



Agronomy Notes

Capital Region

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Capital Region Extension Agronomy Team

Mark Goodson, Editor



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Chlorophyll Meter and N Applications

Applications of livestock manure may provide enough organic N to meet the total nitrogen needs of corn without additional N applications beyond 10-20 lbs in the starter. This is the conclusion that Penn State researchers reached after a three year, multi-location Pennsylvania study involving the Early-Season Chlorophyll Meter Test and the Late Season Cornstalk Nitrate Test. The study found that the chlorophyll meter was accurate at instantly predicting soils' N providing capacity at the 6-leaf stage of corn.

Manure, applied since the last crop was harvested, provides much nitrogen to corn crops that follow in rotation. One issue in many growers' minds is whether or not the manure provides enough nitrogen to reach optimum yields. The fear that manure will not provide the optimum amount of N drives growers to make "insurance" applications of 20 gallons of UAN at planting. The nagging question is whether or not that additional N was necessary to obtain optimum yields.

The Late Season Cornstalk Nitrate Test is a reliable end-of-season indicator of crop N status based on research performed throughout PA as well as other states. It provides a good assessment of whether the crop had the right amount of N or too much N or whether it ran out N too soon. This is important nutrient management data.

Combined with records of manure and fertilizer applications, growers can evaluate the accuracy of their input decisions and adjust their manure and fertilizer rates in future years. This is truly site-specific, precision nitrogen management.

The chlorophyll meter, which costs, \$1,500, measures the "greenness" of 6-leaf corn. The test is instantaneous. Growers can be taught to use the chlorophyll meter with minimum training. Nitrogen deficiencies discovered using the meter, can be corrected in season by side dressing the appropriate amount of N.

The Late Season Cornstalk Nitrate Test has shown that most fields that have received manure since the last crop was harvested have sufficient N from the manure to reach optimal yields without additional fertilizer N beyond normal starter rates. The Early-Season Chlorophyll Meter Test has proved to be a reliable way of identifying fields that need additional N at side-dressing. These are powerful tools growers can use to fine-tune their nitrogen management and avoid under- or over-fertilizing N.

Several county Extension and Conservation District offices have chlorophyll meters. Here in York, we will be using the chlorophyll meter with selected growers that have expressed an interest in increasing their N use efficiency. I will report the progress of these cases throughout the growing season.

**Mark Goodson, CCA
Soils**

Spring Tips to Maximize Crop Insurance Benefits

Update: 2004 crop loss payments to producers have exceeded \$13.8 million (4th largest pay-out in the last 15 years).

Deadlines:

Acreage reporting deadlines for early seeded crops (file reports with both C.I. Agent & FSA)

- GRP Forage Production 5/15
- Spring Forage Seeding 6/01
- Oats 5/31
- Early cabbage 6/05
- Green peas 5/31
- Spring barley 6/15

Other Issues:

Notify your crop insurance agent immediately and ask what you are required to do if:

- You added additional land to your operation on which you will be growing insured crops in 2005
- You have failed newly seeded acreage and need to replant (you may be eligible for a replant payment)
- You are prevented from planting an insured crop by the final planting date (you may be eligible for a prevented planting payment). If faced with prevented planting, double check the rules before you take actions

- You suffer winterkill damage on winter wheat or barley, be sure to file a report of damage with your insurance agent immediately upon discovery (ask agent for copy of the damage report to the insurance company, for your records). DO NOT destroy the evidence of winterkill damage until authorized in writing by a loss adjuster.

Questions on soybean rust and crop insurance see www.rma.usda.gov



**Gene Gantz, RMA/USDA
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PA Crop Insurance Performance							
Year	Total Crop Policies	Protection In Force (\$)	Acres Insured	Total Premium (\$)	Farmer Paid Premium After PA Sub.	Losses Paid to Producers (\$)	Farmer Benefit per \$1 of Premium
99	7,005	110,996,708	609,052	6,863,407	2,323,363	22,470,052	9.67
00	11,602	162,210,837	941,218	11,681,648	3,931,058	6,474,594	1.65
01	11,822	186,790,076	978,658	13,962,714	3,854,986	18,176,779	4.72
02	13,985	222,088,649	1,119,972	19,010,537	5,732,528	63,841,658	11.14
03	15,265	258,382,174	1,144,492	32,055,728	7,003,514	27,574,951	3.94
04	16,196	283,387,736	1,173,502	32,632,646	10,622,054	13,832,317	1.30
94-03	95,162	1,269,361,233	7,402,996	106,732,927	31,990,640	162,922,131	5.09
81-03		1,486,361,313	8,831,752	122,454,653	43,736,540	186,608,024	4.27
99-03	59,679	940,468,444	4,793,392	83,574,034	22,845,449	138,538,034	6.06
99-04	75,875	1,223,856,180	5,966,894	116,206,680	33,467,503	152,370,351	4.55

Source: USDA Data as of 4/04/05 Reflects Est. PDA Cost Share Est. for Educational Purposes

STAND EVALUATION TIME

By the time you receive this letter there might be some fields of yours in question as to replant or to keep, for both corn or bean stands. Here are some things to think about to help make replanting decisions.

1. **Know the goal.** With small grains, 1.5 million ppa (plants per acre) is the goal. Beans are 150,000 and corn is 25-30,000 ppa. This represents final stands that are even and uniform indicating same day germination and subsequent emergence. Now that you have an idea of the goal, you can evaluate crop populations. Now is the time to find out why populations are low, high or in between. Is it the result of the planter, tillage, pests, weather; planting date? Take control of the items you can control.
2. **Determine the population in the field.** To determine populations, you must first know the width of planting. 6", 7", 8" for small grains 7", 15" or 30" for beans and 15" or 30" for corn is standard.
 - To determine population, simply convert the row width from inches to feet by dividing by 12" (12 inches in a foot last time I checked).
 - Then divide the square feet per acre (43,560) by the foot of row. This gives you linear feet.

- Then, take the number of plants you find per foot in the field and multiply by that number to get the ppa.
 - Let's take corn for an example. Thirty-inch rows divided by 12 is 2.5 feet. 43560 square feet in an acre divided by 2.5 gives us 17424 linear feet. Now if you get 1 plant in a foot you have 17,424 plants per acre. If you get 2 then you have 34,848. To simplify this you could now take 17424 and divide by 1000 to get the number of feet you need to represent 1/1000th of an acre. In this case it would be 17.4 feet. So you could go to the field measure 17.4 feet count the plants multiply by 1000 and you will have your plants per acre. Do this in several places and you could find the average of the field.
3. Assess the plant evenness in the field. In fact Greg Roth (PSU corn specialist) tells me that within row unevenness robs 12% of yield while between rows only rob 5% according to his research.
 4. Know the key planting times and relation to yield. We know that planting April 25th for corn is 100%, the 19th of May is 90% and the 29th of May is 80%, a full 20 % loss just by planting date in three weeks. Knowing this allows us to predict that replanting on May 29th will result in a yield loss of 20%. No replanting will result in a 12% lose, so it probably

will not pay. You should relate this to the economics.

5. What will the loss in population do to pests? Weeds will invade anywhere light is allowed through to the soil. For this reason weeds can over run poor stands and this is one critical issue when considering replants.
6. Review any pesticides applied and recrop restrictions.
7. Check with dealer to determine policy for replant support.

For more information see table 4-8 in the Agronomy Guide, call for a copy of the guidelines for corn and soybean replant decisions.

Del Voight, CCA Integrated Pest Management

Potato Leafhoppers in May???

No one ever talks about Potato Leafhoppers in May, but by mid to late June, most alfalfa producers have the #1 pest of alfalfa on their minds. Perhaps this is an opportunity to consider pest control strategies to minimize injury to your stands.

Studies have indicated that potato leafhoppers (PLH) have the potential to cause economic losses of \$30 to \$60 per acre per cutting. Losses of one half tons of dry matter/acre are common. One study in Michigan found a 50% yield loss when controls were not applied. New seedlings are especially vulnerable to PLH injury. Significant injury in the establishment year may carry over for the lifetime of the stand.

Most alfalfa growers are familiar with the pale, yellowish green, slightly wedge-shaped, 1/8th inch long, winged adult PLH. The young are called nymphs and resemble the adults except they are smaller and are wingless.

The PLH feeds by inserting a piercing-sucking extractor into plant tissue to suck out cell contents. The sucking plus the insect's saliva, blocks the normal flow of nutrients in the plant. This causes a wedge-shaped yellowing of leaf tips which is commonly called "hopper burn". More important but less noticeable than the hopper burn symptom is the stunting of plants, resulting in yield loss and reduced regrowth rates.

The reason no one talks about PLH in early May is because there are none to be found. They originate each year from populations that over winter in the Gulf Coast. In early to late May storms and weather fronts actually lift these small insects into the storm clouds and transport them hundreds of miles.

Where they are dropped off at is anyone's misfortune. They arrive in "waves" with each passing weather event. Scientists have actually found that most of the early arrivals are females, ready to lay eggs. The earlier they arrive the more likely high populations will occur. Warm, dry weather favors rapid population increases.

Because of the high variation in arrival and development there are no general recommendations for pest control. Many alfalfa producers incorporate a crop monitoring program to scout for population levels. Entomologists have established treatment recommendations based on insect levels, alfalfa height, forage values and treatment costs. Weekly monitoring is required for best results. Waiting until you see hopper burn or your neighbor spraying is not the best strategy.

Adult PLH are very mobile. Following harvest adults will disperse to other alfalfa stands. Regrowth then attracts new populations from neighboring or other later harvested stands.. Nymphs can mature to adults in 3 weeks. Significant PLH pressure occurs in many 2nd cuttings, most 3rd cuttings. By late August, most populations of PLH have significantly dropped.

A number of insecticide products are labeled for control of PLH on alfalfa. Although differences in PLH control among products have been demonstrated, yield loss reduction achieved by PLH control is usually obtained by timely treatment of a PLH infestation regardless of the product applied. Thus, the important factor in PLH loss prevention is timely treatment, which depends on a close monitoring of the abundance of PLH activity on an alfalfa crop.

Additional information can be found at:
<http://www.ento.psu.edu/extension/factsheets/potatoLeafhopperAlfalfa.htm>
or by contacting the Extension office for the Potato Leafhopper Fact Sheet.

**Paul H. Craig, CCA
Forages**

HERBICIDE RESISTANT WEED UPDATE

The following article has been adapted from one written by Dr. Bill Curran, featured in Field Crop News.

Glyphosate-resistant horseweed continues to be on the forefront in terms of concern and also acres impacted. It extends from the East Coast to the state of Missouri. The occurrence of the resistant biotype is increasing particularly in the eastern Corn Belt and ALS-resistance is also present in some of these populations. Check Purdue's website for the latest information available for horseweed management at www.btny.purdue.edu/weedscience/marestail/index.htm.

Pennsylvania's first occurrence was in Chester County in 2003 but has not had the kind of rapid spread that has been seen in some other states. Our more diverse crop rotations have helped because we know that continuous no-till Roundup Ready soybeans are a driving factor. Still, we had several reports of suspected resistant horseweed last summer particularly in the Southeastern part of the state. Early spring application with 2,4-D, including cloransulam (FirstRate) in the program (watch out for ALS resistance) or other fall or spring applied residuals (Valor, Python, Canopy EX, etc.), spring tillage,

and crop rotation are all considered as possible control options.

Glyphosate resistant common ragweed was identified in Missouri in 2004. It has only been identified in a single field that was no-till for 13 years in a soybean-wheat-double crop soybean rotation with reliance on glyphosate for weed control. An unconfirmed incidence of resistant common ragweed was reported in Arkansas. In addition, ALS and triazine-resistant common ragweed have been reported in other states.

Erratic common lambsquarters control with glyphosate appears to be on the rise although no one has yet declared officially that they have a glyphosate resistant biotype. Recommendations are to not rely on glyphosate alone for post weed control in soybeans, ensure that a sufficient rate of glyphosate (0.75 lb ae/acre) is applied with an appropriate adjuvant system (NIS plus AMS) at a time when lambsquarters is generally easily controlled (less than 6 inches tall).

ALS-resistant weeds continue to increase in Pennsylvania and elsewhere. ALS herbicides include Accent, Harmony GT, Option, Permit, Pursuit, Raptor, Steadfast and others and are frequently used in most of our major field crops in the Northeast. We have ALS-resistant smooth pigweed

and shattercane in Pennsylvania. New cases of ALS-resistant pigweed are being reported and we are particularly concerned about ALS-resistant shattercane in corn, where alternative chemical control strategies are limited.

Last summer, a giant foxtail control problem was encountered in Lancaster County where POST ALS control programs had been used for several years in corn. There is currently a greenhouse assay on the foxtail population and preliminary evidence suggests that it may be the first case of ALS-resistance in Pennsylvania in this species. More information will be provided once we are certain.

Herbicide resistant weeds are on the rise. Frequent use of any herbicide class or family can lead to resistance. Primary management strategies include rotation of herbicides with alternative modes of action, use of effective tank-mixtures targeting problem weeds, and incorporating effective cultural and mechanical control strategies in the weed management program. Consider herbicide-resistance in your weed management program.

**John Rowehl, CCA
Grain Crops**

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