

April 24, 2007

Clean Environment Commission
Hog Production Industry Review

Dear Commission Members;

To provide a little background on myself, I am a geologist and I also farm in the Hamiota area with my brother. We have a mixed farm with grain and cattle and I also work off the farm as an economic development manager. My past experience has included conducting environmental assessments of new industrial projects, brownfield and contaminated sites.

For the last several years on our farm, we have had liquid hog manure applied to our fields randomly as a crop nutrient. We find the hog manure to be an excellent crop nutrient if applied properly. We consider the application of manure to be no different than the application of liquid fertilizers and thus similar agronomic and application practices should be employed. **My comments relate to the unsound application practices currently employed by the majority of the industry and which only require slight modifications to achieve reliability.**

Current regulations prescribe maximum allowable manure nutrient application rates but in my opinion if the form of application is not appropriate and efficient then all these regulations do not have a positive impact on the environment. Current regulations may indeed have a detrimental effect by encouraging higher rates of application on hay and pasture fields than the fields can absorb prior to rainfall surface leaching (P and N) or atmospheric gassing off of the volatile ammonia fraction.

It is well known through research in Canada and the United States that the highest risk of nutrient transport lies with material deposited on the surface or in the first inch of the soil. Therefore it would appear very evident that the first course of action is to require the manure to be placed well below the surface and covered by at least 1-2 inches of fresh soil.

Current practices of large hog operations is to use either spike, disc or shank type applicators.

In the case of spike openers, holes are punched in the soil by a rotating spike and the liquid manure is sprayed on the soil with approximately 50 % flowing into the hole and 50 % remaining on the surface.

In the case of disk openers, material is placed in the opening made by the disk then the opening partially closes. The success in covering the material is determined by the depth of the disk opener, the ground speed of the applicator and whether any closure tool is employed.

The most common type of applicator is shank type openers which place the manure in a furrow created by the shank. This type of equipment can be very effective in placing the manure below the surface of the soil and in creating a cover layer between the manure and the surface. **However it is common practice to only create a trench approximately 2 inches deep, just deep enough to hold the manure effluent. This situation almost totally voids any possibility of sequestering the material away from the leachable top surface of the soil.**

Our particular experience has been with spoke type and shank type applicators. In all cases, the material has not been applied below the surface, greatly exacerbating the leaching of nutrients through normal rainfall/runoff/leaching cycles. In addition, our experience has demonstrated that approximately 50 % of the nitrogen (ammonia) is lost to the atmosphere through gassing off.

Currently regulations allow heavier rates of manure based nutrients to hay and pasture fields. We have some experience with this as well but we are uncertain whether the material is actually being absorbed rapidly enough to prevent runoff. In addition the 50 % of the ammonia component is being gassed off to

the atmosphere again. I would suggest that perhaps the level of application should be reduced based upon absorbability into the soil. There is a requirement provincially, to undertake very specific research into both surface placement and leaching of nutrients.

What is frustrating to us, is that **the operators have the proper equipment and horsepower to properly apply the nutrients such not it is below the surface leachable layer and as well to prevent ammonia escapes to the atmosphere.** But the current practice is not only adding to the pollution of our surface waters but also is adding to greenhouse gases. Proper placement is environmentally, agronomically and economically sound.

However, applicators prefer to apply the material in shallow trenches to reduce fuel consumption and to reduce wear and tear on their equipment. And they will continue to do so until clearer regulations are in place.

What is required are clear regulations which require all nutrients (manure and commercial) to be placed such that they are not exposed to the atmosphere and below the top “leachable” surface layer. The desired outcome can be achieved with solid manure as well through incorporation regulations.

Enforcement of regulations can be self policing to a high degree if the agriculture communities are well aware of the regulations and the penalties. **Multi tiered review and enforcement approaches are the most effective and should be employed here.** The first line of enforcement would be provincial manure management plans with the second tier being maybe a role for conservation districts and the third tier being Manitoba Conservation. (note: Conservation Districts should be informed as to the manure application dates before hand)

I believe this situation can be vastly improved by simple regulations which are readily and cost effectively enforceable both by indirect and tiered prescriptive evaluations. Many other jurisdiction, (particularly in the United States) are moving in this direction as well recognizing the harmful effects of shallow placement.

And finally in closing, I would like to make it clear that as a farmer I am a strong supporter of agriculture and technology. I also take the position that if we are going to do something we need to do it right, with this being tempered by economic realities. In this case, the solution is well within economic reality and only requires clear guidance by the province.

Thank you for your time. If you have any questions about my presentation I can be reached at 204-851-2869 or by email at virden_edm@mts.net

Yours Sincerely,

Ed Brethour
P.O. Box 115
Hamiota, Manitoba
R0M 0T0

