



The Chem Gro Crop Watch, Issue #3, 9/14/17

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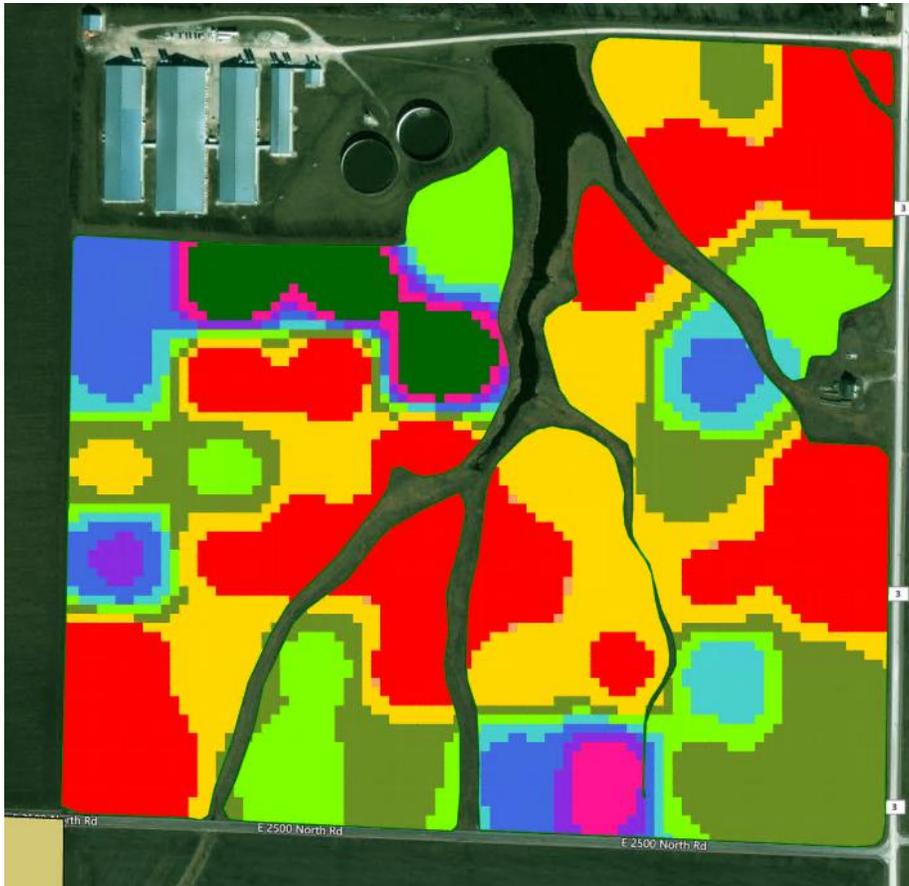
Let's Talk Fertilizer!

It's September which means most fields are starting to turn colors as our crops reach maturity and begin to dry down for harvest. This is a great time to spend a few minutes walking through your fields and assessing how well you did this year. Once at physiological maturity, all of our shortcomings related to our field management become evident. Nutrient related issues show up as spots in the field which have browned up faster than the majority of the field. Stalk quality and plant height are another dead giveaway that your crop isn't able to pull as much nutrients from the soil as it would like too. Pay attention to weed escapes in corn because unlike soybeans, we can't see weed escapes in corn which often leads to a false sense of security for growers. In soybeans, remember that the bulk of your money has to be put up front in residual to keep weeds down with the second pass being used to clean up escapes and give the opportunity to add another residual layer. On that second pass, it is critical to go after the weeds with an effective herbicide. Disease pressure in corn becomes even more obvious this time of the year as the pathogen has had time to climb the plant and do noticeable damage. The problem with disease is that it is hard to predict how bad it will be and while we didn't see much disease while spraying fungicide this year, the vast majority of that disease didn't give visual symptoms yet. Fast forward too today in corn and untreated fields are brown from top to bottom with lesions and pustules from grey leaf spot and southern rust like the corn leaf pictured below.



After evaluating all of these areas it is important to learn from what you have experienced and don't let the lessons you have learned this year leave you come harvest.

While waiting for harvest, it is not a bad idea to stop by our office and make plans for what you will be doing for dry fertilizer on each of your fields this year. Make sure that all fields are up to date for soil testing as this is the only true way to get a good picture of how much nutrient is available to our crops. Without soil tests, we run the risk of under applying fertilizer and damaging next year's yield or over applying and not only wasting money but potentially subjecting our local streams and waterways to higher levels of nutrients than what is allowed. When soil testing a grower can either grid sample a field or take random samples. With grid sampling we can use that data and make a variable rate fertilizer plan (such as the one below) for that field or spread a uniform rate of fertilizer across the entire field.



The beauty of grid sampling is we get a real picture of how much our soil fertility levels vary across a field. Random sampling is cheaper than grid sampling but is limited by its inability to be able to reveal the variability of a field. This also means either over applying fertilizer to higher fertility areas of a field or under applying to an area. Variable rate fertilization saves money in the end by allowing us to spread fertilizer only where it is necessary to do so and hold off on zones which are higher in fertility. Take for example the lime recommendation map above where there is a lot of acres in the red which means no lime is applied and with some acres in the dark green which is 4.5 tons of lime so no matter what route you go you will always be over or under applying lime which amounts to a lot of wasted product on the ground. While we are talking about the soil test data be sure to ask about the various micronutrient fertilizer products that are available in a dry fertilizer form. These can range from elemental Sulfur to a premix of Calcium, Sulfur, Boron, and Zinc. Just remember that when adding a micronutrient to the mix, we must spread a uniform rate of fertilizer across the field

which would eliminate our ability to variable rate one of our nutrients. So, this would mean you lose the ability to variable rate for Phosphorus with the DAP or Potassium with Potash.

Cover Crops

While my title too this section might be bland and boring there is no end to the benefits and variety a cover crop can bring to an operation. This brings me to the question I receive all the time, which is, why do we need cover crops? What do they do for us? That answer can get complex but my response is quite simple and it starts with a story. In our neighboring state of Iowa, the city of Des Moines has been monitoring water quality for decades now. Nitrates levels are an important aspect of water quality testing as Nitrates in water can lead to serious health effects or even death in the young and elderly. Recently, these Nitrate levels have made it to national news with the Des Moines water works Lawsuit against 3 county water districts in Iowa.

FEDERAL LAWSUIT

WATER WORKS VOTES TO SUE 3 COUNTIES

FARM RUNOFF FOULING IOWA RIVERS, UTILITY SAYS

By Timothy Melnychuk
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Des Moines Water Works will file a federal suit against three rural counties in northwest Iowa, an action that could trigger far-reaching effects on how states approach water quality regulation.

The action follows a 60-day warning that sparked little promise for solving water quality concerns at Water Works, according to utility trustees. The board voted unanimously during a special meeting Tuesday to file a lawsuit.

Graham Gillette

TILES ON TRIAL

Des Moines Water Works claims drainage tiles in farm fields from northwest Iowa are contributing to high nitrate levels in central Iowa. The utility claims that water, nitrogen and other nutrients that enter intakes like this are eventually carried underground by drainage lines to streams and rivers that feed the Des Moines and Raccoon rivers, the source of water for 500,000 central Iowa customers.

Farmers: We feel unfairly targeted

Some frustrated producers threaten to boycott Des Moines

By Donnelle Eller
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LAKE CITY, Ia.— With decades of conservation farming under his belt, Dwight Dial has a hard time understanding why Des Moines Water Works is so intent on suing three northwest Iowa counties for contributing to high nitrates in the Raccoon River, a source of drinking water for roughly 500,000 residents in central Iowa.

"We're not deliberately dumping our nitrogen into the Raccoon or Des Moines river systems," said Dial, who raises corn, soybeans and pigs near Lake City in Calhoun County, a target of the Des Moines lawsuit.

Well as it turns out Iowa never had an issue with high nitrate levels going back around the mid 1900's. As time moved on however these test levels began to climb to the point where sometime in recent history it has reached a peak. The immediate reaction of those parties involved in the lawsuit was to point the finger at the only conceivable cause to the issue which was agricultural fertilizer. Now for those who don't know, central Iowa is well known for their dark poorly drained soils which rely on a vast system of tiling to drain excess water. A few tests later and it is discovered that a majority of those Nitrates were coming from tile water. For most people, this was all that was needed to point the finger at who was responsible for this issue. But there was problem. It turns out that Nitrate levels coming off corn ground and soybean ground showed no difference. So how is it that we get just as much Nitrate leaching from a crop that has Nitrogen applied to it as one that doesn't? The answer was simple. Microbes! 24 hours a day 7 days a week microbes act to break down organic matter and other nitrogen sources in the soil where the eventual end product of these reactions is

Nitrates. Since the invention of the tractor, farmers have quit relying on animal driven power in their operations. This means less pasture and perennial sources of plant life on our soils. Eventually, perennial fields turned to annual cash crop fields with more and more turning into corn and soybean acres. This left a gap over the winter where no plant roots were taking up nutrients microbes were releasing into the soil. This allowed Nitrates which do not hold very well to soil particles to escape our soil profiles through leaching. This is where cover crops come into play. By planting a winter annual such as cereal rye we make a so called “Green Bridge” from one crop to the next which not only intercepts leaching nutrients but also works to keep native microbial populations high. In conjunction with Nitrogen stabilizing agents, cover crops can help reduce the amount of nutrients we lose through the tile. The addition of roots and above ground matter helps anchor our soils and protect against wind and water erosion which could mean preventing this area of the field in the picture below from becoming a ditch in the near future.



Have soil compaction? Cover crops help to alleviate compaction that a conventional ripper might only prove to temporarily fix. Remember those pesky winter annuals we fought this spring? Cover crop work to reduce the population of winter annuals that we have to spray for in the spring. While it is true that cover crops are no replacement for a good burndown program they act as a non-chemical cultural method that might mean the difference between burning down 8000 plants per acre versus 10,000 plants per acre. Livestock owners can take advantage of the rapid growth rate of cover crops in the fall and spring time by establishing cover crops as a forage stand that will produce high quality forage while pasture ground is shutting down for the winter. Finally cover crops add organic matter to the soil and this is a point which cannot be stressed enough as organic matter is everything in agriculture. More organic matter means better soil fertility, better drainage, a more malleable soil, and a soil which better resists compaction. So, when should a cover crop be planted? That depends on what you want to use and what your goal is for that cover crop. Some of the more sensitive cover crop species require aerial seeding now in September to allow for establishment. Quicker growing or

more winter hardy species can be thrown in with our dry fertilizer just as long as it isn't being variable rate applied.

Too wrap this up, I would just like to remind you again this is the time of the year where we can really get a good idea of just how well we managed our fields. Its never too early to get a head start on fertilizer plans for next year's crops and what we will be spreading and how much we will be spreading on each field. And cover crops are a growing sector of agriculture with benefits ranging far beyond its intended purpose of environmental protection. Like always, my job is to give you the best advice possible, what you do with it is up to you.