

Farmer Rancher Grant Program Final Report Form

I. PROJECT IDENTIFICATION

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5. Project title: Assessing the Sustainability of Growing Non-Traditional Fruit Tree Crops in Wisconsin: A Collaborative Agroforestry Approach
6. Project Number: FNC08 – 718
7. Project Duration: March 2009 – March 2011
8. Date of Report: Progress Report, March 2010, Final Report March, 1 – 2011

PROJECT BACKGROUND

Hilltop Community Farm is located in LaValle Township along the northern border of Sauk County, 60 miles from Madison, WI. The farm consists of 59 acres of partially wooded land overlooking the valley of Big Creek and Lake Redstone. Twenty-five acres were restored to native prairie in 2004 under the Conservation Reserve Program. In 2010 we installed a 2.1 acre field border and windbreak adjacent to our orchard (native, warm season pollinator mix) as part of the Wildlife Habitat Incentives Program (WHIP). Since 1993, we have been operating a small CSA (community supported agriculture) and market-garden growing a diversity of crops (58 species representing 142 different varieties), with an emphasis on fruits including pears, hardy kiwi, and raspberries, 21 different species (representing 42 varieties) of cut flowers for special events, and on-farm educational programs ranging from backyard composting and home food preservation to forest garden design workshops.

Diversity and ecology have defined our farm and farm practices since its inception in 1993. In addition to the sustainable land use practices mentioned above (CRP, WHIP etc...), we practice organic (though uncertified) farming methods. As a very small CSA, most of our work is done by hand, save for the occasional employment of a small power cultivator. Nevertheless, in our members' 20 share bags in 2010 they received about 181 lbs of produce that represents about 25,875 calories of food, grown on roughly 6,200 square feet. Translated into energy (using 11-12 ounces of gasoline in our Mantis tiller) that's 2,900 calories; so, our production efficiency – including the approximately 70,000 calories we harvested for ourselves – is about 11.4 food calories out per 1 calorie of fossil fuel input, or better than 100x that of 'conventional' agriculture. Figuring a total growing area of 6,150 square feet, we produced about 57 calories/sq. ft. We do a combination of double-digging, sheet mulching (for expanding our production space), and growing in raised beds, which decreases our spatial needs, while building soil fertility. We also integrate perennial herbs such as dill, lovage, bee balm, calendula, hyssop, mints, among other flowers at and near the edge of our vegetable beds. In addition to the culinary, medicinal, and aesthetic services these plants provide for us personally, they also attract beneficial insect and animal species for pest control, and minimize soil disturbance. We've never used chemicals on the land. We cover-crop, companion plant, and compost – inviting our [CSA] subscribers to return their vegetable waste to us as well – to keep our soil in top condition. We use standard (as opposed to hybrid) seed varieties when possible, grow native perennial plants for our flower, herbs, and fruit (when possible) and save as much of our own seed as we can; not only is this cheaper, but our herbs, flowers, and vegetables become specially adapted to the microclimate and soil conditions over time. Last year, we began harvesting rainwater from our barn roof, stored in a cistern and gravity fed through a series of

hoses to water our orchard.

PROJECT DESCRIPTION & RESULTS

GOALS

Our project was conducted on one – acre of transitioning (to organic) land and focused on developing appropriate outreach materials and providing educational opportunities for growers to collaborate for producing Aronia, Russian Quince, European black currant, red and white currant, Saskatoons, Seaberry, and American Elderberry. In addition to expanding unique varieties of Midwest-grown fruits, these species are high yielding, environmentally friendly, and are an exceptionally nutritional food source. We sought to demonstrate that growing these fruits can lead to increased economic and ecological viability for small to mid-sized organic farms. Specifically, our main objectives included:

- 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.
- Through our orchard design, stimulate the use of sustainable agriculture methods that demonstrate ways to conserve moisture, build soil fertility, manage for wildlife, and reduce weed competition.
- 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 the best ways to design and grow our fruits in combination with each other. Managing for cool season perennial grasses, preventing deer browse and learning equipment needs have also been challenges with site preparation and orchard installation. Overall, managing the diversity of species represented in our project has been a welcome challenge. We began monitoring and assessing plant growth responses to different soil treatments to help determine what are the best cultivars and combinations of plants to use as well as to learn what our production priorities are with getting fruits established –is our experimental design using forest garden guilds 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.

PROCESS

Our overall project rationale was to model and demonstrate on our farm that an agroforestry production system can help farmers diversify products, markets, and farm income, while emphasizing sustainable land use practices. Examples of agroforestry management practiced on our farm include: forest gardens, windbreaks/field borders, and alley cropping.

A key innovation in our orchard design was the use of plant guilds – perennial polycultures of multi-purpose plants that partition resources and create mutually beneficial networks of support. We wanted to make the case that by designing your orchard system in the image of an ecosystem based on plant community function and diversity, farmers can reduce the need for outside fertilizer and pest management inputs. Furthermore, by using an agriculture model of diversity along with sustainable and organic growing practices, both production and business volume are met along with preserving our landscape for future generations.

We installed 20 guilds (5 per each planting strip) in our 1 acre test plot. The following planting

sequence represents the guild pattern used in our research plots:

- Fruit tree/shrubs – 5 saskatoons, 5 Quince, 15 aronia, 5 of each – Red, White, Black Currant, and Gooseberry (note: nut trees will serve the same function as fruit trees).
- One nitrogen fixing shrub – Seaberry plus purple prairie clover, blue false indigo, and leadplant
- One comfrey plant or lovage (dynamic accumulators, lovage good in soups). Note this was not yet added, due in part our concern for comfrey potentially being invasive. We did however, seed lovage, and transplant horseradish root at the edge of our planting strips.
- White clover (nitrogen fixer, bee forage, edible)
- Fennel or dill (culinary, insectory)
- Borage or alliums (insectory, edible flowers, medicinal)
- Orchard floor - find a groundcover mix that would require little mowing needs and can handle a high amount of foot traffic. We used – 10 percent white clover, 30 percent red fescue (can substitute meadow fescue) 30 percent chewings fescue, 30 percent perennial rye mix. Suggested application rate of 30 lbs per acre.

In general, the quince trees are at the center of the guild, with white, black, red currant and gooseberry planted along the northern drip line on 5 foot centers. Three aronia plants are located on 5 foot centers on the southern dripline of the quince trees and planted on 3 foot spacing. The seaberry is planted with the southern-most facing exposure 6 feet from the gooseberry, with elderberry at the northern most tip, 6 feet from the red currant shrubs, and the saskatoons on the NE corner of the guilds. Seaberry, elderberry, and saskatoon are on 6 to 8 foot centers. Each guild is spaced approximately 12 to 15 feet from the next. (Please refer to map of orchard as well as a map of the specific guild layout in supplemental materials).

Plants were chosen based on a variety of factors including: prior on-farm research conducted by Dale and Cindy Secher of Carandale Farm in Oregon, WI (the Sechers were also mentors of ours for this project) revealing that aronia, elderberry, black currant and seaberry are adaptable and can be sustainably grown in Wisconsin. Additionally, gooseberry, quince, plum and saskatoon showed potential. Their results have also shown these fruits to have great value added marketing potential beyond the farm. Other plant selection factors were based on our design criteria. Our design criteria was to choose plants that were native to the area (when possible), what can be grown based on existing site conditions, be grower friendly and suitable for organic production, consider amount of time/energy we had for site prep, establishment, and plant care (for us we determined that we could have 30 percent of time/labor be allocated for this project), have the first time fruit harvest be within 1 to 2 years from installation – balanced with tree fruits – planning for the future, taste great, be something we want to grow, and have both fresh market and value added potential. We can't stress enough to other farmers, how important it is to have design criteria in place before you plant. While it may change over time based on changing conditions of the site/your personal needs etc..., it will save you time in the long run.

Mulch treatments represented in our planting strips include compost, woodchips, straw plus woodchips, control (no mulch). These were chosen based on availability of materials and recommendations from other orchardists who responded to an inquiry we posted on the Midwest Organic Tree Fruit Growers Association List serve. We also soaked fruit tree roots in a compost tea (water plus forest duff) two hours prior to planting. The rationale behind this is to prime the roots so that they incorporate the native micro-flora and fauna present in nearby soils. Growers can also incorporate forest duff directly into the plant root zone before planting and/or soak straw bales in nearby waterways (if present on farm) for the same effect.

The use of plant guilds may require you to forego mechanical harvesting, but this may be offset by the economic benefit of reduced use of fossil fuels and costs of off-farm inputs. The ecological benefit of creating a stable permaculture cannot be measured.

While not directly measured as part of our on-farm research, we also installed the following features adjacent to our orchard for the purposes of water conservation, increased biological diversity and habitat for pollinators. We installed a 2.1 acre field border and windbreak. The field border consisted of 43 different native warm season pollinator herbs and grasses. The logic behind the plant species selected was to have food and habitat available for pollinators for the duration of the growing season. At the same time the plants in the field border would not compete for pollinators from the fruit trees, because of specific bloom times. The windbreak consisted of a mix of hazelnut, plum, and white spruce, installed to help regulate air flow and circulation in the orchard as well as provide habitat/food for pollinators and birds. For water conservation measures we installed a 1,550 gallon cistern to store rainwater harvested from our barn roof and gravity fed through a series of hoses. Because of the steep slope (12 – 15 percent), at the base of each plant guild we also used a pulaski to build small berms. This helps slow down and disperse energy from water during a heavy rainstorm, mitigates soil infiltration, and makes water more readily available for plant roots. Near the edge of the berm we placed a handful of rock piles, for habitat for frogs and snakes (insect and rodent management).

The following table represents the major tasks, sequencing, and logic involved with implementing our project:

Task	Personnel	Timeline	Date Completed	Notes/logic:
Consult with other interested growers, visit other farms doing similar work.	Erin Schneider, Rob McClure, Dale Secher	On-going		Host Agroforestry field day on our farm. Co-host a field day with Carandale Farm in late August of 2010. Network with other growers in the region, expand educational opportunities for peer to peer learning.
Site preparation, burn, mowing, weed management, cover crop.	Erin Schneider, Rob McClure	Quarterly throughout project duration.	Burn – 4 – 3 – 09 Weeding July & August 2009; Cover crop – spring 4 – 10 - 09 cover crop – fall 9 – 28 - 09	We hand-weeded invasive species nearby such as multi-flora rose, burdock, and autumn olive removal. Initially, we did not want to till the soil, due to the steep slope and potential for erosion. Burning – while fun, provided mixed results - invigorates seed bed, helped with initial seeding, however, we ended up tilling area anyhow, so increased labor needs, costs for equipment rental. We cover cropped in the fall with winter rye, tilled 2 weeks prior to planting in the spring. Ideally, want a weed free bed for planting. In general weed management is on-going.
Track input and production costs using spreadsheets and share with growers/networks.	Erin Schneider, Rob McClure	Ongoing		To provide a baseline for understanding how much time, resources it takes to install a new orchard as well as initiating discussion with our CSA members, potential customers for setting price structure.
Soil sampling.	Erin Schneider, UW Soil and Plant Analysis Lab	Fall 2008 & Fall 2010	Fall 2008, did not sample in 2009, 2010	Sampled prior to project, Plan to sample again in fall of 2011. Why? Influence your management strategies and help determine, what can be grown.

Site mapping and design	Erin Schneider, Michelle Wilkinson, NRCS	Spring 2009 July 2009 January 2010 & April 2010	Prior to installation, adjusted as needed.	Maps are a must! Initial plan map and soil map developed in Spring 2009. NRCS staff marked contours with flagging in July 2009. Refine plans and re-mark contours and measure where plants will be placed in April of 2010.
Plants ordered.	Erin Schneider	Winter 2010	January 2010	Ordered Aronia through Knight's Hollow Nursery, Other plants through St. Lawrence Nursery in NY, Jungs nursery (Quince), and through WI State Nursery program (Elderberry). Rationale, choose cold hardy varieties (zone 3 – 4) from local sources where possible.
Collect Leaf litter and woodlot soil, stage compost	Erin Schneider, volunteers	Fall 2009 April 2010	Fall 2009	Leaves raked and staged for compost, woodchips from local landscape company to incorporate with planting in April of 2010 as well as 12 cubic yards of organic compost from West Ag. Research Center in Madison.
Install research plot.	Erin Schneider, Rob McClure, Grower networks, students, volunteers.	Spring 2010		Specifically May 1, 2, and 8 volunteer dates to assist with project installation with the first 2 weeks of May earmarked for completion. May 15 will coincide with a field day.
Conduct orchard monitoring, and managing for invasive plants, weed sampling	Erin Schneider, graduate student	Spring/Fall 2010		Posted internship/project announcement in January of 2010, in process of hiring intern to assist with project monitoring.
Coordinate 2 on farm events, conduct outreach activities.	Erin Schneider, Rob McClure, Dale Secher	Spring 2010, Fall 2010		The first event, Agroforestry – Design and Applications for Growers and Land Managers focused on orchard installation and designing/transitioning. We also co-hosted a farm event at Carandale Farm in August with the focus being on product development of aronia. Outreach activities highlighted later in this project report.
Developed educational, outreach, and communication materials.	Erin Schneider, Julianne Hunter, Anne Pfeiffer, Matt Groshek	2010		Provide opportunities for people to learn from our project, consider alternative design strategies, markets for growing fruit in Wisconsin/Midwest. Showcase project design, results, and lessons learned from our project. Ultimately, provide and expand venues for growers, educators, consumers to discuss and develop tools for creating the conditions and potential for sustainable, food secure systems.

Example of our 2010 Orchard Management Monthly Timeline (the bulk of our project installation and management tasks occurred during the 2010 season)

January:

1. Research cultivars, equipment planning/sourcing – purchase plant material.
2. Confirm and order native plant seed for field border as part of NRCS WHIP contract – Agrecol
3. Order windbreak tree species (plum, hazelnut, black cherry, and white spruce - through Sauk

Co. Land Conservation District)

4. Attend WI Local Food Summit/Midwest Value Added Agriculture Conference – workshop intensive on Agroforestry facilitated by Mark Shepard, of Forest Agriculture Enterprises, I also hosted a roundtable discussion with 12 other growers on agroforestry at the conference.
5. Draft brochure content, coordinate with Julianne Hunter of Future Decco Designs on brochure design.
6. Interview with Lisa Kivirist of MOSES Rural Women's Project, our agroforestry project set to be a case study.
7. Contract with IUPDI – Indiana University, Public Design Institute – Matt Groshek collaboration on Co-creating Traveling Agroforestry Exhibit in WI.
8. Order orchard alleyway grass mix – 10 percent white clover, 30 percent red fescue, 30 percent chewings fescue, 30 percent perennial rye mix.

February:

1. Attend Forest Gardening/Ecological Agriculture workshop, February 20 - 21 at The Draw: Permaculture and Sustainable Living Community in Bayfield, WI – feedback and consult on orchard design.
2. Continue research and sourcing of irrigation equipment and design – potential in-kind donation from WI DNR (retired wildfire hose)
3. Pick – up white clover/buckwheat from Cashton Supply
4. Volunteer recruitment

March:

1. Facilitate Forest Garden Workshop at Willy St. Coop in Madison, WI – Open to Public – March 30
2. Site visit to Forest Agriculture Enterprises in Viola, WI (Mark Shepard) and to Jai Kellum of Kings Hill Farm (transitioning orchard project, in Monroe WI).
 1. May 15 Field Day Announcement – continue RSVP, volunteer recruitment
 1. Prune existing fruit trees at Hilltop
 2. Clean and organize tools, shed
 1. Complete agroforestry brochure
 2. Develop handouts for agroforestry workshops, field days
 3. Source trailer for tractor transport

April:

1. Continue volunteer recruitment – May 15 field day organizing
2. Collect forest duff, stage compost
3. Install gutter system on N Side of Barn roof – install cistern for rainwater catchment
4. **Middle of April:**
 1. Schedule site visit with NRCS, Michelle Wilkinson, re-map contours, mark field border and windbreak
 2. Till under winter cover crop by mid-April – Dave to assist
 3. Direct seed orchard alleyway with grass mix
 5. Hire Intern to assist with summer/fall maintenance and monitoring
 6. Purchase hardware wire cloth, pre cut cloth (¼ or ½ inch mesh that is 1 ½ foot – 2 feet height and 6 inch diameter)
 7. Purchase/source tree planting equipment
 8. Pick up fruit trees – (see tree care guidelines)
 1. Anticipated arrival date of windbreak trees - first week of April

2. Anticipated arrival date of fruit trees - end of April

9. Last two weeks of April:

1. Map planting strips, stage plants, plant a few plant triangle sequencing for demonstration purposes, pre-dig some holes for demonstration
2. Map swale system for irrigation
3. Photopoint monitoring

May:

1. Remove garlic mustard, autumn olive, multi-flora rose
2. Host Forest Garden design workshop May 1 (make sure a few holes are pre-dug for demonstration purposes)
 1. Sheet mulch garden demonstration
 2. Plant trees in orchard area
 1. Plant sequencing as follows:
 1. Map plant spacing, mark with flagging where each species will go – label clearly on flagging
 2. Dig hole
 3. Plant tree
 4. Water thoroughly (2 to 3 gallons per plant)
 5. Top dress with compost (boomerang shape to accommodate slope)
 6. Water again (2 gallons per plant)
 7. Interplant with lead plant, prairie clover, and blue false indigo
 8. Direct seed lovage, dill, fennel, lupine and white clover
 9. Mulch with appropriate mulch treatment
 10. Install pre-cut wire cage (¼ or ½ inch mesh that is 1 ½ foot – 2 feet height and 6 inch diameter; trunk should not be tight to cage)
 11. Set up irrigation system
 1. Install solar electric fence
 2. May 2 and 8– volunteer work party, continue orchard planting/project installation
 3. Post planting - water weekly as needed:
 1. A good soak on the weekends of 5 to 10 gallons of water per tree, or 2 weekly
 2. To check soil moisture – dig under mulch with hands to feel the soil. If it is dry or slightly moist, water. If it feels waterlogged, then pass for a few days.
 4. Organize logistics for Field day on the 15th – RSVP & catering
 5. May 15 – Project Field Day
 6. Field border, mow/tillage – end of month – Dave to assist if needed
 7. Memorial weekend – take a break – celebrate planting!

June:

1. Water weekly/as needed
1. A good soak on the weekends of 5 to 10 gallons of water per tree, or 2 weekly
2. To check soil moisture – dig under mulch with hands to feel the soil. If it is dry or slightly moist, water. If it feels waterlogged, then pass for a few days.
 1. Weed within planting strips as needed
 2. Orchard monitoring
 3. Photopoint monitoring

July:

1. Water weekly as needed
3. A good soak on the weekends of 5 to 10 gallons of water per tree, or 2 weekly

4. To check soil moisture – dig under mulch with hands to feel the soil. If it is dry or slightly moist, water. If it feels waterlogged, then pass for a few days.
1. Weed within planting strips as needed – borrow weed whacker
2. Photopoint monitoring

August:

1. Water weekly as needed
5. A good soak on the weekends of 5 to 10 gallons of water per tree, or 2 weekly
6. To check soil moisture – dig under mulch with hands to feel the soil. If it is dry or slightly moist, water. If it feels waterlogged, then pass for a few days.
1. Weed within planting strips as needed
2. Loosen and reset hardware cloth cages and mesh around trees
3. Check for borers on trees
4. Co-host Aronia field day with Carandale Farm – promote October field dates

September:

1. Water weekly as needed
7. A good soak on the weekends of 5 to 10 gallons of water per tree, or 2 weekly
8. To check soil moisture – dig under mulch with hands to feel the soil. If it is dry or slightly moist, water. If it feels waterlogged, then pass for a few days.
1. Weed within planting strips as needed
2. Mow field border toward the end of the month – rent tractor/mower from Reedsburg Rent-all
3. Monitor mouse and rabbit population
4. Continue to watch for borers

October:

1. Final orchard mowing
2. Final field border mowing – direct seed field boarder
3. Rake/stage leaves and compost for next season
4. Transplant 200 daffodil bulbs around base of trees (donated in-kind from CSA member, and mother, daffodils supposed to deter deer)
5. Clean and sharpen tools

November:

1. Check deer protection (fence)
2. Celebrate!
3. Present findings at Farmer Forum Presentation at National Small Farm Trade Show and Conference in Missouri, prepare presentations for winter conference venues.

PEOPLE

People	Affiliation	Involvement
Dale & Cindy Secher	Carandale Farm, Oregon, WI	Mentor, project collaborator, guest presenter and support, co-host with field days and workshops.
John Peck	Family Farm Defenders, Madison, WI	Support with outreach and organizing field tours, providing volunteer help with planting.
Dave and Diane Mikonowicz	Parents of Farmer Erin in Reedsburg, WI	Equipment support – tractor use, volunteer labor with fruit tree planting

Michelle Wilkinson	Soil Conservationist, Natural Resource Conservation Service, Juneau County, WI.	Technical support with orchard map, layout.
Kiera Mulvey	Madison Area CSA Coalition, Madison, WI	Support with outreach and cost share funding for refreshments for field days through WI WIRED funding.
Anne Pfeiffer	Agriculture Innovation Center – UW Extension, Madison, WI	Review of project materials, support with outreach for field days.
Alanna Koshollek	Stewardship Coordinator, Aldo Leopold Foundation, Baraboo, WI	Technical support with field prep, prescribed burn, and outreach for field day.
	Organic Crop Improvement Association, Int'l	Micro-grant funds to support program outreach and field days
Matt Groshek	Public Scholar, Educator, Indiana University Heron School of Public Design, Indianapolis, IN	Design support and consult with education efforts with signage planning – future efforts with telling the project story through a co-designed exhibit.
CSA members, friends	Madison, South Central WI area	140.5 in-kind labor hours assisting primarily with site preparation and orchard installation tasks.
Farm members with the...	Midwest Organic Tree Fruit Grower Association – List Serve	Recommendations for cultivar selection, plant sourcing, and management tips primarily for currants.
Julianne Hunter	Future Deco Design, Mequon, WI	Design services for brochure, outreach materials
Gail Greeve	Sauk County Land Conservation Department, Baraboo, WI.	Borrow tree spades, tools for planting.
Varied	UW Madison, West Madison Agriculture Research Station	Technical support with soil analysis and testing, provided organic compost.

RESULTS

Our project evaluation consisted of a combination of field analysis and education outcomes achieved. We did not have significant yields as we were analyzing a recently installed orchard. We have never used conventional systems on our farm, and thus are not able to draw comparisons between agroforestry and conventional agriculture. We were pleasantly surprised by the opportunity to sample our first black currant fruit and harvested about a quart and a half of elderberries. We expect significant currant yields beginning in 2011 with elderberries and aronia berries to follow in 2012. Saskatoons, quince, and seaberry we expect to yield in 4 to 5 years. Despite the lack of fruit yielded, we did obtain valuable information in our field analysis which, we believe, offers some insights for growers considering transitioning parts of their land to a mixed organic orchard.

Field Analysis Results

Our project monitoring and management strategies focused on vegetation, soil, invasive species present, and disturbance factors and were based on the following questions:

Vegetation

Is the guild an effective design tool for sustainably growing these fruits? (If so, in what ways (for example, plant growth response?). What are the best cultivars and combinations of plants to use – is our experimental design the best approach to growing these fruits in a manner that is sustainable to the land, our community, and our pocket book?

Soil quality

Do plants respond to different soil mulch treatments? If so in what ways?

Invasive Species

What weed species are present and where?

What are effective methods for weed species removal?

Photopoints

How does the orchard site change over time?

Methods used:

Both qualitative and quantitative methods were used to track changes in the landscape over time. We used vegetative cover classes to monitor the health and progress of our orchard site over time. Using cover classes we can examine changes in cover of specific cover types in the same location over time and thereby draw conclusions about plant guild function of the orchard area. A randomly assigned guild in each planting strip was monitored once in July and again in October. Data will continue to be collected every summer and late fall in subsequent years as part of our orchard monitoring and management.

- In terms of plant survival rate and establishment success (as of November 2010), we witnessed the following:
- 100 percent mortality with Gooseberry (possibly poor root stock, plus accidentally weed whacked the 2 surviving species)
- 60 percent survival of saskatoons (very small seedlings – primarily sucker roots)
- 100 percent survival rate with black currant, seaberry, elderberry, aronia, white currant, quince
- 80 percent survival rate of red currant.
- 65 percent establishment success rate for groundcover of fescue, rye, and clover mix.
- 0 percent evidence of rodent damage – wire mesh at the base of the trees helped prevent this, possibly healthy raptor/owl population played a role as well.

We intend to replace gooseberries with honeyberry shrubs in 2011. We will also replant saskatoons and currants, and install a living hedge of buffaloberry (nitrogen fixing shrub) at the edge of each planting strip.

Cover Type: We recorded the cover classes for each of the following cover types in the representative sample guild in each of the planting strips.

- **Canopy: overhead tree branches and foliage.**
- **Litterfall:** leaves, twigs, and other plant material less than 3 inches in diameter.
- **Woody Debris:** dead woody plant material larger than 3 inches in diameter.
- **Bareground:** exposed mineral soil.
- **Nonvascular Plants:** lichens, mosses, and fungi.
- **Vascular Plants: identify all species, determine percent cover, and determine whether planted or volunteered.**

Relative Cover Classes (1 square ft in each guild is equivalent to 10 percent cover)

COVER CLASS	RANGE OF COVERAGE
1	0-5 percent
2	6-25 percent
3	26-50 percent

4	51-75 percent
5	76-95 percent
6	96-100 percent

Results were as follows (average cover class):

Planting Strip	Canopy	Litterfall	Woody Debris	Bareground	Non vascular plants	Vascular plants
1 – straw plus woodchips	1	2	1	1	1	6
2 - Compost only	1	1	1	1	1	5
3 - Control	1	1	1	2	1	5
4 - Woodchips only	1	2	1	3	1	5

We also analyzed the site for weed species present, natural disturbances and plant/insect diseases. For weed species we used percent infestation and considered the entire planting strip for our assessment and recommended management. Results for the top 3 weed species/planting strip are recorded as follows:

Planting Strip	Species	Low (less than 33 percent)	Medium (33 percent – 66 percent)	High (great than 66 percent)	Soil Conditions, Indicator*
1	Common burdock	x			High fertility/clay content
	Lamb's quarter		x		High fertility
	Thistle		x		Clay soils, neutral pH
2	Lamb's quarter		x		High fertility
	Thistle		x		Clay soils, neutral pH
	Hypericum	x			Poor drainage, slightly acidic
3	Orchard grass		x		Possible hard pan, crusted surface
	Ragweed		x		High fertility
	Pigweed		x		Tilled, cultivated soil with high fertility
4	Ragweed	x			High fertility/clay content
	Queen Anne's Lace		x		High clay content, Possibly low potassium

*soil conditions indicators from *Start with the Soil* by Grace Gershuny PA: Rodale Press, 1993.

Weed management was by far our biggest task, post planting. We used a combination of hand weeding and borrowed a weed whacker from our neighbor. We experienced greater weed pressure in planting strips 1 and 2, in part due to location and soil type. Past dairy runoff from the barn, may have contributed to weed species representing a greater fertility and less drainage issues/lower clay content. We also experienced above average rainfall (33 inches in 3 months time in 2010), which may have explained weed species present, possible waterlogged soils. In terms of weed suppression, plants with woodchips (planting strips 1 and 4) were the best performers. Beginning in 2011, we intend to do modified sheet mulching (cardboard/newspaper plus straw plus woodchips plus topdress with compost) around the perimeter of the plants to help with weed suppression, provide a better soil base and seed bank for planting insectory and dynamic accumulator species such as alliums, dill, and lovage to get established, and to reduce time and resources spent on hand weeding/weed whacking around the guilds.

We also used qualitative methods such as site assessments and photopoints to facilitate reflection and

development of observations over time. They are a means to compare spatial and temporal scale between the orchard community of the site and the surrounding undisturbed landscape. While, we walked through the orchard sight at least 4 times per week, the following were site assessment observations we recorded in July and October as part of our monitoring regime.

Natural Disturbance. Document disturbances such as standing water, erosion, impacting weather disturbances such as drought, tree blowdown.

We did not notice any major natural disturbances during the 2010 growing season.

C. Plant/insect disease. Record any observations/signs of plant and/or insect disease.

No significant insect and disease damage was noted. The red currants did show evidence of septoria leaf spot and mild sunburn. While this doesn't pose a significant threat other than cosmetic, we raked leaves around the base of the shrubs to prevent spread.

D. Wildlife Observations. Note species and behavior. How are they using the site? Signs of predation?

Despite the installation of a high tensile solar electric fence, we did see evidence of deer browse, primarily in the fall and again in the winter. Most notably, deer seemed to prefer elderberry and aronia berry in planting strips 1 and 3. We also noted some browse on young currant shoots. Antler rubbing was also evident on quince trees in planting strip 3. In one case, the quince tree was girdled. Deer pressure could have been in part due to the bait wearing off (we placed peanut butter in chicken wire and hung from the fence throughout the orchard), as well as we did not keep the charger going through the winter. In the future, we need to refigure our winter fencing needs.

E. Photopoints. Photopoints were taken monthly. We did not include results from photopoints as the data would not yet demonstrate significant changes in the landscape over time.

Education Results

In addition to field analysis a large component of our project was to provide outreach opportunities and educational resources for growers about the value and potential profitability of growing these fruits. We tracked our efforts using attendance at outreach events. We did not have a good record of how many people we have reached indirectly through our website, Facebook page, and education resources created. In the future we may install Google Analytics to better track our web traffic. Results are as follows:

- Number of Events (combination of field days, farm tours, presentations, and volunteer work parties) - **10**
- Total number of participants reached directly (volunteer and event participants) – **383**
- Number of publications and education resources created - **7**

We also invited participants to respond to the following question: What creates the conditions and potential for a sustainable food system? This 'organically' came about from conversations with other growers, educators, land managers and has resulted in the creation of the Abundance Project, which right now is simply a website page that invites people to share stories, ideas, and photos that represent sustainable, abundant food systems. This is yet another example of the indirect benefits that have resulted from our SARE project. The following are a list of responses from participants:

- Biodiversity
- Community

- Waste Management
- Humans are part of an ecosystem – acceptance
- Political support – zoning
- Knowledge of microsystems and climates
- Basic ecological knowledge
- Infrastructure – markets, animals, processing
- Library – multiple places to share information
- Healthy environment – soil, water, light, heat/energy
- Education
- Technology/season extension
- Enthusiasm
- Demanding good food and a willingness to work toward good food
- Accessibility – information, all income levels
- Lifting veils of ignorance
- Open source networks across many subsections of the community. Thinking beyond traditional notions of currency/medium of exchange
- Involving policy-makers in un-winding the past 50 years of deleterious policy
- The number 1 ingredient is children! Without them nothing is sustainable. Do not swallow the population bomb theory – see DVD demographic bomb
- Begin by thinking of the earth as capital
- FUN!
- Add to your topsoil so your plants will be happier
- Harvesting tip – lots of small children, lots of small, bushy trees:)
- Wonderful people that care about others and honor them with growing plants and animals to benefit others!
- Making connections between your local food producers...to eat locally

We initially set out to form a product development team to assess and determine value-added products such as aronia berry yogurt, sea buckthorn chips, and saskatoon wine. We realized that we do not yet have the capacity to support these efforts until more fruit becomes available and have shifted our focus to sustainable production needs, design, and budget planning. However, we are slowly making connections with local food processors such as Quince and Apple and Tera's Whey – an organic whey protein facility that also processes specialty fruit drinks and is building a new processing facility in nearby Reedsburg, WI. Additionally we are finding professional development opportunities related to product development on the fruits we are growing, and in the future anticipate more opportunities and collaborations around product development.

DISCUSSION

SARE grant funds have enabled us to expand our orchards and fruit production capacity, integrate more perennial agriculture into our annual vegetable cropping systems, and diversify our markets, member base, and outreach impact as a result. While we are still in the early start-up phase of our agroforestry and fruit production, grant funds have helped us take root and reach the goals we set forth to do in our research and education efforts in a variety of ways.

Project Highlights:

- Number of Fruit trees and shrubs planted in orchard – **220**
- Number of trees planted as part of windbreak/field border – **320**
- Number of different species represented as part of this project – **93**

- Number of participants reached directly (both volunteers and event participants) - **383**
- Total Project Hours – **486.75**
- **Labor Breakdown:**
- Site preparation and project installation (Erin and Rob) – **189.25** hrs.
- Outreach, research, and education events – **135** hours
- Intern (support with installation and project monitoring May – July 2010) – **22** hours
- In-kind (volunteer) – primarily site preparation and orchard installation – **182.5** hours
- In-kind - outreach/technical support – networking, editing education resources, event promotion etc. - **140.5**

Budget Snapshot (our top 6 expenses, excluding labor):

- **\$1346** - Plant material – (Source Aronia – Knight's Hollow Nursery, Middleton; Ribes sp., Seaberry and 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 – 1,550 gallon cistern (\$460 at Farm n Fleet) plus 500 foot hose/tubing/drip) – not factored into grant budget.
- **\$745** – 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 foot T-posts, grounding rods, insulators, (20 year lifespan).

Our total NCR-SARE Farmer Rancher grant award was \$6,000. Grant funds were used to cover costs associated with evaluating such parameters as plant growth response to different soil mulch treatments and developing appropriate outreach and education resources regarding the value and potential profitability of growing the fruits we examined. The bulk of funds have gone toward the purchase of plants and equipment and personnel costs associated with this project. 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 percent of professional development costs, and 50 percent printing and design costs associated with developing education resources and project signage. We also received 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 field days. We also received an estimated **\$5,818 in in-kind services** (combination of volunteer field work/support, in-kind outreach and equipment).

Advantages of Implementing our Project	Disadvantages of Implementing our Project
Increased habitat, diversity of species	Foregoing mechanical harvesting
Low input costs for scale	High initial investment (time, labor, equipment) with little return until 3 to 4 years later.
Ability to reach lots of people and meet the growing interest in and need for local fruit products.	Little known about cost/price structure for fruits
New products developed and markets reached	More research needed on growing these fruits in combination with each other, as well as market potential.
Utilize marginal farm lands not suited for annual production	
Future entrepreneurial opportunities	

The first year of our project focused on site preparation, orchard design, plant cultivar research, and outreach. Land management activities included: burning the one acre test plot, planting a cover crop of oats and buckwheat, manual removal of invasive species such as multi-flora rose and autumn olive from the periphery of the orchard, fall cover crop planting of winter rye, designing a windbreak and field border, and photopoint monitoring.

Managing for cool season perennial grasses and learning equipment needs have been the biggest challenges with site preparation. We borrowed a seed drill from the Juneau County Land Conservation District to seed the cover crop. Because one of our design goals is to establish four planting strips with a twelve foot grass alleyway in between, we employed a neighbor to till the orchard area. This was followed by direct seeding with a winter rye cover crop in late September. We did not anticipate rental costs needed for equipment and highly recommend to growers to consider this if they do not already have equipment. Going into 2010 we were able to enter a cooperative agreement enabling us to borrow a tractor and tiller with nearby landowners, Dave and Diane Mikonowicz.

January through December 2010 involved the bulk of our project efforts. We coordinated two volunteer work parties with the goal of having ten to fifteen volunteers (primarily our friends and CSA members, and students through UW Madison) to assist with planting on May 2 and 8. We initially set out to work with the Reedsburg Area High School Biology students to coincide planting with Earth Day in April. However, our plants will not yet have arrived and coordinating travel logistics with the school district has proved to be a challenge. In retrospect we should have lined up planting a year in advance in order to engage high school students. We also hosted 2 on farm field days, 2 farm tours, and were invited to speak

Throughout our project's duration we allowed for time to refine our project design and getting feedback from other growers and agroforestry practitioners in the area primarily through on-line discussion and a list serve with members of the Midwest Organic Fruit Tree Growers Network. We highly recommend this list serve to other growers, having received excellent and timely information on topics ranging from cultivar selection to troubleshooting irrigation and orchard grass seed mixes. The biggest

challenge we have encountered is that very little knowledge and research exists on the best way to design and grow the fruits in combination with each other.

Key recommendations to other growers thinking about fruit production/implementing agroforestry:

- Design your orchard so that the system does the work for you. i.e. Think big picture and implement small, incremental steps on the landscape.
- Stack functions – plant species/implement tasks that serve more than one function on the landscape, leverages impact from your networks, expands the potential for your markets etc...
- Find and/or establish a mentor relationship with another grower. Your learning curve will be steep and things won't work out as you expect them to, so having a support system in place is key.
- If possible, allow for 3 years to transition your land before you plant. This will help with building soil fertility, prepping planting bed. If 3 years isn't an option, at least one year for transitioning. Weed management will be one of your biggest concerns in getting your plants established.
- White clover and winter rye are good cover crops. If cool season perennial grasses are an issue on your site, I would not use buckwheat as a cover crop, it won't compete with grasses. However, we have heard from other orchardists who plant buckwheat and pumpkins on land that they are transitioning to an orchard and will plant in fruit trees the following year.
- Woodchips and straw work well as a mulch (use wheat straw if available, or clean oat straw)
- Have a watering system in place – young trees need at least 5 to 10 gallons per week. Dripworks is an excellent source for irrigation equipment and irrigation design services. Also, let gravity do the work for you, especially if you're on a slope.
- Deer fencing is a must, otherwise you will have a big tax write off.
- If you don't have equipment, borrow or rent, don't buy. We really only needed a tractor for site preparation. We suggest getting to know your neighbors or put in a call to your land conservation office.
- Invite people to contribute along every step of the process. The more support for sustainable agriculture the better! This also builds your social capital, expands grower networks, and potential customer base for when fruit becomes available.
- Plant sourcing – St. Lawrence nursery good source for currants, elderberries, and seaberry, however, we were unimpressed with their saskatoon stock.
- Consider starting a plant propagation program on your farm, to save costs. We had a difficult time sourcing saskatoons and honeyberry trees and shrubs that were affordable (mostly retail prices).
- Other nurseries we would recommend – Jungs, One Green Earth, Knight's Hollow Nursery (for aronia), Hartmans in Michigan, The Draw – Bayfield, WI.
- Be sure to select disease resistant (and edible) cultivars for plants. For example, fire blight resistance for Quince, Viking for aronia (there are lots of landscape varieties for saskatoon and aronia).
- Set your design criteria – consider planting in a guild pattern and/or plant like varieties and species in one area, rather than spread out over the landscape. Having a map in place before you plant is also a must. Local NRCS staff are very helpful with this step.

Transitioning an acre of land with little equipment is daunting on its own. SARE helped us launch and supported our ongoing attempts to refashion a more sustainable, sane, and efficient vision of agriculture. We will look back on our agroforestry, sustainable fruit research project as being the point upon which we have been able to launch into and live our dreams. It has set the stage for the as yet to be imagined and the result is looking to be greater than the sum of its parts.

PROJECT IMPACTS – Please see enclosed forms.

OUTREACH

Type of Outreach/Venue:	#Participants	Media used to communicate
Farm Tour - Family Farm Defenders – Africa Farmer Delegation Tour	5 farmer participants from Uganda, Kenya, and Reedsburg	We did not do any formal outreach to our networks as the delegation tour was organized by Family Farm Defenders – website, member email list.
Farm Tour - Family Farm Defenders – India Farmer delegation and Chicago Urban Ag Tour	17 – mix of farmers from India, NGO's, and coop members of Chicago beekeeper cooperative	We did not do any formal outreach to our networks as the delegation tour was organized by Family Farm Defenders – website, member email list.
Field Day - Agroforestry and Sustainable Fruit Production	38 – combination of growers, land managers, sustainable ag advocates, extension agents, curious public	Farm Website announcement, event flyer, Farm Facebook page, invitation postcard to CSA members (hard copy), electronic event announcements posted to MACSAC, MTFG Assoc. List Serve, Aronia Network List-serve, press release (<i>Hillsboro Sentry - Enterprise, Baraboo News Republic</i>), see attached documents, personal
Field Day – Aronia Field Day at Carandale Farm	63 – combination of growers (including some dairy farmers), land managers, market/value added processing business people, extension agents, curious public.	Carandale Farm took the lead on event coordination, however we supported the event as presenters and with outreach including: Farm Website announcement, event flyer, Farm Facebook page, invitation postcard to CSA members (hard copy), electronic event announcements posted to MACSAC, MTFG Assoc. List Serve, Aronia Network List-serve, personal - word of mouth.
Presentation – Saskatoon Panel, 2009 National Small Farmer Trade Show and Conference Farmers Forum, Columbia MO	27	NC SARE supported most of the outreach involved, we also posted on our website, provided follow up information for participants.
Presentation – WI Local Food Summit, Midwest Value Added Agriculture Conference, Eau Claire WI	15, mostly growers, 2 extension agents	We did not do any outreach, one of the panel/workshop presenters regarding agroforestry was not able to attend. During the event we offered to facilitate a roundtable discussion on agroforestry – interest, applications, and potential markets for Midwest growers.
Presentation – 2010 National Small Farm Trade Show and Conference Farmers Forum, Columbia MO	51	NC SARE supported most of the outreach involved, we also posted event information on our website and shared a link to an article NC SARE published on our project in their the <i>Farmers Forum</i> highlights. Provided follow up information for participants.
Presentation – Midwest Value Added Agriculture Conference, Madison, WI	58	Wisconsin River Country RC & D and conference organizers did most of the outreach and event announcements. We posted on our website, shared event announcement with CSA members, friends, and networks.
Volunteer Work Party	12 mostly friends and CSA members	Invitation, letter, and phone call to CSA members, and friends to help with planting/installing our orchard. See attached Volunteer Work Party letter.
Presentation - UW WI Extension Professional Development Conference, Madison, WI	80 – mostly UW Extension agents.	We were invited to speak as part of a panel, about our experiences with the SARE program, our project, so we did not do any event promotion other than provide handouts for event participants.
Publication – Feature in	Varies – primarily	Newsletter

2009 NC SARE National Farmers Forum Highlights	grower focused	
Publication – Agroforestry Field Day	Varies -	Press Release
Publication – April Farm Newsletter	15 – CSA members	CSA member newsletter, invitation to field day, overview of our project, and potential for more fruit to be incorporated into future CSA shares.
Publication – Agroforestry and Sustainable Fruit Production at Hilltop Community Farm	Varies	Project Brochure and fruit insert - distributed at events, members, network.
Handout – Overview - Agroforestry and Sustainable Fruit Production at Hilltop Community Farm	Varies target audience, grower focused.	Education resource and handout provided at events, presentations, etc.
Article – Transitioning to Organic Aronia production	Varies – primarily grower focused	Wrote for the Midwest Aronia Berry Network list serve (hosted by UW Madison Center for Integrated Agricultural Systems)
Article – <i>Future Fruits of our Table</i>	Varies – primarily growers, local food advocates from around U.S.	Renewing America's Food Traditions – Placed Based Foods at Risk in the Great Lakes (article enclosed).
Farm website & facebook page	Varies	Website, page devoted to our agroforestry/fruit research on www.hilltopcommunityfarm.org , we also used our website and farm's facebook page to post event flyers, project articles, and invitations in our farm blog.

In all of the field days and presentation venues listed above, we had a sign-in sheet to track participants, send follow-up materials (for example, handouts, responses to questions, references etc...) and to build our contact list.

SARE funds have helped us re-think and strengthen our whole farm plan and in all honesty, we will look back on our agroforestry/sustainable fruit research project as being the point upon which we have been able to launch into and live our dreams. It has set the stage for the as yet to be imagined and the result is looking to be greater than the sum of its parts. Emerging education and outreach opportunities in the shaping and future telling of our project...

Specifically in 2011...

We hope to write an article about our SARE project and results to be featured in *Acres* magazine and/or *Edible Madison Magazine*.

Erin will be giving a TED talk (technology, education, and design) at the inaugural TEDxMadtown Event and focusing on agroforestry as a design tool and metaphor for re-thinking human relatedness and cultural regeneration. Her talk will be live streamed on the TED website details at - <http://www.ted.com/tedx/groups/1857> on March 5, 2011 and will also be linked on our farm's website.

We are working with Sue Anderson, local food advocate with the Central Rivers Farmshed Group and conservation educator with the Wood County Extension Services on developing Just Fruit Cards. I have enclosed some draft samples of these fruit cards for saskatoon, aronia, currants, elderberry, quince, and seaberry. Ultimately, we would like to include herbarium specimens of the fruits and publish these as a

set of fruit cards for educators, our CSA members, anyone with an interest in learning about fruit.

We also plan to further communicate our results through the hosting of a Currant Events Field Day at our Farm in July. We'll provide an overview and farm tour of our project, have a 'jam session' (music and a demonstration on how to make currant jam), and a 2012 Farm Bill listening session/panel from local agriculture policy experts from Michael Fields Ag Institute, Family Farm Defenders, and the Wisconsin Farmers Union. In general, we hope to make currant events an annual celebration on our farm to share and harvest ideas, design tips, and resources for building a sustainable, abundant food system.

On the near future horizon in fall 2011 – 2012 - Full Spectrum Fruit Focus Discussion Series

CSA members, farm friends, and curious public are encouraged to join in on the conversation as we develop and expand our capacity and palettes to include more local, healthy, organic fruits in the Midwest. We will feature questions around...What are these fruits and what do we do with it? Join us for a fruitful discussion as we brainstorm and determine what the potential and best uses are for a variety of fruits that we are growing on our farm. We will also invite participants to help us determine what might be the best options for incorporating more fruits into your CSA (and other local markets) in a way that is accessible, affordable, and viable for you, your farm, and your farmers. We hope to do this discussion series with another farmer growing similar fruits and at similar phase in production in Northern Wisconsin. She has markets in the Minneapolis area and we wanted to share and compare feedback/results to get a better feel for interest and potential markets. We will also use the Brain Reactions website (<http://www.brainreactions.com/online-brainstorming/>), an on-line brainstorming tool that has thousands of members from around the U.S. And around the world who contribute idea generation to questions posted daily.

On an on-going basis beginning this winter/spring...

We are working with Matt Groshek, Public Scholar and Transformation Designer with Indiana University Heron School of Art and Design, and staff/members with the Central River Farmshed Group in Stevens Point, WI to assist with co-creating a farmer almanac and eventually an exhibit entitled *The Places and Faces of Ecological Agriculture – Toward a Perennial Future of Abundance*. The almanac and 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. The latter, we have been gathering information through interviews with participants at events and workshops. Upon completion, the almanac, 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.

People are also invited to share their comments around what creates the conditions and potential for an abundant sustainable food system as part of the Abundance Project on a newly created website – Just Fruit: Food Systems Development. Just Fruit is a new business we are developing that has emerged from our grant project. We have received consulting and teaching jobs regarding orchard design, integrating agroforestry practices into the whole farm plan, and forest gardening from a variety of

venues such as Master Gardener Programs, Beginning Farmer and Rancher Cooperatives, Michael Fields Agriculture Institute, and local food store cooperatives, and are thinking that a sister business to the farm would support our facilitation/teaching, outreach and education adventures. Specifically, we are exploring the development of a co-designed women's agroforestry grower exchange program with women growers in Nicaragua and women growers in Wisconsin. Erin traveled to La Fem Cooperative, a women's run and owned organic fair trade coffee producers cooperative in Nicaragua this January to discuss the development and design process. As a result, 2 to 3 growers from Nicaragua will be traveling to Wisconsin in May. We also envision Just Fruit to ultimately evolve into a women's owned and run producer's, marketing and education cooperative to help provide a production and marketing venue for small-scale orchardists to aggregate and sell under one brand both fresh and value added, sustainable fruit products alongside offering opportunities for grower exchanges and sharing expertise on building sustainable food systems.

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

Enclosed are the following publications and resources created as a result of this project:

- 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)
- Event flyers – Agroforestry and volunteer field days
- Renewing America's Food Traditions – Place Based Foods at Risk in the Great Lakes.
- Feature in 2010 NC SARE Farmers Forum Highlights
- *Hillsboro Sentry* – *Enterprise and Baraboo News Republic* – Press Release for field Day
- *Northside News, Madison* – Sustainable Fruit Production Feature Article
- Op-Ed – *Don't put SARE on the Chopping Block*
- Agroforestry and Sustainable Fruit Production Research at Hilltop Community Farm – Project Brochure – artwork created by Julianne Hunter of Future Deco Design
- Our on-farm Monitoring Handbook – Adaptive Management Resource– May 2010.
- DRAFT - Just Fruit Cards – Eldberry, Saskatoon, Quince, Seaberry, Aronia, and Currant
- A selection of slides and photos that communicate the story of our project. (pdf)