



Tri-Link
SOLUTIONS

PRODUCT CATALOG

TURFGRASS & ORNAMENTAL NUTRITIONALS, IRRIGATION WATER TREATMENT, SOIL AMENDMENTS, ANALYTICS





OUR PARENT

Tri-Link Solutions was established in July 2018 as a division of Tri-County Fertilizer and Specialty Co. Tri-County focuses on blending and packaging commercial grade raw materials into balanced nutritional packages for lawns, gardens, and landscape markets. Tri-County has served the industry for almost 50 years from its Honea Path, South Carolina home. After operating as an independent company, Tri-County became a member of the Meherrin Family in 2012.

WHAT WE DO

Although a newly established company, our employees at Tri-Link Solutions have over 100 years of experience supplying plant nutrition to the turfgrass, horticultural, and specialty plant markets. Our goal is to combine experience with a multitude of specialty nutritionals that enhance the performance of highly managed turf and ornamental plants while developing new products to meet future challenges. Our manufacturing capabilities and those of our associated suppliers give us a unique delivery system that provide the desired results without compromising playability and performance. As we continue into 2020, we are launching new products and technologies we believe will advance our service to customers. Combined with advanced agronomic testing and consulting services, we create a unique offering to our associated industries.

CORPORATE ADVANTAGE

As a member of the Meherrin Family, Tri-Link Solutions has the resources to advance our quest to be the finest supplier of specialty plant nutrition products. Meherrin has been involved in the plant nutrition industry for over 70 years, therefore, we have many products and technologies that are fundamental to sound agronomic practices. This gives us the ability to take ideas and products that are proven in other markets and adapt them to our industries. Through our strategic partnerships, Tri-Link Solutions is able to ensure a competitive position on costs which greatly benefits our customers.

Many of our products and their individual traits are unique and can only be found from Tri-Link Solutions. We hope to have the opportunity to serve you!



Table of Contents

| | |
|--|----|
| LIQUID FOLIAR FERTILIZERS | 2 |
| TRI-LINK IMPACT HUMATES & LIQUID HUMIC ACIDS | 6 |
| GRANULAR NUTRITIONAL SOIL AMENDMENTS | 8 |
| PROFESSIONAL GRANULAR FERTILIZERS..... | 9 |
| WATER SOLUBLE FERTILIZERS | 11 |
| PROFESSIONAL ORGANIC FERTILIZERS | 12 |
| SOIL AMENDMENTS | 13 |
| IRRIGATION WATER TREATMENT | 14 |
| SOIL, WATER & BIOLOGICAL ANALYTICS | 17 |





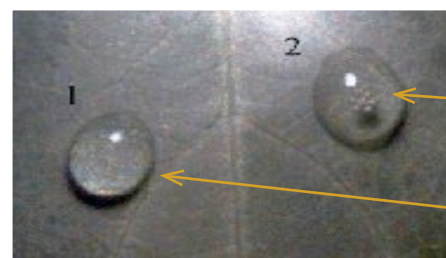
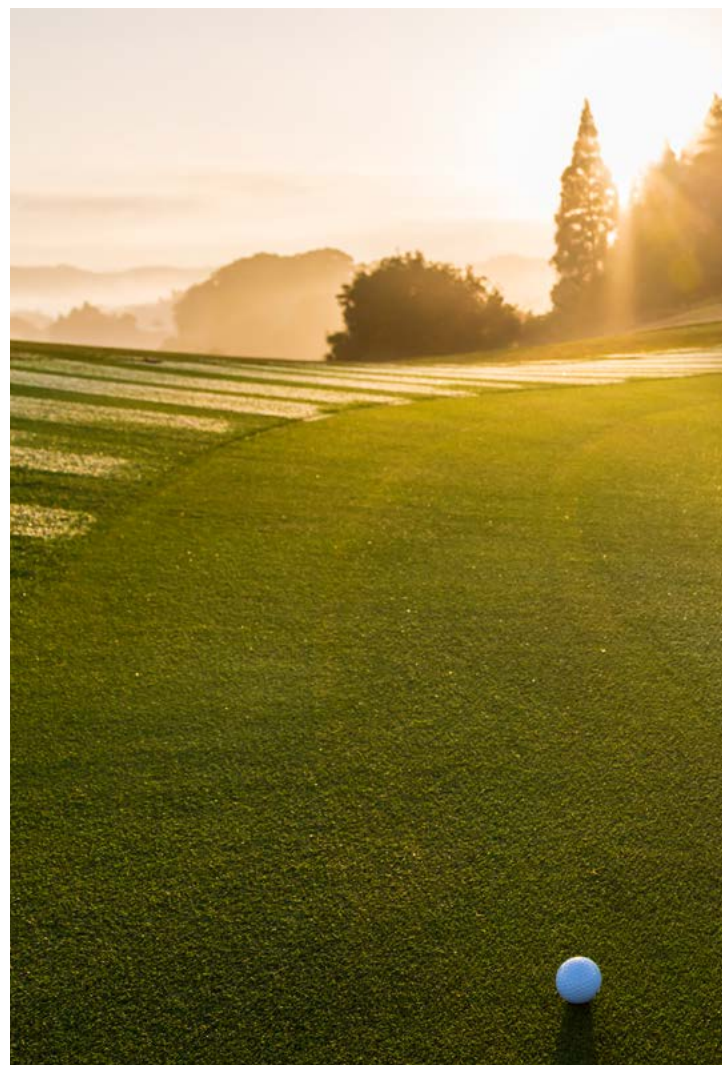
Technology and Nature combined to provide the ultimate turf nutrient delivery system.

FUSION Liquid Turfgrass Nutrients includes Humic Products Trade Association (HPTA) Certified Fulvic Acid

- Tri-Link Fulvic Acid is extracted from Humalite, a fresh water humate deposit.
- The extraction process is non-chemical to provide the purest Fulvic Acid available.
- Every FUSION product contains 1.2% Fulvic Acid **GUARANTEED**.

TRI-LINK FUSION FULVIC ACID: BENEFITS

- Molecular structure facilitates quick plant nutrient absorption.
- Improved nutrient uptake and translocation within the plant as the result of increased mineral availability.
- Overall plant health is enhanced, thus making the plant more stress tolerant.
- Important plant metabolic processes operate more efficiently.
- Improved root structure allows for increased water availability during periods without rainfall.



INITIAL APPLICATION

(2) Foliar fertilizer 500 ppm + Fulvic Acid 150 ppm

(1) Foliar fertilizer 500 ppm



AFTER 1 HOUR

FUSION Liquid Turfgrass Nutrients includes Kelp Extract from Ocean Organics, a recognized industry leader.

- Every FUSION product includes 2.5% Kelp Extract, which contains valuable Amino Acids.
- Kelp Extract is all natural. No chemicals used during processing.
- Extracts include many beneficial properties including naturally occurring nutrients, hormones, and antioxidants.

TRI-LINK FUSION KELP EXTRACT: BENEFITS

Ocean Organics uses proprietary technology to harvest kelp extract from seaweed which is included in all Tri-Link FUSION nutritionals due to its high concentration of cytokinin. Conventional processing inhibits the beneficial properties in seaweed, therefore making Ocean Organics an industry leader. Applying a high quality, naturally derived cytokinin can aid in the following:

- Stress prevention.
- Delays leaf senescence and reduces chlorophyll loss.
- Adequate cytokinin levels promote new shoot growth.
- Stress prevention during times of low soil oxygen, increased salinity, and heat stress.

FUSION'S UNIQUE PLANT NUTRIENT DELIVERY SYSTEM ALLOWS FOR LOWER USE RATES

- **REDUCED INPUTS**
- **LOWER COSTS**
- **IMPROVED PLANT HEALTH**

Tri-Link FUSION Foliar N – P – K

1.2% Fulvic Acid – 2.5% Kelp Extract – Amino Acids

18-3-6

FUSION Foliar NPK nutritionals offer primary nutrients in various packages.

6-0-20

FUSION 18-3-6 and 6-0-20 offer 50% controlled-release N

5-10-15

FUSION 5-10-15 contains 25% controlled-release N

0-0-24

FUSION 0-0-24 provides an efficient K₂O source, Potassium Acetate

Certified Fulvic Acid and Kelp Extract improve soil health and plant performance.

Tri-Link FUSION Foliar Micronutrients

100% Citrate Chelated – 1.2% Fulvic Acid – 2.5% Kelp Extract – Amino Acids

| Features | | FUSION Analysis | | | |
|-----------|---|-----------------|----|--------|-------|
| 5 Ultra | Efficiently delivers critical micronutrients required for sustained plant health. | Iron | 3% | Sulfur | 4% |
| | | Manganese | 2% | Boron | 0.05% |
| | | Magnesium | 1% | | |
| Manganese | Natural organic compounds including Fulvic Acid and Kelp Extract increase nutrient availability and uptake. | Manganese | 7% | Sulfur | 3% |
| Magnesium | | Magnesium | 4% | Sulfur | 3.9% |

TRI-LINK PROFESSIONAL LIQUID FERTILIZERS

We offer the highest quality professional line of liquid fertilizers. Our various liquid products are blended to provide managers many options that will meet individual needs. Tri-Link Professional Liquid Fertilizers & Micronutrients are packaged in 2x2.5 gal cases, 55 gal drums, mini-bulk totes, and bulk tankers.



Tri-Link Professional Liquid Fertilizers

| | |
|---------|---|
| 0-0-25 | Potassium Thiosulfate – Sulfur 17% |
| 0-18-20 | Potassium Phosphate + Potassium Hydroxide |
| 15-0-15 | 50% Slow-Release N – Potassium Carbonate |
| 28-0-0 | 72% Slow-Release N |
| 30-0-0 | Stabilized Urea + Ammoniacal N + Nitrate |
| 0-0-29 | Potassium Phosphite |

Tri-Link Professional Chelated Liquid Micronutrients

| Features | | Complete Analysis | | | |
|-------------|----------------------------------|-------------------|-----|------------|--------|
| All Purpose | Glucoheptonate Chelate | Magnesium | 1% | Zinc | 0.60% |
| | | Iron | 4% | Boron | 0.02% |
| | | Manganese | 1% | Copper | 0.25% |
| | | | | Molybdenum | 0.005% |
| Big Cal | Efficient Soil Remediation | Calcium | 12% | | |
| Calcium | Nitrate + Glucoheptonate Chelate | Nitrogen | 6% | Calcium | 8.25% |
| Iron Plus | Urea + Glucoheptonate Chelate | Nitrogen | 12% | Iron | 6% |
| Manganese | Citrate Chelated Manganese | Manganese | 8% | Sulfur | 4.5% |
| Six Iron | Citrate Chelated Iron | Iron | 6% | Sulfur | 3% |



Create YOUR OWN BULK Custom Blended Liquid Nutrient package or choose from our Standard Blends

SAVE MONEY WHILE USING THE FOLIAR FERTILIZER THAT WORKS BEST FOR YOU!

Bulk Liquid Nutrients are available in the following volumes:

MINI-BULK TANKS: 150 GAL TO 250 GAL

12-TON TANKER: 2 TANKS @ 1,200 GALLONS PER TANK = 2,400 GALLONS TOTAL

24-TON TANKER: 2 TANKS @ 2,400 GALLONS PER TANK = 4,800 GALLONS TOTAL

Standard Tri-Link Liquid Nutrients

| | |
|------------------|---|
| 30-0-0 | Triple N* |
| 30-0-0 | Triple N + Agrotain Plus |
| 30-0-0 | Triple N + Agrotain Plus + 7% Fertile-Wet Wetting Agent |
| 28-0-0 | 72% Triazone Nitrogen |
| 25-0-0-3 S | Triple N + Ammonium Sulfate |
| 22-0-0-1 Fe | Triple N + 1% Chelated Fe |
| 20-0-5 | Triple N + Potassium Chloride |
| 16-4-8 | Triple N + Ammonium Polyphosphate + Potassium Chloride |
| 16-0-4 | Triple N + Potassium Chloride |
| 15-0-0-4 Fe-1 Mn | Urea + 4% Chelated Fe |
| 12-0-0-6 Fe-2 Mn | Urea + Agrotain Plus + 6% Fe + 2% Mn |
| 12-0-0-6 Fe-2 Mn | Urea + Agrotain Plus + 6% Fe + 2% Mn + 7% Fertile-Wet Wetting Agent |
| 11-37-0 | Ammonium Polyphosphate |
| 9-9-9 | Urea + Ammonium Polyphosphate + Potassium Chloride |
| 5-10-10 | Urea + Ammonium Polyphosphate + Potassium Chloride |
| 0-0-25-17s | Potassium Thiosulfate |
| CN-9 | 11% Calcium + 9% Nitrogen |
| Reserve Blend | 5% Fe Citrate Chelate- 2.25% Mg Citrate Chelate |

*Triple N: Urea – Ammonium – Nitrate
Blends available with Chelated Micronutrients and Fertile-Wet Wetting Agent

Tri-Link IMPACT™

Industry leader in humic and fulvic substances that improve soil health, enhance nutrient availability, and plant uptake.

Why Tri-Link IMPACT Granular Humate and Liquid Humic Acid?

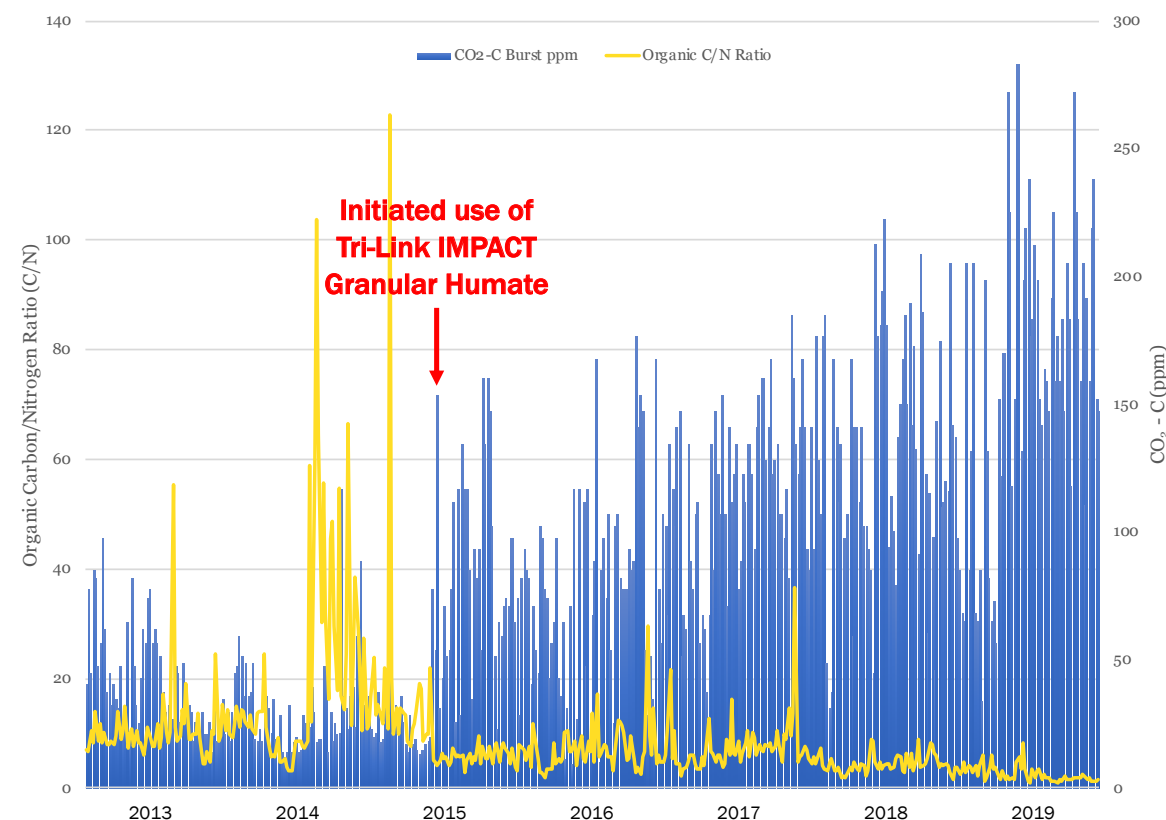
Humalite is the industry leader in humic substances. Humalite is harvested in Canada and is desirable over leonardite because of its unique composition. Specifically, humalite is the product of freshwater bogs and vegetation, while lignite (Leonardite) is derived from saltwater deposits. As a result, the purity of humalite is superior due to fewer heavy metals and lower ash content. So, when you hear one source of humate is no different from another, you know the difference!

The humic material in all Tri-Link FUSION and IMPACT products are guaranteed to meet industry standards defined by the Humic Product Trade Association (HPTA). All humalite used in our products is individually tested to ensure we maintain quality and meet our guaranteed 80% humic acid content. This sets our products apart from others as the quality of our products are unmatched.



Both IMPACT Granular Humate and Liquid Humic Acid:

- IMPROVE SOIL STRUCTURE
- INCREASE SOIL CARBON AND CATION EXCHANGE CAPACITY (CEC)
- ACTIVATES MICROBIAL ACTIVITY – REDUCED THATCH CONTENT
- GREATER NUTRIENT AVAILABILITY AND UPTAKE/FOLIAR ABSORPTION (LIQUID HUMIC ACID)



Eye-Opening Results

Our analytics have shown that Tri-Link IMPACT products provide exceptional results. In the figure above, soil C:N and CO₂-C test results are shown for many golf courses across the Southeast who have used our humic acid products over a six year period. These two parameters both indicate microbial activity. Microbes feed on carbon sources, therefore when microbial activity is low, C:N values are high due to excess carbon. When microbe populations actively increase, C:N values will lower as carbon is consumed. A by-product of increased microbial activity is CO₂-C. As microbial populations increase, so will the soil CO₂-C level due to increased respiration. The data above speaks for itself following 2015 when the use of Tri-Link IMPACT Granular Humate was initiated. The improved soil properties have created an environment where microbial activity is enhanced which improves nutrient retention and availability, resulting in consistent turfgrass performance.



Tri-Link IMPACT Granular Humate and Liquid Humic + Fulvic Acid

| | |
|--|--|
| IMPACT Granular Humate | Naturally derived from HUMALITE Guaranteed 82% Humic Acid (HPTA Certified Test Method) |
| IMPACT 12% Liquid Humic Acid | Highly refined organic liquid complex of HUMIC and FULVIC acids derived from HUMALITE Humic Acid – Guaranteed 12% Humic Acid (HPTA Certified Test Method) |
| IMPACT 8-5-5 with 8% Liquid Humic Acid | Exclusive blend of Tri-Link nutritionals with an enhanced complex of HUMIC and FULVIC acids derived from HUMALITE Humic Acid – Guaranteed 8% Humic Acid (HPTA Certified Test Method) |

Tri-Link Impact SG Granular Fertilizers + Humate

| | |
|------------------|---|
| IMPACT SG 0-0-30 | Sulfate of Potash packaged with 10.6% HUMALITE Humic Acid in a Homogenous Granule |
| IMPACT SG 5-6-6 | 75% Organic Nitrogen + MAP + SOP + 26.7% HUMALITE Humic Acid in a Homogenous Granule |
| IMPACT SG 10-6-6 | 36% Organic Nitrogen + Urea + MAP + SOP + 22.4% HUMALITE Humic Acid in a Homogenous Granule |



GRANULAR NUTRITIONAL SOIL AMENDMENTS

Cal-Rite™

38% Pure Calcium that mineralizes slowly and predictably.

38.8 % Pure Calcium Chip - SGN 100

- Cal-Rite is mined from the highest alluvial Ca deposit in the world
- The best source for maintaining plant available Ca in low CEC soil
- The unique molecular structure of Cal-Rite allows for soil retention compared to other Ca sources
- Predictable and consistent Ca release over time
- Effective solution for Ultra-Pure irrigation water



Cal-Rite products are packaged in 50-lb bags.



SOLUTIONS FOR PLANT SUCCESS

Hy-Mag Pro

Highly effective granulated Magnesium.

Granular Magnesium Products – SGN 100

- A highly efficient and predictable granulated source of Magnesium, which is essential in photosynthetic processes
- Quick Mg response with gradual release over time
- Hy-Mag supplies Magnesium effectively under a wide range of soil and irrigation water conditions



Hy-Mag products are packaged in 50-lb bags.

HY-MAG Available in the following options:

HY-MAG PRO: 20% MAGNESIUM SACCHARIDE - 13% CALCIUM SACCHARIDE

HY-MAG BALANCE: 28% MAGNESIUM SACCHARIDE - 4% CALCIUM SACCHARIDE

HY-MAG 30: 30% MAGNESIUM SACCHARIDE

PROFESSIONAL GRANULAR FERTILIZERS

Tri-Link

SG GREEN™

Homogenous greens grade fertilizer designed to deliver critical nutrients safely and efficiently.

Tri-Link SG Green Professional Fertilizers are enhanced Greens Grade fertilizers manufactured to deliver critical nutrients in a homogenous granule. At 100 SGN, Tri-Link SG Green allows for consistent spread without compromising playability, which makes these products desirable for use on turfgrass maintained at low mowing heights. Packaged in a homogenous granule, our SG Green products release nutrients consistently, resulting in dependable performance over time!

- SOLUBLE GRANULE
- FAST DISPERSION
- ZERO MOWER REMOVAL
- HOMOGENOUS FERTILIZER

Tri-Link SG Green Professional Fertilizers

| Features | | Additional Nutrients |
|----------|---|---|
| 13-2-13 | Ammonium Sulfate + Urea + MAP + Sulfate of Potash + Micronutrients in a Homogenous Granule | Micronutrient package includes the following: Iron & Manganese |
| 18-3-18 | Methylene Urea (80% Slow-Release N) + Urea + MAP + Sulfate of Potash + Micronutrients in a Homogenous Granule | |
| 0-0-30 | Sulfate of Potash + Micronutrients in a Homogenous Granule | Micronutrients included: Iron & Zinc |
| 9-18-18 | Urea + Monoammonium Phosphate + Sulfate of Potash + Micronutrients in a Homogenous Granule | |

Tri-Link Green Professional Granular Fertilizers

| Greens Grade – 100 SGN | |
|------------------------|--|
| 0-0-50 | Sulfate of Potash |
| 11-52-0 | Monoammonium Phosphate |
| 21-7-14 | YARA Turf Royal – Homogenous Granule / Ammonium Nitrate, Monoammonium Phosphate, Diammonium Phosphate, and Sulfate of Potash |



CUSTOM N•P•K BLENDED GRANULAR FERTILIZERS

- Tri-Link Solutions is YOUR Premier Granular Fertilizer Blending Authority
- Our blending facility is located in Upstate South Carolina. Local Shipping and Direct Sales saves money!
- Custom blends to maximize the required nutrients at desired fertilizer granule size

| | | |
|---|------------------------------|-------------------------|
| N | XCU | Ammonium Sulfate |
| | Nutralene | Urea |
| | Nitroform | Various Organic Sources |
| P | MAP - Monoammonium Phosphate | |
| | DAP - Diammonium Phosphate | |
| | TSP - Triple Super Phosphate | |
| K | SOP - Sulfate of Potash | |
| | MOP - Muriate of Potash | |
| | Sul - Po - Mag | |
| | Polymer Coated Potash | |

We offer Custom Blends!

We are happy to package Fairway or Greens grade products that matches your desired analysis at our state-of-the-art blending facility.

Minimum order 1 ton.



ULTRA-SOL WATER SOLUBLE FERTILIZERS

Water Soluble Fertilizers Designed for Turfgrass, Ornamentals, and Specialty Plants

Ultra-Sol Water Soluble Fertilizers

| Features | | Additional Nutrients | |
|------------|--|---|--|
| 20-20-20 | Urea + Ammonium Phosphate + Monopotassium Phosphate (MKP) Solubility (max): 300 lbs/100 gallons water | All micronutrients are ethylene diamine tetraacetic acid (EDTA) chelated: | |
| 17-0-17 | Ammonium Sulfate + Potassium Nitrate Solubility (max): 150 lbs/100 gallons water | | |
| 10-5-40 | Ammonium Sulfate + Potassium Nitrate + Potassium Phosphate Solubility (max): 150 lbs/100 gallons water | | |
| BD 28-8-18 | Urea + Ammonium Phosphate + Potassium Nitrate Solubility (max): 200 lbs/100 gallons water | Chelated micronutrients include: Fe, Mn, Cu, Zn, and B | |
| 0-52-34 | Highly efficient P and K source. MKP – Monopotassium Phosphate Solubility (max): 150 lbs/100 gallons water | | |



PROFESSIONAL ORGANIC FERTILIZERS

Nature Safe offers 100% organic ingredients that are comprised of various plant and animal meals. Nature Safe fertilizers provide the highest amino acid concentration of any commercial fertilizer which enhances nutrient availability and creates consistent, predictable release.



Nature Safe Organic Fertilizers

| Product Analysis | Features | W.I.N | Complete Analysis | Amino Acid % |
|--|---|-------|--|--------------|
| 5-6-6 Greens Grade | Bone – Blood – Meat Meals, Langbeinite, Yeast – Sugars – Carbohydrates, Humus | 90% | Calcium 5.0% Magnesium 1.5% Manganese 4.0% | 31.2% |
| 8-3-5 Greens Grade | Feather – Bone – Blood – Meat Meals, Langbeinite, Yeast – Sugars – Carbohydrates, Humus | 90% | Calcium 3.0% Magnesium 2.2% Manganese 4.0% | 49.9% |
| 10-2-8 Greens Grade | Feather – Bone – Blood – Meat Meals, Sulfate of Potash, Yeast – Sugars – Carbohydrates, Humus | 90% | Calcium 1.8% Sulfur 3.0% | 60.3% |
| 12-2-6 50% Ammonium Sulfate Greens Grade | Feather – Bone – Blood – Meat Meals, Ammonium Sulfate, Sulfate of Potash, Yeast – Sugars – Carbohydrates, Humus | 47% | Calcium 2.0% Sulfur 8.0% | 38.3% |
| 8-5-5 Landscape Grade | Feather – Bone – Blood – Meat Meals, Sulfate of Potash, Yeast – Sugars – Carbohydrates, Humus | 85% | Calcium 4.5% Sulfur 1.0% | 50.1% |
| 13-0-0 Fairway Blending Base | Feather – Bone – Blood – Meat Meals, Sugars-Carbohydrates and Humus | 93% | — — | 75.4% |



SOIL AMENDMENTS



McGill SportsTurf is manufactured from 100% recycled material that enhances the performance of turf, gardens, and ornamentals. McGill SportsTurf not only improves the soil ecosystem but it also positively impacts critical soil physical properties.

McGill SportsTurf is safe for all plants as recognized by the US Composting Council. Product can be applied by topdressing, soil incorporation, or mixing with potting material.

ADVANTAGES

- EASY TO SPREAD, EASILY INCORPORATES INTO SOIL
- BUILDS A NATURAL HEALTHY SOIL
- REDUCES WATERING REQUIREMENTS
- UNIVERSITY TESTED

APPLICATIONS

- TOPDRESSING AGENT FOR TEES AND FAIRWAYS
- HIGH TRAFFIC AREAS
- NEW SOD INSTALLATIONS
- ADDITIVE TO DIVOT MIXES



HIGH QUALITY, PREMIUM COMPOSTING MATERIAL

TYPICAL RATES:
1 TO 2 TONS PER ACRE
BULK TRUCKLOAD:
20 TONS = 40 YD³ PER LOAD



Profile Porous Ceramics (PPC) are inorganic soil amendments used to improve soil structure of managed turfgrasses. It is designed to replace the peat fraction in sand-based root zones as a kiln-fired porous ceramic derived from mineral deposits. Profile Greens Grade particles are 74% pore space with 39% being capillary (water) pores and 35% non-capillary (air) pores. Blended with sand, Profile Porous Ceramics improves water and nutrient holding potential as well as increase soil oxygen levels. A unique feature of Profile Porous Ceramics is that while it improves water retention, it also facilitates drainage when soils are saturated making it ideal for use on golf course putting greens and athletic fields.

THE PROBLEM-SOLVING POTENTIAL OF PROFILE® POROUS CERAMICS:

- LOCALIZED DRY SPOT
- ORGANIC MATTER ACCUMULATION
- SHALLOW ROOTING
- SALT ACCUMULATION DUE TO POOR QUALITY IRRIGATION WATER
- SOILS THAT LACK WATER AND NUTRIENT RETENTION
- POOR DRAINAGE
- ALGAE
- SOIL COMPACTION
- DESICCATION OF BUNKER FACES



IRRIGATION WATER TREATMENT

Ca²⁺

H

2

O

TRI-LINK BIG CAL PLUS
IRRIGATION WATER TREATMENT AMENDMENT

INCREASE THE EFFICIENCY OF YOUR IRRIGATION WATER

LIQUID CALCIUM DESIGNED TO TREAT LOW TDS IRRIGATION WATER

INCREASE EXCHANGEABLE CALCIUM

IMPROVE WATER INFILTRATION AND SOIL AERATION

DECREASES IRRIGATION WATER USAGE

REDUCES SODIUM AND AIDS IN RESTORING SOIL STRUCTURE

A NATURAL SOIL FLUSHING AGENT

Irrigation water measured to have below 320 ppm TDS (Total Dissolved Salts) is considered to be ‘Ultra-Pure.’

Low TDS irrigation water dissolves soluble minerals, particularly Calcium, within the soil profile. The dissolved nutrients are quickly leached from sand-based soils and are unavailable to the plant.

- BIG CAL injection is easy and efficient with your fertigation system
- Irrigation water quality test determines the injection rate
- No mixing or calibration required

TRI-LINK FERTILE-WET A Concentrated Wetting Agent Designed for Spray or Injection Application

Tri-Link Fertile-Wet is a safe and effective product that mitigates localized dry spots and poorly drained soils. It also aids in disease prevention as it reduces leaf wetness during periods of increased disease activity.

Tri-Link Fertile-Wet can easily be blended with fertilizers for use in fertigation systems allowing for convenient and efficient application.



Tri-Link Fertile-Wet Wetting Agent is available in both Mini-Bulk Tanks and Drums:

MINI-BULK TANKS: DELIVERED WITH 30 GALLONS OF TRI-LINK FERTILE-WET CONCENTRATE. UPON DELIVERY, ADD 220 GALLONS OF WATER AND CONNECT TO FERTIGATION SYSTEM. WILL TREAT 320 ACRES.

DRUM: DELIVERED WITH 15 GALLONS OF TRI-LINK FERTILE-WET CONCENTRATE. REPLENISH MINI-BULK OR FERTIGATION MIX TANK, ADD APPROPRIATE AMOUNT OF WATER. WILL TREAT 160 ACRES.



ULTRA PURE IRRIGATION WATER INFO

“Whatever the water is, the soil will become!” This is often an overlooked component of irrigation management that can greatly affect plant performance. Ultra-Pure water readily dissolves and strips cations from soil nutrient exchange sites especially Calcium, Magnesium and Potassium. Once dissolved, they are easily leached. The soil structure and as result, overall plant health can be severely compromised when soil cations become deficient. **KNOW WHAT’S IN YOUR WATER TO ENSURE SUCCESS!**

GENERAL INFORMATION FOUND ON AN “IRRIGATION SUITABILITY” TEST REPORT

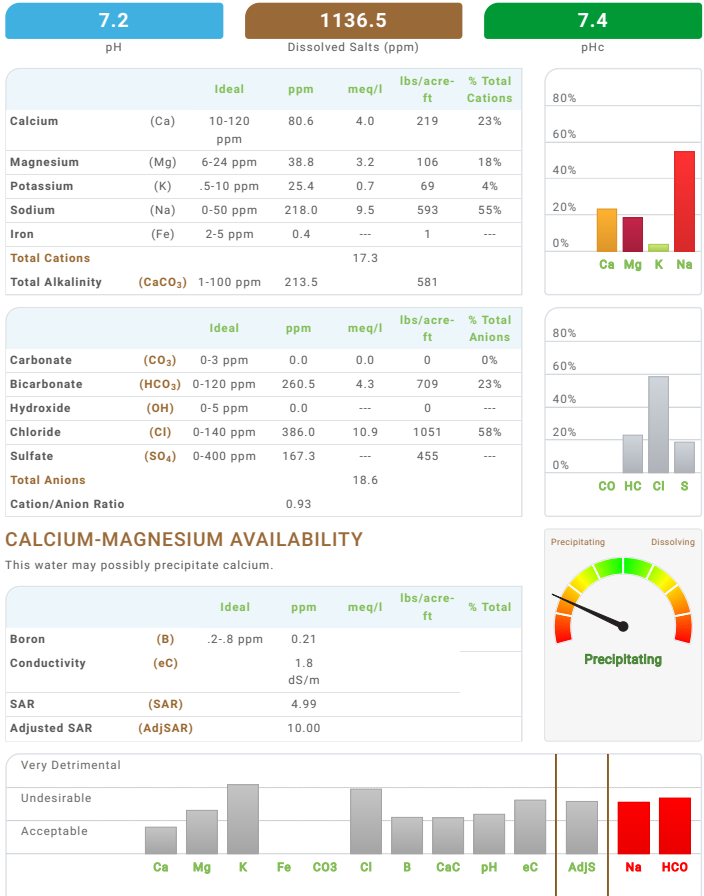
An Irrigation Suitability Analysis reports the amount of Total Dissolved Salts (TDS) in water. Elements measured during an Irrigation Suitability Test include the following: Cations – Ca, Mg, K, Na, and other micronutrients;

Anions – HCO₃, Cl, CO₃, and OH.

640 ppm TDS – Average irrigation water

320 ppm TDS ‘Ultra-Pure’ – Moderate infiltration and nutrient availability issues can occur.

120 PPM – Issues become severe.



7.2

pH

1136.5

Dissolved Salts (ppm)

7.4

pHc

Ca Mg K Na

CO HC Cl S

Very Detrimental

Undesirable

Acceptable

Ca Mg K Fe CO₃ Cl B CaC pH eC AdjS Na HCO

7.2

pH

1136.5

Dissolved Salts (ppm)

7.4

pHc

Ca Mg K Na

CO HC Cl S

Very Detrimental

Undesirable

Acceptable

Ca Mg K Fe CO₃ Cl B CaC pH eC AdjS Na HCO

7.2

pH

1136.5

Dissolved Salts (ppm)

7.4

pHc

Ca Mg K Na

CO HC Cl S

Very Detrimental

Undesirable

Acceptable

Ca Mg K Fe CO₃ Cl B CaC pH eC AdjS Na HCO

UNDERSTANDING THE BASIC SCIENCE OF IRRIGATION WATER

pHc – determines if water will dissolve or precipitate lime as it moves through the soil. A value above 8.4 indicates a greater tendency for the water to dissolve lime and other cations. As it decreases below 8.4, water will precipitate lime.

pH of Water – directly influences the pH of the soil solution. Adequate levels of Ca, Mg and K ensure the soil maintains an acceptable pH.

EC (Electrical Conductivity) – measurement of salt concentration. In general, when EC is equal to or less than 0.50 dS/m (approx. 320 TDS) soil infiltration problems can occur. Below 0.20 dS/m problems can become severe.

* Rain water has a pHc of 9.83.

Need for Management

During prolonged drought periods when irrigation is used extensively, the use of Ultra-Pure irrigation water will strip nutrient exchange sites of important cations such as Ca, Mg, and K which will negatively affect turfgrass health. As these cations are leached through the soil profile, Na levels will increase as Na ions will dominate the nutrient exchange sites. These negative effects are intensified on sandy soils low in organic matter and those with low CEC levels. Problems are compounded when bicarbonates (HCO₃) compromise more than 20% of the TDS in irrigation water. Negatively charged HCO₃ ions will bind with Ca, Mg, and Na to form insoluble carbonates near the soil surface. These insoluble carbonates are detrimental by restricting water infiltration.

Tri-Link BIG CAL Plus is highly effective at mitigating the issues that arise from the use of Ultra-Pure irrigation water. We are happy to assist you with any questions you may have regarding irrigation water analytics or management!

TRI-LINK WATER-PHIX
Irrigation Water Treatment

Tri-Link Water-pHix is an effective irrigation water treatment designed to reduce harmful bicarbonate levels that result in poor soil structure and low nutrient availability. Water-pHix also increases the efficiency of applied irrigation by promoting enhanced water infiltration into the rootzone. Micronutrients and other insoluble precipitants resulting from high soil pH are made available to the plant following treatment.

Tri-Link Water-pHix requires an injection system to directly treat irrigation water. We work directly with Growing Solutions who provide industry leading irrigation injection technology.



System Features of the
Model **550**

Treat all of your water continuously with our variable speed injection station. Maintain a consistent pH reading no matter what your water flow rate.

- Proportional with pH Trim Water Treatment
- Automatic Probe Cleaning Assembly
- Hydraulically Actuated Diaphragm Pump Related 15 GPH
- GS Alloy 20 Injection Lance
- Series 550 pH Controller with Flow Cell and pH Sensor
- System Controller Panel with Flow Enable Start
- S80 PVC & Alloy 20 Piping
- Isolation Valves, Calibration Cylinder, Back Flow Valve Pressure Relief Valve, Sample Flow Pressure Regulator and Sample Flow Solenoid Valve
- Variable Speed Pumping System with Auxiliary Pump Control
- Expandable to Add Additional Pumps for:
 - Liquid Fertilizers
 - Micro Nutrients
 - Wetting Agents

The Model 550 is the First of its Kind, Monitoring Both "Flow" and "pH", Making Your Operation More Economical, Potentially Saving You Thousands Every Year



After receiving your Irrigation Suitability Test results, complete the worksheet below to determine if your irrigation water requires treatment:

pH _____

pHc _____

Ca _____ ppm

K _____ ppm

Na _____ ppm

TDS _____ ppm

Mg _____ ppm

ANSWER THE QUESTIONS BELOW - YES OR NO

1. IS THE pH ABOVE 7.0?

2. IS THE pHc BELOW 8.0?

3. IS THE SODIUM CONTENT MORE THAN 5% OF THE TOTAL TDS?

4. ARE BICARBONATES MORE THAN 15% OF THE TOTAL TDS?

5. ARE THE CARBONATE AND BICARBONATE LEVELS GREATER THAN Ca AND Mg LEVELS?

IF YOU ANSWER YES TO TWO OR MORE OF THESE QUESTIONS, GIVE US A CALL! WE HAVE THE KNOWLEDGE AND EXPERTISE TO ASSIST YOU WITH YOUR IRRIGATION WATER QUALITY ISSUES.

SOIL, WATER & BIOLOGICAL ANALYTICS

We offer industry-leading analytics and consulting services to develop a nutritional plan that is designed to meet the individual needs of the customer. Our goal is to provide analytical results to the turfgrass manager/ grower that is needed to develop a program which matches fertilizer recommendations with plant nutrients required for sustained plant health. We partner with the Ninemire Group Agronomic Consulting & Analytics for all analytic testing.



Tri-Link can perform the following test:

- STANDARD SOIL TEST** – utilizes Melich-3 extractant to determine nutrient levels in soil. Classical approach to determine plant nutrient availability.
- SATURATED PASTE SOIL TEST** – uses on-site irrigation water as the extractant. A conservative method that is unique to the individual location. Provides an accurate assessment of nutrient availability.
- ORGANIC EXTRACTION SOIL TEST** – a new method that uses a novel soil nutrient extractant, H³A. This extractant was designed to simulate the soil/ root interface where nutrient uptake occurs. H³A is composed of organic root exudates, lithium citrate, and two synthetic chelators.

SOIL HEALTH ANALYSIS – a modern technique which uses nature’s biology to measure soil health and nutrient availability. This test uses an integrated approach to best mimic the complexity of soil ecosystems. Provides a comprehensive report of soil health in addition to nutrient availability and microbial activity.

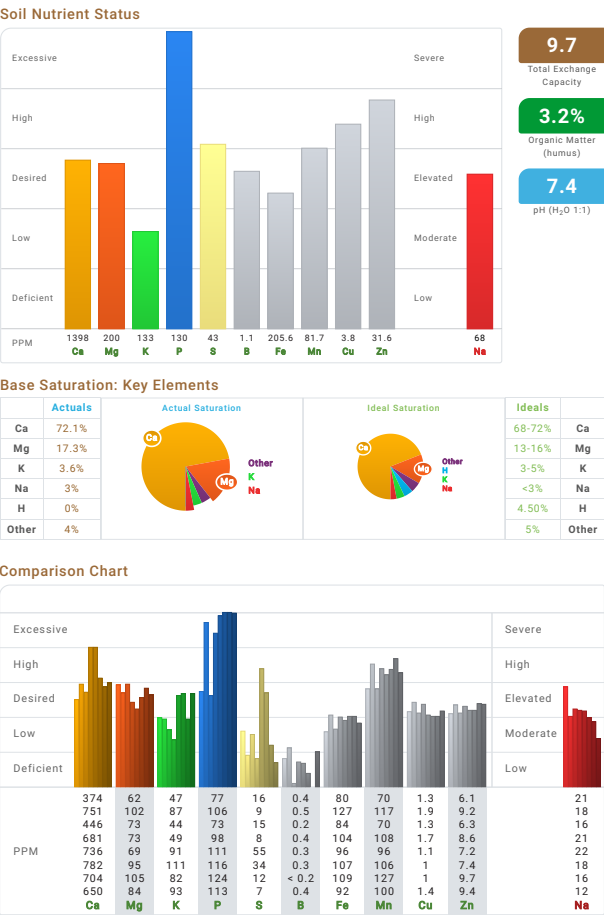
IRRIGATION SUITABILITY TEST – comprehensive analysis of on-site irrigation water that measures pertinent cations and anions to determine Total Dissolved Salts (TDS). Also reports many other parameters including pH, electrical conductivity (EC), bicarbonate level, pHc, among others.

We also offer Plant Tissue Testing and Soil Physical Analysis Testing!

CONTACT US FOR MORE INFORMATION ABOUT OUR ANALYTICAL AND CONSULTING SERVICES. OUR GOAL IS TO HELP YOU ACHIEVE SUCCESS AT YOUR FACILITY!

All test results are available through the Tri-Link Solutions website (www.tri-linksolutions.com) where customers can login through a secure web portal to see test results. All reports are organized in a graphical format that is simple and easy to understand. The website offers many ways for the user to compare, trend and graph historical samples allowing for in-depth analysis over time. This allows the user to see and trend nutrient tracking that was not obvious with just a sheet filled with numbers.

Packages are available that include consultant site visits, presentations explaining test results, custom nutrient management plans, in addition to many other services.



Introducing our professional line of products and services designed to maximize plant health through advanced nutrient delivery.



Technology and Nature combined to provide the ultimate nutrient delivery system.



Industry leader in humic and fulvic substances that improve soil health, enhance nutrient availability, and plant uptake.



Homogenous greens grade fertilizer designed to deliver critical nutrients safely and efficiently.



Blends expert, world-class agronomic consulting with industry leading analytical tools.



38% Pure Calcium that mineralizes slowly and predictably.



Highly effective granulated Magnesium.

SOLUTIONS FOR PLANT SUCCESS

www.tri-linksolutions.com