

Joint Ag/Rural and Life Science Caucuses Meeting
September 1, 2021
7:30am

Co-chairs:

Senator Brent Jackson, Ag/Rural
Senators Newton and Woodard, LS
Representatives White and Reives, LS

Meeting will begin shortly



Agenda

- Welcoming Remarks by Ag and Life Science Chairs
 - Senators Paul Newton, Brent Jackson, and Mike Woodard
 - Representatives Donna White and Robert Reives
- Introduction of Speakers
 - Laura Gunter, President, NCBIO
- Presentations
- AgBiome
 - Scott Uknes, CEO and President
- Fleming Brothers Farms
 - John Fleming, Owner
- SinnovaTek
 - Michael Druga, President and CEO
 - Amanda Vargochik, VP Innovation
- Baker Family Vineyards at Moccasin Creek Farm, LLC
 - T.Y. Baker, Owner
 - Yates Baker, Owner
- Q&A/Discussion
- Adjourn



Scott Uknes is co-founder and co-CEO of AgBiome, a company focused on biologicals and traits for agriculture. AgBiome's vision is to feed the world respectfully by partnering with the microbial world. Previously, Scott served as the Global Lead in the In and Out Licensing function for Bayer Cropsience Bioscience based in Monheim Germany and Ghent Belgium. Prior to the acquisition by Bayer, Scott was the Vice President of Business Development for Athenix. Scott was also a co-founder of Cropsolution, and before that a co-founder of Paradigm Genetics where he was member of the team that designed and presented the IPO of Paradigm Genetics. Before starting Paradigm Genetics, Inc., he managed the scientific effort aimed at understanding the mode-of-action of a novel class of disease control compounds called "plant activators" at Novartis (now Syngenta; Bion® and Actigard®).

Dr. Uknes received his Ph. D. in Plant Molecular Biology from Washington University in St. Louis with Dr. David Ho and his B.S. in Honors Biology from the University of Illinois. Dr. Uknes has authored more than 40 scholarly works, is an inventor on more than 20 patents or patent applications, helped negotiate \$500 million in R and D deals and has helped raise more than \$600 million in public and private equity capital.

Contact:

southernfields@hotmail.com

252-536-8258



John Fleming is a fifth-generation family farmer in Halifax County, NC. In 2006 he formed a partnership with his brother, Rob, to create Fleming Brothers Farms. Together they are currently farming 2500 acres of cotton, soybeans, peanuts, and a variety of small grains.

John graduated from NC State University with a BS in Agricultural Business Management and a minor in Crop Science. After graduating he returned to his parents' farm and took advantage of various leadership development programs offered through the national commodity groups American Soybean Association and the National Cotton Council. He is a 2014 graduate of the acclaimed NC Tobacco Trust Fund Commission Agricultural Leadership Development Program through the College of Ag & Life Sciences at NC State University and 2019 graduate of the Executive Farm Management Program.

John served on the Board of Directors of the North Carolina Soybean Producer's Association, Inc from 2008 to 2020, moving through the ranks serving in every executive officer position including Board President/Chairman. In 2012 was awarded the Meritorious Service Award for his contributions to the Association and its member farmers.

John lives off the farm with his wife, Kathleen and daughters, Molly and Carson, but stresses the importance of his children having a solid understanding of farming and the opportunities and challenges that it brings.



Michael Druga, President & CEO of SinnovaTek, is a graduate of the University of Central Florida where he received a BS in Electrical and Computer Engineering. He has more than 15 years of experience working with industrial microwave applications and technology commercialization.

He partnered with his co-founders, Dr. Josip Simunovic and Amanda Vargochik, to launch SinnovaTek in 2016 then added subsidiaries SinnoVita in 2017, and FirstWave Innovations in 2019 to round out their strategy for high quality food manufacturing.

Amanda Vargochik, Co-Founder & VP of Innovation for SinnovaTek, is an experienced food product developer with applications in microwave processing. She earned a BS in Food Science from the University of Tennessee, a Certificate in Culinary Arts from the Culinary Institute at the University of Tennessee, and an MS in Food Science from North Carolina State University.

She is responsible for managing SinnovaTek's R&D efforts. Much of her academic research and industry work has been primarily focused on valorizing food waste to increase nutrient density of everyday food products.



Yates Baker and his father, T.Y. Baker, own and manage Baker Family Vineyards at Moccasin Creek Farm, LLC, in Zebulon on land that has been in the family since the 1700s.

They specialize in muscadine grapes and have over 1600 muscadine vines, specifically Supreme, Nesbitt and Triumph varieties (both the purple muscadines and more traditional bronze/green color).

They do business as Moccasin Creek Muscadines for their grapes, juice and jelly.

Contact: tyb4@moccasincreeknc.com



CHANGING THE WORLD THROUGH MICROBIAL SOLUTIONS



2021

AGBIOME®

AGBIOME™

ENHANCING THE ENTIRE FOOD VALUE CHAIN THROUGH MICROBIAL SOLUTIONS



✓ WORKER SAFETY

SUSTAINABLE PRODUCTION

✓ **CONSUMER NEEDS**

✓ RESPONSIBLY GROWN FOOD

✓ KNOWING WHAT'S ON THEIR FOOD

✓ LESS CHEMICAL EXPOSURE

SAFER FOOD

NATURAL FOOD



A COMPANY LED BY EXPERTS AND INNOVATORS

AgBIOME®



SCOTT UKNES

Co-CEO

*Co-founder of multiple
successful Ag companies*



ERIC WARD

Co-CEO

*30+ years in Ag
and CEO experience*



TONI BUCCI

Commercial Director, COO

20+ years in Ag



GERALD COWARD

CFO

*20+ year finance professional
for Ag companies*



RODRIGO SARRIA

Research

Experienced R&D Leader



DAN TOMSO

Business Development

Trait Research Leader



MARIJN DEKKERS

Chairman of the Board

*Former CEO of Bayer and Thermo Fisher
Scientific, Chairman Novalis LifeSciences*



JOHN FLANNERY

Business Advisor

Former CEO of GE



TOP-TIER INVESTORS

polarispartners



D. One Vision



BILL & MELINDA
GATES foundation

syngenta



Innotech
Advisors

THE CORE OF AgBIOME – AN INDUSTRY-LEADING MICROBIAL PLATFORM

GENESIS™

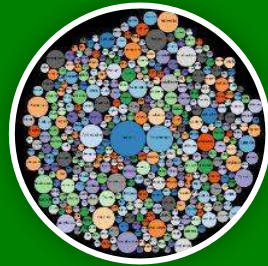
UNPARALLELED MICROBIAL INSIGHTS AND APPROACHES

Huge Resource of Microbes



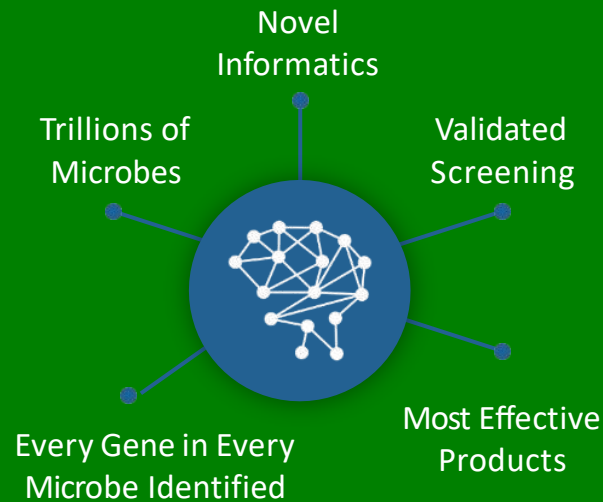
~10¹²

Largest Sequenced Microbe Collection



100,000+

PROPRIETARY DATA SCIENCE: >300M UNIQUE GENES



LEADING-EDGE PRODUCTS ACROSS RANGE OF MARKET

- ✓ CROP PROTECTION
- ✓ ANIMAL HEALTH
- ✓ GENE EDITING
- ✓ INDUSTRIAL ENZYMES
- ✓ SYNTHETIC BIOLOGY
- ✓ PHARMA

BROAD IP COVERING FULLY INTEGRATED PROCESS AND PRODUCTS

PLATFORM THESIS

Best-In-Class Crop Protection Platform



Diversifying Outside of Agriculture



Impact the World & Promote Sustainability



TODAY'S CROP PROTECTION IS NOT WORKING FOR THE CONSUMER

PEOPLE WANT CLEAN AND HEALTHY FOOD.

Growing need for sustainable crop protection

- Worldwide population Increasing, **more mouths to feed**
- **Arable land is in declining**, accelerated by soil damage from harsh chemicals
- **Farmers pressured by pest & crop resistance** to synthetics: Less than 5% of market uses organic alternatives
- **Consumers demanding clean, healthy food**
- Long-term growth trend seen in organic produce consumption
- **Regulators seeking alternatives** to synthetics

- **Huge opportunity for Crop Protection**



CENTER for BIOLOGICAL DIVERSITY

Because life is good.

New Study: United States Uses 85 Pesticides Outlawed in Other Countries

Harmful Poisons Shunned Elsewhere Account for Quarter of All U.S. Pesticide Use

PORTLAND, Ore.— The United States allows the use of 85 pesticides that have been banned or are being phased out in the European Union, China or Brazil, according to a [peer-reviewed study](#) published today by the academic journal *Environmental Health*.

In 2016 the United States used 322 million pounds of pesticides that are banned in the E.U., accounting for more than one-quarter of all agricultural pesticide use in this country, according to the study. U.S. applicators also used 40 million pounds of pesticides that are banned or being phased out in China and 26 million pounds of pesticides that are banned or being phased out in Brazil.



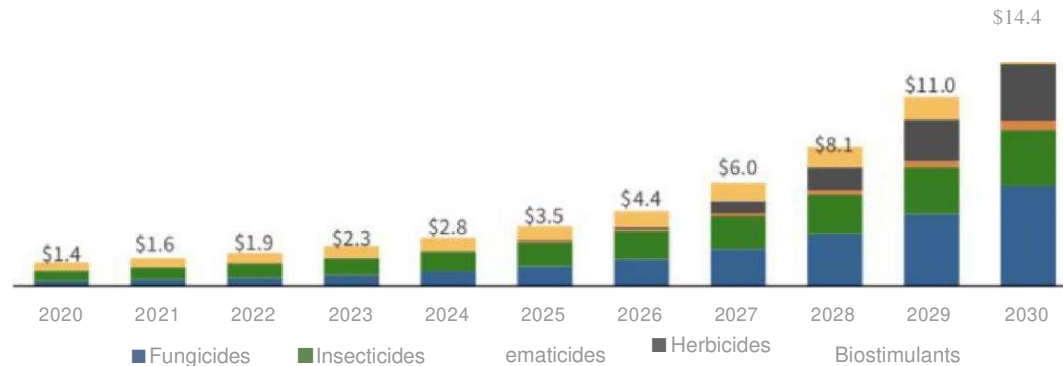
GREEN DEAL

EU urged to stop export of toxic pesticides to third countries

By ELENA SÁNCHEZ NICOLÁS

BRUSSELS, 6. NOV, 07:02

(in Bi/lions)



Year	Category	Percentage	Spending (\$B)
2020	Chemicals	98%	~\$60.8
	Biologicals	2%	~\$1.4
2030	Chemicals	86%	~\$100.8
	Biologicals	14%	~\$14.4

- Biologicals Market projected to grow from \$1.4 billion to **\$14.4 billion** from 2020-2030
- **Conventional chemicals are losing market share** at an accelerating pace
- Industry strategics and investors have been increasingly acquisitive:



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OUR FIRST APPLICATION - SUSTAINABLE AND EFFECTIVE BIOLOGICAL CROP PROTECTION



Works on
300+ crop-
disease
combinations

DISEASE COMPLEX

- ✓ BOTRYTIS
- ✓ RHIZOCTONIA
- ✓ COLLETOTRICUM
- ✓ ALTERNARIA
- ✓ PYTHIUM
- ✓ PHYTOPHTHORA (SOIL)
- ✓ POWDERY MILDEWS
- ✓ DOWNY MILDEWS
- ✓ SCLEROTINIA

PERFORMANCE

- EXCELLENT CONTROL
- EXCELLENT CONTROL
- EXCELLENT CONTROL
- GOOD CONTROL
- GOOD CONTROL
- GOOD CONTROL
- GOOD CONTROL
- GOOD CONTROL
- FAIR CONTROL

UNTREATED



DEMONSTRATED RESULTS

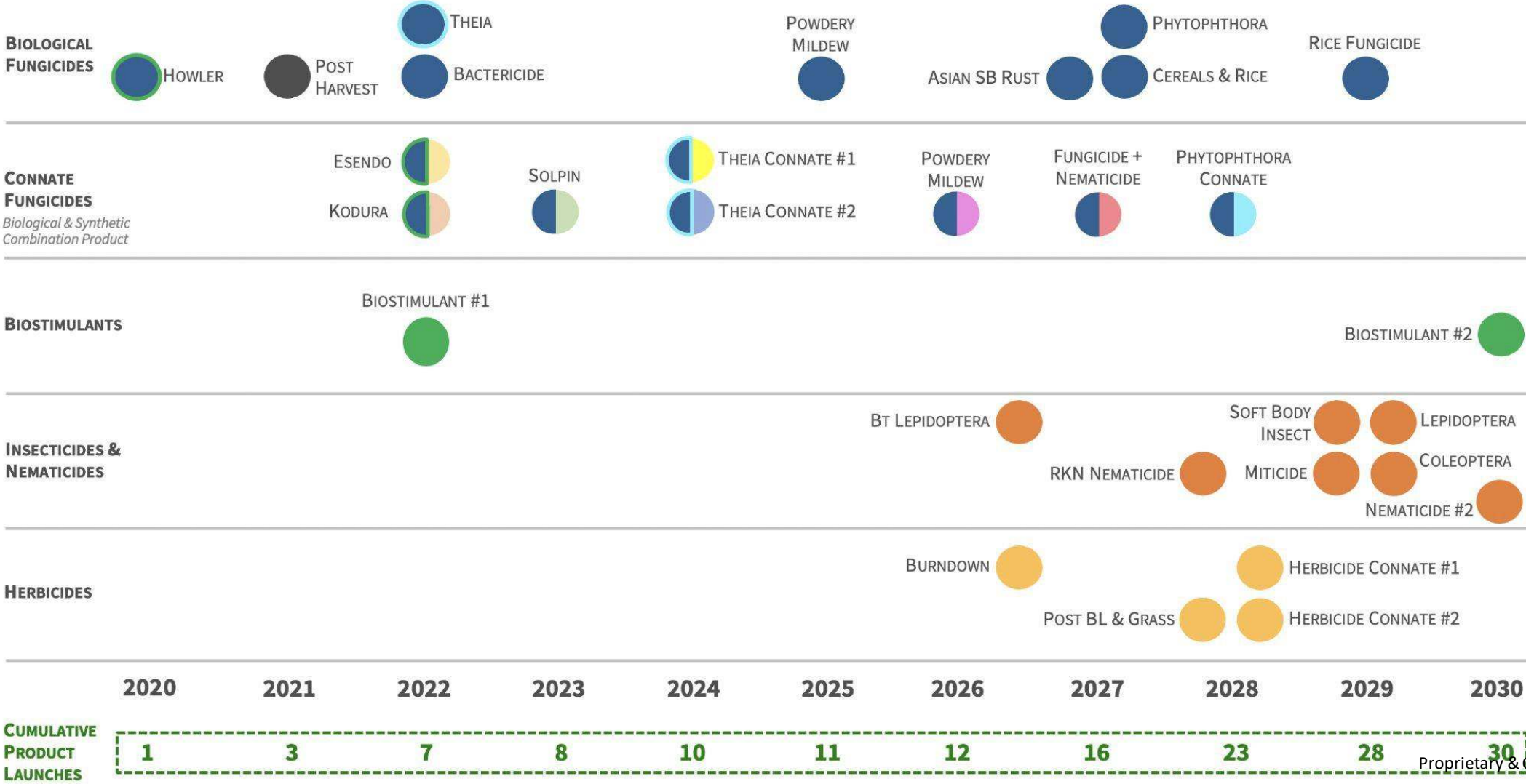
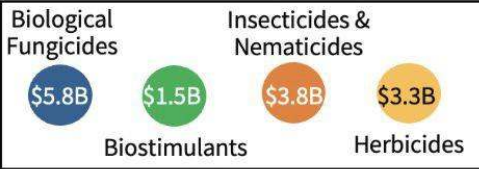
- Non-organic NC grower with 300 acres of vegetables for restaurants
- Squash field with Pythium root rot
- Decreased die-off after transplant, increased plant vigor, faster flowering and ripening

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HOWLER[®] IS JUST THE BEGINNING

11 PRODUCT LAUNCHES BY YEAR 2025, AND 30 BY YEAR 2030

2030 Global Market Value



PLATFORM TO ADDRESS SEVEN UNIQUE MARKETS

Significant business development progress on traits, human health, crop nutrition, animal health outside of our core business with \$34M of revenue in 2020 and ~\$114M cumulative to date

AG TRAITS (JV)

Insect control traits in corn & soybean corn rootworm, caterpillars, and sucking pests



\$37B
TAM

BIOLOGICALS (WHOLLY OWNED)

Active Biologicals and Connate (combination products)



\$100B
TAM

ANIMAL HEALTH (EARLY LICENSE)

Microbial products for animal feed as alternatives to antimicrobial drugs



\$50B
TAM

GENE EDITING (JV / EARLY LICENSE)

Crops, bacteria, human health, and animal health



\$100B
TAM

INDUSTRIAL ENZYMES (EARLY LICENSE)

Fermentation optimization



\$20B
TAM

SYNTHETIC BIOLOGY (EARLY LICENSE)

Transgenic intergenic and intragenic microbes



\$200B
TAM

PHARMA (EARLY LICENSE / SPINOUT)

Natural product drug discovery and antibiotic discovery



\$500B
TAM

AGBIOME®
\$1,000B
Total TAM

MULTIPLE BUSINESS MODELS LEVERAGING PROPRIETARY PLATFORM AND PRODUCT DEVELOPMENT

FOUR BUSINESS MODELS FOR MULTIPLE REVENUE STREAMS

BUSINESS MODEL	MICROBIAL PLATFORM	PRODUCT DEVELOPMENT	COMMERCIAL CAPACITY	VALUE CREATED
WHOLLY-OWNED	AgBiome			Revenue, profit, enterprise value
JV/ IN-LICENSE	Partner			Market access, royalties, revenue, profit, enterprise value
	AgBiome			
EARLY LICENSE	AgBiome	Partner		Early cash, market access, royalties, technology leadership
LATE LICENSE	AgBiome		Partner	Royalty, milestones, monetize pipeline

PRODUCTS & PARTNERSHIPS



SIGNIFICANT NON-DILUTIVE REVENUE
ROYALTIES AND MILESTONES IN MANY INDUSTRIES

COMMITTED TO ESG AND ADDRESSING GLOBAL SUSTAINABLE DEVELOPMENT GOALS



All done in RTP, with benefits throughout the state and world, 3 products, >500 jobs, >\$ Billion



Ciba/Novartis (Syngenta) 

Lead a team of 20 people - grew from 4, Supported research at NCSU and UNC (\$ millions)



Paradigm Genetics

Co-Founded company that grew to 300 employees, IPO on NASDAQ, SBIR/STTR grants, multiple R&D deals (\$ hundreds of Millions)



Cropsolution

Co-Founded company that grew to 17 people, SBIR (>\$2 million), multiple R&D deals (\$ millions)



Athenix (Bayer →BASF) **GMB151 SCN**

VP of BD, 70 employees, supported VC to make initial investment, multiple R&D deals (\$ tens millions), Sale to Bayer for \$400 million (employees stayed (now with BASF)

AgBIOME™ AgBiome



Co-Founded company that grew to >100 employees, raised >\$200 million (all from outside NC), multiple R&D deals (>\$ 100 Million), Gates Foundation Grants (>\$10 million)

Leverage what we already do to make the state's start up company job generation stronger

Allow the State (Treasurer and pension managers) to make investments in VC funds within and outside of NC

No requirement for where investments are made but require a staffed office in RTP at least 2 days per week

This will likely result in significantly more investment in the state - in AgBiotec, in Pharma Biotech and in plain old Tech

Very few NC funds, investors don't like to travel, limits development of high-tech new jobs

FEEDING OUR FUTURE
WITH SUSTAINABLE PRODUCTION
OF HEALTHY & CLEAN FOOD

AGBIOME®



Fleming Brothers Farms

John Fleming

2500 acres of cotton, soybeans, peanuts, and a variety of small grains

Contact:

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Q&A





SinnovaTek

Leading the Next Wave of Food
Innovation and Sustainability
September 1, 2021



Presentation Overview

- **Introduction to SinnovaTek**
 - Team
 - Technology Overview
- **North Carolina Ecosystem**
 - NCFIL -> STK -> FirstWave -> Nash
 - YamCo -> Wright Foods
- **Technology Development**
 - NCSU -> NCFIL -> Growers -> NC Commerce

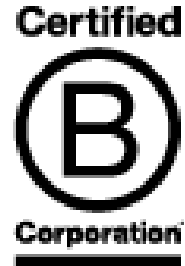




Who We Are

Corporate Structure

- ▶ Located in Raleigh, NC
- ▶ Operations began January 2016
- ▶ Certified as a B-Corporation since 2017
- ▶ Independently Owned
- ▶ 30 Employees



Founders

- ▶ Michael Druga
- ▶ Amanda Vargochik
- ▶ Dr. Josip Simunovic Ph.D.





Patented Platform Technologies

Advanced food processing systems for liquid products

- ALL Electric energy
 - No Steam heating
- Allows for portability
- Can be right-sized for scalability
- Creates shelf-stable products
- Significant quality advantages – nutrient, color, flavor
 - Examples: Babyfood, Smoothies, Fruit & Vegetable Puree
- Licensed from NC State university





Food Processing Ecosystem in NC

Improving Access to Food Manufacturing



Research, New Product Development
Kannapolis, NC



R&D, Feasibility
Raleigh, NC



Small-Scale Commercial
Raleigh, NC



Bulk Industrial Ingredients
Snow Hill, NC



Large-Scale Food Service, Retail
Troy, NC



The Missing Link



FirstWave Expansion into Mid-Scale Commercial



- \$10.5M Capital Investment in Nash County
- 55 New Jobs to be Created
- Retail, Bulk, and Food Service packaging options
- Completes the missing step between small and large scale processing



Technology Development - SBIR Grants

2018 SBIR Project Outcomes

- ▶ The 2018 SBIR funded the science behind a portable process system.
- ▶ This led to the formation of a manufacturing plant in Raleigh
 - ▶ 21 New Jobs created in the past year and growing
- ▶ This led to an installation in a remote region near Nairobi, Kenya
 - ▶ Increased the nutrient content (Vitamin A) of ingredients used in breadmaking to address malnutrition.
- ▶ This work led to us being honored with the 2020 Tibbetts Award by the SBA



2020 SBIR Project Outcomes

- ▶ The Phase I project focused on North Carolina waste streams such as blueberry and muscadine grape pomace.
- ▶ Focused on extractions from food waste for use in functional ingredients.
- ▶ Executed 2 Letters of Intent with large ingredient manufacturers (\$50M+) to collaborate on the Phase II SBIR to develop products and prove the advantages through clinical research so that they can commercialize the resulting products.
- ▶ The Phase II budget of \$650,000 will fund the addition of several new technical positions for researches and scientists. **Collaborative with NC growers like Moccasin Creek, and NCFIL.**
- ▶ This technology has already led to the formation of a new company making gummies in Nash County with ingredients extracted in North Carolina and creating 12 new jobs.



U.S. Small Business
Administration



SBIR • STTR
America's Seed Fund™
POWERED BY SBA

SBA Announces Recipients of Tibbetts Awards for
Demonstrating Significant Economic and Social Impact
from R&D Funding

2020 TIBBETTS AWARD WINNER

SinnovaTek

Raleigh-based SinnovaTek is having a significant impact on the lives of young children a world away in Sub-Saharan Africa - where almost half of children under five suffer vitamin A deficiency – thanks to their Nomatic processing system, and locally-available sweet potatoes.



One NC Small Business Program

Our Opinion

- ▶ Innovation Grants like the NC One program are vital for emerging companies
- ▶ Have paid back multiples on local investment and international export
- ▶ We are extremely grateful and try to make that known publicly (social media)
- ▶ The application is very reasonable and straightforward
- ▶ The use of funds is flexible enough to cover gaps that the SBIR may miss
- ▶ The timing of funds is well aligned with the SBIR
- ▶ Reporting process is more streamlined than SBIR
- ▶ Administrators are much more accessible
 - ▶ Usually reply the same day with clear answers

Room for Improvement

- ▶ Year over year consistency on availability of funds
 - ▶ Would be ideal to know during the SBIR application draft phase if these funds would be available
 - ▶ Would allow for better leveraging of funds



Baker Family Vineyards at Moccasin Creek Farm

Overview

- ▶ Family-owned small business located in Zebulon, NC.
- ▶ NC certified 'Century Farm.'
- ▶ 25 Total acres, with roughly 8 acres of planted vines.
- ▶ Over 1600 muscadine vines.
- ▶ We specialize in Triumph, Nesbitt and Supreme varieties of muscadines.



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Questions and Wrap Up



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Meeting adjourned

