ISABEL

Executive Summary

Q4 2018

Our Mission

Isabel is a sustainable intensification platform for smallholder farmers operating in sub-Saharan Africa. Currently, we work with tomato and yam farmers in Nigeria.

Challenges for farmers

1

Market Access

Most small-scale producers can only access poorly regulated markets that lack proper price setting mechanisms, which depress the value farmers receive for their produce.

2

Access to Capital

Farmers, both large and small scale need financing to expand their production through use of improved inputs and irrigation. They also need short-term financing to cover working capital needs for pre-production activities.

3

Technological Adoption

In most smallholder farming areas, the root cause of poverty and food security is limited adoption of more productive and diversified agricultural technologies.

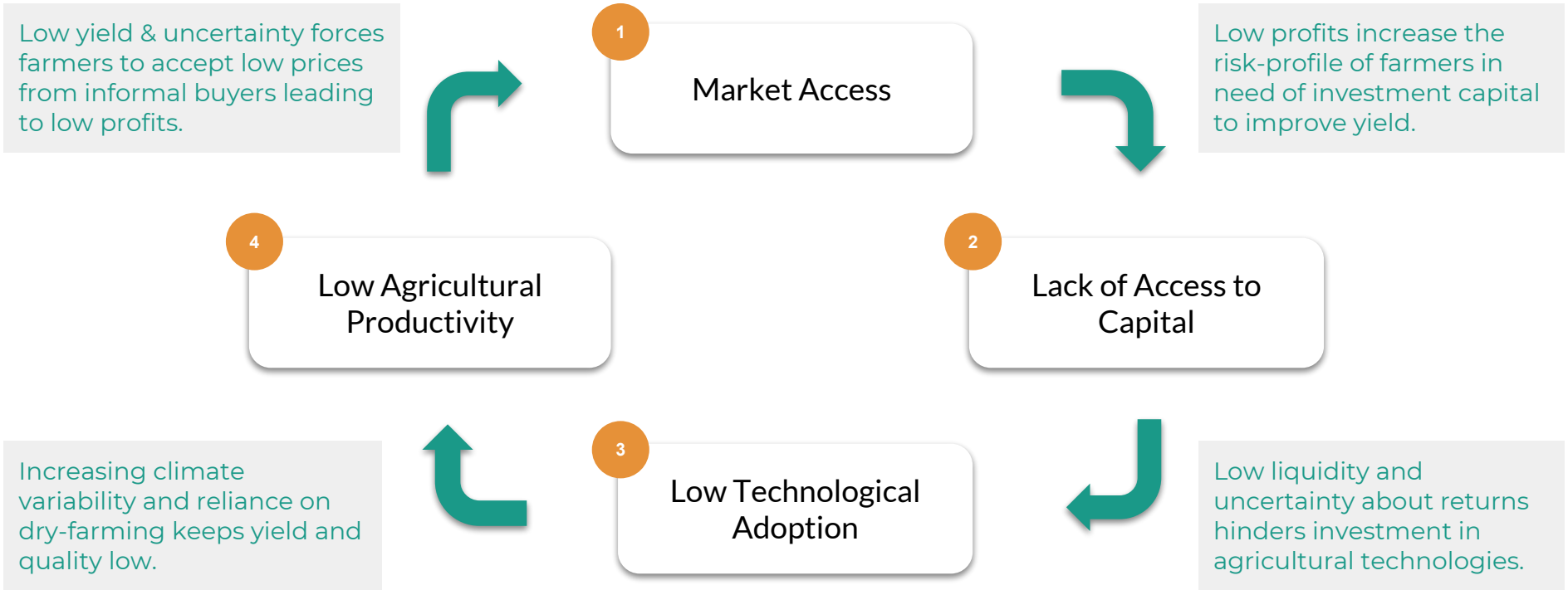
4

Low Yield

Agriculture in Africa is under threat of low productivity due to limited use of improved seeds, fertilizers, sustainable crop protection technologies, increasing water stress in many countries, and disasters that are affecting crops

The Real Challenge

These issues are interrelated and current aid models tend to address one issue in isolation.



Our solution: Holistic Farmer Support

Isabel's intensification platform improves farmer yields through an ecosystem of tools and services.

We provide three core areas of support: micro-credit, marketing & fulfillment and agronomic advice.

How it works

In order to improve outcomes for farmers, Isabel supports farmers from seed to sale.

Isabel builds greenhouse

Greenhouses are equipped with sensors for data collection & analytics.

Farmer buys transplants

Isabel grows hybrid transplants and provides financing to facilitate adoption.

Signs repurchase agreement

Isabel buys produce and deducts loan payments from the purchase price.

Isabel troubleshoots crop health

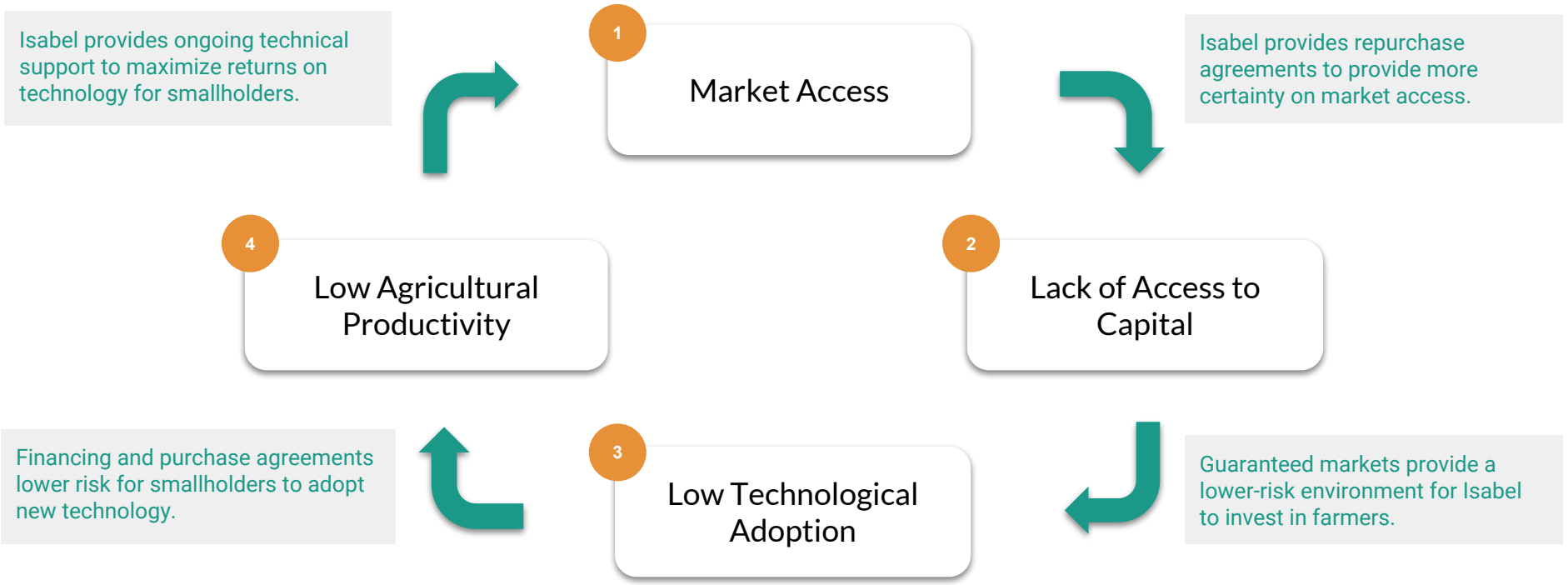
Isabel supports farmers from seed to sale to improve outcomes

Isabel buys harvests and resells to large buyers

Prices provide attractive returns for both the farmer and Isabel as an investor

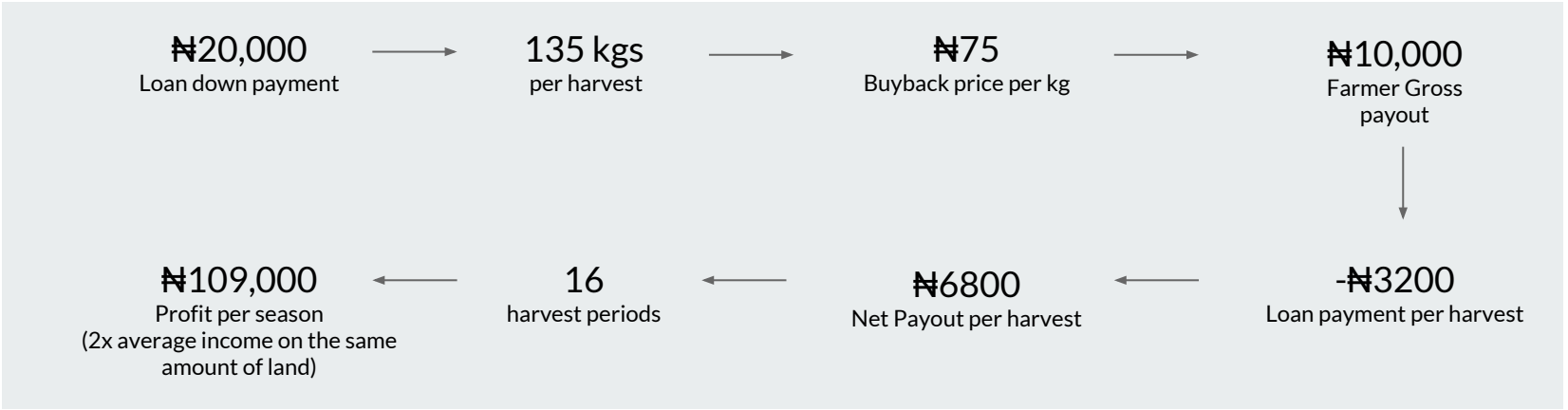
Facilitating Technological Adoption

Lowering risk incentivizes farmers to adopt improved farming practices.



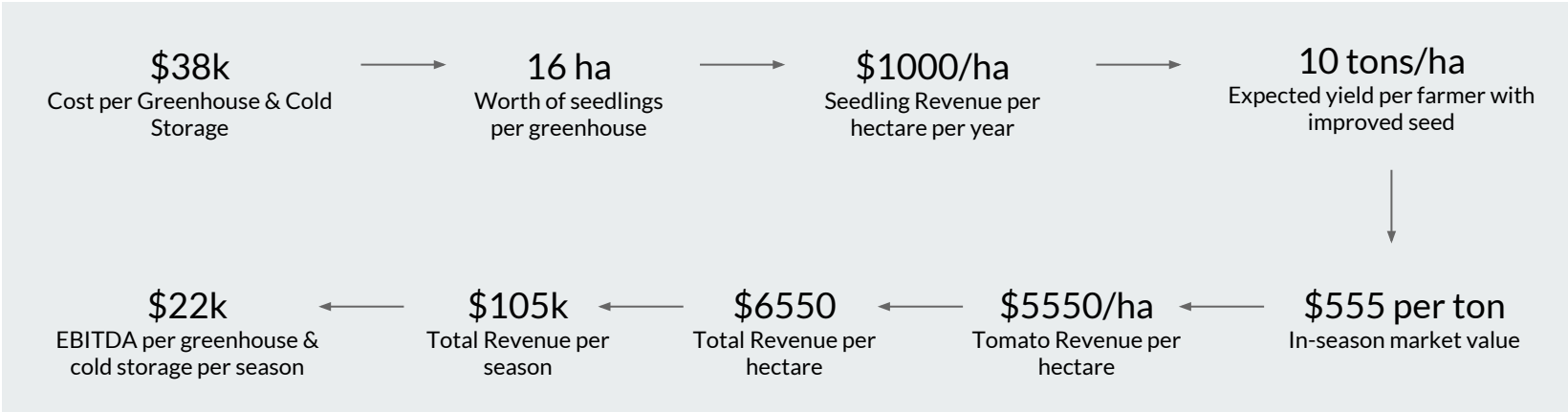
Returns for the Farmer

Our tomato pilot in Nigeria is ongoing. Based on early harvests, our farmers are projected to yield 10 tons per hectare doubling the average of 5 tons. The following is based on our experience with one of our pilot farmers Ibrahim Laban who operates .25 hectares.



Returns for Isabel

Assuming a yield of 10 tons of tomatoes per hectare, a 4 month tomato season and a market price of $550 per ton, Isabel generates attractive financial and social returns on investing in and supporting smallholder farmers. Keep in mind, farmers in US, China and Europe commonly achieve yields of over 80 tons per hectare.



Tomatoes are great but...
Data is better

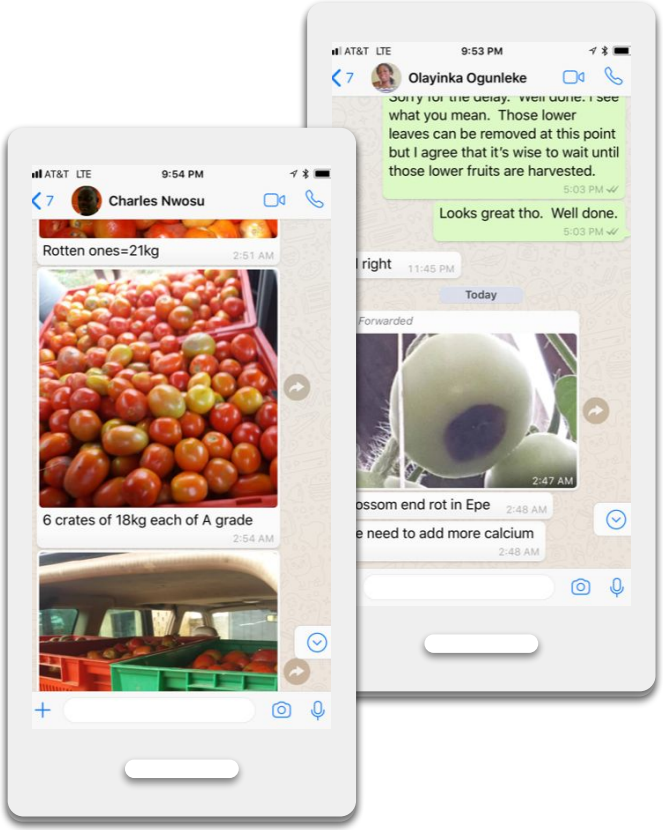
Farm-level data collection

Where we are now

WhatsApp MVP

Currently, Isabel uses WhatsApp to communicate with employees and uploads data manually to our databases.

This is a cumbersome process with a lot of room for improvement. This does, however, allow us to clearly understand the kind of data we need to collect, our user's technical literacy and other constraints related to data collection in remote areas before we incurred any development costs.

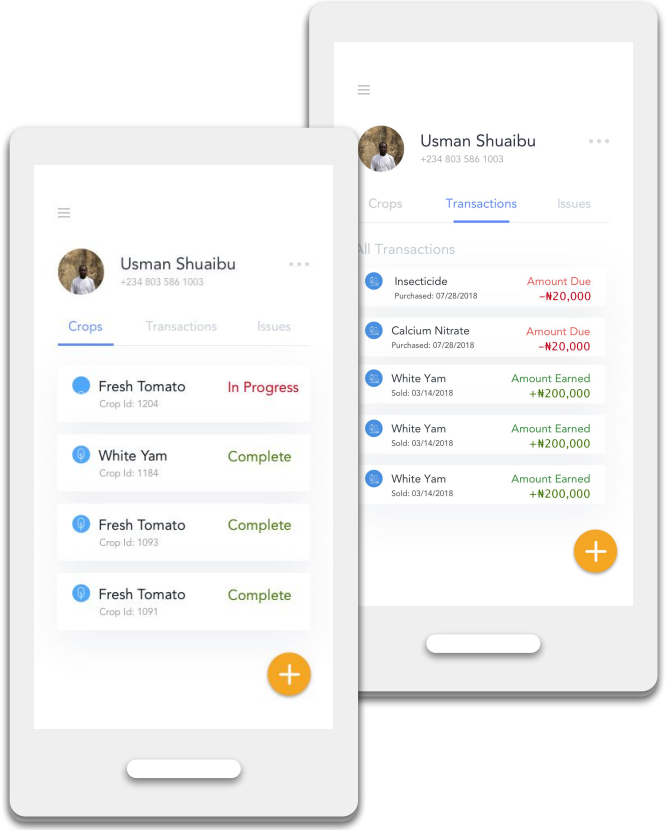


Farm-level data collection

Where we're going

Collecting farm-level data about the effects of improved seed varieties, organic fertilizer and the use of biologicals is critical to farmers. With this data, the farmer can make more informed investment decisions that will improve productivity and incomes. Also, up-to-date records of fertilizer and pesticide use are mandatory when trying to access more premium international markets.

Later this year, Isabel is launching an Android application to monitor farmers based on a product we previously developed for the United Nations World Food Program. This will enable Isabel staff to collect farm-level data more effectively while also relieving the farmer of the burden of record keeping.



WFP World Food Programme wfp.org

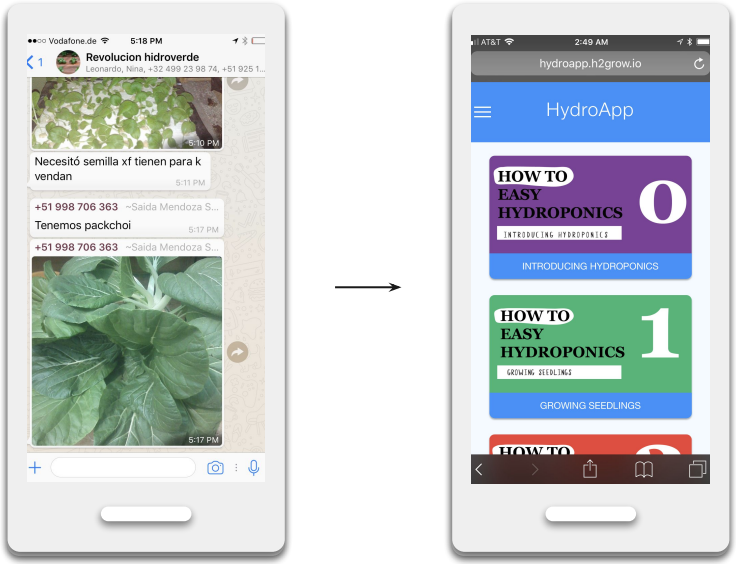
INNOVATION ACCELERATOR

Case Study: Perú

World Food Program

Isabel's mobile platform has roots in our recent collaboration with the World Food Program's Innovation Accelerator. Our organization was recently awarded funding to develop a mobile agronomic support application based on field-research and user data gathered in Lima, Perú.

Similarly, the project started with a WhatsApp MVP to understand pain points for new urban hydroponic grower. Currently, the application is in a beta-test phase with the Municipal Government of Lima and the WFP - Perú.



Go-to-Market:
Tomatoes & Yams

Go-to-Market

Tomatoes

Since the ‘Tomato Ebola’ of 2016, the Nigerian Federal Ministry of Agriculture and Rural Development has made a commitment to improve farm-to-market links in the tomato value chain, but no business has yet developed a viable, sustainable model to competitively aggregate, package and sell tomatoes domestically. According to Central Bank of Nigeria’s records, the demand of the crop was 2.3 million metric tons which has been valued at $2B. $1 billion is also spent on imported tomato paste to meet local demand. This translates to a total addressable market size of $3B in Nigeria alone.

Go-to-Market
African Yam

The lack of a formalized system for the production of disease-free seed yam is a major bottleneck to the improvement of yam production in Nigeria. Nigerian farmers cultivate 2.9M hectares of yam and plant an average of 20,000 seed yam per hectare. This translates into an $11B addressable market in Nigeria alone.

The average daily consumption of yam flour and instant pounded yam in Nigeria is estimated at 750 tons per day. This translates into a total addressable market estimated at $385,000,000.

Progress to date

Progress to date

Tomatoes - Abuja

- Financed and constructed to prototype greenhouses in Abuja.
- Hired and trained local staff on tomato transplant production.
- Established partnership with the Ministry of Agriculture to import improved seed.
- Recruited 10 outgrowers to join our pilot program. 4 in Keffi, Nasarawa State and 6 in Ketti, a farming village in Abuja.
- Distributed improved seedlings and received 30% down payments from all growers in Ketti
- Established guaranteed partnerships with Magnanimous Earthbound, Ltd. to sell all tomatoes through various channels.
- Harvest began on 9/12. Between outgrowers and Isabel owned farms we are producing and selling 1 ton of tomatoes per week.
- Based on early harvests, farmers are projected to double yields compared to the Nigerian standard.

Seedlings loaded on a truck ready for journey from Abuja to Nasarawa.

Progress to date

Tomatoes - Lagos

- Partnered with Magnanimous Earthbound Solutions (MES) in Lagos to bring a failing tomato greenhouse back to life for Nigerian venture capitalist Yemi Osindero.
- Hired agronomist and tested whether or not we could provide valuable technical support remotely via WhatsApp.
- Effectively addressed all crop health issues and system is now producing competitive yields.
- As a result, Nigerian grocery chains Shoprite and SPAR have expressed interest in installing greenhouses to stabilize supply chain issues for premium tomatoes.
- Secured land in Epe, Lagos from Mr. Osindero to expand nursery production and outgrower program to Lagos.
- Distribution channels are established with Shoprite and SPAR via MES.

Aeroponic tomato greenhouse in Epe, Lagos before and after Isabel technical support.

Progress to date

Yam - Abuja & Nasarawa

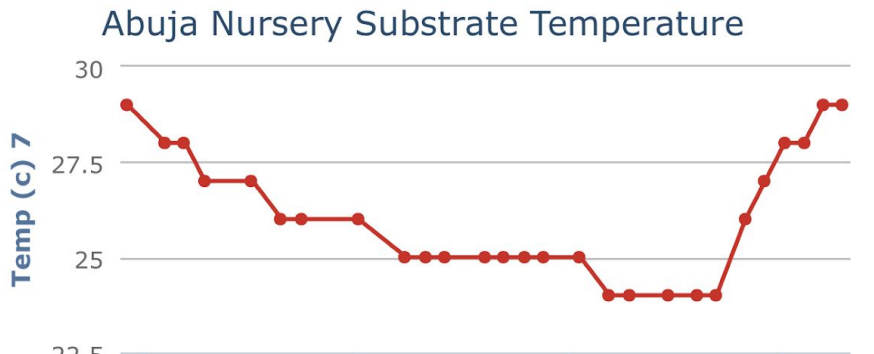
- Partnered with BioCrops Nigeria, Ltd. to experiment with yam vine multiplication in hydroponic bag culture.
- Isabel secured export license from Ministry of Agriculture to export yam flour to the United States.
- Signed Guaranteed Supply Agreement with Treasure8, LLC. for yam flour
- Due to positive results, Isabel and BioCrops are launching a yam pilot program with 10 farmers in Nasarawa State in Jan 2019.

Yam multiplication in hydroponic system at Isabel's greenhouse in Abuja.

Progress to date
Smart Greenhouses

What we mean by ‘smart’:

Our greenhouses come equipped with sensors that utilize local cellular networks to collect data which is used to inform adjustments to irrigation intervals. This helps us to maintain optimal environmental conditions enabling us to produce consistent, high-quality and disease free-transplants.



RoadMap 2019

Yam Flour Pilot (January - July 2019)

Produce Yam Transplants

First commercial production of improved water yam seedlings.

Monitor Progress & Repurchase

Pilot size will be 5 hectares to keep trials manageable.

Process & Export Flour

Send first shipments of yam flour to our US clients.

Tomato Production (July - December 2019)

Expand transplant production

5 greenhouses in a Abuja & 3 in Lagos.

Grow Farmer Network

Each greenhouse can plant 16 hectares.

Sell Produce

Increase yield to 15 t/ha and double farmer incomes.

The Team

CEO & Co-Founder - Isabel

Eric Hager

Eric is an agricultural and technology entrepreneur, systems designer, co-founder & CEO of Isabel Technologies. He focuses primarily on the design of innovative crop intensification systems and companion digital technologies. Over the past several years he has designed, managed and implemented agricultural and technology products and programs across three continents for some of the world's largest NGO's including the World Food Programme's Innovation Accelerator and the International Institute of Tropical Agriculture.

Director of Business Development & Co-Founder - Isabel

Alex Dalessio

Alex is a multidisciplinary professional with over 15 years of experience working across six continents and holds a JD from UC Berkeley as well as an MBA from Oxford University.

His primary focus is enterprise innovation management and strategy and he has built and lead transformational product and service innovation programs. Alex has developed and built rapid-prototyping and global user experience programs in large publishing and media companies, including John Wiley & Sons and Reed Elsevier. He has consulted with some of the largest organizations in the world, including Nike, Citibank, Proctor & Gamble, AB InBev, the United Nations, and the US Government.

COO & Co-founder - Isabel Nigeria

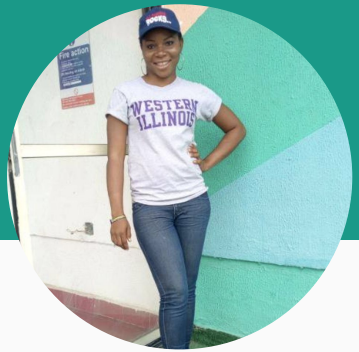
Dr. George Nwangwu

George has decades of experience in corporate finance, project finance, development finance and other transaction work in oil and gas, power and telecommunications, loan and equity offerings, mergers and acquisition in both Nigeria and the United Kingdom. To date Mr. Nwangwu has participated in the consummation of over 100 privatization/ PPP transactions worth over USD 10 billion either on the side of the public sector or private sector in Nigeria and clearly understands the challenges on both sides of the divide. He is also the former PPP Project Coordinator and Head of the PPP Division of the Federal Ministry of Finance in Nigeria.

Farmer Support Team

Charles Nwosu

Operations Manager - Abuja



Chioma Igbelina

Agronomy Advisor - Abuja

Yinka Ogunleke

Agronomy Advisor - Lagos

Godwin John

Greenhouse Technician - Abuja

Thank you!