



GRIGG BROTHERS NEWS

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Organic Soil Amendments and the Health of the Rhizosphere

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The rhizosphere is defined as the soil which is under the influence of the roots. The roots absorb water and nutrients in that area. This area of the soil is rich in microorganisms which increase nutrient availability, immobilize nitrogen in the root zone and reduce nitrate leaching. This biological fraction in the rhizosphere conserves nutrients and is responsible for organic material breakdown and nutrient cycling. The soil microorganisms are responsible for formation of soil structure, improved aeration, and improved drainage.

During photosynthesis; sunlight, carbon dioxide, and water, through the action of the chloroplasts and chlorophyll, yield carbohydrates, oxygen, and water. These carbohydrates are utilized by the plant to sustain growth and life functions and are stored in the roots for reserve. Every living organism in existence needs carbon for survival.

The roots are not photosynthetic and are 100% dependent on the photosynthetic energy captured in the leaves and shoots. The amount of energy captured depends on such things as the duration of light, the extent of stress, and the amount of leaf surface. Modern day superintendents, in order to satisfy the wants of their golfers for green speed, simply cut their greens so low and so often that there is very limited leaf surface.

In an ordinary situation a plant will store 1/2 of all the carbohydrates produced in the root and utilize 1/2 for sustaining life functions. Around 1/2 of that carbohydrate reserve in the root is then excreted back into the rhizosphere as a microbial sub-straight called exudates. These exudates are a combination of protein, carbohydrates, and sugars. Exudates sustain the life of the complex micro-community and the microbes in turn make nutrients available to the plant. Great teamwork!

A modern putting green mowed at 1/8 inch or less, regardless if it is a warm or cool season turfgrass, simply can not accommodate sufficient photosynthesis to produce enough carbohydrates to go around. The turf is trying to survive and does a poor job of storing reserve and an even poorer job of producing exudates.

Since the roots are largely responsible for the organic matter in the soil via exudates, then managing for maximum root growth becomes very important.

The philosophy of many companies, including **Grigg Brothers** is that your turf can not produce enough exudates to build the needed micro-community. They will then produce and sell to you products that will assist in the health of the soil. The philosophy behind their development is backed by science.

These products may contain various types of carbohydrates, protein, glucose and other sugars, sea weed extracts, yucca extracts, organic acids, amino acids, or organic humates such as humic or fulvic acid and organic extracts of composted manure or lenordite. These may be sold individually or in combination products. With everyone making claims and little research forthcoming, you need to choose products made by companies which have good science behind them, make quality products, and are willing to stand behind them. You must judge whether or not they are helping.

Grigg Brothers produces two such products:

Carboplex™ is a blend of sugars and fertilizer. Carboplex™ contains the highest percentage of sugar currently available on the market 35% and is intended to give a boost to the bacterial populations.

Bio-Blend™ is a combination of 15 different carbon extracts and liquid fermentation products containing enzyme precursors, microbial metabolites, plant hormones, organic and amino acids, sugars, and enzyme stimulants. Bio-Blend™ is intended to boost the more complex microbes as well as the mycorrhizal population in the soil rhizosphere. Bio Blend™ also contains Nitrogen and Calcium.

Grigg Brothers recommendation is from 2.5 up to 5 gallons of Carboplex™ mixed with 1 gallon Bio Blend™ per month of growing season. Since both products are targeted to the rhizosphere they should be watered in lightly to be more effective, however, in the event they cannot be watered in lightly, normal irrigation cycles are acceptable.

Grigg Brothers

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