



United States
Department of
Agriculture

Natural Resources Conservation Service

Maine

Conservation Innovation Grant



Innovative Mobile Wooden High Tunnel

Grantee Name: Piscataquis County Soil and Water Conservation District

Agreement Number: 69-1218-111-25

Period Covered: Sept. 2011-April 2014

Funded Amount: \$53,774.89

Innovation: Incorporate new concepts into high tunnel farming in northern climates to reduce pest and disease toll on crops, improve soil health, and provide opportunities for growing locally produced, nutrient-dense fruits and vegetables year-round in a region with a short growing season.

Focus: Evaluate agricultural conservation practices and soil ecosystem improvements associated with the use of the Mobile Wooden High Tunnel (MWHT) on the Stutzman's Farm in Sangerville, Maine.



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Conservation Innovation Grants (CIG) enable NRCS to work with other public and private entities to address some of the most pressing natural resource concerns



From 2011 to 2014 the project at the Stutzman's Farm in Sangerville verified environmental (soil, water, air, plants, energy usage) effectiveness, utility, affordability, and usability of conservation technology with a high probability for success. The study found that a low-cost high tunnel design and usage program can be developed for the northern climate that will allow small farms to extend their growing season without heating costs, and increase the availability of affordable, nutritious, locally grown food. The project also produced a *Mobile Wooden High Tunnel Operations Guide* for use by the Natural Resources Conservation Service.

INNOVATIONS OF MOBILE WOODEN HIGH TUNNEL (MWHT)

- Double layer inflation polyethylene glazing

This is the most affordable glazing solution for high tunnels. In colder months the film is inflated with a low-powered fan, and this layer of insulation may aid in snow and ice removal.

- Mobility without an expensive and damage-prone track system

The MWHT's mobility is provided by twelve 16-inch wheelbarrow tires on steel axles inserted into the wood foundation. Tires are removed during the growing season and reinstalled as needed.

- Wooden frame sourced from locally available materials

The frame is made from Maine-grown cedar instead of steel conduit, increasing the R-value (insulating power) and resistance to condensation.

- Architecture capable of withstanding New England winter conditions

The Piscataquis County Soil and Water Conservation District notes that the gothic arch on the MWHT sheds snow and ice easily, and is simple to maintain.

- Passive heat control system also limits transportation of pests/weeds/disease

The temperature is managed passively with solar gas cylinders, which open both the skylights and the side door louver vents. The sides of the MWHT remain closed to the ground, protecting crops better from wind, insects, animals and weeds.

