Dairy manure has been changing. A study that analyzed 1,800 dairy manure samples from Vermont between 1992 and 2003 showed that there’s been about a 30% decrease in the phosphorus content of manure and greater than a 3-fold increase in the copper content of liquid manure.

Phosphorus
- Decrease is a result of reduced phosphorus in dairy rations which has been documented in TMRs in Wisconsin in the past 5 years.
- Decrease has positive environmental impact: Less phosphorus loading where runoff is a concern.
- Decrease also has an agronomic impact: Must account for lower phosphorus when determining fertilizer rates.

Copper
- Increase is presumably due to increase in use of copper sulfate foot baths.
- Increase raises concerns about crop and animal toxicity when manure is land applied.

Other conclusions:
- There’s a high variability of nutrient content, even when adjusted for dry matter.
- This emphasizes the importance of analysis versus reliance on book values.
- The study also looked at the amount of total nitrogen, ammonia nitrogen, potassium, magnesium, calcium, manganese, iron, zinc, and boron in manure but found no consistent trends with these nutrients.

Study conducted by William Jokela*, Joel Tilley, and Donald Ross, Plant and Soil Science Department, University of Vermont, Burlington, VT.

*Currently with the USDA Agricultural Research Service, Institute for Environmentally Integrated Dairy Management, Marshfield, WI.