

Environment



Environmental Questionnaire

Farm Name: _____ Farm Location: _____

Farm Contact Name: _____ Premises ID: _____

Mailing Address: _____

Telephone: (____) _____ E-mail: _____

Signature: _____ Date: _____

The environmental questionnaire is designed to help farms take note of the positive actions they already take with respect to the environment and will provide an overview of performance on soil health, greenhouse gases, biodiversity, and other topics. This will help identify potential areas that could further benefit your farm and mitigate impacts on the environment.

Some questions may be less applicable to your farm due to its specific location or circumstances. If this is the case, please answer to the best of your knowledge when filling out the questionnaire. Highlighted terms can be found in the attached glossary.

You can choose to receive a scorecard of your farm's performance, or to submit your answers without receiving a score. Please check the box below if you would like to receive a copy of your scorecard.

Yes, please send me a copy of my scorecard.

Once you have completed the questionnaire, please submit it to your provincial proAction[®] coordinator. By submitting your completed questionnaire, you acknowledge that your information will be entered into the NEAS (or proAction validation application in Quebec) by the provincial proAction coordinator on your behalf. Your personal data will not be published. Aggregate data will be used by DFC and its members for national and provincial communications and planning efforts related to the proAction program and sustainability.

1. SOIL HEALTH

1.1. Do you use any of the following to reduce soil compaction? (Check all that apply)

- a) controlled traffic patterns / traffic limited to specific areas
- b) traffic in fields is avoided when conditions are unsuitable (e.g. very wet)
- c) frequency of traffic is limited
- d) equipment that enters fields is equipped with large width tires, dual or triple wheels, or tracks
- e) tractor tires are properly inflated, and tractor is properly ballasted (balanced)
- f) liquid manure is applied with a dragline (instead of with tankers)
- g) farm does not use any of the above practices
- h) farm does not use any of the above practices

1.2. Do you use any of the following to reduce soil erosion? (Check all that apply)

- a) minimum tillage is practiced consistently on all fields
- b) grassed waterways or permanent cover in areas prone to erosion
- c) shelterbelts or tree windbreaks around fields
- d) riparian zones or buffer strips to prevent soil loss to surface water
- e) landscape restoration is practiced to replace eroded soil to hilltops, where applicable
- f) cover crops are planted in shoulder seasons or inter seeded in long season row crops
- g) cross slope or contour cropping
- h) tile outlet protection (e.g. rock chutes)
- i) water and sediment control basins
- j) there is no/very little evidence of erosion on farm (examples of evidence include: exposed subsoil on knolls; knolls are different colour than rest of field; inconsistent growth throughout the field; existence of rills or gullies; accumulation of soil in low areas of the field after heavy rain; dirty snow observed; springtime evidence of soil being carried to ditches; blowing soil observed during windy conditions)

1.3. Do you use any of the following to build soil carbon? (Check all that apply)

- a) a minimum of a 3-year crop rotation (including deep-rooted or long-term perennials at least 2 years in a row)
- b) rotational grazing
- c) spreading manure at a rate for crop requirements, preferentially to application of synthetic N fertilizer
- d) **intercropping**
- e) farm does not use any of the above practices

1.4. If you have areas of low productivity or salinity, do you treat these field areas differently (e.g. keep them in perennials, salt-tolerant crops)? (Check one)

- a) yes
- b) no
- c) farm does not have areas of low productivity or salinity

2. GREENHOUSE GASES

2.1. Do you use any of the following to assess and reduce energy use on the farm? (Check all that apply)

- a) farm has undertaken an energy audit / assessment
- b) farm has installed energy efficient...
 - lighting
 - ventilation
 - milk house equipment (e.g. efficient vacuum pumps, plate coolers, water heaters)
 - other farm equipment (e.g. irrigation equipment)
- c) farm consistently uses reduced tillage practices
- d) one or more pieces of farm machinery have been converted from diesel to electric or renewable natural gas motors
- e) farm does not use any of the above practices

2.2. Have you taken any of the following actions to reduce greenhouse gas

emissions on the farm? (Check all that apply)

- a) farm works with a ruminant nutritionist with the aim of:
 - achieving low milk urea nitrogen (MUN)
 - targeting reduced **enteric emissions** (through e.g. additives, fats in ration, etc.)
 - increasing feed efficiency
 - improving animal health
- b) farm fully empties manure storage 2+ times per year
- c) manure management technology to reduce emissions is used - e.g. cover, composting with or without solid-liquid separation, **biogester**
- d) farm has invested in renewable energy and these are in operation on the farm
 - biogas (e.g. biogester)
 - solar (e.g. solar panels)
 - wind (e.g. wind turbines)
 - other
 - farm purchases renewable energy for use on the farm
- e) participated in a research project related to greenhouse gases
- f) used a recognized on-farm tool (i.e. **Dairy Farms +**, **Holos**, **Cool Farm Tool**) to estimate greenhouse gas emissions.
- g) farm does not use any of the above practices.

3. BIODIVERSITY

3.1. What actions have you taken (beneficial or detrimental*) in relation to

wetlands and watercourses on your farm? (Check all that apply)

- a) restored / enhanced any wetlands in the past 10 years, including those constructed to filter manure or milking centre wastewater
- b) drained any wetlands in the past 10 years*
- c) access to watercourses have been fenced or otherwise managed to limit livestock access

- d) wetlands have been fenced to exclude livestock
- e) left a vegetated area to buffer watercourses or wetlands
- f) there have never been wetlands on farm
- g) there are not any watercourses on farm
- h) farm has wetlands, but none of the above actions has been taken on farm

3.2. What actions have you taken (beneficial or detrimental*) to manage or protect biodiversity on your farm? (Check all that apply)

- a) installed bat boxes, cavity nest boxes or bird boxes
- b) fenced off or maintained natural areas for wildlife habitat
- c) maintain corridors between natural areas through active cropping or other agricultural areas, e.g. through fencerows, ditches, buffer strips, shelterbelts, flower strips, prairie strips, etc.
- d) converted forest or native grassland into crop production in the past 10 years*
- e) converted tame pastureland into crop production in the past 10 years*
- f) returned cropland to forest or to grassland in the past 10 years
- g) left piles of rocks undisturbed in uncropped areas, e.g. shelterbelts or field edges (for reptile habitat)
- h) if you cut firewood from your forest, left standing dead trees (for woodpeckers and cavity-nesting birds)
- i) in the past two years, changed your actions on farm due to the presence of a particular species (e.g. Practices delayed hay harvest until after July 15th or left area uncut after seeing bobolink, increased buffer around a wetland because of duck nesting, etc.)
- j) practice rotational grazing
- k) developed a biodiversity plan for your farm in partnership with a conservation organization
- l) signed a conservation/stewardship agreement or Conservation Easement with a conservation organization to set aside parts of your farm for wildlife habitat?

Examples of conservation organizations include: Ducks Unlimited Canada

(DUC), Nature Conservancy of Canada (NCC), Manitoba Habitat Heritage Corporation (MHHC), *Fondation de la faune* (fauna foundation), or other agro stewardship group, or watershed or conservation authority

- m) none of the above actions have been taken on farm

3.3. Do you use any of the following practices to manage pollinator habitat and health on your farm? (Check all that apply)

- a) installed, or have allowed others to install, beehives on farm
- b) taken steps to minimize the use of agro-chemicals, especially pesticides, through actions such as prairie strips, intercropping, maintenance of diverse habitat around fields, etc.
- c) practice integrated pest management (IPM) or are certified organic in their crop production. IPM is based on the principals of prevention, observation, monitoring and appropriate intervention.
- d) monitor and identify pests prior to applying pesticides at a pre-determined threshold. Blanket applications of pesticides are avoided.
- e) pesticide application records are maintained (for example: pesticide vendor, reason for spraying, trigger for spraying (i.e. threshold), product name, rate applied, area sprayed, date, time of day, weather conditions (wind speed, temperature, cloud cover, relative humidity), soil moisture, growth stage of crop and growth stage of weeds / insects / disease)
- f) farm does not use any of the above practices

4. OTHER TOPICS

4.1. What actions do you undertake to limit the production and runoff of silage seepage from the farm's silage storage? (Check all that apply)

- a) a silage seepage collection system is installed and maintained on the farm
- b) silage storage is located away from AND down slope from surface water or directed away from wells and watercourses

- c) horizontal silos are covered or have a roof AND are located on a concrete pad instead of directly on soil
- d) farm does not use or store silage
- e) farm does not use any of the above practices

4.2. How do you manage plastic farm waste to avoid burning or burying it on farm? (Check all that apply)

Chemical containers

- a) disposed of at landfill
- b) recycled
- c) returned using a take-back program
- d) reused or repurposed
- e) farm reduces plastic waste by using less plastics and/or choosing products/product packaging that have a lower impact on the environment (e.g. reusable, biodegradable, less plastic)
- f) farm does not have access to plastic waste disposal facilities for chemical containers
- g) farm does not use or does not dispose of plastic chemical containers (e.g. uses a custom applicator)

Other plastic waste (e.g. twine, bale wrap, silage covers, feed bags, etc.)

- h) disposed of at landfill
- i) recycled
- j) returned using a take-back program
- k) reused or repurposed
- l) farm reduces plastic waste by using less plastics and/or choosing products/product packaging that have a lower impact on the environment (e.g. reusable, biodegradable, less plastic)
- m) farm does not have access to plastic waste disposal facilities for other plastic waste
- n) farm does not use or does not dispose of other plastic waste

GLOSSARY

Ballasted or balanced – The addition of fluid to tractor tires to help counterbalance weight across all tires, to help improve traction and lower the centre of gravity for larger tires. Assists in improving productivity of tractor use in the field and potentially reducing tractor ruts when spreading manure.

Biodigester (or anaerobic digester) – A tank that digests and decomposes organic material (manure, food waste, or crop residues) using bacteria in an oxygen-free (anaerobic) environment. The process creates a renewable energy called biogas (methane and carbon dioxide) and digested organic matter that can be applied to the land as fertilizer.

Dairy Farms Plus – A free online tool developed by Dairy Farmers of Canada which allows farmers to assess on-farm environmental and socio-economic practices. Individual farms can calculate their carbon and water footprints, as well as other indicators like fertilizer and pesticide use, and compare their performance to provincial and national averages. By estimating your dairy farm's environmental footprint, you can customize your action plan and prioritize your actions based on the tool's recommendations and your own preferences or expected benefits. Website: <https://dairyfarmsplus.ca/>

Dragline – Flexible hose that is usually 6-10" in diameter used to transport manure that is pumped from manure storage to field application equipment, can vary in length and be several miles long.

Contour cropping – The agricultural practice of planting across a slope that follows a field's elevation contour lines to help reduce erosion. These contour lines create a water break to help reduce the formation of rills and gullies during times of heavy water run-off.

Cool Farm Tool – A free online tool to assess greenhouse gas emissions, biodiversity management, and water management on individual farms. It is intended to help farmers choose management options that improve their environmental performance, and to track and measure improvement over time. Website: <https://coolfarmtool.org/>

Enteric emissions – Discharge of gas produced by a digestive process of microorganisms when feed is digested in the rumen of cattle. It is one source of greenhouse gas emissions from agricultural production and may be further managed by adjusting feed, ionophores and other practices.

Greenhouse gas (GHG) – Gas that absorbs and emits radiant energy. The primary GHGs in the earth's atmosphere are water vapour (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). It is estimated that agriculture contributes 8.4% of all greenhouse gas emissions in Canada.

Grassed waterway – A shaped or graded channel established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet, to help protect soil and riparian areas from erosion in higher water conditions. Can be natural and/or man-made with grass and other vegetation, and assists diverting water to a desirable location.

Holos – A free downloadable software tool developed by Agriculture and Agri-Food Canada to estimate and provide suggestions to reduce greenhouse gas emissions on individual farms. Users can select scenarios and farm management practices that best describe their operation and then adjust these practices to see the effect on emissions. Examples of these adjustments include changing livestock feed, reducing tillage or including perennial forages in rotation. Website:

Integrated Pest Management (IPM) – A decision-making process for managing pests in an effective, economical and environmentally sound way. It involves planning and managing agricultural production systems to prevent insects, plant diseases and weeds from becoming pests through prevention, monitoring and control. Controls can be biological, physical, behavioural or chemical.

Inter-cropping – An agricultural practice where two or more crops are grown together in the same field, used as a mechanism by which the functional diversity of an agroecosystem can be increased.

Natural area – A geographical area that has developed through natural growth without intervention from humans. Examples include native prairie grasslands, natural forests or uncropped areas near wetlands.

Minimum tillage (minimum till) – Soil conservation method to manage post-harvest residue from crops with the goal of minimum soil disturbance. Efforts include actions that avoid turning the soil over to minimize moisture and organic matter loss in the soil. Sometimes referred to as conservation tillage.

Pollinator habitat – An area with a variety of flowering plants that provide food and nesting space for bees and other insects that carry pollen from plant to plant. This may be a natural setting, such as a prairie meadow, or a man-made area of flowering plants cultivated specifically for pollinators.

Riparian strip – A strip of land (typically 10 to 15 metres wide) between water and land environments that provides wildlife habitat, streambank stability, or a corridor for wildlife. It is adjacent to a permanent or temporary waterbody and helps recharge groundwater or enhance nutrient uptake. This area can include trees, grasses, shrubs and other enhancements to help stabilize soil or improve biodiversity.

Riparian zone – A transition zone between water and land environments along creeks, streams, gullies, rivers and wetlands. Healthy riparian areas may have any combination

of trees, shrubs, and/or grasses depending on the local conditions. The term is derived from the Latin word *ripa*, which means riverbank.

Rock chute – A spillway designed to reduce erosion of surface water flowing to an outlet, using rocks and/or other material to help stabilize banks or the bottom of waterways.

Rotational grazing – Shifting of livestock to different units of pasture or grasslands in a sequence to enhance the recovery and growth of plants after grazing. The sequence considers livestock density, ground cover, forage utilization and the time needed for plants to rest and re-grow before being grazed again. It can improve use efficiency of grazing land by ruminants.

Tiled protection – Use of tiles under agriculture land surfaces as a type of drainage system to remove excess water from soil below its surface. The use of tiles increases the amount of air in pores of the soil to augment conditions for optimal growth of crops.

Upland habitat – Habitat that is up-land from a waterbody. The riparian zone (see definition above) is the first upland habitat zone you encounter as you move outward from a waterbody.

Watercourse – A natural or artificial channel through which water flows, including the movement of water in rivers, creeks, and other streams which naturally pass over the surface of the land.

Water and sediment control basin – A basin that collects or stores runoff water and traps sediment, reducing erosion and preventing gully formation. It is usually placed at the lower end of slopes. Once the water is collected, it sits in the basin, allowing time for the particles, soil and nutrients to settle and separate from the water. Water is then slowly released through a tile intake and/or through soil infiltration, and sediment is periodically removed.

Wetland – A biologically diverse ecosystem permanently or seasonally flooded by water. Wetlands are areas where oxygen-free processes prevail and are characteristically comprised of aquatic plants that are adapted to the unique hydric soil. Wetlands help to purify water, process nutrients, stabilize shorelines and support plant and animal life.