

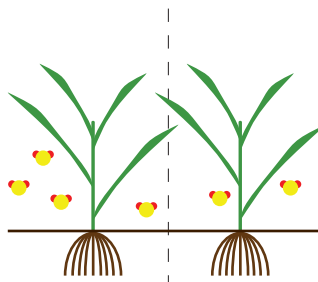
## Sulphur's Important Role in Proper Fertilization

# NPK...And S!

Nitrogen (N), phosphorus (P) and potassium (K) are critical components of a well-fertilized crop. But to achieve higher yields and more nutritious foods, crops may need **SULPHUR (S)**.

**Where do crops get their sulphur?**

**Historically,** SO<sub>2</sub> gas from industrial processes entered the sulphur cycle in large quantities and was taken up by plants in other forms.



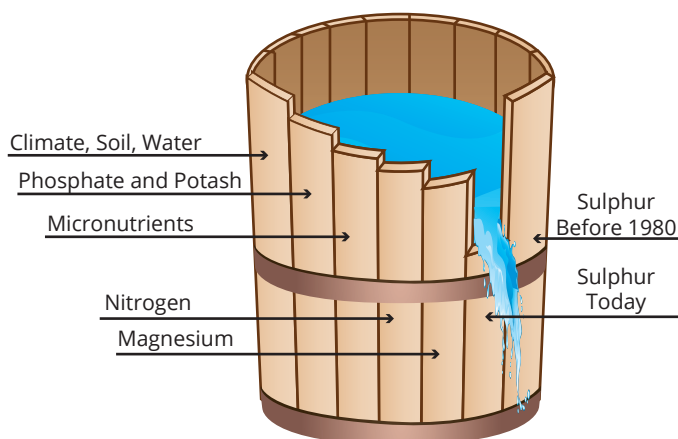
**Today,** crops aren't receiving the necessary amounts of sulphur from the atmosphere alone. It must be included in many fertilization programs.

**Why the change?** Regulations altering the composition of fuels and other pollution controls improved air quality for humans but lowered the amount of sulphur compounds available in the atmosphere for plants.

**Imagine you are filling a bucket with water...**

but one of its slats are broken! The water level can only go as high as the lowest slat before it begins to overflow.

Fertilizers contribute to plant growth like bucket slats help to hold in water. If a nutrient is lacking, the plant can only utilize a portion of the other nutrients.



**Why is sulphur so important?**

**It all depends on where and what you grow!**

Sulphur deficiencies exist the world over and impact many crops. In North America, corn is particularly vulnerable in several regions.

Soil testing, visual inspection, and a sound fertilization program built around the 4Rs can improve crop quality and yield.



Sulphur deficient corn (left) is characterized by yellowing of the "new" leaves of the plant as the deficiency becomes more pronounced, the entire leaf turns yellow with slightly greener veins.

**How much sulphur is needed?**

**What are the 4Rs?** 4R Nutrient Stewardship is an approach to fertilizer management with a simple core concept: apply the right source of nutrient, at the right rate, at the right time and in the right place.

**For more sulphur information and resources visit:**  
[www.SulphurInstitute.org](http://www.SulphurInstitute.org)