

Agronomy Notes

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Capital Region Extension Agronomy Team



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Hybrid and Variety Selection for 2007

As I write this, there is still a lot of corn and soybeans awaiting harvest. In another month or so, most of those crops will be harvested.



Among these acres are numerous test plots that will be used to help, at least some people, choose hybrids and varieties to order next year.

In essence, there is a great deal of information out there. So much, perhaps, some farmers don't have enough time to decipher it all and just "stick with what has done well until it is no longer available". Or perhaps they rely heavily on their salesman's recommendation.

On the other hand, some growers spend considerable time looking for new seed products in attempts to keep the long term yield average creeping up. If this describes you, please read on.

Researchers at the University of Minnesota studied how the use of soybean test plot information to make variety choices translated into results of the next year.

individual on-farm tests..... are not as reliable.....as multiple location test results

Based on their findings, here are some points to keep in mind when selecting new hybrids and varieties.

- Yield data from multiple locations and multiple years is the most reliable predictor of performance the next year. They may not be the best every year but this will help reveal the ones that will do well over the long term.

Penn State tests are done at six locations for corn hybrids in southeast Pennsylvania and at two locations in the state for soybean varieties. One and two year averages are reported for corn hybrids and one, two and three-year averages are available for soybeans.

- If you must choose between multiple locations and multiple year data, as might be the case with the newest ones, go with multiple locations. Seed companies that have the same hybrids in on-farm tests at multiple locations can combine results and provide good information.
- Despite what one might think, individual farm tests, even though they are keyed to the growers' cultural practices, are not as reliable in predicting relative yield in subsequent years as multiple location test results.

The quality of individual test results can be improved if the farmer is willing to replicate the varieties tested. Strip tests that use the check hybrid system are better than simple side by side across the field tests but are not considered by crop scientists to be as good as replications of the entries. On farm tests are good for evaluating other characteristics of varieties that are more consistent such as height, standability and harvestability.

- Keep comparisons within a limited range of maturity
- Try new varieties and hybrids on a limited basis until you gain more experience with them under your farm conditions.

John Rowehl, CCA
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BETTER CROPS AND PROFITABILITY

PENNSTATE



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Fall Soil Testing, pH and Fertility Management

Fall has historically been the time of the year when we find the time to pull soil samples. It is important to know what the pH and nutrient levels of your fields are for several reasons.

First and most obvious is the need for an accurate soil test to make crop specific Phosphorus and Potash recommendations. Second and equally important is the lime requirement.

Soil acidity (called pH) tends to increase in most cropping systems. Annual applications of N fertilizers and manure are the primary causes. As an example, you need 7 pounds of lime for every 1 pound of ammonium sulfate to offset its acidifying effects. As the acidity of a field increases, the pH value decreases and the natural availability of a whole host of plant essential nutrients is reduced. Unfortunately, undesirable elements such as Aluminum (Al) become more available and even toxic if the pH gets low enough. Limestone supplies the essential elements of Calcium (Ca) and Magnesium (Mg), in addition to controlling acidity. The standard soil sample should be taken to "plow depth" or rooting depth in no-till. Be sure to take about 15-20 cores in representative areas of each field. Avoid or separately sample problem areas. The desired pH varies somewhat by crop but should be between 6.5 and 7.0. The pH system uses a logarithmic scale, so a pH of 6.0 has 10 times the acidity (or H⁺ ion concentration) of a pH of 7.0.

Two additional reasons for soil testing are to monitor the buildup or decline in soil fertility and to get an indication of your soil quality. As we know manure, fertilizer and lime applications determine soil test levels of P, K, Mg, Ca and other nutrients. By monitoring soil tests over several years, we can make cultural changes to maintain soil nutrient levels near the "optimum" level. Also, changes in soil organic matter and CEC (cation exchange capacity) can indicate improving soil quality and productivity. These will change very slowly, but have been shown to increase in many long term no-till systems.

No-tillers take note! It's not uncommon for the surface pH to drop below 5.5 in continuous no-till systems. This kind of low pH can have a yield robbing effect on plant growth and can also reduce herbicide effectiveness. If your standard soil test does not call for lime but you have been no-tilling more than one year, then a separate shallow sample should be taken to measure the surface pH. The sample can be sent to the lab separately or a faster and less costly method is to use a field pH kit.

Collect several cores at less than 2 inches deep from each no-till field and mix thoroughly in buckets. Simple to use Colorimetric pH kits, such as the "Cornell pH Test Kit for Lime Level", are available and very reliable. If the surface acidity is below 6.2, apply one ton of lime (2,000 lb. calcium carbonate equivalent). All limestone applications, but especially no-till (unincorporated) applications, should be done several months before the crop is planted to neutralize surface and soil acidity.

The Cornell pH Test Kit for Lime Level (pH 5.0-7.2) is available by writing to CNAL, 804 Bradfield Hall, Ithaca NY 14853 or on the web at www.css.Cornell.edu/soiltest/. The cost is about \$15.00 and the kit includes enough material for about 100 pH tests.

Special Considerations for New No-tillers

Recent Penn State studies indicate that continuous no-till fields may take up to 9 years to bring the pH of the top 6" to desired values. In other words, before going to no-till, get the pH of your fields up to the proper level. Remember, this is your last chance to incorporate the lime and its beneficial effects into the soil profile. It is very simple and easy to maintain the pH of no-till fields with surface applications of lime, but we need to start at the correct levels and maintain them. This study also indicated that surface liming approximately every three years, based on a regular soil testing program, will be adequate for most no-till systems.



**Jeffrey Graybill, CCA
Agronomy, Lancaster County**

Forage Year in Review

Let's take a moment to reflect how the 2006 growing season affected forage crops in south-central PA. You'll recall the forage production season started out with a bang. By early April, warm weather resulted in the Cereal Rust Mite on timothy reaching unheard of levels two or three weeks ahead of normal. Also by this time, most ryelage was starting to boot and harvest was moving ahead. By the final week of April most ryegrass stands were grazed more than once and orchardgrass was beginning to shine.

During the first week of May, alfalfa haylage producers had an excellent opportunity to harvest first cutting. Growers who made the decision to harvest at pre-bud were able to reap outstanding forages. Growers who waited experienced a 2 week delay due to weather conditions. Early harvest can be used to improve forage harvest on many alfalfa stands. Stands that are to be rotated out to corn production or younger, highly vigorous stands are prime candidates

for early harvest. Post harvest management, leaving one cutting, preferably 2nd or 3rd reach 35 days to harvest is important for stand longevity. Be sure high soil fertility levels for potassium (K₂O) are maintained.

Potato leafhoppers continued to cause significant yield losses. Scouting can be one activity with high payback returns to management. This year, the potato leafhopper arrived in our region late. As a result, most second cutting stands did not require any controls. Unfortunately, too many stands were treated based on word of mouth. Then in July, far more stands of 3rd and or 4th cuttings were not treated and obviously significantly impacted. Review your IPM practices for 2007.

Grass forage production was noted for frequent comments about significant reductions in yields and stand survival. Timothy producers in Adams County indicated a 50% or greater decrease in tonnage and a delay in maturity development. However, there were no universal causes. Then many grass stands in hayfields and pastures across the region just seemed to “disappear” into a stand of crabgrass.

Extraordinary high root-feeding grub populations were common. Symphalens, soil compaction, soil fertility, broadleaf and crabgrass weed competition, droughty soils and even **hot** soil temperatures were all common conditions. A combination of factors seemed to have struck our grass stands a tough blow. One frequent affect noted was shallow depth and low soil pH levels from 5.4 to 4.4. Top-dressing with nitrogen fertilizers and/or manures results in rapid decreases in soil pH. Where regular limestone additions are not practiced, toxic levels of aluminum can build up, damaging root tips and causing die-back.

Rarely does one condition result in high crop losses as seen this year. Poor root development (resulting from low pH) combined with root feeding insects (grubs / symphalens) plus drought, or weeds, and/or soil compaction zones will combine to affect plant survival. Throw in shorter harvest intervals or fall 2005 harvest management, low cutting heights and hard winters or dry summers and **BAM!!!!** You have high risks of stand survival. What about your experiences?



Paul H. Craig, CCA
Forages - Dauphin Co.



John Rowehl, CCA
Grain Crops - Cumberland Co.

Fall Field Check-up

It may seem a little too early to begin your weed scouting for 2007 but now is actually a good time to begin. Chances are the weeds that got through this year will be the ones most likely to invade next spring. It's even more likely if you plant the same crop next year in the field. Most weeds are more easily identified in the fall after they are mature. Are you seeing any shift in weed species? Think of what other tactics you may try next year. For example, if you are seeing more pokeweed, can you do anything to work in a fall herbicide application next year?

Speaking of weed control, you may consider checking out how much of a problem has gotten started in small grain fields with winter annuals. Fall applications of herbicides are not common but do have a place as long as the weather is mild enough that the weeds are still actively growing. It requires another trip across the field but one benefit is that you do not have to wait for the weeds to begin growing in the spring, which may delay your nitrogen topdressing. This may or may not be important, depending on how far advanced the tillering on the small grain is.

Did you have problems with stalk rot this year? There are many factors that contribute to stalk rots but it is generally accepted that they are related to corn plant stress. Stress that occurs as a direct result of the weather (heat, dryness, cloudiness) cannot be controlled but some factors such as hybrids, plant population and fertilizing are manageable. Did some hybrids show more stalk rot than others in the same field? Did the same hybrid show different degrees of stalk rot in different fields? In this case, a soil test or set of soil tests comparing the two areas is a simple diagnostic tool that may reveal different levels of potassium in the soil or rule it out as the cause.

Late fall is also a good time to look at your small grain fields to see how good the stand is and what stage they have advanced to. Ideally, small grains should have two or three tillers on them going into winter. If you seeded late and the plants are not well tillered, plan to get nitrogen on them early next spring. That will help stimulate more tillers on the plants.

Penn State Cooperative Extension Offices of the Capital Region

Adams Co. (717) 334-6271
Cumberland Co. (717) 240-6500
Dauphin Co. (717) 921-8803
Franklin Co. (717) 263-9226
Fulton Co. (717) 485-4111



Lancaster Co. (717) 394-6851
Landisville Lab. (717) 653-4728
Lebanon Co. (717) 270-4391
Perry Co. (717) 582-5150
York Co. (717) 840-7408



December Educational Opportunities



Regional Forage Production Schools

This school is designed for hay and haylage producers, ag dealers, support personnel and certified crop advisors.

Both meetings are 9:30 a.m. to 12 noon.

December 12, 2006
Lebanon Co. Extension Office

December 15, 2006
Franklin Co. Extension Office

Topics to be discussed include:

-  Forage establishment
-  Fertility challenges
-  Plant development
-  Diseases & insects
-  Cutting management

A \$10 participation fee includes reference materials and refreshments. Registration from 9 a.m. - 9:30 a.m. Registration or questions for either class can be directed to:

Paul H. Craig
Dauphin Co. Extension Office
1451 Peters Mountain Rd.
Dauphin, PA 17018
E-mail: phc8@psu.edu
Phone: 717-921-8803
Fax: 717-921-0135

Regional Agronomy Schools

“Managing Manure and Nitrogen in No-till Crop Systems”






All meetings are 9:30 a.m. to 12 noon.
(Nutrient managements credits have been applied for)

December 4, 2006
Gratz Community Center, Gratz

December 12, 2006
Lancaster Farm & Home Center

December 15, 2006
Cumberland Co. Extension Office

Topics to be discussed include:

-  Making no-till & manure work
-  Cover crops, Manure & Nitrogen
-  Soil test levels and P indexing
-  Managing pH in no-till
-  Estimating nitrogen needs
(N management tools)

A \$10 participation fee includes reference materials and refreshments. Registration from 9 a.m. - 9:30 a.m. Registration or questions for any class can be directed to:

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