

# Agri *focus*

## LABORATORY SOLUTIONS FOR THE MODERN WORLD

### WHAT'S NEW: NIR Analysis

Since 1983, our dedicated staff has worked hard to provide our customers with unsurpassed service and quality results. As a part of that effort, we recently streamlined our NIR testing process.

We now offer three major packages to our customers: our basic NI1 test, our NI9 test, and our NINDFD test.

While our NI1 test is fairly comprehensive, many of our customers are opting for more robust test packages that offer greater insight into the nutrient value of their forage.

While there is only a \$1.50 price difference between our basic NI1 test and our NI9 test, the NI9 provides customers with additional information regarding lignin, starch, sugar, fat, ash, NIR sulfur, and rumen undegradable protein (RUP) – all of which provide a more complete nutritional picture.

Most nutritional balancing programs require additional tests in order to ensure optimum herd health and maximum production. In today's economy, utilizing book values for nutrient levels can be financially risky. A more comprehensive testing program can eliminate guess work and help producers realize savings when creating mixed rations.

Additionally, some of our customers are opting for packages that provide an opportunity to market their product. For example, many of our alfalfa hay customers opt for a NINDFD for their marketing needs; our NINDFD test provides a Relative Feed Quality (RFQ) value on grass and alfalfas, an index used for ranking forages.

Our NINDMK test provides a Milk Report that is a great marketing tool for our corn silage and seed research customers marketing to the dairy industry.

In addition, our IT department can place your company logo directly on your results free of charge, a budget-friendly way to promote your product!

Contact us to learn more about the various testing packages we offer and how our IT department may be able to assist your marketing goals!

Table 1. Differences between the NI1, NI9, and NINDFD test packages offered at Agri Analysis Inc

	NI1	NI9	NINDFD
Relative Feed Quality (RFQ) on alfalfa / grasses			x
Milk lbs			x
NDFd48			x
Rumen Undegradable Protein (RUP)		x	x
NIR Sulfur		x	x
Ash		x	x
Fat		x	x
Sugar		x	x
Starch		x	x
Lignin		x	x
Dry Matter	x	x	x
Crude Protein	x	x	x
Soluble Protein	x	x	x
Heat-Damage Protein	x	x	x
ADF	x	x	x
NDF	x	x	x
TDN	x	x	x
NEL, NEG, NEM	x	x	x
NSC (calculated)	x	x	x
Relative Feed Value (RFV) on hays / haylages	x	x	x
ENE	x	x	x
Phosphorus, Calcium, Potassium, Magnesium	x	x	x

## DEPARTMENT SPOTLIGHT: Manure Nutrient Variability

With the current state of the economy it is important, now more than ever, to take charge of how, when, and where to apply manure. As most of our customers have manure to spread (Table 1), taking advantage of the fertilizer content of manure makes sense.

**Table 1:** The manure production of a typical dairy producing farm (2009-2010 Penn State Agronomy Guide)

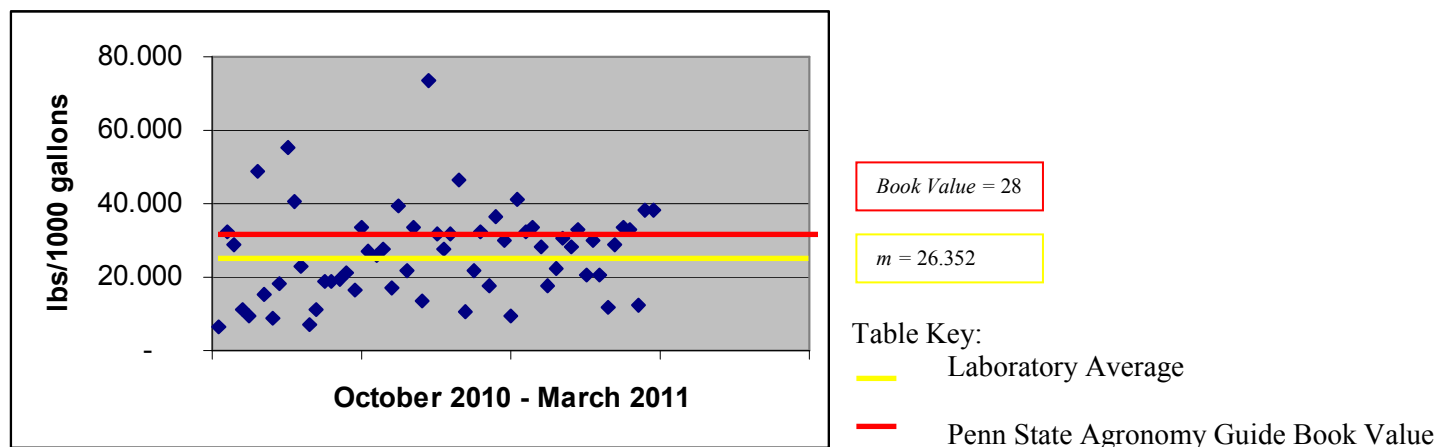
Dairy Type	Daily Production	Monthly Production	Yearly Production
Lactating cows, liquid	13 gal/AU/day	395.33 gal/AU/month	3900 gal/AU/year*
Lactating cows, solid	106 lb/AU/day	3223.46 lb/AU/month 1.61 ton/AU/month	31800 lb/AU/year* 15.90 ton/AU/year*
Dry cow	82 lb/AU/day	2493.62 lb/AU/month 1.24 ton/AU/month	29930 lb/AU/year 14.96 ton/AU/year
Calf and heifer	87 lb/AU/day	2645.67 lb/AU/month 1.32 ton/AU/month	31755 lb/AU/year 15.87 ton/AU/year

\* based on a 300 day lactation period

Nutrient management is not a once and done activity; it is an ongoing cyclical process that involves assessing manure and soil value, determine management options, implementing decisions, and then re-assessing. All too often, we rely on average book values determined by private or commercial data. This guess work combined with old manure and soil tests is simply not enough when balancing a crop's nutrient needs. Rather, this process begins with current and up-to-date manure and soil nutrient analysis taken at least twice per year.

The following graphs highlight both the variability of nutrient values in manure and the importance of relying on actual data rather than book values in determining management practices.

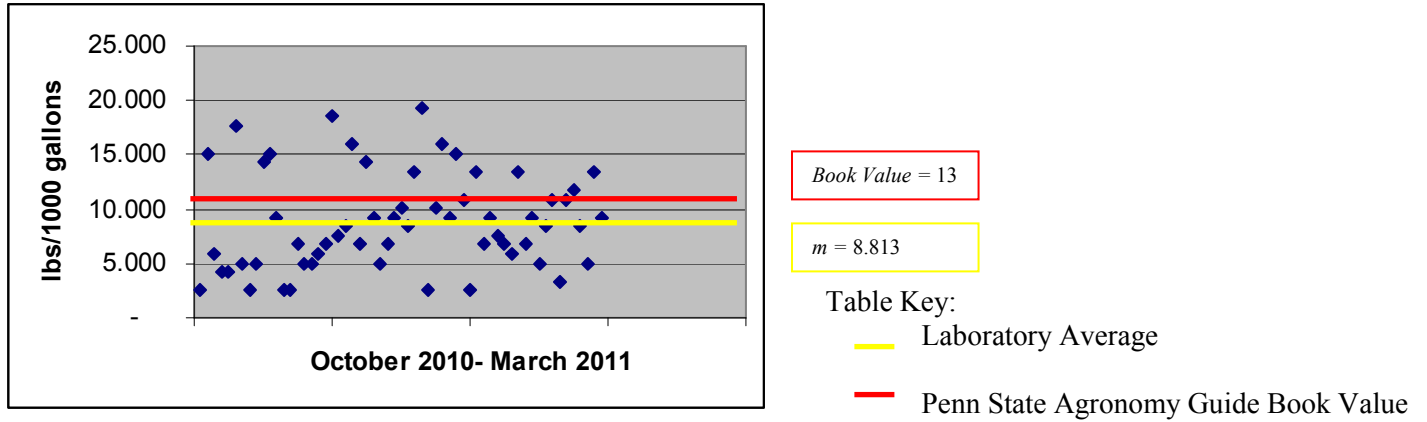
**Figure 1:** Variability of total nitrogen in liquid dairy manure samples analyzed at Agri Analysis Inc from October 2010 through March 2011 (n = 59)



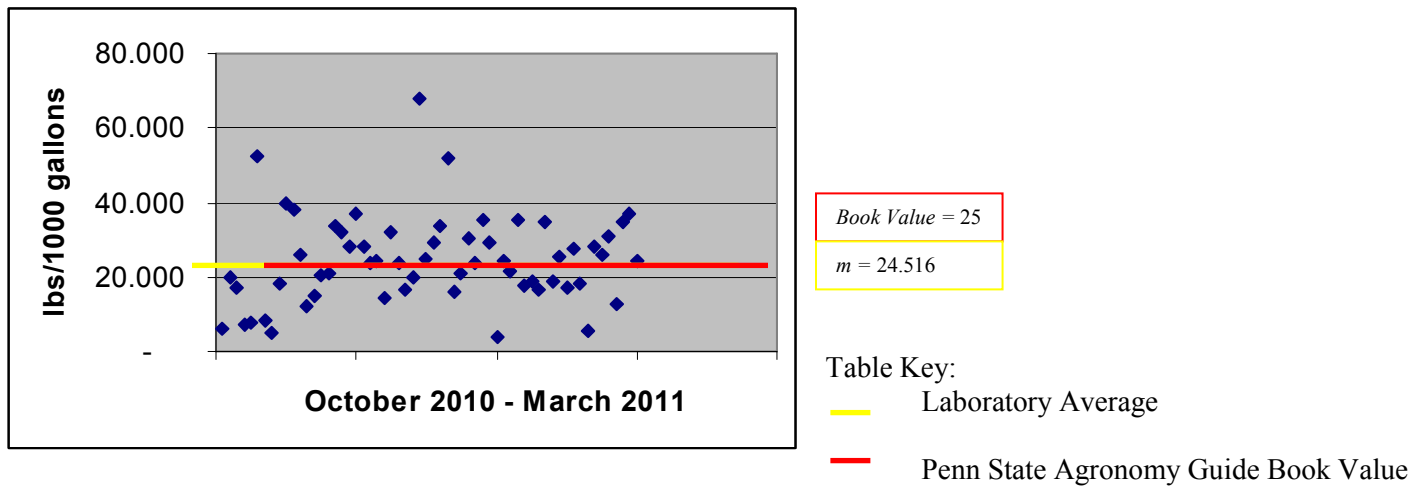
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## Continued: Manure Nutrient Variability

**Figure 2:** Variability of total P<sub>2</sub>O<sub>5</sub> in liquid dairy manure samples (lbs/1000 gallons) analyzed at Agri Analysis Inc from October 2010 through March 2011 (n = 59)



**Figure 3:** Variability of total K<sub>2</sub>O in liquid dairy manure samples analyzed at Agri Analysis Inc from October 2010 through March 2011 (n = 59)



Because nutrient values vary considerably over time, it is important to have your manure analyzed for its nutrient content before applying the manure to your land. While it may not be possible to have your manure analyzed before application, analysis results are still valuable as they indicate how much additional supplemental fertilizer may be needed. The sequences crops, feed, fertilizer and manure cycle through on a farming enterprise will result in what type of nutrient management is needed to maximize nutrient value and minimize environmental impact.

Agri Analysis, Inc. recommends that manure samples be tested for their nutrient content, not averaged. It is strongly recommended that the nutrient content of manure is determined by laboratory analysis annually or when manure handling changes. The key to an accurate manure analysis is to obtain a representative sample by using proper sampling techniques. A considerable amount of nitrogen is lost if the sample is not taken, handled and preserved properly.

## TECHNOLOGY SPOTLIGHT: Mold & Yeast

A yeast and mold count is perhaps one of the most important tests when determining whether microbial changes in a silage will degrade the nutritional content and lead to possible mycotoxin formation. Yeasts counts are a good indicator of unstable, or hot, silage.

For many years when these count have exceed 5 million counts we have simply reported over 5M to our customers. In February, when a customer's sample exceeded 5 million counts he asked us, "Is it 6 million? Or 20 million? Or 100 million?"



Since we have the technology to determine up to 150 million counts, we now report mold or yeast count along this scale. If your samples would exceed 150 million counts we will report "Over 150M". We have also improved our interpretation guideline to reflect this scale. The detailed resource can be found on our web site at <http://www.agrianalysis.com/resources/mold-and-yeast.pdf>

The following table will be displayed on your Mold reports:

Mold Count	Feed Recommendation
10 – 10,000	Relatively Safe
10,000 – 100,000	Transition Zone
100,000 – 10,000,000	Caution Advise
Over 10,000,000	Feeding may not be recommended

Look for these signs that indicate moldy feed: Dustiness, Caking, Poor feed flow, Feed refusal by animals, Inconsistent manure, Poor reproductive performance, Increased somatic cells/mastitis, Any amount of heating in feeds or grains, Darkening of feed and grain, Slight off-smell of feed grains

We hope this additional data will help our customers. If you suspect a mold or yeast problem have your feed or grains tested! Simply write "MY" on your sample bag.



Spring is just around the corner!  
It's time to prepare for the coming growing season!

Please keep in mind that proper sample selection is very important for tissue analysis. A sampling guide can be found on our website:  
<http://www.agrianalysis.com/resources/HowtosamplePlantTissue%20Resource.pdf>

Test your soil to determine soil health and fertility prior to planting. If you are applying manure have it analyzed also! With the high cost of fertilizer these two simple tests could put money in your wallet!

## CROP SPOTLIGHT: Tillage Practices in Pennsylvania



The process of adequately preparing the soil for planting has been an integral component of crop production systems since the beginning of agriculture. This process, known as tillage, has been improved and various alternative methods have been introduced. Over the years, it has been believed that the use of a traditional or conventional tillage practice was the accepted method in preparing the seedbed to produce a crop resulting in the best return or net-profit. Over time, however, improvements have been made to make farming more efficient -- tractor capabilities, seed genetic research, fertilizer imputes, herbicides, insecticides, and fungicides have all resulted in reduced tillage. As a result, conservation-tillage, or no-tillage practices, were introduced and implemented in the 1960's.

Today, no-till and conservation tillage practices have become more popular than all other practices combined. The National Agriculture Statistics Services (NASS) has provided the following break-down of acres under production for the state of Pennsylvania in 2010:

### **Pennsylvania Corn**

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PA Corn Acres for Grain	
910,000 total acres	
PA Corn Acres for Silage	
400,000 total acres	
Tillage Systems (% of total corn acres)	
Conventional Tillage Systems	22.5%
No Tillage Systems	54.4%
Other conservation tillage systems	23.1%

### **Pennsylvania Soybean**

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PA Acres	
490,000 total acres	
Tillage Systems (% of total soybean acres)	
Conventional Tillage Systems	14.9%
No Tillage Systems	63.8%
Other conservation tillage systems	21.3%

### **Pennsylvania Winter Wheat**

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PA Acres	
175,000 total acres	
Tillage Systems (% of total winter wheat acres)	
No Tillage Systems	41.2%
No Tillage Systems – 2009	55.3%

At the 2011 Pennsylvania Professional Crop Producer Conference, it was reported that corn grain prices may spike in the short-term to approximately \$7.00 to \$7.50 per bushel. In addition, soybeans may spike to \$14.75 per bushel. Farmers are under pressure to adopt systems that reduce the fuel and investment costs of equipment, are environmentally sustainable, and reduce weather related risks. Conventional tillage methods tend to cost more, particularly in regards to the fuel, equipment, and equipment maintenance that is required by this practice.

There are a number of challenges when deciding whether to use conventional or a no-till system. Plan ahead and talk to your soil consultant or fertilizer dealer. Arming ourselves with knowledge will result in the best tillage practice resulting in attaining the best yield and highest quality crop on your farm.

Happy Farming.

## NOTES FROM THE SALES DESK



Spring is almost here! For many of our customers, that means the start of the busy season! If there is anything we can do for you, please don't hesitate to ask!

With planting season almost upon us, the lab is fully staffed and ready to assist you. With the thaw in our area, soil samples have been rolling in. For those of you in colder climates, we'll get your samples processed quickly when you can get out in the field. Manure and water analysis has also been strong with the anticipation of spring applications and irrigation needs. Leaf analysis for small grains and greenhouse tomatoes has begun. Strawberry leaves have also started showing up in the past few days.

In addition to our regular day to day activities, there are a lot of exciting projects going on at Agri Analysis. We are currently working on obtaining EPA accreditation for water testing. We are looking at some exciting new plans for our website and methods for utilizing our vast store of statistical data. We are in the process of introducing a soil test kit for homeowners that will be available for purchase in retail locations such as garden centers. We're also examining new options for postage paid packages to make shipping your samples as easy as possible. In the agronomy department, we are anxiously waiting the arrival of a new automated pH meter for soil samples. This will allow us to continue the great customer service you deserve while increasing our efficiency.

As always, we want to hear from you. Your comments and suggestions are always welcome. We wish each and every one of you a safe and prosperous growing season!

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