

From the Ground Up

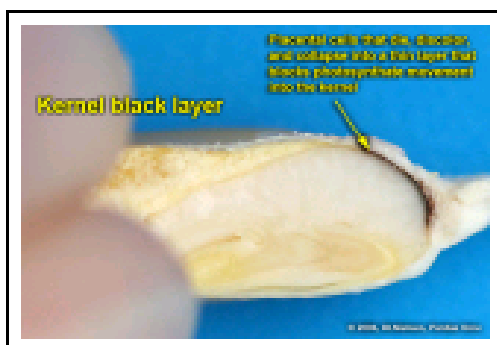
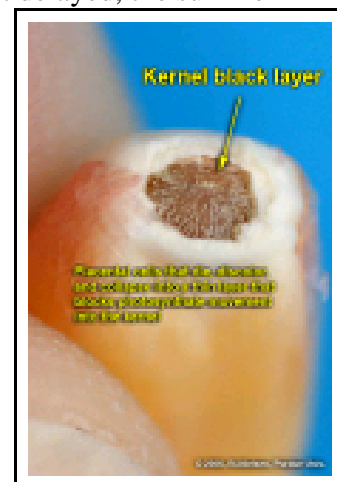


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Why Didn't My Corn Drydown?

In most areas producers have been waiting for their corn to dry down in the field. Since we have not had this problem for many years most producers had assumed that the hybrids had been changed enough that this was never going to be a concern again, right? Wrong! What was different in 2008? Lots! First, we had an unusually wet, cool spring and planting was delayed in most areas. Even if planting was not delayed, the summer temperatures were cooler than normal (despite the environmentalists “global warming” theory) and this delayed maturity. The cooler temperatures and good moisture conditions prolonged the period before physiological maturity. This allowed the plant more time to add more starch to the kernels and decreased the amount of energy expended for respiration or cooling of the plant. The producer benefited by having higher yields (record yields in some areas), however, the cost of delayed maturity was less time for grain drying. Rather than “black layer” occurring in late August or early September as it has in recent years, it didn't occur until late September or early October. (The pictures showing “black layer” are taken from an excellent Purdue University website from an article named Grain Fill Stages in Corn. Click [here](#) if you want to view more pictures of corn development.)



Kernel drying occurs due to some transpiration by the plant, but mostly due to evaporation from the kernel. Evaporation rates depend upon environmental conditions such as temperature, humidity, and wind, but also plant characteristics such as ear diameter, kernel number, kernel density, pericarp thickness and husk tightness. Once you get into late October corn dry down rates average less than .25% per day under good conditions. When you have showers and many

cloudy, damp days as we have had, very little dry down will occur. The good news is that no two years are the same. The bad news is that..... no two years are the same. But

most producers have expressed to me that they are glad that the 2008 growing season is or soon will be behind them. Here's to looking toward 2009.

Upgraded Our Application Equipment

This summer we took the opportunity to upgrade some of our application equipment. We now have four applicators. We still have our 1844 with the 3020 New Leader box. We purchased a used GMC truck chasis for our Barrons & Brothers box. We also purchased a used Mertz/Tyler chasis and installed a used 7020 New Leader box on it.



Our fourth applicator is a new Case FLX4020 applicator with a New Leader 5034 box (see photo above). With this new line of equipment we hope that we will be able to meet our customer's needs in a timely manner and provide you with a uniform application of PRO CAL 40 and/or NutraBio. Please give us a call if you would like to see these work in your fields.

Calcium and pH

Most producers understand that as the pH drops usually you can assume that the calcium availability also drops. The pH is actually a measure of the amount of hydrogen in soil solution. As hydrogen concentrations increase the amount of calcium decreases since they are in equilibrium. Calcium carbonate (limestone) is applied to raise the pH. Limestone is effective because the carbonate will neutralize the hydrogen and effectively convert it to water. It also supplies calcium to replace the hydrogen and increase the amount of calcium in the soil.

What about high pH soils? First, one should ask what is a high pH? Is it soils over 7.0? Is it soils over 7.5? Or 8.0? Remember that no two soils are the same, but in general, as the pH increases above 7.0 the "availability of calcium" will decrease. Why is this? As the pH increases bicarbonates and carbonates are formed (or may be added by applications of water). These two compounds react to tie up calcium in the form of calcium carbonate and/or calcium bicarbonates. It is true that on the soil test the level of calcium will increase as the pH increases, but the exchangeable soil test performed by most labs detects calcium that is also in the calcium carbonate and calcium bicarbonate forms. These are unavailable for plant uptake so the exchangeable calcium soil test may

not be a good indicator. Several researchers have actually shown that calcium availability can be lower on these calcareous soils than it is on acidic soils.

How do you know if you have calcium tied up in your high pH soils? There are a couple of indications. First, you can have an excess lime test run on your soil. If this test shows medium or high then it is an indication that calcium is tied up into the calcium carbonate and bicarbonate forms. Secondly, if your lab tests both Weak Bray and Strong Bray phosphorus tests they can indicate high amounts of calcium carbonate. This would be indicated by a low P₁ test and a very high P₂ test or a very low P₁ (ie. 1 ppm) and a very low P₂ (ie. 2 or 3 ppm) test. A water soluble calcium test may also be a good test to help evaluate calcium availability.

Producers may reason that they have never seen any signs of calcium deficiencies in their crop grown in high pH soils. Most likely you haven't, however, often times the plants are just not as healthy, tend to get more disease and do not have the root development of those grown with better calcium nutrition. Especially in more stressful conditions the yields are affected and are more variable.

To raise your calcium availability on high pH soils you do not apply additional calcium carbonate as you would on low pH soils. This is because it will not react in the soil unless there is acidity present so it will have no effect in a high pH soil. Gypsum (calcium sulfate) is usually the most economical source of available calcium for high pH soils. Other sources used are calcium chloride, compost and sulfur sources that can release the calcium from the carbonate.

Remember that calcium sulfate is a good source of calcium and will help buffer your soils so that the pH will not drop as quickly if you have a soil below 7.0 pH.

If you have questions concerning soil test interpretation or regarding calcium nutrition, please give us a call.

Getting Your Expense in 2008

With the recent weather delays in harvest, our business of spreading PRO CAL 40 has also been delayed. We will make every attempt to get as much spread as we can before the end of the year, but honestly we have many more orders than what we will be able to do in that time frame. If you want yours spread before the end of the year for tax purposes please let us know and we will make every effort to get it completed. However, you can also prepay before the end of the year and we will be sure to get it applied as soon as we can. If you prefer to go through a retail dealer, the same arrangement can be made.

Stop By And See Us

We will be exhibiting at several farm shows this winter and we invite you to stop by and say Hi. Bring any questions along or if you have soil tests you would like to discuss with

us please bring them also. We always enjoy hearing about our customer's experiences and successes. The shows we will have exhibits at are:

December 10-11, 2008	Nebraska Power Farming Show	Lincoln, NE
December 12, 2008	Nebraska Soybean Expo.	Wahoo, NE
January 7, 2009	Nebraska Corn Expo.	Fremont, NE
January 14-15, 2009	Northeast Nebraska Farm Show	Norfolk, NE
January 28-30, 2009	Sioux Falls Farm Show	Sioux Falls, SD
February 3-4, 2009	Mid-America Alfalfa Expo	Kearney, NE
March 11-12, 2009	Triumph of Ag Expo.	Omaha, NE

Merry Christmas & Happy New Year!!

We do value our customers and want to thank you for your continued support and your past business. We strive to give you a premium grade product at an economical price and another valuable tool to improve your soils and your yields. Soil Solutions and our employees would like to take this opportunity to wish you a Merry Christmas and a healthy and prosperous New Year!!