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fertilizing corn in South Dakota

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Fertilizing Corn in South Dakota

South Dakota farmers are using 3 times as much fertilizer today as they were 10 years ago. About one-half of the fertilizer used in South Dakota is used for corn production, yet it is estimated that we could probably use only about 3 to 5 times as much fertilizer that is currently used on corn as could be used on corn if the prices of nitrogen are comparable to the other elements. Using 3 to 5 times as much fertilizer on corn would reduce the market design for use on a lister, or a fertilizer. This method of plant nutrient production to corn is desirable for different reasons. For instance, many farmers use fertilizer on their corn, but not all of the fertilizer is needed to be applied on corn production in South Dakota.

**PLANT NUTRIENTS FOR CORN**

The soil must supply 1.5 pounds of nitrogen, 0.5 pounds of phosphorus, and 1.0 pound of potassium (K₂O) per acre for a total of 2.0 pounds per acre. The soil must also supply 0.1 pound of zinc (Zn), 0.2 pound of iron (Fe), and 0.2 pound of manganese (Mn) per acre. The soil must supply additional nutrients for the growth of corn, such as potassium, phosphorus, and sulfur.

**Nitrogen**

Nitrogen is the most important nutrient for corn production. Nitrogen is absorbed by corn plants in the nitrate form. Other forms of nitrogen are also absorbed by corn plants, such as ammonia and urea. Nitrogen is responsible for the production of amino acids, which are the building blocks of protein. Nitrogen is also important for the production of chlorophyll, which is necessary for the absorption of light energy.

**Phosphorus**

Phosphorus is essential for the production of adenosine triphosphate (ATP), which is the energy currency of the cell. Phosphorus is also important for the production of nucleic acids, such as DNA and RNA.

**Potassium**

Potassium is necessary for the production of sugars and starches. Potassium is also important for the production of chlorophyll, which is necessary for the absorption of light energy.

**Zinc**

Zinc is necessary for the production of chlorophyll and for the production of enzymes that are necessary for the production of proteins and carbohydrates.

**Iron**

Iron is necessary for the production of chlorophyll and for the production of enzymes that are necessary for the production of proteins and carbohydrates.

**Manganese**

Manganese is necessary for the production of chlorophyll and for the production of enzymes that are necessary for the production of proteins and carbohydrates.

**Sulfur**

Sulfur is necessary for the production of amino acids, which are the building blocks of protein. Sulfur is also important for the production of chlorophyll, which is necessary for the absorption of light energy.

**Sodium**

Sodium is necessary for the production of ions, which are necessary for the production of proteins and carbohydrates.

**Calcium**

Calcium is necessary for the production of bones and teeth. Calcium is also important for the production of milk and for the production of enzymes that are necessary for the production of proteins and carbohydrates.

**Magnesium**

Magnesium is necessary for the production of chlorophyll and for the production of enzymes that are necessary for the production of proteins and carbohydrates.

**Copper**

Copper is necessary for the production of enzymes that are necessary for the production of proteins and carbohydrates.

**Boron**

Boron is necessary for the production of hormones, which are necessary for the production of proteins and carbohydrates.

**Molybdenum**

Molybdenum is necessary for the production of enzymes that are necessary for the production of proteins and carbohydrates.

**Fertilizer Recommendations**

The recommended rates of application for phosphorus are shown in Figure 6. Rates are given as pounds of potassium (K₂O), which is the common name for potassium (K), which is a newer method. Note that the fertilizer of potassium is applied just above the seed and is mixed with the seed and soil. There are two types of potassium that can be used as an applied fertilizer in this way. First, there is some danger of germination if the fertilizer is included with the seed and the second, the use of nitrogen fertilizer above the row will encourage weed growth. Despite these objections, this may be the most practical method of applying limited amounts of phosphorus and potassium in broadcast application at this low rate.

Fertilizer is broadcasted on corn when the soil phosphorus levels are high. Some farmers are broadcasting the fertilizer after fallow corn and fallow don’t mix. Corn on fallow land appears to be normal. Corn following summer fallow...

**Special Problems**

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**Fertilizer Application**

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