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**SUPERCAL SO4**

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- Benefits of SuperCal SO4
- Farming With Gypsum
- Sulfur Fertilization

**SUPERCAL 98G**

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**Gypsum**

Gypsum occurs in several forms. There is CaSO4 which is anhydrite, there is CaSO4-2H2O which is dihydrate gypsum or there can be a combination of both.

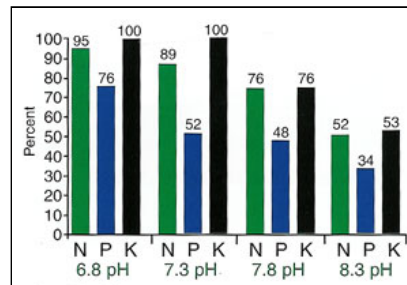
The best form of gypsum for the soil is dihydrate gypsum because it is more soluble. SuperCal SO4 is dihydrate gypsum that is 95 percent pure.

SuperCal SO4 is used in high pH soils for the soluble calcium which needs to be supplied to plants continuously and is the nutrient that corrects imbalances of all the other nutrients and also improves effects of non-essential elements which often may be present at toxic levels. SO4 also has water holding capabilities, for example, SO4 treated soil will hold 80percent more water than non-treated soil. SO4 also contains 17+ percent sulfur in the sulfate form (available to plants immediately).

High pH soil may contain a large amount of calcium but the calcium is tied up in the soil and is unavailable to the plant, the calcium in SO4 is available. A soil pH of 7.5 gives 85percent of a potential 200 bu. Per acre corn yield representing a 30 bu. per acre loss of genetic yield.

Relative (%) Yield at Different pH Levels		
	pH 6.8	pH 7.5
<b>Corn</b>	100%	85%
<b>Beans</b>	100%	93%

Soil pH can have a dramatic impact on crop yield because it has a direct effect on nutrient availability and microbial activity in the soil.



As soil pH rises above 7.0 calcium becomes less soluble and immobile and unavailable for plant uptake, only soluble CA++ and exchangeable CA++ can be utilized by plants. Table 3 below shows the amount of CA++ and Sulfur used by 200 bu. per acre corn and 80 bu. per acre soybeans.

200 Bu/A Corn	80 Bu/A Soybeans
42 lb (.21 lb/bu)CA	136 lb (1.7lb/bu)CA
32 lb (.16 lb//bu)S	36 lb (.45lb/bu)S

SO4 contains 21 percent calcium and 17 percent sulfur (in sulfate form). Calcium is one of 13 essential plant nutrients. In plant nutrition calcium serves as a regulator of the balance of all nutrients. Calcium also has some very unique precise bio chemical roles. All these together with its importance in maintaining soil organic matter levels and good soil structure supports Traynor's (1980) claim that calcium will be the most used nutrient of the future.

The most economical way to get sufficient calcium to plants in a high pH environment is to use SuperCal SO4. The gypsum in SO4 is finely ground then pelletized, to insure an even spread and that all material will get to the ground.

In the list of over 30 favorable reasons for using gypsum on agricultural land, one item suggested that gypsum could result in decreased pH of the photosphere near the active roots. The mechanism for this effect is that many plants take up calcium quite readily, but take up sulfate much more slowly. Since the differential up take of calcium and sulfate results in a buildup of hydrogen ions in photosphere equal to the differential uptake, the pH adjacent to the roots will decrease. The advantage for the effect is that in high pH soils, uptake of the micro-nutrients, iron, zinc, maganese, and copper can be increased.

The use of Super Cal SO4 alone will probably not reduce your pH, but it will create a more friendly environment for your plants.

There is a growing body of literature indicating that gypsum combined with lime is more effective than lime alone.

CaCO<sub>3</sub> (limestone) is insoluble, it stays where you put it. Therefore, the roots will grow thru the lime profile. Gypsum is soluble and will move thru the soil profile, so calcium will be available to the plant the entire growing season. Gypsum also:

- Decreases toxicity of aluminum by formation of (ALSO<sub>4</sub>)<sup>+</sup> complex
- Provides solutes that maintain soil structure and also helps create soil structure (causes soil flocculation and prevents adverse effects of rain). Co-application with lime provides solutes to prevent soil dispersion caused by lime.
- Prevents calcium and sulfur deficiencies
- Provides calcium to improve the stability and concentration of soil organic matter
- Decreases magnesium levels if too high



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