

A large, detailed water droplet is shown on a green leaf, which is the central focus of the image. The droplet is clear and reflects light, with a bright highlight on its surface. The leaf is green and has a visible vein. The background is a light blue surface covered with many smaller water droplets.

Water & Nutrient **MANAGEMENT**

A field of green grass is shown at the bottom of the image, with blades of grass in various shades of green.

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Our Water & Nutrient Challenge

Over the past several years, there has been a growing concern regarding pesticide and nutrient usage. At issue, the general public perceives that the golf, landscape and lawn care industries over use too many products to manage the turf and landscapes. **“Why”** These nutrient and pesticide products are showing up in our drinking and ground water. This has led to grassroots regulatory initiatives to reduce the amount of these products being used. These grassroots efforts have increased in numbers throughout the US and Canada. These legislative efforts are no longer in a few isolated areas. They have grown into city, state and regional efforts to limit or ban the type and amount of fertilizer products that can be applied.

It is time for our industry to move into **“New 21st Century Solutions”** that include biological and organic solutions. Over the past 25 years, there have been many new environmental product breakthroughs that offer excellent results. These exciting new biological solutions can reduce the amount of water and nutrients being applied while delivering outstanding turf quality.

Sanctuary Sustainable Solutions – – *Squeezing More From Your Water & Nutrients*

The buzzwords are **“Sustainability”** or **“Carbon Footprint.”** Sustainable and carbon sequestration are associated with the use of biological or organic products. It's time that we begin to embrace these sustainable organic products and practices. The Sanctuary offers a family of biological nutrient and water management solutions to deliver quality turf and plant health that addresses today's water quality and environmental challenges.

At the Sanctuary, we continue to provide outstanding sustainable products and solutions that work with Mother Nature. The science is simple – **“The Sanctuary products increase the soil microbial populations that promote a natural sustainable approach which reduces the amount of water and nutrients needed without jeopardizing the turf and plant health.”**

The Science of Water & Nutrient Management



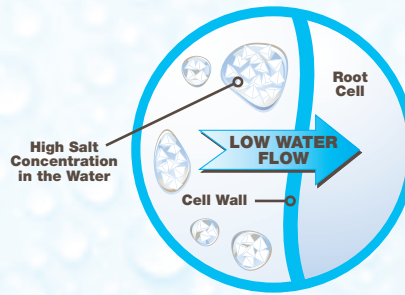
A microbial active soil plays an essential role in releasing water and nutrients to the plant. Microbes play a wide range of roles in the soil that provide a healthy environment for turf and plant growth. Microbes play several key roles in water and nutrient management.

- An active microbial soil holds more water – as much as 4-times as much water. This is roughly 16,000 gallons of water for every inch of soil profile per acre.
- Microbes produce enzymes that increase water infiltration and absorption into the soil. Plus, these enzymes help to strip nutrients that are locked up on the soil colloid. This enhances nutrient availability.
- Microbes store plant nutrients in their body. As microbes die, these nutrients are slowly released to the plant or turf.
- Microbes can fix nitrogen from the air plus solubilize phosphorus that is trapped in the soil.
- A balanced, active microbial population can reduce overall plant stress problems.

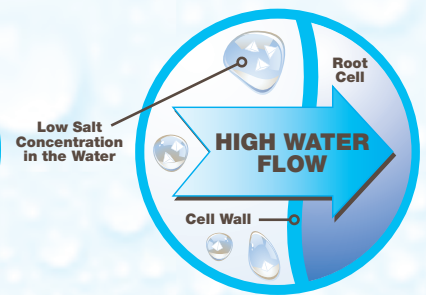
Simply, microbes are like mini bags of recycled nutrients that serve a multitude of functions in promoting soil and plant health. The term **“Sustainable Nutrient Recycling”** clearly describes the action of microbes in the soil. These unique benefits separate Sanctuary products from traditional nutrient fertilizers. The Sanctuary water and nutrient benefits translate into some key **“Best Management Practices”** that can reduce your impute costs while improving **“Plant Health.”**

Water Management Principle that Deals with Salt Concentrates

The Science: Traditional fertilizer products increase osmotic water stress within the soil due to their high salt content. This salt content reduces water availability to the plant (**Chart A**). Whereas, the Sanctuary organic fertilizer products use low salt ingredient sources that substantially reduces total salt levels (**Chart B**). In short, the Sanctuary products promote an environment that increases water availability due to these lower salt levels. This **“Water Conservation Benefit”** can reduce your overall irrigation requirements and associated energy costs.



(Chart A)
TRADITIONAL FERTILIZER

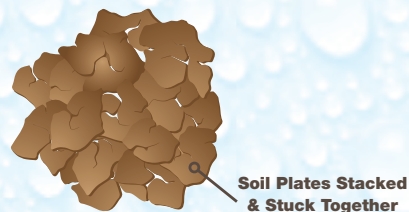


(Chart B)
SANCTUARY FERTILIZER

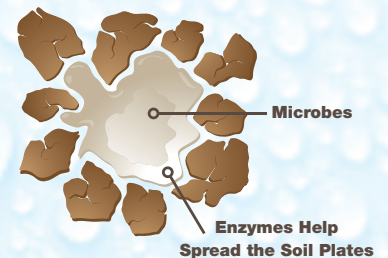
Water Management Principle that Deals with Microbial Activity

The Science: Soil microbes play a key role in soil aggregation, which increases water infiltration and the soils water holding capacity. Soil microbes produce an enzyme that increases the volume of soil pore space. These pores enhance water infiltration, increase soil-holding capacity and improves overall water availability. Sanctuary products increase the natural microbial populations in the soil. Traditional products actually reduce the microbial populations, which can reduce these water conservation aspects. These traditional products can be water management liabilities.

Soil Plates

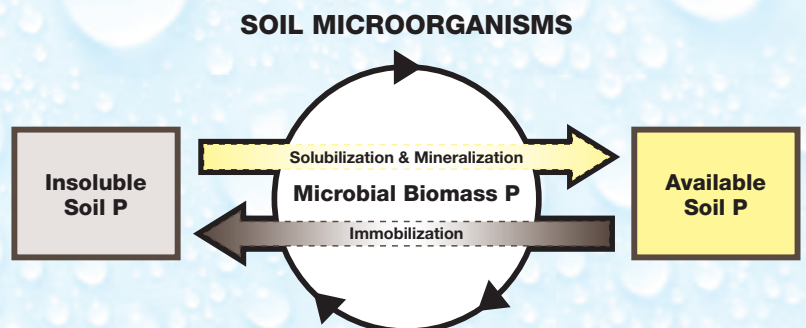


Soil Plates with Healthy Microbial Population



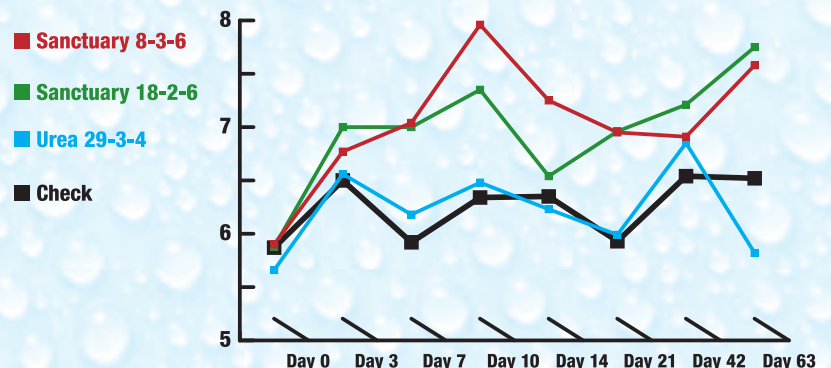
Nutrient Management Principle that Deals with Phosphorus Availability

The Science: Soil microbes play an essential role in the solubilization of phosphorus. The soil microbes produce various enzymes or hormones that mine phosphorus tied up in the soil. These microbes also aid with root stimulation that promotes the absorption of this phosphorus. This Sanctuary beneficial nutritional feature explodes the microbial population that promotes this soil enzymatic process. Traditional fertilizers lack this nutritional feature.



Nutrient Management Principle that Deals with Nutritional Energy

The Science: Organic fertilizer is a complex combination of plant nutrients and microbial nutritional energy. These nutrients are released by microbial breakdown. The soil microbes slowly release these nutrients to the plant. Different organic ingredients have different nutrient and energy levels. These nutritional levels separate organic fertilizer types from traditional fertilizers. Traditional fertilizer products lack this energy to stimulate the soil microbial populations.



Sanctuary Helps to Squeeze the Most from Your Nutrient & Water Investment

As water and nutrient regulations continue to have an impact on our management methods, the Sanctuary products bring a wide range of benefits to improve the dynamics of **"Water & Nutrient Conservation."** The Sanctuary products provide a vehicle to reduce water usage while maintaining turf quality. This benefit addresses this new frontier that focuses on basic **"Soil & Plant Health Methods."** As an industry under environmental pressures, we are being asked to reduce our dependency on traditional fertilizer and pesticide products. We continue to rely on methods that are going to be obsolete and tax our natural resources. The Sanctuary can offer new biological approaches that provide these differences:



- A more natural nutrient management approach that reduces our annual usage rates while enhancing plant resilience and quality.
- Products that complement Mother Nature's approach to plant health, which are built on sustainable methods.
- A water and nutrient conservation program that squeezes more efficiency from fewer resources and offers cost-effective budgetary savings.
- With more states prohibiting the use of Phosphorus, the Sanctuary provides a biological method to release soil bound phosphorus.

In short, the Sanctuary products will play a key role in reducing your water and nutrient usage. The Sanctuary biological products will deliver the agronomic, economic and environmental benefits that exceed budgetary expectations. These budgetary savings help to stretch your water, fertilizer and pest control dollars. The Sanctuary products are much more than a fertilizer. The Sanctuary organic fertilizer products influence the physical and biological make up of the soil and the plant.

As we move forward into the 21st century, we need to explore ways to develop more **"Sustainable Approaches"** to nutrient and water management. With an increase in new legislative restrictions, we need to consider alternative methods that provide for the sustainable future of our industry. This includes the integration of more efficient delivery methods that are biologically based. The science backs the use of biological alternatives. These biological methods are safe, effective and sustainable long into the future generations. It's time to consider the **"Sanctuary Biological Alternatives – Your Sustainable Approach to Plant Health."**



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