

Sample

**Statement of Composition:**

*Pisolithus tinctorius* ..... 10,000 spores/cc

"NONPLANT FOOD INGREDIENT"

Net Weight: 8.39 lb./gal (1.00 kg/l)

**Expiration Date:** This product will expire on \_\_\_\_\_

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**DIRECTIONS FOR USE**

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**General Information:** Ascend™ EM is a Ecto-Mycorrhizal soil inoculant, that is balanced with Vesicular-Arbuscular Mycorrhiza, for use in deficient soil conditions, such as artificial or sterile growth media, soils that have been flooded or fallowed for extended periods, solarized, fumigated, and pasteurized sterile media. Ascend™ EM can also be used following applications of soil pesticides that reduce Mycorrhizal populations. Ascend™ EM is labeled for use in greenhouse, nursery, ornamental, forests, and orchards; excluding treatment of ecto-endo and ericoidal Mycorrhiza plant families. Ascend™ EM can be applied prior to planting, at planting, or during the growing season. Do not apply Ascend™ EM prior to soil sterilization. To achieve best results, this product should be used in an integrated management program and early in the plant's development.

**Mixing Instructions:**

Ascend™ EM is not ready for use until Ascend™ EM and Ascend™ Dry Concentrate (EM DC) are mixed. Your packet of Ascend™ EM DC is attached to this container and has further mixing instructions. Mixing should take place just prior to application, and at the quantity to be used. Combine ingredients at the concentrations specified by the Ascend™ EM DC label and shake, stir or agitate for five minutes before use. Ascend™ EM is ready for use after mixing and when the liquid has turned **green** in color. *Do not use Ascend™ EM if liquid is not green in color.*

Ascend™ EM is compatible with a wide range of soil applied fertilizers. To assure compatibility of Ascend™ EM with new fertilizers and other soil conditioners, pour the components into a small container in the correct proportions. After a thorough mixing, let stand for 5 minutes. If the combination remains mixed, or can be readily remixed, the mixture is compatible. The following are a short list of incompatibilities: Maintain a pH between 6-8 by avoiding strongly acidic/basic conditions and biocides such as chlorine, free ammonia and some fungicides. Do not mix with Aqueous Ammonia, Sulfuric Acid, Urea Sulfuric Acid, Phosphoric Acid, Soil Fumigants or Soil Fungicides. When using Ascend™ EM following pesticide and fumigant treatments make applications after the toxicant has dissipated (Refer to pesticide label for guidelines). There are, at the time of this printing, no other known incompatibilities.

**Handling:** Avoid inhalation or injection during mixing. Use of a dust mask is recommended. Follow appropriate general safety procedures. In case of accidental exposure, flush with plenty of water. Refer to Material Safety Data Sheet (MSDS) for additional information.

**SHAKE, STIR OR AGITATE BEFORE USE.** When handled in bulk quantities, storage in a cone bottomed tank is recommended to facilitate agitation. When stored in a cone bottomed tank, agitate 10 minutes prior to use. When stored in a flat-bottomed tank, agitate one hour before use. Avoid air blast agitation as foaming may result. If foaming does occur through normal agitation, use an approved food grade defoamer. Agitation is recommended once every month. Storage past the expiration date is not recommended.

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## APPLYING ASCEND™ EM

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Sample

Ascend™ EM is designed for use as a Ecto-Mycorrhizal soil and root inoculant for deficient soils. Apply Ascend™ EM in close proximity to the seed/cutting and newly developing root system. Ascend™ EM can be applied via seedline shank injection, drip chemigation, subsoil drip line chemigation, drenching, mixing in the transplant water, using a soil covering method, or in the media preparation.

**Soil Moisture:** Application should be made under "good seedbed conditions". This includes thorough cultivation of the soil and pre-irrigation to 50 to 75% soil moisture conditions. Soil moisture can be estimated by squeezing a handful of soil into a ball. If the ball holds its shape and then easily breaks up, moisture is sufficient.

**Environmental factors:** Ascend™ EM is sensitive to ultraviolet (UV) light. Ascend™ EM should be applied using a subterranean technique or in sufficient water to move the product off the soil surface and into the plant root zone. To get the optimum results from Ascend™ EM apply when the soil is between 50 and 100 degrees Fahrenheit.

**Note:** The use of Ascend™ EM may affect crop nutrient response through increased root surface area, caution should be exercised when applying Ascend™ EM with fertilizers to prevent "fertilizer salt" induced phytotoxicity. Where fertilizer salts are the combination of Nitrogen, Potassium and metal salts, do not exceed 5 lb./Acre of total salt on the seedline and/or 10 lb./Acre of salt per inch away from the seedline and roots. Where warranted, adjust fertilizer rates and replace with a maximum of a 1:1 ratio of up to 15 gallons of Ascend™ EM/acre/application.

### GENERAL RATE DETERMINATION GUIDELINES:

#### GENERAL APPLICATION GUIDELINES:

Use 15 to 30 gallons per broadcast acre equivalent early in the growing season, or as needed. See the placement specific and crop specific guidelines below for further efficiency. As this product is only of benefit to plant roots: *Applications of high placement accuracy will allow lower rates, while low placement accuracy will necessitate a higher rate.*

#### SPECIFIC APPLICATION GUIDELINES:

**Banding:** For banded (shank injection, band drench or drip) applications, the area actually is the area covered by the band, not the total cropland planted. Some application recommendations are based on treating in the root zone and these rates are generally specified as amounts of product per treated acre. If rates are expressed as amount per treated acre and banded applications are used, the amount of product used will be proportionately less. The following formula can be used to calculate the amount of Ascend™ EM needed per acre of crop when banded applications are made:

$$\begin{array}{rcccl} \text{Band width in inches.} & & 30 \text{ gal. rate/A} & & \text{Total amount needed.} \\ \text{-----} & \times & \text{-----} & = & \text{-----} \\ \text{Row spacing in inches.} & & \text{per number of} & & \text{Per one acre of field.} \\ & & \text{acres in field.} & & \end{array}$$

**Drenching Method:** Apply Ascend™ EM in sufficient water to move Ascend™ EM off the soil surface and into the root zone, but not beyond. See band application calculations above for instructions for calculating the amount of product to apply in a drench application.

**Soil Covering Method:** At planting time apply 30 gallons of Ascend™ EM per total acre equivalent. Please reference the banding application notes listed above concerning band application calculation efficiencies. Apply the specified dosage to the soil around the seed and to the covering soil as it fills in the furrow. The product should be below the seed and roots as much as possible.

**Chemigation Application Guidelines:** Apply 15-30 gallons of Ascend™ EM per acre depending on the crop, depth of application, and water holding capacity of the soil. For proper application:

1. Determine the area (length x width) to be treated, divide by the number of acres and multiply by the rate per the number of acres to be treated. This number is the total gallons of Ascend™ EM needed to treat the field or irrigation block.

2. Ascend™ EM can be safely metered into drip systems. Determine the amount of water needed to saturate the root zone (0.5" to 1.25" of water), divide this by the time needed to apply the necessary water. This number is the time required to make the application of Ascend™ EM.

3. Divide the number of gallons from Step 1 by the treatment time in Step 2. This number is the application rate of Ascend™ PA per unit of time. Apply Ascend™ PA at this treatments rate until desired application rate has been reached.

**Drip Chemigation Calibration Instructions:** During pre-irrigation check drip tape for uniform distribution (See calibration information below) and repair if necessary. Once the system is calibrated add the amount of Ascend™ EM required for treatments as calculated above, or generally 3-8 gallons per total acre, to the middle third of the irrigation set. Follow these guidelines:

#### *Step-by-Step Instructions*

- Each run of the irrigation system must be calibrated separately to determine the time it takes water to move through the system and to make sure all emitters are putting out the same amount of water.
- Before starting to calibrate, operate the system until all emitters are putting out equal flow rates or until the system is operating at full pressure.
- Only pressure injection or venturi equipment is recommended.
- Determine the area to be treated in each irrigation run.
- For calibration, substitute a concentrated detergent or a soluble fertilizer in the injection tank. The detergent will bubble as it leaves the emitters. The time period over which bubbles occur should be checked for both the closest and farthest emitters. If these times are not within two minutes of each other, adjust the dilution rate and/or the injection rate. If a soluble fertilizer is used, measure the time intervals with a salt bridge.
- If the period of detection of the indicator solution between the emitters are within two minutes of each other, comparable coverage will be obtained. If they are not, make adjustments by increasing the dilution ratio, using more water per part Ascend™ EM or adjust the injector to a slower rate.
- Once the system is calibrated, dilute the needed amount of Ascend™ EM with water using a minimum of 5 parts water/fertilizer solution to 1 part Ascend™ EM.
- Do not begin to inject Ascend™ EM into the system until all emitters are producing equal flow rates, or until the system is at full pressure.
- Inject Ascend™ EM into the system in the middle of the irrigation set of a 1/2 - 1 inch of irrigation water. With at least 1/4" of additional water to move product off of the surface.

#### **CROP SPECIFIC USE RATES:**

**Nursery (Greenhouse Agricultural, Horticultural or Ornamental) applications include, but are not limited to:**

**Media Inoculant** - Apply 4-10 oz. per cubic foot of media just prior to planting.

**Soil drench** - Apply 5 oz. per square yard or see examples below. Apply in sufficient water to move product into the root zone without excess leaching, at the rates below:

**Containerized:** In flat trays with cell sizes below 2 square inches apply product at 16 to 24 oz. Ascend™ EM per 100 plants. For pot applications see the table below. Applications of Ascend™ EM should be made each time the root zone is disturbed or a plant is moved from a flat to a pot and into a field.

For a 100 pot application:

- |         |          |         |
|---------|----------|---------|
| - 4-5"  | pots use | 100 oz. |
| - 6-7"  | pots use | 80 oz.  |
| - 8-10" | pots use | 60 oz.  |
| - 12"   | pots use | 50 oz.  |

### Transplants and At-planting:

When used in transplant operations apply Ascend™ EM with enough transplant water/fertilizer solution to move into and/or infiltrate the root zone. Following the rate guidelines below:

**Trees, Shrubs and Vines:** Ascend™ EM should be applied to the planting site, but can be applied in the transplant water or as a basal drench following planting. For deep root feeding apply product in sufficient water to move Ascend™ EM into and throughout the root zone. Ascend™ EM should be applied at 1/2 fluid ounce product per quarter inch of stem diameter (at the soil surface). One half ounce., per plant, is the minimum application rate recommended.

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### CROPS THAT CAN BE TREATED WITH ASCEND™ EM:

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Ascend EM is specifically designed for use on the following plant families:

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|-----------------------------------|---|
| - Betulaceae (Birch)              | - Caryophyllaceae (Carnation)                     |
| - Juncaceae (Rush)                | - Orchidaceae (Cattleya, Orchid and Phalaenopsis) |
| - Pinaceae (Pine, Fir and Spruce) | - Proteaceae (Protea)                             |
| - Salicaceae (Willow)             | - Cyperaceae (Sedge)                              |
| - Fagaceae (Beech, Oak)           | - Myrtaceae (Eucalyptus)                          |

### Do not use Ascend™ EM on these plant families:

Some plant families do not become colonized successfully by the ecto or endomycorrhizal fungus even in the most favorable growing conditions. The following lists are plant families, and examples for each:

- |  |  |
|--|--|
| - Brassica (Cabbage)                                     | - Chenopodiaceae (Beet and Spinach)                                |
| - Cruciferae (Broccoli, Cauliflower, Turnip and Mustard) | - Ericaceae (Blueberry, Cranberry, Heath, Rhododendron and Azalea) |

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### STORAGE AND DISPOSAL

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**Storage:** Store Dry Concentrate packets in a cool dry place out of the sun. Although not necessary, storage between 40 to 70 degrees Fahrenheit will extend the products potency. Ascend™ PA should not be allowed to freeze. Keep containers tightly closed when not in use.

**Container Disposal:** Triple rinse (or equivalent), then puncture and dispose of in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.



Manufactured by:  
**BioScientific, Inc.**

4405 S. Litchfield Rd., Avondale, AZ 85323  
1-800-USA-BIO1



Net Contents \_\_\_\_\_ gal (\_\_\_\_\_ l)

Lot No \_\_\_\_\_

Revision Date: 4/6/00

Version 10

1 "Ascend is the trademark of BioScientific, Inc.

*Seller warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions. Seller makes no other warranty of representation of any kind, expressed or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of the seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty. The exclusive remedy against seller shall be a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort. Any controversy of claim arising out of, or relating to this contract, or breach thereof, shall be settled by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.*

Sample

# Ascend<sup>TM</sup> EM-DC

Dry Concentrate - Ecto Mycorrhizal Soil and Root inoculant<sup>1</sup>

Auxiliary Soil and Plant Substance, Biotic

**Statement of Composition**

*Pisolithus tinctorius* .....3.7x10<sup>10</sup> spores/cc

"NONPLANT FOOD INGREDIENT"

**Expiration Date:** This product will expire on \_\_\_\_\_, or six months from the date of shipment.

**Storage:** Store in a cool, dry place. Avoid direct exposure to sunlight. Although refrigeration is not necessary, storing Ascend<sup>TM</sup> EM DC between 40 and 60°F will increase potency. Storage for longer than 6 months is not recommended.

**Handling:** Avoid inhalation or ingestion. Use of a dust mask is recommended for mixing. Follow appropriate safety procedures. In case of accidental exposure, flush with plenty of water.

**Directions for Use:** See Ascend<sup>TM</sup> EM labels for use instructions.

**Mixing Instructions:** It is in violation of labeling to use this product in this form. To activate, blend Ascend<sup>TM</sup> EM DC with Ascend<sup>TM</sup> EM. Mixing should take place just prior to application and at the quantity to be used. Combine ingredients at the concentrations specified below and SHAKE, STIR, OR AGITATE for five minutes before use. Ascend<sup>TM</sup> EM are ready for use after mixing and when the liquid has turned **green** in color. **Do not use Ascend<sup>TM</sup> EM if liquid is not green in color.**

**Mixing rates:**

Quantity	Grams of Ascend <sup>TM</sup> EM DC to add to Ascend <sup>TM</sup> EM
One gallon	26
Five gallon container	130
60 gallon drum	1,560
100 gallons bulk	2,600
1,000 gallons bulk	26,000
6,300 gallon truck load	163,800

Conversion Table:	
To Convert to grams Divide By	
Ounces	28.6
Kilograms	1,000

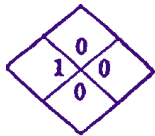
Call 1 800 USA-BIO1 for more information or technical assistance concerning use rates for crops not covered in this label.

Manufactured by:

**BioScientific, Inc.**

4405 S. Litchfield Rd., Avondale, AZ 85323

1-800-USA-BIO1



Net Contents \_\_\_\_\_ Grams ( \_\_\_\_\_ Kg)

Lot No. \_\_\_\_\_

Revision Date: 3/6/00

Version 10

1 <sup>1</sup> Ascend is the trademark of BioScientific, Inc.

*Seller warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions. Seller makes no other warranty of representation of any kind, expressed or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of the seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty. The exclusive remedy against seller shall be a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort. Any controversy of claim arising out of, or relating to this contract, or breach thereof, shall be settled by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.*