

HORTICULTURAL ALLIANCE

PRODUCT CATALOG

Natural
Products
for the
Landscape
Arbor
Nursery
Turf
Forestry
and



Our Philosophy and Products. . .

The “green industry” today is experiencing the most intense pressures to be more productive than it ever has. To meet these challenges the industry has become more competitive through innovations in production techniques to produce “more for less” beginning at the nursery level all the way through the maintenance level. This shift to “micro-manage” the growing and maintenance of plant materials has led to an unprecedented use of chemicals to alter every aspect of growing that one can imagine. In this rush to improve production efficiency the *natural* state of plant materials has been overlooked, in fact ignored. This has resulted in “good looking” plants that are in fact very fragile when introduced to the “outside” world, i.e., the landscape, orchard or field crop.

The majority of our products are formulated to jump start the natural systems that are needed in the field for plants to flourish. Our approach is to include biological “cocktails” for commercially grown plants and include four components to capitalize on decades of research and tens of thousands of published papers. Our “cocktails” include:

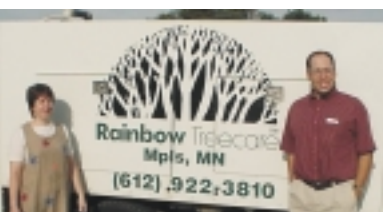
- **Beneficial Fungi** - Over a dozen strains of ecto and endomycorrhiza plus *Genus Trichoderma* (6 species), *Gliocladium virens* (2 strains), *Trichoderma harzianum* (2 strains), *Trichoderma viride*, *Trichoderma spp.*
- **Biostimulants** - Humate, yucca, sea kelp, amino acids, vitamins, etc.
- **Beneficial Bacteria** - 47 strains to include *Genus Bacillus* (35 species), *Genus Psuedomonas* (5 species), *Genus Streptomyces* (7 species).
- **Water Management Gels** - We have over two decades experience working with superabsorbents to manage water and solubles in the root zone.

Natural Products for Landscape

Most will agree that we could use some help for better results with newly planted landscapes which often times go into severe transplant shock. Generally the reason is poor after care, but heat, time of the year, soil conditions, along with untold other factors also play important roles here. One of the biggest problems is most transplanted plants have little, if any, *natural systems* working with them and the soil in which they are planted is likely to offer little help from a microbial standpoint because it has often been moved around and disturbed (grading, fill, etc.) and generally has little, if any, beneficial microbial activity. Our landscape products are highly concentrated and cannot be used without seeing a significant difference from the very start and for years later in the established sustainable landscape. Today numerous departments of transportation, state and local parks departments and hundreds of forward thinking professional landscape architects specify our landscaping products.



Arbor Care



Deep root injection with our mycorrhizal “cocktails” has become an important profit center for professional arbor companies throughout the U. S. since we introduced our injectable products in 1997. Horticultural Alliance, Inc. was the first company to offer an injectable product to the professional arborist that included a complete biostimulant package. We are still the only company to include 6 separate strains of *Trichoderma* in our products including our vertimulch product for established trees in decline. Hundreds of professional arbor companies recognize our “*natural systems approach*” products as the highest quality available anywhere.

Nursery

Horticultural grade gels are now well accepted in the nursery industry to hold available water in container and plug production. Gel fortified mixes enable the grower to use a more opened, well drained mix therefore reducing the need for expensive chemicals and boosting significantly the time between watering, reduced fertilization and greatly improved shelf life. For growers whose crops will be transplanted into the ground inoculation of the roots with mycorrhiza will significantly improve the *natural health* of the transplant and result in higher yields, less transplant stress and less need for chemicals.



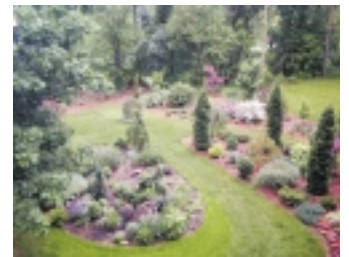
Turf



Mycorrhizal turf roots make a significant difference when turf is stressed from people traffic and drought. Biostimulants, used extensively by golf course superintendents, solublize the minerals in the ground making them available to the roots. Gels hold water in the root zone and manage nutrients solutions that they come in contact with. All of these technologies lay the groundwork for a more *naturalized* turf which is a much more sustained turf.

Maintenance

Professional on-going maintenance involves nurturing both the plants and the ground to set up the conditions, which the plant would encounter, in a natural environment. To accomplish this, periodic treatments of biostimulants to augment supplemental nutrient treatments is a natural choice. Healthy plants require less maintenance, pesticides and other harmful chemicals. Once plants and root zones are *naturalized* they can be managed to sustain and nurture this balance. For example a flower bed whose root system is mycorrhizal can maintain the mycorrhizal association when color changes take place. As new roots are planted they immediately come in contact with existing mycorrhizal root fragments and become mycorrhizal themselves as they go into the ground. This is a natural consequence that pays benefits over the long term to achieve a more sustainable landscape.



Agriculture



Mycorrhizae, biostimulants, beneficial bacteria and gels can play an important role to establishing crops, especially high dollar crops like vineyards, citrus, nuts and other fruit trees. In many areas these crops are planted in less than ideal soils resulting in heavy reliance on chemicals to grow the crops. *Naturalized* plants and root zones can play important parts to producing higher yields therefore making these operations more profitable. In agriculture our products are suitable from the greenhouse where transplant plugs are grown to actual field planting operations.

Forestry

Billions of forest seedlings are planted every year. Hundreds of millions of these seedlings die before becoming established. Gels as a packaging media have significantly improved survival of seedlings over the past 20 years and are presently used to treat over a billion seedlings annually. Now many forest seedling nurseries are inoculating their seedlings with mycorrhiza and planters are using root dip inoculants to further impact survival. The results are more viable seedling especially in new forest stands and reclamation sites where harsh conditions are the norm.



PRODUCTS APPLICATIONS USAGE RATES AND COSTS

AGRICULTURE	APPLICATION	RATES OF USE	COST TO USE
DIEHARD™ Endo Drench™	Soluble greenhouse inoculant for plugs	1 lb. added to water and drenched when roots begin to form	\$6.25 per thousand
DIEHARD™ Starter Mix	Potting soil amendment endo inoculant for plugs	2 pounds per cubic yard	\$8.00 per thousand
DIEHARD™ Root Dip	Plug/bare root dip for vegetables, tobacco, etc.	Mix 15 oz. bag with 5 gallons of water to treat 3,000 plants	\$6.66 per thousand bare root seedlings
DIEHARD™ AG Transplant	Soil amendment inoculant for fruit trees and vineyard transplants	Mix 3 oz. into the planting pit when transplanting	92 cents per tree
DIEHARD™ AG Mud-In™	Water tank additive to inoculate fruit trees and vineyards transplants	Mix 20 lbs. with 500 gallons of water to treat 150 trees	32 cents per tree
DIEHARD™ AG Mud-In™ Plus	Same as above plus also contains Horta-Sorb water management gel	Mix 20 lbs. with 500 gallons of water to treat 150 trees	85 cents per tree
ARBOR	APPLICATION	RATES OF USE	COST TO USE
DIEHARD™ Injectable	Soluble endo/ecto inoculant for trees and shrubs	Mix 8 oz. with 100 gallons of water and inject on a 2 ½ ft. grid	3.7 cents per solution gallon
DIEHARD™ Ecto* Injectable	Soluble ecto inoculant for trees and shrubs	Mix 8 oz. with 100 gallons of water and inject on a 2 ½ ft. grid	2.4 cents per solution gallon
DIEHARD™ Root Reviver™	Endo/ecto vertimulch inoculant for trees and shrubs	Apply 3 to 6 oz. per hole (2" wide x 10" deep) in a 3 ft. grid	8 cents per sq. ft.
FORESTRY	APPLICATION	RATES OF USE	COST TO USE
DIEHARD™ Root Dip	Ecto/Endo bare root dip for all forest trees	Mix 15 oz. bag with 2 ½ gallons of water to treat 1,000 plants	4 cents per seedling
DIEHARD™ Ecto Root Dip	Ecto bare root dip for ecto responsive trees.	Mix 3 oz. bag with 5 gallons of water to treat 2,000 plants	\$4.00 per thousand seedlings
DIEHARD™ Ecto Drench™	Ecto inoculant for flats, trays, and beds	Mix 3 oz. bag with sufficient water to treat 15,000 seedlings	\$4.00 per thousand seedlings
HYDROMULCHING	APPLICATION	RATES OF USE	COST TO USE
DIEHARD™ BioRush™ Tackifier	Biosstimulant, beneficial bacteria, and gels to boost germination	5 lbs. per acre mixed with mulch, seed and fertilizer	\$42.50 per acre
Horta-Sorb SM Water Management Gel	Holds water near the seed for quicker germination	5-10 lbs. per acre mixed with mulch, seed and fertilizer	80 cents per 1,000 sq. ft.
LANDSCAPE	APPLICATION	RATES OF USE	COST TO USE
DIEHARD™ Transplant	Used as a soil amendment to quickly establish trees and shrubs.	8 oz. Pac treats a 2 inch caliper tree or 8 one gallon containers	\$4.00 to treat a 2" caliper tree
DIEHARD™ Palm	Ideal for all palms to improve color and health	As a vertimulch apply 6 oz. scoop per 3 ft. gray wood	\$4.50 to treat 15' of gray wood trunk
DIEHARD™ Flower Bed	Used as a soil amendment when preparing beds	3 lbs. per 100 sq. ft. mixed into the first 3-4 inches of bed	17 cents per sq. ft.
DIEHARD™ Root Reviver™	The ultimate "First Aid" for established trees in decline	Apply 3 to 6 oz. per hole (2" wide x 10" deep) in a 3 ft. grid	8 cents per sq. ft.
DIEHARD™ Turf [REDACTED]	Used as a soil amendment to establish turf "naturally"	2 lbs. per 100 sq. ft. mixed into the first 1-2 inches of soil	9 cents per sq. ft.
MAINTENANCE	APPLICATION	RATES OF USE	COST TO USE
DIEHARD™ BioRush™	Biosstimulant that promotes fast development of absorbing roots	¼ lb. Added to 25 gal. of water and foliar applied to 1,650 sq. ft.	\$3.60 per thousand sq. ft.
DIEHARD™ BioRush™ Fe	Foliar applied to promote fast root development and provide quick "green-up"	1 lb. added to 25 gal. of water and foliar applied to 2,500 sq. ft.	\$3.98 per thousand sq. ft.
DIEHARD™ Soluble Yucca Extract	Used as a drench for a wetting agent, sticker/spreader, and soil penetrant	1 lb. added to 100 gals. of water and foliar applied to 1 acre	18 cents per thousand sq. ft.
DIEHARD™ Soluble Humate	Foliar use of the top soluble humate to "energize" the microflora	½ lb. added to 100 gals. of water and foliar applied to 1 acre	10 cents per thousand sq. ft.
NURSERIES	APPLICATION	RATES OF USE	COST TO USE
DIEHARD™ Starter Mix	Propagation amendment endo/ecto inoculant	Mix at the rate of 2 lbs. per cubic yard of media	\$8.00 per thousand
DIEHARD™ Endo Drench™	Nursery drench endo inoculant with biosstimulants and <i>Trichoderma</i>	1 lb. added to water and drenched when roots begin to form	\$6.25 per thousand
DIEHARD™ Ecto Drench™	Nursery drench ecto inoculant with biosstimulants and <i>Trichoderma</i>	Mix 3 oz. bag with sufficient water to treat 2,000 seedlings	\$4.00 per thousand seedlings
DIEHARD™ BioRush™	Foliar biosstimulant with Yucca, <i>Trichoderma</i> , and bacteria	¼ lb. added to 25 gal. of water and foliar applied to 1,650 sq. ft.	41 cents per thousand sq. ft.
DIEHARD™ Soluble Humate	Biosstimulant that promotes fast development of absorbing roots	¾ lb. added to 100 gals. of water and foliar applied to 1 acre	10 cents per thousand sq. ft.
DIEHARD™ Soluble Yucca Extract	A natural wetting agent, soil penetrant	1 lb. added to 100 gals. of water and foliar applied to 18,000 sq. ft.	18 cents per thousand sq. ft.
Horta-Sorb LG Water Management Gel	Soil amendment to manage water in large containers	2 pounds per cubic yard	2.7 cents/one gallon container
Horta-Sorb MD Water Management Gel	Soil amendment to manage water in medium containers	2 pounds per cubic yard	2.7 cents/one gallon container
Horta-Sorb SM Water Management Gel	Soil amendment to manage water in small containers	2 pounds per cubic yard	2.7 cents/one gallon container
TURF	APPLICATION	RATES OF USE	COST TO USE
DIEHARD™ BioRush™	Biosstimulant that promotes fast development of absorbing roots	¼ lb. added to 25 gal. of water and foliar applied to 1,650 sq. ft.	\$3.60 per thousand sq. ft.
DIEHARD™ BioRush™ Fe	Foliar applied to promote fast root development and provide quick "green-up"	1 lb. added to 25 gal. of water and foliar applied to 2,500 sq. ft.	\$3.98 per thousand sq. ft.
DIEHARD™ Turf Builder™	As a soil amendment to quickly establish sod, seed, or sprigs	2 lbs. per 100 sq. ft. mixed into the first 1-2 inches of soil	9 cents per sq. ft.
Horta-Sorb MD Water Management Gel	Broadcast to hold water in the root zone for sod, seed, and sprigs	Broadcast 3 lbs. per 1,000 sq. ft. Cut in 1 inch.	1 ½ cents per sq. ft.

Plant Specie and Type of Mycorrhiza Association

Endomycorrhizae

Acacia	Burning Bush	Crabapple	Gum	Maples (all)	Peanut	Silverbell
Agapanthus	Cacao	Cryptomeria	Hackberry	Marigold	Pear	Sourwood
Ailanthus	Cactus	Cucumber	Hawthorn	Melons (all)	Pecan	Soybean
Alder	Camellia	Currant	Hibiscus	Mesquite	Pepper	Squash
Alfalfa	Carrot	Cypress	Holly	Millet	Pistachio	Strawberry
Almond	Casuarina	Dogwood	Hophornbeam	Mimosa	Persimmon	Sudan Grass
Apple	Cassava	Eggplant	Hombeam	Morning Glory	Pittosporum	Sugar Cane
Apricot	Catalpa	Elm	Horsechestnut	Mulberry	Plum	Sunflower
Artichoke	Ceanothus	Eucalyptus	Impatiens	Monkey Pod	Poinsettia	Sweet Gum
Ash	Cedar	Euonymus	Jojoba	Nasturtium	Potato	Sweet potato
Asparagus	Celery	Fern	Juniper	Okra	Poplar	Sycamore
Avocado	Cherry	Fescue	Kiwi	Olive	Raintree	Tea
Bamboo	Chokeberry	Fig	Leek	Onion	Raphiolepis	Tobacco
Basil	Chrysanthemum	Forsythia	Lettuce	Pacific Yew	Raspberry	Tomato
Bayberry	Citrus (all)	Fountain Grass	Lily	Palms (all)	Redbud	Tree-of-heaven
Bean	Clover	Fuchsia	Locust	Palmetto	Rose	Tupelo
Begonia	Coconut	Gardenia	London	Papaya	Russian Olive	Walnut
Black Locust	Coffee	Garlic	Planetree	Passion Fruit	Ryegrass	Wheat
Blackberry	Coral Tree	Geranium	Magnolia	Paulownia	Sassafras	Willow
Box Elder	Corn	Gingko	Mahogany	Paw Paw	Sagebrush	Yam
Buckeye	Cotton	Grapes (all)	Mahonia	Pea	Serviceberry	Yellow poplar
Bulbs	Cottonwood	Grass	Mango	Peach	Sequoia	Yucca

All nut trees except Pecan and Hazelnut

All fruit trees, grapevines, grasses and many vegetables

All berries except blueberry, cranberry and lingonberry.

All shrubs and foliage except Laurel, Rhododendron, and Azalea

Ectomycorrhizae

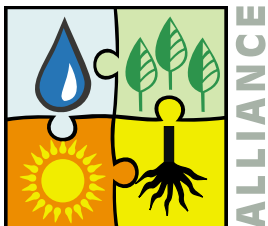
Alder	Basswood	Chestnut	Hemlock	Linden	Pecan	Spruce
Arborvitae	Beech	Chinquapin	Hickory	Madrone	Pine	
Aspen	Birch	Fir	Larch	Oak	Poplar	

Both Endo and Ectomycorrhizae

Eucalyptus Willow

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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