





### in association with













## **Tech showcase** & networking event





















































































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AgriNerds is an Agricultural Intelligence company that helps farmers benchmark, predict and identify predictors of various outcomes. Our founding team where our underlying technology was incubated was a group of top researchers at UC Davis and the UC Davis School of Veterinary Medicine. Our group of data scientists, engineers, software developers, epidemiologists and veterinarians have considerable experience in the application of various machine learning based approaches to predict food safety and production efficiency for livestock and poultry farmers among other agricultural clientele.



Holly Ganz, PhD CEO holly@animalbiome.com 510-207-4408 www.animalbiome.com

Founded in 2016, AnimalBiome is an early-stage start-up using genomics to create new diagnostics and supplements to restore gut health in cats and dogs. A balanced gut microbiome supports overall pet health and imbalances are associated with numerous health conditions, ranging from gastrointestinal conditions such as inflammatory bowel disease and gastrointestinal lymphoma, skin conditions such as atopic dermatitis, to metabolic conditions, such as obesity and diabetes. AnimalBiome provides direct to consumer gut function test kits for dogs and cats and creates restorative supplements from material sourced directly from healthy pets to identify and correct imbalances in the gut microbiome.





Hans Specht Sales Executive hasn@arable.com www.arable.com

A pioneer in decision agriculture, Arable Labs builds affordable tools that help people collect and synthesize site-specific agricultural data. The company's mission is to achieve global impact by providing the measurements, insights, and predictions that enable growers to recognize and address risk. Through access to ground-truth knowledge, Arable empowers agricultural stakeholders to more effectively manage natural resources and lower food waste throughout the supply chain.



**ASTRONA** 

Jeremy Warren Founder & CEO Jeremy.warren@astronabio.com +1 530 867 3786 www.astronabio.com

Astrona Biotechnologies is producing an easy-to-use, hand-held pathogen detection device that can be deployed on-site at every phase of food production from field to table. Our device uses our proprietary technology to detect the RNA of the pathogens allowing for the detection of bacteria, viruses and fungi without the need for a culturing step. The determination of pathogen presence can be obtained in 1 hour, much faster than current methods in which companies can wait days to receive their food safety testing results.







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Athena Intelligence is connecting the Agri-Food supply system to the voice of every acre. We combine vast amount of public and private operational data through automating manual processes of sustainability and regulatory reporting. We then leverage machine learning process and AI modeling to deliver data services that benchmark and optimize the commercial relationships around crop production and movement towards sustainability goals. Athena reduces the friction involved with unlocking the wisdom and value embedded in every acre to drive a more efficient, sustainable and profitable food system.



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We develop organic molecules compounds to increase crop yields with bee pollination. By feeding bees with our products, we can enhance their immune system and teach them to pollinate specific targeted crops.





#### **Benson Hill Biosystems**

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Benson Hill empowers innovators with a revolutionary crop design platform to develop healthier and more sustainable food and

ingredients. Our  $CropOS^{m}$  platform combines machine learning and big data with expertise in plant biology to drastically accelerate and simplify the product development process, whether that be via transgenics, gene editing, or traditional breeding.





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Berkeley Lights (BLI) is a California startup that has created an advanced single cell biology platform that couples a light-driven, cell positioning technology with microfluidics to dramatically accelerate a wide variety of complex biological workflows. BLI's fully automated platform, Beacon™, is being applied to applications ranging from the discovery and development of therapeutic antibodies and synthetic biology to, most recently, agricultural technology. In this talk, I will introduce our platform technology and the advanced capabilities we have developed

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for areas outside of the agricultural space and explain how we are beginning to apply these capabilities to crop science applications.

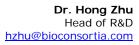






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Harnessing the benefits of the plant microbiome to improve crop productivity.

Microbial development pipelines feature in the R&D operations of all major and most medium-sized seed and Ag input

plant colonization and contribute to plant growth.

companies. Despite this intense interest, the discovery process remains challenging due to the vast diversity of microbes present in any environment and the complexity of plant, microbe and environmental interactions. BioConsortia, Inc., addresses these issues through its patented Advanced Microbial Selection (AMS) process which uses a directed-selection approach for rapid and targeted identification of microbial consortia for crop improvement. The process utilizes iterative rounds of plant-microbe selection to evolve and select for microbes that are both inherently capable of



BioFiltro is a closed loop distributed waste water treatment system for agriculture operations and rural communities. Through a patented 4-hour process BioFiltro removes up to 99% of contaminants from food processors, dairies, wineries, and off-the-grid communities without using costly chemicals and only 95% as much energy as comparable solutions. Over 4 years we have built 12 plants in the US, employ 10 full time employees, and treat millions of gallons of water per day.



# BIOME MAKERS



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Biome Makers Inc is a Smart Microbial Discovery startup based in West Sacramento, CA offering innovative technology combining DNA- Sequencing and Intelligent Computing, focused on developing tools and products for more sustainable and productive agriculture. The products include WineSeq®, Gheom® and BeCrop® which allow early disease detection in the soil, while providing an understanding of the terroir influence. The technology enhances farming by prediction of disease threats as early as prior to planting, allowing for targeted prevention methods that enable less reliance on chemical treatments and create an opportunity for more sustainable approaches to disease prevention. We provide comprehensive data related to Biodiversity, Health and Nutrition synthesis pathways for every crop using our growing database of soils from regions worldwide.

### Christian Nansen & Mohammad Imtiaz Consulting

#### **Christian Nansen**

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Classification & sorting of tomato seed.

Under controlled laboratory conditions, advanced reflectance data acquired with high spatial and spectral resolutions of objects, such as seeds and insects, can be used to develop machine vision systems (classifications of objects) and to study their responses to experimental treatments. We perform studies such as viability and quality of seeds, identification of insect species, presence/absence of parasitism of insects, pesence/absence of plant pathogenic diseases in insects, morphometric studies of insects



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CID AgTech is a full-service supplier of instruments for high throughput, non-destructive measurements and automated handling/assay of plants/seeds to the academic, breeding, and farming sectors.

CID AgTech was formed because its founders recognized the value of being the first distribution channel in North America for plant phenotyping and robotics tools. We work consultatively with clients to define the best available solution for their technical challenge. We offer expertise, experience, and credentials in the plant sciences, computer science and engineering. In addition, we can handle installation, service, and support locally – saving the time and expense of dispatching technicians from overseas.





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Corteva Agriscience™, Agriculture Division of DowDuPont, believes in enriching the lives of producers and consumers, ensuring progress for generations to come. We do this through an extensive portfolio in seed solutions, crop protection, and software and digital services. Corteva Agriscience is excited to be here at Seed Central Tech Showcase and can't wait to see you and discuss your needs. Let's make our world a better place. Let's keep growing.



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Digestiva, inc., is a biotech start-up focused on addressing the demand for specialty proteases. We discover and engineer proteases to be highly efficient and specific for any biotechnological, medical, and industrial applications. We exploit the diverse repertoire of proteases from bacterial and archaeal sources and optimize their function using state-of-the-art rational enzyme design (Rosetta molecular modeling suite) and synthetic biology techniques. Digestiva's protease discovery platform allows rapid discovery of novel proteases that are functional and optimized in the product matrix of interests.



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Although agriculture is thousands of years old, growers still struggle with timing irrigation. There is no way to automatically measure the need for water or 'thirst' of a plant--until now. Based on 10+ years of research at Cornell University, FloraPulse has developed an implantable microchip that directly measures how 'thirsty' a plant is and will provide the most accurate, timely information on when/how much to irrigate. FloraPulse uses this information to give the grower scientifically-backed recommendations for managing their field to consistently maximize crop yield, quality and water savings. The irrigation mystery: solved.





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At Fortiphyte we identify natural disease resistance traits to accelerate the development of disease resistant crop varieties. Using disease resistant crops reduces the need for chemical controls, thereby improving the productivity, safety, and environmental sustainability of agriculture. We recently developed a tomato variety that is immune to the bacterial pathogens Xanthomonas and Pseudomonas. Our platform is applicable to all crop species and most plant pathogens, including fungi and nematodes, and we're seeking collaborations with seed companies interested in developing disease resistant crop varieties.





Frinj Coffee is developing the world's newest coffee growing region in Coastal Southern California. We are a vertically integrated biotechnology company offering growers plant material and all the tools, skills and services they need to produce high quality coffee in California; plant to cup.







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Hudson River Biotechnology (HRB) is a highly innovative agricultural biotech company located in Wageningen (Netherlands) focused on improving crop productivity and quality, addressing the world's increasing demand for food and natural ingredients. We do this by genetically optimizing crops to increase yields, improve disease resistance & nutritional value. To this end, we employ the latest genetics techniques including CRISPR and our proprietary SuRE platform for unique target identification. HRB has an internal R&D pipeline for development of novel platform technologies and varieties with new traits, and actively seeks partnerships for plant breeding projects.



in'Sight Labs



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At inSight Labs, we optimize the food supply chain by using three dimensional electromagnetic image processing and chemometrics analysis to deliver non-intrusive food quality assessments in realtime.



www.Inputs.Aq

Inputs is an online marketplace for agriculture where buyers and sellers can connect. Our platform combines the convenience of e-commerce while harnessing the power of the marketplace in a bid based procurement system. We help farmers get the best prices for their inputs while providing broader market reach, shorter sales cycles, reduced costs, and increased sales for retailers. Inputs captures transaction fees on successful sales and derives revenue from other services available on our platform.





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LGC Genomics offers an extensive selection of molecular biology laboratory services to accelerate your science utilizing our integrated tools. We strive to be a key partner to our customers from the early stages of genomic research including marker-assisted selection, breeding programs, QC and Pathology to get you to your final plant or seed selection. This is done by providing a wide variety of Genomics Testing Services, Genomics Reagents and Instrumentation products for DNA extraction, Sequencing, PCR and Genotyping.





Alan Perlstein
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Miraculex is an ag-biotech, developing technology to mass-produce the best tasting and healthiest natural sweeteners in the world – "Protein Sweeteners". Miraculex is using hydroponics & molecular biology to produce these proteins natural and recombinant that can be used for the medical, industrial and consumer markets.







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OlivinoLife, Inc., delivers the health benefits of the Mediterranean Diet (MDiet) to consumers in convenient forms. The Company's first product, Olivino™, is the first and only dietary supplement containing clinically relevant levels of extracts from three key foods found in the MDiet: Olives, Grapes and Tomatoes. Our current channels are electronic commerce and limited retail. We have customers in 34 states, Canada, Brazil and Washington, DC. Customers taking Olivino regularly report reduced blood pressure, healthier cholesterol profiles, improved prostate health and UV protection. Olivino makes it easy for everyone to enjoy the health benefits of the MDiet!



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Persistence Data Mining is developing a survey system to serve agronomic service providers by improving soil mapping granularity.



## PHENOSPEX Grégoire Hummel Co-Founder & CEO

### Smart Plant Analysis

Grégoire Hummel Co-Founder & CEO g.hummel@phenospex.com www.phenospex.com

Phenospex was founded in 2011 by Grégoire Hummel, Philipp Tillmanns and Uladzimir Zhokhavets. Grégoire is plant scientist and earned his PhD at the Research Center Jülich and Max Planck Institute Jena, two world leading institutes in plant science and plant phenotyping. Uladzimir is a physicist and specializes in optics and semi-conductors. He was working at Philips Research in Aachen before founding Phenospex. Today, we are a mixed intercultural team with an interdisciplinary background from biology, agriculture, physics, computer science and engineering.



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Pheronym uses pheromones from nematodes (microscopic roundworms) to control agricultural pests. Our first product, Nemastim, significantly improves the efficacy of beneficial nematodes, which are already in the market for insect control. Nemastim makes beneficial nematodes more

effective (up to 5x) by telling them to search for new insects to infect. Beneficial nematodes are treated with Nemastim and then the activated nematodes are sprayed on the field. Since we can control nematodes, our second product in the pipeline targets plant parasitic nematodes, Pherocoat, our second product, is a seed coat product that protects young plants from plant parasitic nematodes.







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PhytoAB Inc. located in Redwood City California, is a contract research organization and plant antibody R&D based services and products supplier. We are specializes in antibody production for plant research usage. We offer primary antibodies for different species of plant, mainly including Arabidopsis thaliana, rice, maize, beans, tomato and potato etc. Meantime, we also have secondary antibodies, and customized antibody production service. In addition, we also distribute seed germination pouches for seeds, roots and stress studies. PhytoAB is committed to providing scientists and researchers with the best customer experience and high quality products.

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for citrus greening disease, pesticides and hormones.

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Plexense is a biotech company that develops sensitive and simple assays to be used as tools for crop management and food safety. ACCEL ELISA™ offers up to 100x sensitivity over conventional assays with a simple 2-step method and easy integration into existing lab equipment. Current ACCEL ELISA™ products include kits that screen for Streptomycin, Oxytetracycline, Aflatoxin B1, and Aflatoxin M1. With our fully automated option, performing bioassays for small molecule detection has never been easier. Plexense is currently working to develop assay kits to screen





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Ravata delivers reagents like CRISPR to embryos with 100X the speed and 10X the efficiency of today's standards.



www.rijkzwaan.com

Rijk Zwaan is a plant breeding company. We develop new vegetable varieties and sell the seeds produced from them all over the world. We tap into the rich diversity nature offers us, and combine it with our extensive market knowledge and state-of-the-art techniques.

Around 2,800 highly motivated employees in 30 different countries find it both fun and rewarding to work on creating value-added products and services for our partners every day.

Three families own approximately 90% of Rijk Zwaan. The remaining 10% of the company is owned by a large group of employees through the employee share scheme. Every year, each colleague has the chance to buy share certificates and hence to participate financially in Rijk Zwaan.

\*



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Seed Processing Holland (SPH) is a leading seed processing equipment manufacturer and we have a wide range of post harvesting equipment from small lab size models for R&D sites to high-capacity machines for processing sites. Equipment solutions for activities such as; seed threshing, extraction, drying, priming, germination testing, cleaning, conditioning, pelleting, and treating. SPH has its US office in Salinas CA with local technical support.



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SensIT Ventures utilizes proprietary technology to develop, build and sell custom chemical sensors that provide solutions of great value to multiple industries. Because the sensors are miniaturized, inexpensive and require minimal

power, they can be widely distributed and embedded in complex systems. SensIT is a member of the UC Davis Venture Catalyst DRIVE program and Inventopia with separate production and prototyping facilities headquartered in Davis, California.







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seqID specializes in advanced genomic technologies for the agriculture sector. We work with the world's leading plant and animal breeders to source the newest technologies and we work with genomic technology companies to find agricultural markets for their innovations. Our goal is to advance genomic technology to allow the agricultural industry meet the demands of an ever growing global population.



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SonanuTech combines recent advances in photonic technologies, material science and nanotechnology to offer a quantum leap in speed and sensitivity for biological assays used in food and clinical settings.

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Tule installs a proprietary hardware sensor in farm fields to help growers make irrigation decisions. They provide growers with field-scale crop water use measurements (i.e., actual evapotranspiration), water stress forecasts and irrigation recommendations. Tule has sensors installed in over 1000 farm fields throughout California, working with some of the largest grape growers and almond growers in the state, as well as growers of corn, tomatoes and other crops.

Tom Shapland, PhD, is CEO and Cofounder of Tule (pronounced "too-lee"). He has a BS in Viticulture and Enology, a MS in Horticulture & Agronomy, and a PhD in Horticulture and Agronomy from UC Davis.





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Vibe is bringing the big-data revolution to the seed and grain industry for better quality, cost control and safer food.

Our grain analyzer is based on machine vision and analytics to measure, count, classify, visualize and report grain size, shape and color. Within 30 seconds the instrument provides absolute and objective results, that are both precise and reproducible. The complementary cloud-based software provides additional applications for grain research and development, business operations and quality control. We serve leaders in the grain supply chain by providing a great product, excellent customers

control. We serve leaders in the grain supply chain by providing a great product, excellent customer service and fair business practices.



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A new platform technology for plant diagnostics.

XTB Laboratories, a startup from the University of California, Davis, created a tool that "sniffs out" plant disease before it can be seen. "This would allow companies and farmers to identify diseased plants and trees and remove them before they blight the whole field or orchard", says Cristina Davis, so founder and chief science advisor of XTB Laboratories. She explains that diseased plants amit adors

co-founder and chief science advisor of XTB Laboratories. She explains that diseased plants emit odors unique to each disease, and XTB's technology analyzes samples of air near the plants to detect plant disease. This technology can detect a broad rand of plant diseases across multiple crops.

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Yolo Robotics sells robotic alternatives to human labor. Our fleets of small autonomous platforms use deep learning and cost-effective robotics to optimally harvest only ripe fruit. This system provides a complete harvest solution to reduce labor by 25% and costs by 30% with an algorithmic efficiency that humans can't provide. Distributed automation disrupts conventional agricultural production by creating a plethora of labor. Our multi-robot systems provide persistent, individualized attention to each plant - the natural next forward from precision agriculture.

