



AGRinvested™

Grow tomorrow

AGRIVESTEDBIOAG: Empowering Farmers from the Ground Up
Exclusive Partner & Distributor of Rootella by Groundwork BioAg IN AFRICA.

1: Our Vision

Welcome everyone and thank you for joining us. At AGRIVESTEDBIOAG we are more than just a supplier of biological products. We are a farmer-centric company dedicated to transforming agriculture from the roots up. In an era of rising input costs, soil degradation, and climate unpredictability, our mission is clear: to help farmers thrive by restoring natural soil biology, improving their yield significantly and reducing their dependency on synthetic chemical inputs notably Phosphorus. Our partnership with GroundworkBioAg gives us access to the most advanced and highly concentrated premium mycorrhizal inoculant technology on the market.

2: Who We Are?

Our Strategic Partnership: GroundworkBioAg & AgrinvestedBioAg

At AGRIVESTEDBIOAG, we are proud to be the **sole distributors and strategic partners of Groundwork BioAg** in Africa. Groundwork BioAg is a **global pioneer** in mycorrhizal biotechnology with over **30 years of dedicated R&D** in arbuscular mycorrhizal fungi (AMF). Their innovations have redefined what's possible in regenerative agriculture—developing **hardy, high-concentration, viable spores** specifically engineered for commercial-scale farming.

Today, Groundwork BioAg operates in **over 24 countries**, with more than **14.6 million acres inoculated globally**, including **4.3 million acres in 2024 alone** and a projected **6.8 million acres by year-end**.

This global success story is built on **science, scalability, and performance**—and through our exclusive partnership, we bring this technology directly to African farmers. Together, we are reshaping agriculture by providing solutions that **restore soil biology, reduce input dependency, and drive profitable yields**. This isn't just distribution, it's collaboration at the frontier of biological agriculture.

3: What Sets Us Apart?

Our products are not like other inoculants. Here's why:

- We use **desert-borne strains** of *Glomus intraradices* and *Glomus mosseae*, specifically selected for their resilience to extreme heat, drought, Abiotic stressors, salinity, and poor soils.
- Through **proprietary hardening and cultivation techniques**, our spores become highly concentrated and robust, offering unmatched survival even in chemically treated fields.
- We are one of the few inoculants compatible with **glyphosate**, as well as compatible with 85% of fungicides, **insecticides, and fertilizers**.
- With over **95% soil and crop compatibility**, our inoculants work in virtually any agricultural context, 95% of mycorrhizal inoculants are either crop or soil specific, so your barrier to entry from the get-go is throttled by incompatibility by either the crop or soil type.

4: True Commercial Viability.

Many mycorrhizal products on the market are either too dilute, formulated with the wrong species, or inconsistent in spore quality and viability. Most rely on externally sourced propagules—often defined broadly to include root fragments, hyphae, and spores—which tend to degrade rapidly and offer inconsistent performance. Propagule-based products typically include a high percentage of non-viable material and **secondary associators**, which have only a **10–20% chance of effective colonization**. These types of products often have short shelf lives and poor survivability, especially when subjected to commercial-scale storage and handling conditions. Additionally, it is important to note that when a product lists a "propagule count" on the label, this number is often **inflated due to the inclusion of non-viable materials**—as a rule, dividing the propagule count by **3.3** will give a rough estimate of the **true viable spore count**.

In contrast, Rootella is based on **ultra-high concentrations of viable, active spores**—not mixed propagules. Our spores are meticulously cultivated under sterile, controlled conditions, ensuring high uniformity, shelf stability, and aggressive root association. This allows Rootella to:

- Require **minimal application volume**
- Deliver **predictable and measurable ROI** to commercial growers
- Perform reliably across various soil types and climatic conditions
- Integrate easily into **mechanized systems** including seed coatings, in-furrow application, fertigation, and drip irrigation
- This is the standard of **true commercial-grade biological inoculants** scientifically validated, highly concentrated, the correct species, logistically practical, and economically scalable. **This is Rootella.**

5: Backed by Science.

The technology is grounded in decades of R&D by **Professor Yoram Kapulnik**, a world-renowned plant-microbe interaction expert:

- Former Director General of Israel's **Volcani Center**
- Executive Director of **BARD**, the U.S.-Israel Binational Agricultural R&D Fund
- Responsible for pioneering sterile mass production of viable AMF propagules
- His research enabled the commercialization of effective, field-ready mycorrhizal solutions

Professor Kapulnik also holds multiple patents on proprietary techniques that revolutionized the way mycorrhizal fungi are produced and applied. His innovations enabled the **mass production of sterile, viable spores at unprecedented concentrations**, solving a problem that limited the scalability of mycorrhizal applications for decades. This breakthrough made true commercial use viable, and set the standard for biological input consistency, purity, and reliability. His patents have since been widely cited and form the backbone of many of today's leading fungal biotechnologies.

Why does **sterility matter**? Because non-sterile mycorrhizal products often produced by companies that do not manufacture in-house are vulnerable to contamination, inconsistent spore counts, and poor field performance. These generic or low-cost alternatives may include inert filler, competing microbes, or even pathogens that compromise crop health. In contrast, our sterile production ensures:

- **Uniformity in every gram**
- **High viability and guaranteed spore activity**
- **Purity, safety, and field effectiveness**

For large-scale farming, sterility isn't just a technical detail it's a foundation for **predictable, scalable biological performance**. Agents should understand that this is not just another inoculant, it is a **scientifically engineered solution backed by patented advancements** that continue to influence the future of sustainable agriculture.

6: Maximizing Phosphorus Efficiency and Unlocking Hidden Soil Reserves with Rootella™

Phosphorus is a critical macronutrient for crop development, yet over 80% of applied synthetic phosphorus becomes chemically bound in the soil, forming insoluble compounds unavailable to plants. Professor Yoram Kapulnik's research addressed this inefficiency head-on through the selection of **desert-origin strains of *Glomus intraradices* and *Glomus mosseae***—species naturally evolved in phosphorus-scarce, arid environments. These arbuscular mycorrhizal fungi (AMF) form a symbiotic relationship with plant roots, developing vast networks of fine hyphae that extend well beyond the rhizosphere. This hyphal system accesses tightly bound phosphorus in the soil and transports it directly into plant cells through specialized exchange structures called arbuscules.

Kalnik's strains now the core of GroundworkBioAg Rootella™ products have been proven to **unlock “legacy phosphorus”**: the immobile phosphorus residue built up from years of fertilizer applications. Independent studies and field trials have demonstrated that farms using these species through Rootella can **reduce synthetic phosphorus use by 50%**, depending on soil type, while significantly **increasing crop yields**. In economic terms, this equates to a **direct reduction in input costs** while enhancing nutrient-use efficiency, plant resilience, and return on investment. Beyond economics, lower phosphorus runoff means reduced environmental harm to nearby water bodies, a key priority in sustainable agriculture.

This breakthrough is especially impactful in phosphorus-deficient or overworked soils where fertilizer effectiveness is declining. Rootella's ultra-concentrated inoculants, powered by these robust AMF strains, offer a **scalable solution to one of agriculture's most persistent input challenges**, giving farmers both economic and ecological wins. This is not just nutrient access—it's nutrient liberation through microbial precision.

His work underpins our credibility and the biological performance of our products in diverse and extreme agricultural environments.

7: High-Impact Applications

Rootella is currently used in high-value, impact-driven agricultural programs and regimens, including:

- **Regenerative agriculture** available across the globe, now in S. Africa
 - **Phytoremediation** for recovering degraded soils
 - **VERRA-approved carbon sequestration** projects, enabling farmers to monetize improved soil health. GW are the only company in the world to work alongside Verra to apply Rootella and change nothing else in their farming practice to achieve an additional stream of revenue. (Their methodologies and whitepapers to claim carbon sequestration permanence has been well received by VERRA and by farmers in the U.S)
 - **Broad-acre grain & row crops** like maize, wheat, soy, potatoes, legumes amongst many others.
 - **Permanent crops** including citrus, avocados, vineyards, apple and pears, banana, macadamia, pine and orchards are but a few examples.
 - Every application contributes to both **Significant yield gains, crop health, long-term soil restoration** and whiter healthier roots that can extend 1000x past their rhizosphere.
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Slide 8: Our Product Range.

AGRIVESTEDBIOAG offers three core Rootella products, each optimized for specific crops, delivery systems, and application conditions and rates.

Rootella L – Liquid Product (50,400 viable spores/ml) Making it the highest premium concentrated product of its kind across the globe with min app rates of 15ml per ha.

- Contains *Glomus intraradices* and *Glomus mosseae*, ideal for broad compatibility
- **Professional seed treatment** for commercial coating operations
- Can be used for **manual seed treatments** via spray or drench
- Delivers exceptional results when used via **irrigation systems, drip, or in-furrow application.**
- **Flexible enough for nap-sack sprayers, low-pressure pumps, and fertigation systems**

- **Rootella F – Fine Clay-Based Powder** (6,300 viable spores/gram)
- Ideal for **in-furrow application, manual seed treatment, or tank mixing**
- Easy to apply **in planter boxes** before seeding or mix directly into the seeder
- Used extensively for **grain crops, potatoes, and legumes**
- Can be used for **rootstock dipping** and **seedling root treatments**
- **Can be applied as a dusting vegetables bulb, tubers, potatoes.**
- Compatible with most agrochemicals and offers excellent spore uniformity

Rootella T – The Tree Formulation (for Permanent Row Crops) T bag (grow bag).

- Designed for **young, newly planted trees and rootstocks (permanent crops)**
- Extremely easy to apply - simply **add 2 bags into the planting hole** under the roots
- Ensures root contact and long-term colonization right from the start
- Ideal for citrus, cherries, apple, pear, macadamia, vineyards, avocados, and other high-value perennials, pome and stone fruit.
- No mixing, no spraying just effective, targeted application.

All Rootella products are based on **desert-sourced AMF strains** using Groundwork BioAg's patented and proprietary techniques:

- **Sterile, viable, and uniform spores are all produced inhouse at GW.**
- **Compatible** with 95%+ of crops and soils (**Glomus Intraradices** and **Glomus Mosseae**). Desert borne and sourced species.
- Proven to work alongside most **fungicides, insecticides, pesticides** and compatible with **glyphosate**.

Whether used via irrigation, seed treatment, in-furrow application or direct-to-root application. (dusting) Rootella products are designed to integrate seamlessly into modern farm systems **supporting scalable, regenerative farming.**

Slide 9: Why This Matters to You

As agents and representatives, you are not simply promoting a product. You are driving a revolution in agriculture. And in this new landscape knowledge is power and understanding the products available to you on the market is extremely important, as using the right product and being able to achieve these results is imperative for our farmers livelihood and success. Your role is to:

- Educate farmers on how Rootella works.
- Guide them in integrating it into their existing practices
- Share our field data, testimonials, and economic case studies
- **Backed by Decades of Data and Dedication**
- Help farmers make smarter, more sustainable choices with a product built on over **30 years of dedicated R&D** and backed by **13.6 million acres of real-world field data** across a wide range of crops and climates. Groundwork BioAg is a data-driven organization committed to scientific integrity and performance. Their life's work has culminated in the development and global success of **Rootella™** the world's most concentrated, viable, and scalable mycorrhizal inoculant. Rootella isn't just another input it's the result of a decades-long commitment to empowering agriculture through biology.

The market is shifting. Farmers are searching for better solutions. Let's make sure they find them in Rootella. A product that really does make all the difference.

Slide 10: Facts. Something to think about.

Recent studies on commercial mycorrhizal inoculants, particularly arbuscular mycorrhizal fungi (AMF) products intended for agricultural applications, highlight significant concerns regarding their efficacy and reliability. A comprehensive meta-analysis of 302 trials revealed that over 80% of these inoculants failed to achieve even minimal root colonization, a critical step for symbiotic benefits, while fewer than 12% provided both viable AMF and measurable crop growth improvements such as increased biomass or yield; in stark contrast, lab-produced inoculants succeeded in 63% of similar trials, suggesting widespread issues with viability, contamination, and mismatched strains in market-available products. Complementary research from a global evaluation indicated that 75% of commercial inoculants (9 out of 12 tested) failed to establish in sterile soil under greenhouse conditions, with even poorer performance in non-sterile or field settings due to competition from native microbes. These findings imply that a substantial portion, potentially up to **88%**—of the nearly \$1 billion global market for such inoculants **may be ineffective, often leading to wasted resources for farmers and no tangible agronomic advantages.**

Arbuscular Mycorrhizal Fungi as Natural Biofertilizers: Let's Benefit ...

Lessons from Past Successes and Failures of AMF Inoculation ... Mycorrhizal fungal establishment in agricultur...

 [frontiersin.org](https://www.frontiersin.org)

[PDF] Arbuscular Mycorrhizal Inoculants and its Regulatory Landscape

have lower success rates than greenhouse experiments (Salomon et ... Commercial arbuscular mycorrhizal fungal in...

 papers.ssrn.com

Soil microbial inoculants for sustainable agriculture: Limitations and ...

For example, in the context of Azosporilium on cereals, Okon and Labandera-Gonzalez (1994) reported a success rate of...

 bsssjournals.onlinelibrary.wiley.com

Arbuscular Mycorrhizal inoculants and its regulatory landscape

Field applications typically have lower success rates ... Bowen, M.M. Hart, Commercial arbuscular mycorrhizal fung...

 [cell.com](https://www.cell.com)

Commercial arbuscular mycorrhizal fungal inoculant failed to ...

Commercial arbuscular mycorrhizal fungal inoculant failed to establish in a vineyard despite priority advantage ; Link. Offi...

 bohrium.com

(PDF) An assessment of twenty-three mycorrhizal inoculants reveals ...

However, poor adaptation to local conditions limits inoculant success. ... Recently, several studies have evaluated the eff...

 [researchgate.net](https://www.researchgate.net)

Little evidence that farmers should consider abundance or diversity ...

... studies with valid methodology for determining the consequences of differing levels of colonisation by AMF for...

 nph.onlinelibrary.wiley.com

(PDF) Commercial arbuscular mycorrhizal fungal inoculant failed to ...

Other research has found that inoculant products can sometimes fail to establish in field soil, even with pre-inocul...

 [researchgate.net](https://www.researchgate.net)

Arbuscular Mycorrhizal inoculants and its regulatory landscape

... rates of inoculant establishment failure [7 ... 83. Thomsen, C. · Loverock, L. · Kokkoris, V. ... Commercial arbuscular m...

 cell.com

Commercial Mycorrhizal Inoculants: A Billion-Dollar Industry Falling ...

Over 80% of commercial products failed to facilitate even minimal root colonisation, calling into question their value to...

 mycostories.com



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