

# From the Ground Up



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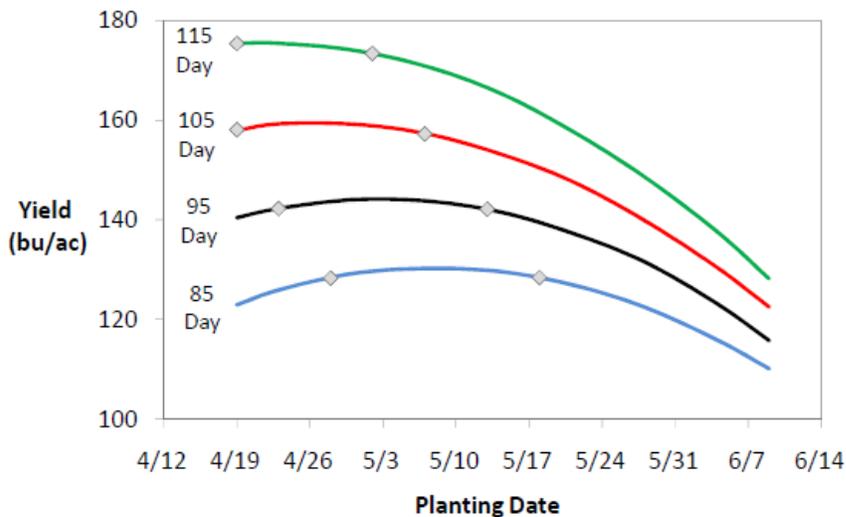
August 2012

## Gypsum Allows for Earlier Planting

This spring reminded us of a very important benefit of gypsum applications. We have had several customers tell us that the fields where they have applied PRO CAL 40 gypsum, they have been able to plant sooner; in some cases it has meant planting as much as a week earlier than where no gypsum was applied. Why is this? Gypsum allows for better surface drainage. This means that the surface dries faster. Also, magnesium molecules have a greater amount of bound water around them causing the soils to be stickier and more difficult to do field operations as soon. This bound water also slows the warming of these soils since water is more difficult to warm than air. Where gypsum is applied calcium displaces magnesium on the soil exchange sites making it a more “field ready” soil.

What does this mean as far as yield benefits? This year it may mean a significant difference.

Corn yield as affected by planting date and maturity  
(Lamberton and Waseca)



Source: Buaha et al., 1995

Later planted corn is showing much more effects of the drought than the earlier planted corn. Most of the earlier planted corn was pollinated and was beginning to fill the ears before the severe drought and heat arrived in many areas.

As the chart to the right from Minnesota shows especially for the longer season hybrids and the higher yields, as planting date is delayed the yield is lower.

Untimely rains can delay planting several weeks. Where gypsum is applied you will get fields planted earlier and if you do get rain delays the soils will become “field ready” sooner.

**Get your PRO CAL 40 ordered soon!**

Each of the past two years we have not been able to get PRO CAL 40 applied to all of the fields that we had orders for. Many of our retail dealers who apply PRO CAL 40 were in the same situation. If you are one of these customers that have not gotten your PRO CAL 40 applied, we still have you on our “list to do”, but you may want to contact us again and remind us of when you think your fields will be ready. Last year we sold our inventory and were running only on daily production. This also limited how much we were able to apply. So that you are sure to get your PRO CAL 40 applied this year, contact your local retail dealer and get yours ordered today. Getting your application done in the fall will reduce the risk of compaction and allow more time for the PRO CAL 40 to work before next year’s crop is planted.

**Estimating Soybean Yields**

With the drought conditions many are trying to estimate approximate yields of both corn and soybeans. Soybean yield estimates are difficult at best, especially this early in production (first of August), but here is a procedure you may try as you get farther into pod developmental stages and seed fill.

1. Determine the number of feet of row needed to make 1/1000 of an acre.

Row Width	Length of Row for 1/1000th acre
6”	87’ 1”
7”	74’ 8”
15”	34’ 10”
20”	26’ 2”
30”	17’ 5”

2. Calculate the average number of plants per 1/1000<sup>th</sup> acre to determine plant population per acre.  
You can also use the chart below to help determine plant populations without counting as many feet of row:

<u>Plants/ft. of row</u>	<u>Row Width</u>		
	<u>7”</u>	<u>15”</u>	<u>30”</u>
1.25	93,400	61,000	
2	149,400	69,700	35,000
3	220,000	104,500	52,250
4	298,000	156,800	69,700
5		174,250	87,120
6		209,000	104,500
7		244,000	122,000
8		278,800	139,400
9			156,800
10			174,250

3. Calculate the average number of pods per plant.
4. Calculate average pods per acre by multiplying average pods per plant by the plant population.
5. Calculate seeds per acre by multiplying average pods per acre by 2.25 seeds per pod. (If your average seeds per pod is different than this use your average.)
6. Calculate the pounds per acre by dividing the seeds per acre by an estimate of 3200 seeds per pound. (Seeds per pound can vary greatly and under drought conditions soybeans may be smaller and a greater number per pound.)
7. Estimate the yield by dividing pounds per acre by 60 pounds per bushel.

The closer to harvest, the more accurate this estimate will be. The more estimates made per field the more accurate the “guesstimate” will be also.

Note that in a normal year soybeans will still add pods even into early September. This year with the drought conditions and the earlier than normal planting of many soybeans, pod development may not happen as late into the season. Mid to late season stresses tend to speed up maturity of soybeans.

### **Corn Residue Management**

With the transition to more Bt corn use and the adoption of higher plant populations the management of corn residue has been more of a concern. This year with an earlier than normal harvest many producers will have an opportunity to do some things to reduce some potential problems of corn crop residue.

One strategy may be to remove some of the residue by baling the corn stalks and selling them for roughage to feedlots to be ground and mixed with the DDGs. Consideration should be given to slopes of the fields and erosion potential in evaluating this option. Nutrient removal should also be considered to determine if the economic benefit will outweigh the loss of nutrients in the stover. Corn stover content can vary greatly, but a guideline for nutrient removal would be 18# of nitrogen, 4# of P<sub>2</sub>O<sub>5</sub>, 33# of K<sub>2</sub>O, 10# of calcium and 3# of sulfur per ton of dry matter. Considering current fertilizer prices this would be equivalent to about \$29 per ton for the cost of nutrient replacement. Another consideration may be the benefit of removing the stover in being able to plant corn following corn and attaining a better stand and better planting conditions.

Another strategy may be to plant cover crops in the corn residue. This may work best if harvest is early. The cover crops will enhance microbial decomposition of the residue by providing a more favorable environment and another food source. This will require timely rains or adequate soil moisture to get the seeds germinated as quickly as possible to allow for the greatest amount of fall growth. If forages are needed for livestock during the fall and early winter, this will also help in providing a better feed while grazing the corn stalks. Visit with your cover crop seed supplier for the best “cocktail” mix.

A strategy of applying nitrogen to the corn stalks for faster decomposition may be a consideration. In essence the corn residue has a wide carbon/nitrogen ratio. By adding nitrogen you are feeding the bacteria and allowing them to increase in numbers more quickly therefore speeding the breakdown of the crop residue. A typical rate is 40# of nitrogen per acre. This can usually be credited to the following year’s corn fertilizer program since the decomposed residue will release additional nitrogen sooner. Some have reported that including a humic acid with the nitrogen seems to enhance the breakdown even more.

Lastly, some fall tillage to get greater soil contact with the crop residue is beneficial in increasing microbial breakdown of the residue. This may also allow for faster warm up of the soil in the spring due to less residue cover and a darker soil surface. Of course, soil types, terrain and erosion potential are critical considerations in choosing this option.

**Plan your Procidic and Safestrike Applications for next year**

Now is the time to start planning for next year. As you start to gear up for harvest, be scouting your fields for what kind of disease pressure you are seeing. With the droughty conditions it may be difficult to identify some leaf diseases, however, grey leaf spot, Goss’s wilt, northern corn leaf blight, eyespot, anthracnose and southern and common rust are some that you may see in your fields. Try to evaluate hybrid differences as you scout for these diseases.

If you find significant levels of grey leaf spot, northern corn leaf blight, anthracnose or Goss’s Wilt you may want to start planning your management strategies for next year, especially if you are considering planting corn following corn.

One of these strategies is applying a systemic fungicide/bactericide early in the season to prevent early infestations. Procidic plus Safestrike is an excellent combination for both disease and insect management in corn and soybeans. We have used 2 oz. of Procidic and 5 oz. of Safestrike in furrow with our starter fertilizer. Another application would be to apply 4 oz. of Procidic and 5 oz. of Safestrike at the V3 stage with a foliar nutrient program or with a post emergent herbicide application.

Using Procidic in combination with your current fungicide application is also another disease control strategy either as reduced rate combinations or as sequential applications. Procidic does help control many fungus in corn and soybeans in addition to bacterial diseases.

**Herbicide Carryover Concerns**

With the drought conditions there is some concern over herbicide carryover into next year’s crops, but of major concern also are herbicide residues in the soil where we are considering cover crops. The majority of herbicide labels do not list rotational restrictions specifically for the list of species for cover crops. If a crop is not listed a field bioassay is recommended before planting.

Below are some restrictions that apply to some cover crops.

Corn Herbicides:

	Annual Rye	Wheat	Oats	Radish	Cowpea	Clover/Vetch
Atrazine	NY	NY	NY	NY	NY	NY
Balance Flex <sup>@</sup>	18	4	18	18	18	18/18
Callisto	N/A	4	0	18	18	18/18
Laudis	18	4	4	18	18	18/18
Lumax/Lexar	18	4.5/NS	NS	18	18	18/18
Status	4	4	4	4	4	4/4
Sure Start	26	4	4	4	4	4/4

<sup>@</sup>....15 inches of cumulative precip. From application to planting of rotational crop required for all except sorghum or wheat.

NY.....Next Year.

NS.....Next Spring following application.

N/A..... Not addressed; grass grown for see listed as 4 months, but annual rye is not specifically listed.

Soybean Herbicides:

	Annual Rye	Wheat	Oats	Radish	Cowpea	Clover/Vetch
Authority First/						
Sonic	30	4	12	30	12	30/30
Authority MTZ	18	4	18	18	18	18/18
Canopy	4	4	30	30	12	12/30
Firstrate	18	4	18	18	9	18/18
Flexstar/Reflex	4	4	4	18	18	18
Valor XLT	4	4	30	30	12	18/30

### **Soil Sampling After a Drought**

Farmers often question how the dry soil conditions may affect soil test results. Past experience has shown that soil test levels may be elevated due to the difficulty in physically penetrating the dry soil with soil sampling equipment. In most soils the highest concentration of nutrients is found in the upper four inches of the soil profile. If sampling depth is shallow due to the density of the soil the results will reflect this higher concentration.

Soil pH may appear lower in drier soils. This is mostly due to the natural accumulation of salts near the surface as the moisture evaporates. These salts will affect the pH electrode and will cause the pH reading to be about .5 to 1 unit lower. You may want to be certain to compare your pH value with previous tests and adjust accordingly. Conversely, if your fields are irrigated and due to the dry conditions you pumped more water this year than normal you may find your pH to be a little higher than previous years. This will particularly be true if your irrigation water contains a high level of carbonates and bicarbonates.

Potassium will tend to be held tighter in drier soil conditions and as a result the potassium reading may also tend to be lower than previous tests may indicate.

Nitrate levels could be higher in soil samples this fall. If the crop was not able to take up the soil nitrates due to the dry soil conditions or limited root development, the nitrate will still be present in the soil. Even with the dry conditions organic matter decomposition does occur, however, plants may not have used this nitrate also contributing to a possibly higher nitrate level.

### **Interesting Observations With PRO CAL 40 in 2012.**

In recent days we have had some users of PRO CAL 40 share with us some interesting observations. One customer has noted that his corn is withstanding the wind storms of this summer better where he has applied the PRO CAL 40 over the past three years.

Another customer noted that there was a definite difference “to the line of application” in how the corn handled the droughty conditions where he applied the PRO CAL 40 this last year. This is most likely due to a better root system, better soil conditions and better nutrient availability where the PRO CAL 40 was applied. This same farmer also noted that his alfalfa was much better on the first cutting where he had applied the PRO CAL 40. Later cuttings have been affected by the droughty conditions negating the benefits of the PRO CAL 40.