

# Agroforestry FACTSHEET



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## WINDBREAKS/SHELTERBELTS, TIMBERBELTS, BUFFERS

### WHAT ARE THEY?

**Windbreaks/shelterbelts, timberbelts and buffers** are agroforestry systems that encompass the following planting or maintenance designs:

**Windbreaks/shelterbelts** modify climatic conditions and consist of one or more rows of closely spaced trees and/or shrubs planted at right angles to the prevailing winds to protect crops, soils, animals, and buildings. If wind is a problem in your area windbreaks can help.



**Timberbelts** consist of multiple rows of trees planted for both production of tree crops and environmental benefits, e.g. wind protection, soil conservation, wildlife habitat. Timberbelts can also be used to create a buffer between urban areas and agricultural or forestry activities.



**Fenceline planting** is the planting of a row of trees along fencelines. These plantings provide similar protective benefits as windbreaks and are often on underutilized land, minimizing the land taken out of crop production.

**Buffers** are one or more rows of trees and/or shrubs specifically planted to provide a visual screen or intercept light, odour, dust, and noise or a combination thereof.

### HOW ARE THEY IMPLEMENTED?

Windbreaks/shelterbelts can be established by leaving existing trees in strips or planting trees between fields, within fields, near farm buildings. Seven key features to consider when establishing a windbreak/shelterbelt are: height, density, orientation, length, width, continuity/uniformity, and cross-sectional shape. Windbreaks/shelterbelts can be established using a mix of trees, shrubs, and tall perennial or annual plants.

These materials can be grown in combination to create the desired wind shadow.

To produce goods for sale, a planting must be specially designed to incorporate harvest while maintaining the function for which it was designed.

Buffers can act as valuable land-use planning tools in the urban-rural interface. They can provide visual breaks between land uses, add 'green space', provide wildlife habitat and enhance carbon sequestration while performing specific interception or screening functions.



### BENEFITS

- Enhance crop yields.
- Reduce wind erosion.
- Shelter livestock, crops and structures (homes, outbuildings, roads).
- Reduced heating and cooling costs.
- Capture water runoff and nutrients, improve irrigation efficiency.
- Provide visual screen.
- Filter and reduce dust and help control odors.
- Provide wildlife travel corridors and habitat.
- Snow management (reduced road clearing costs).
- Increase moisture capture.
- Reduce light and noise pollution.

**Agroforestry is the intentional, integrated management of combinations of trees and/or shrubs with crops and/or livestock.**

**It combines agriculture, silviculture, and conservation practices in the same land use system.**

## CHALLENGES

- Intensive management systems that include specialized equipment for the long-term tree and/or shrub management.
- A potential source of harmful pests including insects and weeds.
- Removes land from annual crop production and may not provide a financial return from the protection provided by the trees for several years.
- The presence of trees may introduce wildlife complications.
- Within a fence-line planting, fence maintenance is often difficult and more costly.
- Supportive policy and operational guidelines are needed.



## PLANNING CONSIDERATIONS

Windbreaks/shelterbelts, timberbelts and buffers are designed to perform specific jobs. Site conditions and desired function affect design and application, and help to determine the key features of the planting, e.g. for windbreaks etc, you need to consider the shape and orientation of the property, wind speed and direction, and the way snow accumulates. The position of buildings, roads, power lines, property lines, ditches, trees, and wooded areas are important factors.

When designing a planting consider: the best tree or shrub species to use; the spacing between trees; the size of the planting; its location (which is determined by the characteristics of the land); and the **job you want it to do**. Ask yourself what needs to be protected: crops, orchards, soil, livestock, roads, buildings, wildlife, snow management, air quality and aesthetics, or a combination?

Evaluate the site conditions which may affect the planting design and application, and determine the key features. When planning a windbreak/shelterbelt, timberbelt, or buffer, the growing period and the amount of care required by different tree species should also be considered.

Incorporating long-term timber production with pasture and livestock management operations provides for both a **long-term** income and diversifies the enterprise, its product, and **annual** cash flow.

## EXAMPLES OF WINDBREAK/SHELTERBELT, TIMBERBELT AND BUFFER USE IN B.C.

**Kent District, Fraser Valley** – Producers plant western red cedar and hardwoods on underutilized farmland. The buffers provide a variety of environmental and social services. The cedars can be pruned for the bough market, and hardwoods managed for longer-term high-value timber.



**Peace District** – Planting windbreaks to capture snow, protect roads from drifts, shelter animals and reduce soil erosion is a common agroforestry practice in the Peace.

**Lower Mainland** – Single tree row buffer functioning as a visual screen.



### FOR MORE INFORMATION CONTACT:

Lisa Zabek, Ph.D., P.Ag.  
B.C. Ministry of Agriculture  
162 Oriole Road,  
Kamloops, BC V2C 4N7  
Telephone: 250 371-6056

Dave Trotter, M.Sc., P.Ag.  
B.C. Ministry of Agriculture  
1767 Angus Campbell Rd.,  
Abbotsford, BC V3G 2M3  
Telephone: 604 556-3148

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