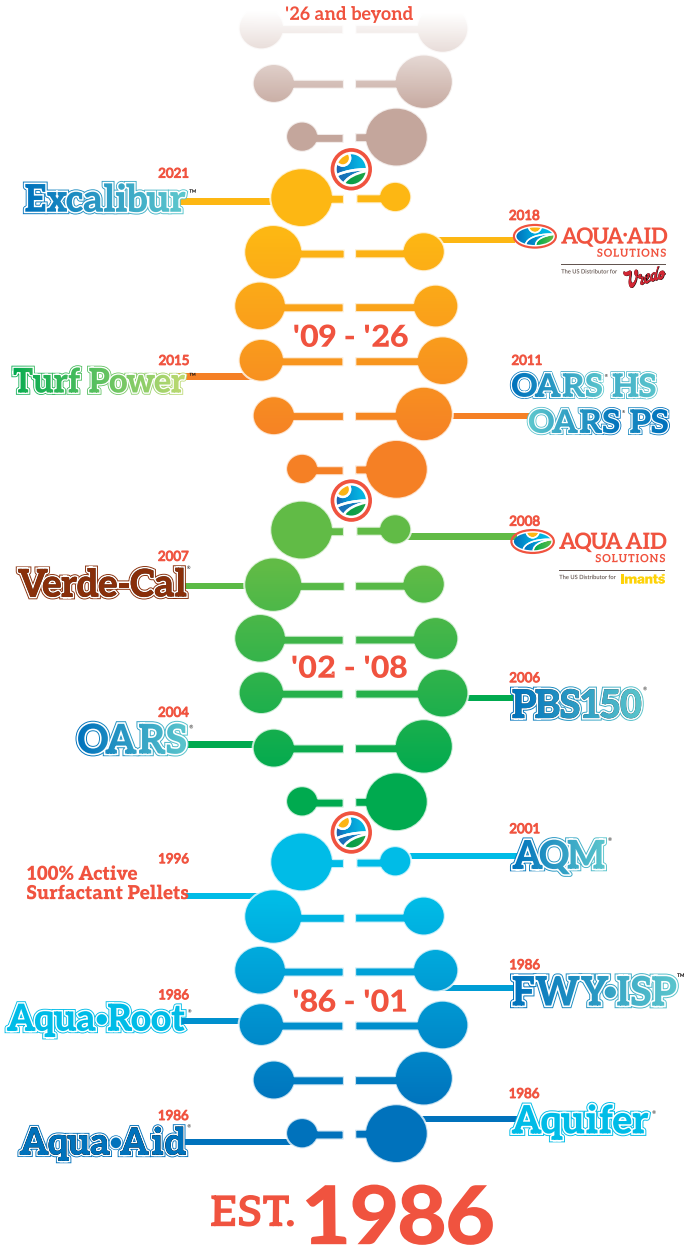
AQUA·AID SOLUTIONS

Solutions To Touch Every Part Of Your Agronomic Program

Innovation Driven by Research
It's in our DNA

Committed to developing innovative, research-based surfactant technologies that drive reliable and sustainable turf solutions.



CELEBRATING 40 YEARS
EST 1986
1986 - 2026

Solutions, Proven in Research. Trusted by Turf Managers

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MOISTURE MANAGEMENT SOLUTIONS

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Visit AQUAAIDSOLUTIONS.COM for additional product information including labels and SDS.

Product Formulations

Liquid Granular Pellet

Excalibur™

Infiltration Hydrator with PHT™ Technology

- Proprietary Potentiated Hydrophobe Technology™ (PHT) delivers next-generation soil surfactant performance.
- Rapid-response infiltration and rehydration ensure consistent hydration, dry-down, and superior soil moisture responsiveness.
- Enhances adsorption to hydrophobic particles for reliable soil hydration and uniform moisture distribution.
- Radically increases water infiltration, improving efficiency and turfgrass resilience.
- Provides high-quality, stress-resistant turfgrass at significantly lower use rates than competing products.
- Safe, easy-to-apply solution that fits any agronomic program and can be used year-round.

Golf, Lawns, and Sports Turf

	Monthly Application		Bi-Weekly Application	
Interval	28-30 days		12 - 15 days	
Application Rate	**3 - 4 oz** per **1000 ft²**	**10 - 13 L** per **ha**	**1.5 - 2 oz** per **1000 ft²**	**5 - 6.5 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	2 gal per 1000 ft²	800 L per ha

Curative

Interval	7 days	
Application Rate	**4 oz** per **1000 ft²**	**13 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha

Irrigate with sufficient water to deliver Excalibur to the soil profile – 1/8 inch (3 mm) or more recommended.

Apply when hand watering.

RESEARCH

Evaluation of four commercially available surfactants on infiltration efficiency

Evaluation Time Frame: June 2019

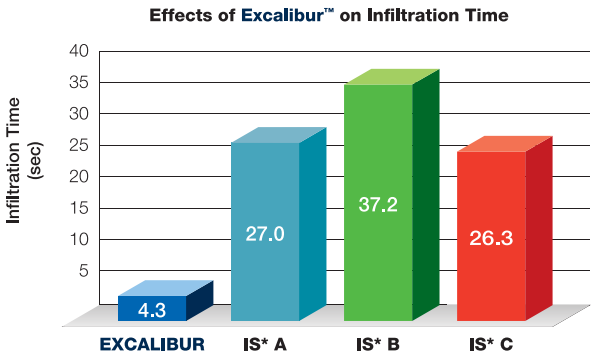
Treatments:
Excalibur and three (3) industry standard surfactants were evaluated at a concentration of 8000 ppm (1 ounce per gal) and compared to a water only control. All test solutions were prepared in tap water and used within 4 hours of preparation.

Evaluation:
Water repellent sand used in the testing was a fine textured sand collected from a pine forest. The level of water repellency was determined by applying a drop of tap water or surfactant solution on the surface of dry sand and measuring the time for infiltration. Measurements were made for a maximum of 3600s. These sands are at minimum "severely water repellent".

Method:

1. A small petri dish was filled with water repellent sand to a depth of about 5-8 mm.
2. A drop of water or test solution was placed on the soil surface and time to infiltrate measured in seconds.
3. All measurements were made in triplicate (n=3). Results presented reflect the mean of the three replicates.

Conclusion:
Excalibur outperformed each of the industry standard surfactants tested. While all surfactants positively influenced infiltration time, mean infiltration times for Excalibur was 6 to 8 times faster than any of the industry standard products. Excalibur was highly effective at delivering water into a water repellent soil.



Mean of three replicate tests on naturally occurring water repellent sand (WDPT>3600 s)

* Industry Surfactant

Scan for more information

RESEARCH

Scan for more information

Evaluation of Excalibur, Abamectin and combinations for suppression of Sting and Lance nematodes in Tifdwarf bermudagrass *(Martin)*

Evaluation Time Frame: April 23rd to July 17th, 2021

Location: South Carolina

Treatments:
Trials were conducted on tifdwarf bermudagrass greens in South Carolina. Excalibur was applied at 4 ounces per 1,000 ft^2 on April 23rd, followed by subsequent applications of 3 ounces per 1,000 ft^2 every 28 days. All Excalibur applications were immediately watered in with 0.25" of water.

Abamectin was applied at 12.2 ounces per acre and subsequent applications used the spot treatment rate of 12.2 ounces per 10,000 ft^2. Spot treated Abamectin plots were pre-wetted, sprayed with a 2.1 gallon per 1,000 ft^2 carrier solution, and immediately watered in with 0.25 inches of water.

Evaluation:
Plots were evaluated for turf color, turf quality and turf density.

Turf Density Conclusion:

Excalibur with Abamectin tank-mix treatments produced the highest density ratings on all measurement dates.

Density of Excalibur with Abamectin tank-mix treated plots was significantly higher than Abamectin alone on all but one measurement date.

Density of Excalibur with Abamectin tank-mix treated plots increased over time.

Turf Color Conclusion:

Tank-mixing of Abamectin with Excalibur produced the highest turf color ratings.

All Excalibur with Abamectin tank-mix treatments resulted in increased turf color responses over time.

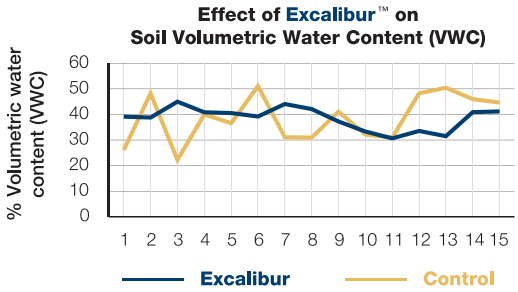
Excalibur when applied with Abamectin significantly improves turf color.

Turf Quality Conclusion:

Optimal turf performance was achieved when Excalibur was tank-mixed with Abamectin or when Excalibur was applied before tank-mix.

Excalibur™

TRIAL DATA



Northwest NY

Fairway Single Row Irrigation

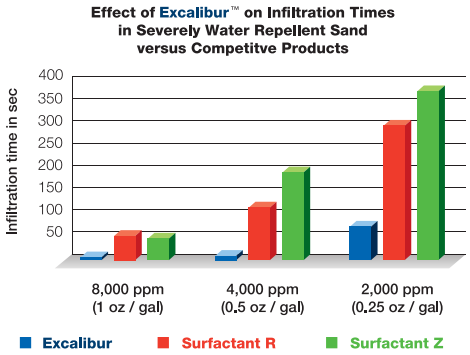
Excalibur applied at 3 ounces per 1,000 ft^2 every 30 days.

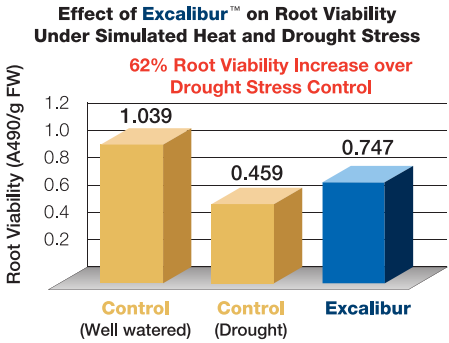
Volumetric Water Content (VWC) was measured on a transect on both the treated and control side of the fairway.

Excalibur is proven to provide consistent uniform hydration under both dry and wet soil moisture environments.

Excalibur provides rapid infiltration.

Excalibur provides greater infiltration over competing products at lower user rates.





Zhang, Virginia Tech, Study 1, 2021/22

Excalibur maintains root viability under drought and heat stress

A higher root viability value indicates greater root growth and function as determined by the method described in Crop Science (2017; vol. 57, p. S130-S137)

OARS® HS

Hydrating Surfactant with Organic Acid Redistribution System

- Combines patented OARS technology with multi-branched hydrating chemistry for complete soil hydration management.
- Removes humic coatings from hydrophobic soil particles to improve water movement.
- Controls and prevents soil water repellency for consistent moisture balance.
- Increases the number of hydrating sites to enhance moisture retention and uniformity.
- Extends activity in the soil for lasting performance between applications.
- Reduces drought stress and maintains turf quality in hard-to-wet areas.

Golf, Lawns, and Sports Turf

	Monthly Application		Bi-Weekly Application	
Interval	30 days		15 days	
Application Rate	**4- 5 oz** per **1000 ft²**	**13 - 16 L** per **ha**	**2 - 2.5 oz** per **1000 ft²**	**6 - 8 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	2 gal per 1000 ft²	800 L per ha

For extreme drought conditions with high temperatures and/or increased soil water repellency, apply:

Interval	30 days	
Application Rate	**6 - 8 oz** per **1000 ft²**	**20 - 25 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha

Irrigate with sufficient water to deliver OARS HS to the soil profile - 1/8 inch (3 mm) or more recommended.

RESEARCH

Evaluation of two commercially available wetting agents on soil moisture management

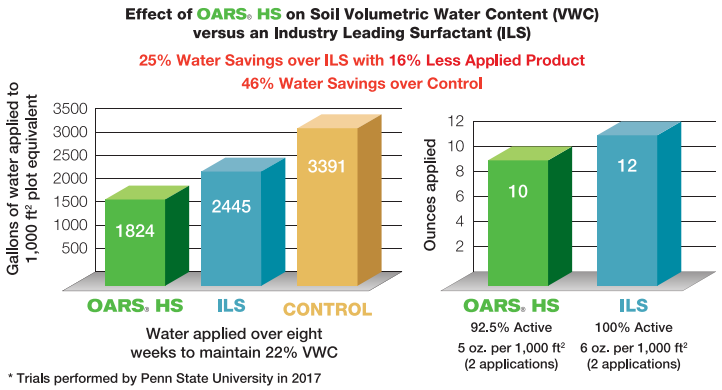
Evaluation Time Frame: April 15, 2017 to July 14, 2017, 91 Days

Location: Penn State University, Berks Campus Agricultural Research Center

Treatments:
Trials were conducted on potted containers with a soil consistency of 70% sand and 30% soil planted with L-93 creeping bentgrass. Applications were made at label recommendations. Two applications of OARS HS regenerating multi-branched surfactant were made at 5 ounces per 1,000 ft^2. Two applications of an industry leading modified/methyl-capped block copolymer surfactant were made at 6 ounces per 1,000 ft^2.

Evaluation:
Evaluation of OARS HS regenerating multi-branched surfactant and an industry leading modified/methyl-capped block copolymer surfactant on soil moisture management of L-93 creeping bentgrass grown in a 70/30 sand to soil mix in potted containers. Target moisture level was 22% Volumetric Water Content (VWC). Rewetting of the matrix occurred once 15% VWC was measured. Both measurements were completed using a Spectrum TDR 300 Moisture Meter. The dry down was initiated on May 19, 2017.

Conclusion:
OARS HS pots required 46% less water than the control pots maintained at 22% VWC. 46% less water is equivalent to 1,706,183 gallons saved for 25 acres of fairways in an 8 week period. OARS HS outperformed the industry leading surfactant by saving 25% more water and required less watering cycles than the control.



* Trials performed by Penn State University in 2017

Scan for more information

OARS® PS

Penetrating Surfactant with Organic Acid Redistribution System

- Features patented OARS technology that removes humic coatings from hydrophobic soil particles.
- Combats soil water repellency for more consistent moisture management.
- Enhances uniform moisture distribution throughout the soil profile.
- Improves water infiltration and penetration for firm, fast turf surfaces.
- Extends soil activity for long-lasting performance and efficient water use.
- Backed by AQUA-AID Solutions' money-back guarantee.

Scan for more information

Golf, Lawns, and Sports Turf

	Monthly Application		Bi-Weekly Application	
Interval	30 days		15 days	
Application Rate	**4- 5 oz** per **1000 ft²**	**13 - 16 L** per **ha**	**2 - 2.5 oz** per **1000 ft²**	**6 - 8 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	2 gal per 1000 ft²	800 L per ha

For increased surface firmness, apply :

Interval	30 days	
Application Rate	**6 - 8 oz** per **1000 ft²**	**20 - 25 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha

Irrigate with sufficient water to deliver **OARS PS** to the soil profile - 1/8 inch (3 mm) or more recommended.

OARS®

Organic Acid Redistribution System with Hydrating Surfactant

- Addresses the root cause of soil water repellency by solubilizing organic acids at the thatch/soil interface.
- Removes humic coatings and hydrophobic organic substances from soil particles.
- Provides uniform movement and distribution of water throughout the soil profile.
- Delivers 30 days of deep hydration and consistent re-wetting patterns.
- Creates drier, firmer, more playable turf surfaces.
- The only corrective surfactant technology proven to eliminate, not mask, water repellency — backed by a money-back guarantee.

Golf, Lawns, and Sports Turf

	Monthly Application		Bi-Weekly Application*	
Interval	30 days		15 days	
Application Rate	**6- 7 oz** per **1000 ft²**	**20 - 23 L** per **ha**	**7 oz** per **1000 ft²**	**23 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	2 gal per 1000 ft²	800 L per ha

*For increased penetration and surface firmness.
Irrigate after each application to remove the surfactant from the plant surfaces.

Interval	30 days	
Application Rate	**3.75 lbs** per **1000 ft²**	**180 kg** per **ha**

*Irrigation is necessary to release **OARS** from the carrier. Irrigate before next mowing or leave baskets off.

Apply when hand watering.

PBS150®

Multi-Branched Long-Term Surfactant

- Published research shows PBS150 can reduce water use by up to 36%, while supporting faster recovery and healthier turf.
- Long-term surfactant with a unique multi-branched molecular structure designed to resist biodegradation by soil microbes.
- Maintains a uniform soil moisture profile for extended periods, even under heat and water stress.
- Supports consistent water availability to the root zone, promoting turfgrass recovery and carbohydrate replenishment.
- Reduces hydrophobic soil conditions for 5 months or more and encourages balanced hydration and rehydration patterns.
- Restores uniform water movement through the soil profile, improving stress tolerance and overall turf performance.

Fairway, Tees and Sports Turf

	100 Day Moister Management*		150 Day Moister Management**	
Num. of Application	2 Applications		3 Applications	
Interval	15 days		15 days	
Application Rate	**5 oz** per **1000 ft²**	**16 L** per **ha**	**5 oz** per **1000 ft²**	**16 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	2 gal per 1000 ft²	800 L per ha

*Reapply 90 to 100 days after last treatment or as needed. **Reapply 120 to 150 days after last treatment or as needed.

Bunker Faces, Collars , Roughs and Lawns

Num. of Application	2 Applications	
Interval	7-10 days	
Application Rate	**8 oz** per **1000 ft²**	**25 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha

- Irrigate with sufficient water to deliver **PBS150** to the soil profile - 1/8 inch (3 mm) or more recommended.

PBS 150 INJ (45% Active)

- Inject 2 quarts per acre (5 L/ha) at 15 to 30 day intervals or as needed.

Fairways, Tees, Bunker Faces, Collars , Roughs, Lawns and Sports Turf

	75 Day Moister Management*		150 Day Moister Management**	
Num. of Application	Single Application		Split Application (2 app.)	
Interval	-		7-10 days	
Application Rate	**4 lbs** per **1000 ft²**	**200kg** per **ha**	**4 lbs** per **1000 ft²**	**200kg** per **ha**

*Reapply after 60 to 75 days or as needed. **Reapply a split application after 120 to 150 days or as needed.

Irrigation is necessary to release PBS150 from the carrier. Irrigate before next mowing or leave baskets off.

RESEARCH

Evaluation of two commercially available wetting agents on soil moisture management

Evaluation Time Frame: March 30, 2016 to August 8, 2016, 132 Days

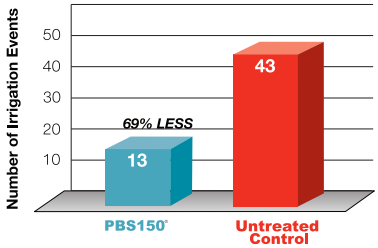
Location: Penn State University, Joseph E. Valentine Turfgrass Research Center

Treatments:
Trials were conducted on native soil fairways. Applications were made at label recommendations. Three applications of PBS150 regenerating multi-branched surfactant were made at 5 ounces per 1,000 ft^2. Three applications of an industry leading modified/methyl-capped block copolymer surfactant were made at 6 ounces per 1,000 ft^2.

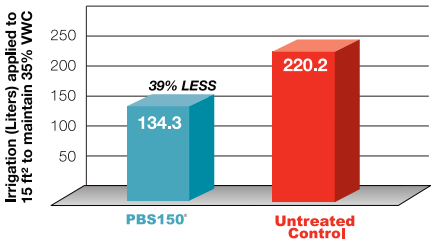
Evaluation:
Evaluation of PBS 150 regenerating multi-branched surfactant and an industry leading modified/methyl-capped block copolymer surfactant on soil moisture management of an L-93 creeping bentgrass grown on a native soil fairway. Target moisture level was 35% Volumetric Water Content (VWC). Rewetting of the matrix occurred once 25% VWC was measured. Both measurements were completed using a Spectrum TDR 300 Moisture Meter. The dry down was initiated on June 8, 2016.

Conclusion:
PBS150 plots required 36% less water than the control plots maintained at 35% VWC. 36% less water is equivalent to 1,470,150 gallons saved for 25 acres of fairways in an 8 week period. PBS150 outperformed the industry leading surfactant by saving 6% more water and required less watering cycles than the control.

PBS150® resulted in a ***69%*** reduction in irrigation frequency



PBS150 resulted in a ***39%*** reduction in irrigation water consumption



Scan for more information

Hydra•30 Plus™

Hydration Surfactant

- Restores uniform hydration throughout the root zone across a variety of soil types.
- Enhances overall moisture management within agronomic programs.
- Contains a vitamin package to help turf combat stress and speed recovery.
- Improves root zone moisture to strengthen turf health and resilience.
- Provides application flexibility, visible results, and cost effectiveness.
- Produces firm, consistent turfgrass surfaces under varying conditions.

Golf, Lawns, and Sports Turf

Interval	30 days	
Application Rate	**3 oz** per **1000 ft²**	**10 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha

Irrigate after each application to remove the surfactant from the plant surfaces.

Inject 4 to 6 quarts per acre (9 to 14 L/ha) at 30 to 45 day intervals or as needed.

Aquifer®

Hydrating Surfactant

- Produces omni-directional flow for uniform downward and lateral water movement throughout the soil profile.
- Maintains consistent soil moisture for up to 45 days, reducing localized dry spots and wilt.
- Promotes even distribution of water, nutrients, and chemicals throughout the root zone.
- Minimizes summer stress and improves re-wetting capability in challenging soil conditions.
- Ideal for dry, compacted, and hydrophobic soils as part of a sound water management program.
- Non-ionic, environmentally safe formulation that can be applied through irrigation or spray systems.

Golf, Lawns, and Sports Turf

	Maintenance Program*		High Water Repellency Program**			
Interval	30 - 45 days		Initial Application		15 days	
Application Rate	**4 oz** per **1000 ft²**	**13 L** per **ha**	**6 - 8 oz** per **1000 ft²**	**20 - 25 L** per **ha**	**4 oz** per **1000 ft²**	**13 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	3 gal per 1000 ft²	1200 L per ha	2 gal per 1000 ft²	800 L per ha

*Inject 4 to 6 quarts per acre (9 to 14 L/ha) at 30 to 45 day intervals or as needed.

** Once turf conditions improve, apply 4 ounces per 1,000 ft² in 2 gallons of water (13 L/ha in 800 L) at 30 to 45 day intervals or as needed. Irrigate after each application to remove the surfactant from the plant surfaces.

Interval	30 - 45 days	
Application Rate	**2.5 lbs** per **1000 ft²**	**120 kg** per **ha**

Apply when hand watering.

Conduit90®

Long-Term Soil Surfactant

- Long-term soil surfactant that provides consistent turf management in both drought and excessive rain.
- Relieves soil water repellency to maintain a uniform moisture profile throughout the root zone.
- Prevents localized dry spot formation when applied early in the season.
- Safe and effective for use during extreme heat or drought without risk of turf damage.
- Promotes deep and even water and nutrient movement through the soil.
- Delivers lasting performance for up to 90 days in the soil profile.

Golf, Lawns, and Sports Turf

	Full Rate Application		Split Application*	
Num. Of Application	–		Two Applications	
Interval	90 days		7 - 10 days	
Application Rate	**16 oz** per **1000 ft²**	**50 L** per **ha**	**8 oz** per **1000 ft²**	**25 L** per **ha**
Spray Volume	5 gal per 1000 ft²	2000 L per ha	2.5 gal per 1000 ft²	1000 L per ha

*Reapply a split application after 90 days or as needed.

Irrigate after each application to remove the surfactant from the plant surfaces.

	Split Application*	
Num. Of Application	Two Applications	
Interval	7 - 10 days	
Application Rate	**3.25 lbs** per **1000 ft²**	**160 kg** per **ha**

*Reapply a split application after 90 days or as needed.

Irrigation is necessary to release Conduit 90 from the carrier. Irrigate before next mowing or leave baskets off.

Aqua-Aid®

Infiltration Surfactant

- Unique water-based formulation of premium surfactants and wetting agents.
- Safe to apply year-round with no risk of phytotoxicity.
- Enhances infiltration by reducing water surface tension.
- Promotes uniform soil moisture and healthier turf.
- Cost-effective and compatible with most tank mixes and irrigation systems.
- Environmentally safe solution for turf, agricultural, and horticultural use.

Golf, Lawns, and Sports Turf

	Initial Applications		Second Application	
Num. Of Application	Two Applications		As needed	
Interval	15 days		30 days	
Application Rate	**2 - 4 oz** per **1000 ft²**	**6 - 13 L** per **ha**	**2 - 4 oz** per **1000 ft²**	**6-13 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	2 gal per 1000 ft²	800 L per ha

Irrigate after each application to remove the surfactant from the plant surfaces.

Inject two applications 15 days apart at 1 to 4 quarts per acre (3 to 10 L/ha). Reapply at 1 to 2 quarts per acre (3 to 5 L/ha) at 30 day intervals or as needed.

	Initial Applications		Second Application	
Num. Of Application	Two Applications		As needed	
Interval	30 days		30 days	
Application Rate	**3 lbs** per **1000 ft²**	**150 kg** per **ha**	**1.5 - 3 lbs** per **1000 ft²**	**75 -150 kg** per **ha**

Irrigation is necessary to release Aqua-Aid from the carrier. Irrigate before next mowing or leave baskets off.

Apply when hand watering.

FWY·ISP™

Injectable Infiltration Surfactant

- Enhances the penetration and infiltration of applied water through all irrigation systems.
- Corrects water-repellent and hard-to-drain areas such as fairways and mounds.
- Improves uniform moisture distribution and nutrient delivery efficiency.
- Compatible with all conventional irrigation and ground spray equipment.
- Effective at concentrations as low as one part per 200,000.
- Safe and cost-effective solution for all turfgrass types.

Golf, Lawns, and Sports Turf

	Irrigation Injection		Fertigation Injection*		Overseeding**	
Interval	30 days		30 days		-	
Application Rate	**1 - 2 quarts** per **acre**	**3 -5 L** per **ha**	**1 - 2 quarts** per **acre**	**3 -5 L** per **ha**	**2 quarts** per **acre**	**5 L** per **ha**

* Mix proportionally to liquid nutrients.
** Apply one week prior to overseeding and a second application is required immediately following the overseeding.

Irrigate after each application to remove the surfactant from the plant surfaces.

AQM®

Kelp Extract with Soil Wetting Agents

- Formulated with a highly refined, enriched kelp extract and surfactant to complement existing turfgrass programs.
- Contains fresh Ascophyllum nodosum kelp extracted using physical cell burst technology to preserve natural cytokinins, auxins, nutrients, and amino acids.
- Stimulates lateral and secondary root development, increasing overall root mass and absorption capacity.
- Enhances nutrient uptake and plant vigor through biologically active metabolic enhancers.
- Provides uniform water infiltration and distribution in the root zone for improved delivery of kelp extracts.
- Improves turfgrass stress tolerance, chlorophyll content, and photosynthetic activity for healthier, more resilient turf.

Golf, Lawns, and Sports Turf

Interval	30 - 45 days	
Application Rate	**3 oz** per **1000 ft²**	**10 L** per **ha**
Spray Volume	1 - 2 gal per 1000 ft²	400 - 800 L per ha

Inject 1 gallon per acre (10 L/ha) at 30 to 45 day intervals or as needed.
Irrigate after each application to remove the surfactant from the plant surfaces.

Horticulture

Application Rate	**3 oz** per **1000 ft²**	**10 L** per **ha**
Spray Volume	1 - 2 gal per 1000 ft²	400 - 800 L per ha

Apply 2 to 3 weeks after germination or transplant. Apply a follow-up application at bloom set.
Irrigate after each application to remove the surfactant from the plant surfaces.

Sod Installation

Application Rate	**3 oz** per **1000 ft²**	**10 L** per **ha**
Spray Volume	1 per 1000 ft²	400 L per ha

Apply immediately following sod installation. Follow up with normal turf program.
Irrigate after each application to remove the surfactant from the plant surfaces.

Apply when hand watering.

PELLET FORMULATIONS

THE INFILTRATION HYDRATING PELLET

Excalibur™

- **Reduces water surface tension**
- **Increases water penetration**
- **Provides uniform wetting**
- **Helps wet hydrophobic soils**

Best used in conjunction with a surfactant program:
- To efficiently and effectively manage areas prone to LDS
- During daily turf preparations (Greens, Tees, Fairways, and Sports Fields)
- To maximize infiltration in the top of your surface while maintaining adequate hydration in the rootzone

THE ALL PURPOSE WATER SAVING PELLET

Aqua-Aid

- **Reduces water surface tension**
- **Increases water penetration**
- **Provides uniform wetting**
- **Helps wet hydrophobic soils**

Best used in conjunction with a surfactant program:
- As an all around pellet with penetrating surfactant technology
- During daily turf preparations (Greens, Tees, Fairways, and Sports Fields)
- On heavy soils to help with water infiltration and penetration
- Available in MAXI Pellet (7.5 lb Pellet)

THE HYDRATING AND REWETTING PELLET

Aquifer

- **Long lasting soil penetrant**
- **Provides uniform rewetting**
- **Increases water retention**
- **Manages localized dry spots (LDS)**

Best used in conjunction with a surfactant program:
- As an all around pellet with hydrating surfactant technology
- During daily turf preparations (Greens, Tees, Fairways, Bunker Faces and Banks, and Sports Fields)
- On tie-ins (collars and approaches, and tees) to mitigate wicking of moisture
- After turf cultivation processes for hydration and recovery
- Available in MAXI Pellet (7.5 lb Pellet)

THE HUMIC ACID NUTRIENT CHELATION PELLET

Aqua-Root

- Formulated with humic acid
- High cation exchange capacity
- Chelates and translocates nutrients

Best used in conjunction with a surfactant program:
- On stressed turf, especially putting greens for quick recovery
- On locations that are dealing with bad water (high sodium and/or bicarbonate levels)
- On high sand and low CEC soils to aid in nutrient availability
- During daily turf preparations on Bunker Faces and Banks

THE LOCALIZED DRY SPOT SOLUTION PELLET

OARS

- **Increases water infiltration**
- **Mitigates the cause of localized dry spots (LDS)**
- **Maximizes water availability**

Best used in conjunction with a surfactant program:
- To mitigate development of LDS during chronic dry down and rewet cycles
- During daily turf preparations (Greens, Tees, Fairways and Sports Fields)
- On locations that are dealing with bad water (high sodium and/or bicarbonate levels)
- In conjunction with a fungicide and liquid surfactant program, to help mitigate Fairy Ring damage

THE ROOT PRODUCING ENHANCED KELP

AQM

- **Encourages maximum root growth**
- **Provides maximum root density**
- **Maximizes water availability**
- **Benefits of auxins and cytokinins**

Best used in conjunction with a surfactant program:
- When watering newly seeded or sodded areas
- Where root development and root mass needs to be increased
- In shoulder seasons to strengthen weakened turf
- As a prestress conditioner
- After turf cultivation processes for hydration and recovery

the PROPORTIONER SYSTEM

- Golf Courses
- Athletic Fields
- Nurseries
- Landscape Plantings
- Greenhouse
- Transplanting
- Home Lawns and Gardens

The AQUA-AID Solutions PROportioner System is designed specifically for use on all types of turf, perennials, annuals, vegetables, and ornamental plantings.

A convenient system with no chemical mixing for utilizing our Moisture Management Products that is as easy as hand watering. Five pellet formulations that are designed to make hand watering more effective and longer lasting. Our pellets contain 100% active ingredients and are nontoxic to all types of turf, annuals, perennials or ornamental plants.

Use your existing sprinkler heads as a proportioner

Remove sprinkler head internals

Cut a sliver of pellet and drop inside the housing on top of the foot valve

Replace internals and run sprinkler

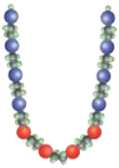
Scan for more information

LEGACY SURFACTANT TECHNOLOGIES

LINEAR INFILTRATION

A linear polymer providing surface tension relief to maximize downward movement of water with 15 to 30 day activity.

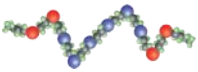
Aqua•Aid



STRAIGHT BLOCK

Hydrating surfactant maximizes hydration in the top 1 to 2 inches of the soil profile. Hydrating surfactant attaches itself to the soil particle and/or

Aquifer

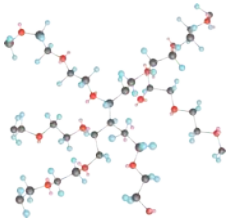


REVERSE BLOCK

Hydrating surfactant attaches itself to the soil particle and/or organic matter, providing predictable hydration for 30 to 90 days. Supplies lasting omni directional movement of water and nutrients throughout the soil profile.

Conduit90

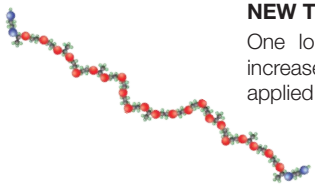
PATENTED, PREMIUM SURFACTANT TECHNOLOGIES



MULTI-BRANCHED REGENERTATIONAL

Has 6 - 8 times the number of active sites. Provides greater soil viability and uniformity for longer duration. Less ounces required providing greater efficacy over a longer duration.

PBS150 OARS PS OARS HS



NEW TECHNOLOGY MODIFIED BLOCK COPOLYMER

One long hydrophobic with two small hydrophilic pieces radically increases the wettability and responsiveness of treated surfaces to applied water, giving it unique performance characteristics.

Excalibur™

Turf Power™

Vermicompost Organic Liquid Extract

- Strengthens the physical and biological properties of soil to improve overall soil health.
- Enhances plant vigor, strength, and stress tolerance through improved soil function.
- Delivers a robust and diverse microbial population that boosts soil fertility and nutrient availability.
- Accelerates root initiation, establishment, and development for stronger turf performance.
- Produced under tightly controlled conditions to ensure a consistent and reliable product.
- Supported by peer-reviewed state and federal research demonstrating stronger, healthier, more vigorous plants.

Golf, Lawns and Sports Turf

	Maintenance Rate		Thatch reduction Rate*		Horticultural Root Drench Application**			
Interval	15 days		30 days		3 weeks		Weekly	
Application Rate	**8 oz** per **1000 ft²**	**25 L** per **ha**	**16 oz** per **1000 ft²**	**50 L** per **ha**	**10 oz**	**80 mL**	**3 oz**	**24 mL**
Spray Volume	2 gal per 1000 ft²	800 L per ha	2 gal per 1000 ft²	800 L per ha	1 gal	1 L	1 gal	1 L

*For best results, **Turf Power** requires season long application programs.
** Throughout the growing season.

Turf Power can be applied to all ornamental plants, trees, turf, lawns, landscape shrubs and flowers.

Scan for more information

RESEARCH

Innovative Turfgrass Root Analysis Research Collaboration

In 2020, Dr. Jim Brosnan, Professor, University of Tennessee and Phenotype Screening Corporation (PSC) collaborated to evaluate the effects of Worm Power® Turf on annual bluegrass (Poa annua) rooting.

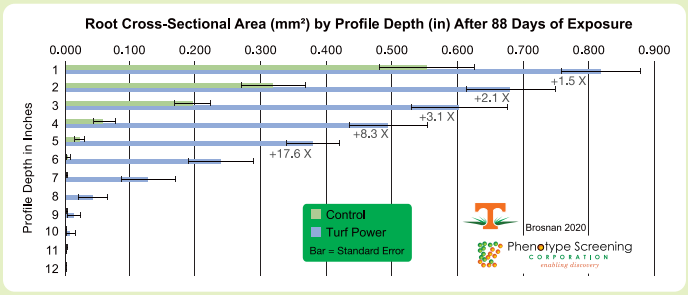
The collaboration provided a new and innovative way to evaluate rooting through the use of Phenotype Screening Corporations' induced-expression phenotyping. In 2004, PSC pioneered induced-expression phenotyping, the comparative study of how agricultural products affect plant development utilizing X-ray technology. Dr. Brosnan utilizing PSC's advanced technology has provided the turfgrass industry a precise look into Turf Power's effect on Poa annua:

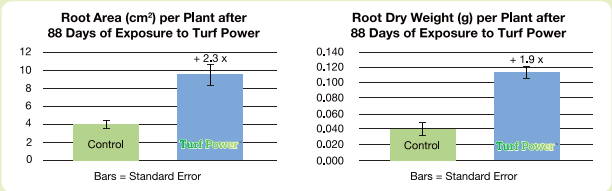
- Projected Root Area
- Total Root Length
- Root Distribution by Depth

Background
Annual bluegrass (Poa annua) plants were grown from seed in an artificial rootzone profile. A Complete Nutrient Solution* was applied to all plants throughout the entire evaluation and served as a control. Turf Power was fertigated at an 8.5% solution to half of the samples. After 88 days of exposure both the control and Turf Power treated plants were evaluated utilizing PSC technology.

Proven to Increase Rooting Throughout the Profile

Applying Turf Power inoculates the rhizosphere with microbial communities that allow the root mass to increase exponentially providing a healthier root system. A healthier root system provides improved tolerance to stress factors such as heat, drought, traffic and pest damage.





Verde-Cal®

Enhanced Calcitic Limestone with thCa™

37% Calcium (Ca) 0.6% Magnesium (Mg)

- Features thCa™, an organic complexing agent that converts insoluble calcium into soluble, plant-available calcium.
- Delivers faster, more efficient calcium response at one-quarter the rate of standard lime applications.
- Provides results equivalent to one ton of typical lime with only 500 lbs of VERDE-CAL.
- Reduces hydrogen, sodium, and chlorine levels in both soil and plant tissue.
- Improves germination, root growth, microbial activity, and overall nutrient uptake.
- Enhances soil structure and water infiltration while balancing the Ca/N ratio in the plant.

Available in Greens Grade (90 SGN)
and Coarse Grade (210 SGN)

Golf, Lawns and Sports Turf

	Maintain pH*		Adjust pH**	
Application Rate	**5 lbs** per **1000 ft²** **220 lbs** per **acre**	**250 kg** per **ha**	**10 lbs** per **1000 ft²** **435 lbs** per **acre**	**500 kg** per **ha**

*At least twice per growing season or as needed. Soil recommendations should be used to determine liming needs.
** In most soils this will raise the soil pH up to one full point. Retest and if needed, reapply at the pH adjustment rate.

Verde-Cal® G

Enhanced Gypsum with thCa™

22.5% Calcium (Ca) 19% Sulfur (S)

- Features thCa™, an organic complexing agent that makes calcium more readily available for soil and plant uptake.
- Delivers equivalent results to one ton of gypsum with only 500 lbs of VERDE-CAL G.
- Supplies calcium and sulfur without raising soil pH.
- Leaches excessive sodium and magnesium from soil colloids to improve soil balance.
- Loosens compacted, heavy clay soils while enhancing aeration and water percolation.
- Provides quicker, more efficient results at one-quarter the rate of standard gypsum applications.

Available in Greens Grade (70 SGN) and Coarse Grade (185 SGN)

Scan for more information

Golf, Lawns and Sports Turf

	Maintain Optimum Growing Conditions*		Correct High Sodium or Magnesium Levels**		Correct High Sodium Levels **(Greens/Tees)****	
Interval	30 days		–		30 days	
Application Rate	**5 lbs** per **1000 ft²** **220 lbs** per **acre**	**250 kg** per **ha**	**10 lbs** per **1000 ft²** **435 lbs** per **acre**	**500 kg** per **ha**	**8 lbs** per **1000 ft²**	**400 kg** per **ha**

* Apply throughout growing season or as needed. Soil recommendations should be followed.
** It can be used to loosen clay soil as well. It is recommended to apply this rate once or twice per growing season. A follow-up soil test is recommended and if needed, reapply at optimum growing conditions rate.
*** When using effluent water. Apply throughout the growing season or as needed.

Verde-Cal® K PLUS

Sulfate of Potash plus VERDE-CAL G with thCa™

15% Potash (K_2O)	7% Calcium (Ca)
2% Magnesium (Mg)	14.5% Sulfur (S)
4% Iron (Fe)	0.25% Manganese (Mn)
2% L-Amino Acid	0.5% thCa™ Acid
0.25% Non-ionic Polyol	

- Combines sulfate of potash with VERDE-CAL G (Enhanced Gypsum), thCa™, L-Amino acids, and a soil penetrant for uniform nutrient movement into the soil.
- Supplies essential nutrients including potassium, calcium, magnesium, sulfur, iron, and manganese in one easy application.
- Provides calcium without raising soil pH.
- Leaches excess sodium and magnesium from soil colloids to improve soil balance.
- Features micro-particle formulation for maximum nutrient coverage and efficiency.
- Ideal for all turf and ornamental applications, especially during periods of stress or for ongoing monthly maintenance.

Available in Greens Grade (85 SGN) Only

Golf, Lawns and Sports Turf

	Maintain Optimum Growing Conditions*	
Interval	30 days	
Application Rate	**5 lbs** per **1000 ft²** **220 lbs** per **acre**	**250 kg** per **ha**

*Apply throughout the growing season or as needed. Soil recommendations should be followed.

Verde-Cal® MG

Enhanced Super Dolomitic Limestone

21%	Calcium (Ca)	20.3%	Magnesium Oxide (MgO)
14%	Magnesium (Mg)	55.2%	Calcium Carbonate ($CaC0_3$)
30.9%	Calcium Oxide (CaO)	42.6%	Magnesium Carbonate ($MgCO_3$)

- Delivers highly available calcium and magnesium to improve soil structure and nutrient uptake.
- Raises soil pH quickly — 500 lb/acre can increase pH by ~1 point within 30–45 days (water quality dependent).
- Provides the same impact as 1 ton of standard dolomitic lime, but at one-quarter the rate.
- Enhances soil aeration, loosens compacted/heavy clay soils, and improves water percolation.
- Fast response due to its proprietary manufacturing process that increases product reactivity in the soil.

Available in Greens Grade (85 SGN) Only

Golf, Lawns and Sports Turf

	Maintain pH*		Adjust pH**	
Application Rate	**5 lbs** per **1000 ft²** **220 lbs** per **acre**	**250 kg** per **ha**	**10 lbs** per **1000 ft²** **435 lbs** per **acre**	**500 kg** per **ha**

*At least twice per growing season or as needed. Soil recommendations should be used to determine liming needs.
** In most soils this will raise the soil pH up to one full point. Retest and if needed, reapply at the pH adjustment rate.

Verde-Lawn™

Quick Acting Calcitic Limestone

Verde-Lawn Hydro™

Quick Acting Calcitic Limestone plus Soil Moisture Retention

- Combines calcitic limestone, PHCA, and soil wetting agents to enhance calcium availability and soil moisture retention.
- Provides available calcium to raise or maintain soil pH levels.
- Reduces hydrogen, sodium, and chlorine levels in both the plant and soil.
- Improves germination, stimulates root growth, and enhances microbial activity for stronger turf.
- Enhances nutrient uptake and soil structure for better fertilizer efficiency and water infiltration.
- Delivers up to 30 days of soil moisture control with quicker response at lower application rates. (Verde-Lawn Hydro ONLY)

Available in Coarse Grade (220 SGN) Only

Golf, Lawns, and Sports Turf

	Maintain Optimum pH and Growing Conditions*		Adjust pH**	
Application Rate	**5 lbs** per **1000 ft²** **220 lbs** per **acre**	**250 kg** per **ha**	**10 lbs** per **1000 ft²** **435 lbs** per **acre**	**500 kg** per **ha**

* Apply at least twice per growing season or as needed. Soil recommendations should be used to determine liming needs.
** Retest and if needed, reapply at the pH adjustment rate.

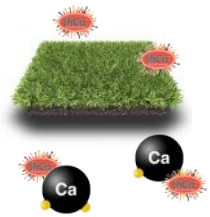
Why Use Verde-Cal Products

Verde-Cal Products are formulated with technologically advanced active ingredients requiring lower product rates for optimum soil health. The addition of organic complexing agents enhances solubility and increases availability of plant-available calcium. **Verde-Cal Products** allow plants to maximize calcium uptake and chelation of other available nutrients to achieve a balanced soil profile for healthy plant growth.

- Verde-Cal Products provide greater efficacy on adjusting soil chemistry.
- Verde-Cal Products are highly soluble and readily available.
- thCa organic acid complexing agent technology makes applied calcium more readily available.
- thCa releases unavailable calcium in the soil profile making it plant available.

Understanding The Use Of thCa™

When a **Verde-Cal Product** is applied and put into solution, the **thCa** looks to immediately sequester calcium in the soil.



Once **thCa** has sequestered a calcium molecule, it oxidizes the molecule to make it available to the plant or soil solution.

BENEFITS

- Allows for applications of 1/4 the rate of traditional Gypsum or Limestone products
- Makes calcium available NOW, not 2 to 3 years from now
- Goes into the soil sequestering unavailable calcium making it available to plant and soil solution

thCa will sequester and oxidize currently unavailable calcium in the soil.

Calcium remains available longer than other traditional products.

AcidipHy®

Soil and Water Acidifier

Why choose granular formulation?

- Features a slow-release granular acid technology that delivers 10X the neutralizing capacity of typical liquid applications with no phytotoxicity.
- Safely lowers soil pH and reduces elevated bicarbonates to improve overall soil and water quality.
- Enhances nutrient availability and extends fertilizer longevity for more efficient fertility programs.
- Flocculates soil structure to improve aeration, drainage, and root development.
- Provides essential nutrients that help turfgrass and ornamentals fight stress and reduce disease pressure.
- Economical and targeted, allowing localized treatment without the need for costly injection systems.

Scan for more information

Why choose liquid formulation?

- Unique blend of acidifying agents, surfactant, and manganese sulfate designed for irrigation or tank spray applications.
- Lowers pH in irrigation water and soil solutions to unlock bound nutrients and improve availability.
- Neutralizes harmful bicarbonate and carbonate levels that limit nutrient uptake and soil performance.
- Maintains solubility of calcium and magnesium to enhance the effectiveness of soil-applied amendments.
- Dissolves calcium carbonate and magnesium carbonate deposits in the soil profile and on the surface.
- Promotes balanced soil chemistry, improved nutrient efficiency, and greater stress resistance in turf and plants.

Scan for more information

Golf, Lawns, and Sports Turf

To maintain desired sodium and bicarbonate levels, apply the suggested rate at 30 day intervals or as needed. Irrigate immediately after application to field capacity to maximize bicarbonate and salt flushing.

Do not exceed 15 pounds (730 kg/ha) per application.

120 Bicarbonate ppm	4 pounds per 1,000 ft^2	(200 kg/ha)
240 Bicarbonate ppm	8 pounds per 1,000 ft^2	(400 kg/ha)
360 Bicarbonate ppm	12 pounds per 1,000 ft^2	(600 kg/ha)
450 Bicarbonate ppm	15 pounds per 1,000 ft^2	(730 kg/ha)

Golf, Lawns, and Sports Turf

	Sprayable Application*	
Interval	30 days	
Application Rate	**1 - 3 oz** per **1000 ft^2**	**3 - 9 L** per **ha**
Spray Volume	1 - 2 gal per 1000 ft^2	400 - 800 L per ha

* Irrigate with sufficient water to deliver AcidipHy L to soil profile - 1/8 inch (3mm) or more recommended.

Irrigation Injection Application

Based on irrigation water hardness, inject 1 to 9 gallons per acre in 50 to 450 gallons of water (10 to 85 L/ha in 470 to 4,200 L) at 30 day intervals or as needed.

50 Bicarbonate ppm	1 gallon per acre	(10 L/ha)
100 Bicarbonate ppm	2 gallons per acre	(20 L/ha)
200 Bicarbonate ppm	4 gallons per acre	(37 L/ha)
300 Bicarbonate ppm	6 gallons per acre	(55 L/ha)
400 Bicarbonate ppm	8 gallons per acre	(75 L/ha)
450 Bicarbonate ppm	9 gallons per acre	(85 L/ha)

Acidi•pHlow™

Acidifying Infiltration Agent

- Contains a blend of soil wetting agents and unique acidifying agents designed to enhance water penetration and infiltration.
- Improves soil and irrigation water quality for more consistent turf performance.
- Reduces bicarbonates and sodium, improving soil structure and moisture uniformity.
- Lowers pH from poor-quality water to enhance nutrient availability and uptake.
- Boosts nutrient efficiency while reducing runoff and evaporation of fertility inputs.
- Aids in disease and stress reduction, promoting healthier, more resilient turf.

Scan for more information

Golf, Lawns, and Sports Turf

	Sprayable Application*	
Interval	30 days	
Application Rate	**1 - 1.5 oz** per **1000 ft²**	**3 - 5 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha

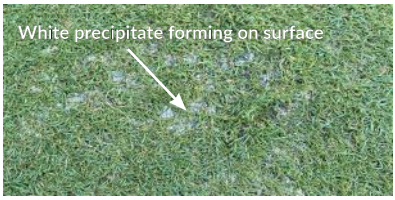
*Irrigate with sufficient water to deliver Acidi-pHlow to the soil profile - 1/8 (3mm) or more recommended.

Irrigation Injection Application

1 gallon per 50,000 gallons (1 L per 50,000 L) of irrigation, as a guideline depending upon water quality, irrigation usage, and weather/rainfall conditions.

Signs and Symptoms of Poor Water Quality

- Irregular TDR Meter moisture readings
- Chlorotic turf
- Poor infiltration of water (wetter surface)
- Turfgrass experiences wet wilt
- Difficult to rewet soils after dry-down
- Slow and poor response to turfgrass fertility
- Turfgrass will show effects of traffic wear
- Soil / Paste Extracts show unbalanced nutrient levels
- White precipitate forms on surface



Understand How Organic Acids Can Mitigate the Effects of Poor Water Quality

AcidipHy

- **Works best over longer period of time**
- **Beneficial application at time of aerification**
- **Best used to mitigate effects of poor irrigation water quality**

AcidipHy is a proven, effective and very safe slow release granular soil acid technology. One application of AcidipHy provides 10X the neutralizing capacity as compared to typical liquid applications with NO PHYTOTOXICITY. AcidipHy is also very economical as a localized treatment versus liquid injection into water systems which treat the entire course. End users can treat smaller problem areas without the need for expensive injection equipment. AcidipHy provides the added benefit of KEY essential nutrients to help fight stress and prevent disease to fine turfgrass and ornamentals.

AcidipHy

- **Beneficial when needing immediate reaction**
- **Mitigates effects of Bicarbonates and Sodium in 24 hours**
- **Easy application through sprayer equipment**
- **Best used when mixed with OARS PS or Excalibur and soil is flushed with rain or irrigation**

AcidipHy Liquid is a unique blend of acidifying agents combined with a surfactant and manganese sulfate designed to be applied through a tank spray. AcidipHy Liquid lowers the soil and soil solution's pH while utilizing and/or releasing soil nutrients that are present but previously not available to the soil or plants. AcidipHy Liquid enhances stress resistance by allowing the plant/soil to regain balance and release nutrients.

Acidi-pHlow™

- **Combination of Acid and Penetrating Surfactant can mitigate effects of poor irrigation water quality when applied on a regular basis**
- **Low use rates permit multiple weekly applications if necessary**
- **Easy application through sprayer equipment**

Acidi-pHlow is a blend of soil wetting agents combined with a unique blend of acidifying agents designed to enhance the penetration and infiltration of water with the added benefit of reducing the negative effects of high bicarbonate levels.

Aqua•Carbon™

Alkalinity and pH Treatment

- Pre-treats irrigation water to convert harmful carbonates and bicarbonates into soluble, organically rich lignosulfonate salts.
- Stabilizes soil pH while supplying organic carbon that enhances microbial activity and soil health.
- Increases infiltration and soil moisture for more efficient water use and uniform hydration.
- Improves nutrient availability by enhancing calcium and sulfur uptake in the soil.
- Softens seed coats to promote faster and more uniform germination.
- Reduces scale buildup in drip irrigation systems for improved water flow and long-term system performance.

Golf, Lawns, and Sports Turf

Interval	15 days	
Application Rate	**3 - 5 oz** per **1000 ft²**	**10 - 16 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha

* Irrigate with sufficient water to deliver Aqua-Carbon to the soil profile - 1/8 (3mm) or more recommended. Inject 1 to 1.5 gallons per acre (10 to 16 L/ha) at 15 day intervals or as needed.

Remediator™

Polyacrylamide Soil Conditioner

- Combines calcium chloride, surfactants, penetrants, and water-soluble polyacrylamide (PAM) to create a powerful liquid soil conditioner.
- Releases salts and lowers soil electrical conductivity (EC) to correct sodium and salinity issues.
- Improves clay and compacted soils by displacing sodium and enhancing soil structure and drainage.
- Increases water and nutrient infiltration while reducing crusting and soil erosion.
- Addresses issues from reclaimed or poor-quality irrigation water, improving overall soil health.
- Promotes easier seedling emergence and maintains a balanced nutrient environment for sustained turf and plant vigor.

Golf, Lawns, and Sports Turf

	Maintenance Rate		Curative Rate*		Shrub and Tree Plantings**		Seeding Application***	
Interval	30 days		30 days		–		30 days	
Application Rate	**8 oz** per **1000 ft²**	**25 L** per **ha**	**16 - 32 oz** per **1000 ft²**	**50 - 100 L** per **ha**	**2 oz**	**16 mL**	**32 oz** per **1000 ft²**	**100 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	3 gal per 1000 ft²	1200 L per ha	1 gal	1 L	3 gal per 1000 ft²	1200 L per ha

*Once turf conditions improve begin applying maintenance rate. Irrigate with sufficient water to deliver Remediator to the soil profile - 1/8 (3mm) or more recommended.
** Pour 16 oz of mixture in the planting hole for each gallon size of container (125 mL of mixture per Liter size of container).
***After broadcasting seed, apply the seeding application rate to hold seed in place and help prevent erosion.

Salt•Aid™

Saline and Sodic Soil Treatment

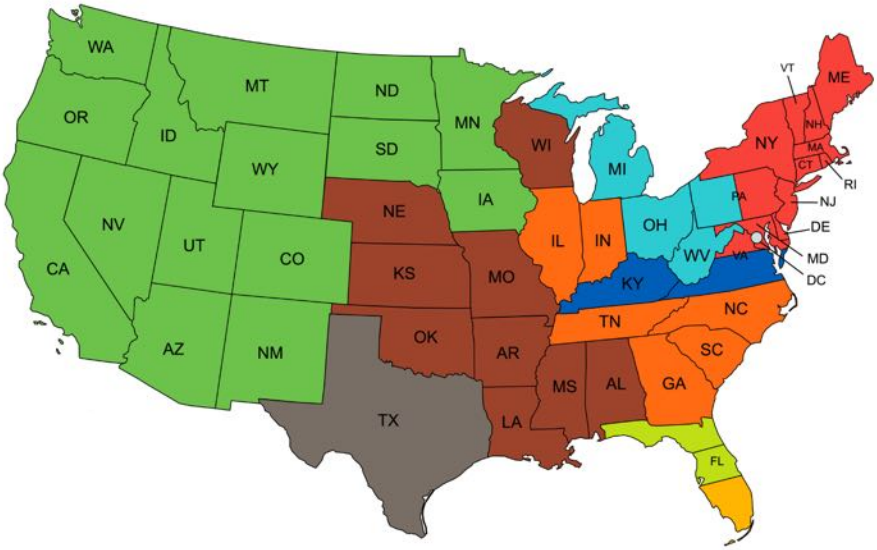
- Reduces salt, sodium, carbonate, and bicarbonate accumulation in the root zone while lowering soil electrical conductivity (EC).
- Improves soil structure through flocculation, increasing water infiltration, permeability, and overall root-zone function.
- Releases plant-available calcium already present in the soil and balances nutrient availability, uptake, and cation exchange capacity (CEC).
- Provides a biologically safe, cost-effective solution for managing salinity and water-quality stress in turf systems.

Golf, Lawns, and Sports Turf

	Maintenance Rate*		Curative Rate**	
Interval	30 days		30 days	
Application Rate	**3 - 8 oz** per **1000 ft²**	**10 - 25 L** per **ha**	**8 - 16 oz** per **1000 ft²**	**25 - 50 L** per **ha**
Spray Volume	2 gal per 1000 ft²	800 L per ha	2 gal per 1000 ft²	800 L per ha

*Apply the maintenance rate as needed for specific sodium reduction needs.
**After curative application reapply at the maintenance rate. Irrigate with sufficient water to deliver Salt-Aid to the soil profile - 1/8 (3mm) or more recommended.

US Technical Managers



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