



"Innovating a diverse suite of agricultural practices that are both revenue generating and ecologically restorative"

RE: Using **Terreplenish** in transplanting and maintaining tree stock.

Terreplenish (TP) is a proprietary blend of synergistic microbes that work together as a consortium to accomplish most of the needed care of young and growing tree stock. Micronutrients are included with the living microbes in TP to ensure their presence as a catalyst for the many processes that must take place for vital nutrients to be available to the plant.

Results:

- **TP** reduces or eliminates transplant shock of newly planted trees. 2 ounces of TP with 1 gallon of water at transplanting is effective for this purpose for small trees.
- **TP** will lower the pH of the water having similar effects of using phos acid in irrigation water.
- **TP** will ward off soil borne pathogens that attack the roots.
- **TP** will retain more moisture for the trees roots with 2 modes of action. Conversion of atmospheric moisture into the rhizosphere on a constant basis and accelerating the decomposition of cellulose and lignin found in plant residue that releases water.
- **TP** contains phosphorous dissolving bacteria. Phosphorous is relatively abundant but not available for plant uptake. TP assimilates phosphorous for plant uptake utilizing already existing soil stocks.
- **TP** converts atmospheric nitrogen to a nitrate form readily available to plants and less subject to leaching than mineralized nitrogen sources found in commercial fertilizers
- **TP** breaks down surface litter under established trees allowing those nutrients to become available while adding to moisture holding capacity and disease reduction.

Chemicals to avoid because of disruption of soil microbial communities and other concerns:

- **Paraquat** (Gramoxone) Readily absorbed, non-selective and highly poisonous.
- **Admire** (imidacloprid) and all neonicotinoid class chemicals. Affects every cell of the growing plant and kills most insects, fungi and microbes. Long lasting and highly toxic.
- **Bravo, Echo, and Daconil** (Chlorothalonil) This is the most toxic fungicide on the market with non-selective disruptions in living systems.
- **Captan, Ziram** (Iprodione) Toxic to bees and soil microbes
- **Sulfonylurea**, brand names too numerous to list. These formulations block the biosynthetic pathways of branched amino acids causing reduction of many beneficial soil bacteria including pseudomonads.

The impact of pesticides on soil health is known as non-target toxicity. Herbicides tend to do less damage than insecticides and fungicides. Most soil bacteria can recover from short term shock, however, long-term exposure has significantly reduced not only soil microbial populations, but their ability to recover from the exposure. **TP** repopulates indigenous soil microbial populations.