

An improved root system for higher yield

By Bennie Buys, product manager: EndoMaxx® and herbicides, Philagro

Improved plant root systems that lead to higher yield are now within producers' reach. Philagro's EndoMaxx® enables improved performance of several row crops. EndoMaxx®, which comprises four optimised mycorrhizae fungal species, is administered during planting. These mycorrhizae live in symbiosis with plant roots, drastically boosting the efficacy of the root system.

EndoMaxx® is a 100% biological product from the Mycorrhizal Applications stable in the United States and has been marketed since the 1990s. The company was recently purchased by the Sumitomo Chemical group and EndoMaxx® is being used around the world with great success (in 2019 the global market was worth US\$268 million).

It is a natural, organic product of which the use is encouraged by authorities. This adds to Europe's objective of a sustainable, organic approach, essentially leading to effective control and results, improved soil nutrition and environmentally friendly application.

How does it work?

The beneficial EndoMaxx® fungi create fungal threads, also known as hyphae, which penetrate soil gaps that the roots of the crop cannot normally reach. The hyphae network means that the functional root surface is able to expand. The development of mycorrhizae allows for a mutually beneficial relationship between the fungus and the plant.

Several benefits

- Mycorrhiza fungi enlarge the total rooting volume as much as 100 times.

This is a significant expansion of the plant's root system, which boosts absorption of water and nutrients.

- Mycorrhiza fungi colonise the plant roots and advance the nutrient absorption in the plant.
- The fungi enable the plant roots to absorb and utilise small amounts of water which usually cannot be absorbed.
- The hyphae network can store water which is then accessible to the roots. This network can form if there is an excess of water structures (vesicles) that can store water and nutrients to be utilised at a later stage.
- Plants show increased performance if there are drought- and temperature-related stressors.
- Soil structure and nutrient status tend to improve.
- These benefits lead to substantial yield increases and boost producers' profits.

This improvement in yield is correlated with a decrease of certain stress factors that would otherwise negatively influence yield.

In addition to the benefits and the role of mycorrhizae in terms of plant health, it also improves the soil nutrient status. In 1996 it was discovered that the hyphae structures produce an excess of the glycoprotein, glomalin. Glomalin functions as 'soil glue' that binds micro soil particles to form stable macro soil aggregates, which contribute to improved root penetration, increased oxygen levels in the soil and decreased compaction.

Effective on various crops

Philagro is conducting research into various crops and legumes such

as dried beans, green beans, peas, chickpeas, soya beans, groundnuts, lupins and clovers, as well as maize, sorghum, potatoes and sunflowers are showing positive results. These crops already feature on the product label.

After several statistical field and demonstration trials, it can be confirmed that especially sunflowers in South Africa have a positive reaction to EndoMaxx® applications. Yield increases of more than 20% have been recorded in some of the trials. Naturally, these increases are not the same for all areas and climate conditions, and therefore cannot be guaranteed.

EndoMaxx® is applied at a rate of 10g/ha. EndoMaxx® comes in handy 100g packets and will mainly be marketed by Laeveld Agrochem and Farmers Agri-Care for the remainder of 2021. Always refer to the EndoMaxx® label for the complete usage instructions.



PRODUKTE WAT WERK
VAN MENSE WAT OMGEE

EndoMaxx® (Reg No M200, Act 36 of 1947) contains arbuscular mycorrhizal fungi (Rhizophagus irregularis [5625 propagules/g], Claroideoglomus luteum [5625 propagules/g], Claroideoglomus claroideum [5625 propagules/g] and Claroideoglus etunicatum [5625 propagules/g]). EndoMaxx® is a registered trademark of Mycorrhizal Applications LLC, Grants Pass, OR, US.

For more information, contact Bennie Buys on 082 809 5447 or visit www.philagro.co.za.