

# AGROFORESTRY AND SUSTAINABLE FRUIT PRODUCTION AT HILLTOP COMMUNITY FARM, LLC PROJECT SUMMARY:

**Project Title:** Assessing the Sustainability of Growing Non-Traditional Fruit Tree Crops in Wisconsin: A Collaborative Agroforestry Approach

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**Summary Created by** Erin Schneider & Rob McClure on May 10, 2010 updated on October 18, 2010

For a complete description of our grant project progress report including a detailed budget report, visit the NC SARE website.

**Overview:** We are working to develop appropriate outreach materials and provide educational opportunities for growers to collaborate for producing Aronia, Russian Quince, European black currant, white and red currant, Saskatoon, Seaberry, and American Elderberry. This is part of a longer-term regional project to establish sustainable production practices, expand regional fruit grower networks, examine risk, and test consumer fruit acceptance. In addition to expanding unique varieties of Midwest – grown fruits, these species are high yielding, environmentally friendly, and are an exceptionally nutritional food source. Growing these fruits can lead to increased economic viability for small – mid-sized organic farms.

## Our main objectives include:

1. Find fruits that are suitable for organic production in the Midwest that can be easily grown, and have minimal labor, establishment, and management costs. The fruits should also be nutrient rich, appealing, and accessible to consumers.
2. Through our design, stimulate the use of sustainable agriculture methods that demonstrate ways to conserve moisture, build soil fertility, manage for wildlife, and reduce weed competition.
3. Provide outreach opportunities and educational resources for growers about the value and potential profitability of growing these fruits.

Our project's first year focused on site preparation, orchard design, plant cultivar research, and outreach. Our biggest challenge is that little knowledge and research exists on best ways to design and grow our fruits in combination with each other. Managing for cool season perennial grasses and learning equipment needs have also been challenges with site preparation. Upon orchard installation, weed management has been our biggest labor and maintenance need. Overall, managing the diversity of species represented in our project has been a welcome challenge. This summer we have entered into the next phase of our project – monitoring and assessing plant growth response to different soil treatments and determining what are the best cultivars and combinations of plants to use – helping determine whether our experimental design is the best approach to growing these fruits in a manner that is sustainable to the land, our community, and our pocket book? Additionally, as fruit becomes available, we will continue to research, and seek others to collaborate with on product development and test marketing of these fruits.

## PROJECT HIGHLIGHTS:

- Total Project Hours thus far (March 2009 – May 2010) - **285**
- # of fruit trees planted in orchard - **220**
- # of trees planted as part of windbreak/field border – **320**  
(hazelnut, black cherry, w. spruce, plum)
- # of different species represented as part of this project – **93** (primary plant plugs and direct seed)
- # of Participants reached directly (both volunteers & event participants) – **267**

## Plant Diagnostics:

- 100% mortality with Gooseberry (poor root stock, plus accidentally weed whacked the 2 surviving species)
- 60% survival of saskatoons (very small seedling – primarily sucker roots)
- 100% survival rate with black currant, seaberry, elderberry, aronia, white currant, quince
- 80% survival of red currant
- Primary weed issues – lambs quarter (high fertility primarily strips 1 & 2), Pigweed, Queen Anne's Lace (possibly low potassium in Strips 3 & 4), Burdock (high fertility/clay content), Thistle, (clay soils, neutral pH), Hypericum and ragweed (primarily strips 3 & 4). Heavy browse on elderberry & aronia berry in strip 1.
- Plants with woodchip best performers (in terms of weed suppression).

- Groundcover of fescue, rye, and clover mix successful seeding rate in planting strip 3.

### BUDGET SNAPSHOT (our top 8 expenses excluding labor):

- **\$1346** - Plant material – (Source Aronia – Knight's Hollow Nursery, Middleton; Ribes sp., Seaberry & Saskatoon – St. Lawrence Nursery – NY – organic rootstock); Elderberry – Sauk County LCD – Quince – Jungs Garden Center; 90 nitrogen fixing prairie plant plugs from Ion Exchange in Iowa).
- **\$1,100** - Outreach/Education for 2 field days, est. 50 participants each (for catered lunch, honey bucket rental, personnel, some travel stipend).
- **\$910** - Irrigation – 1550 gallon cistern (\$460 at Farm n Fleet) plus 500 ' hose/tubing/drip)
- **\$910** – Plant material for 2.1 acre field border, includes warm season native pollinator seed mix plus 320 trees (source – Seed mix Agrecol – they will list county of origin for species, Stoughton, WI; trees \$1.00 a piece through Sauk County Land Conservation District – NRCS WHIP cost share)
- **\$566** - Organic grass seed 200 lb mix plus 200 lb. Organic cover – crop (source – Frank's Seed Supply in Jefferson, WI & Cashton Farm Supply used for both site prep & orchard groundcover).
- **\$447** - Solar electric fence (high tensile poly-wire plus 50, 6' T-posts, grounding rods, insulators, (20 year lifespan)
- **\$415** - Printing costs (for 250 brochures/inserts plus 50 copies of field day handouts; combination color & black and white, plus 50 folders).
- **\$300** – Design/professional services.

Our total NC SARE Farmer Rancher grant award is \$6,000. Grant funds are being used to cover costs associated with evaluating such parameters as plant growth-response to soil mulch treatments; for 50% of plant-material, equipment and professional development costs; and for additional personnel and travel expenses. The bulk of our funds this past year have gone toward the purchase of plants and equipment and personnel costs associated with site preparation and project installation. We originally had lined up an in-kind donation of the 60 currant and 20 quince plant species needed, however, that commitment fell through due to the recession economy. We had a difficult time sourcing organic quince tree seedlings from a wholesale nursery and had to purchase through a local retailer. We also overlooked costs associated with installing our irrigation system.

**Other funding sources:** We received \$845 in additional funds from the Organic Crop Improvement Association Research and Education Micro-grant program to assist with the other 50% of professional development costs, and 50% printing and design costs associated with developing education resources and project signage. We also are receiving additional support from the Wildlife Habitat Incentives Program (NRCS WHIP) to install a 2.1 acre field border and windbreaks around the orchard perimeter and \$380 from the Madison Area Community Supported Agriculture Coalition to support costs associated with May 15 Field Day. We also received an estimated **\$6,601 in in-kind services** (combination of volunteer field work/support and in-kind outreach).

### LABOR BREAKDOWN (through 10 – 20 - 10):

- |   |                    |
|---|--------------------|
| 1. Site preparation & project installation (Erin & Rob)               | <b>149.5</b> hours |
| 2. Site maintenance & monitoring                                      | <b>29.75</b> hour  |
| 3. Outreach, research, education -                                    | <b>120</b> hours   |
| 4. Intern (support installation and project monitoring May -)         | <b>13</b> hours    |
| 5. In-kind – (Volunteer) – primarily site prep & orchard installation | <b>140.5</b> hours |

### OUTREACH/EDUCATION:

#### Field Days:

Audience/Group	# of Participants
Family Farm Defenders – Africa Farmer Delegation Tour	5
Family Farm Defenders – India Farmer and Chicago Urban Ag Tour	17
Agroforestry Field Day – combination of growers, land managers, sustainable ag advocates, extension agents, curious public	32
Co-host Aronia Field Day at Carandale Farm, Oregon, WI, August 2010	63
Agroforestry Field Day – focus on budget – planning, field borders/site prep Oct.	23

Product Development - Full Spectrum Fruit Focus Discussion & Potluck	5
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**Conference Presentations/Workshops:**

Venue	# of Participants
2009 National Small Farmer Forum, Columbia, MO	27
WI Local Food Summit, Midwest Value Added Agriculture Conference	15
UW WI Extension Professional Development Conference	80
2010 National Small Farmer Forum, Columbia MO	TBD, Nov. 2010
2011 Midwest Value Added Agriculture Conference, Madison, WI	TBD, January 27

**Publications/Resources Created:**

- Article on Transitioning to Organic Aronia production for the Midwest Aronia Berry Network (a list serve hosted by UW Madison Center for Integrated Agricultural Systems)
- Renewing America's Food Traditions – Place Based Foods at Risk in the Great Lakes.
- Feature in 2010 NC SARE National Farmer Forum Highlights
- *Hillsboro Sentry – Enterprise & Baraboo News Republic* – Press Release for field Day
- *Northside News, Madison* – Sustainable Fruit Production Feature Article
- Agroforestry and Sustainable Fruit Production Research at Hilltop Community Farm – Project Brochure – artwork created by Julianne Hunter of Future Deco Design
- Monitoring Handbook – May 2010.
- Peer reviewed budget planning fact sheet – in draft format, anticipate being available by December 2010.
- Pending article on project to be featured in *Acres USA or Edible Madison*.

**Emerging Education/Outreach opportunities:** We are working with Matt Groshek, Public Scholar and Transformation Designer with Indiana University Heron School of Art and Design, and students in his fall class in public exhibition planning and design, to assist with co-creating an exhibit entitled *The Places and Faces of Ecological Agriculture – Toward a Perennial Future of Abundance*. The exhibit will help explain our project and its contribution to sustainable agriculture and aid in the public understanding and engagement in the process around what creates the conditions and potential for an abundant sustainable food system. Upon completion, the exhibit will be featured on our farm then travel to destinations within the Midwest, beginning at sites near Madison, and traveling north through central Wisconsin to Ashland. As planned, at each venue, participants will add content through photographs, stories and other artifacts. We are also exploring the development of a co-designed women's agroforestry grower exchange program with women growers in Nicaragua and women growers in Wisconsin. Erin will be traveling to La Fem Cooperative in Nicaragua this January to begin the discussion and design process.

**Growing connections:** As fruit becomes available we are connecting with the following individuals and groups working to expand the networks and of knowledge of sustainable fruit production (not an exhaustive list):

- Dale and Cindy Secher of Carandale Farm, Oregon, WI – [www.carandale.com](http://www.carandale.com)
- Aronia Network List Serve – <https://lists.wisc.edu/read/?forum=aronianetwork>
- Madison Area Community Supported Agriculture Coalition – [www.macsac.org](http://www.macsac.org)
- Midwest Aronia Association - [www.midwestaronia.org/](http://www.midwestaronia.org/)
- Midwest Organic Tree Fruit Growers Association – [www.mosesorganic.org/treefruit/intro.htm](http://www.mosesorganic.org/treefruit/intro.htm)
- Center for Integrated Agricultural Systems, UW Madison, WI – [www.cias.wisc.edu/](http://www.cias.wisc.edu/)
- Midwest Organic and Sustainable Education Services – [www.mosesorganic.org/](http://www.mosesorganic.org/)
- Midwest Permaculture Network – [www.midwestpermaculture.org](http://www.midwestpermaculture.org)
- National Center for Agroforestry – [www.centerforagroforestry.org](http://www.centerforagroforestry.org)

**Other Agroforestry/Fruit Production Resources** (not exhaustive list):

**Websites:**

Edible Forest Gardens – <http://www.edibleforestgardens.com/>

Appropriate Technology Transfer to Rural Areas (ATTRA). <http://www.attra.org/>

Association for Temperate Agroforestry – <http://www.aftaweb.org/index.php>

Note: AFTA has a great Agroforestry bookstore, both 'how – to' and scientific

InterGarden - Permaculture Information - Discussion - Links has discussion forums and extensive listing of permaculture-related links: <<http://sunsite.unc.edu/london/permaculture.html>>

Introduction to Permaculture: Concepts and Resources is an excellent introduction with comprehensive resource links: <<http://www.attra.org/attra-pub/perma.html>>

Journal for Agroforestry Research, United Kingdom – <http://www.agroforestry.co.uk/>

Natural Resource Conservation Services – <http://www.nrcs.usda.gov> – variety of information from grants and cost share resources, to soil quality assessment notes.

North Central Sustainable Agriculture Research and Education – NC SARE - <http://www.sare.org/ncrsare/>

Power Planting: A Guide to Help you Choose the Right Tree for the Right Place  
<http://wihort.uwex.edu/landscape/PowerPlanting.pdf>

Sepp Holzer – <http://www.youtube.com/watch?v=mzRzJRiUyIg> – great online video of a forest garden in Austria.

Tree Crops: A Permanent Agriculture by J. Russell Smith. [www.archive.org/details/TreeCrops-J.RussellSmith](http://www.archive.org/details/TreeCrops-J.RussellSmith)

University of Missouri Center for Agroforestry – <http://www.centerforagroforestry.org/>

Uncommon Fruit Crops with Sustainability Potential – <http://www.cias.wisc.edu/wp-content/uploads/2008/07/fruitgrower.pdf>

Women Food and Agriculture Network: [http://www.wfan.org/Women,\\_Food\\_and\\_Agriculture\\_Network\\_Home.html](http://www.wfan.org/Women,_Food_and_Agriculture_Network_Home.html)

#### **Nurseries:**

WI Native Plant Sources – <http://clean-water.uwex.edu/pubs/pdf/home/lonative.pdf>

Forest Agriculture Enterprises

P.O. Box 24, Viola, WI 54664 <http://www.forestag.com> email: [forestag@mwt.net](mailto:forestag@mwt.net) 608-627-TREE

Overview: Mark Shepard provides consulting and educational services in agroforestry and permaculture. Certified organic producer, specializing in hazelnuts, chestnuts, asparagus, and heirloom apples.

Knights Hollow Nursery, Middleton

4911 Forsythia Court, Middleton, WI; 608-831-5570. Overview: Specializes in micropropagated plants, great Aronia source.

St. Lawrence Nursery – Northern Climate Organic Fruit and Nut Trees

325 State HWY 345, Potsdam, NY 13767 315-265-6729 [www.sln.potsdam.ny.us](http://www.sln.potsdam.ny.us)

Overview: Specializes in organic rootstock and cold hardy trees Zones 3 & 4

Water's Edge Nursery and Gardens

34320 Old Cty K, Bayfield, WI 54814 715-779-0155 [www.thedraw.org](http://www.thedraw.org)

Overview: Located on the property of the Draw, LLC, a land-based regenerative community on the south shore of Lake Superior. Uses only biological controls, permaculture design/practices.

#### **Books:**

75 Remarkable Fruits for your Garden by Jack Staub UT, Gibbs Smith Publishing, 2007.

The BackYard Berry Book by Stella Otto MI: OttoGraphics, 1995

The BackYard Orchardist by Stella Otto MI: OttoGraphics, 1993, 1994

The Basis of Permaculture Design by Ross Mars. VT: Chelsea Green Publishing Company, 1996; 2005

Edible Forest Gardens Vol. 1: Vision & Theory by Dave Jacke with Eric Toensmeier. VT: Chelsea Green Publishing Co., 2005

Edible Forest Gardens Vol. 1: Design & Practice by Dave Jacke with Eric Toensmeier. VT: Chelsea Green Publishing Co., 2005

Forest Gardening by Robert de J.Hart. UK: Green Books, 1991

Gaia's Garden by Toby Hemenway. VT: Chelsea Green Publishing Co., 2000, 2009

Native Trees, Shrubs, and Vines for Urban and Rural America by Gary Hightshoe. NY: John Wiley & Sons, 1988

The One Straw Revolution: An Introduction to Natural Farming by Masanobu Fukuoka. PA: Rodale Press, 1978

Permaculture: A Designers' Manual by Bill Mollison. Australia: Tagari Publications, 1988

Permaculture: Principles and Pathways Beyond Sustainability by D. Holmgren. Australia: Holmgren Design Services, 2002

Perennial Vegetables by Eric Toensmeier. VT: Chelsea Green Publishing Co., 2007

Plants for a Future: Edible and Useful Plants for a Healthier World by Ken Fern. UK Permanent Publications 1997

Start with the Soil by Grace Gershuny PA: Rodale Press, 1993

Forest Gardening by Robert de J. Hart. UK: Green Books, 1991

Gaias Garden by Toby Hemenway. VT: Chelsea Green Publishing Co., 2000, 2009

Growing Gourmet and Medicinal Mushrooms by Paul Stamets. CA: Ten Speed Press, 2000

Native Trees, Shrubs and Vines for Urban and Rural America by Gary Hightshoe. NY: John Wiley and Sons, 1988

Permaculture: A practical Guide for a Sustainable future by Bill Mollison, [www.tagari.com](http://www.tagari.com)

Permaculture, Principles and Pathways Beyond Sustainability by David Holmgren

Plants for a Future: Edible and Useful Plants for a Healthier World by Ken Fern. UK: Permanent Publications, 1997

Start with the Soil by Grace Gershuny. PA: Rodale Press, 1993

Tree Crops: A Permanent Agriculture, J. Russell Smith. Also available as a free online book:  
[www.archive.org/details/TreeCrops-J.RussellSmith](http://www.archive.org/details/TreeCrops-J.RussellSmith)

### **Saskatoon Books/Publications:**

Growing Saskatoons – a Manual for Orchardists, published by Dr. Richard St. Pierre in 1999, Native Fruit Development Program, University of Saskatchewan and Saskatchewan Agriculture and Food.

Commercial Saskatoon Berry Production on the Prairies –a Grower’s Guide by Sarah Williams, published by University of Saskatchewan, 1994. Manitoba Fruit Guide, 2000 Edition.

Economics of Saskatoon Berry Production, Farm Facts published by Saskatchewan Agriculture and Food, 1990.

### **Websites – General**

North Central Sustainable Agriculture Research and Education – NC SARE - <http://www.sare.org/ncrsare/>

The Permaculture Activist site offers an array of information and resource links: <<http://www.permacultureactivist.net>>

Power Planting: A Guide to Help you Choose the Right Tree for the Right Place  
<http://wihort.uwex.edu/landscape/PowerPlanting.pdf>

Sepp Holzer – <http://www.youtube.com/watch?v=mzRzJRiUyIlg> – great online video of a forest garden in Austria.

Soil Biology Primer  
[http://soils.usda.gov/sqi/concepts/soil\\_biology/soil\\_food\\_web.html](http://soils.usda.gov/sqi/concepts/soil_biology/soil_food_web.html)

Tree Crops: A Permanent Agriculture by J. Russell Smith. [www.archive.org/details/TreeCrops](http://www.archive.org/details/TreeCrops) J.RussellSmith

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#### **More Books:**

Overall, our project work in helping fuse agriculture and conservation practices has resulted in other emerging opportunities, including; working with the UW Madison Arboretum and Madison Permaculture Network in the Spring and Fall of 2010 teaching a forest gardening/agroforestry workshop at our farm in the spring and fall; and working with the Aldo Leopold Foundation's Woodland School program, teaching a class in the Spring of 2011 on organic fruit production and agroforestry.

