


# LIVESTOCK AND NATURAL AREAS

## BMPs TO REDUCE EMISSIONS AND IMPROVE SEQUESTRATION


### FOR LIVESTOCK OPERATIONS

GREENHOUSE GAS BMP	BENEFITS FOR EMISSION REDUCTION	DESCRIPTION	TIPS TO MAXIMIZE BENEFITS
WETLANDS (MARSHES, SWAMPS, BOGS AND FENS)	<b>High C addition</b> <ul style="list-style-type: none"> <li>• high nitrate use</li> </ul> <b>Reduced N<sub>2</sub>O loss</b> <ul style="list-style-type: none"> <li>• habitat benefits</li> <li>• water storage and supply benefits</li> </ul>	<ul style="list-style-type: none"> <li>• greenhouse gas source: organic soils and saturated conditions in wetlands</li> <li>• greenhouse gas sink: for carbon sequestration and assimilation of nitrates into vegetation</li> <li>• overall, wetlands are net sinks, but if drained are net sources</li> </ul>	<ul style="list-style-type: none"> <li>• avoid physical damage to soils, waterways and vegetation</li> <li>• prevent any deleterious substances from entering the wetland</li> <li>• seek approvals and permits if you plan any changes</li> <li>• harvest on a sustainable basis – ensure a long-term supply with minimal impact on habitat</li> <li>• don't graze wetlands</li> </ul>
WOODLANDS  	<b>High C addition</b> <ul style="list-style-type: none"> <li>• high nitrate use</li> </ul> <b>Reduced N<sub>2</sub>O loss</b> <ul style="list-style-type: none"> <li>• habitat benefits</li> </ul>	<ul style="list-style-type: none"> <li>• soil and trees are the best on-farm sinks for carbon</li> <li>• undisturbed forest soils and long-living, valuable woodland trees keep carbon out of the atmosphere more effectively than any other component in the farm landscape</li> </ul>	<ul style="list-style-type: none"> <li>• practise sustainable forest management</li> <li>• create a suitable environment for the growth of the most valued and highest quality tree species, while integrating the benefits of other resources (wildlife, soil and water conservation, renewable energy sources)</li> </ul>
RIPARIAN AREAS  	<b>High C addition</b> <ul style="list-style-type: none"> <li>• high nitrate use</li> </ul> <b>Reduced N<sub>2</sub>O loss</b> <ul style="list-style-type: none"> <li>• habitat benefits</li> <li>• water storage</li> </ul>	<ul style="list-style-type: none"> <li>• river and stream valleys and floodplains, lakeshores and areas around ponds may be considered riparian areas</li> <li>• managed or unmanaged, riparian areas have many environmental benefits</li> </ul>	<ul style="list-style-type: none"> <li>• avoid physical damage to banks, soils, waterways and vegetation</li> <li>• prevent any deleterious substances from entering – minimize grazing impact</li> <li>• maintain separation distances for nutrient and pesticide application</li> </ul>

**The primary production goal of forest management is to create an environment for growth of the most valued and highest quality tree species.**

**High-density livestock access will impede the ability of a riparian area to meet its greenhouse gas-reduction potential. It can also degrade soil, water and wildlife habitat. Check with your regional environmental authority for any restrictions on cattle access.**

## FOR LIVESTOCK OPERATIONS

GREENHOUSE GAS BMP	BENEFITS FOR EMISSION REDUCTION	DESCRIPTION	TIPS TO MAXIMIZE BENEFITS
<p>BUFFER STRIPS</p> 	<p><b>High C addition</b></p> <ul style="list-style-type: none"> <li>• high nitrate use</li> <li>• <b>Reduced N<sub>2</sub>O loss</b></li> <li>• habitat benefits</li> </ul>	<ul style="list-style-type: none"> <li>• buffer strips are permanent grass borders on field boundaries, along watercourses or other natural areas</li> <li>• properly designed, they function as a last defence for soil and water conservation measures as well as important edge habitat for fish and wildlife</li> </ul>	<ul style="list-style-type: none"> <li>• buffer strips are effective against sheet and small rill flow but not intended for runoff as concentrated flows (large rills and small gullies) – treed is better</li> <li>• trees trap surface pollutants, trap nitrates in groundwater, shade surface waters and act as a barrier for farm traffic</li> <li>• remember that fenced is better – livestock can cause excessive damage to ditchbanks, watercourses and wetlands</li> </ul>
<p>WINDBREAKS AND SHELTERBELTS</p>	<p><b>Moderate C additions</b></p> <ul style="list-style-type: none"> <li>• moderate N use</li> <li>• habitat benefits</li> </ul>	<ul style="list-style-type: none"> <li>• these are rows of trees – evergreens, deciduous or both – planted along the edge of fields</li> <li>• windbreaks range in width from 1 to 5 rows</li> <li>• shelterbelts are greater than 5 rows</li> </ul>	<ul style="list-style-type: none"> <li>• plant at right angles to the prevailing wind where possible</li> <li>• locate windbreaks for maximum protection – predict probable mature tree height to determine optimal spacing between windbreaks</li> <li>• consider multiple rows for easier establishment and maintenance</li> </ul>
<p>RETIREMENT OF FRAGILE LANDS</p> 	<p><b>Moderate C additions</b></p> <ul style="list-style-type: none"> <li>• moderate N use</li> <li>• less methane production</li> <li>• habitat benefits</li> </ul>	<ul style="list-style-type: none"> <li>• retirement means changing the land use of low-yielding and/or environmentally sensitive cropland</li> </ul>	<ul style="list-style-type: none"> <li>• usually involves planting of permanent cover of trees (reforestation), shrubs, herbs and grasses</li> <li>• use woody plants to sequester more carbon per unit area than than grass species and for a longer period</li> <li>• match species to site conditions and to greenhouse gas goals</li> <li>• fast-growing trees will fix carbon more quickly but more valuable trees will keep the carbon sequestered longer</li> </ul>

**Treed buffer strips will sequester more carbon and trap more soluble nitrogen than grass-based buffer strips.**

**This innovative tool is now available on compact disk to help Canadian cattle producers measure greenhouse gases being emitted by their farm or ranch. For a free copy, email [feedback@cattle.ca](mailto:feedback@cattle.ca) or phone the Ontario Cattlemen's Association at 519-824-0334.**