

From the Ground Up

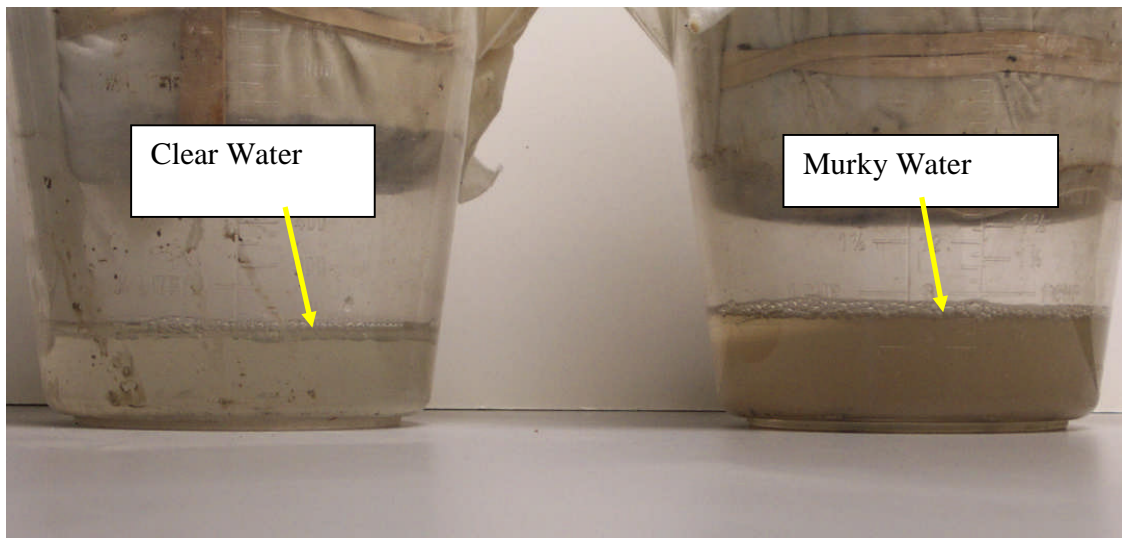


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Another Visual Reminder

I am reminded of a recent comment from one of our clients, “I don’t understand how that PRO CAL 40 works, but it just does”. Often times it is difficult to explain the chemistry, but as the saying goes, “a picture is worth a thousand words”. Below is a picture of two pitchers of leachate water. Each pitcher has a 7-inch column of soil placed in a 4 inch diameter tube and rain water was allowed to leach through these columns of soil into the pitchers. These soils were taken from the same field. The soil on the left we applied gypsum to. The soil on the right did not have gypsum applied to it. You can see how clear the water is in the pitcher to the left (gypsum treated) and how murky the water is on the right (non-treated).



Hopefully this is a visual demonstration of what happens in your soils. As the water drains through the soil it carries these small clay particles down through the pores and plugs the pores close to the wetting front. This causes a more compact layer to occur decreasing water percolation through the soil. This is why water stands on fields which have not received gypsum and why water drains down through the soil where gypsum has been applied. Eventually water will leave the untreated field and this causes erosion as well as nutrient loss with the runoff.

Also as the pore space becomes more plugged the soils become more dense and there is less space for air in the soil and less room for water to be stored. This affects microbial

activity as well as the capacity for nitrogen fixation. Root growth is also more difficult as the soils become more compact. This all affects crop growth and yield.

Cercospora Leaf Spots in Soybeans

How often have you seen soybean leaves that look like that to the right and thought that was normal or maybe that it was caused by sunscald or natural senescence (maturity) of the leaf? Or maybe you thought that this was the affects of the application of an herbicide such as Roundup. Actually this symptom is that of a leaf disease in soybeans called Cercospora leaf blight.



Generally this disease has been ignored. It will however cause soybean seeds to have a purple seed coat. In a meeting this past summer I was surprised when I heard a university plant pathologist make reference to this disease as affecting yield in soybeans. He has suspicion that this could be another reason that we see yield increases to foliar fungicides in soybeans some years and not other years. He felt it could be lowering our yields by 5-10 bushels per acre. This jogged my memory. I recalled that in 2007 this disease was prevalent in the fields where we saw a significant response to a fungicide. However, in 2008 this disease was not common due to the drier and cooler

conditions and we did not experience an economical response from our fungicide treatments. This disease will also cause a somewhat premature senescence of leaves. We experienced this as well in 2007, but not in 2008. Where we had a fungicide applied in 2007 the leaves remained on the plants an additional 7-10 days when compared to the untreated.



Another disease that is in the same fungus family is Cercospora frogeye leaf spot.

This picture above is typical of the symptoms of this disease in soybeans. It also has the capability to decrease yields significantly if it is prevalent. With both of these diseases it can be transmitted in seed, but also in the soybean residue so as we move more towards no-till these fungal diseases can become more of a concern. Varieties also vary in their susceptibility. Warm, wet, and humid conditions favor the development of these diseases.

It is a long time before next summer, but you may want to keep these two diseases in mind when selecting your varieties or when planning and budgeting fungicide treatments next summer.

We will also be researching and marketing three new products that show promise in decreasing disease incidence and reducing insect infestations without harming the environment or beneficial insects. We will also be researching their effects on decreasing nematode levels. If you have interest in trying these products please email us or give us a call.

Gypsum Decreases Swine Greenhouse Gases

In a recently released study in Germany the use of gypsum in liquid pig manure at a 4% concentration decreased methane emissions by nearly 50% and nearly all nitrous oxides were eliminated. Both methane and nitrous oxide are considered major greenhouse gases.

It has long been known that gypsum decreases methane production in swamps and in rice paddies. In an anaerobic condition, sulfur in gypsum is reduced from sulfate to sulfites. These sulfur reducing bacteria inhibit methane producing bacteria thus decreasing methane production.

Gypsum use in lagoons and liquid manure storage could be an economical, useful tool to reduce emissions and odor. As we have mentioned in previous newsletters, gypsum also helps reduce dissolved reactive phosphorus. This means less manure phosphorus runoff from fields. All things considered the addition of gypsum to manure has many benefits.

If you would like more information concerning this topic please visit our website, www.soilsolutions.net and click on the Reports tab. Then scroll down through the USDA Bulletins and Research Reports section. If you have interest in trying this application of PRO CAL 40 in your operation give us a call.

Remember Rotational Restrictions When Planting Alfalfa this Spring!

Back when Atrazine was the main herbicide used most growers would error on the side of caution if they would consider planting alfalfa the year following. Today many growers forget that the herbicide they use may also have a rotational restriction if

planting alfalfa. Here are a few to keep in mind. Rates used and soil pH may affect these rotational restrictions.

Authority Assist.....	12 months
Balance Pro.....	10 months
DoublePlay.....	24 months
Callisto.....	18 months
FirstRate.....	9 months
Harness Xtra.....	21 months
Hornet.....	10.5 months
Impact.....	9 months
Keystone.....	15 months
Laudis.....	10 months
Lexar.....	18 months
Lumax.....	18 months
Steadfast ATZ.....	18 months
Synchrony (post).....	12 months
Valor XLT.....	12 months

The best advice is to review the herbicide program from your field history and check the labels of each herbicide used prior to planting alfalfa this spring to avoid any possible problems. If there is question a grow-out with alfalfa in a greenhouse may be worthwhile.

Know your water pH before going to the field!

Water pH can alter the response that you can get from many of our pesticides. Many water sources have high pH which can significantly reduce the activity of many of our post emergent herbicides and also fungicides and insecticides. Before you go to the field this spring have your water tested or buy a pH meter or pH strips and check it yourself. It is very simple to do and could make you many \$\$\$\$. If you have any questions on the most effective way to lower your water pH give us a call.

Check out our Website!!

Have you ever wanted to go back and read one of our previous newsletters? You can. Just go to our website www.soilsolutions.net and click on the Newsletter tab. There you will find our newsletters back to June 2006. We routinely update our website with information that we think you will find useful. We invite you to spend some time checking out some of the resources. Also, please give us ideas on how our website can be improved.

A good way for you to help us reduce our costs is to give us your email address. This way we can email the newsletter to you or remind you to look on our website for the most recent newsletter.

