



The Agrico Crop Talk newsletter features current hot topics making headlines in the agricultural industry today. The material presented in these newsletters includes viewpoints from industry specialists, Agrico agronomists and Crop Care affiliated members.

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Developing a Good Starter Fertilizer Program

In order to develop a good starter fertilizer program that works effectively on your soils, you first need to understand how nutrients interact in your soil. When we talk starters, the first nutrient that comes to mind is Phosphorus. Phosphorus plays many roles within the plant; it is involved in photosynthesis, respiration, energy transfer and storage, cell division and enlargement. Probably the most important function of Phosphorus in the plant is root development and early plant growth. The availability of Phosphorus in the soil is affected by many factors such as: soil type, time and type of application, temperature, soil pH, compaction, phosphorus level in the soil, as well as the level of other nutrients in the soil.

When calcium, magnesium, aluminum and iron levels are high in the soil, the potential for phosphorus uptake is greatly reduced. Banding phosphorus places the nutrient in closer proximity to the root, where it is taken into the plant. It is estimated that crop roots make contact with only 1-3 percent of soil, within the top six inches of the soil horizon. Phosphorus moves through the soil at a rate of 3 mm annually. Nutrients such as calcium, magnesium, aluminum and iron bind themselves to the phosphorus molecules, making their progression through the soil slower still. Soil temperature also affects the movement of phosphorus through the soil. At 10 degrees Celsius, phosphorus availability is approximately 20%. This gradually increases to 80% availability, as the soil temperature warms to 20 degrees within the root zone. Starter fertilizer, which is typically high in phosphorus, will help combat these effects when applied at planting.

Phosphorus while extremely important is not the only nutrient necessary in a good starter. Other nutrients such as Nitrogen, Potassium, Zinc, Sulphur and Magnesium may also be necessary to maximize your corn crops' performance. Nitrogen for example helps the uptake of Phosphorus. As is the case with many things a balanced approach provides the best results. Sulphur will help the uptake of Phosphorus in high pH soils by acidifying the band making phosphorus more available. Using MAP as a phosphorus source will also acidify the band making Phosphorus more available. Magnesium plays an important role in photosynthesis, and banding provides a cost effective method of application. Potassium is mobile in the soil making it less important in the starter, but the balanced approach still applies. Zinc is tied closely to Phosphorus; high levels of either element can lead to deficiency of the other element. This is particularly true in high pH soils where high Phosphorus levels can lead to Zinc deficiencies.

Corn: In a typical high pH soil a CORN starter may look like 15-40-15-10(S)-2(Zn) (uses MAP and Ammonium Sulphate).

Soybeans: In a typical high pH soil a SOYBEAN starter may look like 15-40-25-10(S) (uses MAP and Ammonium Sulphate).

AS ALWAYS SOIL TESTING AS WELL AS YIELD POTENTIAL ARE YOUR BEST GUIDES TO PROPER FERTILITY PLANNING AND NUTRIENT MANAGEMENT.