



DATA SHEET #9

FOR ALL BED PREPARATIONS

DIEHARD™ BED PREP



"The Industry's First Complete Planting Bed Inoculant"

DIEHARD™ Bed Prep is formulated as a preparation to inoculate the ground of high profile landscape beds with beneficial mycorrhizal fungi when planting. It contains highly selected endomycorrhizal fungi that will quickly colonize the roots of new transplants to provide the best possible conditions for the roots to grow and extract from the root zone water and nutrients. The fungi are combined with humic acids, biostimulants, beneficial bacteria; soluble sea kelp, *Trichoderma* and yucca plant extracts to promote rapid root development. When water and soluble nutrients are amply provided non-mycorrhizal seedlings can grow well in artificial growing media. However, until the roots are mycorrhizal they do not adequately take up water and nutrients upon out planting. Routine nursery practices such as fumigation and high levels of water and nutrients produce non-mycorrhizal seedlings or seedlings with "nursery fungi", which may be poorly adapted to individual species or field conditions. To reduce transplant stress and watering maintenance, and to slow release all soluble components of the formulation, Horta-Sorb® water management gel is added to complete the package. The results are "naturalized" beds providing for less chemical use and less maintenance.

Product Benefits

IMPROVES

Survival
Rooting
Flowering
Water Absorption
Nutrient Availability
Yields and Production
Client Satisfaction
& Goodwill

REDUCES

Plant Losses
Fertilizer Use
Need Of Pesticides
Heat Stress Damage
Irrigation Frequency
Losses From Drought
Conditions

Compatibility

Species: All plants and shrub species except Rhododendrons, Azaleas, Heather, Blueberries, and Laurels. (These associate with ericoidmycorrhizae.)

Fungicides: Non-systemic fungicides normally have no effect. Foliar applied fungicides normally have no effect. Systemic fungicides may be applied 2 weeks before or after use of product. Fungicide use according to label instructions do not extinguish mycorrhizae, they only inhibit development for a short period of time.

Non Plant Food Ingredient

Endomycorrhizal	27 propagules per cc to include -7 species- <i>Glomus mosseae</i> (5), <i>Gigaspora intraradices</i> (5), <i>Glomus fasciculatum</i> (5), <i>Glomus dussii</i> (3), <i>Glomus deserticola</i> (3), <i>Glomus clarum</i> (3), and <i>Glomus microaggregatum</i> (3).
Ectomycorrhizal	2,160,000 per cc to include 2 species: <i>Pisolithus tinctorius</i> (1,857,600), <i>Rhizopogon</i> (302,400).
Horta-Sorb® MD Water Gel	17% Copolymer made for agriculture
Humic Acids	10% Derived from <i>Leonardite</i>
Soluble Yucca Extract	1% <i>Yucca schidigera</i>
Soluble Sea Kelp Extract	1% <i>Ascophyllum nodosum</i>
<i>Trichoderma</i>	345,600 CFU's per cc to include Genus <i>Trichoderma</i> (6 species), <i>Gliocladium virens</i> (2 strains), <i>Trichoderma harzianum</i> (2 strains), <i>Trichoderma Viride</i> (2 strains).
Phosphate Solubilizing, Nitrogen Fixing and Growth Promoting Bacteria.	1 billion per lb. to include Genus <i>Bacillus</i> (32 species), Genus <i>Psuedomonas</i> (2 species), Genus <i>Streptomyces</i> (2 species)
Root Promoting Vitamin	Biotin, Folic acid, B, B2, B3, B6, B7, B12, C and K
Amino Acids (Protein)	Animal and plant proteins
Fulvic Acid	Plant-derived mineral

Directions For Use

Apply product at a rate of 3 lbs per 100 square feet and incorporate into the first 8 inches of soil. Product may be amended into prepared top soils to achieve 3 lbs of product per 100 square feet based upon the depth of soil required. For example the rate per cu. yd. for a bed mix 8 inches deep would be 19.5 oz. to the cubic yard. (8" would cover 40.5 sq. ft. x 0.48 oz. per sq. ft.)

Pkg. Size	Square Feet	Inches Deep	Needed Per Sq. Yd.
10 lb. box	360	6	25.9 Oz.
40 lb. case	1440	8	19.8 Oz.
25 lb. box	900	12	12.9 Oz.

Storage & Handling

Store in a cool, dry place. Avoid high temperatures and direct sunlight. Product shelf life is up to two years.

Health & Safety

Inhalation Ingestion If dusty conditions exist wear a dust mask. Drink large amounts of water, induce vomiting, and seek medical attention.

Eyes Safety Flush with large amounts of water. Product becomes very slippery when wet.



FOR ALL FLOWER BED APPLICATIONS
DIEHARD™ BED PREP



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What's In The Product

Micro-organisms

Main components in soil health and soil productivity, not only responsible for the degradation of organic matter, but necessary for making nutrients available for plant use. Contains a microbial blend of many species of Bacillus, Flavobacterium, Saccharomyces, Penicillium and a host of other beneficial microorganisms.

Amino Acids

The amino acids in DIEHARD™ products include aspartic acid, threonine, serine hydroxyproline, glutamic acid, proline, glycine, cystine, valine, methionine, isoleucine, leucine, phenylalanine, histidine, lysine, arginine and alanine. Amino acids enhance health and improve the overall nutrient efficiency by buffering heavy metals and sodium in the soil, improving the availability and exchange of plant nutrients on the root surface, and improving microbial activity in the soil.

Humus

Humus contained in DIEHARD™ products are composed of a complex mixture of colloidal substances containing lignin, protein, polyonides, and carbon improves the exchange capacity of the soil and enhances uptake of phosphates and other essential nutrients. These substances increase plant vigor, help keep fertilizer from leaching through the soil, and buffer plants against extreme concentrations of salts.

Langbeinite

Originating from evaporated sea water, it contains Sulfur, Potash, Magnesium and many other important trace

Vitamins & Enzymes

Biotin, Folic Acid, B, B2, B3, B6, B7, B12, C, E, and K, riboFLavin, biotin, choline, thiamine, pantothenic acid, folic acid, and niacin properties are essential for the basic metabolic processes of the plant such as chlorophyll production, cell division, transpiration and respiration.

Trichoderma

A beneficial fungus that competes with disease causing fungi in the soil. The fungus grows around the roots depriving pathogenic fungi of nutrients and living space enhancing of mycorrhiza formulation.

Fish Meal

Dried ground tissue of whole fish or fish cuttings which contains Nitrogen and is rich in essential amino acids.

Sea Kelp Extracts

Sea kelp contains more than 60 macro and trace elements. Plant growth hormones involved in cell division, protein, carbohydrate and chlorophyll production.

Yucca Plant Extract

Yucca schidigera extract increases cell wall permeability, microbiological activity, helps control nematodes, is toxic to a wide number of insects and has been widely used for years as a soil conditioner, foliar spray, wetting agent and growth promoter.

Beneficial Bacteria

Beneficial bacteria in DIEHARD™ products contain a nitrogen fixing bacillus that converts atmospheric nitrogen to available nitrogen for plants, a phosphorus solubilizing bacillus that converts insoluble phosphorus to soluble, and a growth hormone promoting bacillus that stimulates root growth.

Limited Warranty: All information contained herein is offered in good faith. There are no warranties of merchantability of fitness for a particular purpose which extend beyond the information contained herein. Our liability is limited to replacement of any product which does not meet these specifications.

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