Permafrost Grown: Co-producing Knowledge with Alaska and Siberian Farmers to Understand Permafrost-cultivation Interactions

Melissa Ward Jones
Postdoctoral Fellow, University of Alaska Fairbanks
mkwardjones@alaska.edu

Rare, successful Alaska corn harvest gives Fairbanks farmers hope

By Suzanna Caldwell

Updated: September 27, 2016  Published: August 21, 2012
Rare, successful Alaska corn harvest gives Fairbanks farmers hope

By Suzanna Caldwell
Updated: September 27, 2016 Published: August 21, 2012

Annual Growing Degree Days for Sweet Corn in Fairbanks, AK 1930-2020 (10°C Base Temperature)
Permafrost Degradation in Agricultural Fields, Examples in Fairbanks, AK

Year cleared 2000, Degradation signs began in ~2014, Abandoned in 2019
Permafrost Degradation in Agricultural Fields, Examples in Fairbanks, AK

Year cleared 1908?, degradation signs began in 1910 (Pewe, 1954)

Year cleared (1908), degradation signs began in 1918, abandoned in ~1927 (Rockie, 1942; Pewe, 1954)
Year cleared 1908?, degradation signs began in 1910 (Pewe, 1954)

Year cleared (1908), degradation signs began in 1918, abandoned in ~1927 (Rockie, 1942; Pewe, 1954)
Ground Ice Examples, CRREL Permafrost Tunnel, Fairbanks, AK
Research Objectives

1) Investigate the feedbacks and interactions within the permafrost-agroecosystem by co-producing knowledge with farmers in Alaska
2) Understand and quantify the legacy effects of permafrost-agroecosystem interactions over the last 100 to 300 years
3) Evaluate the socio-economic trade-offs and provide decision tools related to the intensification of permafrost-agroecosystems in the Arctic
4) Broaden public and farmer participation through education and outreach activities
Field Sites
Field Sites
Co-production of Knowledge Framework (Norström et al., 2020)

Knowledge co-production for sustainability research

- Context-based: Situate the process in a particular context, place, or issue
- Pluralistic: Explicitly recognize the multiple ways of knowing and doing
- Goal-oriented: Articulate clearly defined, shared and meaningful goals that are related to the challenge at hand
- Interactive: Allow for ongoing learning among actors, active engagement and frequent interactions
Co-production of Knowledge Framework (Norström et al., 2020)

Knowledge co-production for sustainability research

Context-based
Situate the process in a particular context, place, or issue

Pluralistic
Explicitly recognize the multiple ways of knowing and doing

Goal-oriented
Articulate clearly defined, shared and meaningful goals that are related to the challenge at hand

Interactive
Allow for ongoing learning among actors, active engagement and frequent interactions

Contributory and Interactional Expertise (Carolan, 2006)
Thank you!


Permafrost Grown is funded by