

# New Era in Precision Farming

COOPERATIVE GRAIN & SUPPLY

2013



## Need Precision? CGS Can Help

As technology keeps racing by us at an amazing pace the employees and board at CG&S continue to evaluate what we need to service the needs of our patrons. Over the last several years we have seen an increased interest in grid sampling and variable rate application of fertilizer and lime. We have teamed up with Servi-Tech out of Dodge City for the last several years to pull our grid samples and to also make our variable rate maps. Over the past 3 years, we had over 2,000 acres grid sampled with many showing tremendous

variability in fertility levels. The CG&S Board approved the purchase of a new dry fertilizer machine capable of variable rating three different products at one time. In the past, we had a machine that only allowed the variable rate application of one product. For example if you wanted to variable apply phosphate and potash we had to run across the same acre two times. With this machine we can feed every acre what it needs instead of blanket applying the fertilizer.



## Why Variable Rate Fertilizer

In the past we have always just done a composite soil sample over an entire field, with recommendations made based on the average. That method is better than doing nothing, but with the technology we have at our hands today, why wouldn't we look at fine tuning our fertility

programs? Through grid sampling, we usually find that 50% of the field is in very good shape and the other 50% is low in fertility. If you average that out over 1/2 of the field is getting shorted with the previous method. Grid sampling may not necessarily save fertiliz-

er, but puts it where it needs to be to increase production and give you a better return on investment. In the rest of this newsletter we will show some examples of our results we have found over the last several years.

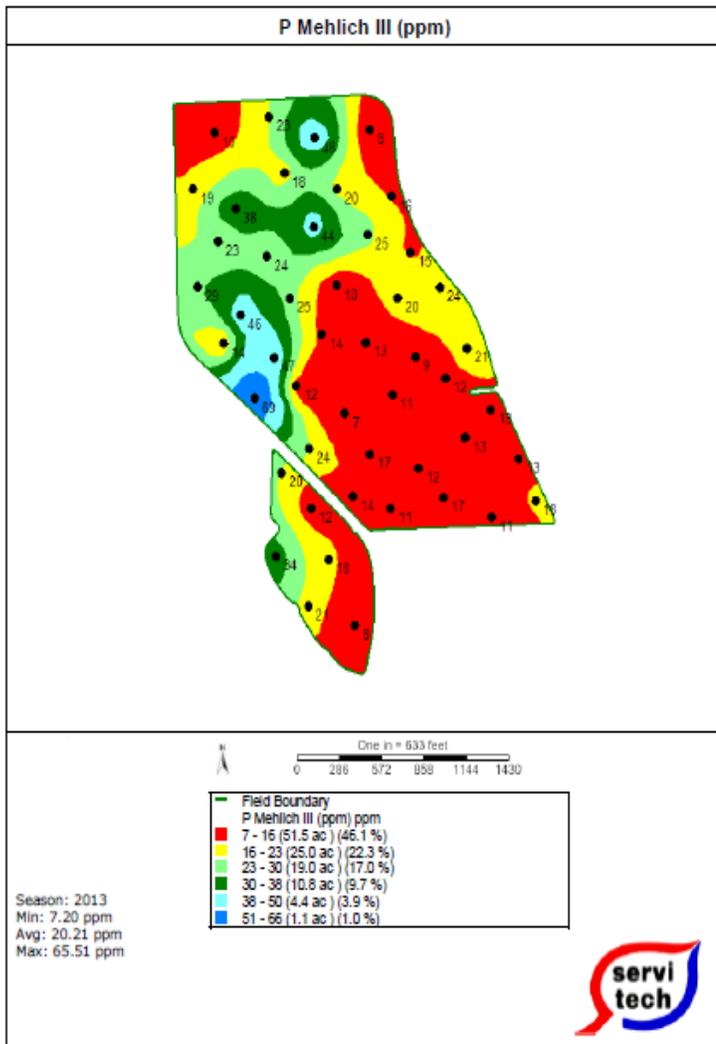
### Special points of interest:

- YOUR FIELDS HAVE MORE VARIABILITY IN P.H., AND NUTRIENTS THAN YOU WILL EVER BELIEVE.
- WHY NOT FEED EACH ACRE WHAT IT NEEDS INSTEAD OF FEEDING PARTS OF THE FIELD TOO MUCH AND OTHER PARTS OF THE FIELD TOO LITTLE.
- WITH WHEAT HARVEST AROUND THE CORNER NOW IS A PERFECT TIME TO EVALUATE YOUR FERTILIZER PROGRAMS.

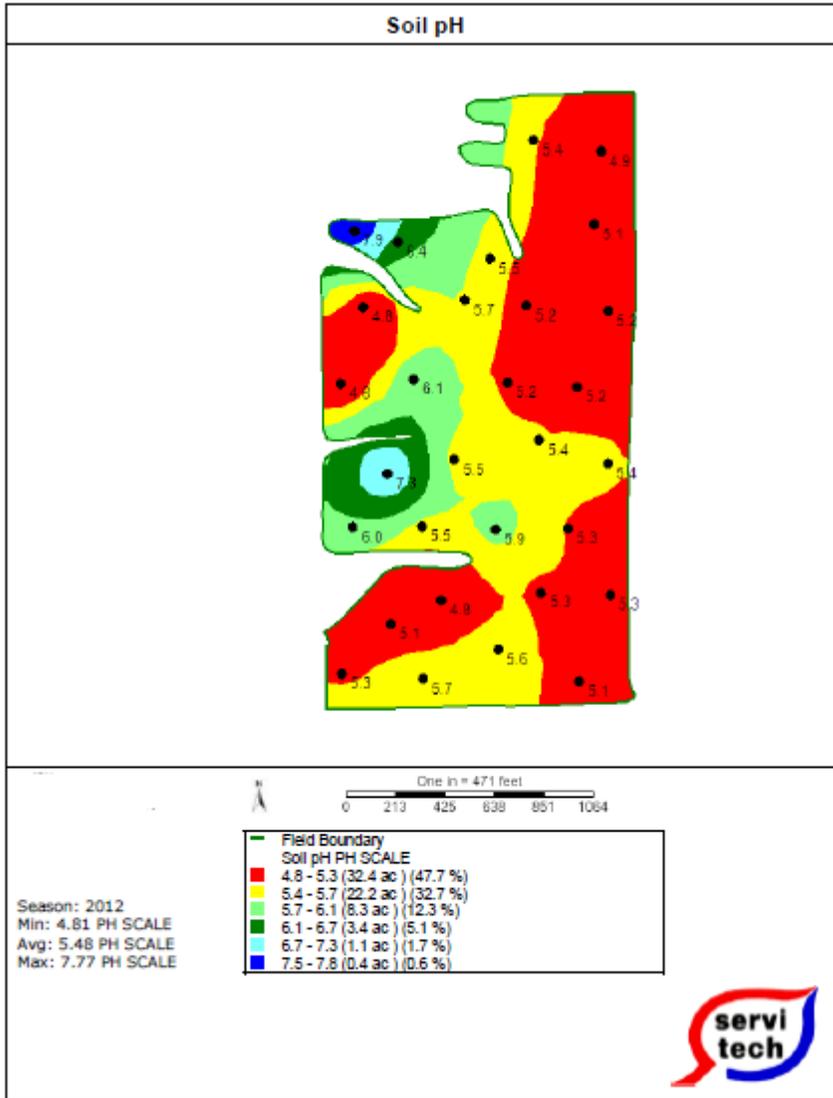
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## Variability In Your Field is Greater Than You Think.

When we think about crop fertility, there are 4 major variables that a farmer should consider to make sure his soil levels are correct. The #1 thing is the PH of your soil, #2 is nitrogen, #3 is phosphate, and #4 is potassium. Of these four variables, only 1 is mobile, so that means we have three very important variables that won't change much from year to year. It is possible to manage these on a more precise scale. With grid sampling the most common thing is to set up the field on 2.5 acre grids and pull samples from each grid. With each sample, we can then run up to 14 different nutrients. So, instead of just 14 nutrients based on an average of the field, on a 100 acre field we will have 560 reference points to make decisions on. To the left are results of one of the fields we grid sampled showing the variability in the phosphate levels. If you look at the bottom left you will see that the level ranged from 7ppm to 65ppm with the average at 20ppm. after composite sampling this same field, we came up with a 15ppm. These results beg the question, what good is a composite sample? Looking at the grid it is showing that 46.1% of the field is very low in fertility, 39.3% is in average condition, 14.6% of the field is very good fertility. If we would apply fertilizer based on our composite sample we would be under fertilizing 40% of our field, over fertilizing 20% of the field and on the remaining 40% applying the correct amount. With the price of the grain and fertilizer, it is difficult to maximize the return on your investment when we have been under fertilizing part of the field (leaving yield potential) and over-fertilizing other parts of the field (spending money where its not needed). With this new machine we can put fertilizer where it needs to be.



## P.H. Variability is Great



To the left is an example of the variability of soil P.H. This is one nutrient that more is not better. Not only does it cost more to blanket apply lime but you run the risk of raising the P.H. to levels that can hurt the crops. This will also increase your chance of herbicide carryover with a P.H. that is too high. This map shows 47.7% of the field is very low in lime, 32.7% is low, but 19.6% is right where it needs to be. If you are blanket applying 3 ton to the acre on a 100 acre field, that's 59 ton of lime you don't need to buy at about \$20.00/ton, that's almost \$1,200. With the tools we have, why would you not variable rate the lime? The last several years we have teamed up with Jesse Koehn out of Galva to spread our lime. He has a very impressive machine capable of variable rating lime.



## Micro Nutrient Variability/ Alfalfa Seeding

Other than the four major variables, we can also test for many micronutrients. This new machine has the capability to variable rate one micronutrient. Another benefit is that this machine will allow us to seed turnips, alfalfa, and other small seeded crops without having to blend it in to the fertilizer. This should reduce the risk of segregation from the fertilizer, or contamination of our blender.



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*These are exciting times in agriculture and CG&S will continue to strive to stay ahead of the technology by offering services and equipment that will meet our customers needs. Servi-tech has the capability to tie soil fertility and yield maps together to make better management plans. We can get into variable rate seeding based on soil type, fertility, or from yield map results. We are just starting to chip away at the possibilities of precision farming. Almost all of our newer equipment has the capabilities to get this done, but we all need to learn how and what to use to make better decisions and get a better return on our investment. At the end of the day, its all about return on investment. If any of this interests you, give Crop Production a call at 1-800-411-3651. We would love to sit down with you and make a farm plan. Again thanks for your past and future business.*

