

Fertilizer Adviser

Maximizing return on you fertilizer dollar! ADVIZER NUMBER: FIVE

Increasing Soil Test Phosphorus with GoldStart® 6-24-6

by Dennis Zabel

In 2007 Nutra-Flo ran an experiment to see how much the soil test P was increased by the application of GoldStart 6-24-6. We wanted to see how much more P was available in the area immediately around the seed.

GoldStart was row-placed during planting with a “Y-splitter” attachment that applied the fertilizer to the v-slot made by the planter’s seed openers. The GoldStart literally coated the two sides of the v-slot.

A tool was made to mark the soil in such a way that we could carefully and consistently scoop out equal volumes of soil in the v-slot area for testing. See Figure 1 for a cross section of the soil test area. The dimensions of the samples were 1.5 inches wide x 2.5 inches deep x 24 inches long (24 inches of row length). We replicated the experiment 3 times using 4 and 8 gallon/acre rates of application plus a 0 rate check. The results are shown in Table 1.

Four gallons/acre of 6-24-6 increased the soil test P by 39 ppm. Eight gallon/acre increased it by 86 ppm. On the average, for each gallon of 6-24-6 applied, soil test P was increased by roughly 10 ppm in the small area around the seed furrow. Potassium was increased by a smaller amount. Interestingly, calcium and magnesium were also increased where fertilizer was applied even though the GoldStart did not contain Ca or Mg. The samples were pulled about 4 weeks after planting corn.

Soil test P was already in the very high range and some would argue that

phosphorus fertilizer need not be applied on such sites. We’ll leave that argument for another day.

Our point was to show that the concentration of P can be dramatically altered in the immediate area around the seed with a relatively small amount of GoldStart 6-24-6 banded in the seed furrow.

Banding phosphorus and other non-mobile nutrients into the seed furrow effectively increases the concentration of phosphorus in the immediate area of the developing root system. Crop roots quickly access the nutrients as soon as they begin development. Nutrients like phosphorus do not fix with the soil when banded, but remain available for crop use several weeks after application. ■

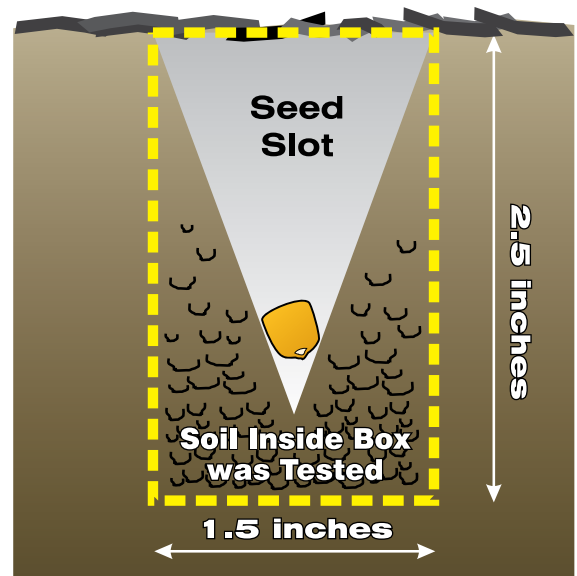


Figure 1. Cross section of the v-slot, seed and the area that was soil tested.



0 gal/ac	4 gal/ac 6-24-6	8 gal/ac 6-24-6
133 ppm	172 ppm	219 ppm

KEEP LIFE SIMPLE

Nutra-Flo provides the most effective and economical liquid starter fertilizers in the marketplace. PureGrade products are simple, effective and economical.

University sources say that ammonium nitrogen in a starter fertilizer helps the plant take up phosphorus. PureGrade fertilizers have ammonium or a combination of ammonium and urea N sources. (Urea changes to ammonium after a few days in the soil.) Some brands use nitrate in their starter fertilizer. Nitrate should be avoided in starter fertilizer because it doesn't aid in phosphorus uptake and has a higher salt index, which can damage germination.

- Salt indexes of PureGrade fertilizers are lower than others who only claim to have low salt index.
- PureGrade publishes product labels, MSDS information and salt index values for its products and makes this information easily available to the public. Many companies do not.
- PureGrade fertilizers do not contain unproven, expensive, organic chelating agents that may restrict nutrient availability to young, rapidly growing crops.
- PureGrade offers liquid fertilizers with high levels of both phosphorus and potassium. 3-18-18, 5-15-15 and even 9-18-9 have much more K than some other brands that sell a low K analysis and call it a special potassium fertilizer.
- PureGrade doesn't waste your money on unproven additives like organic polymers and flavonols. These additives do not increase the amount of nutrient in a gallon of liquid fertilizer, but they do increase your cost.



- PureGrade doesn't push any particular type of nitrogen fertilizer. Growers are encouraged to use the most economical type of nitrogen that works with their application management system. Growers can often greatly reduce their nitrogen application by computing nitrogen credits due to split application, legumes in rotation, manure application, deep nitrate sampling, stalk nitrate tests and organic matter. Nitrification and urease inhibitors and slow release additives can be added when necessary, thus saving the grower money and improve environmental responsibility. You decide what works best in your fields.
- PureGrade liquid starter fertilizers are designed to work with any well-managed crop fertility program. Soil testing is recommended.
- PureGrade fertilizers can be matched to fit other parts of the fertility program – dry or liquid.

See the table below for the amount of nutrients in a gallon of some common liquid starter and liquid nitrogen fertilizers. **DO THE MATH. AVOID THE HYPE!**

Salt index and nutrients in 1 gallon, 3 gallon and 5 gallon for selected fertilizer analyses available in the marketplace.

Product	Salt Index	SI/Unit of PF*	Lbs/gal	Pounds nutrient in 1 gallon			Pounds nutrient in 3 gallons			Pounds nutrient in 5 gallons		
				N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O
6-24-6	11.8	0.33	11.18	0.7	2.7	0.7	2.0	8.0	2.0	3.4	13.4	3.4
9-18-9	16.7	0.46	11.11	1.0	2.0	1.0	3.0	6.0	3.0	5.0	10.0	5.0
3-18-18	8.3	0.21	11.68	0.4	2.1	2.1	1.1	6.3	6.3	1.8	10.5	10.5
5-15-15	11.0	0.31	11.15	0.6	1.67	1.67	1.7	5.0	5.0	3.0	8.4	8.4
9-24-3	20.6	0.57	11.16	1.0	2.7	0.3	3.0	8.0	1.0	5.0	13.4	1.7
2-1-6	10.2	1.13	9.13	0.2	0.1	0.5	0.5	0.3	1.6	0.9	0.5	2.7
27-0-0-1S **	--	--	10.67	2.9	0	0	30 gallons/a = 86 lb/a Nitrogen 50 gallons/a = 144 lb/a Nitrogen					
28-0-0 UAN	--	--	10.67	3.0	0	0	30 gallons/ac = 90 lb/a Nitrogen 50 gallons/a = 149 lb/a Nitrogen					

*Salt Index per unit of plant food. **Adding organic compounds, chelating agents, etc. does not increase the total amount of nitrogen per gallon.

