

# High tunnels at High Latitudes: Sustainable Crop Production for Alaska

## Final report for EW15-022

Project Type: Professional Development Program

Funds awarded in 2015: \$32,315.00

Projected End Date: 07/31/2018

Grant Recipient: University of Alaska Fairbanks

Region: Western

State: Alaska

Principal Investigator:

[Dr. Casey Matney](#)

University of Alaska Fairbanks

## Project Information

### Abstract:

The High Tunnels at High Latitudes project trained 22 Alaska agriculture professionals on current and relevant high tunnel crop production methodologies and considerations. In addition to Cooperative Extension Service (CES) agents, staff from other in-state agriculture organizations attended the training. Sustainable practices in the training included: nutrient management, integrated pest management, crop selection, irrigation, and construction/maintenance considerations. Along with the training, Kenai high tunnel operations and farms were exhibited through a day of farm tours. Agriculture professionals identified education and research priorities related to high tunnel production in high latitudes. Following the training, CES agents utilized the knowledge gained to offer high tunnel trainings to producers across the state. Agents offered a total of 19 educational events based on the information provided at the training to a total of 189 participants. Additionally, CES agents in Alaska produced 16 quality high tunnel educational videos with over 115 minutes of video content and 4,320 views as of September 26, 2018.

### Project Objectives:

Objective 1 - Provided a professional development workshop to train Cooperative Extension Service agents and other agriculture professionals on all relevant aspects of high tunnel production at high latitudes to enable provision of valuable technical assistance to producers.

Objective 2 - Prepared a series of Cooperative Extension Service videos on high tunnel production at high latitudes to be used by producers across Alaska. Videos were scripted and prepared by the agents that received earlier training.

Objective 3 - Cooperative Extension Service agents disseminated information gained through the initial training by providing training/workshop events to current and

prospective producers across Alaska. The workshops were aimed at increasing participant knowledge of high tunnel production methods leading to adoption of practices that reduce costs and improve natural resource management.

## Cooperators

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## Education

Educational approach:

This project addressed Western SARE program goals #1 and #2. The professional development workshop provided instruction on sustainable crop production methods that apply regionally to Alaska and other high latitude locations, both for stewardship of natural resources and to enhance quality of life for producers.

By learning, then teaching about, sustainable crop production in high tunnels, agriculture professionals can promote practices that help satisfy food needs in urban and rural Alaskan communities, enhance soil quality and productivity, and increase profitability for producers. High tunnels are regionally important in Alaska for season extension provide a growing environment that allows for production of crops that would otherwise be unrealistic in Alaska without the use of expensive energy resources.

Producer training workshops/events were held in rural and urban communities across Alaska by both face-to-face and distance delivery methods. In both community types, commercial and home-use producers attended trainings. Many of the participants were small-scale producers, while a fewer number were destined for home-use. Over 670 high tunnels were erected in Alaska from 2010 to September of 2016, due to the launch of an NRCS program to assist high tunnel growers. These are only the number of high tunnels recorded for the NRCS program during a six year period, many more high tunnels continue to be erected across rural Alaska. While some of the initial interest in rural Alaska was from home gardeners, the numbers of farmer's markets and rural farms continues to grow.

## Education & Outreach Initiatives

### **Education and Outreach Methods**

Objective:

Training, Education, and Outreach

Description:

Because of the increasing interest and use of high tunnels in Alaska, we focused our efforts to train educators and develop educational videos to better promote this expanding method of agriculture. To accomplish the project outlined in this proposal, partnerships were strengthened between numerous agriculture professionals, such as Natural Resources Conservation Service, Soil and Water Conservation Districts, and State of Alaska Division of Agriculture. Staff from these organizations were invited to attend the professional development workshop and participate in the brainstorming session. Based on their letters of support and previous conversations, we knew they were interested in having some of their personnel attend the workshop. Attendees were from diverse backgrounds to allow for varied questions and discussion during the brainstorming session on education and research priorities. Working together we were able to better focus our outcome efforts into areas that would most help Alaska farmers become familiar and proficient with the use of high tunnels.

Key resources for this project included agencies sending personnel to the initial training workshop and the involvement of select high tunnel operators. Extension personnel were provided travel to attend the training. Travel costs for select guest speakers were also covered. Travel and per diem for other agriculture professionals were covered by their parent organizations. There were no fees charged for the high tunnel training workshop. The project covered the cost of transportation to the field tour sites and the fee for meeting space. Owners of the high tunnels that were toured volunteered their time. Educational videos were prepared by selected

attendees and these will be products were funded by UAF-CES as part of our expected job performance in cooperation with our communications department.

Researchers from the University of Alaska Fairbanks, School of Natural Resources and Extension (UAF SNRE) have participated in some of the only research on use of high tunnels in Alaska, including variety trials and production techniques. Those researchers, Dr. Meriam Karlsson and Heidi Rader, were asked to present their research as part of the professional development workshop. Dr. Mingchu Zhang, a soil scientist with UAF SNRE, was also invited to speak about soil fertility and management in high tunnels. Janice Chumley, Steven Seefeldt, and Darcy Etcheverry provided information on entomology and plant pathology. Several farmers from across the Kenai district were also invited to attend to provide unique perspectives during the workshop.

After professional development training, Cooperative Extension Service agents provided educational workshops/events across Alaska. Five presentations were distance delivered via web and teleconference to Kodiak. Project funds were utilized to support and provide workshop/event opportunities. Costs included travel for in-state experts to attend and speak at events, rental fees for vehicles to use during local high tunnel tours, and supplies.

## Educational & Outreach Activities

**16** Curricula, factsheets or educational tools

**4** On-farm demonstrations

**1** Published press articles, newsletters

**3** Tours

**10** Webinars / talks / presentations

**2** Workshop field days

## **PARTICIPATION SUMMARY:**

**11** Extension

**7** NRCS

**3** Researchers

**8** Nonprofit

**4** Agency

**116** Farmers/ranchers

**67** Others

## Learning Outcomes

**211** Participants gained or increased knowledge, skills and/or attitudes about sustainable agriculture topics, practices, strategies, approaches

**33** Ag professionals intend to use knowledge, attitudes, skills and/or awareness learned

## Project Outcomes

**1** New working collaboration

Project outcomes:

The need for agriculture professionals to provide expertise and training on high tunnel use has been steadily growing since 2010. By 2014, over a four year period, approximately 4 million dollars had been allocated through the Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) towards the establishment of high tunnels, greenhouses, and other growing equipment in Alaska. Through the High Tunnels at High Latitudes project during September of 2015, 22 agriculture professionals from across Alaska received face-to-face classroom and field training on the applied use and construction of high tunnels for agriculture. All 22 participants reported improved knowledge of high tunnels and their application for agriculture in Alaska. Participants also acknowledged an increased awareness of paperwork requirements for the public to engage the NRCS and apply for EQIP and other programs. Additionally, participants reported a changed attitude towards high tunnels and a gain in skills: feeling greater confidence in their ability to provide technical assistance and training to the public.

Instructional online videos have been gaining popular acceptance by farmers and the public. This is especially true, where many individuals rely on smartphones for access to media, even in more remote areas of Alaska. For the High Tunnels at High Latitudes Project, a series of 16 videos were scripted, recorded, and published for the University of Alaska Fairbanks Cooperative Extension Service YouTube Channel by trained Cooperative Extension Service Agents and select experienced farmers. These videos, with over 115 minutes of recorded footage, ranging in content from a simple overview of high tunnel structures to the applied strategies of growing crops. These videos have only been publicly released over the last year, but they have accumulated 4,320 views as of September 26, 2018. In a state where four of the five top counties receiving high tunnel assistance from the Natural Resources Conservation Service occur, these videos provide a readily accessible and efficient form of information transfer to a growing group of farmers and producers that are eager for knowledge about high tunnels.

Trained Cooperative Extension Service (CES) Agents from the High Tunnels and High Latitudes project provided a total of 19 face-to-face and distance delivered educational training/workshop events on high tunnel use and construction from Fairbanks to Kodiak, Alaska. Through these events, CES agents reached a total of 184 participants. A majority of these participants were farmers, followed by Master Gardeners, the general public, and some additional agricultural professionals. Individuals indicated a strong intent to build upon or change at least one practice as a result of their participation. Four new high tunnel farms on Kodiak attributed part of their success due to education received from CES agents.

CES agents from the University of Alaska Fairbanks (UAF) have spent the last three years engaged in instructing Alaskans about high tunnels. "Training Alaskans to better utilize existing high tunnels or effectively establish new ones has been a daunting task, especially considering the fact approximately 1,000 new high tunnels have been put up around Alaska over the last decade. But, we now have a large number of farmers and home high tunnel users that are effectively growing produce in our state," said Casey Matney, state Coordinator for the Alaska Integrated Pest Management Program at UAF. "We now have a strong base of trained farmers and professionals." With recent statistics indicating that direct sales from farmers to local consumers are growing in Alaska at a rate 13 times the national average, these gains in knowledge put to practice could lead to improved production, cost reductions, and better management of our resources. In the end, such gains could greatly increase food security for Alaskans.

**33** Agricultural service provider participants who used knowledge and skills learned through this project (or incorporated project materials) in their educational activities, services, information products and/or tools for farmers

**116** Farmers reached through participant's programs

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