USDA National Agroforestry Center

Inside Agroforestry

VOLUME 22 ISSUE 2

Locally Sourced

When we think about agroforestry, the production side of agroforestry – the trees, crops, and livestock that make up agroforestry systems – is often what we think of first, not the economics or products.

Many publications address the ecology and management of agroforestry systems or their ecological benefits. Others focus on the ecological benefits of these agroforestry practices, such as improved water, soils, and wildlife habitat. Food sometimes gets overlooked, even though its production is often a primary driver for landowners.

This newsletter seeks to highlight the foods that agroforestry producers grow. It also addresses how agroforestry producers fit into food systems at different scales. In addition to being a component of the physical landscape, these producers are important components of economic and social landscapes as well. Explaining what these landscapes look like and what happens to products once they get off the farm is important to understanding agroforestry.

The articles in this newsletter aren't meant to be comprehensive. There are many agroforestry systems not mentioned here that produce important food products, like meat from silvopasture systems and grain from fields protected by windbreaks. Instead, this newsletter tries to get us thinking about emerging agroforestry markets and systems. It addresses agroforestry in places where we don't traditionally think of them, like backyards, and discusses new species that can be grown in more traditional agroforestry systems, like hazelnuts in windbreaks.

For the general public, food products produced in agroforestry systems can be an important route to understanding agroforestry. Highlighting some of these foods can help gain more attention for the other benefits of agroforestry systems.

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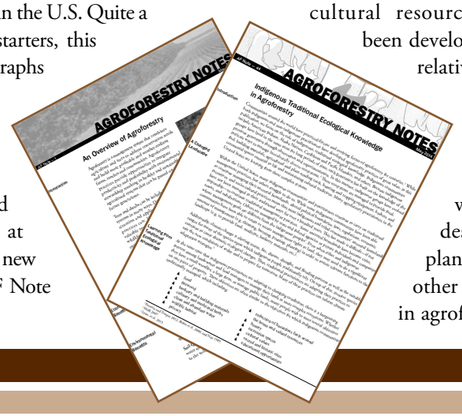
NAC Updates

As time marches on it is good to reexamine what has been done as a way of strengthening how to move forward. The most recent Agroforestry Notes have come about in this way. The first AF Note was an introduction to agroforestry in the U.S. Quite a bit has changed since 1995. For starters, this revision of AF Note 1 has photographs of each agroforestry practice instead of diagrams, because landowners are applying agroforestry and we can share their systems instead of drawings of concepts. People and organizations are also looking at agroforestry as a means to addressing new issues in new ways. This revised AF Note captures many of these changes.



The other new AF Note also has a dimension of looking back. This Note is the first one that looks at Traditional Ecological Knowledge, TEK, as it relates to agroforestry. TEK is indigenous cultural resource management information that has been developed over time. Although agroforestry is a relatively new term in land management, some of the production of food and goods done with TEK are very similar to agroforestry. Many Tribal communities are currently managing lands using TEK with excellent results. These systems are described in this Agroforestry Note. NAC plans on developing additional AF Notes and other publications on this theme of using TEK in agroforestry applications.

Have YOU ever eaten from a windbreak?

Richard Straight
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Lincoln, NE

The people in the Lake Superior counties of Wisconsin face numerous challenges. These counties have few economic opportunities and limited abilities to compete in commodity crop production. The citizens in the region and in tribal communities in particular struggle with high rates of obesity and diabetes due to limited healthy food options. In addition, this area includes sensitive ecological areas in the Lake Superior watershed in need of conservation and restoration.

To help people learn about new opportunities to create income, protect water quality, and improve options for healthy food, a project to create an agroforestry demonstration site was developed in 2012 by Jason Fischbach with the University of Wisconsin Extension in Bayfield and Ashland Counties, Jason Maloney with the US Forest Service Northern Great Lakes Visitor Center, and the USDA National Agroforestry Center. The purpose of this project is to design, plant, and maintain an agroforestry system on the property of the Northern Great Lakes Visitor Center (NGLVC) near Ashland, WI. When completed, this site will provide an example of a functional conservation practice that can produce food, culturally important plants, and other income generating products along with the typical agricultural products.

Agroforestry practices are relatively unknown agricultural systems in the Lake Superior counties of Wisconsin. Agroforestry practices bring together the ecological advantages of trees and other woody plants and the economic benefits associated with their products. By incorporating trees into agricultural landscapes, farmers can bolster the economic and environmental sustainability of their farming enterprise. This particular demonstration site consists of a windbreak designed to keep snow from drifting onto the NGLVC parking lot. This kind of windbreak is sometimes called a living snow fence.

The Northern Great Lakes Visitor Center (NGLVC), located on the northern edge of the Chequamegon-Nicolet National Forest, was selected because it specializes in connecting people of all ages with engaging activities related to the outdoors. Congressionally designated a National Children's Forest, the Visitor Center offers opportunities for youth and the general public to become more connected with the natural world. The Visitor Center hosts over 100,000 visitors each year as well as many general public and technical training sessions and can provide an excellent opportunity to educate people about agroforestry and its potential role to address the local economic, environmental, and social issues in the Bayfield County area.

During the last three years the Great Lakes Indian Fish & Wildlife Commission (GLIFWC) has been partnering with nutritionists and Elders of the Northern Ojibwe Nations on a Native Foods Project to promote a healthier diet based on traditional native food plants. This includes traditional recipes that use many of the fruit and nut species found in great diversity on public and private lands in the region. About four times per year the Tribal Elders have met at the Visitor Center to sample meals that were prepared from traditional recipes using native plants. Some of the plants used in the recipes will be included in the agroforestry demonstration, including hazelnut, juneberry, highbush cranberry, plums, red and black currants, and aronia.

> When completed, this site will provide an example of a functional conservation practice that can produce food, culturally important plants, and other income generating products.

The demonstration planting is unique in that it incorporates aspects of three different local initiatives into a single demonstration planting. The planting includes a hazelnut research (Upper Midwest Hazelnut Development Initiative), woody biomass crop species (Lake Superior Woody Biomass Trials), and will likely include a viburnum trial planting in 2014 (Lake Superior Viburnum Project).

Less than a mile from the Visitor Center is the Agriculture and Energy Resource Center, AERC. Along with the Bayfield and Ashland Counties and UW-Extension, the AERC established the ten acre Lake Superior Woody Biomass Trials in 2010 to research and demonstrate woody biomass cropping in support of wood-to-energy projects in the region. This project site is another great opportunity to demonstrate the use of income-generating plant species in agroforestry plantings. Together with the demonstration site at NGLVC, this location will demonstrate to farmers that money can be made with windbreak. This may lead to more windbreaks being planted.

The last of the trees and shrubs will be planted at the Visitor Center demonstration site in the spring of 2014. But there is a new twist on the horizon. Jason Fischbach is talking with ethnobotanists at the University of Wisconsin – Superior about additional native plant food species that may be incorporated between the tree and shrub rows to help control the competing grass and weed vegetation. Some educational materials have been created and were distributed to visitors this last winter. The next step will be to create educational signs for the site.

The demonstration site is positioned well for future training sessions. In addition, it is an example of blending traditional knowledge with agroforestry to address conservation challenges.

Northern Great Lakes Visitor Center

Picture taken from the top of NGLVC overlooking the proposed windbreak site. The same site with a CanVis edited image depicting what the windbreak may look like in 10 years. The edited image was created by a summer Tribal Intern in 2012.

Food Forests

Creating opportunities for agroforestry practices in communities

Kate MacFarland
National Agroforestry Center
Lincoln, NE

In cities across the country, people are planning and planting food forests. Often food forests are community efforts to grow not just vegetable gardens but a broader mix of annual, perennial, and tree crops. They frequently combine fruit trees with edible shrubs and vegetables. These food forests have many different designs. Some add trees to community gardens, others resemble orchards, and still others use multi-story cropping techniques.

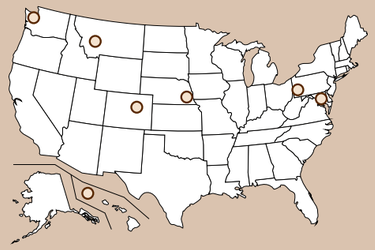
The organizational structures of food forests vary as well, with many having communal ownership and governance. Some are located on municipally-owned vacant land or in parks, while others are at property owned by non-profits. The food produced by food forests is often distributed to participants, nearby residents, or the general public. In towns and cities across the US, this community-based model is being tested and often faces challenges such as uncertain land tenure, questions about how food will be shared, and how to communally manage land.

It is exciting to see new forms of green space develop in American cities, often with the concurrent goals of educating the public, enhancing food security, and increasing local food production. Some of these food forests leverage agroforestry practices while others are using other ecological and horticultural principles. Many practices used in food forests come out of principles used in home gardens over hundreds of years. In food forests that seek to use agroforestry principles, there are opportunities for agroforestry research to be used and shared. People developing food forests can borrow methods from forest farming, alley cropping, and other agroforestry practices and apply them in these new spaces.

As with more typical rural use of agroforestry practices, growers can realize greater diversity of products, productivity, and crop quality all on the same sized parcel of land. These enhancements are possible when producers take advantage of the interactions between the annual, perennial, and tree crops. When crops are incorporated into food forests they will grow in a modified microclimate with reduced wind and direct sunlight and greater humidity. Obviously some plants will not benefit from the partial shade of the trees. These crops may need to be grown at the edges of the food forest or adjacent to it. Even in those situations there can be some favorable plant interactions and agroforestry principles can be applied.

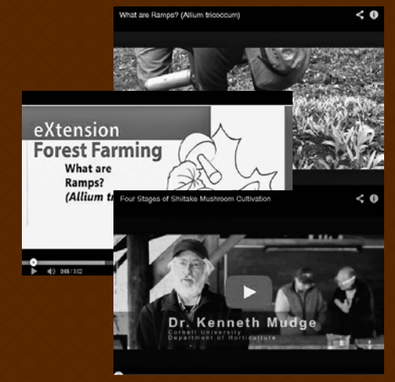
Some examples of food forests:

Kalihiwai Permaculture Food Forest, Kalihiwai, HI
Baltimore Orchard Project, Baltimore, MD
Southern Heights Food Forest, Lincoln, NE
Hazelwood Food Forest, Pittsburgh, PA
6th Ward Park, Helena, MT
Beacon Food Forest, Seattle, WA
Ponderosa Park, Basalt, CO



Forest Farming Foods on YouTube

Forest farming is an important agroforestry practice that can be used to produce food. In 2013 NAC, Virginia Tech University and the Forest Service Southern Research Station developed a series of YouTube videos on forest farming. These videos have been promoted on the eXtension Forest Farming Community of Practice Website, www.extension.org/forest_farming. These videos examine a variety of edibles including ramps and shiitake mushrooms. To learn more about edibles grown through forest farming, visit the Forest Farming Community of Practice YouTube channel: https://www.youtube.com/exforestfarming



Plant a Tree of Life

Diane Ragone, PhD
Breadfruit Institute
Kalaheo, HI

Breadfruit *(artocarpus altilis)*, known as 'Ulu in Hawaii, is one of the food plants brought from eastern Polynesia centuries ago and was widely grown throughout the archipelago.

'Ulu made significant contributions to food security by providing an easy to grow, productive, nutritious, starchy staple crop. Over the past century, however, breadfruit use declined and many trees were cut down, especially in urban areas.

Today, Hawaii is one of the most food insecure states in the nation, importing about 85% of its food. Breadfruit is a key component of traditional agroforestry systems in the Pacific Islands which provide a realistic model for revitalizing food production in Hawaii. By anchoring food forests in urban and community landscapes, this attractive, long-lived perennial tree can once again play an important role in food sustainability.

Breadfruit can easily be grown as a backyard tree and in public spaces, alone or inter-planted with a wide range of plants such as bananas, taro, citrus and other fruit trees, vegetables, ornamentals, lei plants, etc. Its versatile gluten-free fruit can be roasted, baked, boiled, pounded into poi, or fried, and is used in a wide array of recipes from appetizers to main dishes to desserts and beverages. Why import potatoes or white rice when you can use locally grown 'ulu instead?

The National Tropical Botanical Garden, a private, not-for-profit organization, established the Breadfruit Institute (BFI) in 2003 to promote the conservation and use of breadfruit for food and reforestation. The BFI manages the largest collection of breadfruit in the world. It conserves more than 120 varieties from throughout the Pacific region, including some varieties that no longer exist on their native islands. This unique germplasm repository is an important resource for efforts to develop more sustainable agriculture, promote traditional agroforestry, and enhance food security in the tropics.

The Breadfruit Institute launched the Plant a Tree of Life – Grow 'Ulu project in Hawaii in October 2012 to distribute trees of an exceptional breadfruit variety, Ma'afala, for residents and organizations to plant in their yards and communities. Funding for this project was provided by The Ceres Trust. The Hawaii Department of Land and Natural Resources Kaulunani Urban and Community Forestry Grant Program provided additional support.

Ma'afala was selected for distribution as this popular variety, which originated in Samoa and Tonga, has been grown in Hawaii for decades. It has a compact shape that is especially suited to urban and community landscapes. The tree can be easily pruned and shaped to fit its location and make it easier to reach and harvest the fruit. Trees can begin bearing fruit in 2 1/2 to 3 years.


Ma'afala breadfruit trees in nursery, ready for distribution. Photo by Diane Ragone.

The institute partnered with numerous communities, organizations, and individuals to distribute 4,800 trees. Recipients received a Ma'afala variety fact sheet, and an illustrated planting guide that was available in English, Hawaiian, Samoan, Chuukese, Tongan, and Tagalog versions. There was great interest in providing trees to Hawaiians and other Pacific Islanders such as Micronesians, Samoans, and Tongans, and to low-income residents. These groups are especially vulnerable to food insecurity and health issues, such as obesity and diabetes, associated with a Western diet. Helping them plant breadfruit trees at their homes and in their communities is a sustainable and achievable step to addressing these problems.

Breadfruit trees have been planted at homes, schools, churches, community gardens, social service organizations, parks, and other sites on Kauai, Oahu, Maui, Lanai, Molokai, and Hawaii Island. These iconic, culturally significant trees will provide beauty and shade, but most importantly, healthy food for home consumption, and to share with family and friends.

It was possible to distribute breadfruit trees in such quantity because of a major propagation breakthrough. Many breadfruit varieties, including the Hawaiian 'Ulu, are seedless and must be propagated vegetatively using root shoots or root cuttings. While this method is successful – after all, it is how islanders propagated and spread breadfruit trees throughout the vast Pacific region over the millennia – it is slow and time consuming, with a low success rate.

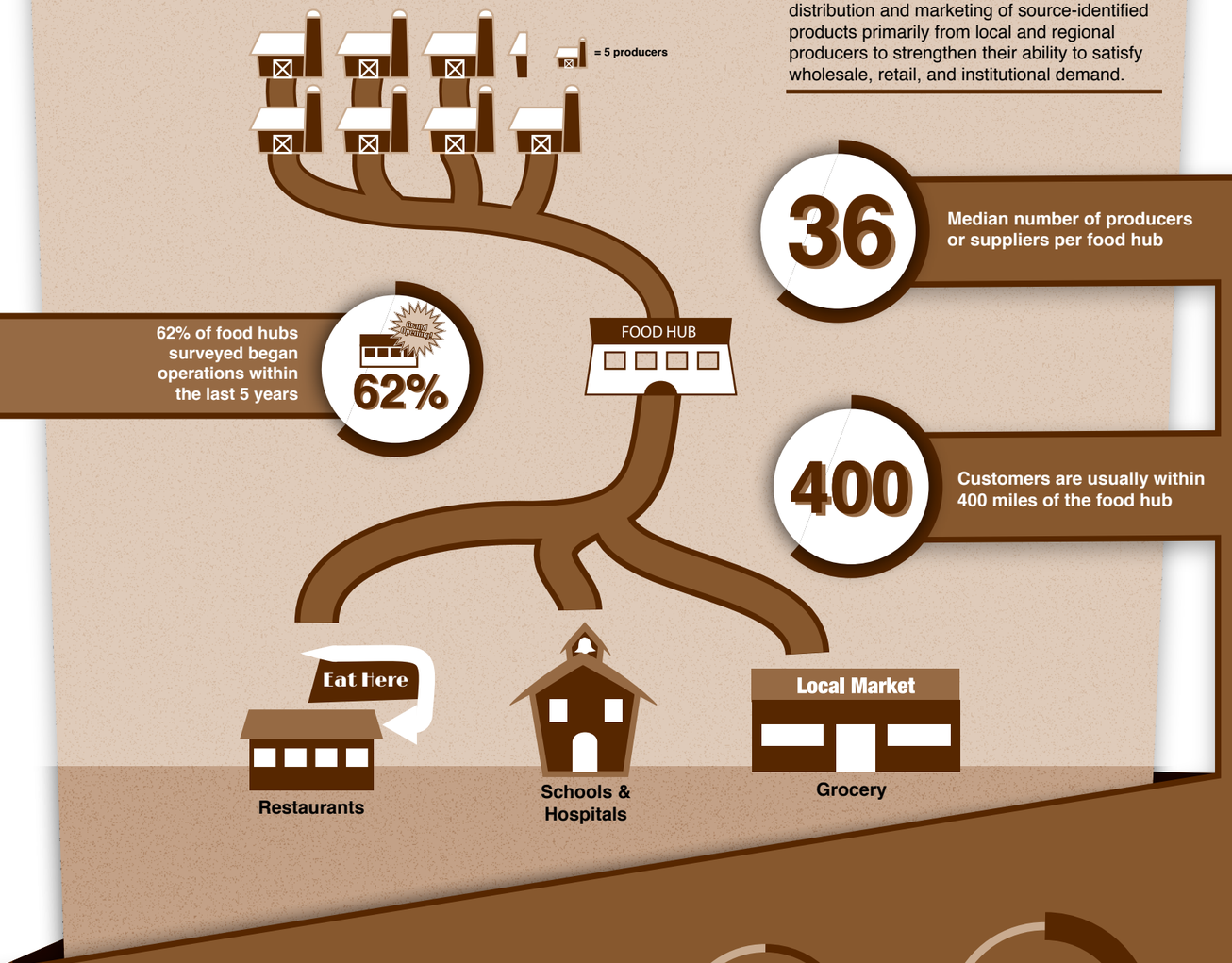
The Breadfruit Institute and research collaborators have developed pioneering micropropagation methods to produce healthy and vigorous breadfruit plants. A partnership with an innovative horticultural company, Cultivaris LLC, (www.globalbreadfruit.com) now makes it possible to propagate and distribute millions of breadfruit trees. Since 2009, more than 35,000 Ma'afala trees have been provided to 26 countries in Africa, the Caribbean, Central America, Asia, and Oceania. It is exciting to see this heritage Pacific crop being used in tree planting projects around the globe.

To learn more about our work visit:
www.breadfruit.org and www.facebook.com/BreadfruitInstitute.

Diane Ragone, PhD, is director of the Breadfruit Institute at the National Tropical Botanical Garden.

FOOD HUB FACTS

Food hubs manage the aggregation, distribution and marketing of source-identified products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand.



36 Median number of producers or suppliers per food hub

62% of food hubs surveyed began operations within the last 5 years

400 Customers are usually within 400 miles of the food hub

Percentage of food hubs surveyed that are either non-profit, for profit, or have another organizational framework

Source: Fischer, M., Hamm, M., Pirog, R., Fisk, J., Farbman, J., & Kiraly, S. (September 2013). Findings of the 2013 National Food Hub Survey. Michigan State University Center for Regional Food Systems & The Wallace Center at Winrock International. Retrieved from http://foodsystems.msu.edu/activities/food-hub-survey

Producers 2 Consumers

the emerging role of food hubs

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How do we get the food that is produced in agroforestry systems to consumers? In addition to smaller market outlets like farmers markets and large scale commodity markets, food hubs are an emerging market outlet for many types of producers. The National Food Hub Coalition defines a food hub as: "A business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand." The emphasis on promoting the strength and viability of small and mid-sized producers, and the frequent inclusion of additional environmental and social goals, is what sets food hubs apart from regular food wholesalers.

Straddling the realms of direct marketing and conventional wholesale markets, food hubs provide a key service to mid-sized family farmers who are too small to survive within highly competitive and vertically consolidated supply chains, yet too big to get by on smaller direct marketing channels like farmers markets. Food hubs aggregate products from multiple farms and sell it into wholesale and retail markets, expanding access to locally produced food for consumers in their region. Other models of food hubs include direct to consumer subscription programs akin to community supported agriculture and drawing product from multiple farms, and online models that provide platforms for interested customers to search for and connect with producers directly. Food hubs also expand the number of market outlets that are accessible to small or mid-sized farms, since they often supply schools, hospitals, restaurants and grocery stores.

One of the key components of food hub market strategy is to provide 'source identified' local or regional food products to their customers. A source identified product is one that is connected to its farm of origin, most frequently through labeling the product with the farm's name. Some food hubs provide additional information about the particular farm and/or farmers by including pictures or stories of the farm in signage at the point of sale, in newsletters to customers, or on their website. Through telling the story of producers and production, food hubs provide a key opportunity for consumer education and promotion of regional food systems.

Producers with agroforestry systems often also have economic, social, and environmental goals, many of which are met directly through their agroforestry systems. Agroforestry systems can help diversify producers' income streams, create environmental benefits such as reduced soil erosion or increased habitat, and provide recreational and educational benefits to nearby communities. Food hubs may offer an opportunity for producers with agroforestry systems to connect with new markets and scale up their businesses.

STEEP HILLS MEET STEEP DEMAND

By Colleen Rossier, National Agroforestry Center, Lincoln, NE

John and Todd Hopkins of Forks Farm are not new to agroforestry or local foods. In fact, they started farming over 20 years ago on their 86-acre farm at the confluence of two rivers in Columbia County, Pennsylvania. Now, they find that they have built quite a community around their family farm, from their long-standing loyal customers to the many people whose farms they have helped to start, including neighbors, customers, and former employees. Their story is an inspiration.

John and Todd raise and sell entirely grassfed and grass-finished animals without tillage or chemicals, and use trees around their farm in many creative ways. These farming choices make them ideal farmers for the Chesapeake Bay watershed, which has been challenged over the past decade with high sediment and nutrient loads that result in eutrophication and algae blooms.

When they bought their land in the late 1980s, however, it was not in great shape. Thus, John and Todd have embraced an adaptive management approach. As John is not solely a farmer, but also a consulting forester and Certified Arborist, he quickly noticed that the stand of Virginia pines growing on steep ground were overly dense. This left the forest floor barren and trees kept blowing over. In the early 1990s, he thinned out the stand, keeping a diverse mix of seed-producing hardwoods but removing most of the pines. He also chipped the downed logs to hasten the return of nutrients to the soil that would soon support a silvopasture.

After this thinning, John and Todd started intensively grazing animals to improve and rehabilitate the land. For this first forest patch, they moved pigs into the stand to create a "flash disturbance" since they churn up the soil and root out old stumps. Then, they seeded cool season grasses in the understory of this new hardwood silvopasture plot. Once the grasses were growing well, they rotated beef cattle into the pasture, and followed them with laying hens that live in beautifully painted "egg-mobiles." John is quick to note that he and Todd did not come up with all the ideas on their own, but follow and modify the traditions of the The Stockman Grass Farmer, Joel Salatin, Wendell Barry, Bill Murphy, and others.

After the first silvopasture was established, John and Todd created several more. They have learned a great deal about what works and what does not. For instance, John now gravitates toward Tamworth pigs. The Tamworths are smarter, more aggressive, and do not sunburn easily which enables them to thrive outside without shelter. They also have large litters and are thus quite productive.

Although hardwood silvopasture can sometimes be controversial, John would argue that it is all about how well you time your rotations, manage your animals, and read the landscape. John and Todd tend to use pigs in areas that have recently been thinned, or which have invasive plants. They keep the pigs in these stands for about two weeks to a month, but do not allow them to re-graze the same stand within the year. On the other hand when cattle rotate into the stand, John and Todd leave them in for one to three days, providing a high intensity graze that requires a long term rest. Poultry follow the cattle, and stay on patches for about a day at a time. While John and Todd have learned a great deal about their silvopasture system over the last twenty-five years, they continue to experiment by trying new species, rotations, and timing.

It is all about how well you time your rotations, manage your animals, and read the landscape.

USDA has been helpful to John and Todd in several ways. In particular, the USDA Natural Resources Conservation Service (NRCS) provided technical and financial assistance to help them fence their animals out of the streams that run through their property and to provide alternative water sources for those animals. To provide alternative water, NRCS was able to help them in two ways. First, they helped them design and install a solar water pump. Then, NRCS helped them provide winter water to their animals that would not freeze over. Adequate water supplies enable the Hopkins to fully utilize their property.

Two key challenges that John and Todd continue to face are: 1) invasive plants; and 2) access to slaughter. They are continuously experimenting with how to use their animals and other techniques to control the multiflora rose, Japanese stilt grass, mile-a-minute, Japanese knotweed, and barberry. The challenge with slaughter is that nearly all of the meat producers in the area tend to want to slaughter at the same time of the year, so the slaughterhouse gets booked up and farmers have to wait for weeks. John says that while there are five butchers within 90 miles, there are few slaughterhouses, and he hopes to encourage the next generation of entrepreneurs to go into the independent slaughter business.

Although John and Todd started small, their high quality products have attracted loyal customers and demand has steadily grown. This year, they grew 60 beef cattle, 75 hogs, 30 lambs, 3,500 chickens, 170 turkeys, and countless eggs. As demand has grown, rather than expanding their own operation, John and Todd are sharing the soaring market demand by partnering with other farmers in the area through the Pennsylvania Association for Sustainable Agriculture (PASA). Now they sell products from 25-30 other farmers through their farm stand, buyers' clubs, and wholesale marketing to brewpubs and restaurants.

Owners of Forks Farm John and Todd Hopkinss standing in front their delivery van. Photo by Colleen Rossier.

Cattle graze in hardwood silvopasture plot on Forks Farm. Photo by Colleen Rossier.

Forest Gardening:
Growing a Community for Your Orchard

By Erin Schneider, Hilltop Community Farm, La Valle, WI

It's been a long slow awakening this year as plum trees reluctantly break bud, our bodies sluggish from consecutive polar vortices. It's always with great anticipation and exuberance that we welcome the planting season at our farm By now we've compared notes with growers, ordered new fruit trees to test, and grafted new scionwood; now we're ready to dig in for a 4th season establishing our orchard. For us, that means planting and testing the next forest garden guild design.

Elderberries ready to be harvested from Forest Garden. Photo by Erin Schneider.

In 2010 we began to plant our dream of growing more fruit and building community, while also seeking to improve soil and water quality and increase biodiversity and habitat for pollinators on our farm. What's more, while we wanted to expand our markets and farm income we wanted to better leverage our labor, so we sought perennials that would do naturally well on our farm. We already had raspberries, gooseberries and apples in the local neighbor-wood so we decided to add-in quince, currants, saskatoons, aronia, seaberry, honeyberry, and American elderberry, all of which would be equally well-adapted to our southern Wisconsin biome. These fruits are high-yielding, environmentally and grower friendly, and are an exceptionally nutritional food source.

Ok. So you're into unusual fruit? What does that have to do with agroforestry and building community?

The shift is in not just thinking about fruit, but thinking about function and how to grow food/fruits in relation to each other. A key innovation in our orchard is the use of forest garden guilds as an orchard design tool.

You're probably familiar with guilds – groups of people in a profession who enhance each others' skills and possibilities by sharing information and resources with each other. Forest garden guilds are the arboreal equivalent, a clutch of species that - when planted together - complement one another by partitioning resources and/or creating networks of mutual support. With an overstory (or two) of fruit or nut bearing trees and an understory of shrubs, vines and ground-covers, their design requires an eye both to complementarity and maximizing the capture of sunlight in three dimensions (see Edible Forest Gardens, by Dave Jacke and Eric Tohenmeister, 2009 or http://www.edibleforestgardens.com). A forest garden guild is not a new idea, but one whose time has certainly come. We can consciously apply the principles of plant community function to the design of landscapes and our farms that mimic forest structure and function, and also grow food, fuel, fiber, fodder, fertilizer, "farmaceuticals," and fun.

On our farm, the result is so far looking to be greater than the sum of its parts. In the past year, our orchard has really started to take shape and we've begun to harvest a substantial amount of currants. We've also had a lot of fun along the way. Each year in early July, we throw open the farm for Currant Events, a celebration of the joys of the tart berry along with the odd topical discussion on agricultural matters. We host planting days with local high school youth in search of an annual Earth Day project. And of course we enjoy just relaxing in the orchard while the sun sets.

Since much of our work is done by hand, a little up front work in design/site assessment has gone a long way. For our one acre orchard we replicated 23 forest gardens in 4 different planting strips. Since then we prepare for future plantings by sheet mulching and we continue to tweak and try to find the optimal mix of understory and groundcover plantings.

How this work has broken down on the land.

Canopy layer: We did not plant large canopy nut trees in our orchard due to space; instead, our fruit trees serve the function of a canopy layer. We have an iconic 'big mama bur oak' at the bottom of our orchard slope who 'keeps an eye on things'. Adjacent to the orchard is another 3 acre slope where we have planted black walnuts, and red oak trees. Along our forest edges we're considering meat goats to support brush management.

Overstory: fruit trees – Quince – 17; Apples – 4; Cherry – 4; Persimmons – 2, Apricots – 2

Shrub layer: 20 seaberry; 23 elderberry; 32 saskatoon; 60 currants – planted along the drip line of overstory layer; 20 honeyberry; 60 aronia berry; 25 hazelnuts. In each forest garden we have 1 nitrogen fixing shrub (seaberry) and medicinal plant (elderberry). Gooseberries did not take (we think due to sequencing, gooseberries really prefer more shade), so we substituted 20 honeyberries for gooseberry plants in 2012.

Understory: Mix examples include: dynamic accumulator plants – comfrey, lovage, horseradish root in swale; mt. mint where apples are planted; purple prairie clover/blue false indigo; leadplant; direct seeded/transplanted chives, dill, yellow coneflower, NE aster, black-eyed susan, penstemmon, prairie phlox, butterfly weed, silphium (the latter we are finding makes a great hedgerow plant).

Groundcover: Primarily white clover, chewings fescue, and red fescue mix (can sub meadow fescues) and perennial rye at 30lbs/acre.

Roots/bulbs: daffodils

Vines: none in orchard, though we do have hops and grapevines trellised adjacent to our Community Supported Agriculture (CSA) gardens.

Mushroom: Winecaps – inoculated woodchips in a 3 experimental apple/peach food forests.

Mulch treatments; wood chips, compost, leaf litter, cardboard/newspaper, and forest duff incorporated in plant root zones at initial planting. We started using straw, though have had much better success with partially decomposed woodchips. 2012 started with seasonal applications of compost tea.

Swale: Red osier dogwood, viburnum, horseradish root, (yellow cone flower, golden rod, asters 'just showing up'), mixed grasses.

Other: We have other food forests planted on our farm though not integrated into our orchard area, these include plums, peaches, apricots, pear, and cherry guilds and have a more intensive planting of culinary herbs/native cut flowers that we harvest for our CSA, and some medicinal herbs that we harvest for our own use.

In all cases we have begun to learn to plant what feeds us, weed out the extras, and stack functions!

Forest gardens have much to offer on a practical level, and they continue to teach us about how to live in community as free and interdependent beings in a functional way. At the start of another farm season I am once again reminded of how much we rely on one another and the land to make a living. And ultimately, I want to be happy, make an honest living with dignity, and do what I love. And I love fruit, I love people, I love to farm. I hope you find success experimenting with finding the right mix of plants and people for your farm and communities to thrive.

Contact: **Erin Schneider**
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Project Highlights

388	Shrubs Planted
320	Trees Planted
641	Herbs & Grasses Integrated
23	Pollinater Plants Sown
612	Volunteers Participated
486	Project Hours
6,000	Total Cost

Tips for your food forest:

Forest garden guilds can also serve as a metaphor for how you relate to people and to your community. A few transferrable tips to consider while you establish your food forest:

Observe! Pay attention to what's going on. Light, water, slope, past land use, organization history, etc. Connect to place, connect to the people and plants there. This will help inform decisions.

Build your soil – if possible take 1 – 3 years transitioning with a mix of cover crops. Start adding fertility in the form of plants. Choose your nitrogen fixer – in our guilds it's seaberry, purple prairie clover, baptista, but it could be any of the legumes or Elaganceae family. In your community look for ways to build mutually beneficial relationships. A good example of building community is the Value Chain Partnership in Iowa; they've created nested networks across food sectors to grow their local food economy. The Midwest Agroforestry Working Group is also a new network wherein practitioners can pose questions and share expertise.

Add a dynamic accumulator – go deep and deepen your relationships and commitment to your life purpose. Examples in the plant world include horseradish root, compass plant, and comfrey. Community organizations can accelerate growth too. Through their delegations and connections with their growers and coffee drinkers, Just Coffee Cooperative has built deep, transparent relationships in understanding and practicing Fair Trade (and coffee thrives in an agroforestry system!).

Insectory – build beneficial habitat – this helps manage for risk, repel disease, attract beneficial insects. Elderberry, dill, and calendula can all help provide beneficial habitats for insects. At the community scale, create space for inclusiveness that allow for diverse habitats of people and ideas to be expressed.

Food – plant what feeds you! Add flavor and spice to your idea. At the end of the day what will keep you going? For example, quince live over 100 years and we can expect yields of 400 - 600 lbs fruit/tree. That's a serious amount of fruit for a seriously long time!

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June 18, 2014
Growing Forage in Woodlands Webinar
Online
http://silvopasture.ning.com/

June 18, 2014
Commercial Mushroom Production
Field Day
Schuyler County, NY
http://blogs.cornell.edu/mushrooms/events/

July 1, 2014
Trees Forever Agroforestry Workshop
Villisca, IA
http://treesforever.org/

For more upcoming events, visit our
website calendar: http://nac.unl.edu/events/index.htm

USDA National Agroforestry Center

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Mission

The USDA National Agroforestry Center (NAC) is a partnership of the Forest Service (Research & Development and State & Private Forestry) and the Natural Resources Conservation Service. NAC's staff is located at the University of Nebraska, Lincoln, NE. NAC's purpose is to accelerate the development and application of agroforestry technologies to attain more economically, environmentally, and socially sustainable land use systems by working with a national network of partners and cooperators to conduct research, develop technologies and tools, establish demonstrations, and provide useful information to natural resource professionals.

Policy