

## Dates to Remember

OCTOBER 3rd

Hunt Valley Golf Club  
Superintendent's Championship Tourney

NOVEMBER

DECEMBER

JANUARY

Turfgrass 79, Baltimore Hilton  
January 7th-11th

January 23-24 - Virginia Turfgrass Conference  
Shannon Green, Fredericksburg

## Sulfur - The Forgotten Turf Nutrient

During the years 1957 through 1962 only 10 to 13 states were listed as having a sulfur deficiency in their soils. Today there are at least 29 states deficient in this amazing life giving element.

Sulfur is essential to the healthy growth of turf as well as all plants. Here are some of sulfur's benefits to turf.

1. Improves water penetration in soil.
2. Increases availability of iron, manganese, copper,

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## Sulfur

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zinc, and boron to the plant.

3. Improves soil structure.
4. Builds healthy protoplasm and plant tissue to help resist drought.
5. Enhances color.
6. Promotes turf growth and density.
7. Aids the turf response when used in combination with nitrogen.
8. Helps keep alkalinity in balance.
9. Aids nitrogen release from organic matter.
10. Improves recuperation capacity.

### WHY IS THERE AN INCREASED NEED FOR SULFUR NOW?

Substantial amounts of sulfur used to be in the air because of coal burning home furnaces. Sulfur would be carried to the soil and plants by rain. During the 50's as much as 200 lbs. of sulfur per acre would be included in the annual rainfall in the Chicago area while the rural areas of Kentucky only received 5 or 6 lbs. of sulfur annually. Today, because of very little sulfur coal burning and environmental controls eliminating sulfur emissions the amount of sulfur returned to the soil in rainfall has been practically eliminated.

Before the popularity of today's high analysis plant food, most fertilizer had a high concentration of sulfur contributed by ingredients, such as ammonium sulfate, superphosphate, potassium sulfate, sul-po-mag. Because of lower costs and greater availability, higher analysis sources of nutrients are used containing little or no sulfur. As a consequence, two of the most important sources of sulfur that have been washed out of the air by rain and a normal ingredient in fertilizer have almost been eliminated.

The sulfur present in the soil is eventually used up or leached out. The more nitrogen used the more sulfur is needed for proper turf growth. Depleted sulfur must be replenished or severe turf damage can result. Here is a list of sulfur sources:

### SULFUR CARRIERS

### AVERAGE FERTILIZER AND SULFUR CONTENT

Sulfur Carrier	N-P-K-S
Elemental sulfur	0-0-0-99
Sulfur-coated Urea	32-0-0-24
Ammonium Sulfate	21-0-0-24
Ferrous Sulfate	18% S, 21% Fe
Gypsum	20% Ca, 18% S
Potassium Magnesium Sulfate (Sul-po-mag)	0-0-22-18, 11% Mg
Ferrous Ammonium Sulfate	16% S, 22% Fe
Potassium Sulfate	0-0-50 - 17% S
Superphosphate	0-22-0 18% Ca, 12% S

### HOW MUCH SULFUR DOES TURF REQUIRE?

Normally grass contains as much sulfur as phosphorous. The more nitrogen that is fed the more phosphorous, potash and sulfur needed. For example, if 4 lbs. of nitrogen were fed each thousand sq. ft. of turf it

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## Sulfur

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would require 1 lb. of phosphorous; 2 lbs. of potash and 1 lb. of sulfur. Sandy soils would require more sulfur because of leaching tendencies.

### CAN SULFUR BE TOXIC TO GRASS?

The major sulfur villain is sulfur dioxide usually produced by smelters. This atmospheric contamination can completely kill plants. It is rare that sulfur added to the soil will harm plants. However, in arid or poorly drained soils, high concentrations of sulfates can cause problems by making calcium unavailable.

### SULFUR DEFICIENCIES

Plants deficient in sulfur have very similar symptoms to those with a nitrogen deficiency; yellowing of leaves, faint scorching of leaf tip continuously until the whole leaf withers and dies.

### SULFUR IS NEEDED TO LOWER pH OR INCREASE SOIL ACIDITY

If your pH is 7 add 2 lbs. of sulfur per 100 sq. ft. for every  $\frac{3}{4}$  degree of pH you want to decrease. For example, if your pH is 7, 2 lbs. of sulfur per 100 sq. ft. will bring your pH down to 6.5 and 4 lbs. of sulfur per 100 sq. ft. will bring the pH down to 6.0. In sand, cut these amounts by one third.

Never add sulfur or lime to correct pH until you have tested your soil and known what the pH is.

Robert A. Brown

Reprinted from the New Hampshire Turf Talk, Vol. 7, No. 1, Jan/Feb, 1977. Mr. Brown is Sales Manager with The Andersons, Lawn Fertilizer Section, Maumee, Ohio.

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## 8 TIPS TO MAKING NEW FRIENDS

1. **REMEMBER** that the time to make friends is before you need them.
2. **BROADEN** your friendship base (including all age groups) so that when you lose friends through death or geographical separation others will remain to take their place.
3. **REGULATE** your routine and business affairs so that friendships receive proper attention.
4. **MAINTAIN** good listening habits (which means active listening and thoughtful responding) so people will look upon you as a friend.
5. **RENEW** past acquaintances with a willingness to fade in or out as the vibes indicate.
6. **MINIMIZE** little inconsistencies and oddities that you notice in your friends, for you too have your share.
7. **COMMUNICATE** by brief, thoughtful gestures such as phone calls or notes. I'm not talking about writing long letters; instead send clippings, snapshots, or a pressed flower with "Hi! Thinking of you."
8. **DARE** to tell your friends that you love them and that they matter to your life.

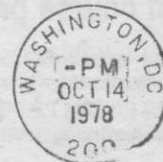
*Boswell in The Life of Samuel Johnson says, "If a man does not make new acquaintances as he advances through life, he will soon find himself left alone. A man, sir, should keep his friendship in a constant repair."*

Credit: Cooperative Extension New York State

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