



# Improved growth and resilience in nursery seedlings



**EndoPrime®** from Sumitomo AgroSolutions is a plant and soil enhancement product that contains arbuscular mycorrhizal fungi. Mycorrhizae are beneficial fungi that naturally exist in soils colonising the root systems of plants.

EndoPrime includes 4 high performing endo-mycorrhizae species that have been proven to increase growth rates, and resilience and survival of seedlings, both in the nursery and once transplanted in the field.

The many benefits that mycorrhizal fungi provide to a mycorrhizae dependent crop are well documented and researched, with these plants showing additional growth as well as improved root structure and plant habit. These benefits are seen even within the short turnaround time that greenhouse or nursery growers have their plants in production.

The most significant gains are noticed when EndoPrime inoculated seedlings leave the nursery and are transplanted into the field which of course reflects positively on the nursery.



## Recommended application rates for EndoPrime based on pot or tray size

| Container description         | Pot volume (L) | Propagules per pot/tray | Grams per pot/tray | Treated pots/trays per 100g | Recommended water rate per pot/tray (mL) | Grams per 100 L |
|-------------------------------|----------------|-------------------------|--------------------|-----------------------------|--|-----------------|
| 1 Litre Pot                   | 1              | 75                      | 0.033              | 2997                        | 80                                       | 42              |
| 6" Pot                        | 1.8            | 135                     | 0.060              | 1665                        | 144                                      | 42              |
| 8" Pot                        | 3.8            | 285                     | 0.127              | 789                         | 304                                      | 42              |
| 10" Pot                       | 7.9            | 593                     | 0.264              | 379                         | 632                                      | 42              |
| 12" Pot                       | 14             | 1050                    | 0.467              | 214                         | 1120                                     | 42              |
| Plug Tray Shallow (288 plugs) | 2.2            | 900                     | 0.400              | 250                         | 175                                      | 230             |
| TS-144 Seedling Tray          | 3.2            | 1310                    | 0.583              | 172                         | 250                                      | 230             |
| 198 Cell HD Seedling Tray     | 3.8            | 1555                    | 0.692              | 145                         | 300                                      | 230             |
| Propagation Trays             | 4.5            | 1840                    | 0.818              | 122                         | 360                                      | 230             |



## ENDOPRIME TECHNOTE

### How soon will you see the benefits?

The general benchmark is that it may take as long as 6 weeks to see a visible difference between mycorrhizal inoculated plants and untreated control plants. This may vary quite a bit from species to species, however, with some plants showing significant differences as soon as 2-3 weeks after treatment.

As a plant producer, you will see bigger benefits of mycorrhizal inoculation if you do not use excessive fertiliser inputs when inoculating with mycorrhizal fungi. This not only offers the immediate benefit of offsetting some of the costs of the mycorrhizal product, but it also leads to quicker and more effective colonisation of the root zone. Plants that are over-fertilised will send out fewer root exudates to trigger the germination of the mycorrhizal propagules.

### Growing media often has very low natural mycorrhizae levels

Peat moss, coco peat, vermiculite and other non soil growing media types commonly used in plant nurseries often have very low if not non-existent natural mycorrhizae levels. This is why inoculating nursery seedlings with EndoPrime can be so beneficial. Once inoculated in the nursery colonised plants will carry this benefit with them into the farmers field.

### Do all plants need mycorrhizae

Over 80% of all plant species rely on mycorrhizae to reach their full potential, with some species like tomato, lettuce and many ornamentals being very dependent. However a small group of plants don't form a bond with mycorrhizae and there is no benefit in inoculating, plant species such as cabbage, spinach (all brassica's), beets and carnation.

### Apply early

Also, the earlier in the plant's life cycle that you can inoculate the roots, the better. If the seedling nursery can include mycorrhizal inoculants in the growing media at plug stage, or drench the propagation trays in a mycorrhizal slurry, this is the most cost-effective method, and can provide the plant with this symbiotic support for the rest of its life.

The basic guideline is this: the smaller the plant at the time of inoculation, the less product you will need to achieve mycorrhizal colonisation.



Photo shows EndoPrime treated lettuce seedlings showing more even growth and better resilience at East Gippsland, Vic, 2020.



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