

Maximizing Your Phosphorous Efficiency

(Absolute Purity doesn't equal Yield, *Formulation* does!)

Soil Sampling is the foundation of fertility efficiency. No matter the products applied, or how they are applied, soil sampling is the only way to know where you need to start with your fertility program.

I have worked as the Retail Outlet Manager for two (2) different fertilizer companies. First with Sohigro in the 70's and then with Terra International during the late 80's-early 90's. They were good companies to work with and both were looking for ways to raise higher yields with our customers. A noble goal, and with many customers it was a very doable goal. It started with Soil Tests so everyone knew where they were starting; they knew what they could do to adjust the field's fertility to raise a better crop.

Sohigro had a Five (5) year program for some of their better customers to raise some pretty high yields. Most of these programs were discontinued after 3-4 years because the customer could not afford the fertilizer program. Not that they weren't raising better yields, the yields just weren't paying the bills. They had stretched too far.

Terra had a recommendation program to take the soil test and make the recommendations such that it was very difficult for the customer to be able to price shop. Chances were, most competitors wouldn't be able to sell you the same program, and they couldn't match it. Within that program they mixed and blended several different ingredients to come up with something different. Nothing wrong with that!

I often hear a farmer make reference to his soil test says he needs...*x*... amount of fertilizer. First let's understand the soil test only says one (1) thing: How much of an element was found in the soil. The test doesn't recommend anything. The guy at the lab, the guy at the local fertilizer plant, Bill Moyer (Crop Consultant), and any number of people offering advise about fertility. It depends upon their **Agenda**.

After I left "Terra" I went to work for "**Alpine Plants Foods**" in their Canadian Division. They were selling primarily "Premium Starter Fertilizers". Having come from the traditional side of the fertilizer industry (Sohigro/Terra), I felt I could in all consciousness work for Alpine because they felt their product was a "Good Starter" program. But you still needed a good overall fertility program. The Alpine was just the starter.

Many other "Premium Starter" companies were saying, "this is all you need". One competitor went so far as to tell many people in this area (those with heavy soils) "you will never run out of Potash with our program because you have so much of it in your soils." After about 7-8 years the customer started finding out how much they didn't have available in their soils, because suddenly their crop yields went kaput!

Soil Testing on a regular basis would have told them! Would they have believed it?

Many of those Premium Starter companies have a Story longer than your arm. I didn't realize that fertilizer would do some of the things I have heard come out of their mouths. There are only a few regulations of importance to the fertilizer customer: If the analysis of a product is 6-24-6 there will only be 6#N - 24# of P₂O₅ - 6# of Potash (K₂O) per hundred pounds of product. There won't be much more than that, and the State Regulators say, "there had better not be much less"! If the analysis is 6-24-6 it would be illegal, according to the regulators, to say "it is the same as 10-34-0". Now if you said 150# of 6-24-6 will get you the same nutrients as 100# of 10-34-0, then you would be close except for that Potash element that is in the 6-24-6. But 100# of 6-24-6 is not the same as the 100# of 10-34-0.

Now, if you asked me “Will 5 gallons of 6-24-6 placed with the seed give me the same **performance** as 15 gallons of 6-24-6 placed 2”X2”?” The answer might well be yes, depending on the formulation of the 6-24-6. “Will 5 gallons of 6-24-6 placed with the seed, outperform 15 gallons of 10-34-0 2”X2”?” There is a strong probability, depending on the formulation of the 6-24-6.

I keep saying a couple things here and they are important: **1)** Depending on the formulation of the 6-24-6, and **2)** gives the same **performance** as. If you look at the nutrient makeup the 2 comparisons are somewhat different, yet we can have the same, or better performance. This is where some of the companies suddenly have a **magic elixir**. Why is it that his product can do something nobody else’s can do? Part of this comes about because some companies, without testing their product, make “**a formula**” that fits all the correct ideas about what you have to have in order to have the best, most perfect, product. **Absolutely pure product is one of those ideas**. Even if it gave a yield response, it is terribly expensive.

Some companies think you should use all their products to have a **Complete Program**. While I am a believer in Liquid Starters, Liquid is a tremendously expensive way to build soil fertility levels. Build your levels with Dry fertilizer; use Premium Liquids “only” as a Starter.

I spent 13 years working with Alpine Plant Foods, then with NACHURS Alpine Solutions after they joined forces. There was a lot of theory in the NACHURS side of that equation! I was a DSM with Alpine Canada; they gave me a plot planter to run Starter Fertilizer Trials within my territory. Theory had a lot to do with which products we tested. Whether it was a competitive product, or an additive that was new on the market, or a new formulation from our own company, we called them experimental products. If we had enough evidence on a competitor we often named them in our yield reports..

Our planter had the ability to plant using dry fertilizers 2”x2”, or liquids 2”x2”, or liquids in the seed trench (With the seed). Some of our tests were with 5 gallons of Alpine 6-24-6 on the seed vs 15 gallons of Alpine 6-24-6 2”x2”. More wasn’t usually better! Some of our tests were the Alpine 6-24-6 @ 5gallons on the seed vs 15 gallons of 10-34-0 2”x2”. 10-34-0 did win a few, but not very many. Usually didn’t win from a yield standpoint, and it certainly didn’t if you looked at cost.

We also, compared the 6-24-6 vs 100# of DAP (18-46-0). If you look closely 15 gallons of 10-34-0 and 100# of DAP have close to the same number of nutrients. Sometimes we would boost the nitrogen on the 6-24-6 by adding 5 gallons of 28% 2”x2”. That way we would have roughly the same total amount of Nitrogen between the 3 test products, similar units of “P” between the 10-34-0 (16- 55- 0) and the DAP (18-46-0) vs the 6-24-6 @ 5 gallons would provide a total of (3.3-13.4-3.3). When we added 5 gallons of 28% beside the row in addition to the 6-24-6 @5 gallons on the seed, it gave us a total nutrient content of (18.3-13.4-3.3) That way we were trying to show the performance of the Phosphorus portion of the formula and the placement of the formula.

Placement of the formula and it’s performance was very evident when we compared 5 gallons on the seed vs 15 gallons of the same product in the side placement like we did comparing the 6-24-6 in both cases.

Other products we typically compared were competitor’s versions of 6-24-6, Ag Spectrum’s 8-19-3 w/Micros, NACHURS 9-18-9, 3-18-18, and other “Low Salt” Products from other competitors. One other test we always used was the “No Starter” (0-0-0) treatment.

The field had what ever our cooperater had applied to the field before we got there to plant the plot. These were not a no fertilizer type plot. They had fertilizer applied before we arrived. Our “No Starter” treatment, or “Check” treatment, was just that, no further fertilizer was applied in that 4 rows. The planter was a 4 row JD 7000 planter that had liquid and dry boxes and tanks.

When we arrived the cooperater furnished the tractor and the hybrid corn he wanted to be planted in the field and what population to plant. We might also include what he was using for starter, if it was different than the set we normally used. The competitor’s products we used in the plots were fertilizers bought right out of the retail tank, and right out of the tanks we used to supply our dealers. There was nothing different about the standard products we were using. The point of our plots was to improve upon our product line, and to see how we compared to the competition.

When we looked at performance over 5 years or more: **70%+ of the products we tested** did no better than the **No Starter** treatment. One of the competitors even had the integrity to publish a plot that he weighed where we beat his best treatment by 4 BPA in 3 replications. I should have said that plots were usually replicated 3-4 times at each location and were planted clear across whichever field the cooperator gave us to plant the plot. Some were as long as ½ mile, most were more than a quarter mile long.

We often tested different additives in our 6-24-6 and called it an experimental treatment. One such treatment was showing great promise when used on tomatoes. Purdue University had used it on some tomatoes and was showing as much as a 13% improvement on yield. Because it hadn't been cleared by the EPA to use except as an experimental product on Tomatoes, we were able to take the product to Ontario where our Main Office was located and test it there as an experimental product on Corn for the first 2 years. After that we brought it to the US (Michigan) and showed nice improvements in Corn Yield. **It just wouldn't pay for itself!** They had priced it to sell in the specialty crop market, and not the commodity market.

Note: The amount of Phosphorous in the plant by the 5th leaf stage determines the corn plant's yield potential. If you haven't optimized it by that stage, you have limited your yield. Seed placement is the only way to assure optimum "P" uptake. You still need a good soil test level, but seed placement of a starter amount, particularly in Northern Climates, usually gives the plant a better chance for top yield.

Many companies think that since their product is a low salt version of fertilizer it is seed safe. Not at all! Just as important is the type of nitrogen in the product, and the quantity of that nitrogen. Starters made with a significant amount of Urea should not be placed with the seed. Those with higher amounts of Urea can damage germination, or early seedling growth. If their starter has a Potash number of 4 or higher, and it has a nitrogen number of 7-8, or higher, it probably has a good bit of Urea in it.

These higher Nitrogen starters don't kill, or damage, your crop every year – just once in a while, or only slightly. That is one of the things I have liked about the safety of a good quality of 6-24-6. The safety and the Micro package included with the LFB Solutions 6-24-6 have made for performance that has been difficult for most to top in yield comparisons.

Because of the way we market (Direct to the customer in semi loads), we can offer a fair price to the ultimate customer (you). That is a relationship that has made for some interesting visits with people we would never have known otherwise. I have been privileged to visit farms many miles from Michigan where we are based. As far to the West as North Dakota and as far East as New Jersey. In one case within 4 miles of Gettysburg, PA.

I have been having a good time with this business, and hope you too have been well served. Please have a safe planting season.

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