From the Ground Up

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Tis the Season for Farm Shows

Each year we attend many meetings and conferences. From November to March we also attend several Farm Expos. Below are upcoming Farm Expos that we will be exhibiting. If you attend any of these please stop by our booth and say hi. Bring your soil tests and we will discuss how you may improve your soils and what may be the most limiting factors.

South Dakota Farm Show	Vermillion, SD	Januray 4-6, 2012
National No-till Conference	St. Louis, MO	January 11-14, 2012
Sioux Falls Farm Show	Sioux Falls, SD	January 25-27, 2012
Mid America Alfalfa Expo	Kearney, NE	February 7-8, 2012
Triumph of Ag Expo	Omaha, NE	February 29-March 1, 2012

Procidic for Goss' Wilt

Procidic was labeled for control of Goss' Wilt in all corn growing states this year. Reports that we have gotten from our clients who used Procidic have been positive. The most important factor as to decreasing yield loss due to Goss' Wilt was timing of the Procidic application. Later applications stopped Goss' Wilt, however the amount of loss of leaf area was significant and yield loss related directly to leaf necrosis and lack of photosynthesis in the upper canopy which helps in filling the kernel.

In fields with a history of Goss' Wilt we are encouraging our clients to consider a preventative program with Procidic rather than a curative approach. With the preventative program we are suggesting an application of 3 oz. of Procidic with 5 oz. of Safestrike at the V3-V5 stage. This application is then followed by 6-8 oz. of Procidic at pre-tassel or early on-set of brown silk. Procidic is systemic and will give control from within.

Bullet Points about Goss' Wilt:

- *Is a bacterial disease; fungicides have shown no activity.*
- *The bacteria live in crop residue for at least 12 months.*
- *Temperature range for infection is from 53 degrees to 104 degrees.*
- *There are two phases of the disease:*
    - *Systemic Wilt: infection early in season through physical damage to the plant. Plant will usually die prior to the reproductive stage.*

- *Foliar Blight: most common phase. Later season damage reflected by oozing on leaf and freckles followed by leaf necrosis.*

- *Management practices include:*
  - *Hybrid resistance. Remember that resistance doesn't mean immunity.*
  - *Crop residue management. May include removal through baling or burning or burying residue through tillage.*
  - *Weed Control.*
  - *Decrease physical plant damage if possible.*

PRO CAL 40 Application Makes Tiling Easier

During this fall some producers installed drainage tile in their fields. Dry soil conditions made the installation much easier. Soil Solutions used a Liebrecht tile plow to install patterned drainage tile in one of our fields. Below is a picture of the tractor and tile plow

that we used. Many of our neighbors were amazed at how easy this Cat Challenger 765 track tractor was able to pull this plow through the field at a depth of 40 inches. Another farmer using the identical plow in a neighboring field needed three track tractors to pull their plow where PRO CAL 40 had not been applied. The use of PRO CAL 40 several years prior to the installation makes the tiling operation much easier on these very heavy gumbo type soils of the Missouri River valley.

Again, the use of PRO CAL 40 was a testament to improving soil conditions and was worth its "weight in gold" by reducing the wear and tear on the equipment and decreasing the requirement in horsepower and weight. It allowed us to tile ground with a much less

expensive tile plow and currently owned equipment rather than having the tile custom installed.

If you are considering the installation of drainage tile in future years we would strongly recommend conditioning the soil now so that the installation will require much less horsepower. The use of PRO CAL 40 will also improve the effectiveness of the drainage tile and extend the life of the tile.

It is our opinion that the installation of drainage tile in the Missouri River valley (other areas too) will be more common in future years and will greatly enhance yields of many of these soils with a high water table and/or poor drainage. PRO CAL 40 will be a necessary tool in accomplishing this task economically and to improve the effectiveness of the drainage tile. If you have questions about installing drainage tile in your soils feel free to give us a call and we will share our experiences. We can also help you in networking with other individuals that are good resources.

Flooded Soil Syndrome

There are many fields through the Missouri River valley that were flooded this summer; where water was covering the soil for at least12 weeks or longer. This is an unprecedented situation regarding flooding of fields. This condition raises the question of whether farmers will experience flooded soil syndrome in these soils. This is a condition that has been experienced over the years in fallowed soils where no plants are allowed to grow. When no plants are growing a fungus (vesicular arbuscular mycorrhiza) that is mutualistic symbiotic on plant roots dies off and will only begin growing when roots are present again in the soil. This fungus uses exudates from roots as an energy and food source from the plant and in turn the fungus helps the plant in taking in many of the nutrients, especially phosphorus, nitrogen, sulfur, zinc and copper.

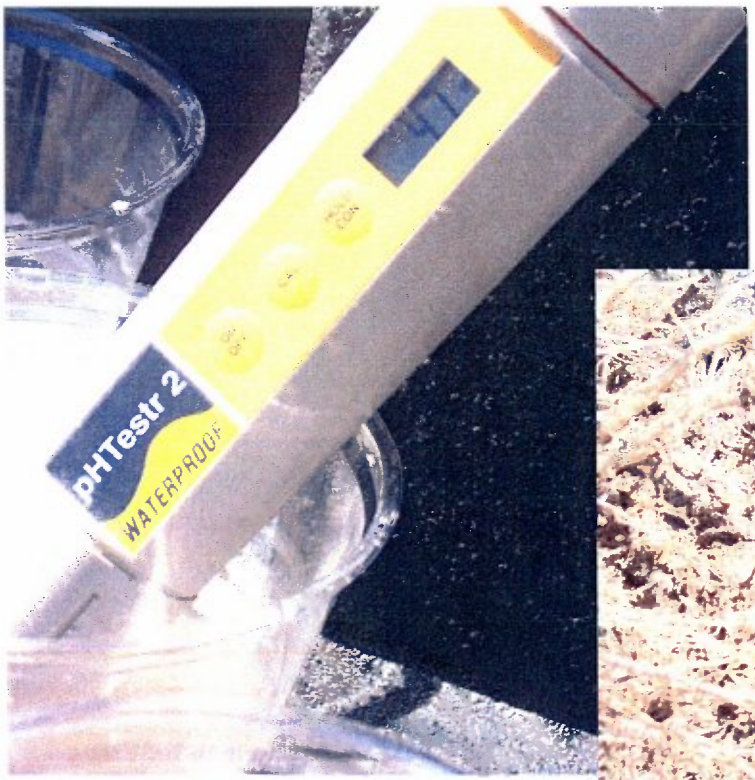
Managing for these soil conditions will be very important to optimize yield. Below are some things to consider.

- Soybeans may be a better crop to plant since early nutrient availability is not quite as critical as it is for corn. More time will allow fungus to colonize the roots for nutrient uptake which is greater in soybeans later in the season.
- If planting soybeans be sure to inoculate soybean seed with rhizobia since these bacteria most likely have lower populations due to the flooding also.
- If planting corn use a higher rate of a nitrogen/phosphorus starter to help offset the low VAM populations. Research has shown applying 25# of nitrogen and 50# of phosphorus in a side band (2x2) was the most beneficial.
- If soil conditions allow plant oats early in spring to get a plant growing and allow VAM to grow. Then destroy the oats before planting your corn crop. If a cover crop was planted in the fall such as rye grass it will also server to renew the VAM, but rye grass should be killed at least 3 weeks prior to planting corn.

Do You Know your Sub-surface Soil pH?

In some soils we are finding that the sub-surface soil pH is very acidic. This is especially true in many sandy soils in north central Nebraska. Why is this? In these sandy soils there is very little buffering capacity and with over 30 years of cropping these soils and increasing fertilizer rates the acidity has continued to increase throughout the soil profile. When lime is applied to these soils its mobility is very limited and pH change only occurs in the top 4-6 inches. It is very difficult to affect the pH of the soil below this depth. In some areas anhydrous ammonia has been injected into "no till" soils. This had created more acidity at the 6 inch or deeper depth rather than at the surface. Again, lime is quite immobile so in no till soils the movement of lime is even slower and has little effect on the pH of these sub surface soils.

In some of these soils the pH is dropping below 5.3 and aluminum is being released from soil particles causing a root toxicity to occur. This causes root tips to stop growing and rooting depth is limited. Aluminum toxicity will also cause plants to become sickly because of limited nutrient uptake and a severe calcium deficiency.



The pH meter to the left shows a pH of 4.7 in a soil where corn was severely stunted and root growth had ceased. The picture below shows roots from corn that was growing in this soil.

Notice that the roots are clubbed and swollen. This is caused by the high aluminum level and the low calcium level.

This year we applied PRO CAL 40 plus lime to some of these soils. The growth and yields were greatly improved where

these products were applied. In line ripping of these soils are also beneficial to help improve soil conditions and rooting depth. We will be doing more this coming year to fine tune our recommendations in these soil conditions.

An advantage of PRO CAL 40 in these soils is that it is more mobile than lime increasing calcium levels deeper in the soil profile. This allows more and deeper root growth which enhances nutrient availability and water efficiency. The sulfate ion will also help in tying up the aluminum and decrease the availability for plant uptake.

Kip's Concepts

The information that follows is excerpts from an article, "Swingin' for Higher Yields in 2012" by Steve Cubbage.

Although the weather conditions in many parts of the country were not conducive to high record yields there is a redeeming quality of sports and farming…..there's always next season. Kip Cullers did not reach a record yield in soybeans in 2011, but he is already in "spring training" for the 2012 crop year. Below are some points to consider for 2012:

- Evaluate your players.

Just as a team manager reviews the past season's performance of his players, Kip Cullers says soybean producers should evaluate the performance of the varieties used on their farm and always be evaluating new varieties against their current roster.

- Never give up.

"Soybeans are one of the most forgiving crops you plant. During the growing season the crop gives you seventy five days to redeem yourself," says Cullers. Some growers gave up this past year, but late season rains "resurrected" the soybeans only to have late season insects and diseases in some areas take their toll. "Some growers literally stopped managing," said Cullers. "Insecticide applications actually keep the plant healthy and better to withstand stressful conditions like heat and drought."

- Prepare the field.

Just like a baseball field is finely manicured before a game, a soybean producer should go through such a ritual before taking to the field to plant. Cullers says, "Start clean. Stay clean. If you allow weeds to get two inches tall at the start of a growing season you've eliminated 10% of your yield potential."

- Review the fundamentals of the game.

Just as in sports the fundamental rules of agronomy have not changed much over the years. It is important to review these fundamentals and execute them. Yield begins with the single seed. Seed treatments and inoculants are standard protocol because a healthy plant early is critical to good root growth and nutrient uptake.

Even emergence and good stands are critical if you plan to push for higher yields," says Cullers. That's why he prefers planters over drills.

- Don't be afraid to "change it up".

As in baseball "changing it up" keeps the opponents on edge and pushes players to achieve a higher level of performance. Kip is moving away from straight glyphosate. He is using a fall pre-emergence and a mix of modes of action during the growing season.

He is also trying a new tactic to push his soybeans to "play at a higher level". He is spraying his soybeans with a full rate of Cobra herbicide and 32% nitrogen when the plants are at the V2 stage. He is trying to force the plants to shorten the internodes creating more branches, more blooms and more pods. He says it is critical that you don't wait too long. "if you wait till they are in the V6 stage you just make them mad and you really don't gain much yield," said Cullers.

- Have a passion for your sport.

Be passionate about your game and always be willing to learn something new. The most prepared teams that are passionate about the game are the ones that in the end win the game.

Soil Solutions have several products that can help you manage the stresses in your soybeans in 2012. Give Gene a call and let him discuss these with you.

Merry Christmas

Soil Solutions has had a very busy fall season and we have much to be thankful for. Our retail partners continue to grow in number and in tonnage that they apply. We are very grateful to them for their continued support. We are also grateful that in a business which our employees travel many miles transporting heavy loads and using heavy equipment we have not had any incidents which caused injury to any of our employees.

We want to wish you all a very, very, Merry Christmas and Holiday Season!! We pray that all of our employees, customers and their families embrace the true reason for the season.....that through belief in our Lord and Savior you will experience the joy of His forgiveness and the hope of life everlasting.