

COMMODITY

AGROFORESTRY AND SPECIALTY WOOD CROPS

Description

Agroforestry

Agroforestry is not a single commodity; it is a group of land use practices that can involve all agricultural commodities produced in BC. It involves mixing trees and or shrubs with non woody crops and sometimes livestock for the purpose of crop diversification, improved profitability and improved environmental stewardship. Agroforestry may involve the introduction of long term crops (trees and shrubs) into open agricultural landscapes, or, the introduction of agricultural husbandry of a wide range of crops and livestock into existing woodlands.

Agroforestry crops include wood fibre crops, both native and exotic tree species; non wood crops from trees; traditional agricultural crops such as horticultural, field crops, forages, special crops, livestock; and non timber forest crops. Agroforestry practices involve more than one crop growing on the same land area at the same time. Positive and negative competition can occur between crops for light, water and nutrients. Successful implementation of agroforestry practices requires good planning and management. Examples of positive competitive effects are plants that fix atmospheric nitrogen and trees that favourably modify the microclimate of another plant. Examples of negative competitive effects include excessive shade from large trees and competition for limited water resources.

Specialty Wood Crops

Specialty wood crops including hybrid poplar and non hybrid plantings of other cottonwoods, willows, aspen and other trees from BC and around the world.

In most cases these trees are grown in plantations for the production of pulp and/or solid wood products. In some cases native stands of trees are being intensively farmed for the same products. Several of these trees are also being planted as fast growing ornamentals and in windbreaks, alleycropping and other Agroforestry practices. Most plantings are established using unrooted cuttings.

In areas of the province with more than 150 frost free days some selections of hybrid poplar are capable of growing 15 feet in height per year. Plantings are usually 10' x 10' or wider for solid wood products with rotations of 10 – 12 years or more. Plantings being grown strictly for pulp are planted at this spacing or closer with shorter rotations.

Hybrid poplar clones are either male or female. Cotton from female trees and pollen from male trees have both caused nuisance problems for neighbouring residential areas. One of the clones being planted in southern BC reaches sexual maturity at 5 or 6 years of age, most others at 9 or 10 years of age. Areas of good agricultural soils that have a low classification due to periodic water inundation could be planted to poplar and other species. Most poplar and salix species are tolerant of high water tables and

flooding. Some hybrid poplar plantations have done well after being flooded for several months. An unusual rodent problem that goes along with plantings in areas that flood is beaver.

Alternate uses of these species not primarily for the production of a crop include:

- Bioengineering in riparian areas – a wide variety of techniques incorporating several species are being used for stream body bank stabilization.
- Reclaimed water use – plantings of hybrid poplar can be used to expand the use of reclaimed water.
- Riparian buffers – help protect fish and fish habitat by providing a buffer to reduce non point source pollution, shade watercourses to moderate water temperatures and provide food, nutrients and cover for fish.

Farm Practices of Particular Interest

Practices for specific farm activities can be found in the Farm Practice section of this reference guide. Farm practices that are of particular interest to agroforestry and specialty wood crop production include:

Weed Control

Weed control in agroforestry practices is complicated by more than one crop being grown at the same time. Weed control need to take into account the needs of each crop (trees, shrubs, herbacious plants), the interactions between the crops and the effects each control method will have on the other crops. For hybrid poplar weeds need to be controlled for the first 2 to 3 years of a new planting. Weeds may be controlled with registered chemicals, cultivation or some form of mulch (plastic or some type of organic material).

See Farm Practice: [Weed Control](#)

Above Ground Pruning

Trees may be pruned to reduce competition for light and to improve the quality of the wood for solid wood products. Plantings for production of pulp are usually planted close together and allowed to self prune. Multiple leader should be eliminated in the first two or three years after planting.

See Farm Practice: [Burning](#)
[Crop Residue Management](#)

Root Pruning

Tree roots must often be pruned to reduce competition for water and nutrients. Root pruning can be done with a shovel for small plantings or with a coulter of chisel plow for larger plantings. Care must be taken to prevent erosion and excessive damage to crops.

Harvest

Trees may be harvested at maturity if the intended crop is wood fibre. Harvest is done using traditional log harvesting equipment – chain saws and small skidders through to feller-bunchers. Harvest of other crops is done using methods appropriate to individual crops.

See Farm Practice: [Mobile Equipment](#)
[Stationary Equipment](#)

Transportation

Harvested logs are loaded using traditional log handling equipment – front end loaders or self loading trucks. Logging trucks are used to transport logs from the farm.

See Farm Practice: [Transportation](#)

Roots, Branches and Stump Removal

Tree roots may enter field drains and septic systems plugging and damaging them. Roots may sucker (produce shoots) after trees have been harvested resulting in problems for then next crop to be planted. Branches and tree tops too small to be chipped or transported to a chipper many be left in the field requiring disposal as woody waste. Stumps are normally removed after harvest. Coppice production of large trees is not recommended (as the tree mature they have a tendency to break off the side of the old stump).

See Farm Practice: [Land Clearing](#)

Legislation

Agricultural producers are expected to follow all legislation that pertains to their farming operation. The *Farm Practices Protection (Right to Farm) Act* stipulates that the farm operation must meet the *Health Act*, *Pesticide Control Act*, *Waste Management Act* and the regulations under those acts. Information on federal and provincial legislation can be found in Appendices B and C.

Acts that pertain to specific farm activities are listed in the farm practices section of this reference guide. Local government bylaws may also apply to some farm practices. Acts that are not referenced elsewhere that are of special interest to agroforestry and specialty wood crop producers include the following:

Provincial

Forest Act – Whole logs need to have a timber mark to be transported on public roads. See the local BC Ministry of Forests office.

Publications

Publications that provide information on agroforestry and specialty wood crop production include, but are not limited to, the following (refer to Appendix D for details):

A Guide to Agroforestry in BC

Growing Poplar and Willow from Hardwood Cuttings

Opportunities for Growing Short-Rotation Woody Crops in Agroforestry Practices

Establishment & Cultural Guidelines for Using Hybrid Tree Species in Agroforestry Plantings

The Silviculture of Hybrid Poplar Plantations

Solid Wood Product Opportunities from Short Rotation Hybrid Poplar Trees