

Winter Manure Application Options

Has anyone worked with vertical tillage injection prior to freezing soil?

Kevin Erb: From a runoff perspective, what we want to do is either incorporate the manure (preferred) or roughen up the soil surface to allow a chance for any runoff to stay on the field. A common practice (not vert. tillage) is to chisel the headlands to roughen up the soil to slow any runoff that might occur after application.

Am I correct that the nitrogen losses you showed do not include the volatile losses from surface application?

Eric Cooley: Yes, you are correct that they do not include the volatile losses.

What is WASCOB?

Kevin Erb: WASCOB stands for Water And Sediment Control Basin. You can find a basic description here: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ks/newsroom/?cid=nrcs142p2_033530

Does anyone have any experience in manure injection into frozen ground?

Kevin Erb: The majority of our manure applicators have moved away from frozen ground spreading. Most say that more than 3-4 inches of frost in the soil makes injection both physically difficult and you do not get good coverage of the manure with soil.

Eric Cooley: As long as there is not heavy frost depth in the ground I have observed farmers able to do it, otherwise there are challenges with breaking of knives

How much does it cost to haul manure (distance and weight cost basis) or per acre? Does the hauler spray or requires additional cost?

Kevin Erb: It depends on the distance; the farther away the greater the cost. A dual vehicle transfer (moving it from the farm to the field in a truck and transferring it to a tractor/tanker or tractor/dragline in the field) adds about 0.6 cents per gallon to the application cost. This type of transfer usually means three semis (6,000 gal each) for the first mile, and one additional semi for each loaded mile away the

field is. Each stop sign adds time (and expense), so the most direct route is not always the most efficient.

What is the cost difference between spraying manure or injecting it?

Kevin Erb: Manure irrigation (using a center pivot type system) is >50% less expensive than injection with a tractor and dragline. There are many barriers to making this work—any solids in the manure will plug nozzles quickly. Even with a treatment system, the farms using the technology employ a full time person during the season whose job is to unplug nozzles. You need a very complete treatment system to remove the solids. We have looked at Wastewater treatment plants to take manure in some cases, and they have a charge 4 to 9 cents per gallon to treat dairy manure.

Does an animal producer pay to haul manure? or give it for away? or sell it to crop producer?

Kevin Erb: It depends on the site. Dairy farmers need a much larger land base for feed, so manure goes back on those acres usually. Swine and poultry operations that don't need that much land for feed often sell manure or give it to neighbors.

Is it a common practice for composting manure during frozen period , reducing the volume and stabilizing nutrient and applying in the spring prior to planting area?

Kevin Erb: Composting is a viable option. The vast majority of farms have chosen manure storage, as it does not require labor during the growing season to turn, monitor and manage. Farms that successfully compost designate one person who stays on top of the system.

If risk of early frost pushes applications earlier, are cover crops a risk management tool to scavenge manure N that is nitrified?

Kevin Erb: Cover crops can play a critical role—but they need enough root growth before dormancy to have an impact. Applying manure in late summer and following with a cover crop is a good management option and one that is included in several state's 590 guidelines.

How much time do you have to spend in educating those involved in order to achieve the collaboration and level of education needed for all of this?

Kevin Erb: With in-season application, the key issue is compaction and equipment. There is currently one manufacturer of a dragline based system for application in standing crops. This technique (used in corn

and soybeans) opens up an additional 75 day application window. Rates are usually lower than pre-plant due to equipment constraints.

Have there been any studies related to tile line discharge in relation to application timing?

Kevin Erb: Tile line discharge can be acute (actual manure in the tile at time of application) and chronic (nitrates from manure mineralization). The LPELC will be hosting a webcast on manure application over tilled ground on April 17, 2015, please see that webcast for more information.

Is the applicator required to look at and follow the NMP water budget when making applications?

Kevin Erb: It depends on the state specific regulations.