

Manure Application in Wet Conditions

Manure is a great source of nutrients and can help improve organic matter in fields, but if the season is wet, there may be limited opportunities to get manure spread while conditions are ideal. The Nova Scotia [Manure Management Guidelines](#) recommends avoiding manure application on frozen, snow-covered, or excessively wet ground. Manure applied under these conditions provides little nutrient value and may contribute to surface water contamination.

Farms should consider all alternative options to avoid applying manure during non-ideal times. However, there are circumstances where manure application during non-ideal times is unavoidable. These times could include a wet spring when manure storages are full, or a wet fall when additional capacity is needed to get through the winter. There are two significant environmental risks to consider with wet field conditions:

- *Risks from run-off:* Water contamination from surface run-off or field tile drainage lines.
- *Risks of soil compaction:* Field damage from soil compaction, especially on heavier soils.

Early or Late Season Applications

The Guidelines also recommend a minimum of seven months storage capacity and to avoid spreading manure between December 1 and April 1. If manure storage capacity is limited on-farm, manure application will be the contingency plan to avoid overflowing storage during the winter months. Some farmers will be in the unenviable position of applying early in the spring or late into the fall.

For typical manure applications, the ideal option is to inject manure or surface-apply onto crop residue followed by incorporation of the manure as soon as



Figure 1: Dribble bar applicator (Photo: [Manure Manager](#))

possible after application. When this is not possible, consider the following:

1. Assess Sites for Application

Farm fields can vary based on topography, soil type and proximity to wells, watercourses and wetlands. Choose fields, or parts of fields, furthest from these sensitive areas that have less slope and vegetated buffer areas along field margins as the first choice for application. Also, when possible, choose fields with relatively high amounts of crop residue.

Water flow patterns are obvious in many fields during a storm. Pay attention to these areas and avoid manure application where there is evidence of ponded water or signs of erosion through the field.

2. Custom Application

Consider hiring a custom applicator if timing is limited and other farm responsibilities are taking time away from manure application. Seek a custom applicator with equipment utilizing improved application technology (e.g. dribble bar) with GPS capabilities to map the location and rate of manure application. Injection of liquid manure isn't a good option in wet soils. Surface application onto crop residue (e.g. corn stubble) will result in the least amount of smearing and compaction in wet soils.

3. Separation Distances

Maintain minimum separation distances from wells, watercourses and ditches when applying manure (Table 1). Manure can leach to the ground water table more readily in coarse textured (sandy) soils, so additional separation distances from wells should be maintained.

Table 1: Minimum Separation Distances

Soil Type	Minimum Separation Distances		
	Wells	Watercourses	Ditches
Clay to loam	30 m (100 ft)	5 m (15 ft)	3 m (10 ft)
Sandy	60 m (200 ft)	5 m (15 ft)	3 m (10 ft)

Equipment operators need to be aware of the locations and types of wells (e.g. dug wells are more susceptible to surface water contamination than drilled wells). This includes wells on neighbouring properties and any abandoned or unused wells in relation to the farm.

4. Keep Application Rates Low

For better access in wet fields, fill spreaders to less than full capacity and check tire inflation pressures to manage the weight of the equipment and avoid soil compaction. This will take longer and require more trips, but it is better than the alternative of significant ruts in the field or getting stuck and dumping manure.

For liquid manure, keep the application rates low enough to avoid ponding or surface runoff during application. A rate of 5,600 Imperial gallons per acre (6,800 US gal/ac) is the equivalent to ¼ inch (6 mm) evenly applied. It can be beneficial to view the application as a rainfall event. For example, based on the soil conditions at the time of application, if a ¼ inch of rain fell in one minute, the impact on the field could be considered in order to adjust the rate accordingly.

5. Records

Keep records of where manure is spread for crop nutrient requirements, but also to be prepared for any potential complaints or inspections if there is an issue in the future.

6. Additional Manure Storage

Consider alternative storage methods as opposed to spreading if the risk of run-off, rutting or compaction is too high. If there is a farm in the area that has recently sold their livestock, there may be a manure storage that could be used as a temporary satellite storage until conditions improve.

As part of a manure management plan, environmental risks can be minimized by meeting manure guidelines through manure storage expansion or new storage construction. Consideration should also be given to the increased nutrient use efficiency of manure applied in-season to offset fertilizer expenses. As fertilizer prices increase, maximizing manure usage should be considered when looking at the economics of increasing storage capacity.

Environment Act

It is important to note that actions that result in the release of a substance, such as manure, that impairs water quality, may result in a fine and/or imprisonment under the provincial *Environment Act*. In addition, the release of a substance into a watercourse, that is deleterious to fish in any stage of their life cycle, or that causes harmful damage or destruction to fish habitat may result in charges being laid by the Department of Fisheries and Oceans (DFO) under the *Fisheries Act*.

References:

- [Manure – Tackling the Frequently Asked Questions – OMAFRA](#)
- [Options for manure application during a wet harvest season or in “winter” conditions – Manure Manager](#)
- [Reducing Risks of Manure Application During Wet Weather – Minnesota Crop News](#)

For additional information and resources:

Contact: 902-893-2293 or efp@nsfa-fane.ca