

### Use Instructions

#### IN-FURROW APPLICATION

- **TIMING:** Single application made at transplanting.
- **RATE:** Use 2.5 fluid oz of Myconate AS per acre.
- **MIXING:** Shake jug thoroughly before using. Myconate may be mixed with many other crop production products – consult your PHC rep for specific details.
- **APPLICATION:** Apply within 1 inch of transplant roots, preferably closer. Keep mix well agitated.

#### TRANSPLANTED CELERY

- **TIMING:** Apply within 1 week of transplanting.
- **RATE:** Use 2.5 fluid oz of Myconate AS per acre's worth of transplants.
- **MIXING:** Shake jug thoroughly before using. Add to the required volume of water and maintain agitation.
- **APPLICATION:** Apply uniformly over the transplant flats. Keep mix well agitated during application. Water flats after application to incorporate the Myconate into the root zone, using ¼ - ½ inch of water.

#### GENERAL USE CONSIDERATIONS

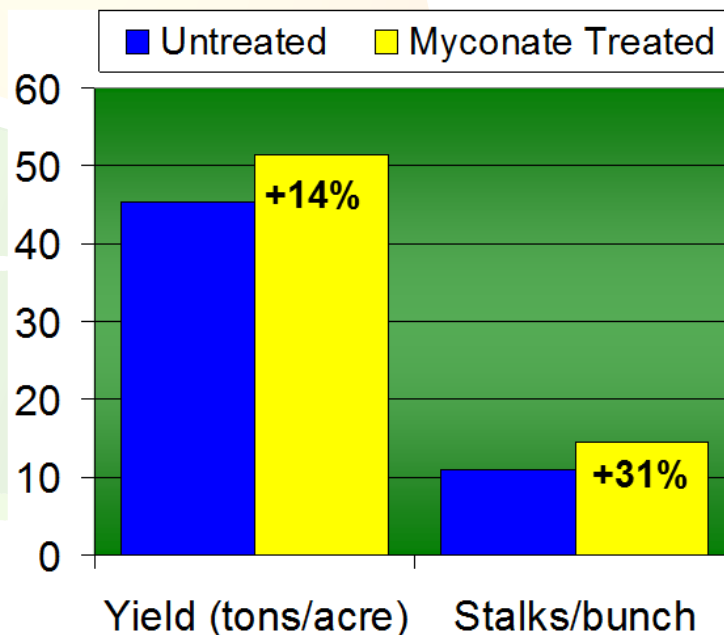
- Myconate performance is unaffected by fungicide on the seed.
- Myconate does not reduce germination or plant stand.
- Myconate may be of limited usefulness on fumigated ground as VAM spores may be absent.
- Performance may vary depending upon background levels of mycorrhizal spores.
- Cole crops (cabbage, mustard, etc) and beets do not support mycorrhizal fungi, and will not benefit from Myconate.
- Keep container tightly closed and store in a cool, dry location.
- Shake liquid products well before using.

#### SAFETY RECOMMENDATIONS

Please refer to Myconate product labels.



*In a grower trial on a muck soil, Myconate increased stalk number by 3.5/plant (30%) and yields by 14% (6.2 tons per acre).*



**Always read and follow label instructions before using this product.**

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# The Science Behind Myconate®

## PRODUCT OVERVIEW: PHC Myconate®

- Contains a naturally occurring isoflavone called **formononetin**, a signaling molecule released by plant roots to trigger mycorrhizal spore germination and speed the development of mycorrhizal roots of your crop plants.
- Increases growth and colonization of roots by beneficial **vesicular-arbuscular mycorrhizal (VAM) fungi**. See example to right center.
- **Increases the ability of plants to absorb water and nutrients by increasing the effective absorbing surface area of root systems.** Consequently, your crop is able to exploit more soil.
- Application of Myconate® at planting time or at the early stages of root development of your crop stimulates VAM development sooner than would occur otherwise providing **increased yield potential and enhanced tolerance to soil and climate stress factors** which may arise at any stage of the season.
- **Numerous field trials have shown that Myconate® increases yields of most agricultural crops.**

## VESICULAR-ARBUSCULAR MYCORRHIZAE (VAM):

- Presence of VAM fungi in crop roots benefits plant nutrition and growth as well as tolerance to soil, climatic and other environmental stress factors thereby enhancing crop yields.
- VAM are known to unlock unavailable phosphorus.
- In greenhouse trials, corn plants grown from seed treated with Myconate®, had twice the amount of roots colonized by VAM than did plants from untreated seed, in just 8 weeks after planting.
- In pepper plants treated with arbuscular mycorrhizal fungi, Texas A&M research documented increased chlorophyll, photosynthesis, and faster drought recovery.

## RESEARCH FINDINGS:

The beneficial effects of VAM are known to result from one or several of these mechanisms<sup>1</sup>:

- Increased overall **absorption capacity** of roots due to morphological and physiological changes in the plant. There is increased absorption surface area, greater soil area explored (because the fungi act as an extension of the root), greater longevity of absorbing roots, better utilization of low-availability nutrients, and better retention/storage of soluble nutrients, thus reducing reaction with soil colloids or leaching losses.
- Increased **mobilization and transfer of unavailable nutrients** (P, N, S, micronutrients Cu, Zn) from the soil to the plant.
- Better development of **P solubilizing bacteria** in the mycorrhizosphere
- Increased establishment, nodulation and atmospheric **nitrogen fixation** capacity in legumes
- Modification of **plant-microbe relations**: mycorrhizae influence the colonization of roots by other microorganisms which can provide additional benefits.
- Modification of **soil-plant-water relations**, promoting better adaptation of plant to adverse environmental conditions.

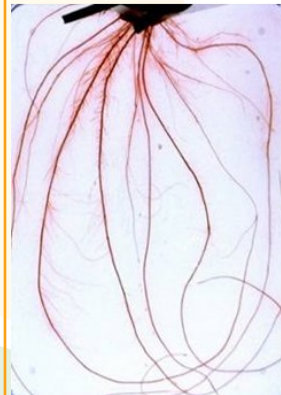
<sup>1</sup>Adapted from: R. M. Muchovej, SS-AGR-170, Agron. Dept., FCES, IFAS, Univ. of FL, 2001.

## Myconate® Increases Root Growth

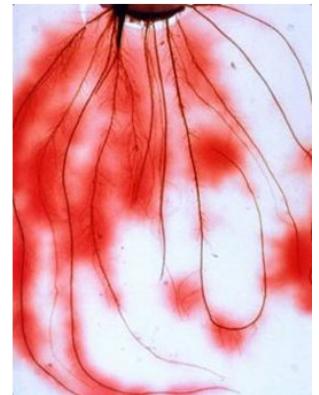


## Absorbing Root Area Comparison

Nonmycorrhizal  
Roots

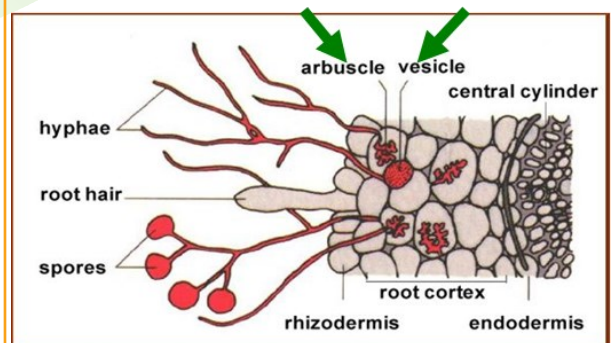


VAM  
Roots



Red stain indicates the effective absorbing area in a fescue. Photos by D. Malinowski, ARS/USDA

## Cross-Section of Root



(Gisi, U. Bodenkunde, Georg Thieme Verlag Stuttgart 1997, S. 220)