Shelter and riparian belts on farms

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Trees on Farms provide many services

- Shelterbelts
- Boundaries e.g. riparian, neighbor, road noise
- Slope protection from erosion
- Shelter woods for stock at key times
- Shade trees
- Biodiversity havens
- Water purification
- Nutrient management
- Income stream
Definitions

» **A riparian buffer** is land next to streams, lakes, and wetlands that is managed for perennial vegetation (grass, shrubs, and/or trees) to enhance and protect aquatic resources from adverse impacts of agricultural practices.

» **A shelterbelt** (windbreak) is a plantation usually made up of one or more rows of trees or shrubs planted in such a manner as to provide shelter from the wind and to protect soil from erosion. They are commonly planted in hedgerows around the edges of fields on farms.
Roles of riparian vegetation belts

Enhance water quality
- Reducing runoff
- Intercepting nutrients, sediment, pesticides
- Improving stream habitat

Carbon storage

Barrier to domestic livestock

Zone 1 bank stabilization
Zone 2 absorption
Zone 3 interception, absorption
Riparian plantings

- Bare stream banks result from our farming practices
- Riparian protection has progressed where incentives operate.
- Environmental costs of declining water quality outweigh productive land loss
- Zone 3 has been shown in a number of studies to be more effective in filtering nutrients than zones 1 and 2.
- We are implementing practices that are supported by international studies
- Effectiveness varies with the width of the zones (time), e.g. more width needed to filter clay than silt.
Shelterbelts

» Why have a shelterbelt?
   » Wind reduction / reduce evapotranspiration / enhance stock welfare / enhance crop or pasture production / increase property values / store carbon / fodder resource / increase biodiversity / biosecurity

» What are effects of shelter?
   » Reduce the cooling effect of wind
   » Reduce the force of the wind
   » Reduce physical damage to plants
   » Habitat for pest controllers (and pests)
   » Reduce soil erosion, seed dispersal

Shelterbelts shelter on both windward and leeward sides
Shelterbelt plantation pros and cons

- + lifts crop yields, feed availability
- + lifts milk production, animal weight gain, herd fertility
- + protects stock in extreme events (heat, wind, cold, wet)
- + improves the working environment
- + long lasting
- + pollinators can do their work easier
- - takes time to become effective
- - requires tree maintenance
- - wastes land
- - adds complexity to farm operation
- - can be subject to wind throw
What to plant?

» Single species vs two or more species
  » 2+ provide a more compact foliage, I porous, 1 dense
  » Fast growing and slow growing e.g. willow/poplar c.f. conifer

» Evergreen vs deciduous
  » Deciduous will have a higher porosity
  » Porosity is needed to avoid turbulence

» Flax vs no flax
  » Flax establishes very well, makes a difference early, and offers protection to growing trees

See what works for your neighbours
How to plant – google for guidelines

» Shelterbelts don’t have to be straight lines.

» A stand of trees may be more appropriate for some purposes e.g. lambing, winter shearing.

» Find an area to plant that combines effective protection from wind with functional design possibilities to increase aesthetic value.

» Use an aerial photograph to draw a map for the design (Google Earth).

» Once the mapping is complete, collect as much information as possible on soil type, drainage, slope, prevailing winds, sunlight exposure, property lines, power and other utility lines, buildings, and roads,

» Work out establishment costs – preparation, fencing, plants, weed control

» When the site assessment is complete, choose tree and shrub species.

» Purchase quality plants