



About BiOWiSH Technologies...

- BiOWiSH Technologies develops and manufactures innovative microbial technologies to serve unmet needs in a range of applications with lead markets in Agriculture and Environmental Management
- Our lead product is a world first biological additive to improve nutrient use efficiency of mineral fertilizers, with class leading stability meeting industry requirements for manufacturing and shelf life through distribution channels for solid and liquid fertilizers. We are currently partnered with over 60 global leading fertilizer companies
- Our world class, in-house R&D team partners with over 20 leading global research institutions
- We are based in the USA and our products are **made in the USA**
- Our formulation and manufacturing processes are based on proprietary technology that is protected by both patents and trade secrecy
- Company has been capitalized in excess of \$85 million USD by 208 shareholders including:
 - SABIC Ventures – a leading global chemical / fertilizer company
 - 1 x US Fortune 500 corporation
 - 2 x Technology Venture Capital Funds (Boston, MA based)
 - 2 x US billionaires via their private investment funds
 - Most BiOWiSH employees – many through investment in the company

Our Management Team



Board Chairman – Dr. Nabil Sakkab retired from Procter and Gamble (P&G) in 2007 as Senior Vice President, Corporate Research and Development.



CEO – Graham Beesley has over 35 years of experience in the chemical industry. He was on the management board at P&G Chemicals and then held the role of CEO of INEOS Oxide for 6 years.



President – Rod Vautier, co-founder of BiOWiSH Technologies, is a successful Australian businessman who led global expansion of BiOWiSH.



SEVP Agri-Business – Bill Diederich has over 25 years of management experience in US agri-businesses, including in the world's largest agricultural laboratory.



Chief Financial Officer – Diane Perry has more than 25 years of experience in accounting, finance and management.



VP of Supply Chain – Mark Bohling joined BiOWiSH in 2017 and has helped set up and maintain our GMP Certification to ensure we produce only the highest quality products.



Director of R&D – John Gorsuch has extensive laboratory experience. He has been published in peer-reviewed journals and is Chair of the TFI Microbiological Lab Methods Task Force.



Director Commercial Water Treatment – Juan has led the implementation of BiOWiSH Technologies in the Environment space for 11 years.

Our Board of Directors



Director – Doug Cameron is a former head of biotechnology at Cargill and has extensive experience with venture capital chemical companies.



Director – Charles Funai is President of Barga, LLC, a private investment firm in Dallas Texas. Charles previously served as the Vice President and CFO of Cummins Southern Plains, LLC.



Director – Jeffrey McCormick founded Saturn Partners in 1994 to finance early-stage growth companies.



Director – Richard Warren is Investment Manager for SABIC Ventures in the Americas.

Chairman – Dr. Nabil Sakkab, **CEO** – Graham Beesley

Board Advisors – Ian Edwards, Stepan Braginskiy, Irwin Heller, Mark McGrath, Geoff Rosenhain, and Lawrence Samuels

Our Technology

- Our proprietary microorganism screening, fermentation and formulation post-fermentation processes ensure BiOWiSH® products are easy to use, stable through the supply chain and manufactured to deliver a strong customer value proposition.
- Through careful management of process conditions, we can deliver organisms with optimized stability profiles and sustained phenotypic expression profiles. This results in a highly stable biology with high activity and reliability of performance.
- All BiOWiSH® products are based on non-GMO processes and biosafety level 1 organisms.
- We provide a comprehensive technology that supplements current agronomic best practices without the need for farmers to do anything new.
- Our technology is effective across a wide range of biologically relevant environmental conditions (e.g., temperature, pH, salinity).
- BiOWiSH® microorganisms work with the native ecology in the soil to enhance the beneficial role of the of the plants' complete microbiome. We call this the **BiOWiSH HoloGene 3™** technology.



BiOWiSH® Core Competitive Advantage and IP



**Proprietary
Screening
Process**



**Control of
Fermentation
Conditions**



**Post-
Production
Formulation
Strategies**

BiOWiSH® Core Competitive Advantage and IP

Open Innovation - Strategic Relationships

Supporting Organization	Location	Role Played
Rutgers University	New Brunswick, NJ	Research into endophytic <i>Bacillus</i> and hologenomic modification of plants
University of Connecticut	Farmington, CT	Research into the impact of endospore structure and manufacturing processes on product stability
University of California - Davis	Davis, CA	Wastewater treatment mechanism of action research
Iowa State University	Ames, IA	Agronomic field trials
South Dakota State University	Brookings, SD	Agronomic field trials
NE Ag Research	York, NE	Agronomic field trials
ShrimpVet Labs	TP Ho Chi Minh, Vietnam	Aquaculture product research (shellfish)
California Polytechnic State University	San Luis Obispo, CA	Methods development (qPCR, FISH), microbial community characterization, and mechanism of action research for numerous BiOWiSH products
The Ohio State University	Columbus, OH	Greenhouse and small-plot research studies
The University of Hawaii	Honolulu, HI	Biocontrol product efficacy testing
The University of Cincinnati	Cincinnati, OH	Mechanism of action for water treatment and environmental remediation products
Center for Applied Horticultural Research	San Marcos, CA	Greenhouse and small-plot research studies
Virginia Diversified Research Center	Harrisonburg, VA	Animal agriculture efficacy testing and mode of action research
Texas A&M University	College Station, TX	Agronomy, aquaculture, and remediation product research
West Virginia University	Morgantown, WV	Greenhouse and small-plot research studies
The University of Arizona	Tucson, AZ	Mechanism of action research for aquaculture products
The University of Nebraska	Lincoln, NE	Agronomic field trials
SIDIS Global	Covington, KY	Laboratory facilities acquisition and use for the R&D Laboratory
University of Alabama	Tuscaloosa, AL	Aquaculture product research
Mississippi State University	MS State, MS	Aquaculture product research
Syntech	Stillwell, KS	Agronomic field trials
Evergreen	McMinnville, OR	Agronomic field trials
China Agricultural University - Beijing	Beijing, China	Agronomic field trials
CORBANA, Costa Rica National Lab	San Jose, Costa Rica	Post-harvest biocontrol and shelf-life extension research
University of Illinois	Champaign, IL	Agronomic field trials



The world needs to produce more food. Global food demand is expected to rise 60% by 2050.



Current production/fertility methods bring environmental issues.



The fertilizer industry is facing rising stakeholder pressure. Municipalities across the globe are setting increasingly strict regulations on fertilizer use and production.



There have been long known synergies between mineral fertilizers and biologicals; however, compatibility prevented a single product offering until now.

Introducing a New Class of Enhanced Efficiency Fertilizer



Nutrients + BiOWiSH® = EEF

Designed to increase crop production economically, safely and sustainably

BiOWiSH® Technology: Stable, Consistent, and Affordable

BiOWiSH Technologies offers a biological additive **BiOWiSH® Crop Liquid** that is coated onto solid fertilizers or mixed with liquid fertilizers to create a new class of Enhanced Efficiency Fertilizer (EEF). The resulting EEF has an industry-leading shelf life and delivers consistent results across a broad range of operating conditions and environments, all at a low cost to farmers.

BiOWiSH has completed over 220 independent replicated field trials since 2016 to support the performance of its technology across major farming countries, crops, climates and soil types.

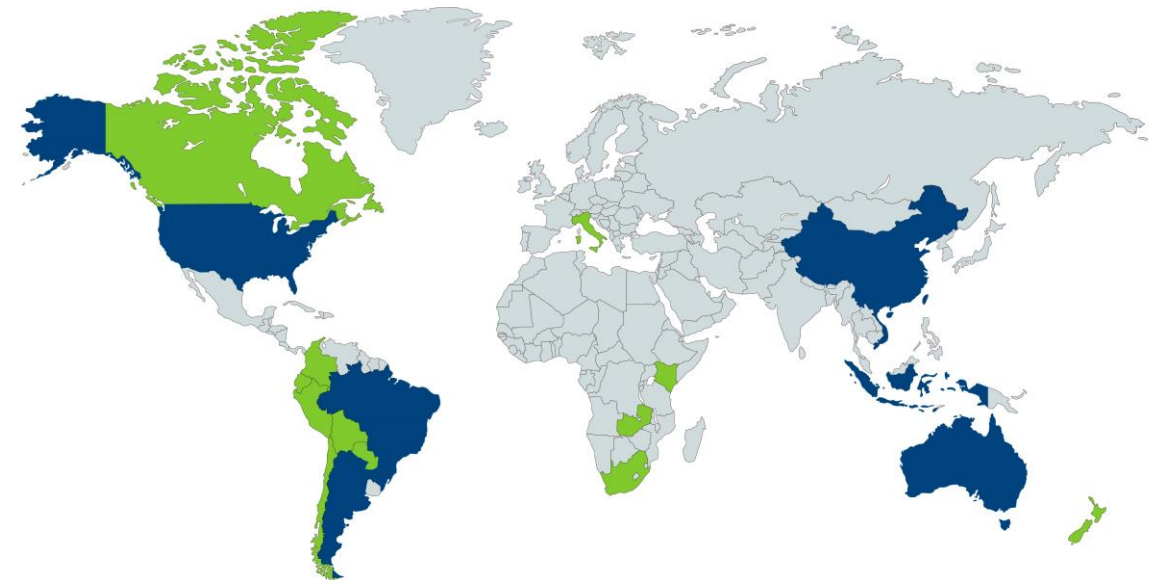
Average Yield Improvement: **7.5%**

Win-Rate: **85.0%**

Cost per acre: **\$3 - \$15** (crop dependent)

Commercialized Countries: Argentina, Australia, Brazil, China, Indonesia, United States, and Vietnam. **Pending 2022/2023 Regulatory:** Canada, Chile, Bolivia, Colombia, Ecuador, Peru, Paraguay, Italy, Kenya, South Africa, Zambia, and New Zealand

Crops: almond, avocado, bok choy, coffee, corn, corn silage, cucumber, garlic, lettuce, peanut, pistachio, potato, rice, sorghum, soybean, sugarcane, tomato, walnut, and wheat

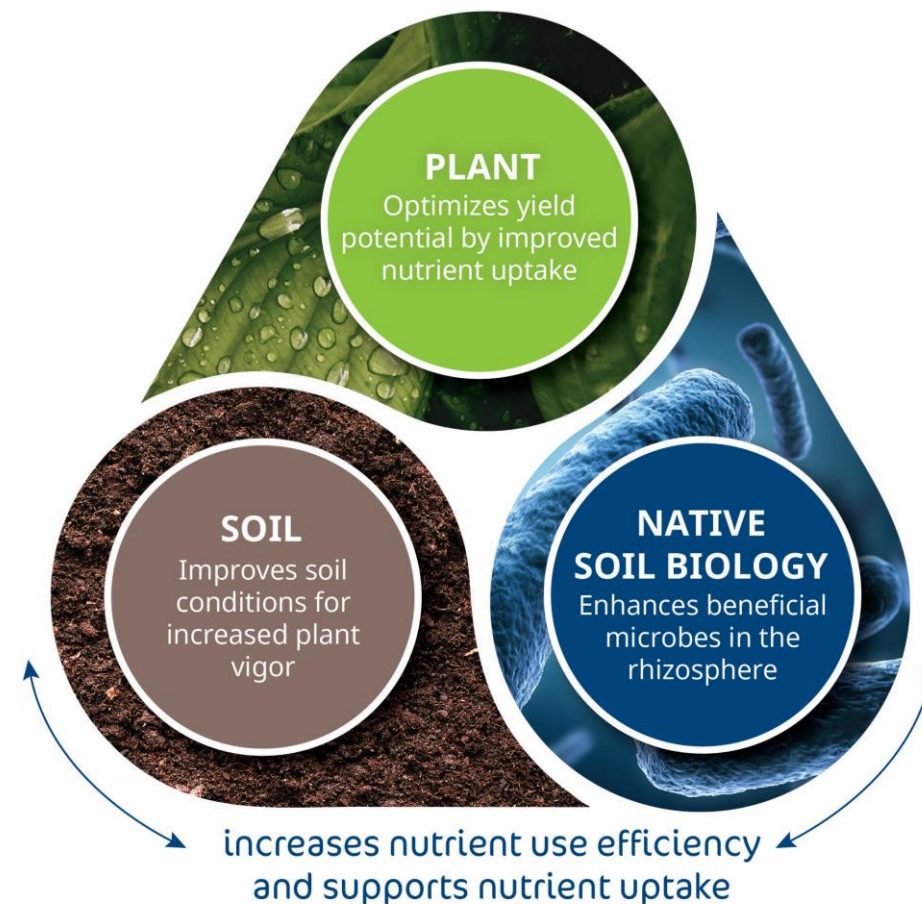


■ Commercialized Countries with Crop Liquid Registrations
■ Countries with Pending Crop Liquid Registrations

The Plant-Soil-Microbiome Triangle

- Plants exist in close association with the physical environment of the soil and the microbial communities which reside there, forming a trinity between plant, soil, and microbiome.
- The **rhizophagy cycle** – a process by which plants extract soil nutrients from endophytic microorganisms – **connects all three corners of the triangle**.
- BiOWiSH® microbes are endophytes active in the rhizophagy cycle, and partner with their host plant to optimize and enhance plant-beneficial outcomes in the plant, soil, and soil microbiome.
- Rhizophagy-active endophytes bring a **root-based nutrient acquisition capability** to their hosts that the host alone does not possess. In other words, the plant-microbe partnership is better equipped to take up soil nutrients than the plant would be alone.

HoloGene 3™ Technology Plant - Microbiome Shift

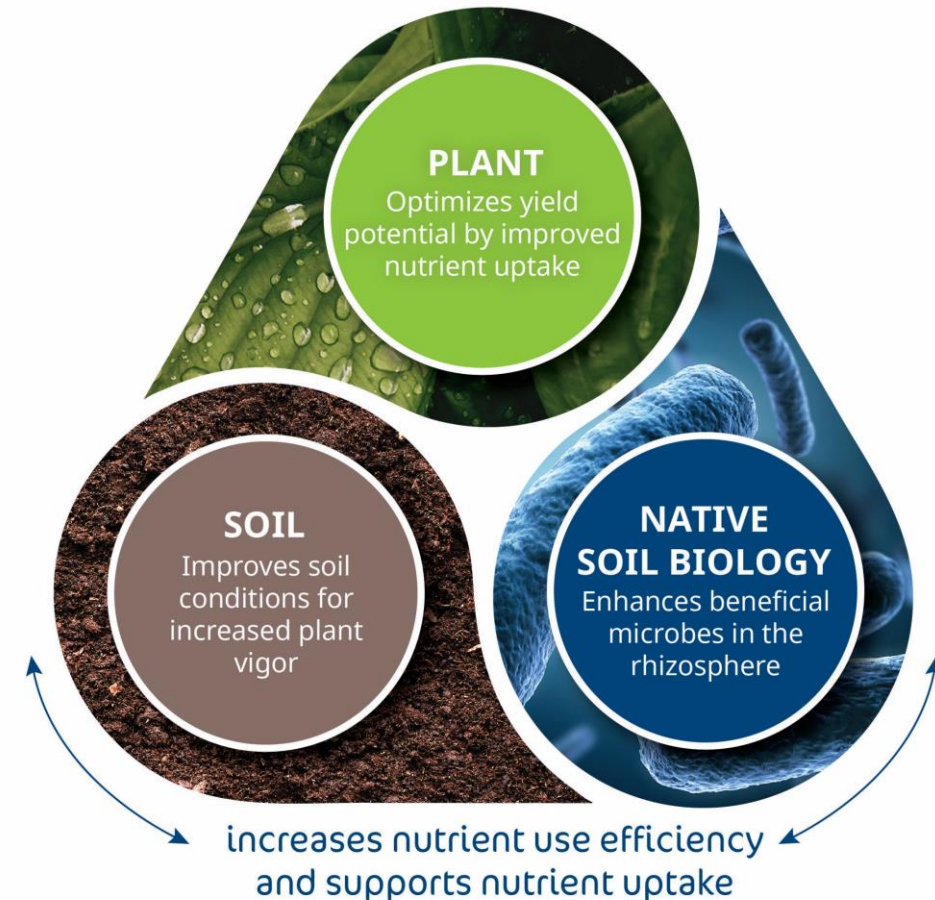


BiOWiSH® Virtuous Cycle

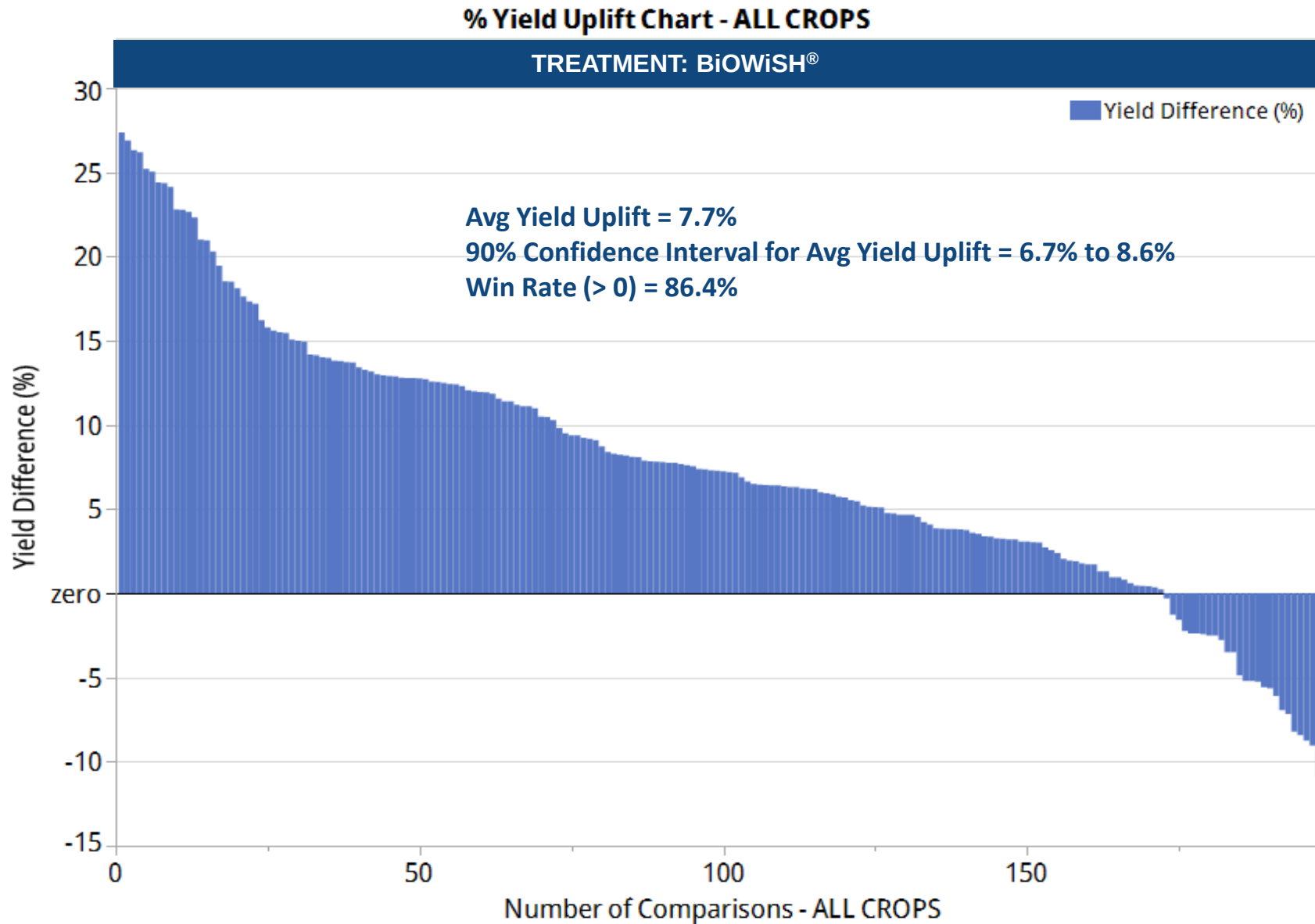
- BiOWiSH® endophytic *Bacillus* deliver soil nutrients to crops through the rhizophagy cycle creating a symbiotic relationship between the plant and soil microbes.
- **Plant Hologenomic and Rhizophagy**
 - Optimizes yield potential by improved nutrient uptake
 - Improves soil conditions for increased plant vigor
- **Soil Microbiome**
 - Enhances beneficial microbes in the rhizosphere.
- **Soil Properties**
 - Optimizes soil conditions for greater root mass
 - Increases nutrient use efficiency and supports nutrient uptake



HoloGene 3™ Technology Plant - Microbiome Shift



BiOWiSH® Treatment: % Yield Uplift Chart — ALL CROPS

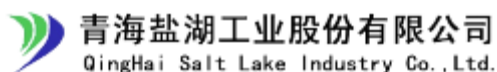


Leading Fertilizer Companies @ Commercialization Stage

GLOBAL



CHINA



UNITED STATES



BRAZIL



ARGENTINA



VIETNAM



INDONESIA

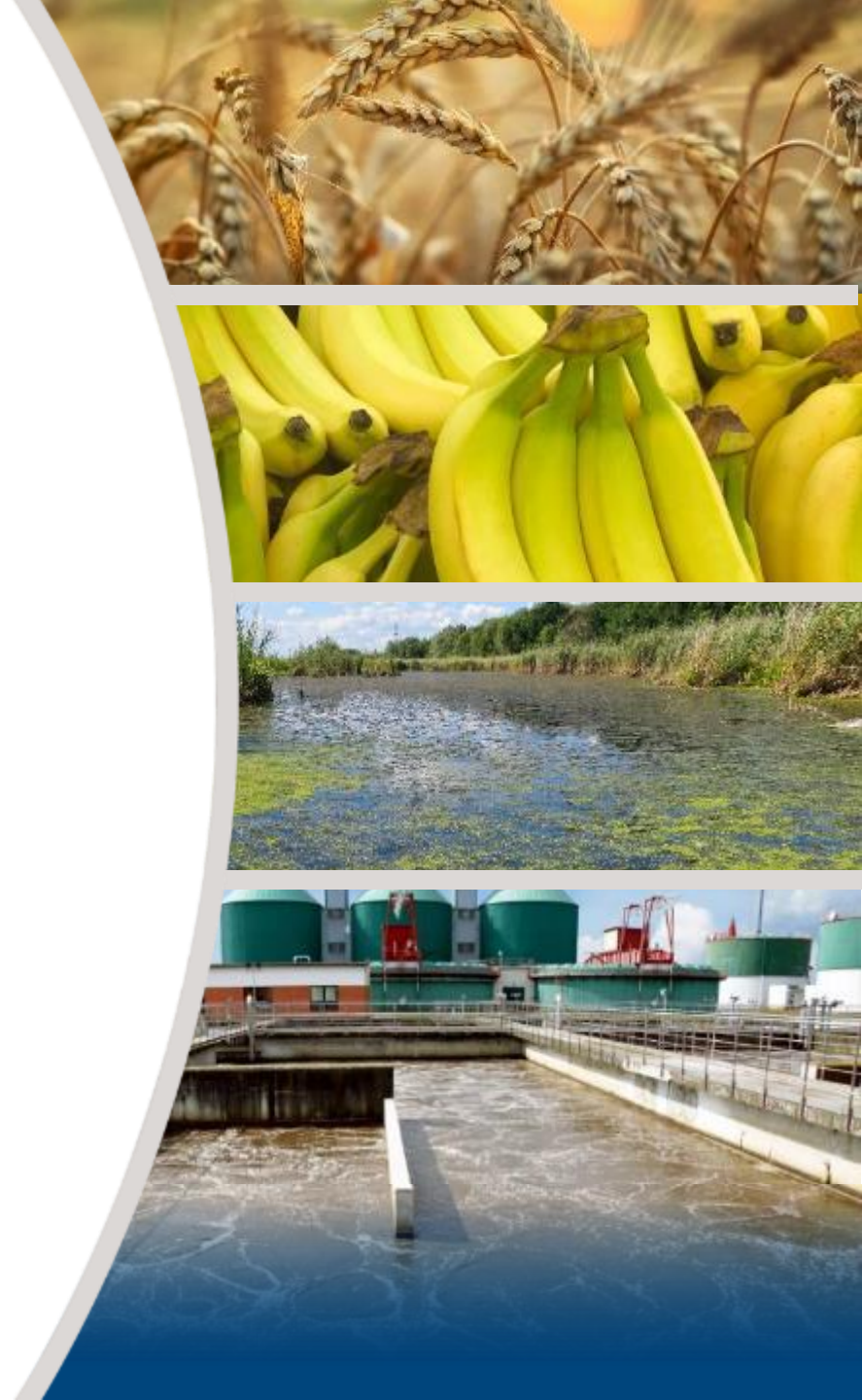


BiOWiSH currently has 63 market leading fertilizer companies that are completing a “Development Process” of technology validation including lab, manufacturing and field performance steps that lead into commercialization.



BiOWiSH® Applications — Today & Tomorrow

Business Segments	Product / Application	Commercial Status
Agriculture	• Crop • Crop Liquid • Crop 16-40-0 • Crop / Fertilizer Specific Crop Liquid • Anti-Fungal	• Commercial • Commercial • Commercial • Development • Development
Aquaculture & Animal Production	• AquaFarm • MultiBio 3PS	• Commercial • Commercial
Surface & Wastewater Treatment	• Aqua • Aqua Fog • Pome • Muni	• Commercial • Commercial • Commercial • Commercial
Landfill, Leachate & Odor Treatment	• Leachate • Odor	• Commercial • Commercial
Hydrocarbon Remediation	• Remediate	• Commercial
Consumer Products	• BioActive Cyanuric Acid Reducer (Swimming Pool Treatments)	• Commercial



Validation and Application Programs

- BiOWiSH® uses multiple modes of action and works in broad operating conditions so that growers can consistently see positive results. We have conducted over 200 trials around the globe with varying crops, soils, and environments. Here are a few summaries from our library of studies which show success in geographies, management practices, and economic conditions:



No BiOWiSH®



BiOWiSH® Treated

Crop	Third Party Test Partner	Fertility Level (%)	Yield Increase (%)	Net Income Gain (%)	Profit Change USD/ha
Grain Corn	Brazil Independent Research	100	11.4	12	39
Grain Corn	USA Government Entity	100	5.0	5	59
Grain Corn	Indonesia Government Entity	100	7.3	23	634
Rice	USA Independent Research	85	12.8	16	214
Rice	Vietnam Independent Research	90	9.4	18	102
Wheat	USA Independent Research	100	7.2	8	68
Wheat	Australia Independent Research	100	6.6	6	42
Sorghum	USA Independent Research	100	8.1	8	61
Sorghum	Sudan Independent Research	100	15.9	24	126
Tomato	USA Independent Research	100	16.2	17	329
Cucumber	China Independent Research	100	19.7	21	957
Onion	Sudan Independent Research	90	15.5	18	335
Sugarcane	Brazil Independent Research	100	23.6	24	365
Potato	USA Independent Research	100	13.2	13	812
Walnut	USA Independent Research	100	7.9	8	2668
Bok Choy	Vietnam Government Entity	100	13.8	14	680



Strategic Partner - SABIC



- In September 2022, BiOWiSH announced it closed on a capital investment from SABIC Ventures US Holdings LL (SABIC Ventures), an affiliate of SABIC Agri-Nutrients Company (SABIC AN). SABIC AN, is a global leader in the agri-nutrients industry, manufacturing, distributing and marketing fertilizers and related specialty products. It supplies customers around the world with a wide variety of fertilizers ranging from general to highly specialized urea, ammonia, MAP, DAP, phosphate-based fertilizers, a comprehensive portfolio of nitrogen-based inorganic products, and specialty solutions.
- The capital investment by SABIC Ventures follows the successful completion of a year-long technical evaluation of BiOWiSH® coated on SABIC AN's urea in nine countries across five continents and nine different crop types.
- The investment is in connection with SABIC AN's and BiOWiSH's desire to broaden and accelerate product commercialization of SABIC AN Bio-Enhanced Urea powered by BiOWiSH®.
- As part of the financing plan, BiOWiSH will continue to expand its industry-leading R&D support, as well as advance further customizations across a range of SABIC AN high-efficiency fertilizers. This partnership is the foundation for future products and other agronomic innovations.
- A link to SABIC Ventures' portal on the website for Saudi Basic Industries Corporation, the parent company of SABIC AN, includes the full news story about SABIC Ventures' investment in BiOWiSH (<https://ventures.sabic.com/en/news>).

A background image of three scientists in a laboratory setting, overlaid with a blue tint. A man in the center is looking at a petri dish, a woman to his right is wearing safety glasses, and another woman on the far right is looking down. A microscope is visible on the left side of the frame.

Thank You



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