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## **FARMER'S POCKET FIELD GUIDE**

**Below Ground Management Principles for  
Maximum Agriculture Profits**





**Ray Trent**  
Pro-Soil Ag Solutions, Inc.

As National Field Advisor for Pro-Soil, Ray Trent walks 200,000-300,000 crop acres per year.

## “ SERVICE, DEDICATION AND COMMITMENT TO OUR CUSTOMERS ”

“Service, Dedication and Commitment to our Customers” is the mission statement of *Pro-Soil Ag Solutions, Inc.*

Our superior soil and plant nutrition products alone are just a piece of the puzzle.

Hands on, in-field evaluations, group educational seminars and test plot field days, all help to inform today’s progressive, innovative farmers about the exciting potential benefits of **Below Ground Management** --

including how it can increase **Above Ground Profits**.

*“We understand the problems facing the commercial agriculture industry today and we’re committed to helping our customers take advantage of the knowledge and emerging technology made possible through more than 30 years of research and development.”*

– Ray Trent



**2008 Pro-Soil Independent Corn Trial:** Ears of corn at 75 days. Left ear treated at planting with PS-Foundation 1-0-1 plus a post-emergence foliar application of Triple 3 Vital Boost vs. control on right. This trial with 4 replications averaged 4 bushel better than control.

**4 REPLICATIONS. 4 BUSHELS BETTER.**

**THE DIFFERENCE IS  
PRO-SOIL AG SOLUTIONS**

Pro-Soil Ag Solutions continues to do replicated field trials on corn, soybeans and wheat treated with our products.



## **Farming's New Frontier**

"Thousands of American Farmers have started gradually easing from chemically intensive management to a system that nurtures our intrinsic soil life and creates healthier crops and more net profits per acre."

The above quote was taken from a major farm publication in 2002. Since that time there have been over a dozen articles published that further supports and validates one of the biggest changes in farming since the advent of fertilizers. Below are a few quotes from these major publications:

- ✓ *"Soil nutrition and stimulants, which can improve nutrient uptake, is rapidly becoming a valuable tool in a farmers best use arsenal."*
- ✓ *"By renewing more life in your soil and enhancing beneficial soil bacteria you can reduce the need for applied nitrogen and phosphorus on some crops."*
- ✓ *"A soil with high biological levels will plow easier, develop deeper plant roots and will have greater yield and quality potential."*

All of the above articles came from major farm publications, so we would like to ask you, what type of soil restoration program are you using now and what inputs are you currently making into your farm ground that are helping to improve your soil energy output?

**It's Not a Quick Fix or Miracle Product,  
It's the Power of Healthier Soil.**

There are no miracle products in agriculture. There is only sound management and continual education to become more profitable in your business. Soil nutrition and stimulants alone will not make a bad farmer a great farmer. They can, however, make a good farmer a better farmer. We must keep in mind that it has taken years for many of our soils to become biologically depleted and out of balance. Soils which have lost their microbial complexity and balance do not get corrected overnight.

Soil nutrition and stimulants simply offer the farmer an alternative approach and a chance to rebuild the very mechanism that supports and sustains all of our plant life. Modern farming has focused almost exclusively on above ground management with virtually no emphasis placed on below ground management or soil nutrition.



Pro-Soil field evaluation in central Indiana

## **Fertilizer-Nutrition-Stimulants**

No fertilizer or food source in itself can offer the soil and the plant all of its needs. Just as no nutrition or stimulant program can offer the soil and the plant all of its needs without a proper fertility program.

**Fertilizer** – A food source in the form of macro and/or micronutrients that improves plant growth.

**Nutrition** – The process by which an organism takes in and assimilates a food source to promote growth and replace worn or injured cells.

**Stimulants** – Anything that temporarily increases the activity of some vital process.

Taken by definition a complex plant nutrition and stimulant program will help to assimilate a greater percentage of the food source, repair worn or injured cells and increase the activity of the fertilizer and plant foods.



Wheat Field Evaluation  
In SW Oklahoma

## **Understanding Nutrient Absorption Deficiency**

This article was taken from the *Christian Agricultural Stewardship for Sustainable Agriculture* and was entitled *Biological Response Modifiers*:

“Most nutrient supplementation and fertility programs are based on the premise that the plant is not getting enough nutrients from its current fertility program, based on deficiencies in soil testing. Therefore, most of today’s fertilizer programs are designed to supplement the plant with moderate to high doses of nutrients in order to make up for the alleged deficit of nutrients in the food supply, but this form of supplementation can be very hit or miss and rarely does it address the real problem. A specific or multiple mineral deficit does not imply that there is always a corresponding deficit of minerals in the soil or in the fertility program.

Instead the problem can often be a Chronic Absorption Deficiency. In other words, there are plenty of nutrients present but the plant is having a difficult time absorbing these nutrients. So in reality continuing to flood the plant with moderate to high doses of nutrients is of very little benefit, in terms of increasing quality or economically, because the real problem is in the inability of the plant to absorb these nutrients. This is why soil based nutrition and stimulants are distinctly different and far more effective than just macro and micronutrient supplementation. These smaller doses of nutrients are easier for the plant to assimilate and they act as a veritable blueprint and show the plant how to properly absorb the other nutrients that are available but tied up.”

## **Critical Steps to Progressive Innovative Farming**

### ***Find a Crop Consultant Who Understands and Knows How to Help you Implement a Biological Approach to Soil Fertility...***

As many of our conventional farming practices are coming under much scrutiny, there is a new industry that is rapidly emerging from this change. This new industry places much of the emphasis on rebuilding and restoring the vast stores of beneficial bacteria, carbon and valuable humus. Science and technology are giving a better understanding of soil chemistry and offering us sophisticated products that will ultimately allow us to produce higher yields with fewer chemical inputs and allow farmers to continually enhance the natural machinery of their soil for generations to come.

### ***The Complexity of the Biological Activity in Any Soil is the Principal Yield Builder...***

Biological activity in this context refers to the vast numbers and stores of beneficial soil microbes, which are ultimately responsible for all conversions of applied materials and for the continual reproduction of valuable humus stores. Once a good foundation is prepared with a quality bio-based fertility program, soils will start to respond more



favorably to chemical and fertilizer input. Toxins and heavy metal residue will also start to diminish. The elimination of these waste byproducts is a critical step in restoring overall soil balance, which invariably will lead to our goal of maximizing potential crop yields and gradually reducing chemical inputs required for optimum plant performance.

***Strive to Continually Increase and Improve Soil Life, Carbon and Higher Humus Levels...***

Humus levels and beneficial bacteria can be increased even in situations where organic matter is low. If proper soil chemistry is observed, adjusted and a quality bio-based fertility program is implemented, soils will over time begin to self adjust and provide higher nutrient levels directly to the plant. Once you start to feed and nourish your existing soil life or indigenous microbe populations, new generations of microbial life will breed and feed subsequent populations. The humus building process will become self-generating once levels are built up and soils will become more and more productive.

***Fertilize Precisely and Monitor Progress...***

Use your soil test to determine what is needed and when it is needed. Major elements such as N-P-K are usually oversupplied and can potentially cause more problems than benefits. Nitrogen and Potash are often the main offenders. Leaf tissue analysis should be done at least once during the

mid crop cycle to monitor plant health and to correct fertility needs. Brix readings from a hand held refractometer are the best guide to sugar levels, mineral content, protein levels and associated inherent pest and disease resistance.

***Foliar Feed to Build Yield, Quality and to Correct Tissue Deficiency...***

Foliar feeding is 12 to 15 times more effective and more plant available than conventional dry fertilizer. It is also more cost effective when you consider that very little is leached or lost to evapotranspiration. Soil pH is not nearly as much of a factor for converting the nutrients, and chelated minerals are also more available to the plant. Foliar feeding will ultimately become one of the standard means for applying most nutrients in this new generation of farming. Adjust your foliar program to supply nutrients based on tissue testing at various intervals of the growing season.

## Pro-Soil Products

### **Q. WHAT ARE SOME OF THE FIRST THINGS FARMERS MAY NOTICE AFTER USING PRO-SOIL PRODUCTS?**

**A.** Farmers have reported an increase in plant vigor and overall plant health as well as a larger root structure to be the first noticeable improvements after starting a nutrition and stimulant program on their farm.



Wheat roots on Left with 4 years of Below Ground Management. Control on right.

**PS-Foundation 1-0-1** is a plant and soil nutrient concentrate consisting of quality fertilizers, vitamins, enzymes, chelated trace minerals, humic Acid, kelp and a powerful spreader/sticker.

### Application Recommendations:

**Corn & Soybeans:** 12.8-16 ounces broadcast (pre-plant) or 12.8-16 oz. directly in row with optional 12.8-16 oz. broadcast application in the fall.

**Cotton:** Can be applied pre-plant with Treflan at 12.8-16 ounces in-row or broadcast in conjunction with first application of round-up at 12.8-16 oz. Optional 12.8-16 oz. broadcast application in late fall.

**Wheat:** 12.8-16 ounces broadcast just before planting, 12.8-16 ounces directly in-row or 8 ounces per 100 lbs. of seed as seed treatment. 8.5-12.8 oz. **Triple 3 Vital Boost** as top-dress in conjunction with N-P-K applications.

**Alfalfa:** 12.8-16 oz. 30-45 days prior to 1st cutting.

### Directions for Use:

**Mix with sufficient water to distribute evenly (minimum 10 gallons of liquid per acre).** Can be tank mixed with liquid fertilizers, herbicides, insecticides and fungicides. Use in conjunction with a good soil test and soil fertility program. Always conduct a compatibility test prior to mixing any chemicals and always shake well before use.

**PS-Starter Pro 1-3-1** is a plant and soil nutrient concentrate consisting of quality fertilizers, vitamins, enzymes, organic acids, chelated trace minerals, humic acid and kelp specifically formulated for compatibility and use with high phosphorus (starter) fertilizers.

#### **Application Recommendations:**

**Corn & Soybeans:** 12.8-16 oz. broadcast (pre-plant) or 12.8-16 oz. directly in row with optional 12.8-16 oz. broadcast in the fall.

**Cotton:** Can be applied pre-plant with Treflan at 12.8-16 ounces, in-row at 12.8-16 ounces or broadcast in conjunction with 1st application of round-up at 12.8-16 ounces. Optional 12.8-16 ounces broadcast in late fall.

**Wheat:** 12.8-16 ounces broadcast just before planting, 12.8-16 ounces directly in-row, 8 ounces per 100 lbs. of seed as seed treatment. 8.5-12.8 ounces as top-dress in conjunction with fertility.

**Alfalfa:** 12.8-16 ounces 30-45 days prior to 1st cutting.

#### **Directions for Use:**

**Mix with sufficient water to distribute evenly (minimum 10 gallons of liquid per acre).** Can be tank mixed with liquid fertilizers, herbicides, insecticides and fungicides. Use in conjunction with a good soil test and soil fertility program. Always conduct a compatibility test prior to mixing any chemicals.

#### **Q. HOW MUCH WATER OR CARRIER SHOULD BE USED FOR A BROADCAST APPLICATION OF PRO-SOIL PRODUCTS?**

A. A minimum of 5 gallons is recommended, however 10 gallons tends to show greater benefits.

#### **Q. WHAT IS THE DIFFERENCE BETWEEN PS-FOUNDATION 1-0-1 AND TRIPLE 3 VITAL BOOST?**

A. **PS-FOUNDATION 1-0-1** contains a higher percentage of soil-based ingredients and **TRIPLE 3 VITAL BOOST** contains a higher percentage of plant based foliar ingredients. Both products contain the same enzyme base. **PS-FOUNDATION 1-0-1** could be likened to 60% soil benefit and 40% plant benefit whereas **TRIPLE 3 VITAL BOOST** could be likened to 60% plant benefit and 40% soil benefit.

#### **Q. How long does it take to see the results of biological management?**

A. Most crops show results in the first year, then progressively improve each season, obtaining optimum soil health and crop yields after 2 to 4 years of good soil management practices; depending on conditions of climate, chemical contamination and soil health.

**Frequently Asked Questions about  
PRO-SOIL PRODUCTS**

**Q. WHAT METHOD OF APPLICATION HAS SHOWN THE BEST RESULTS WITH PRO-SOIL PRODUCTS?**

**A.** Timing and climatic conditions always play a vital role with any nutrition or stimulant program. We have found that the in-furrow application has shown the greatest overall benefits although properly timed broadcast and foliar applications have also shown excellent results.

**Q. CAN YOU MIX PRO-SOIL PRODUCTS WITH HERBICIDES AND INSECTICIDES?**

**A.** As with any chemical you should always conduct a compatibility test, however we have found PRO-SOIL PRODUCTS to be compatible with the majority of herbicide and insecticides used in the farm industry.

**Q. CAN YOU MIX PRO-SOIL PRODUCTS WITH STARTER FERTILIZERS?**

**A.** Only the **PS-STARTER PRO** product should be used in conjunction with a starter fertilizer. All of the **PRO-SOIL** products are compatible with nitrogen fertilizers.

**Triple 3 Vital Boost** is a plant nutrient concentrate consisting of quality fertilizers, chelated trace minerals and a powerful non-ionic spreader/sticker for maximum uptake by the plant when applied as a foliar feed.

**Application Recommendations:**

**Corn & Soybeans:** 12.8 - 16 oz. broadcast (pre-plant) or 12.8 oz. directly in row with optional 12.8 oz. broadcast in the fall.

**Cotton:** Can be applied pre-plant with Treflan at 12.8 -16 oz. Optional 12.8 ounces broadcast in late fall.

**Wheat:** 12.8-16 oz broadcast just before planting, 12.8-16 oz directly in-row, 8 ounces per 100 lbs. of seed as seed treatment. 8.5-12.8 ounces as top-dress in conjunction with fertility.

**Alfalfa:** 12.8-16 oz 30-45 days prior to first cutting. Optional 12.8-16 oz ounces after every cutting. This also applies to grasses and most other forages.

**Directions for Use:**

Can be tank mixed with liquid fertilizers, herbicides, insecticides and fungicides. Always conduct a compatibility test prior to mixing any chemicals. Be sure to apply sufficient water to wet soil to a depth of ½ inch or more to help with nutrient availability and uptake.

**During the Growing Season:** Foliar feed during the plants active growth cycle for increasing energy output. Can also be applied to the soil through irrigation or band spray.

## **Pro-Soil Wheat Program**

**In-Furrow:** 8.5 - 12.8 ounces per acre

**Seed Treatment:** 8 ounces per 100 pounds of seed

**Broadcast:** 12.8 - 16 ounces per acre

- ✓ The most popular and most economical program for wheat is the seed treatment. Excellent results have been achieved with all the above methods.

**Note:** When running an in-furrow starter fertilizer always use PS-STARTER PRO for compatibility. **DO NOT mix PS-Foundation 1-0-1 with any high phosphorous fertilizer.** Talk to your local PRO-SOIL representative if you have specific questions regarding applications on wheat or call **800-714-4903.**



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## **Grass and Forage Program**

**10 to 21 Days Prior to Transition or When Soil Temperatures Reach 60 degrees on Summer Grass:**

12.8 – 16 ounces per acre.

**In Conjunction with Fall Fertility:** 12.8 – 16 ounces per acre.

Grass and Forage treated with nutrition and stimulants show improved grazing and better livestock gain. Grasses have also shown higher mineralization and greater protein and total digestible nutrients.

Talk to your local **PRO-SOIL** representative if you have specific questions regarding applications on grass and forage or call **toll free 800-714-4903.**



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### Pro-Soil Cotton Program

**With Pre-Emergent Herbicide:** 12.8 - 16 ounces per acre.

**With First Application of Herbicide:** 12.8 - 16 ounces per acre.

**Foliar Feed:** 8.5 - 12.8 ounces per acre.

Cotton program has shown the best results using **PS-FOUNDATION 1-0-1** with herbicides and **TRIPLE 3 VITAL BOOST** as a foliar feed.

Talk to your local **PRO-SOIL** representative if you have specific questions regarding applications on cotton or call **toll free 800-714-4903**.



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### Pro-Soil Corn Program

**In-Furrow:** 12.8 - 16 ounces per acre.

**With Sidedress:** 12.8 - 16 ounces per acre.

**Broadcast:** 12.8 - 16 ounces per acre.

The most significant results on corn have come with the in-furrow application at 12.8 - 16 ounces per acre. When running an in-row starter fertilizer always use **PS-STARTER PRO** for compatibility. Many growers have also started running a broadcast application in the fall to help assist in the previous seasons residue decomposition. Talk to your local **PRO-SOIL** representative if you have specific questions regarding applications on corn or call **toll free 800-714-4903**.



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## Pro-Soil Soybean Program

**In-Furrow:** 12.8 - 16 ounces per acre.

**With 1<sup>st</sup> Herbicide Application:** 12.8 - 16 ounces per acre.

**Broadcast:** 12.8 - 16 ounces per acre.

The most significant results on soybeans has been the in- furrow application at 12.8 - 16 ounces per acre using **PS-Foundation 1-0-1** or **STARTER PRO**. Soybeans have also responded well to foliar feeding at numerous times during the growing season. When running an in-row starter fertilizer always uses **PS-STARTER PRO** for compatibility. Talk to your local PRO-SOIL representative if you have specific questions regarding applications on soybeans or call **toll free 800-714-4903**.

**IMPORTANT NOTE: Do not combine a soybean inoculant with Pro-Soil products together in the form of a seed treatment.**



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## Pro-Soil Alfalfa Program

**Prior to Planting New Meadow:** 12.8 - 16 ounces per acre.

**With 1<sup>st</sup> Application of Insecticide:** 12.8 - 16 ounces per acre.

**After Each Cutting:** 8.5 - 16 ounces per acre.

Alfalfa has shown very favorable results with nutrition and stimulants. The most popular program has been **PS-FOUNDATION 1-0-1** with the first application of insecticide followed by **TRIPLE 3 VITAL BOOST** after each cutting.

Talk to your local **PRO-SOIL** representative if you have specific questions regarding applications on alfalfa or call **toll free 800-714-4903**.



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