

Evaluating Your Mycorrhizal Trial

At the conclusion of your trial, analyze the plants and make comparisons between treatments that are important to you, your crop, and your bottom line. Visual comparisons are always good because those are important to both you and the buyer. If you have 100 plants of each treatment, then choose the best 20 plants and the worst 20 plants of each treatment and compare them side-by-side. Compare the top growth and compare the root systems of the treatments. Commonly observed differences include increased roots, better branching, darker foliage, and more flowers. Typically if the trial plants have gone under some sort of stress the relationship between the plant and the mycorrhizae will be stronger, and the performance differences will be more pronounced.

Another important consideration is shelf-life of the treatments. Allow some of the plants to wilt, simulating stress after leaving the greenhouse. Determine how many days are required before wilting and then determine how fast the plants recover after irrigation. Are there favorable differences between the treatments? Can shrinkage be reduced by the treatments? Plants treated with mycorrhizae typically last 24-48 hours longer between waterings than untreated plants. Just think of all the production costs you will save if you increase the number of plants you sell at full price.

You may choose to reduce some input costs, such as water, fertilizer and/or pesticide applications. These reductions in production costs can also add up, both for your business's bottom line, and for the environment due to reduced runoff. The presence or absence of mycorrhizal propagules will not cause harm to greenhouse-grown or nursery-grown plants, so weak or dead plants in either treatment would indicate problems in initial plant quality and/or growing conditions, rather than a treatment effect.

There are many variables that go into a successful trial. If the growing conditions of the trial were not typical of your production practices, then you may wish to repeat the trial under a different environment or for other crops before drawing a conclusion.

Efficacy Analysis

Colonization	<p>Typically a mycorrhizal root colonization assay is not needed. Plant appearance and performance are often sufficient to evaluate the trial. However, mycorrhizal root colonization assays are available at Mycorrhizal Applications. A root assay confirms whether the roots have been colonized or not. The results are reported as a percentage of colonized roots in the sample and do not determine the adequacy of colonization for plant performance. Please contact your Mycorrhizal Applications Representative for instructions for sampling and for shipping requirements. Each assay will be billed at \$75 per test.</p>
Plant Analysis	<p>There are many growth parameters that can be measured or evaluated for each treatment.</p> <p>Visual:</p> <ol style="list-style-type: none"> 1. Visually, determine the percentage of salable plants in each treatment. 2. Visually, determine plant color of each treatment. Is one treatment darker green than the other or more variegated? 3. Is one treatment more compact or taller than the other? 4. Look at the root ball of each plant outside of the pot. You may wish to wash the roots in running water to make comparisons. <p>Measurements:</p> <ol style="list-style-type: none"> 1. Measure plant heights and obtain an average. 2. Measure plant diameters and obtain an average. 3. Count the number of branches and obtain an average. 4. Count the number of flowers and/or fruits and obtain an average. 5. Determine plant grade (Ex. Grade 1=Unsatisfactory; 2=Average/Acceptable; and 3=Above Average or Premium). Add all of the 1's, 2's and 3's and divide by the number of plants to obtain an average grade for each treatment for comparison. 6. Determine the number of days to sale date. 7. Determine the difference in production costs between the treatments. 8. Place dollar values on the plants to determine the difference in crop income.
Possible Return on Investment (ROI)	<p>Cost Savings:</p> <ol style="list-style-type: none"> 1. Reduction in fertilizer costs per unit. Compare tissue analyses of treated and untreated plants if you have reduced fertility levels for your trial. 2. Reduction in pesticide applications. 3. Reduced water usage per unit, resulting in less run-off issues for the facility. 4. Fewer plant losses due to less transplant shock 5. More uniform growth resulting in shorter crop time and more "bench-run" harvesting. 6. Enhanced ability to handle stress during shipment to customer. Plants come off the truck looking better. 6. Improved shelf-life reducing plant maintenance costs and reduced plant losses at retail. 7. Increased survival rates in the landscape for flowers, trees and shrubs. This can lead to less plant returns by customers, which in turn increases profitability for the retailer and the grower. <p>Plant Benefits:</p> <ol style="list-style-type: none"> 1. Drought tolerance reduces plant wilt and severity. 2. Reduced plant mortality. 3. Quicker root and plant establishment. 4. Increased flowering and fruiting. 5. Expanded root network for water and nutrient absorption and their utilization. 6. Promotes healthy root systems and suppresses root pathogens and disease development. 7. Provides a measure of "crop insurance" that can withstand stress and optimize plant performance under less-than-optimal growing conditions.

We look forward to hearing about the results of your trial!

Please contact your Mycorrhizal Applications Representative when you have completed your trial and assessed your return on investment.