Agroforestry: Is it right for your forest?

Chris Evans

University of Illinois
Department of Natural Resources
and Environmental Sciences
Outline

- What is agroforestry?
- Common agroforestry practices
- Why agroforestry?
- Is it right for your forest or farm?
- Agroforestry resources
Conventional

- Forest management and agricultural production completely separate
  - Different timelines
  - Different locations
  - No integration
What is Agroforestry?

- Term given to describe a set of somewhat related agricultural practices
- Combination of trees and/or shrubs with crops or livestock

“Intensive land-use management that optimizes the benefits (physical, biological, ecological, economic, social) from biophysical interactions created when trees and/or shrubs are deliberately combined with crops and/or livestock”
What is Agroforestry?

Bringing agriculture into the forest

Agriculture

Additional income from forest with the addition of non-timber forest products
What is Agroforestry?

Bringing trees into agriculture

- Enhancement of agriculture by the addition of trees and/or shrubs (additional crop or product, or enhanced product/yield)
What is Agroforestry?

Creating productive, sustainable, healthy agricultural systems that utilize perennial woody crops

- New/additional markets
- Diversified income streams
- Sustainable practices
- Taking advantage of unused niches (timing, spatial, energy, interest)
What is Agroforestry?

- Closer mimic of natural systems
- Utilization of multiple strata, capturing extra energy resources
  - sunlight
Principles of Agroforestry

**Intentional**
- Systems designed to work together, yielding multiple benefits

**Intensive**
- Managed systems

**Integrated**
- Different components combined into a single system – balance economic production with resource conservation

**Interactive**
- Utilize interaction between components – multiple harvestable products along with ecological benefits
Common Practices

- Alley Cropping / Polyculture
- Silvopasture
- Forest Farming
- Forested Buffers
- Windbreaks
Common Practices

- Alley Cropping / Polyculture
Alley Cropping

- Nut-bearing or timber trees
  - Chestnut, Walnut, Pecan, Oaks?
- Nut/fruit bearing shrubs
  - Hazelnut, elderberry, blueberries, pawpaw
- Row-crop, forage, horticultural crops
Alley Cropping

- Reduction soil erosion
- Protecting crops
- Enhanced wildlife and aesthetics
- Multiple products from same acres
- Immediate return on alley crops in new tree plantings
  - Temporary opportunity while trees develop
Alley Cropping Considerations

- Soil suitability of tree species
- Weed control options for polyculture
- Compatibility of species
- Equipment width (row size)
- Specialized equipment
  - Sweepers (Chestnut)
  - Elderberry harvest
- Orientation of rows
  - E-W to allow for increased light to alleys
  - Contour to prevent erosion
Common Practices

- Silvopasture
Silvopasture

- Careful management needed to prevent damage to forested ecosystem
- Utilized to assist in invasive species management or FSI?
- Temporary opportunity while trees develop or more static, long-term design?
Silvopasture

1. Establish trees into existing pasture
   - Continue profitable livestock operation while establishing timber or forest product for long-term

2. Establish forages in the woods
   - Area jointly managed for timber and grazing
Silvopasture Considerations

- Existing framework
  - What do you have in place to work with
- Quicker rotations for cattle in silvopasture paddocks
  - Damage prevention
- Livestock species
- Tree protection
Common Practice

- Forest Farming
  - NTFPs
Forest Farming NTFPs

- Medicinal
  - Ginseng, Echinacea, Hypericum, etc.
- Edible
  - Maple syrup, mushrooms, berries, honey, nuts, ramps
- Floral/Decorative
  - Dried floral arrangements, evergreen leaves, pine cones, pinestraw
Forest Farming Considerations

- Forest type / suitability
- Local markets
- Planting vs. existing vegetation
- Integration with existing forest management
Common Practices

- Forest Buffers
  - Riparian or Upland
Four years after planting

Photo: Dick Schultz, Iowa State University Department of Natural Resource Ecology and Management
Forest Buffers

- Run-off reduction
- Streambank stabilization
Forest Buffers Considerations

- Design (expert help with streambank stabilization)
- Financial assistance / Conservation easement
- Species suitability and mix
  - Three tier buffer – Tree, shrub, grass/herbaceous
- Potential for product from buffer??
Common Practice

- Windbreak
Windbreaks

- Reduction in wind
  - 2-5x height of trees upwind and up to 30x height of trees downwind
- Enhanced crop yield (8-25% potentially)
- Reduction in soil erosion
- Wildlife benefits
- Potential use of trees for other products
Windbreaks Considerations

- Prevailing wind direction
- Design of windbreak
  - Height
  - Row spacing
  - Density
  - Species
Why Agroforestry?
Why Agroforestry?

- New/additional markets, sustainable practices, diversify farm income, taking advantage of unused niches on the landscape (timing, spatial, energy, interest)
- Scalable (smaller, side projects to whole-farm integration)
- Opportunities for family participation
- Some practices have small space requirements (forest farming, elderberries, etc.)
Is Agroforestry right for your forest or farm?
Is Agroforestry right for you?

- Most landowner could easily integrate some component
- Evaluation / Questions to ask of yourself before deciding
Questions

- Do I have time to add an extra component to my operation?
  - If so, what time of year?
  - Different practices require high inputs of time at certain times of year (for example maple syrup, chestnuts)
Questions

- Do I have space to incorporate additional practices?
  - If so, where and how much?
  - Alter existing production or open new areas that are not currently being used?
  - Many practices are scalable, with the potential to start small and grow the practice over time
Questions

- Can I withstand a delay in return on investment of several years?
  - Tree crops take a while to establish
  - Certain practices will result in a decrease in yield of traditional crops along with a delay in new revenue
  - Grants/assistance to implement may be available
Questions

Choosing the right practices to implement

- Which practices are of interest to me or someone in my family?
- Which practices best fit into my farm
  - Don’t choose maple syrup if you don’t have any maples!
- For new or specialty products, which market(s) exist in my area?
  - How easy is it going to be to sell these products?
Questions

Establishing agroforestry practices

- What resources are available in my area to help me establish these practices?
  - Cost share assistance?
- What learning opportunities are available on these practices?
- Are there farmer cooperatives or organizations for these practices?
Challenges

- Science is new
- Many concepts are not widely adopted on the landscape
  - Waiting for the proof in the pudding
- Markets are niche markets and still developing
  - Flooding the market?
- Distance to market
Agroforestry Forest Farming

The Center for Agroforestry at the University of Missouri, established in 1998, is one of the world's leading centers contributing to the science underlying agroforestry, the science and practice of intensive land-use management combining trees and/or shrubs with crops and/or livestock.

Agroforestry practices help landowners to diversify products, markets and farm income; improve soil and water quality; sequester carbon, and reduce erosion, non-point source pollution and damage due to flooding; and mitigate climate change.

The five integrated practices of agroforestry (forest farming, alley cropping, silvipasture, riparian buffers and windbreaks) enhance land and aquatic habitats for fish and wildlife and improve biodiversity while sustaining land resources for generations to come.

Message from the Director

Greetings from The Center for Agroforestry at the University of Missouri! As many of you know, the Center has...

Read full message >>
Agroforestry Symposium Focuses on Medicinal Plants

Columbia, Mo. – Leading researchers and practitioners were brought together on the MU campus to explore medicinal plants in agroforestry at the eighth annual University of Missouri Agroforestry Symposium that was held on Thursday, Jan. 26, at the Bond Life Sciences Center.

The University of Missouri Agroforestry Symposium is an annual event hosted by the Center for Agroforestry. This year’s symposium sponsors included Mountain Rose Herbs, Forrest Keeling Nursery, United Plant Savers, GrowNative!, Herb Pharm, American Herbal Products Association, Finca Luna Nueva, The Carbon Underground, Mizzou Botanic Garden and Gala Herbs.

“The Annual Symposium is designed to draw in a widely diverse audience, bringing in outside speakers including academics, agencies, non-governmental organizations and practitioners” said symposium organizer Gregory Ormsby Mori, education and outreach coordinator at the MU Center for Agroforestry.

Tom Newmark, American Botanical Council, gives the keynote presentation during the Agroforestry Symposium on Jan. 26. The eighth annual Agroforestry Symposium, hosted by the University of Missouri Center for Agroforestry, focused on medicinal plants. Photo by Logan Jackson.

NRCS provides assistance to landowners in the form of Conservation Technical Assistance (CTA) and Financial Assistance. CTA is the help that NRCS and its partners provide to private landowners to address opportunities, concerns and problems related to the use of natural resources and to help landowners make sound natural resource management decisions on private, tribal and other non-federal lands. CTA is voluntary and free. One of the most beneficial outcomes of participating with NRCS CTA is the development of a Conservation Plan specific to each...
National Agroforestry Center

The USDA National Agroforestry Center (NAC) accelerates the application of agroforestry through a national network of partners. Together, we conduct research, develop technologies and tools, coordinate demonstrations and training, and provide useful information to natural resource professionals. Read more about the National Agroforestry Center...

Around Agroforestry

Plains Farms Need Trees: A History of the U.S. Forest Service and Agroforestry

Posted January 27, 2017

Since the 1930s, the Forest Service has had a long-standing role in advancing the science and practice of using trees on farms. This article, written by former National Agroforestry Center Director, Andy Mason, and University of Nebraska Assistant Professor of Landscape Architecture, Sarah Karle, explores the Forest Service's involvement in the Prairie States Forestry Project, the development of the "Lincoln Lab," and the creation of the USDA National Agroforestry Center. Read the full article on page 13 of The Rendezvous newsletter...
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NCR-SARE’s Farmer Rancher Grant Program is a grant program for farmers and ranchers exploring sustainable solutions to problems through on-farm research, demonstration, and education. Read More...

Open Grant Programs

The call for proposals for the 2017 Professional Development Program is now available. Proposals are due April 5, 2017. Word | PDF

The call for proposals for the 2017 Graduate Student Grant Program is now available. Proposals are due April 13, 2017. Word | PDF

- Timelines for NCR-SARE’s grant programs can be found here.
- Sample calls for proposals and lists of recently funded projects can be found here.
- Click here to view PowerPoint and video presentations about applying to NCR-SARE’s grant programs.

To receive notifications when calls for proposals are open, contact the NCR-SARE...
The Perennial Report
Koefe Keeley - Thursday, March 09, 2017

Here it is: the work of the Savanna Institute over the past year, in a nutshell. Check out our Perennial Report to learn about how we are taking root and spreading our branches. In other words, program updates, highlights, and other exciting developments. No time to read the two pages of colorful crystal clear hyperlinked pdf here? The take home is that we are growing, and helping others grow. Our thanks to all collaborators and supporters who make it possible!
Grad student opportunity! MS Graduate Assist. forest ecosystems remote sensing Dept. NREM, Iowa State University. contact P. Wolter 6 months ago

Action in Agroforestry June newsletter - get it at centerforagroforestry.org/pubs/action/ar... Thanks to our friends at Univ Mo Center for Agroforestry! 6 months ago

Rethinking food and agriculture – facebook.com/Agroforest riFo... Illinois Institute 6 months ago

The purpose of the Mid-American Agroforestry Working Group (MAAWG) is to provide an organization for advancing the science, practice and adoption of agroforestry by landowners and natural resource managers [...]

AGROFORESTRY PRACTICES

- Pergola Kits
- Alley Cropping
- Forest Farming
- Riparian Forest Buffers
- Silvopasture
- Special Applications
- Windbreaks
North American Pawpaw Growers Association

Non-Profit Organization

Pawpaw enthusiasts and backyard and commercial pawpaw growers dedicated to promoting the superior traits of the pawpaw plant and fruit.
Summary

- Agroforestry encompasses a wide variety of practices
  - Integration of trees into agriculture
- Diverse and sustainable production
- Lots of opportunities to incorporate agroforestry
  - Careful selection of which aspects work on your farm
- Resources and learning opportunities available
Chris Evans
Extension Forester, University of Illinois
618-695-3383
cwevans@Illinois.edu
Facebook: IllinoisExtensionForestry
Twitter: @uiieforestry