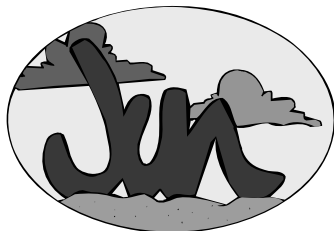


Agronomy Notes

Edited by Jeff Graybill & Tina Gross

Capital Region Extension Agronomy Team

**2007**

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Topdressing Manure on Alfalfa

Last spring, 2006, an alfalfa producer inquired about applying liquid hog manure to an established alfalfa stand. It was thinning out after 4 years and did not have any grasses in the stand. We evaluated the stand by counting stems and crowns and checking for potential winter injury. We determined the stand was acceptable to keep in production and hit it with 5 to 6,000 gallons of manure. The stand responded, better than hoped for, and produced some outstanding forage throughout the year.

Of course, the question this year was what to do? Rotate to corn? One more year of alfalfa? Is more manure of value? More manure was applied this spring and the stand again continues to show good yield potential. But looks can be deceiving, especially when you look from your truck window parked along the road. Let's take a closer look at applying manure to alfalfa.

Alfalfa is a heavy feeder of soil nutrients. If not for the fact that alfalfa and other legumes have the ability to produce their own nitrogen (N) the N requirement for an alfalfa crop would rival that of corn. In addition to N, alfalfa is also a large consumer of potassium (K) with annual field removal rates of K₂O of 50 to 60 pounds per ton of forage or 300 to 360 pounds annually on some high yielding stands. These factors make in-season applications of manure to alfalfa an opportunity to recycle manure nutrients at a time when other fields are in corn production.

While searching the internet for manure and alfalfa, I located an excellent article by Kelling and Schmitt, soil scientists at The Universities of Wisconsin and Minnesota, respectively.

<http://www.soils.wisc.edu/extension/publications/Manure%20Alfalfa.pdf>

The article makes some excellent statements about applying manures to alfalfa as a topdressing.

Yield responses to manure applications are variable. Some trials have shown yield losses and others have shown increases of 30%. One reason for yield reductions has been shown to be due to crop injury. Manures contain ammonia compounds which can injure young growing points. Wheel traffic can also injure crowns and break off new shoots. Heavy manure spreader loads on less than ideal condition soils can cause soil surface compaction.

Guidelines to consider when applying manure: Topdress older stands first, it's less of a risk to stand longevity. By applying manures to older (poorer, thinner) stands of alfalfa, you are selecting fields which typically have more grasses to contribute to yield. These grasses will respond to the N in the manure and can tolerate more wheel traffic. In some of these situations, the increased grass growth may also contribute to further alfalfa stand decline.

Next, low fertility fields should be targeted for manure top dress. Some injury may occur but the overall affect will be higher yields. You should limit application rates (<7,000 gal/acre) to minimize ammonia injury. Apply to fields ASAP following harvest. Traffic injury to stems and crowns can be significant following 5 days post cutting. When applying manures, perhaps you do not need to fill liquid tanks as full as possible to minimize soil compaction, especially to wetter soils.

Alfalfa can provide an excellent location for applications of in-season manures, but applying to all fields and following every cutting would not be a wise management decision. Preferably, manures should be applied according to a sound nutrient management plan. There is a role for manure to contribute to alfalfa fertility on many farms, but trade offs will need to be considered.

Paul Craig, CCA
Dauphin County

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Capital Region Extension
Agronomy Team
1451 Peters Mountain Road
Dauphin PA 17018
717-921-8803

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Checking Stands of Corn and Soybeans

Checking your stands can serve many purposes. The most immediate reason is to determine if replanting is necessary. Checking stands can also serve as a report card for the performance of your planter or the operator's skill in adjusting to various field conditions.

Low stand counts do not necessarily call for replanting, depending how poor they are and how late you take action. The Penn State Agronomy Guide has some handy tables that can give some guidance to make replant decisions. For example, if a field was planted on April 25 but only had a population of 15,000 plants per acre, it has eighty one percent of the yield potential of a stand targeted at 30,000. But if it has gotten to be May 29, replanting that field and successfully getting 30,000 ppa would still have only eighty one percent of the yield potential of corn planted on the earlier date.

Stand assessment involves more than just counting the number of plants in a determined length of a row. Although knowing the emerged plant population is important, there are other things to look for. Probably most important is uniformity. Plants lagging behind in emergence could be due to inconsistent planting depth, variations in soil moisture or temperature, poor seed furrow closure or cloddy conditions resulting in poor seed to soil contact.

A Midwest study showed the effect of uneven emergence on grain yield will vary (6-22 % loss) depending on length of delay, the portion of plants coming up late and the pattern of unevenness (row to row vs. within row). According to Dr. Bob Nielsen, corn specialist from Purdue, a growth stage difference of two leaves or greater between adjacent plants will almost always result in the smaller (younger) of the two being barren at the end of the season.

Just how important uniformity of spacing is in the row seems to be debatable, with various research studies coming to different conclusions. But it appears the effect of gaps and doubles on yield depends on whether or not the total plant population is within the optimum range. Work in the Midwest suggests that with sub-optimum populations, yields are reduced 2 percent for gaps of 1 to 3 feet and 5 percent if there are gaps of 4 to 6 feet in the row.

Soybeans on the other hand, have a tremendous capability of recovering from reduced stands. Data from various states would indicate that near maximum yields are possible with stands at 100,000 plants per acre. At 70,000 plants, yields will still be in the range

of 90-95% of optimum. A recent Purdue study showed that across four locations, final stands of 46,000 plants per acre averaged 66 bushels /acre compared to 79.0 bushels /acre for 171,000 stands. That's 83% of the maximum yield with a fairly sparse stand. Compare that to later planting of a normal stand. On the average, a soybean field that is planted on June 10 has 88% of the yield potential (compared to one planted May 10).

How often do you calibrate your drill to plant soybeans? How often do you check your established soybean plant population? Do you know if you are overplanting or underplanting?

**John Rowehl, CCA
Cumberland County**



2007 PA Five Acre Corn Club and Soybean Yield Contests

Do you think you are a top corn or soybean manager in your county? Enter the contests and find out! It's enjoyable, quick and painless! It also allows you to pass some of your tips on to other producers.

Contact your local Extension Office for an entry form or visit <http://cornandsoybeans.psu.edu/>
Corn entries are due July 1st. Soybean entries are due August 31st.

Crop Insurance Update Replanting or Prevented Planting

If you find it necessary to replant any of your crop acreage, discuss the situation with your agent before initial planting evidence is destroyed. This is important as you may be eligible for a replanting payment.

Prevented Planting Payments

If you are prevented from planting due to adverse weather, you may be eligible for a payment. Be sure to notify your agent in writing within 72 hours of the final planting date for the affected crop. Also be sure to include the prevented planted acreage on your acreage report.

Required Record Keeping

When planting is completed, most producers have some catching up to do with their farm records. Remember, if you chose to have protection by optional insurance units (usually by separate farm serial numbers), you committed to keeping accurate written farm management records, of acreage and production, by crop for each insurance unit. Additional record keeping requirements are available at the PSU website: cropins.aers.psu.edu.

File Notice of Damage Timely

The policies for most crops require notice of damage to be filed within 72 hours of discovery, by insurance unit, with your crop insurance agent. If loss is anticipated, notice of damage must again be filed at least 15 days before harvesting begins and again within 15 days, or the earlier of, when harvesting is completed or the calendar date for the end of the insurance period. NEVER DESTROY EVIDENCE OF A DAMAGED CROP until authorized by a loss adjuster.

\$3 Million in PA Premium Subsidy Grants

Producers' premium discounts for 2007 will be about \$3 million according to the PA Department of Agriculture. This will result in an approximate 15% discount for most producers with buy-up policies.

Performance Numbers

Preliminary 2007 PA numbers show that 13,500 policies were purchased providing an estimated \$340 million of protection (up \$95 million). 45% of the corn and soybean policies are at the 70 and 75% levels of coverage. For 2006, loss payments totaled about \$18 million resulting in a producer benefit/cost ratio of 1.48. Over the past 5 years, crop insurance provided PA producers over \$104 million of additional net income (over and above premium cost) with a benefit/cost ratio of 3.93.



Gene Gantz
USDA/RMA
717-497-6398

Economics of Expensive Corn and Nitrogen

Corn is more responsive to Nitrogen (N) than any other nutrient. Top yields and high quality will not be attained without adequate amounts of this nutrient. Yet, N prices have risen significantly and are currently around \$.50 per pound. As the value of a crop rises, attaining the maximum yield has increased benefits. However, as the cost of production rises, reducing your variable (fertilizer) costs provides increased efficiency and increased income. SO, the question is: Should I adjust my N rates in light of high value corn?

The maximum return on your investment of N is when the cost of the last pound of N stimulates a yield increase of the same value. Beyond this point, additional N does not pay for the smaller and smaller increases in yield. It is called the economic optimum point.

A quick and easy way to evaluate this is to look at the ratio of the price of corn to the price of N. Historically, this has been about 10:1. For example: \$2.50 corn / \$.25 N. If this ratio goes significantly above 10:1 it would pay to add 10-15% more N.

Consequently, if it drops much below 10:1 you should consider applying 10-15% less than normal.

Where are we today? \$4.00 corn / \$.50 N gives a ratio of 8:1. This is slightly below 10:1 and indicates that **adding additional N, over and above the standard rates (accounting for all N sources: manure, legume and fertilizer) will not put additional cash in your pocket.** Let's efficiently manage that high priced N.

Tools such as sidedressing N and using a leaf meter or PSNT to check the N status of a field will make us efficient both economically and environmentally.

Jeffrey Graybill, CCA
Lancaster County

Corn Weed Systems and Escaped Weeds

Escaped weeds will begin to show up in the next week. There are options available depending on your particular program. This condition is exactly the reason I favor a two pass system (as the last program illustrates) since you will not have as much input dollars up front and would have reserve to clean up escaped weeds.

After scouting, you can then choose from various products and limit the input costs for herbicides. Keep in mind that in most cases where grasses exist, Option, Accent, Lightening, glyphosate or Liberty need to be included. Furthermore, if smooth crabgrass is noted, be sure to select something other than Accent or pre-mixes with Accent to ensure control.

Finally, be sure to scout for armyworm and cutworms. If you are coming back with a post herbicide spray, determine if these pests are at threshold levels and treat accordingly. Listed below are various spray programs (timings) and products to choose from.

Pre Programs – full rates (no perennial weeds)
(Glyphosate or Gramoxone included with no-till)

1. Prowl plus Bicep, or
2. Lumax or (pre-mixes containing Callisto or Impact)
3. Balance plus Bicep,
4. Python plus Bicep (or replacements for Bicep: Cinch or other generics)
5. Harness Extra (or Keystone and numerous others containing acetochlor)

Early post – at spike before V3 (few perennials)

1. Reduced rate of Steadfast, or Option combined with any above pre program at $\frac{3}{4}$ reduced rates
2. Reduce rate of Lightening plus any of the above pre at $\frac{3}{4}$ rate on IR corn
3. Reduced rate of Roundup with any of the above pre at $\frac{3}{4}$ rate on Roundup Ready crops

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Mid Post - V3-V5 (Up to 12" corn - perennials exist)

1. Standard rates of Steadfast or Option with ½ rate of any above pre program
2. Roundup or equivalent with any of the pre programs above at ½ rate on Roundup Ready crops
3. Lightening with any of the pre programs above at ½ rate on IR corn

Late Post – V6-V8 - full rates (BurCucumber - perennials exist)

1. Steadfast or Option plus any of the following:
Banvel, Status, Distinct or equivalent
2. Roundup alone
3. Lightening and Accent plus Status or Distinct
4. Accent plus Banvel, Status, Distinct or Bucril

Split programs (pre followed by a planned mid post application - any weed scenario)

1. Pre program (fall before, preplant, premerge)
Choose from: Dual, Harness, Surpass, or Prowl.
2. Depending on weed species, followed by any of the following: 2,4-D plus Sencor; Banvel; Status; Distinct; Harmony GT; Northstar; Epic; Glyphosate on Roundup resistant hybrids; or Liberty on resistant hybrids.

**Del Voight, CCA
Lebanon County**

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Upcoming Field Days

- ◆ **No-till Happening**, June 19, 9:30A - 12P at **Homer Campbell Farm**, Berrysburg, PA. Highlights to include hulless barley, no-till equipment, bio-energy update and herbicide demos. Registration: 921-8803
- ◆ **Successful No-tilling**, June 28, 9:30A - 2P at **Pequea Planter**, Gap, PA. Equipment, cover crops, N, & more
- ◆ **Manure, Crops, Pests and No-till**, July 6, 9A - 3P at **Landisville Research Farm**, Auction Rd., Manheim. Highlights include manure equipment, mortality composting, NM Plan updates, IPM plots, & more. Registration: 394-6851
- ◆ **Successful No-tilling & No-till Tobacco**, July 10, 9:30A-2:00P at **John Stoltzfus farm**, 214 Peach Bottom Rd., Peach Bottom, PA

Capital Region Agronomy Team Members

Paul Craig, Forages Dauphin County phc8@psu.edu	Del Voight, IPM Lebanon County dgv1@psu.edu
Jeff Graybill, Agronomy Lancaster County jsg18@psu.edu	Jere Wingert, Agronomy Franklin County jlw261@psu.edu
John Rowehl, Grain Cumberland County jrowehl@psu.edu	Landisville Research and Extension Center Lancaster County Dave Johnson, Director dhj3@psu.edu
H. Grant Troop, No-Till Lebanon Conservation District grant.troop@rcdnet.net	

Penn State Cooperative Extension Offices of the Capital Region

Adams	(717) 334-6271
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