Agroforestry

BC Perspective

Dave Trotter
Sustainable Agriculture Management Branch
Ministry of Agriculture

Funding provided by:

Canada

In-kind support provided by:

Investment Agriculture Foundation of British Columbia

British Columbia

www.gov.bc.ca
What is it?

- intentional, integrated management of combinations of trees, shrubs, crops and/or livestock
- blends agriculture, silviculture and conservation practices in the same land use system

Intentional, Integrated, Interactive
Characteristics

- Crops or livestock and trees are intentionally combined.
- The interactions between these components are planned and managed.
- The enterprise is managed and evaluated as a single system rather than as separate parts.
Used Worldwide

- Practiced in various parts of the world for thousands of years.
  - Land shortages + population growth
  - Need for efficient production systems for food and wood resources
  - Important role in sustainability
Sustainability - First Nations

- propagation, pruning, tending, weeding, selective harvest, and habitat modification
- use of fire to manage forest overstory to optimize berry production, wildlife habitat (enhance forage and browse)
Agroforestry "Products"

Conventional forest products
- e.g. timber, pulp, poles, fuel wood

Crops from the trees
- NTFR’s: e.g. boughs, oils, NHP, nuts, sap, fruit, cones

Crops Below or Between the Trees
- Forage to florals, livestock, ag crops and everything in-between.

Functions
- e.g. habitat, filtration, biodiversity, conservation, C-sequestration

G. Powell
Agroforestry Systems

Silvopasture

Integrated Riparian Management

Forest Farming

Alley cropping

Timberbelts/Windbreaks/Buffers

T. Zabek
Silvopasture

- Designed and managed for the production of trees, forage and livestock.
- Deliberate introduction or enhancement of forages in timber systems OR timber in forage systems.
- Livestock produce an annual economic return balanced with timber at rotation.
Considerations

- Tree selection
- Tree planting densities & patterns
- Forage selection
- Livestock selection
- Animal management
- Silviculture considerations
- Management skills
- Wildlife interactions
Examples

Kootenay Tree Farms - Cranbrook

Jay Springs Ranch - Kamloops
Silvopasture pilot

- Purpose: Evaluate effectiveness of silvopasture systems to maintain and enhance forage production concomitant with fibre production, enhance riparian stewardship and generate co-benefits such as carbon storage.
- Location: Vernon Creek Watershed
- Community Watersheds on Crown land in BC - managed for integrated use of a wide spectrum of activities e.g., domestic water supply, recreation, forestry, range, environmental protection
Two forested rangeland sites (20 and 50 ha); spring range

1300 to 1400 m elevation

Treatments:

- timber control
- forage-only control
- silvopasture (planted 600 sph)
- silvopasture (planted 1200 sph)

Off-stream water
Monitoring

- Livestock distribution
- Timber and forage productivity
- Riparian health
- Carbon sequestration
Forest Farming

- Integrated cultivation/management of both overstory and understory.
- Intensive to extensive approaches
- Sustainability and stewardship

Oak and papyrus - FL
Ferns and garlands - FL
Forest Farming

Wild simulated ginseng - QC

Christmas trees

Wild ginger - QC

Birch syrup and sap products - BC
Forest Farming/Alternate Crops

Information, tools, pilots

- Review/synthesis.
- Alternate crops evaluation framework.
- Forest foods - case study incorporating Good Agriculture and Collection Practices (GACPs).
- GACP supplemental training modules.
- Pilot - Vancouver Island
Alley cropping

- Crop (e.g. forages, berries, vegetables etc;) cultivation between single or multiple rows of trees or shrubs spaced to allow close to full sun between the rows.

Hawthorne, forage, NHP - BC
Alley cropping

Black walnut and grass seed - OR

Black walnut and forage/nursery plants - Vernon/Oyama
Alley cropping

Alder and hydrangea - OR

Gladiolus and peaches - ON

S. Berch

Canola and various hardwoods - QC

Christmas Trees and pumpkins - Vancouver Island
Windbreaks/Shelterbelts/Timberbelts

- A range of planting types - single and multi-row.
- Plantings designed to provide environmental goods and services, as well as providing the opportunity for financial gains through harvest of woody plants and other products.

Big Bear Ranch - Cariboo
Windbreaks/Shelterbelts/Timberbelts

Poplar and forage - Murdoch Lake, AB

Fraser Valley
Integrated Riparian Management

- Plantings along water bodies for protection and enhancement of aquatic and riparian resources - incorporating the potential for economic returns without impairing proper functioning condition.

Matsqui Prairie - BC
Integrated Riparian Management

Multi-Species Riparian Forest Buffer
http://www.centerforagroforestry.org/practices/rb.asp
Agroforestry Industry Development Initiative

Phase 1  (2004-2009)
- 10 operational demonstrations
- Workshops, tours and information sessions
- Extension
  - Website: www.woodlot.bc.ca/agroforestry/
  - Newsletter: Agroforestry Update
  - Production Guides and Training
  - Extension Notes

Phase 2  (2010-2013)
- New Strategic Plan
- New funding: www.agroforestry.info
Purpose

Support the development and adoption of agroforestry practices for the benefit of all British Columbians.
Funding

- Full funding guidelines, eligibility and other program information are available at www.agroforestry.info
- Application support: support@agroforestry.info
Goals

1. Develop the business case for agroforestry practices in BC
2. Improve market connections for agroforestry products and services
3. Demonstrate agroforestry practices to showcase operational examples of agroforestry systems
4. Improve agroforestry awareness, extension and education
5. Expand and strengthen partnerships among agroforestry practitioners and stakeholder organizations.
Current Projects

Practitioner Sales Channel Assessment for Hawthorn

Naturally Grown Herb & Spice Producers Cooperative (HerbPro)

- Working to enhance sales of raw hawthorn ingredients and value-added products through natural health products practitioners.

- Supporting agroforestry markets and value chain development.

www.agroforestry.info
Current Projects

Agroforestry Capacity Building in Northern BC

- Working to stimulate the implementation and evolution of agroforestry as a viable element of integrated resource management in northern BC.

- Improving regional agroforestry awareness, education and networking in northern BC.

Resources North Association

G. Powell

www.agroforestry.info
Current Projects

Agroforestry Session at the Hort Growers Short Course

Lower Mainland Horticulture Improvement Association

- Delivered a one-day agroforestry workshop January 28, 2012 at the Horticulture Growers’ Short Course, in conjunction with the Pacific Agriculture Show in Abbotsford.

www.agroforestry.info
Current Projects

Cultivating Sustainable Agroforestry Through Collaboration, Demonstration, and Extension

Delta Farmers Institute with the UBC Farm

- Will deliver a one-day agroforestry workshop with demonstrations at the UBC Farm.

- Creating a quick-reference guide summarizing agroforestry trends, opportunities, practices, marketing considerations, and challenges.

www.agroforestry.info
Current Projects

East Kootenay Food Forest Demonstration

Clear Sky Farm, Fort Steele
- Developing a 'food forest' site to test diverse food plant varieties arranged into multiple canopy layers and alleys.
- Will host tours and a food forest design training session in 2013.

www.agroforestry.info
Current Projects

Alley Cropping Demonstration - Gulf Islands

Just Another Weed Patch Farm, Gabriola Island

- Developing a diverse nut and timber tree grove grown in combination with livestock and annual vegetable and flower crops.

- Documenting their experiences at http://justanotherweedpatch.com

G. Powell

www.agroforestry.info
Current Projects

Integrating Apiculture in Riparian Buffers

Murray Family Woodlot, Slocan Lake

- Demonstrating riparian management that can provide multiple production benefits (including honey) and conservation of watershed and biodiversity values.

- Developing a cost-benefit analysis of the production system.

G. Powell

www.agroforestry.info
Current Projects

Best Silvopasture Management Practices
- producing Christmas trees and forage

Kootenay Tree Farms, Cranbrook

- Testing methods to increase tree and forage production, while reducing incidence of disease in the trees.
- Cost-benefit analysis and field workshops in the study area.

G. Powell

www.agroforestry.info
**Current Projects**

**Alley Cropping Demonstration - Okanagan**

*Curly Frog Farm - Kelowna*

- Demonstrating an alley cropping system utilizing black walnut and pawpaw tree rows.

- Will host site tours focused on production methods, resources and costs.

[www.agroforestry.info](http://www.agroforestry.info)
Current Projects

Cariboo Silvopasture Demonstration

Zirnhelt Ranch, Big Lake Ranch

- Addressing information and knowledge gaps that limit the adoption of silvopasture practices in areas affected by mountain pine beetle.

- Workshop will be held on site to discuss silvopasture systems and applications, and the potential for expanding this system design to other lands in the region.

G. Powell

www.agroforestry.info
Current Projects

email: support@agroforestry.info

- Sign-up for email updates.
- Follow us on Twitter or Facebook.

www.agroforestry.info
Acknowledgments

Funding for the Agroforestry Industry Development Initiative (AIDI) has been provided by Agriculture and Agri-Food Canada through the Canadian Agricultural Adaptation Program (CAAP). In British Columbia, this program is delivered by the Investment Agriculture Foundation of BC.

The Province of British Columbia provides in-kind support to the AIDI. The Federation of BC Woodlot Associations administers the AIDI with the guidance of the Agroforestry Management Committee.