SOLUTIONS GUIDE







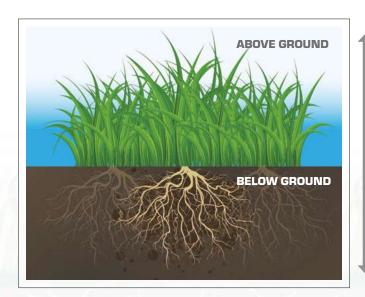
INTRODUCING: THE RESERVE PORTFOLIO



PRODUCTS DEVELOPED TO ENHANCE BOTH PLANT HEALTH AND ENRICH SOIL VALUE

VERTICAL 0-0-8

Fuel for Both Plant and Soil



- · Anti-stress technology
- · Wellness triggers
- Super efficient potassium
- Antioxidants
- Growth promotion
- · Improved photosynthesis
- Rooting technology
- · Food for soil microbiology
- · Proprietary three part organic acid blend
- Improved nutrient availability
- Key sugars for plant health and microbial stimulation
- Rich carbon supply for rhizosphere

MIC DROP 0-0-1



MIC DROP is a blend of comprehensive micronutrients, a proprietary sugar package, root-driving sea kelp, and carbon, all powered by our REACTION™ technology. Designed for optimal nutrient absorption, MIC DROP delivers intense, long lasting color while enhancing the biology in any soil.



PHOTOSYNTHESIS



BETTER COLOR



MORE ENERGY





A new patent pending polymer in the Turf Fuel polymer system magnifies performance and enhances stability. DiuTuron results in longer performance at lower rates.



Uses two unique components to enhance plant stress tolerance.

Templar reduces the affect of heat and drought stress on the plant.

Templar defends your Turf.



INFINITE

CONSISTENT HYDRATION AND STRESS TOLERANCE

Infinite™ is the first soil surfactant that includes multiple ingredients, designed to manage both soil moisture, plant stress and recovery. A multiple polymer product, fortified with two novel technologies; DiuTuron and Templar.





THE WORKS

THE MOST VERSATILE SPRAY ADJUVANT ON THE MARKET

THE WORKS improves performance of spray tank pesticides and nutritionals with multiple beneficial chemistry.

CLEANSE

DITCH THE DRY SPOTS WITH A PREMIUM SOIL REMEDIATION SYSTEM.

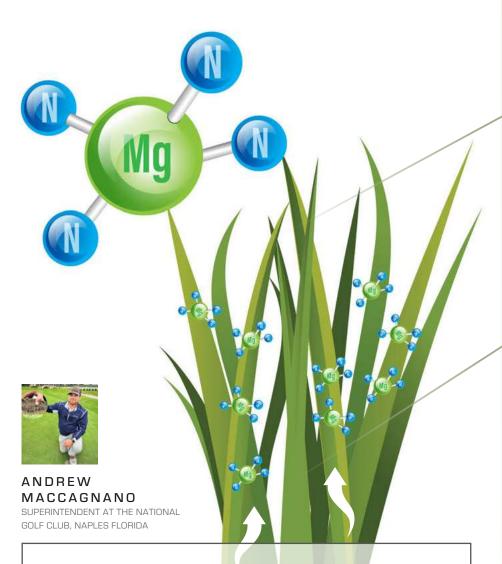
CLEANSE provides an aggressive treatment strategy, aimed at reducing the cause of localized dry spots (LDS) and hydrophobic soil conditions, while enhancing turf recovery.



DEEP NATURAL GREEN



Deep color is a sign of dense chlorophyll molecules packed in each plant leaf. Dense chlorophyll content is not only attractive, it allows the plant to capture the maximum amount of sunlight to drive energy production. These Turf Fuel products increase your turf's plant chlorophyll density, beauty and durability.



Your product is the best around and thank you for doing what you do. It makes my life so much easier.

CARBON AND MICRONUTRIENT COMPLEX

MIC DROP

MIC DROP is a blend of comprehensive micronutrients, a proprietary sugar package, root-driving sea kelp, and carbon, all powered by our REACTION™ technology. Designed for optimal nutrient absorption, MIC DROP delivers intense, long lasting color while enhancing the biology in any soil.

12-0-0 + MICROS

PHOTO FUEL

Enhances photosynthesis by delivering the nutrients needed for this important process and key ingredients to block stress.

Powered by Nutrifense® technology, Photo Fuel delivers the goods for maximum photosynthesis.

PHOSPHITE WITH MANGANESE AND ZINC

MZ-23

This blend of phosphite, sea kelp, manganese and zinc triggers an exceptional turf color response while driving dynamic plant health. You'll see better photosynthesis, rooting and plant strength.



ENERGY+STRENGTH



SYNERGY BETWEEN PLANT AND SOIL

VERTICAL

Powered by Nutrifense, VERTICAL instantly gives treated plants a better chance of survival against intense stress. This university tested technology supplies plants with needed resources for fighting stress while activating powerful plant defense systems.

13-0-0 WITH NUTRIFENSE AND SILICA

ELEMENT 6

Provides plants with the components needed for turf strength conditioning, maximum energy generation and root production. Powered by a full load of Nutrifense, Element 6 provides plants with the components needed for turf strength conditioning, maximum energy generation and root production. Includes a potent array of sugars, amino acids, soluble silica and Nutrifense.

0-0-20 WITH PHOSPHITE AND SILICA

GREENS PHITE SUPREME

Greens Phite Supreme is our highest silica load in a potassium phosphite yet. With 3% stabilized silica and 30% potassium phosphite, Supreme helps prepare turf for stress and significantly increases overall plant health. Benefits can be seen as increased wear tolerance, better stress resistance, and improved resiliency.

ROOT DRIVING BIOSTIMULANT

RESPO FUEL

With Nutrifense. Extreme stress prevention and mitigation with foliar calcium, sea kelp, silica, copper, salicylic acid, and our proprietary SAR initiator Nutrifense. A must have for intensely managed turf.

BALANCED GROWTH



25-0-0 40% SLOW RELEASE NITROGEN

BASE N25

A core nitrogen product with 40% slow release via urea triazone. Fortified with proprietary G2D biostimulant technology.

18-0-0 ACIFIED NITROGEN

ROOT DOWN

A unique nitrogen product with a pH of 0.65.
That means Root Down helps to fight sodium, bicarbonates and poor nutrient availability in the soil. Root Down can be used strategically at high rates or as a routine maintenance nitrogen source.

14-20-0

QUICK GREEN

A high phosphate biostimulant fertilizer derived from ammonium polyphosphate and urea ammonium nitrate. Perfect for new establishment, winter damage recovery, aeration recovery, spring green-up or anywhere better turf density is desired.

0-0-26 POTASSIUM ACETATE

BASE K26

A high K formulation utilizing ultra safe and highly absorbed potassium acetate fortified with proprietary G2D biostimulant technology.



HYDRATION



A healthy plant requires a soil that has a balance of moisture, air, nutrients and microbial life. Choose the right Turf Fuel surfactant material to meet the specific hydration needs of your soil. All Turf Fuel surfactants include multiple polymers, surfactants, and microbial stimulating ingredients to give you the control to manage your turf the way you demand.

HYDRATION UNDER ALL CONDITIONS

INFINITE

The combination of four traditional surfactant polymers fortified with Diuturon™ technology provides predictable and consistent soil hydration over longer windows and lower use rates. Includes Templar, which enhances plant stress tolerance.





TREATMENT/RECOVERY

VANQUISH

Perfect for recovery from LDS and hydrophobic drought stress. Efficient at reducing the symptoms of hydrophobic soils by providing hydration and rehydration across the root zone.

LARGE AREA SURFACTANT

AQUANOX

Aquanox is the ultimate tool for optimizing irrigation cycles. Whether injected or applied via spray, Aquanox optimizes irrigation efficiency and promotes more consistent hydration. Now includes Diuturon for enhanced longevity



120 DAY PREVENTATIVE

DISTANCE

The most dynamic long-term soil surfactant available. Flexible application rates and timing provide timing to meet your economic demands for quality turf. Now includes Diuturon for enhanced longevity



TOURNAMENT CONDITIONS

THE KRAKEN

Premier soil surfactant providing tournament quality playing conditions. Built around four advanced polymers, the foundation of The Kraken is a proprietary capped polymer that ensures consistent 30 day longevity in the soil. The Kraken attacks the symptoms of LDS and HDC.



SOIL IMPROVEMENT



HUMIC ACID AND SEA WEED EXTRACT

XCHANGE

Soil Conditioner. XChange is a powerful soil conditioner designed to enhance root growth and mitigate a multitude of plant stresses. University research has proven when humic acid, sea kelp, and salicylic acid are combined significant increases in plant health and root quality occur.

ACIDIFIED CALCIUM

LESSEN 11

Lessen 11 is an acidified calcium-based fertilizer with silica, a biostimulant package and a proprietary block polymer surfactant.

Lessen 11 is designed to provide supplemental calcium while helping to alleviate the problems associated with high sodium levels in soil and irrigation water.

SODIUM AND BICARBONATE MITIGATION

D-SOLVE

Sodium and Bicarbonate MGT. D-Solve is a proprietary blend of strong, yet safe acids designed to solubilize exchangeable calcium, dissolve bicarbonate layering, and ultimately move sodium from soil colloids. A powerful tool for those suffering from high sodium or high bicarbonate irrigation water.

SOIL SCRUBBER AND REJUVENATION

CLEANSE

Organic Soil Remediation Product. The newest solution for the removal of hydrophobic organic acids. Reformulated with a stronger scrubber and our Soil Sync technology for a combined impact on LDS remediation and turf recovery.

PRODUCT EFFICIENCY



ALL PURPOSE ADJUVANT

THE WORKS

A full service spray adjuvant. Increases chemical penetration, reduces drift, improves deposition and buffers pH of spray solutions.

PESTICIDE ACTIVATOR

HELIX

Get the most out of fungicide applications with this powerful chemistry uptake aid. Helix drives multiple chemistries into plant tissue while temporarily increasing plant metabolism for improved systemic mobility.

SPRAY TANK BUFFER

TANK pHix

Protect the integrity of products added to the spray tank by buffering the pH and avoiding alkaline hydrolysis. Tank pHix is designed to quickly adjust pH and provide a color reaction corresponding to proper pH adjustment.

SPREADER, STICKER, SEALER

STICKUM

A one-of-a-kind spreader sticker where the spreading power of organosilicone is matched with the sticking action of latex. The result is a product that ensures an on-target application with outstanding pesticide efficacy.



THE SCIENCE OF

NUTRIFENSE®



Nutrifense® is a Turf Fuel proprietary biostimulant blend that when applied to turf provides unique protection against environmental stress and mechanical injury. Nutrifense conditions highly manicured turf for extreme stress and has been university proven to improve turf performance in even the worst environmental situations. This state of the art technology can be broken down into four components with the first being extracts from unique plants that thrive in challenging environments.

We all recognize that certain plants perform better in certain environments than others. For example, you don't see many palm trees in winter climates however palms thrive in a more tropical environment where some cooler climate plants would fail. The Turf Fuel research team has studied plants from all around the world that not only survive in ultraharsh environments, they thrive. These plants are known as extremophiles. These scientists are able to identify the key compounds extremophilic plants use to succeed in harsh environments, extract them and emulsify them into a potent plant biostimulation material. This extraction procedure is similar to how CBD oil is extracted from hemp plants to be used as medicine for humans.

The second component in Nutrifense is our second generation plant defense activator. All plants have evolved to possess a unique mechanism of threat detection and defense. Turf Fuel's defense activator technology triggers a defensive reaction in turf which results in thicker cell walls, the production of stress fighting compounds and ultimately a turf plant that's better equipped to deal with whatever nature or the demands of today's turf management practices have in store.

The final component to Nutrifense is a group of precursors to protein production. Armed with these ingredients, the plant is better equipped to manufacture protein for stress recovery, defense, and everyday growth.





Reaction is a Turf Fuel-only proprietary technology designed to create super strong plants while bringing out the best in any soil. At Turf Fuel we're excited with the launch of our new Reserve category of products, all powered by Reaction. Use Reaction to build incredible plant health and unmatched value in your soil!

Reaction has an incredible ability to increase nutrient absorption deep into plant tissue and facilitates nutrient mobility once in the plant. These two attributes lead to a lightning fast color response that's built to last. More color, more chlorophyll, more energy. All of these plant interactive reactions are driven by the high carbon, high sugar blend that makes up the powerful Reaction technology.



Vertical

Mic Drop

In the soil Reaction works to supply carbon, a rich microbial food source, into the root zone. University research has shown applications of high carbon, high sugar blends facilitate an uptick in the population of beneficial bacteria and other helpful microorganisms. Increasing the colonies of beneficial organisms in the root zone helps plants thrive as they have greater access to nutrients, biochemicals for defense and wound repair and more carbon dioxide for photosynthesis.



REACTION Technology is currently available in Turf Fuel VERTICAL and MIC DROP

SOLUBLE SILICA

University proven, Turf Fuel's soluble silica bolsters plant strength and improves performance during heat stress. Unlike traditional silica sources Turf Fuel's proprietary silica has a stabilized pH of 4.5 making it uniquely soluble and reactive when applied to turf. This enhanced solubility allows our silica to be blended with items like phosphite, carbon and even calcium. The most noticeable impact from applications of our silica can be found with an improved tolerance towards traffic and mechanical stress. Silica has been proven to both coat the outer layer of plants for improved protection and also fill the space in between cells for better turf "wear and tear."

SEA KELP

Years of research have proven plants treated with sea kelp experience less root lost and have improved performance under stress. At Turf Fuel we utilize a kelp material that is unique to the industry, which promotes aggressive root grow rather than tissue expansion.

The treatment process is an advanced process of cell burst extraction instead of heat or harsh chemicals for full phytochemical extraction. This method creates a more powerful kelp solution and delivers the purest kelp extract solution possible for stress mitigation and new root initiation.







WINTER HARDINESS

Give your turf the best chance of survival and spring performance with biweekly applications of Turf Fuel's university-proven Winter Hardiness program. Turf Fuel's Element 6 and Base K26 treated turf had the highest percentage of regrowth 20 days after removal from either 40 or 60 days of ice cover.

CATEGORY	PRODUCT	RATE/ 1,000 sq ft
N	ELEMENT 6	3.0 oz
N	BASE K26	3.0 oz
N	MZ-23	3.0 oz

Element 6

Provides plants with the components needed for turf strength conditioning, maximum energy generation and root production.

Base K26

A high K formulation utilizing an ultra safe and highly absorbed potassium acetate fortified with proprietary G2D biostimulant technology.

MZ-23

A strong dose of manganese, zinc, phosphite, and sea weed extract, MZ-23 provides the essential micronutrients required for many critical plant functions. Gain color without growth going into a long hard winter.





Discover Turf Fuel's rapid recovery protocol, a combination of premium products targeting lateral growth, energy production, and maximized recovery. Proven to increase the rate of new turf establishment and overall health and resilience.

CATEGORY	PRODUCT	RATE/ 1,000 sq ft
N	ELEMENT 6	3.0 oz
N	PHOTO FUEL	3.0 oz
N	QUICK GREEN	6.0-9.0 oz

Element 6

Provides plants with the components needed for turf strength conditioning, maximum energy generation and root production.

Photo Fuel

Enhances photosynthesis through nutrition and biostimulation. Contains two plant-based biostimulants along with our proprietary defense activator.

Quick Green

A high phosphate biostimulant fertilizer derived from ammonium polyphosphate and urea ammonium nitrate. Perfect for new establishment, winter damage recovery, aeration recovery, spring green-up and anywhere increased density is desired.





Leading into the heat of the growing season, soil needs a reboot. Use Turf Fuel's Ctl+Alt-Del program to remove contaminants, remediate organic buildup, dissolve chemical layering, and recharge the root zone.

CATEGORY	PRODUCT	RATE/ 1,000 sq ft
S	D-SOLVE	3.0 oz
S	CLEANSE	6.0-9.0 oz
S	VERTICAL	6.0 oz

D-Solve

A proprietary blend of strong, yet safe acids designed to solubilize exchangeable calcium, dissolve bicarbonate layering, and ultimately remove sodium from soil colloids.

Cleanse

An advanced soil remediation agent.
Unlike traditional soil surfactants that temporary mask the symptoms of hydrophobic soils, Cleanse with
Soil Sync attacks the problem by reducing hydrophobic organic materials throughout the root zone.

VERTICAL

Once the soil is cleaned up, VERTICAL restores the components essential for healthy microbial activity, nutrient availability, plant stress tolerance and proprietary rooting technology.





Every day matters when it comes to turf performance. The expectation is always high, however Mother Nature likes to throw challenges your way, making it difficult to always deliver. Turf Fuel's Turf Performance Plan is designed to give the turf consistent health, durability and aesthetics day in and day out.

CATEGORY	PRODUCT	RATE/ 1,000 sq ft
S	VERTICAL	6.0 oz
S	PHOTO FUEL	3.0 oz
S	BASE N25	3.0 oz

Vertical

A complete plant and soil health supplement. Vertical™ contains a proprietary sugar extract specific to enhance plant and soil health. By energizing the soil, more CO2 is liberated to fuel photosynthesis. Powered by university proven Nutrifense technology.

Photo Fuel

Photo Fuel enhances photosynthesis through nutrition and biostimulation. Nutrifense is added as a S.A.R. initiator, triggering the plant's natural defense system. Photo Fuel produces a deep dark green turf.

Base N25

Base N25 is a core nitrogen product with 40% slow release nitrogen derived from urea triazone. Expect steady, controlled growth for excellent turf quality and color. Base N25 contains Turf Fuel's proprietary Grow2Defend™ biostimulant group resulting in a robust physical plant structure.





Preparing for the season by applying strategic applications, allows for consistent hydration all season long. With the flexibility to deliver surface conditions that meet the player's expectations and plant health needs, Turf Fuel's Balanced Hydration program puts the turf manager in the driver's seat.

Use Cleanse in the Spring and Fall and Infinite during the summer.

CATEGORY	PRODUCT	RATE/ 1,000 sq ft		
S	CLEANSE	3.0-6.0 oz		
S	INFINITE	2.0-5.0 oz		

Cleanse

A revolutionary blend of soil scrubbers, enzymes and plant biostimulants. Cleanse with Soil Sync refurbishes tired soil, setting it up to be fully functional for the season.

Infinite

Infinite provides unparalleled reduction in turf stress caused from heat and drought. Infinite uses 5 surfactant components to provide a complex web of soil hydration. Infinite makes soil hydration consistent and predictable, ensuring optimal soil hydration under all conditions.





It is a balance between art and science to create surfaces that players rave about. Turf Fuel's Game Day Spray program provides consistent firmness, hydration and plant health that matters during the most important events.

CATEGORY	PRODUCT	RATE/ 1,000 sq ft
S	CLEANSE	3.0-6.0 oz
S	KRAKEN	4.0-6.0 oz

STEVE BARNARD STETSON UNIVERSITY

Incorporating Turf Fuel products into my field management program has really paid off. Excellent color with great playing conditions



Cleanse

A revolutionary blend of soil scrubbers, enzymes and plant biostimulants, Cleanse with Soil Sync attacks the problem by reducing hydrophobic organic acids throughout the root zone. The enzymes and biostimulants kick-start plant recovery from the root zone up.

Kraken

A consistent 30-day preventative soil surfactant, providing tournament style playing conditions. The Kraken draws moisture deep into the profile providing firm consistent playing surfaces.





When soil drought conditions show up, Turf Fuel's Drought 911 program is the quickest way to get turf back on track. Flushing contaminants and providing adequate hydration gets your turf back to full recovery in a hurry.

CATEGORY	PRODUCT	RATE/ 1,000 sq ft
S	CLEANSE	3.0-6.0 oz
S	VANQUISH	4.0-6.0 oz
S	LESSEN 11	6.0 oz

Cleanse

A revolutionary blend of soil scrubbers, enzymes and plant biostimulants, Cleanse with Soil Sync attacks the problem by reducing hydrophobic organic acids throughout the root zone. The enzymes and biostimulants kick-start plant recovery from the root zone up.

Vanquish

A diverse four polymer surfactant, providing consistent and predictable hydration characteristics across an array of soil types. Vanquish's diversity delivers strong rehydration, hydration and penetration characteristics.

Lessen 11

When turf is stressed, calcium controls water uptake into cell colloids. Lessen 11 has a unique acidic calcium that will bring hydration back to the plant.



AT A GLANCE

TURF AND SOIL PRODUCT ANALYSIS														
PRODUCT	RATE		MAJOR SECONDARY			MICRONUTRIENTS						PO₃		
	fl oz/ 1,000 sq ft	N	P ₂ O ₅	K₂0	Ca	Mg	В	Cu	Fe	Mn	Mo	Si	Zn	PO₃
Photo Fuel + Nutrifense	2.0-4.0	12%	-	-	-	0.25%	_	0.15%	4%	2%	0.04%	-	-	-
Respo Fuel + Nutrifense	2.0-4.0	-	-	-	8%	-	_	0.15%	-	-	_	0.5%	-	_
Vertical + Nutrifense	6.0	-	-	8%	_	-	_	-	_	-	_	-	-	_
Element 6 + Nutrifense	3.0-6.0	13%	-	3%	_	-	_	-	-	-	_	2%	-	_
Mic Drop	2.0-6.0	_	_	1%	_	1.25%	0.08%	-	3.5%	0.63%	_	-	0.7%	_
Greens Phite Supreme	1.5-4.0	-	-	20%	_	-	_	-	-	-	_	3%	-	30%
MZ-23	2.0-4.0	_	_	5%	_	-	_	-	_	2.8%	_	-	3.2%	23%
Root Down Soil Rate	4.0-12.0	18%	-	-	-	0.3%	_	-	0.9%	1.2%	_	-	-	_
Base N25 + G2D	3.0-6.0	25%	-	-	_	-	_	-	_	-	_	-	-	_
Base K26 + G2D	2.0-3.0	-	-	26%	_	-	_	-	-	-	_	-	-	_
Quick Green	3.0-9.0	14%	20.0%	_	_	-	_	_	_	_	_	-	-	_
Lessen 11	6.0-8.0	-	-	-	7%	-	_	-	-	-	_	0.25%	-	_
XChange	3.0-6.0	-	-	1%	-	-	-	_	1.5%	_	-	_	_	-

	SP	HELMEN TO THE	
PRODUCT	CATEGORY	RATE	USE
INFINITE ∞	Soil Surfuctant	3.0-5.0 fluid ounces per 1,0000 square feet	Hydration and Plant Stress Reduction
Vanquish	Soil Surfuctant	6 fluid ounces per 1,000 square feet	Soil Hydration
Moisture Magnet	Soil Surfuctant	16-128 ounces per 100 gallons	Water Holding Surfuctant
Cleanse	Soil Surfuctant	6 fluid ounces per 1,000 square feet	Soil Remediation and Recovery
The Kraken	Soil Surfuctant	6 fluid ounces per 1,000 square feet	Tournament Preparation Surfactant
Distance	Soil Surfuctant	8-16 fluid ounces per 1,000 square feet	120 Longevity
AquaNox	Irrigation Aid	1-4 quarts per acre	Large area irrigation enhancement
D-Solve	Soil Acidifier/Penetrant	32-64 fluid ounces per acre	Remove Biocarbonates/Sodium
The Works	Foliar Adjuvant	½-4 points per 100 gallons	Acidifier/Spreader/Sticker
Helix	Foliar Adjuvant	1–2 points per 100 gallons	Activator/Spreader
Tank pHix	Water Conditioner	4-8 fluid ounces per 100 gallons	Spray Tank Buffer
Tergo	Tank Cleaner	RTU or 50/50 Dilution	Pigment Tank Cleaner
Pacific Blue HC	Colorant	6-8 fluid ounces per 100 gallons	Spray Indicator and Pond Dye
Pacific Blue SPI	Colorant	16-32 fluid ounces per acre	Spray Dye Indicator
Hulk	Turf Pigment	16-32 fluid ounces per acre	UVB Pigment Colorant



TESTIMONIALS

LANCE MORRIS

SILVER SPRINGS GOLF & COUNTRY CLUB

Turf fuel products perform with strict accuracy which allows for precise control on all playing surfaces. Their innovation, technology and industry support are first class.



ROB WRIGHT

THE DEVILS PULPIT GOLF ASSOCIATION



As a Golf Course Superintendent, I have applied various types of foliar and liquid fertilizers to my putting green surfaces. From years of trials, I have come to find that the Turf Fuel lineup offers me the results I expect, when I expect them. You can build a program based on your situation and budget, and always see great results!

PATRICK DEME

PENDER ISLAND GOLF COURSE,
BRITISH COLUMBIA

With Turf Fuel, I get all the glow without the grow! This green was trampled by tourists when it was 20F and had no snow cover. When the snow melted, I was impressed with the turf health and survival.

MATTHEW KERNS

THE EPISCOPAL ACADEMY

In the time we have been using 18-0-0 Rootdown, MZ-23, and Element 6 we have seen an incredible response from our turfgrass. We have seen greater root development, better turf density and great color response.





PENDER ISLAND GOLF CLUB

* TARGET

TESTIMONIALS

SCOTT SUNDEEN

COPPER CREEK GOLF COURSE

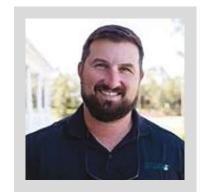
In the 22 seasons I have spent at Copper Creek, there has been quite a few of them that we have experienced winter damage to varying degrees. We have tried many different remedies both cultural and nutritional but I have not seen as much success with any of them as I have with the Turf Fuel winter recovery program. Even with our colder spring temps, as we are located at 9600', the turf is recovering and filling in much faster than I have ever seen.



TREVOR MARSH

SARATOGA LAKE GOLF CLUB

Element 6 is our go to product during stressful periods. The product allows the greens to thrive during prolonged heat and drought stress. Element 6 improves turf quality and reduces the need for labour intensive hand watering.



NATE MAURER

JACKSONVILLE COUNTRY CLUB

We have been using the Turf Fuel product ever since I took over at Jacksonville Country Club. I depend on these nutritional products to get me through the extremes such as prolonged rain followed by prolonged heat.





15415 Marquardt Avenue Santa Fe Springs, CA 90670

turffuel.com

target-specialty.com











