

Manure - Tackling the Frequently Asked Questions

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When fertilizer prices start to increase so do the number of questions asked about manure! Manure is a carefully guarded treasure – black gold – for livestock producers that have figured out the nutrient and organic matter value. However, this is a relatively new concept for many crop producers that have access to manure or other organic materials.

Why bother with manure?

Manure is nutrient rich and organic matter rich. However, just as with commercial fertilizers, manure must be managed to ensure the nutrients stay where they were applied. In addition to the nutrients found in commercial fertilizers (NPK), manure also has micro-nutrients, such as sulphur, zinc, manganese and calcium, and micro-organisms (including some pathogens) that benefit the soil and add diversity. Similar to commercial fertilizers, the value is only as good as the distribution. Uniform application using calibrated equipment is essential.

What is the difference between liquid and solid manure?

Apart from the obvious differences between liquid and solid manures, the biggest difference is nutrient composition. Phosphorus tends to be higher in solid manure, while potassium tends to be higher in liquid manure. The nitrogen composition makes the nitrogen from liquid manure more like commercial nitrogen sources, while solid manure nitrogen behaves almost as a slow-release nitrogen form. As a result, liquid manure can supply over half of a corn crop's nitrogen needs, while most cattle, sheep, or horse solid manure applications will require significant additional nitrogen.

When is the best time to apply manure?

Applying liquid manure before or into a growing crop is the best method of maximizing nutrients while minimizing environmental impact.

Weather isn't co-operating with my application plans. What are my options?

If soils are saturated, field tiles are running at full capacity or rainy/snowy weather is occurring at normal spring or fall application times, many manure storages can be at, or close to capacity. Delayed fall harvest increases the risk of field damage from soil compaction and makes any field work, including manure application prohibitive.

The following are a few options for manure application during a wet autumn. However in doing so, risk of water contamination from subsurface drainage systems and surface runoff must be considered.

1. .Is this the year for custom application? A custom applicator or manure broker with site specific or GPS capabilities is able to map where manure has been applied and at what rate, so that commercial fertilizer supplementation becomes easier next spring. They may also be familiar with producers who need manure for their fields, or fields that are drier and appropriate for manure application.
2. Consider alternative storage if available. Some neighbours may have sold their livestock, but still have manure storage space that could be "rented". Temporary field storage for solid manure is more appropriate than land application.
3. It is not necessary to land apply the entire contents of a liquid manure storage. In winter conditions, or during less-than-ideal weather periods, land application should be minimized to reduce the risks. Land apply only what is needed to "limp" through until more favourable conditions can be utilized.
4. Injection of liquid manure is not a good option in wet soils. Wet soils smear more easily, especially when combined with additional and concentrated liquids at each injection point. Surface application onto crop residue or cover crops, followed by tillage at the earliest opportunity, will cause the least amount of compaction damage in wet soils.

5. Another option is to identify fields with vegetation or a high amount of crop residue, even with some snow cover. Pasture fields, hay or cover crops, fields with large vegetated or treed buffers, or no-till fields are better choices because the vegetation and crop residue can act as barriers to surface water or manure moving across the field.
6. If manure must be applied to snow covered fields, consider the soil under the snow. If the soil is frozen under the snow cover, the risk of snow melt combined with rain leading to contaminated runoff is high. Where will the runoff move? The nutrients may not be where they were intended.
7. Spread on fields or parts of fields with the least slope. Ideally, start with fields where there is no access to surface water. Water flow patterns are obvious in most fields during continued wet periods. Take note of those areas and avoid manure application where there is evidence of ponded water or "streams" flowing through the field.
8. Keep a distance from watercourses. Normally under good spreading conditions, the recommended distance between liquid application and the watercourse is 13 meters (40 ft). Under winter contingency applications, the separation distance should be increased. In the nutrient management regulations, the minimum setback for liquid manure application increases to 100 meters or 330 ft where the slope to the watercourse is greater than 3%.

Surface inlets or hickenbottoms act as a direct conduit to surface water. In a wet year, the risk of water contaminated with manure moving through surface inlets increases. In emergency situations, fields chosen for winter spreading should not have surface inlets or catchbasins. Alternatively, cover the hickenbottom with plastic and leave a large setback from the inlet.

9. Keep application rates as low as possible – 5,600 imperial gallons (6,800 US gal) is the equivalent to ¼ inch (6 mm) evenly applied across spread width. Consider the soil conditions at the time of application. If a quarter inch of rain fell in one minute, where would it move?
10. For all manure application options, monitoring is essential to ensure that contamination of water sources does not occur. Just in case, the Spills Action Centre number is 1-800-268-6060. Murphy's Law - if the farm's contingency plan has been reviewed in advance, it probably won't be needed.

When should manure be incorporated?

Manure should be incorporated as quickly as possible after application. The key to incorporation is having the nutrients distributed uniformly through the seedbed. Injection is considered a form of incorporation. Injection is advantageous for reducing odour and decreasing loss from volatilization, especially with liquids.

How much fertilizer value will manure have?

Fertilizer value varies with manure type and livestock type. Feed rations, storage and addition of bedding or waste water will influence the nutrients applied. It is recommended that manure is sampled for nutrient analysis at the time of application. Most of the Ontario labs accredited to analyze soils will also provide manure analysis.