GLASI
Great Lakes Agricultural Stewardship Initiative

Riparian Buffer Strips

Riparian buffers strips are areas of permanent vegetation between rural lands and bodies of water such as agricultural drains, creeks, rivers, ponds and wetlands. Buffers can have trees, shrubs, grasses or wildflowers, in any combination. As their name suggests, they protect waterbodies from the impacts of neighbouring land uses.

Thick grass cover helps to reduce sediment and nutrients carried in runoff from the adjacent field.

A treed buffer strip provides the added benefit of protecting arable land from damaging winds.

Buffer Benefits

Water quality protection

Surface runoff from agricultural fields and rural properties can carry sediment, nutrients, pesticides, bacteria and pathogens. Buffer strip vegetation minimizes the amount of pollutants reaching the adjacent waterbody by taking up nutrients, trapping and filtering sediment as the runoff is slowed down by the plants, and increasing the infiltration of runoff through plant root channels.

Erosion control

Roots from grasses, shrubs and trees protect vulnerable soils and strengthen and stabilize stream banks.

Habitat creation

Overhanging vegetation shades the water, helping to cool and regulate water temperature. Plant litter and organisms are an important food source for aquatic and terrestrial wildlife. Riparian buffers also provide shelter and corridors for wildlife movement.

Planning a Buffer

Work with someone familiar with riparian restoration who will consider your land, time and money constraints to create an effective buffer. Factors to consider when planning a buffer include:

- **Buffer width**
  - 5m for bank stabilization
  - 10-30m for sediment removal
  - >10m for wildlife habitat
- **Bank slope**
  - The steeper the slope, the greater the potential for runoff and erosion. A steeper slope requires a wider buffer to slow runoff.
- **Soil texture**
  - Sandy soil allows more infiltration compared to soils with high clay content. Poorly drained soils require a wider buffer.
- **Vegetation type**
  - The vegetation must be able to withstand flooding by water and sediment.
  - Grasses are better adapted for filtering and absorbing nutrients; trees help stabilize the bank.
  - Stiff stemmed grasses planted at the field edge of the buffer help slow runoff and reduce concentrated flow in the non-growing season.
- **Season**
  - The effectiveness of the buffer may be limited to the vegetation growing season.
- **Pesticide use**
  - Buffer health may be affected by pesticide in runoff.

Tree roots help stabalize a bank.

Combining trees with a thick grass cover slows runoff and makes the streambank more stable.

A wider buffer strip will be more effective at reducing water pollution than a narrow buffer strip.

Buffer Maintenance

- Newly planted trees and shrubs may need watering during the first growing season.
- Weed control is critical until the planted vegetation becomes established.
- Inspect the buffer periodically to ensure that concentrated flows have not developed and the vegetative cover is maintaining its effectiveness.
- Fertilizers, pesticides and animal wastes should not be applied to the buffer.
- Limit grazing by livestock in the buffer strip.

For More Information

To learn more about buffer benefits, design, and maintenance, please read the Buffer Strip BMP publication, which can be obtained from
http://www.omafra.gov.on.ca/english/environment/bmp/buffer.htm

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