



Performance Nutrition is a division of LidoChem, Inc.



2022

*Turf & Ornamental*

PRODUCT CATALOG

# ABOUT

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*PERFORMANCE NUTRITION*<sup>®</sup> was established in 1999 to develop new eco-responsible products and programs for the Turf & Ornamental market. The Performance Nutrition product line of specialty performance products is tailored to meet the ever-increasing demand for new and safer plant disease control and nutritional products.

Through the innovation of its staff of technical and product development professionals, the *PERFORMANCE NUTRITION* division has assembled an ever-expanding array of unique and powerful bio-pesticides, patented chelated micronutrient solutions, specialty fertilizers, soil inoculants, plant hormones, organic supplements and fertilizer additives that are not only effective but environmentally and applicator friendly as well.

*PERFORMANCE NUTRITION* fertility and specialty products are sold across the country by local independent distributors familiar with local growing practices and problems.

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FIND PRODUCTS FIND SOLUTIONS

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# Performance Nutrition® TABLE OF CONTENTS

## ECOSYSTEM MANAGEMENT® PROGRAMS

PERFORMANCE Soil Treatment® (PST®) .....	6
PERFORMANCE Foliar Treatment® (PFT®) .....	7
PERFORMANCE Lawn Care Treatment (PLT) .....	8
PERFORMANCE® Seed Treatment .....	9

## NUTRITIONAL BLENDS

KaPre® KelpPlus .....	10
KaPre® K29 .....	11
Vibrant® .....	12

## AMINO ACIDS

Pennamin® .....	13
-----------------	----

## CHELATED MICRONUTRIENT SOLUTIONS

Krystal Klear® .....	14, 15
----------------------	--------

## PHOSPHITE FERTILIZERS

Prudent® 44 & 42CW .....	16, 17
Prudent® 40PLUS .....	16, 17

## SOIL INOCULANTS & ADDITIVES

NutriSmart® Products.....	18, 19
KaPre® RemeD8-WSP .....	20
KaPre® Embella .....	21

## ADJUVANTS

Argosy®-RF .....	22
------------------	----

## BIO-PESTICIDES

Nutrol® .....	23
---------------	----

## PLANT HORMONES

Agra-Rouse™ .....	24
Incite™ .....	24

## HUMIC & FULVIC ACIDS

KaPre® ExAlt .....	25
KaPre® Spectra .....	26
KORBAN® SC .....	27
KORBAN® 0-0-13 .....	28
KORBAN® 12-0-2 .....	29

## PLANT EXTRACTS

KELPENE® GPX .....	30
KELPENE® Ca-T .....	31

OMRI LISTED PRODUCTS .....	32
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# **PERFORMANCE**

## **ECOSYSTEM MANAGEMENT<sup>®</sup> PROGRAMS**

**The *PERFORMANCE* Ecosystem Management<sup>®</sup> Program** (PEMP) is a pro-active, comprehensive system for turf management that is safe, effective, easy-to-use and simple to manage. PEMP consists of our patented Performance Treatments, each of which targets specific components of an ecosystem:

- ***Soil***
- ***Turf Nutrition and Micronutrition***
- ***Microbial Populations***
- ***Water & Soil Solutions***

## **TREATMENTS FOR TURF OPTIMIZATION**

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Each *PERFORMANCE* Treatment corrects conditions that negatively impact the ecosystem, and, enhances conditions that favor vigorous, more stress resistant and sustainable turf.

With continued use, the *PERFORMANCE* Treatments will balance plant nutrition and micronutrition, support healthy populations of diverse microorganisms, and reduce the need for chemical fertilizers and pesticides. In addition, *PERFORMANCE* Treatments improve availability and uptake of soil nutrients, increase levels of soil organic matter, enhance the soil's water-holding capacity, build thick, deep roots and maintain healthy, stress-resistant turf.



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## PRODUCT OPTIONS

### KaPre® ExAlt

#### POLYELECTROLYTE SOLUTION

**Maintenance Rate:** Apply KaPre ExAlt at a rate of 16 - 32 fl. oz. per acre (0.35 - 0.70 fl. oz. per 1,000 ft<sup>2</sup>) every 2 - 4 weeks throughout the growing season.

Apply labeled rates of KaPre® RemeD8 WSP Soil Inoculant as a tank mix with KaPre ExAlt or within 3 - 7 days after the application.

### KaPre® RemeD8-WSP

#### MICROBIAL SOIL INOCULANT

**Greens, tees and other low-cut turf:** Apply one 8 oz. packet of KaPre RemeD8-WSP per 1.0 - 1.25 acres. Apply every 14 days throughout the season.

**Fairways, roughs, sports turf and other high-cut turf:** Apply one 8 oz. packet of KaPre® RemeD8-WSP per 2.0 - 2.5 acres. Apply every 14 days throughout the season.

### Pennamin® High-K

(6-0-15 + 9% Ca) with 40% Amino Acids

Apply 0.4 - 2 oz. per 1000 ft<sup>2</sup> (1 - 5 lb. per acre). Substitute other Pennamin® products depending on turf or soil requirements.

### Kelpene® GPX

#### PLANT EXTRACT SOLUTION

**Maintenance Rate:** Make 4 applications of Kelpene GPX at a rate of 15 fl. oz. per acre (0.3 fl. oz. per 1,000 ft<sup>2</sup>) during the spring and early season every 2-3 weeks, followed by 1 mid-season application and 1 fall dormancy application.

**Recovery/High Stress Rates:** Make 12 - 18 applications of Kelpene GPX at a rate of 15 fl. oz. per acre (0.3 fl. oz. per 1,000 ft<sup>2</sup>) during the season. Apply every 2 weeks during the key growing period and then every 30-60 days at other times.

### Kelpene® Ca-T

(3-0-0 + 4% Ca) with Plant Extracts

**Soil applications:** Apply 1-2 quarts per acre (0.75 - 1.5 fl. oz. per 1000 ft<sup>2</sup>) as a soil spray or 1-2 pints per acre (0.36 - 0.75 fl. oz. per 1000 ft<sup>2</sup>) through soil injection systems.

**Foliar applications:** Apply 1-2 pints per acre (0.36 - 0.75 fl. oz. per 1000 ft<sup>2</sup>) as needed.



## ABOUT

The **PERFORMANCE Soil Treatment®** improves the condition and composition of the soil, enhances microbial populations, improves nutrient efficiency and delivers an arsenal of amino acids, enzymes, sugars and organic substances. Incorporating PST® into turf management regimens supports a vigorous ecosystem and enhances conditions that contribute to turf quality and sustainability.

The **PERFORMANCE Soil Treatment** contains several beneficial active ingredients that work together to maintain a healthy and productive soil environment. PST products include KaPre® ExAlt Polyelectrolyte Solution, KaPre® RemeD8-WSP Soil Inoculant, Pennamin® Amino Acid products and Kelpene® Plant Extracts.

## BENEFITS

- Provides a solid foundation for building healthy turfgrass and will enhance any nutrient program
- Unlocks nutrients found in the soil (Ca, P, Mg, etc.)
- Increases the bio-availability of minerals
- Provides organic nitrogen with free amino acids
- Improves the diversity of beneficial soil microbes
- Provides food sources for native microbial populations
- Helps balance the sodium to potassium ratio of the soil to aid in the prevention of sodium-induced wilt
- Alleviates compacted soils, reduces bicarbonates and eliminates black layer

## PRODUCT OPTIONS

### KaPre® KelpPlus

FERTILIZER SOLUTION *with Sea kelp*

**Turfgrass:** Apply 1.5 to 6 fl. oz. per 1,000 ft<sup>2</sup> every 2 weeks throughout the season.

**Ornamental Plant Maintenance:** Dilute 1 to 100 in water (1 oz./gal.) and apply as a soil drench for stressed plants or spray diluted solution on foliage to runoff every 30 - 60 days to promote flowering.

### Prudent® (44, 42cw, or 40Plus)

PHOSPHITE FERTILIZERS

Apply 0.5 - 2 fl. oz. per 1,000 ft<sup>2</sup>. Begin applications in the spring and continue on a 7 to 14 day schedule throughout the season.

### Vibrant®

FOLIAR FERTILIZER SOLUTIONS

**Vibrant Red:** Apply 3 - 6 fl. oz. per 1,000 ft<sup>2</sup> every 2 weeks

**Vibrant Green:** Apply 4 - 8 fl. oz. per 1,000 ft<sup>2</sup> every 2 weeks

### Krystal Klear®

CHELATED MICRONUTRIENTS

**Krystal Klear® Fe:** Apply 0.75 - 2 fl. oz. per 1,000 ft<sup>2</sup> every 2 weeks throughout the growing season.

**Krystal Klear® Turf Mix:** Apply 0.75 - 2 fl. oz. per 1,000 ft<sup>2</sup> every 2 weeks throughout the growing season.

**Krystal Klear® ResQ:** Apply 3 - 6 fl. oz. per 1,000 ft<sup>2</sup> every 2 weeks throughout the season.

### Nutrol®

BIOPESTICIDE

**Nutritional Applications:**

Apply 2 - 4 oz. per 1,000 ft<sup>2</sup> (6 - 11 lb. per acre) per application. Apply every 7 to 14 days throughout the season. If used as a starter fertilizer during transition periods to cool season grasses, apply 4 - 6 oz. per 1,000 ft<sup>2</sup>.

**Disease Control Applications:**

Mix 8 - 11 lb. of Nutrol® with labeled rates of Prudent® fertilizers per 100 gal. and apply as necessary. DO NOT exceed one application every 7 days.



## ABOUT

The **PERFORMANCE Foliar Treatment®** safely and efficiently delivers foliar nutrition, micronutrition and disease suppression. Turf treated with the PFT® develops highly fibrous and branched root systems, stays greener longer and is more stress tolerant.

As with other *PERFORMANCE* Treatments, PFT is easy to use and apply. No pre-mixing or pre-soaking is required and all of the products are compatible with each other and most fertilizers and chemicals. Most PFT applications require 5 products or less – KaPre® KelpPlus, Nutrol®, Prudent® and the choice of Vibrant® Foliar Fertilizers and Krystal Klear® Chelated Micronutrients. Treatments can be tailored to meet the specific requirements of the turf.

## BENEFITS

- Controls and suppresses foliar and soil-borne pathogens
- Supports turf's natural defenses with organic supplements
- Prevents alkaline hydrolysis and optimizes pesticide applications
- Provides quicker uptake of nutrients through foliar application
- Delivers a wide array of micronutrients and trace elements to quickly correct micronutrient deficiencies for optimum turf growth
- Increases integrity of plant cell walls, improving plant strength and resistance
- Provides long lasting turf color and quality



## PRODUCT OPTIONS

### KaPre® RemeD8-WSP

#### MICROBIAL SOIL INOCULANT

Apply one 4 oz. packet per 0.5 to 0.75 acres. Apply as needed throughout the season.

### KaPre® Embella

#### FERTILIZER ADDITIVE

Foliar-apply 0.2 – 0.36 fl. oz. per 1,000 ft<sup>2</sup> every 14 – 28 days.

### Kelpene® GPX

#### PLANT EXTRACT SOLUTION

Apply at rates of 0.34 fl. oz. per 1,000 ft<sup>2</sup>

### Kelpene® Ca-T

(3-0-0 + 4% Ca) *with Plant Extracts*

Apply at rates of 0.5 fl. oz. per 1,000 ft<sup>2</sup> every 2 - 4 weeks or as needed.

### Korban® SC

#### HUMIC ACID SOLUTION

Apply at rates of 1 - 2 fl. oz. per 1,000 ft<sup>2</sup>

### Korban® 12-0-0

KORBAN SC *with Chelated Micronutrients*

Apply at rates of 1 - 4 fl. oz. per 1,000 ft<sup>2</sup>

### Korban® 0-0-13

KORBAN SC *with Chelated Micronutrients*

Apply at rates of 2 - 8 fl. oz. per 1,000 ft<sup>2</sup>



## ABOUT

The **PERFORMANCE Lawn Care Treatment** delivers foliar nutrition, beneficial microbes as well as stress management with the application of plant extracts and terpenes for healthy soil and lush, greener lawns.

## BENEFITS

- Improves stress tolerance
- Supports turf's natural defenses with organic supplements
- Enhances root development and germination rates
- Nitrogen fixation to supplement applied nitrogen







## ABOUT

The patented **PERFORMANCE Seed Treatment®** is designed to promote and support thorough and more uniform seed germination and supplement seeds early stage nutrient and micronutrient requirements.

The Performance Seed Treatment is customized to suit the specific requirements of the customer. Several patented technologies, including Krystal Klear® chelated micronutrients, Prudent® phosphite fertilizers, and KaPre® Seed Treatment Additives are available to create the right product for the seeds being treated.

**Contact your Performance Nutrition® representative for more details.**

## BENEFITS

- Initiates faster germination
- Improves uniformity of seed germination
- Supplements nutritional need of young seedlings



# KaPre | KELP Plus

## FERTILIZER SOLUTION w/ Sea Kelp & Amino Acids

### ABOUT

**KaPre® KelpPlus** is a concentrated liquid fertilizer containing sea kelp in addition to an array of eighteen (18) water-soluble free L-amino acids.

### GUARANTEED ANALYSIS

Total Nitrogen (N).....1.0%  
 1.0% Water Soluble Nitrogen  
 Available Phosphate (P<sub>2</sub>O<sub>5</sub>).....1.0%  
 Soluble Potash (K<sub>2</sub>O).....1.0%  
 Derived from kelp and amino acids.

### AMINO ACID PROFILE

Amino Acid	Content	Amino Acid	Content
Alanine	0.22%	Histidine	0.05%
Arginine	0.27%	Isoleucine	0.13%
Aspartic Acid	0.33%	Leucine	0.32%
Cystine	0.06%	Lysine	0.07%
Glutamic Acid	0.49%	Phenylalanine	0.23%
Glycine	0.37%	Methionine	0.03%
Proline	0.49%	Tryptophan	0.002%
Serine	0.56%	Tyrosine	0.06%
Threonine	0.21%	Valine	0.2%
<b>Total Amino Acids: 4.15%</b>			

### BENEFITS

- Provides a nutritional supplement through the release of naturally occurring plant nutrients and trace minerals.
- Accelerates and improves seed germination
- Promotes vigorous rooting and overall plant health

### THE ADVANTAGE

**Amino Acids** - 100% of these amino acids are free amino acids so they are quickly available to the plant

Amino acids can complex micronutrients tied up in the soil, making them available for plant uptake

**Vitamins** - play important roles in plant health and growth, nutrient transport systems in cold temperatures and root regeneration. A, B, B1, B12, C, E, K and PP

**Naturally Occurring Growth Promoters** - Gibberellins, Auxins, Cytokinins, Glycol kinetin, Betaines and Carotene

### Application Instructions

**Turfgrass:**  
 Apply 1.5 to 6 fl. oz. per 1,000 ft<sup>2</sup> every 2 weeks throughout the season.

**Ornamental Plant Maintenance:**  
 Dilute 1 to 100 in water (1 oz./gal.) and apply as a soil drench for stressed plants or spray diluted solution on foliage to runoff every 30 - 60 days to promote flowering.  
 Apply 6 fl. oz. KaPre KelpPlus per 1000 ft<sup>2</sup>.

**Tree Maintenance:**  
 Mix 1 gallon per 400 gallons of water and apply with fertilizer to root zone with injection feeding equipment.



POTASSIUM ACETATE

**ABOUT**

**KaPre® K29** is a unique source of potassium, having superior foliar absorption over traditional forms of potassium. Potassium acetate is a more desirable choice for foliar fertilization because of its small molecular size and the plant’s natural affinity for organic acids.

KaPre K29 has been demonstrated to have up to 5X the foliar uptake of traditional forms of potassium like potassium nitrate, potassium thiosulfate, potassium sulfate and potassium chloride.

KaPre K29 is manufactured with organic acids, making it an excellent and safe tank mix partner with most plant inputs including other NPK and micronutrient products. KaPre K29 has a very low salt index in comparison to many popular potassium sources due to its organic nature, allowing it to have a high degree of plant safety, even at higher rates. Plant tissue has a high affinity for this near neutral, non-aggressive, organic form of nutrient, which allows for greater and more efficient foliar uptake of nutrients.

**GUARANTEED ANALYSIS**

Soluble Potash (K<sub>2</sub>O).....29%  
 Derived from potassium acetate



**BENEFITS**

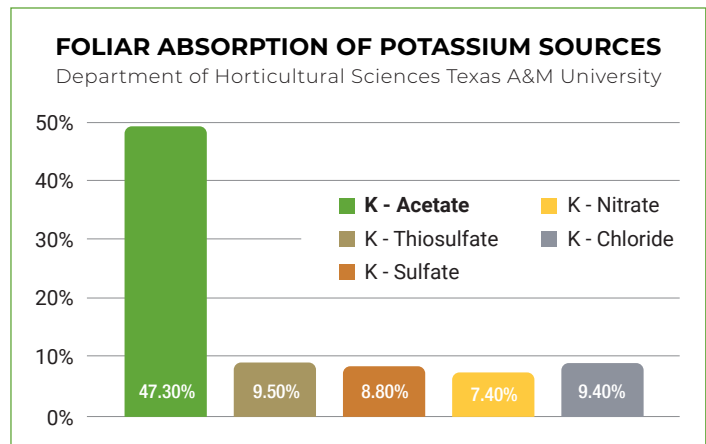
- Unmatched foliar absorption
- Lower use rates than other forms of potassium
- Foliar uptake is up to 5x greater than other sources

**Excellent Tank Mix**

- Organic acid derived nutrient aids in tank mixing
- Highly compatible, non aggressive form of potassium

**Plant Safety**

- Reduced risk of phytotoxicity
- Safe for stressed plants



**Application Instructions**

**Turfgrass and Sod:** Apply 2 to 8 quarts/acre every 14 to 21 days as needed.  
**Greens and Tees:** Apply 2 to 8 ounces per 1000 sq. ft. every 14 to 21 days as needed.



# VIBRANT®

## PATENTED FOLIAR FERTILIZER SOLUTION

### ABOUT

**Vibrant®** patented foliar fertilizer solutions are designed to support healthy turf throughout the growing season. Vibrant fertilizer solutions can be blended together to create a variety of analyses.

Vibrant fertilizer solutions are formulated with premium sources of NPK, Krystal Klear® micronutrients and proprietary organic supplements.

### BENEFITS

- Independent university studies have demonstrated that Vibrant fertilizer solutions provide long lasting turf color and quality, even during the height of summer stress periods.
- Compatible with most fungicides, herbicides and insecticides.
- Exceptional tank mix capabilities.



### Vibrant® Blue

**15-3-5** - with 0.5% Fe, 0.1% Mn, Cu and Zn & 0.025% B plus organic extracts

*Provides quick green-up and turf color and quality, even during the height of summer stress.*

### Vibrant® Green

**18-3-4** - with 10% SRN and 1% Fe, 0.1% Mn and Zn, 0.025% B plus organic extracts

*Designed to deliver a significant color response with a limited growth response.*

### Vibrant® Red

**3-6-12** - with 0.1% Cu, Fe, Mn and Zn, 0.05% Si, 0.025% B plus organic extracts

*Formulated to help tolerate environmental conditions such as heat and drought stress during tough summer months.*

### Application Instructions

**Vibrant Blue:** Apply at a rate of 4.0 – 7.0 fl. oz. per 1,000 ft<sup>2</sup> (1.4 – 2.4 gal/A) every 2 – 4 weeks throughout the season.

**Vibrant Green:**  
 Maintenance Applications: 4 - 5 fl. oz. per 1,000 ft<sup>2</sup> (1.4 - 1.7 gal/A)  
 Severe Deficiencies: 6 - 8 fl. oz. per 1,000 ft<sup>2</sup> (2 - 2.7 gal/A)  
 Apply throughout the growing season beginning in the early spring and continue through the late fall.

**Vibrant Red:**  
 Maintenance Applications: 3 - 6 fl. oz. per 1,000 ft<sup>2</sup> (1 - 2 gal/A)  
 Apply throughout the growing season beginning in the early spring and continue through the late fall.



## PATENTED AMINO ACID SPRAYABLE POWDERS

### ABOUT

**Pennamin**<sup>®</sup> amino acids and micronutrients safely and efficiently deliver foliar micronutrition and non-leaching organic nitrogen. Pennamin products improve the efficiency of fertilizers, support turf & ornamental vigor, enhance root development

### PENNAMIN ADVANTAGE

- Pennamin products are readily absorbed by turf and ornamental foliage.
- Pennamin products have a low C:N ratio (6:1), which assures that the organic nitrogen is utilized by turf and ornamentals.
- Pennamin products help chelate soil micronutrients, making them more available

#### Application Instructions

##### **Pennamin Fe&Mn, Driver-P, High K, Perfect K**

Apply 0.40 – 2 oz. per 1000 ft<sup>2</sup>

(1 – 5 lb. per acre). Apply every 14 to 28 days as needed.

Applications on turf and ornamentals can be made throughout the growing season.

##### **Pennamin Si**

Cool Season – Apply 0.2 - 0.5 oz. per 1,000 ft<sup>2</sup> (0.5 - 1.5 lb. per acre)

Warm Season – Apply 0.2 - 0.9 oz. per 1,000 ft<sup>2</sup> (0.5 - 2.5 lb. per acre)

*See page 34 for Complete Amino Acid Profiles for Pennamin Products*

### PRODUCT OPTIONS

#### **Pennamin<sup>®</sup> FeMn**

9-0-0 with 4% Fe & 3% Mn

**57% Amino Acids**

#### **Pennamin<sup>®</sup> Driver-P**

12-0-0

**80% Amino Acids**

#### **Pennamin<sup>®</sup> High-K**

6-0-15 with 9% Ca

**40% Amino Acids**

#### **Pennamin<sup>®</sup> Perfect-K**

8-0-9+5% Ca with 2% Mg, 0.1% Fe, 0.05% Cu, 0.05% Mn, 0.05% Zn and 0.02% B

**64% Amino Acids**

#### **Pennamin<sup>®</sup> Si**

10-0-0 with 4% Si

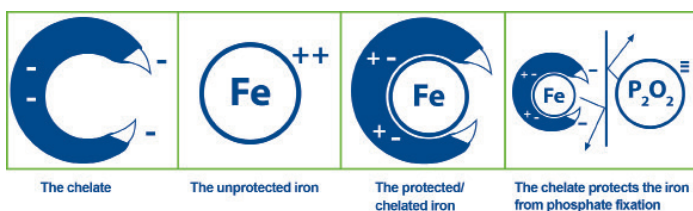
**64% Amino Acids**

# CHELATED MICRONUTRIENT SOLUTIONS



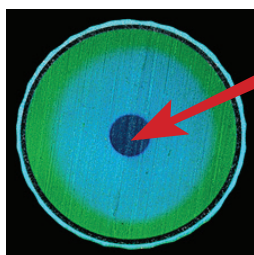
## WHAT ARE CHELATES?

The word chelate (pronounced: "key-late") is derived from the Greek word "chele" which literally means "claw". Hence, chelate refers to the pincer-like manner in which a metal nutrient ion is encircled by the larger organic molecule (the claw), usually called a ligand or chelator.



Chelated micronutrients are protected from oxidation, precipitation, and immobilization in certain conditions because the organic molecule (the ligand) can combine and form a ring encircling the micronutrient. The pincer-like manner in which the micronutrient is bonded to the ligand changes the micronutrient's surface property and favors the uptake efficiency of foliarly applied micronutrients.

Chelation occurs when certain large molecules form multiple bonds with a micronutrient, protecting it from reacting with other elements in the nutrient solution and increasing its availability to the plant.



*Chelated metal being protected from attraction to other materials.*

## Why are Krystal Klear micronutrient solutions so effective?

**Dual Chelation:** Utilizes patented, biodegradable LidoQuest® IDS-40 in conjunction with EDTA to maximize the benefits of both chelating agents.

**Stability Constant:** Refers to the equilibrium state of a metal cation and a ligand to form a chelating complex: A good stability constant is one in which the bond is strong enough to hold the metal in solution but not so strong that it doesn't release the metal when applied.

**Number of ligands:** This refers to the ligands or "legs" that bond the metal to the chelating agents. For example, EDTA has 6 and LidoQuest® IDS-40 has 5 ligands while citric acid has 3 carboxylic ligands and glucoheptonate has 1. The higher the number of legs means more cation surface area is covered.

That is why both EDTA and LidoQuest® IDS-40 chelated metals are stable in orthophosphate solutions for an extended period while others fall apart and precipitate over time.





# Krystal Klear®

## PATENTED CHELATED MICRONUTRIENT SOLUTIONS

### ABOUT

**Krystal Klear®** micronutrient solutions are produced using a patented “dual-chelation” system for optimal performance. Krystal Klear micronutrient solutions have excellent tank-mix compatibilities, provide quick uptake of micronutrients, and deliver a sustained response.

### KRYSTAL KLEAR PRODUCT OPTIONS

<b>Krystal Klear® Fe</b> 4% chelated Fe	<b>Maintenance Applications:</b> Apply at a rate of 0.75 - 2 fl. oz. per 1,000 ft <sup>2</sup> each spray. Begin applications in the spring on a 14 to 21 day interval.
<b>Krystal Klear® Turf Mix</b> Chelated solution with 3% Fe, 1% Mn, 0.25% B, 0.25% Cu & 0.25% Zn Provides turf with a balanced chelated micronutrient package and helps support photosynthesis.	<b>Maintenance Application:</b> Apply 0.75 - 2 fl. oz. per 1,000 ft <sup>2</sup> every 2 weeks. Moderate Deficiency: Apply 2 - 3 fl. oz. per 1,000 ft <sup>2</sup> every 2 weeks. Severe Deficiency: Apply 4 fl. oz. per 1,000 ft <sup>2</sup> every 2 weeks.
<b>Krystal Klear® ResQ</b> 8-0-2 solution with chelated 2% Fe, 0.5% Mg, 0.5% Mn, 0.25% B, 0.25% Cu, 0.25% Zn plus kelp Provides a complete micronutrient package with the additional benefits of sea kelp and other proprietary ingredients that increase tolerance to drought and stress.	<b>Turf Applications:</b> Apply 3 - 6 fl. oz. per 1,000 ft <sup>2</sup> every 7 to 14 days throughout the season. Trees, Shrubs and Ornamentals Applications: Apply 1 gal. of Krystal Klear ResQ per 100 gal. of spray solution. Apply as needed throughout the season.
<b>Krystal Klear® B</b> 5% complexed boron solution	Complexed boron for quick corrections of boron deficiency. Boron is essential for optimal root and tissue levels.
<b>Krystal Klear® Cu</b> 5% chelated copper solution	Quickly corrects copper deficiencies. Copper is essential for crop growth and the activation of many enzymes.
<b>Krystal Klear® Mg</b> 3% chelated magnesium solution	Magnesium is essential for photosynthesis in plants and prevents yellowing of leaves.
<b>Krystal Klear® Mn</b> 5% chelated manganese solution	Quickly corrects manganese deficiencies. Manganese activates enzymes required for amino acid production.
<b>Krystal Klear® Zn</b> 9% chelated zinc solution	Quickly corrects zinc deficiencies. Zinc controls the synthesis of indoleacetic acid, which regulates plant growth.

# PATENTED PHOSPHITE FERTILIZERS

## PRUDENT®

### Application Instructions

for Prudent 42cw Prudent 44 and Prudent 40Plus

Apply 0.5 - 2 fl. oz. per 1,000 ft<sup>2</sup>. Begin applications in the spring and continue on a 7 to 14 day schedule throughout the growing season.

### Foliar Applications:

Prudent 42CW, Prudent 44 and Prudent 40PLUS may be applied with all types of ground spraying equipment or by air.

DO NOT exceed a rate of fl. oz. of product per gallon of water when using less than 20 gallons of solution per acre.

## DID YOU KNOW?

*Urea phosphite is a eutectic because it contains two solids - urea and phosphorus acid - that form a liquid eutectic composition. This allows for a high concentration of phosphorus acid to be solubilized without the addition of water.*

**See page 34 for more information on the stability of phosphite in Prudent products!**

## PRUDENT PRODUCTS ARE UNIQUE

- Contain one of the highest percentages of PO<sub>3</sub> of any phosphite fertilizer
- Formulated with very little water allowing the PO<sub>3</sub> to remain stable in the jug; won't convert to PO<sub>4</sub> the way other phosphites can
- Can be used at much lower rates per acre than most phosphite fertilizers, making them more economical and effective
- Contain a surfactant for improved spreading and nutrient uptake
- Can be used in combination with Nutrol EPA registered fungicide for effective control of soil borne and foliar diseases

## PRUDENT BENEFITS

- Improve plant strength and ability to tolerate unfavorable environmental conditions
- Increase integrity of plant cell walls, improving plant strength and resistance
- Improve ability to absorb water and nutrients
- Stimulate key pathways in the plant, which produce compounds responsible for defending the plant against environmental stress
- Keep un-chelated metals stable in solution
- Reduce scale build-up in spray tanks and other equipment





**PRUDENT 42CW PRUDENT 44**

15-0-0

**GUARANTEED ANALYSIS**

Total Nitrogen (N).....15%  
 2.5% Ammoniacal Nitrogen  
 12.5% Urea Nitrogen

*Derived from aqua ammonia and urea phosphite*

**Prudent® 42CW and Prudent® 44** highly concentrated phosphite fertilizers are effective at very low use rates. They are ideal partner products with Nutrol® EPA registered fungicide for control of soil borne and foliar diseases.

Prudent 42CW and Prudent 44 (15-0-0 with 42% PO<sub>3</sub>) fertilizers are formulated with patented urea phosphite. Urea phosphite is a “eutectic”, which allows a high concentration of phosphite in the Prudent family of specialty fertilizers.

**COMBAT**  
 ENVIRONMENTAL STRESSES WITH AMINO ACIDS

**PRUDENT 40PLUS**

13-0-0

**GUARANTEED ANALYSIS**

Total Nitrogen (N).....13%  
 0.5% Ammoniacal Nitrogen  
 12.13% Urea Nitrogen  
 0.37% Other Water Soluble Nitrogen

*Derived from aqua ammonia, amino acids and urea phosphite*

**Prudent® 40PLUS** highly concentrated phosphite fertilizer (40% PO<sub>3</sub>, expressed as P<sub>2</sub>O<sub>5</sub>), is formulated with patented urea phosphite and Pennamin Driver-P amino acids. The amino acids aid in building tolerance against environmental stresses, help move nutrients into the plant, and, play important roles in almost every plant function. And, since they are free amino acids they are readily plant-available. This saved energy can



# SOIL INOCULANTS & ADDITIVES



## HOW DO NUTRISMART PRODUCTS WORK?

- NutriSmart products elicit higher populations of native N-fixing microbes
- The yeast contained in each NutriSmart product form a symbiotic community of mutually interdependent, nutrient-releasing microbes
- When the yeast are signaled by the plant that it requires nutrients, NutriSmart products initiate the conversion and delivery process

## NUTRISMART PRODUCTS SUPPLY NUTRIENTS BY:

- Nitrogen fixation – microbial conversion of nitrogen into available forms
- NutriSmart yeast have shown higher N-fixing ability than common free-living N-fixing microbes
- Microbial solubilization of phosphate into soluble forms of phosphorus
- Unlocking potassium in the soil into exchangeable potassium
- Solubilizing silicon and trace minerals for better plant uptake

## PLANT BENEFITS

- Provide consistent, uniform slow-release of nitrogen
- Eliminate growth surges – nitrogen is released gradually throughout the plant's growth cycle, which results in precise feeding that lasts up to 18 weeks
- Improve plant growth, quality and yield
- International and U.S. commercial use and trials have demonstrated equivalent or better performance with NutriSmart-B applications vs. conventional fertilizer programs

## SOIL AND ENVIRONMENTAL BENEFITS

- Improve the Nutrient Use Efficiency (NUE) of chemical fertilizers blended with NutriSmart-B. Can effectively replace up to 20-50% of soil applied fertilizer
- Improve soil fertility
- Reduce the leaching of chemical fertilizers
- Increase soil organic matter
- Improve the soil environment for beneficial microbes

## PATENTED SOIL INOCULANT &amp; HUMATE GRANULES



**NutriSmart®-B** is a patented, environmentally friendly granular soil inoculant and humate soil amendment that fixes nitrogen from the atmosphere, solubilizes phosphate and unlocks potassium from the soil.

**Application Instructions****Turf and Ornamentals:****1. For use as an Aerification Amendment:**

Aerify surface to be treated. Broadcast 5 - 10 lb. of NutriSmart B per 1,000 ft<sup>2</sup> (218 - 436 lb. per acre)

Drag NutriSmart B into holes. Top dress as normal.

Note: Apply NutriSmart B at each aerification.

**2. For use with conventional and organic fertilizers:**

Replace 20 - 30% of soil applied granular NPK with an equal amount by weight of NutriSmart B.

Apply as normal and follow same application method and schedule as normal fertility program.

## PATENTED WATER SOLUBLE POWDER



**NutriSmart® WSP** is a patented, water soluble yeast powder for liquid formulations. NutriSmart WSP should be applied with humic acids and can be used as a re-inoculation tool after application of NutriSmart-B.

*NutriSmart is a registered trademark of CK Life Sciences*

**Application Instructions**

**Nursery and Ornamentals:** Drip irrigation or drench applications: Apply NutriSmart WSP at a rate of 3 - 6 oz. per acre every 2 - 4 weeks.

**Trees and Bushes:**

**Transplant Water:** Apply NutriSmart WSP at a rate of 3 - 6 oz. per acre (0.07 - 0.15 oz. per 1,000 ft<sup>2</sup>)

**Drip irrigation/Drench applications:** Apply NutriSmart WSP at a rate of 2 to 6 oz. (0.05 - 0.15 oz. per 1,000 ft<sup>2</sup>) per acre every 2 - 4 weeks.

**Turf:**

**Initial Application:** Apply NutriSmart WSP at a rate of 6 - 9 oz. per acre (0.15 - 0.21 oz. per 1,000 ft<sup>2</sup>). Product should be applied using flood jet nozzles.

**Follow-up Applications:** Apply NutriSmart WSP at a rate of 3 - 6 oz. per acre (0.07 - 0.15 oz. per 1,000 ft<sup>2</sup>) every 2 - 4 weeks, preferably every 2 weeks. For monthly applications, use the high rate. Product should be applied using flood jet nozzles.



## MICROBIAL SOIL INOCULANT

### ABOUT

**KaPre® RemeD8-WSP** water-soluble soil inoculant is designed to improve nutrient use efficiency, maintain turf health and vigor, and, improve stress tolerance.

#### ACTIVE INGREDIENTS

- 5.3 X 10<sup>9</sup> cfu *Bacillus amyloliquefaciens* per gram
- 2.4 X 10<sup>9</sup> cfu *Bacillus licheniformis* per gram
- 1.1 X 10<sup>9</sup> cfu *Bacillus megaterium* per gram
- 4.5 X 10<sup>9</sup> cfu *Bacillus subtilis* per gram

#### Inactive Ingredients:

Sucrose based culture medium

#### Application Instructions

##### Greens, tees and other low-cut turf:

Apply one 8 oz. packet of KaPre RemeD8-WSP per 1.0 - 1.25 acres.  
Apply every 14 days throughout the season.

##### Fairways, roughs, sports turf and other long-cut turf:

Apply one 8 oz. packet of KaPre RemeD8-WSP per 2.0 - 2.5 acres.  
Apply every 14 days throughout the season.



### THE MICROBES

- **Durable and sustainable:**  
All are spore formers, which can survive adverse conditions such as heat, cold, low/high pH, etc.
- **Rhizosphere competent:**  
All were sourced from the soil, so they can thrive in soil.
- **Quality Assured:**  
All are professionally fermented, identified through DNA analysis and backed by Certificate of Analyses documenting cfu/gram counts.
- **Prolific Enzyme Producers:**  
Together, they produce a wide range of beneficial enzymes and bio-active compounds that offer a number of plant health benefits.

### WHAT TO EXPECT

- A more vigorous soil ecosystem
- Higher Cation Exchange Capacity (C.E.C.)
- Enhanced root development, germination rates and stress tolerance
- Faster nitrification process for better uptake of nitrogen
- Nitrogen fixation to supplement applied nitrogen
- Enhanced stress tolerance
- Quicker recovery from pathogen attack
- Prevention of excessive hydrophobic organic matter
- And much more

# KaPre® Embella

## FERTILIZER ADDITIVE

### ABOUT

**KaPre® Embella** promotes beneficial microbial activity. It feeds the microbes that enhance the breakdown of nutrients to make them more available to the plant. KaPre Embella increases the water holding capacity of the soil, which decreases watering requirements. KaPre Embella grabs moisture, along with some negatively charged nutrients, and attaches them to soil particles. This allows for slower release and helps prevent groundwater and downstream contamination.

### RESTORE THE SOIL BY FEEDING THE MICROBES!

Of all processes involving sugars in soil, microbial uptake and utilization exceeds plant uptake. This makes sugars especially important for maintaining soil microorganisms and their activities. Microbes can take a simple compound like sugar and transform it into the thousands of complex molecules found in soils. When microbes break down plant matter, they use some of the material they consume for building new biomass – to fuel their own growth, and exhale the rest as carbon dioxide. To maximize the proportion of plant carbon that is transformed into soil organic matter, it is necessary to support and enhance microbial communities that quickly and efficiently transform dead plant materials into soil organic matter.

The rapid uptake of sugars by microorganisms and intensive recycling clearly demonstrate the importance of sugars for microbes in soil. It is speculated that the most important function of sugars in soil is to maintain and stimulate microbial activities in the rhizosphere leading to mobilization of nutrients by accelerated soil organic matter decomposition. **For this reason, KaPre Embella has been reformulated to include three sources of carbohydrates: a monosaccharide, disaccharide and oligosaccharides for immediately available, quickly available and slowly available food sources designed to sustain and grow microbial communities.**

### BENEFITS

#### TO THE SOIL

- Provides nutrition for native microbial populations, the driving force of any ecosystem
- Improves soil conditions and nutrient availability by unlocking nutrients that may be tied-up in the soil
- Encapsulates nutrients and keeps them in the root zone for plant uptake
- Improves the water holding capacity of the soil
- Reduces leaching
- Nutrients stay in the root zone where plants can use them and out of ground water, aquifers and other waterways
- Improves soil aeration

#### TO THE PLANT

- Improves nutrient uptake
- Strengthens cell walls
- Increases root depth and mass
- Enhances drought, disease and stress tolerance
- Supports plant's immune response

#### Application Instructions

Apply with fertilizer at a rate of 8 - 16 fl. oz. per acre (0.18 - 0.36 fl. oz. per 1,000 ft<sup>2</sup>) at planting or sod-laying. Follow with foliar fertilizer applications at a rate of 16 fl. oz. per acre every 30 – 45 days.

**DO NOT EXCEED 16 OZ. PER ACRE WHEN APPLYING WITH SELECTIVE HERBICIDES.**



RAIN-FAST POLYMER ADJUVANT

**ABOUT**

**Argosy® RF** is a rain-fast, soluble, environmentally safe polymer matrix composed of inert ingredients. It encapsulates pesticides keeping them on the leaf even through rain events and irrigation. When tank mixed, Argosy® RF enhances wetting and adhesion, as well as facilitates uniform foliar distribution of the pesticide.

**INGREDIENT DISCLOSURE**

Inert ingredients .....	4.32%
Water .....	95.68%
TOTAL .....	100.00%

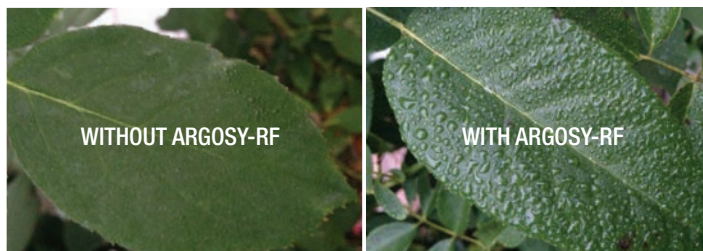
**Application Instructions**

Apply as a 0.125 to 1.25 % solution (1 pint to 1.25 gallons per 100 gallons of solution)

*See product label for complete directions for use.*

*Evaluation of chemical compatibility is the sole responsibility of the user.*

**DRAWS AMBIENT MOISTURE FROM ATMOSPHERE TO LEAF!**



**BENEFITS**

**STICKER**

When sprayed on the leaf surface, Argosy RF enhances the adhesion of spray droplets to the leaf. Argosy RF also keeps the pesticide on the leaf surface even when irrigation or rainfall occurs, extending the life of chemical applications. This means fewer applications and longer efficacy.

**SPREADER**

When combined with a pesticide, Argosy RF encourages uniform coverage of the product across the leaf allowing the active ingredient to be better absorbed by the plant.

**ELASTICITY**

The revolutionary elastic nature of Argosy RF allows the material to stretch as the plant leaf grows, keeping the application of the pesticide on the plant longer. This means fewer applications and longer efficacy.

**DROUGHT TOLERANCE**

Argosy RF is a retention agent. It has the ability to bind with water, keeping moisture on a targeted substrate longer.

**DRIFT CONTROL**

Argosy RF forms heavier, larger drops that reach the target wet and holds it there. Trials have shown that up to 100% of applied aerial applications hit their target.

# Nutrol®

BIO-PESTICIDE - WATER-SOLUBLE PK FERTILIZER - TANK BUFFER

## ABOUT

**Nutrol®** is a biopesticide effective against powdery mildew, a true tank buffer that can prevent alkaline hydrolysis and a highly concentrated, yet very gentle, water soluble PK fertilizer.

**Nutrol, when used with any Prudent® fertilizer, can also control soil borne and foliar pathogens.**

### GUARANTEED ANALYSIS

Available Phosphate ( $P_2O_5$ ).....50%

Soluble Potash ( $K_2O$ ).....32%

*Derived From: Monopotassium phosphate*

### Application Instructions

**Nutritional (Cool and Warm Season):** Apply 2 - 4 oz. per 1,000 ft<sup>2</sup> (6 - 11 lb. per acre). Apply every 7 to 14 days throughout the season. If used as a starter fertilizer during transition periods to cool season grasses, apply 4 - 6 oz. per 1,000 ft<sup>2</sup>.

**Powdery Mildew Control:** Apply 8 - 40 lb. Nutrol per acre. Start sprays in early spring when conditions become favorable for disease development and continue sprays every 7 to 14 days for the entire season.

**Control of diseases caused by *Pythium*, *Fusarium* and *Rhizoctonia* when applied with Prudent® fertilizers:**

Mix 8 - 11 lb. of Nutrol with labeled rates of Prudent fertilizers per 100 gal. and apply as necessary. DO NOT exceed one application every 7 days.

*See Full label for additional instructions*

## FUNGICIDE

- Bio-pesticide labeled for use to control and eradicate powdery mildew and other soil-borne and foliar diseases
- Prevents the formation of resistant strains of powdery mildew when used in alternation with other labeled fungicides

## TANK BUFFER

- Ensures optimal performance by preventing alkaline hydrolysis, which is the breakdown of pesticides by alkaline pH
- True buffer and can maintain the pH of tank solutions (The pH of a 1% aqueous solution of Nutrol in distilled water is 4.5 +/- 0.3)

## NUTRIENT

- Highly concentrated, water-soluble fertilizer containing over 50%  $P_2O_5$  and 32%  $K_2O$
- Safe to use, has the lowest salt index of any fertilizer and will not cause phytotoxicity even at high concentrations
- Suitable for foliar, soil and drip irrigation applications

*Nutrol is an excellent tank buffer that will acidify and buffer distilled water to a pH range of 4.5 - 5.5. Many pesticides can start to lose their efficacy immediately if they are mixed with alkaline solutions. By adding Nutrol to the tank, you can buffer the tank solution and ensure that pesticide applications are effective and are delivered to the target pest at the manufacturer's desired activity. This means fewer re-sprays, more consistent performance, and reduced chemical usage and labor costs.*



BLENDING PHYTOHORMONE SOLUTION

**ABOUT**

**Agra-Rouse™** is a blend of bio-stimulants containing naturally-occurring and synthetic plant growth regulators and plant hormones known to encourage root development and propagation, promote cell division and enhance plant yields. The phytohormones work with the plant's own natural physiology to stimulate growth, increase vigor and improve overall plant health.

AGRA-ROUSE CONTENTS

- .09% Indole-3-Butyric Acid (IBA) – Auxin
- .05% Gibberellins
- .05% Cytokinins

**BENEFITS**

- Faster seed germination
- Plants are more tolerant of heat, cold and drought
- Deeper roots
- Promote healthier turf that is more resistant to disease

**Application Instructions**

**Foliar and Soil:** Ornamentals, Trees and Turf: 4 - 8 fl. oz. per acre  
**Seed Treatment:** 1 - 4 fl. oz. per 100 pounds of seed  
**Transplant and Rooting Solutions, Nursery/Container Use:** 1 - 2 fl. oz. per 5 gallons of solution



BLENDING PHYTOHORMONE SOLUTION

**ABOUT**

**Incite™** is a blend of bio-stimulants containing naturally-occurring and synthetic plant growth regulators and plant hormones known to promote cell division, shoot initiation, and bud formation, and, stimulate chlorophyll synthesis and leaf expansion from cell enlargement. They work with the plant's own natural physiology to stimulate top growth, increase vigor and improve overall plant health.

INCITE CONTENTS

- .05% Indole-3-Butyric Acid (IBA) – Auxin
- .05% Gibberellins
- .09% Cytokinins

**BENEFITS**

- Increase leaf growth in turf grass
- Help recovery from both winter and summer damage
- Increase turf growth during the season
- Accelerate growth in newly seeded areas

**Application Instructions**

**Foliar and Soil:** Ornamentals, Trees and Turf: 4 - 8 fl. oz. per acre  
**Seed Treatment:** 1 - 4 fl. oz. per 100 pounds of seed  
**Transplant and Rooting Solutions, Nursery/Container Use:** 1 - 2 fl. oz. per 5 gallons of solution





# HUMIC & FULVIC ACIDS



## POYELECTROLYTE HUMIC ACID SOLUTION

### ABOUT

**KaPre® ExAlt** electrolyte solution improves the availability of nutrients in the soil and enhances the performance of fertilizer applications. KaPre ExAlt corrects compacted soils and eliminates soil “crusting”, making it easier for newly germinated seeds to pop through the soil. KaPre ExAlt flushes sodium from the soil profile while keeping needed micronutrients in the root zone. KaPre ExAlt provides a natural, eco-safe solution for the long-term health of the soil.

#### For General Maintenance:

KaPre ExAlt may be used in maintenance applications to improve nutrient uptake, correct mineral build up, improve drainage, reduce black layer and stimulate plant growth.

#### For Curative Application:

For the treatment and rejuvenation of highly compacted soils, salt-contaminated soils, damaged soils affected by hydrophobicity and to aid in the recovery of soil damaged by soil borne pathogens.

### GUARANTEED ANALYSIS

#### Active Ingredients

Humic Acids.....	35%
Water.....	65%

### BENEFITS

- Solubilizes and releases soil-bound ions, such as calcium, magnesium, iron, manganese, phosphorus and sulfur
- Flushes sodium from the root zone without indiscriminately stripping the soil of nutrients
- Improves soil drainage
- Stimulates deeper root systems
- Reduces crusting and penetrates hard pan
- Reduces soil compaction
- Increases soil aggregation
- Improves efficiency of fertilizers and other chemicals
- Improves soil aeration

### Application Instructions

**Maintenance Rate (To prevent and correct mineral buildup):**  
Apply KaPre ExAlt at a rate of 16 - 32 fl. oz. per acre (0.35 - 0.70 fl. oz. per 1,000 ft<sup>2</sup>) every month throughout the growing season.

**Curative Rate (For the treatment and rejuvenation of highly compacted soils, salt-contaminated soils, damaged soils affected by hydrophobicity and to aid in the recovery of soil damaged by soil borne pathogens):**  
Apply KaPre ExAlt at a rate of 16 - 32 fl. oz. per acre (0.35 - 0.70 fl. oz. per 1,000 ft<sup>2</sup>) every week for the first month followed by applications every month throughout the season.

Apply labeled rates of KaPre RemeD8-WSP Soil Inoculant as a tank mix with KaPre ExAlt or within 3 - 7 days after the KaPre ExAlt application. **Note: Do Not Mix With Selective Herbicides**



CONCENTRATED FULVIC ACID SOLUTION

**ABOUT**

**KaPre® Spectra** improves the foliar uptake of nutrients and micronutrients and can improve fertilizer performance when added to starter or foliar fertilizer applications.

**NON-PLANT FOOD INGREDIENTS**

Fulvic Acid.....	20%
Other Ingredients.....	80%
Total.....	100%

**Application Instructions**

**With Herbicides**

Apply KaPre Spectra at rates of 2 - 12 fl. oz. per acre with NON-SELECTIVE herbicides only.

**Transplanting and Cuttings**

Blend 2 - 4 fl. oz. of KaPre Spectra per 20 gal. of solution.

**Cool Season Grasses**

Include KaPre Spectra with all foliar nutrient applications at a rate of 2 fl. oz. per 25 gal. of spray solution.

Use KaPre Spectra alone to reduce plant stress before, during or after stressful periods at a rate of 0.5 fl. oz. per 1,000 ft<sup>2</sup> or 2 - 6 fl. oz. per 25 gal. of spray solution.

**Trees, Shrubs, Woody Ornamentals and Bedding Plants**

Include KaPre Spectra with all foliar nutrient applications at a rate of 2 fl. oz. per 25 gal. of spray solution.

Use KaPre Spectra alone to reduce plant stress before, during or after stressful periods at a rate of 0.25 fl. oz. per 1,000 ft<sup>2</sup> or 2 - 6 fl. oz. per 25 gal. of spray solution.

**Warm Season Grasses and Ornamentals**

Inject into irrigation or broadcast spray at a rate of 10 - 20 fl. oz. per acre 1 to 3 times during the growing season.

Mix with root injections at a rate of 4 - 6 fl. oz. per 10 gal. of injection solution.

**BENEFITS**

**INCREASES NUTRIENT ABSORPTION**

Makes nutrients more absorbable by complexing them into organic, ionic forms that are easily transported through cell membranes

**IMPROVES FERTILIZER EFFICIENCY**

Increases plant uptake of soil and foliar applied nutrients. The low molecular weight formulation improves mobility through cell walls to plant growth points

**IMPROVES TANK MIX COMPATIBILITY**

KaPre Spectra is compatible with foliar applications of non-selective herbicides, fungicides, insecticides and other pesticides. In fact, it provides tank mix compatibility of fertilizer/pesticide combinations.

**DETOXIFIES POLLUTANTS.**

Fulvic acid is vital in helping form new species of metal ions, binding with organic pollutants such as pesticides and herbicides, and catalyzing the breakdown of toxic pollutants.

**HELPS TRANSPORT NUTRIENTS.**

KaPre Spectra also plays a role in helping transport nutrients into plant foliage and roots. The highly active low-molecular weight formulation improves mobility of solution through cell walls to plant growth points. This results in a more productive and impactful application.



CONCENTRATED HUMIC ACID SOLUTION

### ABOUT

**Korban®-SC** Liquid Humate (0-0-4+2S) is formulated with PERFORMANCE Organic Acids™, a blend of a wide range of humic acids that are sourced from Leonardite. Derived using a proprietary extraction and separation process, these natural organic acids are selected for their ability to perform in both the soil and the plant. This extraction and stabilization process yields a high carbon (greater than 7%) humic acid solution that remains soluble over a wide pH range and in solutions with a high ionic load with other nutrients. In addition, Korban-SC Liquid Humate can be used as a recovery tool where turf has been stressed from soil imbalances, including residual herbicide buildup.

#### Application Instructions

Korban-SC Liquid Humate can be used with any liquid fertilizer application with a pH of 3.2 or higher.

It blends well with both Ortho and Polyphosphates, micronutrient solutions, and any commonly used NPK fertilizers.

It can be applied on fairways and greens, on trees, shrubs and ornamentals.

##### Soil Applications:

Korban-SC Liquid Humate may be applied with any typical broadcast spray or mixed with deep root injection solutions at a rate of 2 - 4 quarts per 10 gallons solution.

##### Fertigation Applications:

Korban-SC Liquid Humate may be blended into fertigation solutions to provide 1.5 - 3.0 ounces per 1,000 ft<sup>2</sup> (2 - 4 quarts per acre) up to twice monthly.

##### Foliar Applications:

Korban-SC Liquid Humate may be applied at a rate of 1.5 - 6.0 ounces per 1,000 ft<sup>2</sup> (0.5 - 2 gallons per acre) monthly or 1 to 3 times at random intervals during the growing season.

### BENEFITS

- Promotes a sustainable approach to soil health by supplying organic carbon
- Protects phosphate fertilizers from binding up into unavailable soil minerals
- Provides a readily available source of potassium
- Aids in nitrogen efficiency and retention in the soil
- Enhances solubility, availability, and plant uptake of important ions
- Improves cation exchange in soil solutions
- Supports populations of beneficial soil bacterial and fungi
- Combines readily with most liquid fertilizers, which can help reduce fertilizer induced foliar and/or root burn
- Safe for use in all applications from established turf to new plantings and over-seeding
- Will not precipitate in tank mixes or plug screens/spray nozzles during field applications
- Blends with most solutions, including those with a high ionic load, even in solutions as low as pH 3.2

#### GUARANTEED ANALYSIS

Soluble Potash (K <sub>2</sub> O).....	4%
Sulfur (S).....	2%

*Derived from elemental sulfur and potassium hydroxide*

##### Active Ingredients

Humic acids.....	2%
------------------	----

*Derived from leonardite.*

## ABOUT

**Korban® 0-0-13** provides the benefits of Korban® SC, KaPre® K-29 and chelated micronutrients in one, ready to use product. It is ideal for use during black-out periods when applications of nitrogen have to be limited but other nutrients are still required.

Korban 0-0-13 is formulated with *PERFORMANCE Organic Acids™* that are selected for their ability to perform in both the soil and the plant. The process used for extraction yields a high carbon humic solution that remains stable over a wide pH range and in solutions with a high ionic load with other nutrients. The potassium supplied by Korban 0-0-13 is potassium acetate, a more desirable choice for foliar fertilization because of its small molecular size. Since it is manufactured with organic acids, it makes it an excellent and safe tank mix partner with most plant inputs including other NPK and micronutrients. Korban 0-0-13 contains boron, copper, iron, manganese and zinc providing turf with all of the essential micronutrients.

## BENEFITS

- Promotes a sustainable approach to soil health by supplying organic carbon
- Provides a readily available, highly compatible source of potassium and chelated micronutrients
- Enhances solubility, availability and plant uptake of important ions
- Stimulates vigorous root growth
- Improves the buffering and cation exchange capacity of soils
- Improves soil structure and water retention capacity
- Stimulates beneficial microbial activity
- Will not precipitate in tank mixes or plug screens/ spray nozzles during applications
- Safe for use in all applications from established turf to new plantings and over-seeding



POTASSIUM HIGH-CARBON  
HUMIC ACID SOLUTION

### GUARANTEED ANALYSIS

Soluble Potash (K <sub>2</sub> O).....	13.0%
Sulfur (S).....	0.9%
0.9% Free Sulfur (S)	
Boron (B).....	0.08%
Copper (Cu).....	0.08%
0.08% Chelated Copper (Cu)	
Iron (Fe).....	1.0%
1.0% Chelated Iron (Fe)	
Manganese (Mn).....	0.3%
0.3% Chelated Manganese (Mn)	
Zinc (Zn).....	0.08%
0.08% Chelated Zinc (Zn)	

*Derived from potassium acetate, potassium hydroxide, elemental sulfur, citric acid, copper carbonate, ferric chloride, manganese chloride, zinc oxide and boric acid*

### Active Ingredients

Humic acids.....	4.8%
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### Application Instructions

#### Applications for Turf

(including but not limited to fairways, greens, lawns and other high-cut turf):

Korban 0-0-13 can be applied monthly or 1 to 3 times at random intervals during the growing season at a rate of 2 to 6 ounces per 1,000 ft<sup>2</sup> (2.5 to 8 quarts per acre).

## ABOUT

**Korban® 12-0-2** provides the benefits of Korban® SC, LidoQuest® 30-0-0 and Krystal Klear® Turf Mix in one, ready to use product. It delivers humic acids, slow release nitrogen and micronutrients with every application.

Korban 12-0-2 is formulated with *PERFORMANCE Organic Acids™* that are selected for their ability to perform in both the soil and the plant. The process used for extraction yields a high carbon humic solution that remains stable over a wide pH range and in solutions with a high ionic load with other nutrients. The combination of humic acid and slow release nitrogen helps maintain turf color for several weeks as well as improve nitrogen efficiency and retention. The micronutrients in Korban 12-0-2 are chelated utilizing a dual-chelation system for optimal performance and have excellent tank mix compatibility, provide quick uptake of micronutrients and deliver a sustained response.

## BENEFITS

- Promotes a sustainable approach to soil health by supplying organic carbon
- Provides a readily available source of potassium and chelated micronutrients
- Delivers 6% slow release nitrogen for sustained color
- Enhances solubility, availability and plant uptake of important ions
- Stimulates vigorous root growth
- Improves the buffering and CEC of soils
- Improves soil structure and water retention capacity
- Stimulates beneficial microbial activity
- Will not precipitate in tank mixes or plug screens/ spray nozzles during applications
- Safe for use in all applications from established turf to new plantings and over-seeding



## NK FERTILIZER & HUMIC ACID SOLUTION

### GUARANTEED ANALYSIS

Total Nitrogen (N).....	12.0%
6% Urea Nitrogen	
6% Slowly Available Water Soluble Nitrogen*	
Soluble Potash (K <sub>2</sub> O).....	2%
Sulfur (S).....	0.9%
0.9% Free Sulfur (S)	
Boron (B).....	0.08%
Copper (Cu).....	0.08%
0.08% Chelated Copper (Cu)	
Iron (Fe).....	1.0%
1.0% Chelated Iron (Fe)	
Manganese (Mn).....	0.3%
0.3% Chelated Manganese (Mn)	
Zinc (Zn).....	0.08%
0.08% Chelated Zinc (Zn)	

*Derived from methylene urea, urea, potassium hydroxide, elemental sulfur, copper EDTA, copper IDS, iron EDTA, iron IDS, manganese EDTA, manganese IDS, zinc EDTA, zinc IDS and boric acid*

### Active Ingredients

Humic acids.....	4.8%
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### Application Instructions

#### Applications for Turf

(including but not limited to fairways, greens, lawns and other high-cut turf):

Korban 12-0-2 can be applied throughout the growing season on warm, transitional and cool season grasses. Applications should begin in early Spring and continue through late fall at rates of 3 to 6 ounces per 1,000 ft<sup>2</sup> (1 to 2 gallons per acre).



PLANT EXTRACT SOLUTION

**ABOUT**

**Kelpene® GPX** applications have been shown to support plant health, improve nutrient uptake and encourage robust root development.

Turf, ornamentals and nursery crops become more resilient and adaptive during periods of environmental stress, such as high heat, intense sunlight, shade, unexpected cold, drought, salinity, anaerobic conditions and water stress, etc.

**GUARANTEED ANALYSIS**

Available Phosphate (P<sub>2</sub>O<sub>5</sub>).....3.0%

Soluble Potash (K<sub>2</sub>O).....2.0%

*Derived from monopotassium phosphate and kelp.*

**NON PLANT FOOD INGREDIENTS**

Plant extracts.....3.5%

**Application Instructions**

**Maintenance Rate:**

Make 4 foliar applications of 15 fl. oz. of Kelpene GPX per acre during spring and early season every 2 – 3 weeks, followed by 1 application mid-season and 1 fall dormancy application.

**Recovery/High Stress Rates:**

Make 12 – 18 foliar applications of 15 fl. oz. of Kelpene GPX per acre during the season. Apply every two weeks during the key growing period and then every 30 – 60 days at other times.

**Nursery Crops:**

Foliar apply or soil drench 7.5 – 15 fl. oz. of Kelpene GPX every other month.

**WHAT IS KELPENE?**

**Kelpene GPX** is a blend of sea kelp extracts, and, plant extracts, primarily terpenes, derived via a unique proprietary extraction process. Kelpene GPX plant extracts are derived from plants that thrive in diverse environments.

**BENEFITS**

- Establishes environmental adaptability
- Improves stress management
- Increases plant and turf resilience
- Increases root mass and root tips
- Improves nutrient uptake
- Enhances tissue responsiveness
- Elevates Nutrient Use Efficiency
- Allows better allocation of energy
- Fortifies turf and plants with naturally-occurring phyto-hormones
- Nourishes turf, plants and soil microbes with organic carbon





**CALCIUM SOLUTION WITH PLANT EXTRACTS**

**ABOUT**

**Kelpene® Ca-T** efficiently delivers calcium and plant-based biochemistry to support calcium utilization and absorption in both foliar and soil applications. It is designed to correct calcium deficiency and improve growth where additional calcium may be needed.

**GUARANTEED ANALYSIS**

Total Nitrogen (N).....	3.0%
3.0% Nitrate Nitrogen (N)	
Calcium (Ca).....	4.0%
<i>Derived from calcium nitrate</i>	

**NON PLANT FOOD INGREDIENTS**

Plant extracts.....	6.0%
Fulvic acid.....	0.25%

**Application Instructions**

Kelpene Ca-T can be tank mixed with most nutrients and chemicals but is **NOT COMPATIBLE** with ortho-phosphate or sulfate containing fertilizers. Jar testing for compatibility is recommended.

**Application Instructions for Turf and Ornamentals:**

**Soil Applications:** Apply 1 - 2 quarts per acre (0.75 - 1.5 fl. oz. per 1,000 ft<sup>2</sup>) as a soil spray or 1 - 2 pints per acre (0.36 - 0.75 fl. oz. per 1,000 ft<sup>2</sup>) through soil injection systems every 2 - 4 weeks or as needed.

**Foliar Applications:** Apply 1 - 2 pints per acre (0.36 - 0.75 fl. oz. per 1,000 ft<sup>2</sup>) every 2 - 4 weeks or as needed.

**BENEFITS**

- Improves calcium uptake through plant tissue for more efficient nutrient delivery
- Supports cell wall formation and root development
- Corrects calcium deficiencies, which can lower the severity of certain diseases such as *Pythium* blight
- Utilizes calcium nitrate for a quickly available source of nitrogen
- Contains nitrate, which is a complementary ion that promotes Ca uptake by plants
- Satisfies turf's need for calcium during critical stages of development, helping maintain turf quality and overall health

*EXPECT MORE*  
**FROM YOUR CALCIUM**



# Argosy-O

RAIN-FAST POLYMER ADJUVANT

**Argosy-O** is a polymer adjuvant, which when placed into solution with water and mixed with appropriate agricultural chemicals, enhances adhesion, wetting, and facilitates distribution with ambient moisture, thereby increasing protection during plant growth. Argosy-O reduces or eliminates re-sprays due to rain events and allows longer intervals between applications, saving time and money. Argosy-O should be applied with the first and all subsequent sprays.



PATENTED SOIL INOCULANT

**NutriSmart-B** is a patented, environmentally friendly granular soil inoculant and humate soil amendment that fixes nitrogen from the atmosphere, solubilizes phosphate and unlocks potassium and silica from the soil.

## ***Black Sea Kelp***

1-1-10 LIQUID SEA KELP

**Black Sea Kelp** (1-1-10) organic liquid sea kelp is derived from sustainably farmed seaweed that is rich in potassium, trace minerals and naturally occurring phytohormones.

Black Sea Kelp nourishes plants and soil microbes with organic carbon, strengthens cell walls with potassium, fortifies plants with naturally-occurring phyto-hormones, chelates micronutrients with mannitol (a natural sugar) into forms that are readily available for plant uptake and stimulates root growth and beneficial microbe activity, allowing plants to absorb nutrients more efficiently.



For Organic Use

**JustFischen**  
FISH HYDROLYSATE

LIQUID FISH HYDROLYSATE

**JustFischen** liquid fish hydrolysate is produced through a specialized, cold-process enzymatic digestion of fresh water fish (rainbow trout). There are no chemicals used in this process, resulting in a 100% natural, liquefied fish, with none of the beneficial oils and proteins removed.

It is a rich source of natural protein and mineral nutrients for both plants and soil microbes. Just Fischen has a fresh fish scent, unlike the offensive odor of fish emulsions.

**ORMANIC**  
**XTRAKT**

LIQUID WORM CASTING EXTRACT

**Ormanic XTRAKT** premium low-salt organic fertilizer is derived exclusively from earthworm castings, and, is rich in a proprietary blend of soil microbes and mycorrhizae that rejuvenate the soil and support healthy plants. Our worms are raised indoors in a climate-controlled environment and fed a consistent diet free of animal and yard waste, assuring consistent quality all season long.

Ormanic XTRAKT is safe and easy to use for both soil and foliar applications – the low salt formulation will not burn or damage plants. In addition, it is free of pathogens, and, produced without any animal or yard waste.



The logo for Performance Nutrition PROTOCOLS is positioned vertically on the left side of the page. It features the words "Performance Nutrition" in a smaller, dark font, with a registered trademark symbol, above the word "PROTOCOLS" in a large, bold, white font. The background of the entire page is a close-up photograph of green grass blades.

# Performance Nutrition® PROTOCOLS

## Warm Season Monthly Fairway Program

**KaPre® ExAlt** – 16 fl. oz. per acre (0.37 fl. oz. per 1,000 ft<sup>2</sup>)

**Pennamin® Perfect K, or Pennamin® High K** – 1 - 5 lb. per acre (0.4 - 2.0 oz. per 1,000 ft<sup>2</sup>)

**SRN Source** – 4.4 - 11 lb. per acre (0.10 - 0.25 lb. per 1,000 ft<sup>2</sup>)

## Cool Season Monthly Fairway Program

**KaPre® ExAlt** – 16 fl. oz. per acre (0.37 fl. oz. per 1,000 ft<sup>2</sup>)

**Pennamin® High K** – 1 - 5 lb. per acre (0.4 - 2.0 oz. per 1,000 ft<sup>2</sup>)

**KaPre® RemeD8-WSP** – One 8 oz. packet per 2.15 acres

**Kelpene® GPX** – 15 fl. oz. per acre (0.35 fl. oz. per 1,000 ft<sup>2</sup>)

## Seed Establishment Programs

### SEEDING

**Agra Rouse™** – 4 fl. oz. per acre (0.1 fl. oz. per 1,000 ft<sup>2</sup>)

**Nutrol®** – 8 lb. per acre (3 oz. per 1,000 ft<sup>2</sup>)

**Prudent® 44** – 1.4 qt. per acre (1 fl. oz. per 1,000 ft<sup>2</sup>)

**Krystal Klear®** – 1.4 qt. per acre (1 fl. oz. per 1,000 ft<sup>2</sup>)

### OVERSEEDING

**Agra Rouse™** – 4 fl. oz. per acre (0.1 fl. oz. per 1,000 ft<sup>2</sup>)

**Nutrol®** – 8 lb. per acre (3 oz. per 1,000 ft<sup>2</sup>)

**Kelpene® GPX** – 5 gal. per acre (15 fl. oz. per 1,000 ft<sup>2</sup>)

### CONSTRUCTION/NEW SEEDING

**Nutrol®** – 8 lb. per acre (3 oz. per 1,000 ft<sup>2</sup>)

**Agra Rouse™** – 4 fl. oz. per acre (0.1 fl. oz. per 1,000 ft<sup>2</sup>)

## Saline, Compacted and Bicarbonate/Black Layer Solution

**KaPre® ExAlt** – 32 fl. oz. per acre (0.75 fl. oz. per 1,000 ft<sup>2</sup>) per month

## Tournament Program

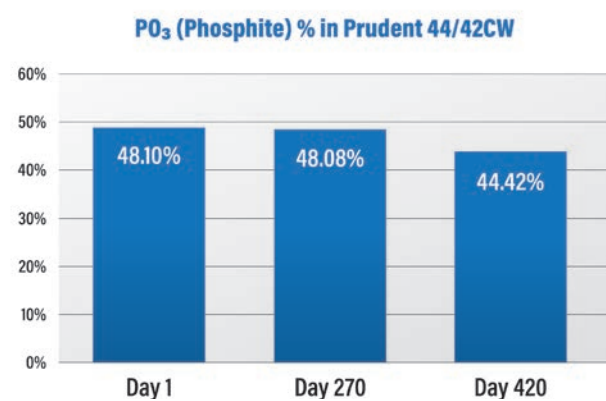
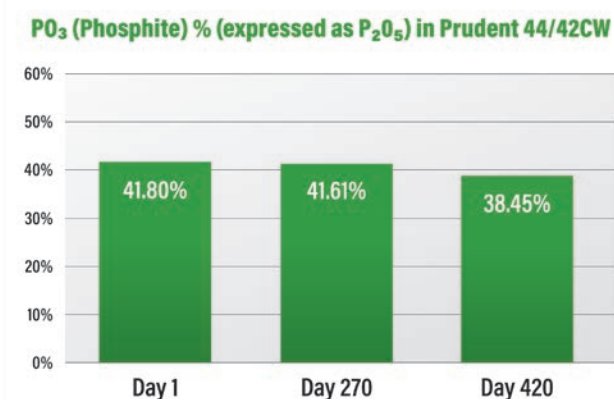
Tournament conditions can be maintained on a daily basis with the use of our programs and overall Ecosystem Management Approach.

## PENNAMIN® PRODUCTS AMINO ACID PROFILE

Amino Acid	Pennamin® Driver-P	Pennamin® Fe&Mn	Pennamin® High K	Pennamin® Perfect-K	Pennamin® Si
Alanine	4.2%	3.0%	0.6%	2.7%	3.4%
Arginine	5.3%	3.8%	2.1%	3.4%	4.3%
Aspartic Acid	6.3%	4.5%	2.7%	4.0%	5.0%
Cystine	1.3%	0.9%	3.2%	0.8%	1.0%
Glutamic Acid	9.3%	6.6%	4.7%	6.0%	7.4%
Glycine	7.3%	5.1%	3.6%	4.7%	5.8%
Histidine	0.9%	0.7%	0.5%	0.6%	0.8%
Isoleucine	2.5%	1.8%	1.3%	1.6%	2.0%
Leucine	6.2%	4.4%	3.1%	4.0%	4.9%
Lysine	1.4%	1.0%	0.7%	0.9%	1.1%
Methionine	0.4%	0.3%	0.2%	0.3%	0.4%
Phenylalanine	4.4%	3.1%	2.2%	2.8%	3.5%
Proline	9.6%	6.8%	4.8%	6.2%	7.7%
Serine	11.1%	7.8%	5.5%	7.1%	8.9%
Threonine	4.1%	2.9%	2.0%	2.6%	3.3%
Tryptophan	0.0054%	0.0054%	0.0054%	0.0054%	0.0054%
Tyrosine	1.1%	0.8%	0.6%	0.7%	0.9%
Valine	4.9%	3.5%	2.5%	3.2%	4.0%
<b>Total Amino Acids</b>	<b>80.4%</b>	<b>56.8%</b>	<b>40.3%</b>	<b>51.6%</b>	<b>64.4%</b>

## PRUDENT® PHOSPHITE STABILITY

It is a common knowledge that the phosphite ( $PO_3$ ) content of fertilizers can convert to phosphate ( $PO_4$ ) while stored in their jugs or containers. This is because most phosphite fertilizers are formulated with added water, and, phosphite ( $PO_3$ ) can convert to phosphate ( $PO_4$ ) in the presence of water, beginning shortly after production. The Prudent® family of phosphite fertilizers\* are the exceptions. They are produced without any added water, keeping the phosphite stable in the jug.



To document the stability of Prudent® 44 (aka Prudent 42cw), we commissioned Stillmeadow Labs, an independent EPA-qualified lab, to test the  $PO_3$  content of Prudent 44 samples taken the day of production and taken more than 9 and 14 months after production. As the graphs above show, the  $PO_3$  in Prudent® 44 (aka Prudent 42cw) remained the same after 9 months, with only a minor conversion after 14 months.

# Proven PERFORMANCE



Steve Keller has been superintendent at **Juliette Falls Golf Course** in **Dunnellon, Florida** since it opened in 2007. He has been using a variety of Performance Nutrition® products over the past several years. *“When I had stressed turf, my sales representative recommended KaPre® RemeD8; I have also used their Vibrant® products and KaPre® ExAlt.”*

After using other similar products on the market, Steve decided to try some of the Performance Nutrition® products as they are easy to apply, have beneficial amino acids and are more cost effective. He is on a regular program of Pennamin® High K and LidoChem Inc.'s Chelated Iron and Manganese product. He applies them, usually together, about every 7 – 10 days. *“I plan on continuing to use LidoChem's Performance Nutrition® products as they have a lot of great formulations and they are easy to use. They use the best resources to give us the best products. I am excited to see what they have coming next.”*

Sam Mueller is the Superintendent at **Vasari Country Club** in **Bonita Springs, Florida**. In 2010, the entire course was renovated and rebuilt, which included some very unique greens construction with elevation changes of 2 to 3 feet. Just one year later, Sam began observing problems in the health and growth of the greens. Sam was introduced to the Performance Soil Treatment® by the local Performance Nutrition® sales rep and began regularly applying KaPre® RemeD8, KaPre® ExAlt and Pennamin® products.

*“I noticed my greens getting better and better and I had not made any other changes in my management regimen. There is now 100% turf coverage and the members are happy.”*

John Stach is Golf Course Superintendent at **Olde Hickory Golf and Country Club** in **Fort Myers, Florida**. “We have enjoyed working with the Performance Nutrition® products for almost a year as they have shown to give very positive results with our Tiff Eagle Greens. Specifically, KaPre® ExAlt, Prudent® 44, Nutrol®, Krystal Klear® ResQ, and Vibrant® Green have proven to give a better, more consistent color and excellent turf health.

*“We have received good technical support from the Performance Nutrition® technical team to address specific issues we face here at Olde Hickory on a daily basis. I would recommend all of these products to anyone who works with professional grade turf who is looking for dependable products, cost effective applications as well as excellent technical support.”*

**Rum Pointe Seaside Golf Links** is an 18 hole straight sand greens, mostly bay front, course in the **Ocean City, Maryland** area. Joel McTavish has been superintendent there since 2000.

Over the years Joel used foliar programs incorporating NutraMaxx® and more recently Florantine® products. About two seasons ago, Joel was looking for a change as he wasn't totally happy with his program *“It didn't seem that the benefit of the program was lasting more than 4 -5 days.”*

Joel started using Vibrant® Green in the spring and fall and Vibrant® Red in the summer. He also uses Krystal Klear® Turf Mix every two weeks from May to September. In addition, he uses the Pennamin® High K product for his calcium application and applies Prudent® 44 every two weeks with his fungicide throughout the season.

*“Last year I started to see better overall turf health and playability; the ball rolls nice and smooth on the green. Aesthetically the color and conditions of the greens are nice without a lot of extra growth. I don't have the localized dry spots that I had in the years before using Performance Nutrition®'s products. In addition, Performance Nutrition®'s products last as long as they say they will, where other products seemed to wear off too soon.”*

**Stonecrest Golf Club** located in **Summerfield, Florida** is a semi-private, 18 hole course with modified push up greens. Rick Watts has been the Superintendent there for 10 years. A few years ago, Rick did some Performance Nutrition® product trials on 9 of his greens. *“There was an overall improvement on disease control and nematode pressure, without me having to spray fungicides.”*

Over the past two seasons, Rick has implemented Performance Nutrition®'s PST® - Performance Soil Treatment® on his course which includes a bi-monthly application of KaPre® ExAlt, KaPre® RemeD8 and Pennamin® High K. He continues to see good results and an overall decrease in disease pressure on his greens.

In addition to the products in the PST®, Rick uses Prudent® 44, Nutrol®, Vibrant® Green and Krystal Klear® ResQ. *“I'm very pleased with the performance of the products and the look of the course.”*

**PERFORMANCE**  
NUTRITION®

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