



Pears Program
for **Global Innovation**

Pears Challenge V:

Resilient and Sustainable Agriculture & Food Systems in Ghana

Ventures Booklet
June 2022





Agri-Opt

Agronomists, mainly extension officers, need to support and educate farmers in dispersed locations. Since this is currently done through face-to-face meetings it means consultation with farmers is very sporadic. Beyond this, agronomists are also missing up-to-date data on which to base their recommendation. The subsequent lack of timely guidance results in inadequate yield and quality.

Agri-Opt seeks to address this challenge through its digital platform that will enable agronomists to provide remote support to more users more frequently. Ongoing agronomic support, based on data and models, throughout the growing season will provide farmers with timely recommendations and improve productivity. Moreover, remote support may be provided by expert agronomists from around the world. Recommendations are based on available data sources such as soil type databases, hyperlocal weather services, satellite images and indices, and more, that are integrated into the system. These recommendations may be delivered and implemented by integration and cooperation with existing services that facilitate SMS and voice-based communications with farmers.

About the Founder

Eran Brezner
eran.brezner@gmail.com



Eran Brezner is a veteran technology leader who has co-founded and led several initiatives and startups. With his background combining business-oriented thinking (MBA), technology competence (MSc Computer Science), strong execution abilities, pragmatic approaches, and people management skills, Eran continuously succeeds to dream of, define, develop and deliver successful software based systems and products. As a co-founder and CTO of the AgTech company Supplant, Eran headed the development of a smart irrigation system based on IoT technology and advanced algorithms from the initial conceptual idea to a field proven product bringing real value to real users. As a dedicated marathon runner, completing 13 full races in his life, he is aware of the hurdles along the way and well prepared for long lasting, demanding challenges.

AgroBua

Ghanian smallholder farmers struggle with access to agricultural services, including seeds, fertilizer, machinery, best practices, training, and more. The fact that they are very fragmented and too small for other businesses to work with or afford services makes them vulnerable to be easily neglected by the growing agricultural economy. This inevitably leads to low production, little to no profit, and ongoing cycles of poverty.

AgroBua will provide a digital platform that collects data regarding the demands of smallholder farmers, analyzes the data, and makes a combined order from service providers and agri-businesses in an optimized way (in terms of cost and time). Farmers will come to a nearby station and make an order of fertilizers/farm-equipment/seeds. Similar demands from multiple farmers will be addressed collectively as a "unit", reducing the cost, improving access for the farmers and opening a new market to companies and distributors.

About the Founder

Kisanet Abraha Araya

kisintyabrsh@gmail.com



Kisanet Abraha Araya is a Civil and Environmental Engineering graduate from the Technion and is currently earning her Master's in International Development at the Hebrew University. During her studies at the Technion, she joined Engineers Without Borders, where she contributed to several projects. Kisanet is interested in creating solutions that address challenges in the agricultural and environmental field. She is passionate about connecting engineering and innovation with people, especially underprivileged communities. Kisanet moved from Mekelle, Ethiopia to Israel in pursuit of her dreams, and currently lives in Haifa with her partner.

AMMFI

Agroforestry Monitoring and Monetizing Farmers Initiatives

Forest degradation and deforestation across Ghana's High Forest Zone (covering ~5.9 million hectares) is being driven by continued cocoa-farm expansion, fruit-tree cultivation, along with a recent up-surge in illegal mining and logging (FCPF, 2022). Reducing deforestation and forest degradation plays a key role in combating both poverty and climate change, and contributes to the acceleration of agricultural economic growth.

AMMFI was founded to bridge interests and empower benefits from Ghanaian agricultural production. It links international processing companies and tree crop farmers in Ghana, offering a fintech platform that enables small holder farmers to monitor and financially evaluate the environmental benefits provided by their agricultural practices (carbon sequestration, climate regulation, soil fertility). Additionally, the platform provides processors with ESG impact monitoring, valuing, and reliable reporting. AMMFI offers a simple, cost effective, fair and transparent fintech platform to turn Ghana's nature into capital, for all related parties.

About the Founder

Dafna Disegni
disegni.dafna@gmail.com



Dafna is an Applied Economist (PhD. University of California, 2004), specializing in Natural Resources Management, Industrial Organization and Economic Development. Her research and projects are primarily designed to bridge environmental conservation and economic development through sustainable financial and economic mechanisms. She currently works as a financial consultant and has been teaching economics since 2004, currently affiliated with Tel-Hai College as a Senior Lecturer since 2016. In the last decade, Dafna has been involved in several projects to support policy design. In an effort to decrease human footprints of energy production and move towards renewable energy resources, she kicked-off with a national project on spatial planning of Wind-Turbines in Northern Israel and spans her activity into the development of financial measurement approaches to strengthen Sustainable Impact Investments in the energy sector and beyond.

Cool-Harvest

Over 30% of newly picked produce in Ghana is lost after being harvested. A significant factor contributing to this is the lack of cooling solutions, due to poor access to electric infrastructure in rural areas and the high construction costs of any off-grid solutions available today. Our solution is a portable cooling bag for harvest workers in the field that does not require electricity to operate. The solution is 100% off-grid and based on our unique technology that uses carbon dioxide's effective traits of creating immediate cooling energy, allowing it to cool the newly harvested agricultural produce while it is still in the field. The solution will enable farmers to slow down metabolic processes by rapidly removing heat from the crop and significantly extending its shelf life, something which is especially effective for perishable fruits and vegetables. With our technology in hand, smallholder farmers will become a significant player in the effort to reduce post-harvest losses, improving their strength along various value chains in Ghana.

About the Founder

Yair Hadash

yairnew@gmail.com



Yair Hadash is a successful entrepreneur, spending the past ten years establishing and managing real estate projects in the U.S. and Israel. His focus has recently shifted to social projects for young people in Haifa during the past five years. He believes beautiful and world-changing ideas must sit in the framework of economic feasibility to receive validation and come out into the world. Today, he is invested in a new AgriTech venture, which is based on innovative and groundbreaking cooling technology developed over the past six years by his father, with the goal of addressing the many pains the agricultural industry faces today.

Go-Beyond

Most farms in Ghana are relatively small in size and revenue, and most farmers lack business education. This means that their financial business management style is intertwined with the financial management of their household, making it incredibly challenging to build a solid business foundation, as well as for growth and expansion. Without conviction and prediction around yield and cash flow, farm owners are afraid to commit to business investments. Without exposure to available farming solutions, farmers are unaware of how investing in such solutions could benefit the growth of the business. This cycle leaves farms at a stand still.

Go-Beyond is a lean digital platform that provides financial budget management tools tailored to small and medium agricultural farms that sync with existing mobile money apps. Once a critical mass of farms have a clear view of their budgeting, Go-Beyond exposes and advises them on available farming solutions they could invest in. Finally, using data analysis, Go-Beyond will identify farmers' needs and create new business opportunities for large farming solutions companies, therefore improving distribution channels.

About the Founder

Dan Eran
daneran@gmail.com



Dan Eran is a creative, goal-oriented business developer with strong management skills and ambition. Skilled at designing and executing strategies leveraging deep product, services and marketing capabilities to an operational business in multiple market segments. Dan has a proven track record with leading M&A initiatives, from the initial engagement, legal and technical due diligence process to commercial negotiation - all the way to closing. He has the strong capabilities needed to lead and manage large scale, complex, multi-faceted projects. leading multi-disciplinary teams as well as direct reports. Dan's goal and biggest passion is to harness his experience for a goal that brings prosperity and equality in a sustainable way. He holds a Bachelor's degree in Economics, and M.Sc. Environmental Studies, MBA from Tel Aviv University with an internship in technology management entrepreneurship & innovation.

REGEN

Smallholder farmers across Ghana are introducing imported, soil degrading synthetic fertilizers into their farming operations and are becoming dependent on them in order to meet buyers' yields expectations and standards. However, depending on imported synthetic fertilizers increases risks for their farming operations. The continuous increase of synthetic fertilizer costs and the decrease of soil fertility combined with climate change are compromising their resiliency and profitability.

REGEN's biologically-enriching composting technology uses locally sourced bio-waste to produce bio-fertilizers which enhances soil and plant health, increases produce's quality and moves Ghana towards a more circular and resilient economy. With a simple hand-held AI-powered sensor that manages, guides and monitors the composting process, local waste management entrepreneurs become the fertilizer companies of the future. These bio-fertilizers will serve local farmers, create resilient local food production, and encourage a more circular agro-economy.



About the Founder

Dor Oppenheim
doroppenheim@gmail.com



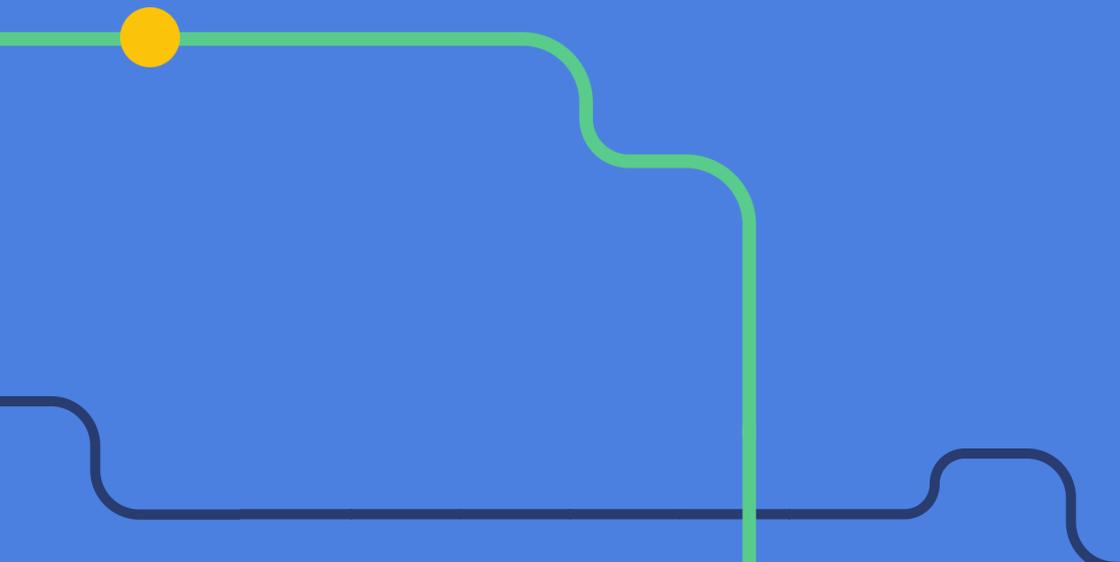
Dor is an eco-entrepreneur on a mission to transform the food system from an extractive, destructive and polluting industry to a regenerative food system - healing soils, people, communities and landscapes. He is experienced with implementing A.I. technology in agriculture and founding startups and businesses working to reimagine food and how we grow it. He is the CEO and co-founder of REGEN, a biological fertilizer startup in Israel developing soil amendments from local bio-waste and supporting farmers on their journey to transition to regenerative biological farming. REGEN works on creating the infrastructure for the regenerative agriculture movement in Israel through alternative fertilization, biological soil testing and farmer's education.

CocoaWare

Cocoa is Ghana's chief agricultural export and main cash crop, but did you know that about 80% of the cocoa fruit gets discarded as residual biomass through on-farm processing?

This overwhelming amount of waste creates several problems, the main one being the significant effort and labor Ghana's small-scale cocoa farmers invest in this on-farm processing without being paid for it. In addition, cocoa by-products left on farms harm the environment: from being burnt to creating untreated landfills or even being a bedrock for pests that could harm future crops.

CocoaWare is looking to mitigate this challenge by applying a circular economy approach and addressing the cocoa by-products as raw-material. CocoaWare will incentivize farmers to hand in their Cocoa by-products to a material collection hub, which will then sort and distribute the raw materials to manufacturers from a wide array of industries. Finally, the abundant materials left will become insect feed - allowing their complete circulation.





About the Founders

Nitzotz Saranga

nitsots@gmail.com

Nitzotz Saranga is an industrial designer, explorer & entrepreneur based in Tel-Aviv, specializing in material and morphological research. She is all about exploring and discovering, takes inspiration from nature and her travels, and is passionate about the environment. Nitzotz is the proud owner of a design studio ("Studio Pitz"): a space for independent projects and collaborations with companies and organizations, and independent projects that have been presented in exhibitions in Israel and abroad. Currently, Nitzotz is involved in several startups and continues her path of research and collaboration, while simultaneously developing her environmental venture "Green PlanEat": a community garden 2.0. Nitzotz graduated with honors from Bezalel Academy of Arts and Design Industrial Design Department, while having a technical background - serving in the IDF's 8200 unit, working for different HiTech companies, and teaching herself programming.

Ora Peled Nakash

ora.peled@gmail.com

Ora Peled Nakash is a user researcher in the tech industry with over 15 years of experience. Her formal education in engineering and industrial design equip her with a variety of tools to observe and improve human experiences in complex technical domains. She is passionate about applying technology for improving the condition of the planet, and is focused on finding solutions for preserving life at sea. She is a scuba diver, open water swimmer & reserve Naval Officer.



M2F

Miller-to-Farmer System

The Palm Oil industry in Ghana is considered a strategic pillar for agribusiness development and poverty reduction by the Ghanaian government. Yet, smallholder farmers who produce 80% of the Palm Oil do not reach their full growing potential. Smallholder farmers are significantly more affected by lack of knowledge, unpredictable environmental changes, yield loss due to pests and insects, poor supply and market chain management. Lacking documented data on their situations and economic activity, smallholders are unlikely to receive financial services.

Data is thus both a critical input as well as a valuable product in the modern agri-food system.

At M2F – we aim to strengthen the connection between Millers and Farmers through a digital platform based on 3 key points:

- Friendly UX based on SMS and voice messages for easy access to farmers.
- AI and machine learning tools for personalized advice and economic profile creation.
- Traceability and transparency along the chain.

Our platform provides farmers with customized agro-climate knowledge for better growing practices, while processors gain access to farmers and crops data to manage the production process. Both sides would have better opportunities for financial services based on their documented data and profiles, as well as increasing profitability.





About the Founders

Yifat Reuveni

yifat1@mail.huji.ac.il

Yifat Reuveni is an entrepreneur, researcher, academic director, EU IFI (Innovative Finance Inclusion) project manager, adjunct professor (Hebrew U. Jerusalem B.school, TAU B.school, Bezalel) and beneficiary of EU grants. Additionally, she is the former JDC Head of Social-Finance Innovation and Recanati Business School's Development Unit. Yifat holds a B.A. in Economics and Philosophy and an M.A. in Communication Technologies at Hebrew University. She earned her Ph.D. on the new economy at McGill University, Montreal, Canada. She mentors entrepreneurs and is involved in numerous initiatives to promote social entrepreneurship. Current academic activities consist of participation in an international research group on sustainable finance (Oxford-Helsinki), writing social-finance case studies and leading and managing the Horizon 2020 ENI project on regional economies based on food industries.

Avner Rogel

avner.rogel@gmail.com

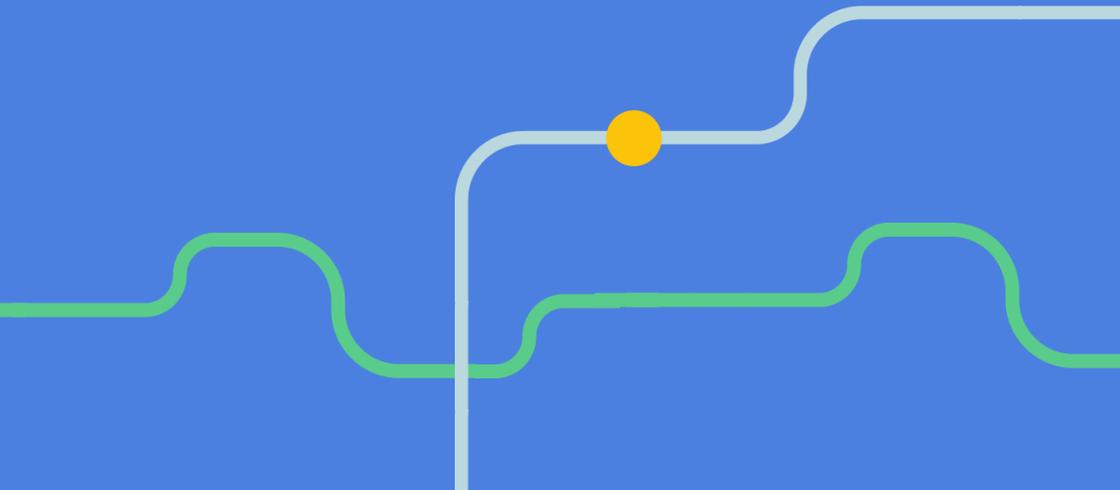
Avner Rogel brings over 20 years of experience in the Israel Defense Forces, where he aided in solving complex problems, adapting and assimilating advanced technologies among end users. Avner served and commanded for over 10 years a body engaged in applied field research in aspects of soil, vegetation and climate. After retirement, Avner co-founded a startup called Hydroponics Network in the field of urban agriculture, stemming from the belief that a healthy urban life is the basis for a sustainable society. He is also a member of the "Hand in Hand" community that seeks to promote coexistence among Jews and Arabs.



Qawa-full

In Ghana, as well as in the rest of West Africa, around 7 million smallholder farmers rely on road transport services for the movement of agricultural commodities and inputs from point A to point B. Unfortunately, these services are inadequate, challenged by poor infrastructure, seasonal demand, and lack of coordination across the supply chain. This leads to limited market access, loads of post-harvest losses, and prevents the manufacturing industry from using agro-produce as inputs. These challenges limit the capabilities of the sector, leaving the region's full benefits and potential untapped.

Qawa-full provides a smart transportation logistics solution that enables multi modal transport coordination. The proposed solution handles transport requests from buyers and sellers, uses geo-climate data to identify the best routes, and matches it to transport service providers. Our vision is to enable an efficient, traceable and reliable farm-to-market logistics ecosystem, thus improving agri-food supply chain robustness, resilience, and reliance.





About the Founders

Amir Ounallah

amir.ounallah@bustana.com

Amir Ounallah is an entrepreneur and a senior executive with 15 years of experience in introducing and integrating new technologies to the travel and transport industries. Amir is also the co- owner and manager of Bustana, a family business growing and marketing agricultural products from the lands of the Jerzeel valley at the foot of Mount Precipice since the 1850s. Amir believes that the first step in changing the current food system begins at the farm. As such, by using his own farm as a pilot, Amir is dedicated to researching and introducing new agricultural technologies and concepts that can help transform more conventional farms into adopting sustainable and regenerative farming methods.



Faris Jahshan

faris@geoformation.co

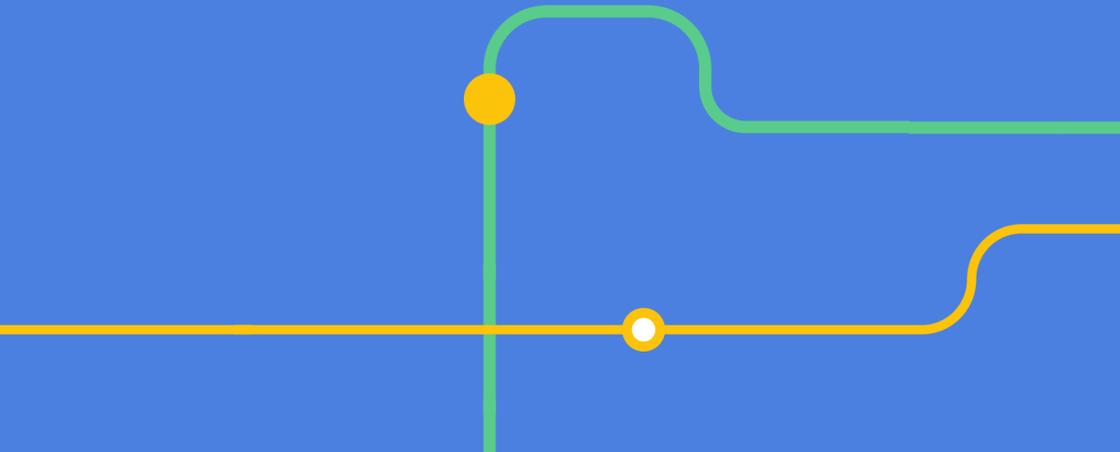
Faris Jahshan is a senior geomatics expert. As a graduate of the Technion Haifa, Faris holds an M.Sc. of Mapping and Geo-information, a B.A. of Computer science, and a B.A. of Mapping and Geo-information. Faris brings over 15 years of work experience in development and project management in Geomatics, location-based services, and IT projects.



Symbiosis

Medicinal plants in Ghana can be found all across the country, and play a key role in Ghanaian history, culture and well-being. The connection with the land and indigneous plants provide great benefit to many Ghanaians. Unfortunately, knowledge of traditional use and medicinal benefits is barely known to a lot of Ghanaians, especially the youth, and seems to be locked up with traditional herbalists, elderly individuals, and within hard copy books.

We are looking to create Symbiosis, an accessible online platform that will help identify West African medicinal plants and their local uses, reviewing biological and pharmacological activities reported by researchers and traditional practitioners in Ghana. By integrating both scientific and traditional aspects, this platform will present a holistic point of view with the ability to serve a variety of user segments, and improve both physical and mental health within the larger community.





About the Founders

Yaara Cain

yaara.ca@gmail.com

Yaara Cain is a Systems Architect and Team Leader in the field of information systems, holding a Bachelor's degree in Industrial Engineering and Management from Ben-Gurion University. During her studies, she participated in a volunteer delegation to Ghana, where she collaborated with a local organization. In her work she is passionate about creating a bridge between humans and technology. Yaara also initiates and participates in social initiatives in various fields, including social cinema in south Tel Aviv. In recent years, Yaara has moved to a small community in the north, where she has discovered again her deep connection to nature and plants. In her free time, she likes to watch documentaries, travel and try to apply the principles of the Slow Movement in her life.

Haim Lahovitsky

haim3000@gmail.com

Haim Lahovitzky is a marine ecologist, currently managing the Applied Marine Biology lab at Haifa University, while working towards his Master's in Marine Biology. He received his BA in Marine Biology from the Rupin Michmoret Academic Center where he also served as the head of the Students Association in which he managed and initiated projects within and beyond the field of his studies. Haim has creative visions and believes in theory allied to work. As a result of this belief, Haim, together with his brother, founded a startup aimed at streamlining and enabling savings in agricultural irrigation, accompanied by ecological experiments conducted in his lab. Haim is experienced in social communication, resilient to stress, and displays managerial knowledge.



Tropical Gold

In West Africa, losses due to pests, diseases and weeds are estimated to affect about 35% of major crops, and may exceed 50% in developing regions where pest management strategies are limited. Sustainable pest management methods include non-chemical control methods (biological, cultural, mechanical and physical) although presently, many farmers in the region still rely on chemical pesticides to control pest outbreaks, and lack the knowledge of alternative non-chemical management options. Many farmers have expressed concerns about the use of these highly hazardous pesticides and availability of counterfeit and low-quality products, showing interest in using lower hazard alternatives if they could be made available and affordable. A shocking 16% of farmers said that biological control options for management were available on the open market. There is no manufacturing of ethical bio pesticide in Ghana.

Africa is abundant in its medicinal fauna, presenting the opportunity to discover new molecules and new modes of action to tap into the \$5B global market. Tropical Gold aspires to create a new value chain to develop, produce, register and market bio pesticides locally and globally– based on local medicinal plants in Ghana. Not only will this be environmentally beneficial, it will also create new jobs for young men and women in R&D, farming of new cash crops, processing and manufacturing products, and marketing them in West Africa and around the globe. Local production of the biomass and the products will contribute to Africa's Sustainable Development Goals (SDGs) by minimizing transportation and associated costs, replacing imports and opening the opportunity for additional industries related to biomass waste.



About the Founders

Dani Neifeld

olivetechltd@gmail.com

Dani Neifeld is the founder and former CEO of Biomor Ltd which developed novel plant protection products for use in organic farming. The company worked to develop products such as TimorexGold, an award winning product (Agrow Award 2013). Prior to being acquired, Biomor won first place among 200 companies partially funded by the Chief Scientist Office (Israel) as part of the technology incubator scheme. In the following years, Dani established AQUAMOR – his second startup – developing therapeutic drugs for aquaculture. Aquamor, now called STK Aquamor Technologies, has become the Veterinary Unit of the Stockton Group (STK). In the last few years Dani has been involved in various aspects of sustainable agriculture with close ties to GLOBAL G.A.P, Rain Forest Alliance and others.



Ben Katzir

ben.katzir@gmail.com

Ben Katzir grew up in Klil in family of organic smallholder farmers. He studied agro-ecology and biotechnology, and has worked for various NGOs in many countries, (including Ethiopia, Nepal and Haiti) in the fields of agronomy and public health. He additionally works as a tour guide for 11 African countries, and believes in the developing power of responsible tourism. Ben is currently working on his PhD in the field of sustainable development at Tel Aviv University. He is enthusiastic about regenerative agriculture and organic bio-inputs and experiments with many of them in his family plot in Klil.



Thank you to all Pears Challenge V sponsors, partners & supporters:



Trade and Economic Mission
Embassy of Israel to Ghana



2B HUB

**KOSMOS
INNOVATION
CENTER**

INVESTING IN THE FUTURE, ONE ENTREPRENEUR AT A TIME



הפקולטה להקולטות
מזון וסביבה
ע"ש חוביט ה. סמית



האוניברסיטה
העברית
בירושלים



IDEV
Africa



Pears Challenge 2022

Pears Program
for **Global Innovation**