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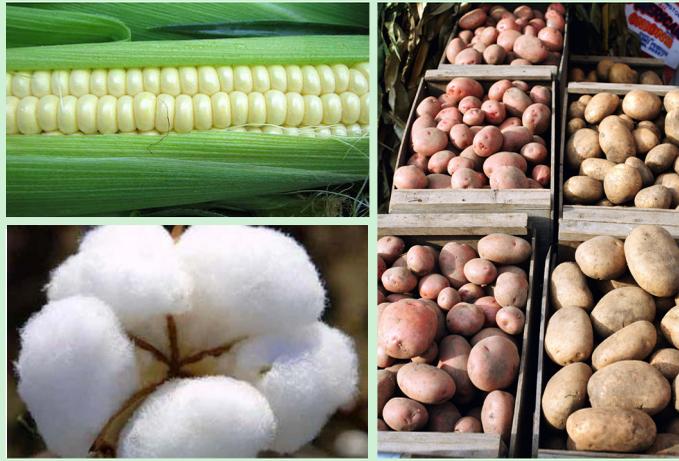
Innovation for a Greener Earth

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BUFFERMIN® 2-22-18

Buffered Phosphite and Stabilized Phosphate Fertilizer



Phosphorus Nutrition

Phosphorus is one of the major elements essential for plant growth. It is a constituent of many compounds in plants and is involved in various metabolic processes. It is used by plants to form nucleic acids (DNA and RNA) in storage and in transfer of energy through energy-rich compounds, ADP and ATP.

Phosphorus has favorable effects to plants in the following:

1. Crop maturation
2. Root development
3. Resistance to certain diseases
4. Cell division, fat and albumin formation
5. Flowering, fruiting and seed formation
6. Crop quality, especially of forages and vegetables
7. Strengthen straws in cereal crops to prevent lodging



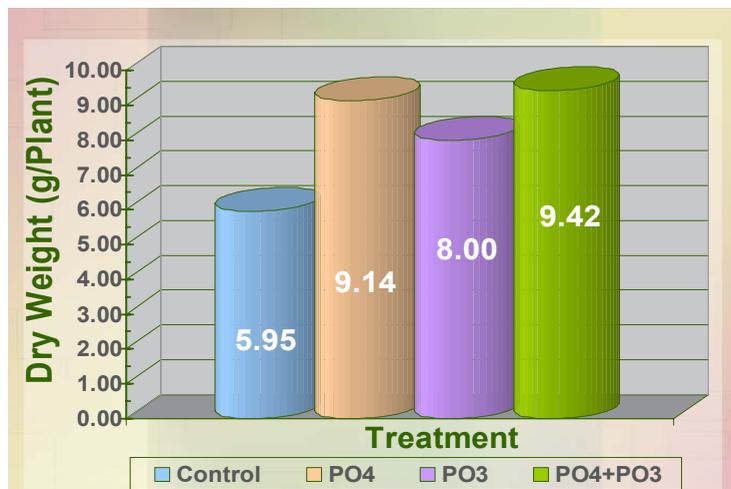
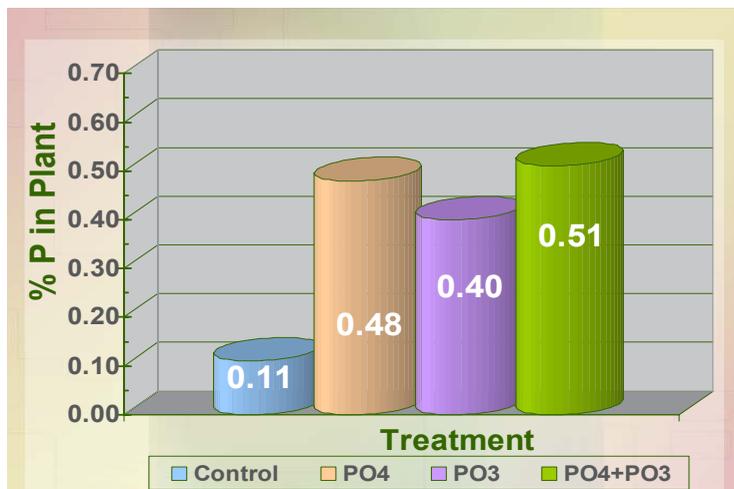
Potassium Nutrition

Potassium is one of the macro-elements in plant nutrition. Within the plants, potassium is found primarily in the actively growing regions, such as buds, young leaves and root tips. It is generally low in seeds and mature tissues.

Potassium is present in all living cells, but it is not structurally a part of the cell, nor is it found in organic combinations. Potassium plays an important role in enzyme activation. A large number of enzymes are either completely dependent on or stimulated by potassium.

Functions of Potassium:

- **Enzyme Activation** - Potassium “activates” at least 60 different enzymes involved in plant growth.
- **Stomatal Activity** - Plants depend upon potassium to regulate the opening and closing of stomates.
- **Photosynthesis** - The electrical charge balance at the site of ATP production is maintained with potassium.
- **Transport of Sugars** - Adequate supply of potassium helps keep the sugar produce processes and transportation systems functioning normally.
- **Water and Nutrient Transport** - As with phloem transport systems, the role of potassium in xylem transport is often in conjunction with specific enzymes and plant growth hormones.
- **Protein Synthesis** - The “reading” of the genetic code in plant cells to produce proteins and enzymes that regulate all growth processes would not be possible without adequate potassium.
- **Starch Synthesis** - Under optimal level of potassium, starch is efficiently moved from sites of production to storage organs.



Effect of Phosphite and Phosphate on the Growth of Tomato Plants

Phosphite Fertilization

The benefits of Phosphite (PO₃) fertilization have been well documented and observed for more than two decades now. Phosphite based fertilizers have grown very popular and are now part of many standard nutrition programs. Phosphite fertilizers have several advantages over phosphate base fertilizers. Phosphites are not tied up in the soil as phosphates are. The phosphite ions are able to remain in the soil solution and are easily taken up by both plant roots and foliage. Phosphites are ideal for foliar application because they pass readily through the cuticles of the leaves and are transported through both the phloem and xylem. Phosphites are slowly converted inside the plant and in the soil to phosphates, making phosphites act as a slow release phosphorus source. Phosphites also help boost the immune system of plants and can have a positive effect on plant vigor and growth. Phosphites also stimulate root development which can lead to healthier, more productive top growth.

Soil & Foilar Application

Buffermin 2-22-18 is effective through both foilar and soil applications. **Buffermin® 2-22-18** can be applied to the soil where it will be absorbed by the root system and translocated to the leaves.



Buffermin 2-22-18 The Power of 2



Since phosphite is very similar to phosphate chemically, plants may mistakenly recognize phosphite as phosphate, thus application of phosphite fertilizer may create a hidden hunger of phosphorus in plants. Since Buffermin 2-22-18 contains both phosphate and phosphite, it will prevent this phenomenon from happening. In addition to phosphorus nutrition, **Buffermin 2-22-18 also contains phosphite which will boost the immune system of plants. It will also supply both readily available and slow release phosphorus nutrients to plants.**

Advantages of Buffermin 2-22-18

1. Increase root growth
2. Absorbed by roots and leaves
3. Increase micro-nutrient availability
4. Activate the immune system
5. Increase crop yield
6. Increase resistance to diseases and dramatic change of temperatures



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