

Grown from the ground up in 2012, Verdesian Life Sciences offers farmers and growers the biological, nutritional, seed treatment and inoculant technologies that maximize performance on high-value row crops and specialty crops, as well as turf and ornamental plants.

With our headquarters in Cary, North Carolina, Verdesian has production and manufacturing facilities strategically located in Pasco, Washington; Kentland, Indiana; Cape Girardeau, Missouri; and North Lima, Ohio, that produce and custom blend large-scale or small volume runs of liquid and dry formulations.

Further information about Verdesian is available at vlsci.com.

Follow us on Facebook and Twitter (@Verdesian).



Important: Always read and follow label use directions.

FlexConnect, MicroSync, MicroSync Basic, MicroSync Complete, MicroSync Plus, MicroSync Pro, MicroSync Ultra, NUE, NutriSphere-N HV and The Nutrient Use Efficiency People are trademarks and AVAIL, Nutri-Phite, Nutri-Phite Plus Calci-Phite, Nutri-Phite Plus Magnum, Nutripaction, NutriSphere-N, NutriSphere-NH3, Preside CL, Primacy ALPHA, Take Off, Take Off Calci-Phite and Take Off Phite MZ are registered trademarks of Verdesian Life Sciences.

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The Nutrient Use Efficiency People™

At Verdesian Life Sciences, we live and breathe by one goal: to enable a sustainable future for farmers through nutrient use efficiency (NUE™). We do this by developing products and technologies that help farmers grow more with less. Our NUE solutions help plants reach their full potential. Sustainably.

We firmly believe that sustainability and profitability are not mutually exclusive. Everything we do at Verdesian has the best, long-term interest of the grower in mind. Our portfolio of products and technologies enhance nutrient uptake, reduce nutrient losses to the environment and improve yield potential. Yes, we are committed to helping farmers maintain and improve water quality and soil health. We are adamant in our belief that we can do this together.

As a 4R Nutrient Stewardship Partner, Verdesian is committed to researching and developing environmentally and financially sustainable products. That's been our goal from day one, and that will continue to be our goal.





The strongest phosphorus protection available.

AVAIL® Phosphorus Fertilizer Enhancer increases the efficiency of your phosphorus fertilizer regardless of source or timing. This gives you application flexibility and a better return on your phosphorus investment. AVAIL technology has been proven to keep up to 45% more of applied phosphorus available to your plants.

Phosphorus can become fixed in the soil due to positively charged elements like calcium, magnesium, aluminum and iron. AVAIL reacts with these cations, shielding the phosphorus fertilizer from fixation, keeping more phosphorus available to the plant from application to harvest.

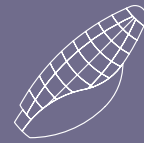
BENEFITS

- Increased efficiency of phosphorus for increased uptake in the plant
- More robust roots and stalks
- Improves stress resistance
- Effective protection for both dry and liquid phosphorus fertilizers

FORMULATIONS

- AVAIL for Granular
- AVAIL for Liquid
- AVAIL HV for High Volume Liquid Fertilizer Applications

YIELD INCREASE



Corn: +8 Bu./A*



Soybeans: +3.2 Bu./A*



Wheat: +5.8 Bu./A*

*Data on file.





Maximize your nitrogen use efficiency.

NutriSphere-N® Nitrogen Fertilizer Manager keeps more nitrogen available for plant uptake and inhibits the three forms of loss. This helps contribute to higher yield potential and can reduce the amount of nitrogen that can wind up in surface or ground water through runoff and leaching.

NutriSphere-N shields nitrogen on a molecular level by inhibiting enzymes and keeping more nitrogen in the immobile ammonium form longer. That means less leaching, less volatilization and more usable nitrogen to aid the health and development of the plant.

BENEFITS

- Protects against three forms of nitrogen loss
- Protects soil health and water quality
- Nitrogen protection through grain-fill stage
- Provides long lasting protection for liquid, anhydrous ammonia and granular nitrogen fertilizers
- Delivers 3-to-1 return on your fertilizer investment

FORMULATIONS

- NutriSphere-N for Granular
- NutriSphere-N for Liquid
- NutriSphere-N HV™ for Liquid or Aqua Ammonia
- NutriSphere-N QD for Granular
- NutriSphere-N QDO for Granular
- NutriSphere-NH3® for Anhydrous Ammonia

YIELD INCREASE



Corn: +10 Bu./A*



Wheat: +5.4 Bu./A*

*Data on file.

Take Off®

Technology that works from the inside out.

Take Off® is a revolutionary nitrogen-management technology that accelerates nutrient acquisition. Discovered by Los Alamos National Laboratory and developed by Verdesian Life Sciences, Take Off works from inside the plant to improve nitrogen use efficiency, boost crop growth and increase yield potential.

Take Off helps the plant to assimilate nitrogen more efficiently, which improves how the plant utilizes other nutrients such as phosphorus and sulfur. It also leads to increased carbon fixation and metabolism, fueling faster root and top growth. This creates a bigger plant that captures more nutrients from the soil and more sunlight. In turn, this delivers increased plant vigor, growth and productivity.

BENEFITS

- Treats row and specialty crops
- Application flexibility - soil or foliar
- Tank-mix compatible with common agricultural chemicals and fertilizers
- Faster germination and emergence from in-furrow applications
- Stronger, healthier plants from any application

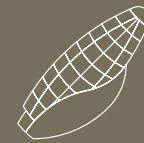
APPLICATIONS

- **Foliar:** By air or with all types of ground application equipment
- **Soil:** By all types of soil spraying/injection equipment and certain types of irrigation systems

FORMULATIONS

- Take Off Calci-Phite®
- Take Off LS
- Take Off Phite MZ®

YIELD INCREASE



Corn: +6.1 Bu./A*



Soybeans: +5.4 Bu./A*

*Data on file.





PRESIDE CL[®]

Open the door to more nitrogen and increased nodule mass.

Preside CL[®] is a highly concentrated liquid inoculant for soybeans. Powered by the Take Off nitrogen assimilation technology, Preside CL brings more nitrogen into the plant and helps plants grow more nodes, which equals more sites for pods. That means greater yield potential.

While soybeans can absorb some of the nitrogen needed directly from the soil, they require more nitrogen than is naturally available. Preside CL contains a high nitrogen-fixing rhizobia (*Bradyrhizobium japonicum*) count that captures large amounts of atmospheric nitrogen soybeans need to reach more of their genetic potential. By treating soybean seeds with up to four times the number of nitrogen-fixing rhizobia per seed than competing inoculants, soybean plants form numerous productive root nodules that fix more nitrogen for the plant.

BENEFITS

- Powered by Take Off technology and enabled with FlexConnect™ inoculant delivery system
- High rhizobia count with multiple strains for more consistency
- Increased canopy closure to capture more light
- Up to 65% more nodulation and nodule masses increasing nitrogen fixing capacity

YIELD INCREASE



Soybeans: +3.3 Bu./A*

*Data on file.



Performance meets convenience and flexibility.

FlexConnect is the first closed transfer system for sterile liquid soybean inoculants that rises to the advancements in application equipment. Handle and mix large volumes of inoculant, straight from the packaging, without transferring to a separate tank. The system assures the inoculant components are proportionally mixed and connected to the treater by a single line, resulting in metered volumes, less clean-up and operator handling.

Mixing inoculants in contaminated tanks causes a rapid reduction in rhizobia numbers. FlexConnect mixes inoculant without contamination which increases rhizobium numbers on the seed. It protects the inoculant in the opened original package for 14 days, eliminating waste.

BENEFITS

- Eliminate staging seed for inoculant application
- Treat any volume of seed
- Eliminate wasted product
- Reduce handling time and expense
- Decrease package handling by up to 70%

PRIMO **POWER CL**

Boost nitrogen production so crops emerge quickly, grow fast and increase yield potential.

Primo Power CL is a liquid seed inoculant for peanuts designed to maximize plant growth. It provides the opportunity for more nodules, which brings more nitrogen into the plant, resulting in better yield potential. A healthier plant is generated right from the start enabling the peanut seed to reach more of its genetic potential.

The science behind Primo Power CL is centered on the seed to generate a healthier plant right from the start. With one of the highest rhizobia concentrations in the industry, Primo Power CL delivers 4.5 billion colony-forming units of rhizobia per gram to the plant. This high concentration ensures the highest level of aggressive rhizobia to produce larger amounts of peanut producing nitrogen.

BENEFITS

- Increased seedling vigor
- Improved stand count
- Enlarged root mass development
- Additional nodulation

YIELD INCREASE



Peanuts: +284.3 Lb./A*

*Data on file.





Grow forward and maximize your crop's needs.

MicroSync™ Granular Micronutrients are formulated for use in broad acre and specialty crops. MicroSync Granular Micronutrients utilize Verdesian polymer technology to increase availability and provide season-long performance of the provided micronutrients. These formulations contain a unique combination of sulfates and sucates ensuring crops have micronutrients and sulfur on-demand.

The proprietary Nutripaction® process is used to combine finely divided raw materials into a clean, low dust homogenous granule for the purposes of handling, blending and spreading. After spreading, and once the granules come into contact with soil moisture, they begin to revert back to the fine powdered raw material. This helps to distribute the delivered nutrients in the MicroSync formulation in a blanket-like fashion and provide good contact with the soil.

BENEFITS

- Easy-to-handle formulation
- Delivers immediate and season-long micronutrient availability
- Improves crop quality and productivity

FORMULATIONS

- MicroSync Basic™
- MicroSync Complete™
- MicroSync Plus™
- MicroSync Pro™
- MicroSync Ultra™

PrimacyALPHA®

Encourage plant fertility through nutrient uptake and efficiency.

Primacy ALPHA® is a unique formulation of micronutrients and key components developed by the Los Alamos National Laboratory and the University of California at Riverside. It collectively stimulates and intensifies plant metabolism, encouraging rapid plant nutrient uptake, promoting plant growth, enhanced crop quality and yield potential.

Versatile in both soil and foliar applications and compatible with commonly used fertilizers and pesticides, Primacy ALPHA is a critical part of your fertility program, with proven performance on a wide range of crops including fruit and tree nuts, vegetables, cereals and alfalfa. Primacy ALPHA is a phosphite-free product providing critical secondary nutrients and micronutrients that facilitate rapid plant growth, increased productivity and stress mitigation.

BENEFITS

- Encourages rapid plant growth and improved crop quality for greater yield potential and ROI
- Increases nutrient uptake, utilization and delivery
- Provides critical secondary and micronutrients including nitrogen, potassium, sulfur, boron, manganese and zinc
- Promotes plant health and stress tolerance
- No phosphite residues





NUTRI-PHITE® PLUS

Optimize plant reproductive growth and crop storage.

Nutri-Phite® Plus provides all the benefits of the nutritional phosphites with the added enhancement of the “Plus” natural metabolite and reproductive growth catalyst developed by the University of California at Riverside. Fruit set, size and quality characteristics are all maximized, promoting enhanced crop yield potential and increased production. Use of Nutri-Phite Plus can improve root and shoot development, bud break and flowering, flower retention, fruit firmness, and extend storage stability of harvested fruits and vegetables.

The Plus in Nutri-Phite Plus contains a patented purine technology with biologically active organic acids, building blocks of DNA, RNA and energy transfer compounds, which are essential for stabilizing phosphite, reducing phytotoxicity, and enhancing nutrient delivery to a grow a healthier, more productive plant.

BENEFITS

- Maximizes fruit set, size, and quality
- Increases plant root and shoot development, bud break and flowering
- Improves nutrient stability, crop firmness and storage stability safety
- Flexible application by air, ground spray, injection and irrigation systems
- Superior tank-mix compatibility and stability with nutritionals, biologicals and pesticides

FORMULATIONS

- Nutri-Phite Plus Calci-Phite®
- Nutri-Phite Plus Magnum®
- Nutri-Phite Plus P+K
- Nutri-Phite Plus K