Alaska.

Product Type

Protocols

Description

Developed protocols and supported commercial businesses in the propagation and cultivation of more than 100 Alaska native plants for use in wildflower meadows, highway and mine revegetation projects, home and commercial landscapes.

Product Type

Data and Research Material

Description

Identified antioxidant levels in Alaska wild berries and explored the fate of antioxidants in frozen and processed wild berries

Product Type

Data and Research Material

Description

Researched the reproductive biology of Alaska's only endangered plant species, the Aleutian shield fern, and contributed toward the species recovery plan through aseptic micropropagation.

Product Type

Databases

Description

uDesigned databases for long term horticultural plant research, evaluation and conservation at the Georgeson Botanical Garden

Product Type

Other

Description

Founded and continue to direct all programs at the Georgeson Botanical Garden supporting research, education and outreach in horticulture, agriculture, natural resources management, biology, botany, northern studies, Alaska Native language studies and ethnobotany

Product Type

Other

Description

Sponsored educational programs for students and visitors annually from pre-K through post-secondary education as well as Alaska summer visitors.

Product Type

Other

Description

uEstablished and continue to build three endowment funds for future garden programs: The Dorothy Beistline Memorial Fund, The Georgeson Botanical Garden Endowment, The Ohlsen Family Fund.

Product Type

Other

Description

uProvided expertise on hardy plant materials, landscaping, plant reproduction and cultivation to the University community, Alaska Cooperative Extension Service, state agencies, communities throughout Alaska and Yukon, and botanical gardens throughout the circumpolar North.

Changes/Problems

{Nothing to report}