

# Value of Hog Manure Increased with the Price of Nitrogen in 2005

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*Storage covers reduce the loss of valuable manure nitrogen during storage*

As you prepared for the spring planting season you were no doubt a little nervous to call the local fertilizer dealer to inquire about where the price of nitrogen is sitting this year. The situation for crop producers is looking tight again with fuel and fertilizer prices reaching ever higher, while commodity prices head the other way. There might, however, be a bright spot for livestock producers to consider, the ammonium fertilizer tank behind the barn that you likely call your liquid manure storage.

If you are a 2000-head finish barn operator producing 1.2 million gallons of liquid manure per year, and that manure averages 20 lbs of nitrogen per 1000 gallons, your manure nitrogen is worth roughly \$14,000 this year. It was worth about \$12,000 last year based on nitrogen fertilizer costs of \$0.57 and \$0.49 per lb of nitrogen in 2005 and 2004, respectively. This represents a fertilizer cost increase of 16 per cent over 2004 nitrogen prices.

Your 24,000 lbs of manure nitrogen will fertilize about 240-acres of canola with 100-lbs of nitrogen if it is injected to conserve its nitrogen value. At 20-lbs N per 1000 gallons, you will need to apply 5000-gallons of manure which will run you about \$50 per acre, assuming a 1-cent per gallon application cost. Purchasing fertilizer to apply the same nitrogen will run

you \$57 per acre, plus \$3 an acre for application, for a total of \$60 per acre. Fertilizing your canola or wheat with liquid manure will cost you \$12,000, while purchasing and applying nitrogen fertilizer will cost roughly \$14,400 on 240-acres of crop.

Now that you are thinking about the money that is still sitting in the manure tank, think about the money you have lost out of the storage over the past year. Consider that the ammonia smell, which clings to your overalls when you walk out of the barn, is also worth \$0.57 per pound. Now consider that you have likely lost half (50 per cent!) of the manure nitrogen that exited your barn over the past year as ammonia emissions during manure storage. This is the same process that robs you of manure nitrogen when manure is surface applied to cropland and not incorporated or injected. You might as well have written a check to the neighbour for \$12,000, as this is the value of the ammonia nitrogen that escaped your storage and was deposited on his farm.

Now, consider that a manure storage cover will run you somewhere between \$8-12 per square foot, so a 128' diameter, 16' deep, round concrete storage will cost \$128,000-\$154,000 to cover. Not a small investment, but consider that if you double your manure nitrogen content by installing a cover system, you go from 20-lbs to 40-lbs per 1000 gallons, and the value of your manure resource increases from \$14,000 to \$28,000, an annual fertilizer savings of \$14,000.

Considering a medium-case cost scenario of \$10 per square foot for a storage cover, your payback period is a cool 9-years. Now consider that the manure odour which used to emanate from the storage is essentially eliminated, you have excluded rain and snow water

dilution from your hauling costs, your manure nitrogen to phosphorus ratio will be double what it was before the cover was installed, and greenhouse gas emissions from the farm will be lowered considerably.

The numbers will work for using manure nutrients effectively considering the following:

1. You save \$10 an acre applying 100 lbs nitrogen per acre as 5000 gallons of manure (20 lbs N per 1000 gal) instead of urea-fertilizer
2. 5000 gallons of manure is worth \$43 in phosphorus (60 lbs P) and \$40 in potassium (110 lbs K), both already purchased as part of your hog rations
3. A \$128,000 manure storage cover can be purchased in 9-years based on the offset costs for purchasing nitrogen fertilizer

The bottom line is that you have already purchased a lot of nitrogen fertilizer as protein in your hog feed. This nitrogen represents a major portion of the cost of feeding pigs, and your animals are only using 30 per cent of the nitrogen fed, leaving 70 per cent for crop production if this manure nitrogen can be conserved during storage. Assigning an appropriate value to this 'free nitrogen' further capitalizes on the potential for adding value to your cropping enterprise through livestock production. In this time of tight margins and high crop input costs, can you afford not to use manure nutrients as effectively as possible?

For more information on manure nitrogen management and how the economics on your farm might pencil out differently than presented here, contact Cedric MacLeod at the Canadian Pork Council 613.236.0011 or [macleod@cpc-ccp.com](mailto:macleod@cpc-ccp.com)

