

## Treeing the Vermont Farmscape - NOFA-VT Winter Conference 2010

Agroforestry is a contraction of the words 'agriculture' and 'forestry'. It is a dynamic land management system that integrates trees and shrubs with crops and/or livestock. While human cultures the world over have maintained agroforestry systems for millennia - including on this continent - the practice is underdeveloped in our contemporary farming systems

Agroforestry systems:

- Diversify agricultural products and yields
- Protect crops and livestock
- Increase productivity of agricultural and horticultural crops
- Reduce inputs of energy: physical, chemical and/or biological
- Increase water use efficiency
- Enhance biodiversity, and ultimately the quality of life for people

### Agroforestry Systems

Agroforestry systems are generally expressed in a number of complementary ways.

**Windbreaks and Shelterbelts** are rows of vegetation used to reduce and redirect wind. They improve crop yields by increasing water-use efficiency and reducing wind erosion. The USDA National Agroforestry Center finds that well-placed windbreaks can increase crop yields from 5 to 45%. Windbreaks also reduce climate stress in livestock. They provide nesting habitat for numerous bird species and small mammals and when used to shelter homes and buildings can yield annual energy savings ranging from 10-40%.

**Riparian Forest Buffers** are woody vegetation strips grown adjacent to streams, pond and wetlands. They help reduce sediment deposition, stabilize streambanks, buffer pollution and nutrient loading from roadways, farms and urban areas and enhance aquatic and terrestrial habitat by increasing biodiversity.

**Silvopasture** systems integrate tree crops with grazing land. Tree crops can be selected and managed for timber products (sawlogs, veneer wood, fuel), coppice craft material, additional forage and fodder ('leafy hay'), and fruit and nut production for humans or livestock.

**Hedgerows** are multifunctional wooded vegetation strips that border grazing paddocks and fields. Serving as a natural, living fence; hedgerows create effective wildlife corridors, linking fragmented habitat; yield fruits, nuts and medicine; can be thinned and managed for fuel and craft wood; and depending on the species selected, may also provide medicinal browse for livestock.

**Alley Cropping** refers to the integration of widely spaced tree rows between lanes of field crops. This effective 'stacking of yields' provides growers with a steady annual crop, fruit and nut production potential as well as more long-term timber products.

**Forest Farming** is the production of high value specialty crops under the protection of an established forest canopy. Crops such as ginseng, goldenseal and gourmet and medicinal mushrooms are all potential high-value forest farm products. Some products - especially medicinal and botanicals can have tremendous economic value. For example, high quality northern forest cultivated ginseng has been known to fetch \$800 a pound and shitake mushrooms average a steady \$10 to \$12 a pound.

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## Species

We have access to an impressive number of multi-functional tree and shrub species well-suited to agroforestry systems here in the northeast. Below is a brief list of some of the most promising...

<i>Alnus glutinosa</i> – Alder	<i>Sambucus canadensis</i> – Elderberry
<i>Robinia pseudoacacia</i> – Black locust	<i>Crataegus</i> – Hawthorn
<i>Populus spp.</i> - Poplar/Aspen	<i>Viburnum trilobum</i> – Highbush cranberry
<i>Juglans nigra</i> – Black walnut	<i>Gleditsia triacanthos</i> – Honey locust
<i>Castanea dentata</i> – Chestnut	<i>Morus spp.</i> – Mulberry
<i>Quercus spp.</i> – Oak	<i>Asimina triloba</i> – Paw Paw
<i>Pyrus communis</i> – Pear	<i>Malus coronaria</i> – Apple
<i>Prunus domestica</i> – Plum	<i>Carya spp.</i> – Hickory
<i>Amelanchier</i> – Serviceberry	<i>Salix</i> – Willow
<i>Sorbus Americana</i> – American Mountain Ash	<i>Corylus spp.</i> - Hazel

## Resources

*Training Manual for Applied Agroforestry Practices* - 2006 Edition. University of Missouri Center for Agroforestry <http://www.centerforagroforestry.org/pubs/training/index.asp> **Quite comprehensive, start-to-finish agroforestry planning process, with worksheets. Includes the stand-alone pamphlet *Economic Budgeting for Agroforestry*.**

*Design Principles for Farm Forestry*. 1997 RIRDC. <http://www.mtg.unimelb.edu.au/publications/design.htm> **Australian, but still very useful, clear design concepts. Includes some financial planning tools.**

*Working Trees* pamphlet series: *Working Trees for...Agriculture, ...Communities, ...Water Quality, ...Wildlife, ...Livestock*, and more. USDA National Agroforestry Center. <http://www.unl.edu/nac/workingtrees.htm> **Great, short, accessible introductions.**

“Profit in Agroforestry.” University of Missouri Center for Agroforestry. <http://www.centerforagroforestry.org/profit/index.asp> **Web portal to a wide selection of research on key agroforestry crops, with a focus on financial planning.**

*Edible Forest Gardens Volume 1 & 2*. Dave Jacke and Eric Toensmeier. 2005. Chelsea Green:White River Junction,VT. **Visionary, in-depth theory and practice of perennial polyculture design. Great design ideas!**

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