

# Use Dairy Manure Nutrients Wisely

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## Understand the fertilizer value of dairy manure

- Have your manure tested to know its value. You want to analyze samples that represent what you will spread. One way to do this is collect the sample as you are spreading, but you might want to know ahead of time (for example if you selling the manure to a neighbor). It takes many small subsamples thoroughly mixed together to make one good sample to send off to the lab. For example, with a liquid you might want to grab 10 or 15 subsamples of about 1 pint in size and mix them up really well in a bucket.
- The University of Kentucky Agricultural Economics Department provides several useful spreadsheets ([https://agecon.ca.uky.edu/budgets#Livestock\\_Forages](https://agecon.ca.uky.edu/budgets#Livestock_Forages)). The Fertilizer Price Calculator allows you to input your price for various types of fertilizer and returns the value per unit of  $P_2O_5$ ,  $K_2O$ , or N. For example, if urea costs \$900/ton, potash costs \$810/ton, and DAP costs \$860/ton then you're paying \$0.98/lb of N, \$0.55/lb of  $P_2O_5$ , and \$0.68/lb of  $K_2O$ .
- If your manure test returns 42 lb of total N, 21 lb of  $P_2O_5$ , and 33 lb of  $K_2O$  per 1000 gallons, then based on fertilizer replacement the manure is worth about \$75 per 1000 gallons. If your soil test report does not call for any phosphorus (P) or potassium (K) then that manure is only worth \$40 to you. Remember that you might lose nitrogen (N) value as ammonia gas volatilizing off the soil surface. In addition, you can lose significant amounts of N from Kentucky soils when you apply manure in the fall or winter when crops don't need much N.
- If your soil tests do not call for phosphorus or potassium, you might be able to sell your manure to a neighbor who has fields that need those nutrients. With current fertilizer prices many farmers are very interested in manure nutrients.



## Know for sure if you need additional nitrogen fertilizer

- If you have repeatedly applied manure to a field over the years, or have grown a legume recently (like alfalfa), you might **not** need that additional inorganic N fertilizer. That would be a big money saver with current N prices!!
- To find out if you need extra N for your corn use the Pre-sidedress Soil Nitrate Test (PSNT). Collect a representative soil sample for each field. Unlike normal soil samples, PSNT samples need to be 12 inches deep and collected when corn plants are about 12 inches tall. To get a representative sample collect 20 soil cores and mix thoroughly in a clean plastic bucket. Then grab about a pint of soil from bucket. You want to air-dry that soil before sending to the lab. Nitrogen in field moist soil will change a lot on the way to the lab. To dry the soil, do not heat the soil, just spread it in a thin layer on a paper plate in front of a fan – set on low, you don't want it all to blow away!
- Many labs (including the University of Kentucky) provide PSNT analysis. You can even test the sample yourself with a high-quality testing kit (like the "Nitrachek" kit – beware most home soil test kits aren't very good). We have a lot of confidence that if your PSNT comes back higher than 25 ppm nitrate-N ( $NO_3-N$ ) you don't need to add additional fertilizer N. Talk to your County Agent about the PSNT if you're interested!

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## Are You Competitive as a Dairy Manager?

### **High fertilizer prices provide risk and opportunity**

- Know what you need! Soil test for phosphorus (P), potassium (K) and pH. Apply just what you need. Now is not the time to apply “maintenance” rates or “build” for the future. Ask yourself if your per acre gain in feed is worth the per acre fertilizer bill? Stay on top of your lime program though – soil pH is the most important variable in a good crop fertility program.
- Know what you are applying! Test your manure and check your spreader to know how much you are putting out.
- If you can, use this time of high fertilizer prices to generate extra income by selling manure N, P, K, and organic matter to neighbors. They might even be willing to pay you to apply the product if they don't have a manure spreader.