

# PHC<sup>®</sup> for Trees 11-22-22

## A Nutrient Management System

PHC for Trees represents a unique soil fertility program designed to supply and sustain adequate amounts of mineral nutrients for plant growth, vigor, and health.

*Using PHC for Trees, fertility management is optimized by:*

1. Taking advantage of the supply of mineral nutrients found in high quality chemical fertilizers that will satisfy the plant's short-term requirements.
2. Providing fertility to plants even after chemicals have been depleted with a long-term, sustainable source of mineral nutrients supplied by a microbe-based renewable biofertilizing system.

## An Optimum Fertility Package

### *Rhizobacteria and Microbial Nutrient Complex:*

- Free-Living Nitrogen-Fixing Bacteria that increase plant growth by fixing atmospheric nitrogen for plant use.
- Phosphate-Solubilizing Bacteria that solubilize phosphorus for plants from insoluble mineral sources.
- Organic nutrient complex designed to enrich the soil profile surrounding the tree roots and stimulate and support introduced microbes to improve fertility. The organic ingredients in PHC for Trees include humic acid, kelp extract and sugars that are not available in standard N-P-K fertilizers.

### *RZ-3 - A proprietary soil surfactant specifically selected to:*

- Act as a surfactant, or wetting agent, allowing water and soluble minerals to penetrate into the soil.
- Act as a stabilizer and compatibility agent that holds minerals in solution or suspension, keeping them from chemically interacting or precipitating, and slowing sedimentation over a broad pH range.
- Reduce the loss of soluble ammonia (an available form of nitrogen) by preventing ammonia volatilization.
- Reduce the rate of nutrient leaching by mass flow of water, so that:
  1. Minerals (including N) are able to distribute evenly throughout the soil profile.
  2. Minerals remain longer in the roots' zone of absorption.

### *Standard Fertilizer & Micronutrients*

- For use when higher Phosphorus and Potassium mineral nutrients are dictated
- Professional grade raw materials (food and technical grade) for improved solubility and nutrient availability
- Low salt index and no chlorine
- Low phytotoxicity
- Comprehensive micronutrient package
- Requires moderate agitation and is less abrasive to soil injection equipment compared to standard U.F. fertilizers



## PHC<sup>®</sup> for Trees

### GUARANTEED ANALYSIS 11-22-22

Total Nitrogen(N) .....	11%
4.3% Ammoniacal Nitrogen	
2% Nitrate Nitrogen	
4.7% Urea Nitrogen	
Available phosphate(P <sub>2</sub> O <sub>5</sub> ) .....	22%
Soluble potash(K <sub>2</sub> O).....	22%
Boron (B) .....	0.02%
Copper (Cu) .....	0.05%
0.05 % Chelated Copper	
Iron (Fe) .....	0.10%
0.10% Chelated Iron	
Manganese (Mn).....	0.05%
0.05% Chelated Manganese	
Molybdenum (Mo) .....	0.0009%
0.0009% Soluble Molybdenum	
Zinc (Zn).....	0.05%
0.05% Chelated Zinc	

Derived from: Urea, Ammonium Sulfate, Potassium Phosphate, Potassium Nitrate, Boric Acid, Iron EDTA, Manganese EDTA, Zinc EDTA, Copper EDTA, Ammonium Molybdate

Potential Acidity: 548-Lb Calcium carbonate equivalent per ton

### NON PLANT FOOD INGREDIENTS

Soluble Humates derived from Leonardite .....	2.8%
2% Humic Acids	
Soluble Seaweed Extract .....	2.2%
Natural Sugars .....	0.8%
B-Vitamins .....	0.3%
RZ-3 (a proprietary surfactant) .....	2.8%
Rhizosphere Bacteria.....	2.8 Billion/Lb
	(3 Million/cc)

*Soil injection of PHC for Trees into deprived/depleted soils offers significant short-term and long-term benefits that can include:*

- A low-nitrogen, comprehensive fertilizer that provides both macro- and micro-nutrients to replenish seasonal (short-term) fertility requirements.
- A self-perpetuating, sustainable, natural source of essential mineral nutrients that promote growth, health, and vigor in plants.
- A "system" of microbial activity that, through decomposition of natural and applied organic matter, makes essential mineral elements soluble for plants to use to satisfy their growth and metabolic requirements.
- Microbial activity that encourages soil aggregation, and over time, promotes improvement in soil porosity, water movement, drainage and aeration.
- Long term cost reduction results from reduced reliance on frequent chemical fertilizer inputs as soil fertility improves.

*Unlike fertilizers that supply a short-term solution to existing mineral nutrient deficiencies, the role of PHC for Trees is to establish a renewable, sustainable fertility "system" that provides both short-term and long-term continuous replenishment of both carbon-based and mineral nutrients in the soil.*

# PHC® for Trees 11-22-22

## Introduces New Advances in Fertility Formulations

Unique Formulation to solve three common problems of fertilizers:

- Settling in the tank
- Uneven distribution in soil
- Sustainability

### Problem 1: *Settling in the Tank*

In mixed fertilizers containing numerous soluble minerals, the various minerals tend to interact, often resulting in precipitation of insoluble mineral complexes. These insolubles are unavailable to plants. Furthermore, they tend to settle to the bottom of the tank. This leads to unequal application of the fertilizer, as well as friction damage to pumps and valves.

#### **PHC for Trees Solution: Humic Acids and RZ-3 Stabilizer**

Two strategies are utilized to prevent soluble mineral interactions that lead to precipitation. A soluble humate extract rich in humic acids and a proprietary surfactant-stabilizer, RZ-3, work together to maintain solubility and prevent mineral interactions and precipitation.

### Problem 2: *Uneven Distribution in Soils*

Fertilizers move downward through the soil in water. Water follows the path of least resistance, often forming channels. This is due to the tendency of many soil particles to repel water. As a result, water and fertilizers tend to be leached from the root zone following channels of mass flow.

#### **PHC for Trees Solution: New Surfactant Technology**

RZ-3 acts as an effective surfactant, neutralizing the repellency of soil particles. As a result, water and soluble minerals are held to soil particles. This dramatically reduces mineral leaching and allows for a more even distribution of fertilizer throughout the soil profile.

### Problem 3: *Sustainability*

Fertilizers are eventually consumed, and require regular reapplications. As a result fertility levels fluctuate between applications.

#### **PHC for Trees Solution:**

##### **Rhizosphere Bacteria, Nature's Fertility Partners**

PHC for Trees includes six species of beneficial rhizosphere bacteria in spore form. These bacteria were selected because of their ability to improve soil fertility by fixing atmospheric nitrogen, solubilizing phosphorus, and releasing nutrients bound in organic matter. As living organisms, bacteria can maintain themselves naturally in the root zone, continuing to improve soil fertility even after the applied fertilizers are used up.

**Summary:** PHC for Trees has been scientifically formulated to address several practical problems associated with fertilization: mineral interactions forming an insoluble sediment, distribution in soil, and sustainability. The solubilizing properties of humic acids together with a new surfactant technology (RZ-3) are employed to solve long-standing problems of solubility and distribution. In addition, this product addresses fertility both chemically and biologically, providing a means to sustain fertility over the long term. No other fertilizer products address fertility in these ways. PHC for Trees represents a new concept in fertilization technology.



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#### **LIMITED WARRANTY**

Plant Health Care, Inc. offers for sale the product PHC® FOR TREES. THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE which extend beyond the description of the product in this specification sheet or other product literature, and liability of Plant Health Care, Inc. is limited to replacement of any product which does not meet these specifications. Suggestions for use and information on results obtained with its use are assumed by the manufacturer to be reliable. Since conditions of use are outside the control of Plant Health Care, Inc. the buyer is responsible for all results, including injury and damage stemming from the use of this product alone or in combination with other materials.



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#### **APPLICATION AND RATES:**

**Soil Injection:** Mix the recommended amount of PHC for Trees with water, and inject into the soil to a depth of 8 to 10 inches. Start injections immediately past the root flare, being careful to avoid damage to large woody roots. Where possible, injections should cover the entire area beneath the canopy and just beyond the drip line. The recommended rates below will apply 0.6-Lb of Nitrogen and 1.3-Lb of both Phosphorus (P<sub>2</sub>O<sub>5</sub>) and Potassium (K<sub>2</sub>O) per 1000 sq ft.

#### **STANDARD INJECTION RATE:**

- Mix 8-Lbs (1 Bag) PHC for Trees per 100-Gal water and
- Inject:
  - 100-Gal per 1250 sq ft. (2 quarts per injection on 2 1/2 foot centers) or
  - 5-Gal per inch DBH (diameter at breast height)

#### **COMPACTED OR NONPOROUS SOILS:**

- Mix 16-Lbs (2 Bags) PHC for Trees per 100-Gal water and
- Inject:
  - 100-Gal per 2500 sq ft (1 quart per injection on 2 1/2 foot centers) or
  - 2 1/2 -Gal per inch DBH (diameter at breast height)

**Soil Drench:** Mix the recommended amount of PHC for Trees with water, and drench the entire area beneath the canopy. Mix 8-Lbs (1-Bag) per 100-gallons and apply:

- **Established trees:** Apply 100-Gal per 1250 sq ft.
- **Containerized trees:** Apply about 1/4 of the container volume. (example: 1 qt/gal container)

For best results, follow with water application to rinse the product into the soil. Not recommended for foliar application.

#### **PACKAGING**

Available in • 8-Lb bags, packaged with five 8-Lb bags per case  
• Bulk Packaging (upon request)

#### **COMPATIBILITY**

PHC® for Trees can be tank mixed with PHC's MycorTree® Injectable products.

#### **STORAGE/SHELF LIFE**

This product is stable in cool, dry storage conditions for up to 2 years at room temperature. **Do not expose to direct sunlight.** Once suspended in water, the product/water mixture should be applied within 8 hours. Do not store the liquid suspension, as solution will ferment.

#### **HEALTH AND SAFETY INFORMATION**

- In case of allergic reaction(s), treat symptoms and contact physician.
- Product not intended for ingestion. In case of ingestion, seek medical attention.
- Wash hands after handling.
- **Keep out of reach of children.**