Wisconsin Crop Manager

Volume 18 Number 2 - - - University of Wisconsin Crop Manager - - - February 17, 2011

USDA-APHIS grants non-regulated status for roundup ready alfalfa

Mark Renz, Extension Weed Scientist, University of Wisconsin Madison

On January 27, 2011 USDA-APHIS announced it will deregulate Roundup Ready alfalfa. This decision will lift the three year ban on planting of RR alfalfa seed in the United States. The decision was made after considering the options listed in the final environmental impact statement (EIS) published on December 23, 2010 and holding public comment opportunities. While several options were considered in the final EIS, APHIS has fully deregulated RR alfalfa, so it has no restrictions associated with it. I expect that seed will be available for purchase on the near future.

For details about this decision please visit this link:

http://www.aphis.usda.gov/brs/aphisdocs/04_11001p_rod.pdf

New Instructional Video on "Calibrating a Manure Spreader."

Kevin B. Shelley, UWEX Nutrient and Pest Management Program

The UW Extension Nutrient and Pest Management Program has produced an instructional video on determining manure application rates as part of the process in determining nutrient credits from field applications of solid and semi-solid livestock manure.

Featured in the video is the process of weighing a manure spreader to determine the net weight of a representative load of manure using portable wheel weighing pad scales. This enables a farmer to estimate manure application rates, in tons per-acre, by keeping track of the number of loads spread on a field or area of known acreage. Knowing the application rate, together with the nutrient content of the manure, will allow calculation of the amount of N, P and K that can be credited toward crop needs as recommended by a soil test.

Manure spreader calibration is also discussed. This is shown as measuring an area to which two or more loads have been spread, calculating the application rate in tons per-acre, and then making ground speed or discharge rate adjustments, if desired, to get toward a specific application rate goal. Resources for additional information are also mentioned in the video.

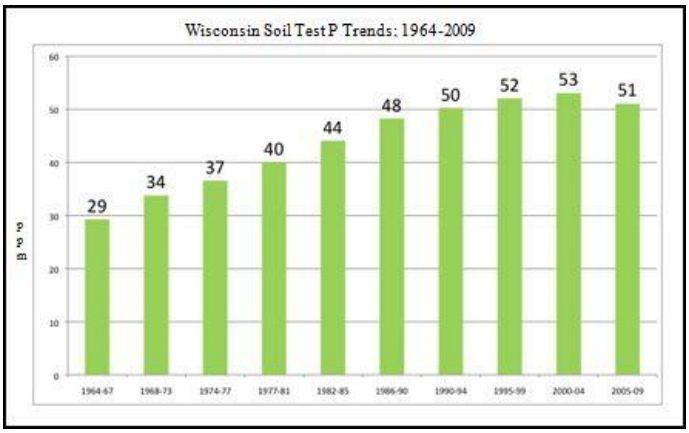
The video can be viewed on the UWEX YouTube channel website at http://www.youtube.com/watch?v=m9LAsOgVN-g

Average Soil Test Phosphorus and Potassium Levels Decline in Wisconsin

John Peters, Department of Soil Science

Soil test data from over five million samples collected from Wisconsin farmland and analyzed by both public and private Wisconsin Department of Agriculture, Trade and Consumer Protection certified soil testing laboratories has been summarized every 3 to 5 years since 1964. Summarizing soil test data is useful for not only identifying broad fertility trends, but also for evaluating fertilizer, lime and manure management practices, isolating areas of unique, localized fertility conditions requiring special management and for identifying soil areas having a potential for a high environmental risk to water quality.

Available P and K (Bray-1), along with other soil test parameters were recently summarized for approximately 1,080,000 soils tested during 2005-09. This represents approximately a 58% increase in samples compared to the 2000-04 summary period. Nearly 90% of these were in the medium and fine texture category and approximately 9% were coarse-textured soils. The balance was made up of organic soils and red soils from eastern Wisconsin.



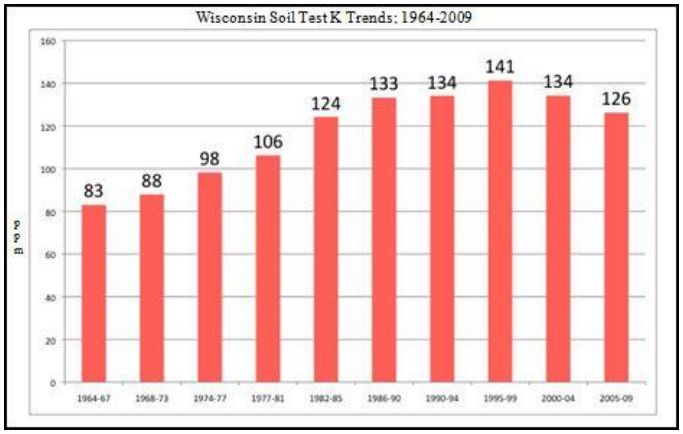
Phosphorus

Average soil test P for all Wisconsin farm soils decreased from 53 ppm in 2000-04 to 51 ppm in this 2005-09 summary period. Applying no more than the recommended rates of phosphate fertilizer and/or crediting manure nutrients have become more common practices on Wisconsin farms and is reflected by this change in the long term trend which has seen increasing soil test P levels. For the past five years, 54 of 72 Wisconsin counties had either no increase or a decrease in soil test P after regular upward trends in soil P levels in the state since 1964.

The average soil test P for the coarse textured soils was 80 ppm as compared to the medium/fine-textured soils where the average was 50 ppm. The counties where soils are intensively managed for potato production had the highest soil P levels. Optimum soil test P levels required by potato and processing crops grown on coarse-textured soils can be considerably greater than for most other agronomic crops. There were some large changes in these counties including a 53 ppm decrease in the average for Oneida County and 45 ppm increase in Portage County. Soil test P changes in counties that predominantly contain medium and fine textured soils were relatively minor (5-10 ppm) by comparison.

Potassium

Soil test K for all soils in the summary has decreased from 134 ppm in 2000-04 to 126 ppm in this 2005-09 summary period. This is the lowest average level since the 1982-85 summary period where the average was 124 ppm. At the time of the first summary in 1964-67, average soil test K was 83 ppm. Increases in soil test K were relatively high (averaging 7 ppm per summary period) beginning with the 1964-67 summary period until the 1995-99 summary period. During the last two five-year summary periods, the change has been of this same magnitude but in the opposite direction going from 141 ppm to 134 ppm and now to 126 ppm. Most counties have



average soil K values on the upper end of the optimum level for corn (71-130 ppm) and alfalfa (71-140 ppm) production or somewhat above the optimum level. At optimum soil test levels, the amount of recommended potash is equivalent to crop removal. The average soil test K for coarse-textured soils is 103 ppm compared to 128 ppm for medium and fine textured soils. This reflects the lower CEC on these sandy soils and the higher potential for rapid change under intensive cropping. Either a decrease or no change in average soil K level was seen in 63 of the 72 counties after regular upward trends until about ten years ago.

Summary

The changes in soil test P and K show widespread adoption of sound fertility management practices necessary for profitable crop production as well as good environmental stewardship. The trend toward a reduction in soil test P and K seen in many counties is encouraging evidence that nutrient management planning is being implemented on more acres. Continuing to monitor soil test data will help educators and farm advisors develop strategies necessary for Wisconsin farmers to maximize crop production while recognizing and minimizing environmental concerns. However, only good, representative sampling and testing of individual fields can provide growers with the data needed to make informed nutrient application decisions to achieve economically optimum yields while minimizing environmental impacts.

You may access a searchable data base for Wisconsin soil test results at http://uwlab.soils.wisc.edu/soilsummary/

Data available includes annual results by county and individual soil test parameters from 1995-2009 and by county for each summary period from 1974-2009. You can also find state-wide maps for the various soil test parameters summarized back to 1974 and detailed maps for 1995-2009.

Nutrient Content for Dairy and Swine Manure in Wisconsin, 1998-2010

John Peters, Department of Soil Science, UW-Madison

The nutrient value of manure can be assigned by using estimated “book” or average available N, P_2O_5 and K_2O content. However, testing manure may better indicate how animal management and other factors actually affect nutrient content. Data in the livestock waste facilities handbook (MWPS, 2007) provides "typical" or average nutrient content for manure of several animal types in the upper

Table 1. Average total nutrient content of dairy and liquid swine manure. Wisconsin 1998-2010.

Animal Type	System	Nutrient	Wisconsin* Avg.	s.d.	Range	MWPS**
			lbs/1000 gal			
Dairy	Liquid	N	21	11	1-125	31
		P_2O_5	8	12	1-170	15
		K_2O	19	10	1-95	19
			lbs/t			
Dairy	Solid	N	11	8	0.1-68	10
		P_2O_5	6	8	0.1-98	3
		K_2O	10	23	0.1-132	6
			lbs/1000 gal			
Swine	Liquid	N	34	21	1-203	28
Farrow-Finish		P_2O_5	18	16	1-163	24
		K_2O	21	11	1-81	23

* Nutrient levels in 6371 solid/semi-solid dairy, 14676 liquid dairy and 1568 liquid swine manure samples submitted to Wisconsin based laboratories 1998-2010.
** Livestock Waste Facilities Handbook (MWPS, 2007).

Midwest. These values probably give an acceptable estimate for the "typical" producers, especially if sampling methods do not represent the pit, pack or gutter adequately. However, an analysis of a well-sampled system should give a better estimate of the manure nutrient value for individual farms especially if herd and manure management is not "typical". In Table 1 (found on the following page), the MWPS total nutrient estimates are compared to actual manure analysis of samples analyzed by Wisconsin based laboratories between 1998 and June 2010. In most cases the summary values compare quite well with the established norms. The following laboratories; AgSource Laboratory, Dairyland Laboratory, Rock River Laboratory and the UW Soil and Forage Laboratory provided manure analysis results for this summary. The cooperation of these laboratories in providing their data for this summary is greatly appreciated.

Even though on average the actual farm values compare well to the MWPS estimates in most cases, the actual analysis values can range widely from the MWPS estimates as can be seen by the wide ranges found in the data sets. This could be the result of different management practices on farms or other on farm differences, or improper sampling techniques. Taking multiple samples over time and averaging these values will help reduce the potential for using a single anomalous laboratory result as the basis for crediting nutrients on a farm.

Summary

Using book values is one way to attempt to properly credit applied nutrients from manure. However, if the manure from any farm varies from the norm, using a standard value may be inappropriate. The alternative is testing and the number of manure samples tested by public and private laboratories has increased greatly from 1998 to their current levels in 2010. Many producers still do not sample manure properly, but by following recommended sampling guidelines and keeping long-term records, the appropriate manure nutrient content values can be obtained for a farm.

References

MWPS Livestock waste facilities handbook. Handbook #18, 2nd ed. Midwest Plan Service. Ames, Iowa, 2007.

Soil Sampling and Testing Issues For Nutrient Management: Certified Labs and Grid Sampling

Kevan Klingberg - UW Discovery Farms Program

Twice this winter I have run into snags helping individual producers walk their way into loading farm information into SNAP-Plus (nutrient management software) and beginning the journey into officially having all the right stuff for their nutrient management plan. They know soil testing is a key necessity, and had that service completed on their farm last fall. Their agronomist got that work done, processed the soil bags and field information sheets to their preferred lab, and soil test results are back!

The Issues:

1. One producer had all the correct field specific soil samples taken, but the soil test analysis lab utilized by the agronomist was not WDATCP certified. The methodology used for defining P soil test values was not UW-soil testing methodology. Also, the lab's spreadsheet of final soil test values was not configured with the same sequence of titled columns that could import into SNAP-Plus. We manually reconfigured the spreadsheet, double checked our column-to-column accuracy, and did eventually import soil test values into SNAP-Plus. Officially, this plan will not meet the 590 standard, and soil test lab fees may not qualify as reimbursable within a nutrient management incentive project, all because samples were not sent to a certified lab.

2. Another producer was excited to have had his farm grid soil sampled. He owns and operates three different farms, each with 20+ fields. As we plugged the producer's pre-loaded flash drive into the computer, it was quickly evident that soil samples had all been grouped together for each farm. This whole set of three farms had soil test values reported as three fields, each with 50+ samples. All of the individual soil tests were uniquely labeled and could be related back to a grid-point map provided by the agronomist. Yet, it took a number of hours to cross reference soil test values to sample locations and assign that information to individual fields. A significant amount of time was necessary to reconstruct this grid soil sampling project into something usable for a nutrient management plan. Grid sampling is completely acceptable for nutrient management planning, and this plan will meet the soil testing component of the 590 standard. Yet, it would have been helpful for the agronomist to develop a cross reference chart showing which soil samples were associated with individual fields.

Note to agronomy professionals: Make sure your soil sampling technical service and the soil testing end product does not become a limiting factor in developing nutrient management plans for your customers.

Note to producers: Make sure your agronomist knows that the soil sampling services you are buying need to meet specifications of the WI-NRCS Nutrient Management Standard (590).