

Targeted Manure Application Rates Deliver Increased Profit

Cedric MacLeod-Canadian Pork Council



Flow rate meters take the guesswork out of manure application rates and help maximize the value of manure nutrients

The concept of *effective manure nutrient management* is one that you likely hear about often. Conversations revolve around soil and manure testing, defining proper manure application rates to match specific crop requirements, calibrating application equipment and when and how to apply manure resources to cropland.

Producers do a great job mixing and testing manure nutrients, following proper manure sampling protocols, and getting the manure applied while the crop is growing, but after all that, just how even a spread are they getting of that manure, and how close are they to the application rate they were shooting for?

Farmers are well aware of the difficulties that arise when one tries to calibrate any type of application machine. It always seems easier to find that small field for which you know the exact acreage and set your application rate by trial and error. If you keep decent records, you will be able to easily set your application rate and skip the calibration step.

As nutrient management-related regulations focus more on individual fields and crops, and their supply and requirement for

nutrients are tracked in more detail, our tanker operators will have to have the capability of managing application rates on the fly, with a high level of accuracy.

Flow-Rate Meter Technology

Flow rate meters allow an operator to achieve a higher level of application accuracy than would be possible without a lot of calibration downtime. The cost for these units run about \$4,000 for a 4" pipe, \$4,300 for a 5" unit and \$4,600 for a 6" unit. There are a host of other attachments that can be linked to a flow rate meter to automatically control the rate of application, depending on the speed your machine is travelling. Add a data management system and you have a real-time, application rate field mapping system to add to your records. Thus, flow-rate meters and flow tracking systems are a great way to keep records of where manure went down and the nutrients that were applied. With the prices of nitrogen fertilizer hovering in that \$0.50 per lb range, knowing where every gallon goes might make a significant difference to the bottom line for your cropping enterprise.

Dollars and Cents

Consider that if your manure contains 20 lbs-N per 1000 gallons and you are targeting a 100 lbs N-acre application rate, you will need to apply 5000-gallons of manure per acre to achieve this N-rate. Now consider that without calibration you are *actually* applying 5500 gallons per acre, and it costs you one cent per gallon to apply. That extra 500-gallons per acre is worth \$5 in application costs (500 gallons x ¢1 per gallon). If you

assume that nitrogen fertilizer is worth \$0.50 per lb, and in 500 gallons of manure you apply 10 lbs of extra nitrogen per acre, that nitrogen is worth an additional \$5 per acre (10lbs N x \$0.50 per lb). Add up increased application and wasted nitrogen costs, and that extra 500-gallons costs you \$10 *per acre*.

If a flow rate meter costs \$5,000 to purchase and install, then the unit will pay for itself over 500 acres, based on \$10 an acre savings. To go a bit further, eliminating the extra ten lbs of nitrogen per acre applied in 5500 gallons of manure, will provide a nitrous oxide (a potent greenhouse gas) emission reduction of 40 lbs of carbon dioxide equivalents per acre. Multiply 40 lbs of reduced greenhouse gas emissions over 55-acres and you have generated a one ton (2200 lb) reduction in greenhouse gases for your operation. One ton of GHG reduction is currently worth about \$8.

If you apply 500-acres worth of manure in less than three years, you might consider purchasing a flow rate meter for your application system, as your \$5000 investment will be returned to you fairly quickly. The reductions in greenhouse gases that can be achieved are modest, but your gains in manure nutrient use efficiency could be significant. To discuss these numbers or other manure related matters contact Cedric MacLeod at the Canadian Pork Council: 613.236.0011 or macleod@cpc-ccp.com

