

REALIZING FIRST-OF-ITS-KIND PLANT-BASED ALTERNATIVE TO MEAT IN RWANDA

Boosting farmer income
through new
nature-positive crops and
fighting malnutrition in
rural communities


ONE ACRE FUND

In partnership with



WAGENINGEN
UNIVERSITY & RESEARCH

&



POWERED
BY ENVIU

WHY | HOW | WHAT

WHY - THE ISSUE | FOOD SYSTEM IN RWANDA FACES DOWNWARD SPIRAL



- **ECONOMIC:** The majority of the region's poor are rural smallholder farmers who face low staple crop yields and a lack of economic opportunities. Many are trapped in an ongoing cycle of poverty that they cannot break through. Climate change – jeopardizing yields – puts additional pressure on farmer income.
- **ENVIRONMENTAL:** Farmers lack the means to invest in nature-positive, regenerative farming. As they seek to survive, they often engage in unsustainable practices that erode the soil and convert more wild lands to farming.
- **SOCIAL:** Protein-energy malnutrition and micronutrient deficiencies are common in rural communities, which can lead to health issues and limit opportunities for individuals to reach their full potential in life. Meat is not affordable for these low-income families and is unwanted for its negative environmental impact; affordable alternatives do not exist.

JUMPING THE CURVE BY BUILDING A PLANT-BASED MEAT MARKET IN RWANDA

1. A growing demand for meat is expected in Africa as a source of protein, taste, and as a 'luxury good'
2. Most rural households are not able to afford to eat meat but want to
3. Opportunity is now to offer an alternative to these households to fulfil this demand before they get used to eating meat, leapfrogging the current uphill battle in developed countries to replace the established position of meat
4. Increasing demand for plant-based meat will pull farmers to transition to more nature-positive and climate-resilient crops

It is a major opportunity to transform the food system to sustainably meet Africa's growing protein demand by investing in local plant-based meat development

WHAT – OUR SOLUTION | REALIZING A TRIPLE WIN THROUGH ESTABLISHING AN AFFORDABLE PLANT-BASED MEAT VENTURE AND VALUE CHAIN

*We will develop
a viable and scalable alternative
protein business
and
a full integral value chain
to capitalize on this market
opportunity to realize a triple positive
impact on the food system
in Rwanda*

WIN 3: NUTRITION

Affordable, nutritious
protein product for rural
households

**PLANT-BASED
MEAT**



WIN 2: FARMER RESILIENCE

Secured offtake for farmer
of high-value crops

WIN 1: CLIMATE RESILIENCE

Growing nature-positive,
resilient crops

OUR AMBITION | WE AIM TO REALIZE BOTH DIRECT IMPACT AND FUNDAMENTAL CHANGE

DIRECT IMPACT: SUCCESSFULLY BUILDING A FLOURISHING PLANT-BASED MEAT BUSINESS



Improving and securing income and lives of 10.000+ farmers



Improving soil and climate resilience of land



Adding to improved nutrition for 1+ million rural households

FUNDAMENTAL CHANGE: PAVING WAY FOR LARGE-SCALE TRANSITION TO MORE SUSTAINABLE FARMING



Proving and showcasing impact and business model for nature-positive crops like soybeans, yellow beans, and mucuna



Establishing wide-spread awareness and demand for eating plant-based protein, 1) securing the market for new crops and 2) suppressing the forecasted rise of meat consumption in Rwanda and the negative effects of that on the food system

BUSINESS CONCEPT

KEY MARKET BARRIERS | FUNDAMENTAL ENTRY BARRIERS DEMAND MULTIPLE INTERVENTIONS THROUGHOUT VALUE CHAIN TO MAKE IT WORK

1 LACK OF MARKET

Demand is not yet proven, requires behavioral change, uncertainty of potential scale

2 COMPLEX VALUE CHAIN

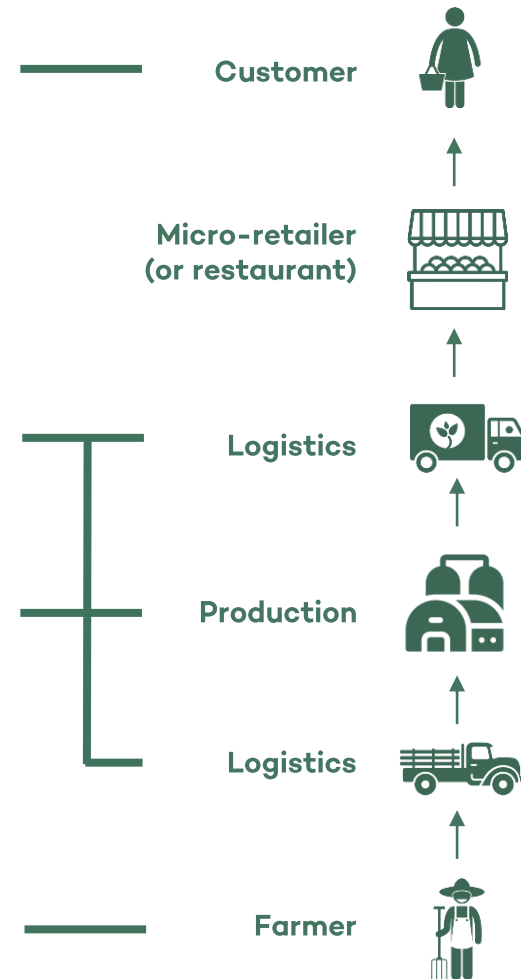
Both supply and demand are very scattered; economies of scale are difficult to achieve

3 LACK OF TECHNOLOGY AND KNOWLEDGE

Plant-based meat technology doesn't exist in Rwanda

4 LACK OF SUPPLY

Input crops aren't grown yet in Rwanda, meaning no knowledge and a big risk for farmers to start



**Classical chicken-egg problem:
without supply there's no
market, without a market
there's no need for supply**

**Setting up this complex value
chain will be very costly and
risky if it needs to be done from
the ground up**

OUR UNIQUE ASSET | LEVERAGING POSITION AND NETWORK OF ONE ACRE FUND

One Acre Fund represents the largest network of African smallholder farmers

700,000+

farmers served through core program

1M+

farmers served through partnerships

\$33M+

Total loan portfolio (\$)

2,730

country program staff

One Acre Fund is a full-service provider to farmers, firmly rooted in their rural communities and value chain



INPUTS

Sourcing of inputs optimized for local agroecological conditions



TRAINING

Training and support on climate-sustainable agricultural practices



DISTRIBUTION

First-mile aggregation and last-mile delivery to walking distance



FINANCING

Pay-As-You-Farm input financing and crop insurance



MARKETS

Connection to buyers and leveraging social behavior change to drive adoption.



OUR CONCEPT | DEVELOPING ALTERNATIVE PROTEIN VENTURE AND INTEGRATED VALUE CHAIN LEVERAGING UNIQUE NETWORK OF ONE ACRE FUND



OUR PRODUCT | AFFORDABLE, NUTRITIOUS, AND DELICIOUS ALTERNATIVE TO MEAT

DELICIOUS	FULL FLAVOUR, ENRICHING LOCAL DISHES (LIKE STEWS, SAMOSA, BROCHETTES)
NUTRITIOUS	HIGH IN PROTEIN AND MICRONUTRIENTS
AFFORDABLE	10X CHEAPER THAN MEAT
EASY TO USE	JUST SOAK AND FRY OR ADD TO A MEAL
SHELF-STABLE	CAN BE KEPT FOR MONTHS

Target product is a dry, extruded protein (TVP) that can be rehydrated → low-cost, shelf-stable and easy-to-use

Example: Sossi in Kenya 'My family's favorite protein'



PILOT RESULTS | FIRST PILOTS SHOW DEMAND FOR MEAT ALTERNATIVE AND ENTHUSIASTIC RESPONSE TO PRODUCT

- *> 90% of pilot respondents said they either liked or loved the plant-based meat dish*
- *100% of respondents said they would want to use PBM at home*
- *> 80% of respondents would recommend PBM to friends or family*

“I loved it, at first I thought it was meat...”

“I was surprised about the taste, you cannot imagine buying meat anymore.”

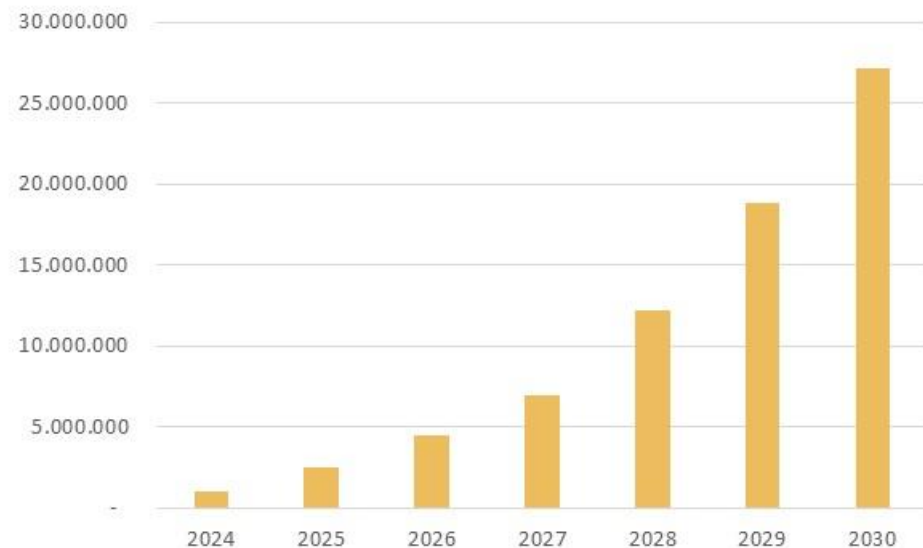
TOP-3 INSIGHTS CONSUMER RESEARCH PILOTS

1. Rural consumers want to eat meat, but they can not or barely afford it (max 1-2 a month)
2. The biggest reasons people eat meat are taste and protein
3. Meat provides a sense of dignity / luxury in a meal

CONSUMER PILOTS SHOW PLANT-BASED PROTEIN PRODUCT CAN BE VIABLE ALTERNATIVE TO MEAT FOR (RURAL) CONSUMERS IF AFFORDABLE AND TASTY IN LOCAL DISHES

THE MARKET OPPORTUNITY | PLANT-BASED MEAT MARKET IN RWANDA CAN GROW TO \$20-30 MIO IF AFFORDABLE TO RURAL (LOW-INCOME) CONSUMERS

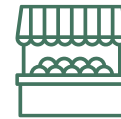
Local plant-based meat market in Rwanda (indicative, in \$)



Venture will have a strong first-mover advantage to seize a significant part of this new market



TARGET MARKET: rural families with generally low-middle income (~3 mio)



DISTRIBUTION: micro-retail stores and restaurants in rural communities, local food producers



PRICING: \$2-2,5 per kg = per serving around 10 times cheaper than meat (with same amount of protein)



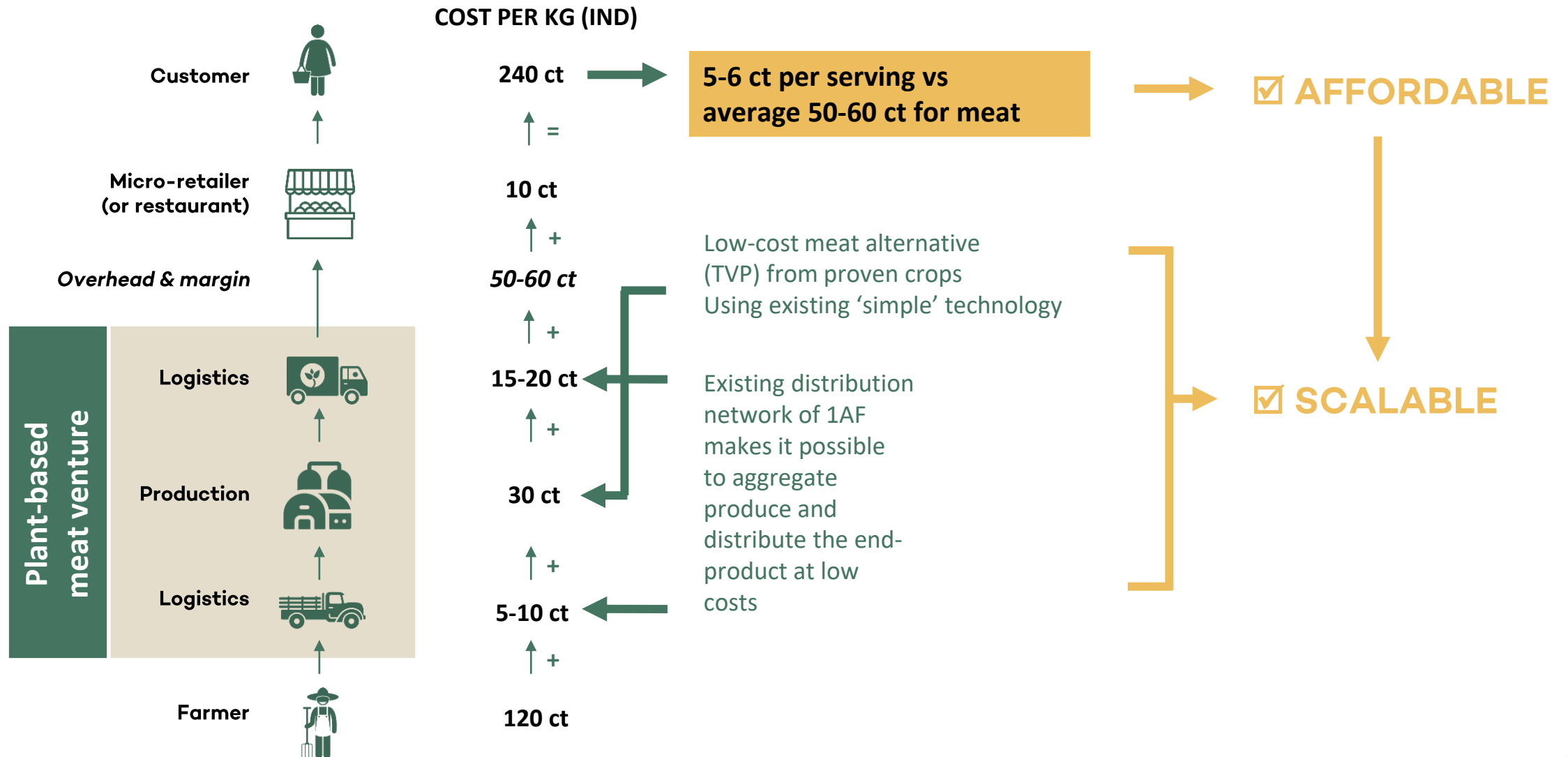
USAGE: adoption rate expected of 50% in 5-7 years, with customers adding plant-based meat on average 1,5 times a week to their meals



MARKET: as a result, local plant-based meat market in Rwanda can grow to \$20-30 mio

NB export markets can become a multiple of this

OUR MODEL | LOW-COST TVP-PRODUCT, EXISTING 'SIMPLE' TECHNOLOGY AND LEVERAGING DISTRIBUTION OF ONE ACRE FUND SECURES AFFORDABILITY



OUR CROPS | ENVISIONING A MIX OF NITRO-FIXING, CLIMATE-RESILIENT CROPS THAT ARE PROVEN TO MAKE GOOD TVP

KEY PRINCIPLES CROP SELECTION

1. **Nature-positive:** nitro-fixing, climate-resilient, diversifying, regenerative
2. **Chance of success:** high likelihood of growing successfully in Rwanda
3. **Enhancing farming income:** higher land yields, additional produce
4. **Good TVP:** can be used for stable and nutritious TVP product
5. **Affordability:** affordable crop price, high process yield, and low production costs

SHORT TERM MIX Yellow beans, soybeans



Perspective:
PROVEN



Crops proven to make good and affordable TVP, requiring proven, existing technology, crops proven to grow in Rwanda, proven to positively effect lands



LONGER TERM MIX Yellow beans, soybeans, cover crops, seeds, ...



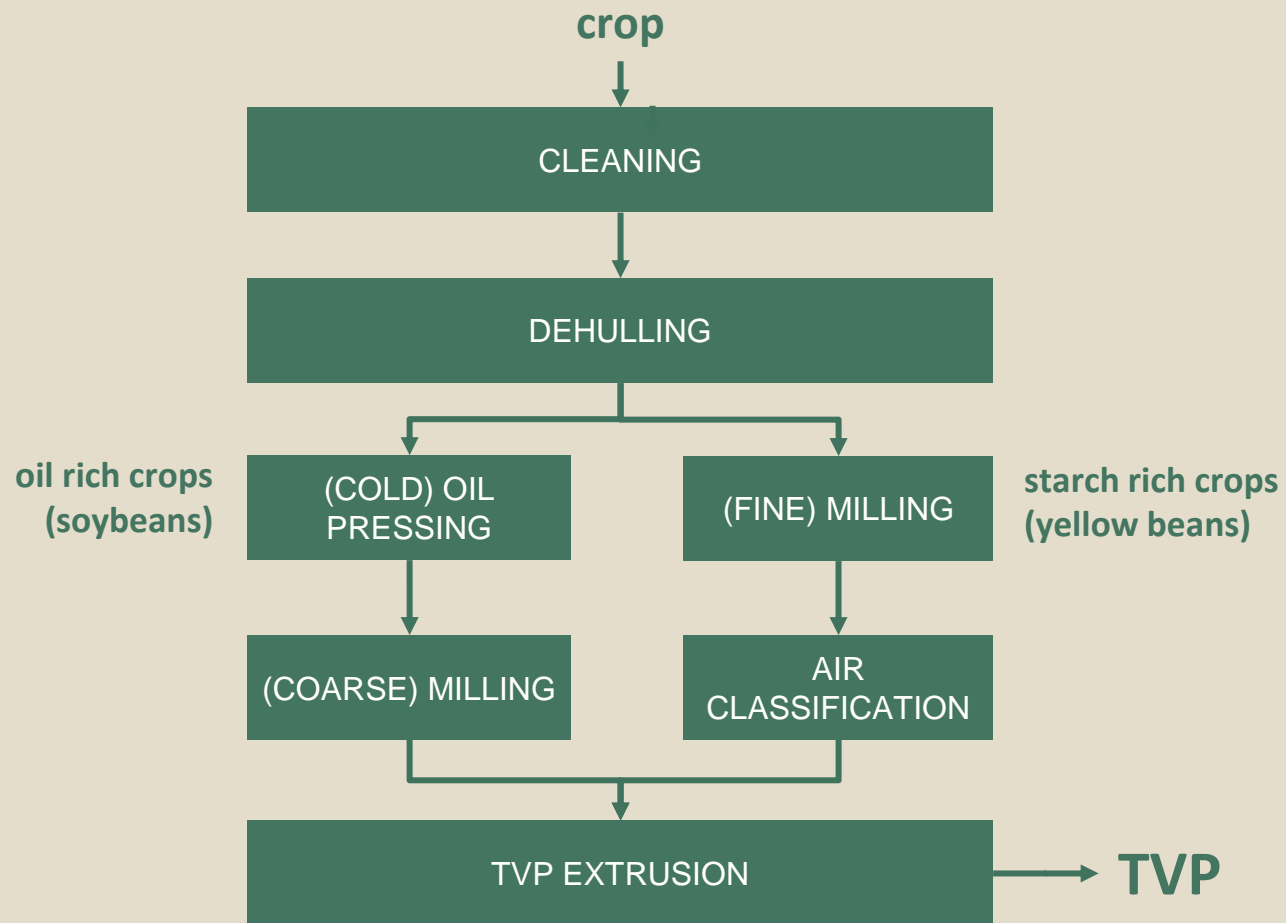
Perspective:
PERFECT



Broad combination of locally-grown nature-positive crops can be used for affordable TVP-product and value chain, with maximum positive effect on land and farmer income



OUR TECHNOLOGY | BRINGING (PROVEN) TVP-TECHNOLOGY TO RWANDA, RIGHT BALANCE BETWEEN AFFORDABILITY AND TASTINESS STILL TO BE TESTED



Production facility for TVP does not yet exist in Rwanda (some elements do exist for the first part of the process); our venture will bring the technology to Rwanda and make it work viably

Technology is proven for yellow beans and soybeans, but product manufacturing has to be tested and optimized for local produce (eg quality), context (eg humidity) and crop combination (short and longer term)



OUR OFFER TO FARMERS | GUARANTEEING OFF-TAKE AT HIGH MARGIN PROVIDES ATTRACTIVE OFFER FOR FARMERS TO TRANSITION TO NEW CROPS



STABLE DEMAND: guaranteed off-take



HIGH MARGIN: +50-100% increase in yield compared to maize



FREE PRODUCT (TBD): part of additional margin will be paid out in TVP to secure nutritional benefit



SUPPORT: operational and financial support from One Acre Fund to introduce and grow new crop as effective as possible



PROJECT / ROAD AHEAD

SO FAR | PLANT-BASED MEAT CONCEPT AND PARTNERSHIP HAS BEEN DEVELOPED IN LAST 9 MONTHS BUILDING ON RESEARCH (PILOTS), READY TO BE VALIDATED



Business

Research pilots on consumer need and behavior with first positive validation: over 90% of respondents liked the product and were interested to buy

Product manufacturing

Research led to choice of TVP as target product and crop combination of soy beans and yellow beans to create affordable yet tasty TVP

Growing input crops

Research and agricultural research trial - on ideal crop composition - from perspective of positive impact on land, attractiveness to farmer, and likeliness to grow successfully in Rwanda - have been done as input for crop selection

Business model

Viable business model designed based on research and assumptions, to be validated in next phase

Team

Unique venturing partnership established between One Acre Fund, Wageningen University, and Enviu. Teamed up with Kenyan TPV-producer Sossi for piloting and (probably) first phase of building the business

Funding

Secured funding of 80K for research (this phase) + 30K for additional market piloting (next phase, step 0, see next slide)

NEXT PHASE | VALIDATING PLANT-BASED MEAT BUSINESS AND VALUE CHAIN IN NEXT 1,5 YEAR THE 'LEAN WAY': LEARNING BY DOING



	STEP 0 (MAY-SEP): FINALIZE RESEARCH (PILOT) PHASE	STEP 1 (SEP-FEB): LAUNCH BUSINESS WITH SOSSI-PRODUCT; VALIDATE INPUT CROPS	STEP 2 (FEB-DEC): LAUNCH OWN PRODUCT IN BUSINESS; VALIDATE TECHNOLOGY
Business	Iterative market piloting with target consumers, retailers and restaurants to design attractive value proposition	Launch venture with validated value proposition on small scale, step-by-step extending scale, learning by doing	Launch and test own product within created business infrastructure, based on own crops and recipe, manufactured by Sossi
Product manufacturing	Close manufacturing deal with Sossi and detail distribution process	Design, test, and create tasty product from sourced input crops (incl. flavoring). Choose best technological set-up to secure taste and affordability	Validate technology to make own product. Design operational facility and draft plan. Prepare setting up facility (eg location, permits)
Growing input crops	Prepare farmer offering: inputs, (seeds, fertilizer, etc) and support Contract x farmers for validation	Run pilot with selected farmers to grow input crops (A-season) and evaluate yields, quality and offering	Sell offering to larger group of farmers to grow input crops (B-season). Pilot additional (cover) crops in C-season.
Business model	Update business model & case on pilot results	Update business model & case on pilot results	Update business model & case on pilot results
Team	Recruit venture builder (business profile)	Recruit venture builder (ops profile)	-
Funding	Fundraise for launch & learn phase	-	Raise subsidies, grants and impact investment capital to build facility and grow venture

UNIQUE PARTNERSHIP | ONE ACRE FUND PARTNERS WITH IMPACT VENTURE BUILDER ENVIU AND FOODTECH EXPERT WAGENINGEN UNIVERSITY TO MAKE AMBITION HAPPEN

One Acre Fund – Lead partner. Largest service provider to smallholder farmers in East Africa, serving over 700.000 farmers in Rwanda.

Will bring in expertise on farming practices, financing, input distribution, and commercialization support to farmers. Will be founder of new venture.

Wageningen University & Research - R&D partner for product and production design. One of the world's leading universities in food technology. A team of protein extraction experts are seeking to design a product that meets our design priorities.



Enviu – Venture building partner. Studio with unmatched experience in building ventures for sustainable systems. Focuses on venture's business model & plan, validation and market entry strategy, and investment case. May pursue to co-found venture together with One Acre Fund after.

+ **University of Rwanda, School of Agriculture & Food Science** - Partner for local testing of product recipes, processing facility establishment, and market entry.

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