

High Risk Period for Manure Runoff  
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 U. W. – Discovery Farms

Livestock producers who make manure applications to agricultural fields need to understand that spreading manure – regardless of the type – from now until the ground thaws is extremely risky. Studies on farms cooperating in the Discovery Farms Program indicate that solid and liquid manure applied to snow covered and / or frozen soils, both before and during conditions of snow melt or rain on snow, results in significantly higher nutrient losses than if manure was not applied. These snowmelt nutrient losses should not be underestimated, as they can contribute a majority of the nitrogen and phosphorus losses for the entire year.

Although there isn't a lot of snow on the ground in northern and central Wisconsin, southern Wisconsin does have a fair amount. But it's not just how much snow, it's also how much water is in the snow. Draw a line from LaCrosse to Sheboygan. South of this line we find from 1-2 inches of water in the snow, while north of this line the water in the snow pack is generally less than one inch. These aren't extremely high values because some of this water normally has an opportunity to infiltrate - even on frozen soils. However, there are a number of factors that point at a potentially important snowmelt this year.

- Throughout much of the southern part of Wisconsin, a brief warm-up a few weeks ago compacted the snow and caused a thin ice crust to form. The additional snows we received are sitting on top of this crust. When the snow melts, water and nutrients could be carried along on top of this crust layer and have minimal opportunity to infiltrate.
- Relatively low snow amounts early in the winter have not insulated the top layers of the soil, and frost depths are generally over 12" deep. Infiltration could be restricted by the ice layer as long as it stays in place.
- Manure applied during the recent cold snap will have a significant ammonium-N component. That's because the temperatures haven't been warm enough to facilitate the conversion to nitrate. More ammonium increases the possibility of ammonia entering streams or lakes which can result in fish kills.

Temperatures are predicted to moderate over the next week or two, with daytime highs expected to be above freezing. Periods of rain are also predicted. These conditions lead to a high potential for snowmelt. What can livestock producers do to reduce their risk of manure runoff?

- ✓ Producers who must haul manure from their barns should stack it in an area where the potential for runoff or groundwater infiltration is low.
- ✓ Producers who daily haul manure should work with their local conservation departments to identify safe stacking sites that have minimal potential to runoff into either surface or groundwater.
- ✓ Producers who have lots or facilities with bedded pack systems need to be cautious about spreading this manure during this high risk period. Cleaning lots and getting the manure on the fields before the frost goes out can greatly increase the potential for nutrient losses.
- ✓ Producers who must haul manure during this high risk period should identify fields that are away from streams or lakes and have minimal risk of manure running to surface or groundwater. They should also apply manure at low rates ( $\leq 7,000$  gallons/acre liquid manure and  $\leq 15-20$  tons/acre solid manure).

There is no guarantee that we will see manure running off fields this spring, but producers need to listen to the weather forecast and make good management decisions. If we work together we can reduce the risk of manure runoff events and continue to protect our farms as well as our water resources.

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