

A Rootical Food System Analysis | 2023

# A BLUEPRINT FOR REGENERATING UGANDA'S FOOD SYSTEM THROUGH PURPOSE-DRIVEN ENTREPRENEURSHIP



**R**ootical is a regenerative agri-food business builder. Starting in Uganda, Rootical powers purpose-driven entrepreneurs to build and own their regenerative agri-food businesses. Purposeful enterprises designed to accelerate the transition to a more inclusive and regenerative food system.

The bottom-up venture building process starts with an intensive problem loving phase: during the August 2023 Rootical Food System Leadership bootcamp, 40 Ugandans (50% women) engaged in a comprehensive training and participatory food system analysis.

This blueprint conveys the findings of this food systems mapping exercise and identifies key design opportunities for building transformational agri-food businesses.

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# Appreciation & Acknowledgments.

To all 40 Rootical participants of the 2023 bootcamp, this blueprint and food system analysis is the result of your combined brainpower. We had a blast interacting with and hosting you during this transformational 10-day journey. Rootical extends its sincere appreciation to our key partners at Shona, Shona Capital and Fresh Ventures. Thanks, Fabio Leppert (Biovision), for your feedback on the first draft and Ruth Nabaggala (AFSA) and Edie Mukibi (Slow Food) for your guest contributions.

Digitising this complex mapping exercise would have been very tricky without Kumu. Thanks to the [Kumu.io](https://kumu.io) community for making this powerful systems mapping tool available for free. Finally, Rootical in Uganda would not have been possible without the financial support of the DOEN Foundation, the French Embassy in Uganda, a private Belgian family foundation, and Biovision Foundation for Ecological Development.



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## FOREWORD



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*With its lush mountain covers, tropical rainforests and green, productive hillsides, Uganda is continuously regenerating. Comfortably located in the Great Rift Valley, its abundant water resources and favourable climatic conditions make the Pearl of Africa a potential bread basket for the region.*

### Regenerating relationships.

“Regeneration is fundamentally about regenerating relationships,” underlines John Kempf. “Relationships between soils, microbes and plants; between livestock and the landscape; between the people, the landscape, and their food supply webs.” He also asks: “How can we not just do regeneration, but be regenerative? To have regeneration hardwired in our DNA?” By adopting steward ownership principles, with Rootical we spearhead a change in how our agri-food companies are financed and owned — for true purpose and impact. We operate from a mindset of abundance and cooperation, rather than scarcity and competition. We build companies that nurture synergetic, collaborative and supportive relationships, contributing to food systems that are regenerative and inclusive by design.

### The power of imagination.

To accelerate the transition to the food systems of tomorrow, we need to unleash our imagination. To imagine highly possible and essential transition pathways. Innovation in agriculture (and adoption) can be found to be low or slow in Uganda. Rootical Founders-in-Residence are continuously challenged to think outside of the box and build Rootically different solutions with lasting impact. We view innovation broadly. Rather than seeing innovation as limited to AgTech and web-based solutions, we are convinced that a business can innovate in its product or service, in how it goes to the market, in its branding and communication, in how it organises sales and distribution, in how it structures wealth generation and distribution within the company and with its wider community of stewards and stakeholders.

### Nature’s magic

Anyone who studies the symbiotic relationships in nature, cannot help but be amazed. “Life is a miracle!” says Uruguay’s former President, José Mujica, in a speech to the UN. “It is our biological duty to respect and to promote life.” There is so much we can learn from nature, from farming with, instead of against her. Let us reconnect with our inner child, marvelled by the beauty of a butterfly. Let us farm, and eat, from that place of wonder.

### The Rootical Dream.

With our replicable, place-based model we are currently active in Uganda (since early 2023) and the Netherlands (Fresh Ventures, since 2021). We intend to build an international group of regenerative startup studios that deliver food system shaking businesses — purpose-driven and locally rooted. In doing so, Rootical can be a network organisation and a brand that aggregates funding and impact investing, to de-risk and leverage catalytic investments in food systems transformation. One studio at a time, we are building the infrastructure to put money to work for regenerating agriculture and transforming food systems.



**Hannes Van den Eeckhout,**  
Rootical founder & director.



# 1. Background

## 1.1 About Rootical

Rootical powers impact-driven entrepreneurs to build and own their regenerative agri-food companies. Purposeful enterprises designed to accelerate the transition to a more inclusive and regenerative food system.

Rootical is Uganda’s first regenerative startup studio. As a startup studio we are in the business of building businesses. Rootical brings together talent, ideas, and resources to germinate startups with the power to make a lasting impact in the food system. Unlike traditional incubation or acceleration programs, a startup studio — also known as a venture studio or business builder — starts before ideation, with a comprehensive problem and market analysis. A startup studio is an active co-founder: more bespoke and hands-on, committed long-term and deeply invested in the success of the businesses it builds. Startup studios are known to be more efficient, faster, and more successful at building businesses.

Rootical, alongside its partners, is pioneering this approach in Uganda, with a keen focus on nurturing regenerative agri-food businesses that are CSI: Commercially viable, Scalable and Impactful. The response to Rootical’s call for founders has been overwhelming, with 775 aspiring entrepreneurs applying to join the movement within just three weeks. From this impressive pool, the top 40 talents

were selected to embark on a transformative bootcamp to become food system shakers. In the first 10 days of August, the #Rootical2023 Cohort dove deep into systems practice, impact entrepreneurship and problem loving to come up with a deep analysis and participatory mapping of the key dynamics at play in Uganda’s food system. And to identify opportunities and leverage points for change. This blueprint is a reflection of that process.

Startup studios are emerging as a dynamic force in agroecology. Studios like Rootical offer a unique platform for co-creating, testing, and scaling innovative solutions that address critical challenges in our food systems. Rootical firmly believes in the potential of startup studios to revolutionise the way we produce and consume food, reinventing the way our agri-food companies are financed, managed and owned.



# ROOTICAL'S THEORY OF CHANGE IN A NUTSHELL

**R**ootical provides talented entrepreneurs with access to expertise, funding, tools and a systemic approach to building business models. Through training, venture building, networks and financial support (=input), Rootical contributes to the capacity of Ugandan social entrepreneurs to build regenerative businesses (=output). These purpose-driven businesses will be geared towards either supporting farmers in their transition to agroecology on the production side, or incentivising that transition by buying their produce and providing market access (=outcome).

This should in turn accelerate the demand-driven transition to a more fair, inclusive, distributed and regenerative food system. This is expected to contribute positively to reduced hunger and inequality, to healthy diets — making healthy, nutritious food more affordable and available for all — and resilient and thriving ecosystems, local economies and communities (=impact).

## 1.2 Why Uganda

While the dream is to build and be part of an international network of regenerative startup studios that share our values and aim to accelerate the transition to agroecology via purpose-driven entrepreneurship — Rootical has started in Uganda for 3 good reasons:

### 1) Organic Champion Nation.

Uganda is Africa's and the world's leading nation with [404,246](#) certified organic farmers (up from 211,584 in 2018; and only preceded by India). The adoption of synthetic fertilisers and agrochemicals is still relatively low. The country's potential to mitigate climate change, restore water cycles and bring back rains with diversified, natural agroecological production systems and permaculture-based landscape level interventions, is enormous.

### 2) Favourable Policy Context.

In 2019 the Ugandan Government published the National Organic Agriculture Policy (NOAP) as one of the nations that is leading organic policy making on the African continent. However, an Organic Bill (law) is needed to operationalize that policy, more budget should be allocated to (organic) agriculture to reach the 10% of government spending as agreed to with the 2003 Maputo Declaration, and policy incoherencies have to be addressed.

### 3) East-Africa's Food Basket.

With a variety of agro-ecological zones and abundant water resources Uganda has the potential to be the region's food provider. Currently using only one third (35%) of its arable land, FAO (2022) states that Uganda's agricultural sector has the ability to feed 200 million people.

*In addition, Uganda has a rich culture of entrepreneurship. Ugandans are known for their entrepreneurial spirit. There is a growing support system for agroecological entrepreneurs who are willing to take risks and start new businesses — including Rootical and Shona's Neycha Accelerator & Fund. The majority of Ugandans are farmers, and agriculture is the backbone of the economy. This means that there is a strong foundation for agroecology to take root. The middle class in Uganda is growing rapidly and represents a growing market for healthy, nutritious and regenerative food.*

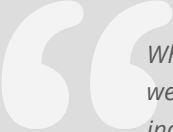




# 1.3 A note on Regenerative Agriculture and Agroecology











Note that “regenerative” and “agroecological” are used as synonyms in this document and by Rootical in general. As Biovision Foundation’s president, Hans Herren once told us, “regenerative is agroecological, if done right!”. While we couldn’t agree more, authors like Ethan Soloviev argue that regenerative agriculture should not be defined — as defining means putting boundaries to it or “bringing it to an end” and the process of regeneration, the transition to organic and ecological agriculture is never finished.

If we would have to pick a definition, this one by Jennifer O’Connor of Guidelight Strategies on behalf of the FORA Initiative, is very rich:



While definitions and narratives around regenerative agriculture are varied depending on who you ask, we have come to define regenerative agriculture as a system of land stewardship, rooted in centuries old indigenous wisdom, that provides healthy, nutrient rich food for all people, while continuously restoring and nourishing the ecological, social, and cultural systems unique to every place.

[André Leu](#) argues how regenerative is deeply intertwined with the vision for Organics 3.0 as spearheaded by IFOAM – Organics International: “all agricultural systems should be regenerative and organic using the science of agroecology”. Why regenerative agriculture? The organisation André Leu leads, [Regeneration International](#), highlights the many answers to that question, and provides the evidence. A global shift to regenerative agriculture can:

-  Feed the world
-  Decrease greenhouse gas emissions
-  Reverse climate change
-  Improve yields
-  Create drought-resistant soil
-  Revitalise local economies
-  Preserve traditional knowledge
-  Nurture biodiversity
-  Restore grasslands
-  Improve nutrition





## 2. SYSTEMIC VENTURE BUILDING

### 2.1 The importance of Problem Loving

Entrepreneurs are eager to build solutions. No less so impact-driven entrepreneurs, with their can-do mentality and urge to address pressing societal challenges. However, when jumping to conclusions about what might be most needed or which innovation might work best, their “solutions” might address symptoms rather than root causes, and their venture might end up not solving any real and significant problem after all.

*As Einstein once said: “If I had an hour to solve a problem I’d spend 55 minutes thinking about the problem and five minutes thinking about solutions.”*

Problem loving helps you to build empathy for the people who are affected by the

problem. This can help to develop solutions that are more relevant and impactful. Thus, problem loving is important as a first step to ensure that the businesses we build will address the needs and pains of real humans. A deep understanding of the problem you are trying to solve is paramount, before going out and testing the hypotheses about potential solution pathways — ideating, prototyping the solution to learn from real people how it might be of value to them, and then iterating. When you love a problem, you are deeply committed to solving it. You are willing to put in the time and effort to understand the problem, develop solutions, and bring those solutions to market. You are also willing to take risks and face challenges. As the saying goes: love the problem, not your solution! Your commitment to the problem will provide you with the motivation and determination to succeed.



## 2.2 The 2023 FSL Bootcamp

Training food system leaders is inherently part of Rootical's purpose. The 2023 Rootical cohort's journey of 40 talented and diverse entrepreneurs started with a 10-day immersive bootcamp. Learn more about the programme, content and key insights in [The Rootical Times](#). The outputs are described in this blueprint. The bootcamp had 4 main goals:

### 1. Training food system shakers.

Building on a series of integrated workshops and methodologies, bootcamp participants acquired a substantial amount of new insights and knowledge about food systems, systems thinking, the role of agroecology and regenerative agriculture in Uganda, and the potential of regenerative and inclusive business models.

### 2. Participatory food systems mapping.

More than 20 hours of workshops and sessions — 800 hours of combined brainpower with 40 participants — were spent to develop a shared and deep understanding of Uganda's food system dynamics. After identifying events, patterns, structures, and mental models, exploring and clustering forces, upstream causes and downstream effects, it all came together in building loops, and narrating the central stories that have to be told for each (sub)system.

### 3. Identifying business design opportunities.

After testing the waters on defining and validating the problem, we identified key insight statements, critical assumptions to be tested further, and formulated the most exciting design challenges in Uganda's food system as How-Might-We questions.

### 4. Selecting high-potential founders.

The best way to get to know the talented pool of future founders and select the 24 high-potentials to go on to the next stage, was to engage with them throughout the bootcamp, expose them to new ideas and approaches, and observe them during fun and dynamic entrepreneur and team challenges.

*Regardless of being selected for the next stages of Rootical's systemic venture building process, these trained food system shakers will go on to lead food systems change in (other) influential positions, roles and/or organisations. Hence, the transformational power of the knowledge and insights acquired during the Rootical Bootcamp and the importance of keeping them actively engaged as Rootical alumni.*



### 2.3 Systemic Venture Building

Rootical is a collaboration between Shona and Fresh Ventures Studio. We share a common purpose: equipping talented entrepreneurs with the tools, skills, networks and capital to build food system shaking businesses. Rootical is intentional on building businesses that are designed to address key challenges in the food system — inspired by Fresh Ventures and Metabolic’s [systemic venture building](#) framework and overarching principles.

- Starting from the challenge, with problem loving and systems thinking.
- Moving beyond financial growth as the only driver, to scale impact effectively.
- Protecting the business’ purpose from mission drift, with steward ownership.
- Perfecting a lean startup method for delivering on commercial viability and impact.

Building ventures is hard,” as Metabolic puts it. “Building ventures that enable systemic transformation is even harder. As we see it, to deliver transformative change at scale requires an alchemy of a range of elements — an ambitious goal for systemic impact, a focus on the most significant challenges, and the use of systems thinking as a tool to address them, new enterprise structures to protect the broader mission, a scientific approach to commercial and impact validation, and the leveraging of venture building at scale through a studio model.

**In addition, Metabolic identifies 4 key challenges to purpose-driven enterprises.**

- Addressing the right leverage points.
- Aligning impact with financial objectives.
- Finding resources to scale without losing the soul of the enterprise.
- Building competitive advantage differently.

“With typical businesses extractive, governments reactive, philanthropies overstretched, and NGOs (often) lacking the capacities to find scalable (market-driven) solutions to problems outside of existing corporate supply chains, social enterprise has come to be seen as an important part of the solution and serves to bridge the gap between the strictly non-profit and the strictly for-profit spheres of economic activity.”

Rootical by no means intends to hold the sole truth or sees purpose-entrepreneurship to be the only solution that is needed. We highly value the work of NGOs, civil society and research organisations, policy makers and local authorities (see Chapter 7) — their work is as important as the efforts of purpose-led entrepreneurs and their enterprise support organisations.

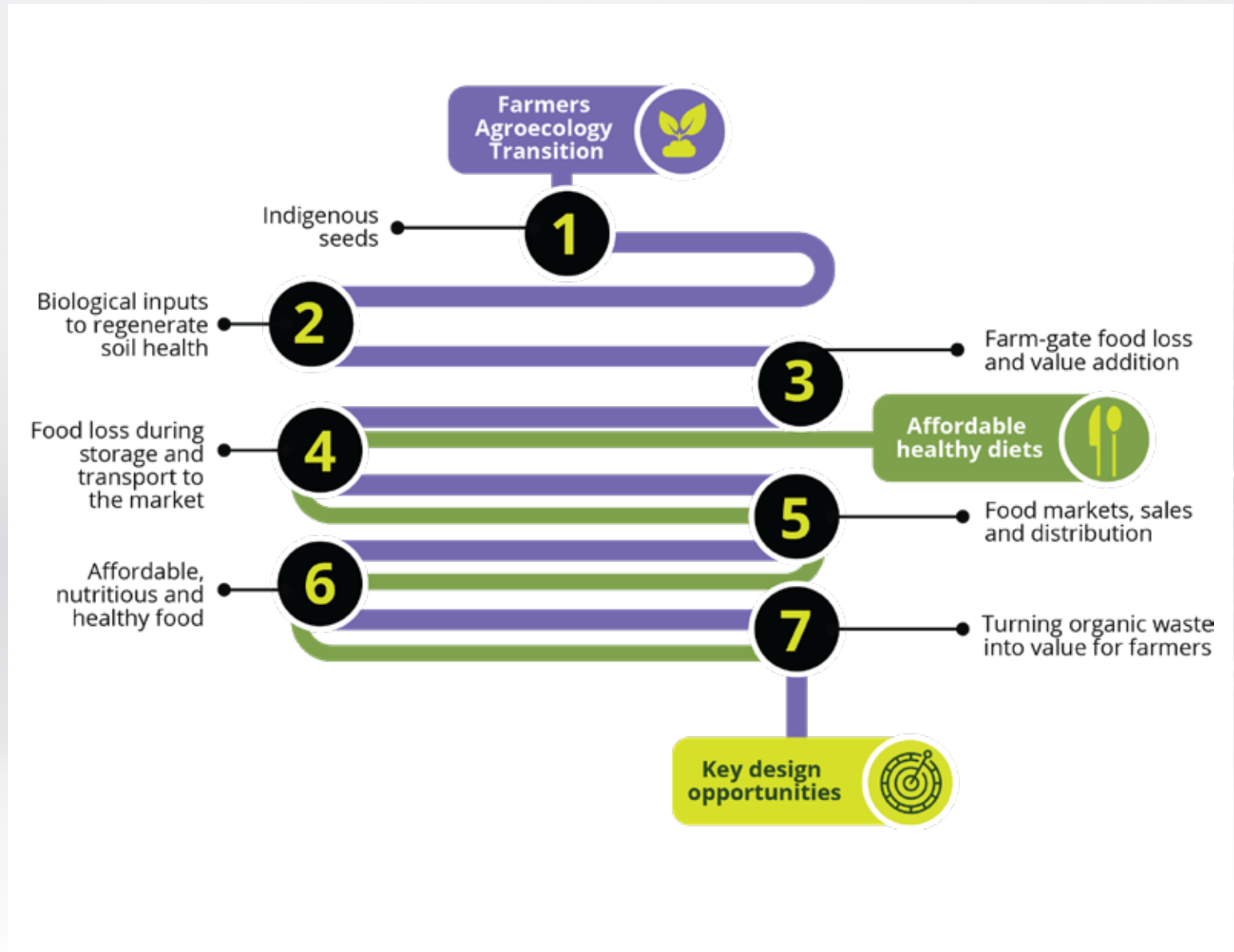


Leveraging more and additional money flows into food systems change, de-risking these investments in food system shaking enterprises via the startup studio model in particular, is where Rootical adds value. Furthermore, the startup studio model offers a platform to promote innovation and experimentation, by offering exposure and continuously pushing founders to think outside the box in their design decisions.

To see the change we need at the speed and scale required, we need dozens of regenerative startup studios scattered across the African continent, even more incubation programs, at least two handfuls of accelerator programs and, ideally, several impact investment funds specifically geared to fostering agroecological entrepreneurship. That is why Rootical operates from a mindset of abundance and cooperation — rather than scarcity and competition — with an open-source approach to learning and knowledge sharing.

Back to the pilot in Uganda. The illustration below shows key levers and design opportunities to regenerate Uganda's food system by building systemic ventures, as they have been identified in a bottom-up and participatory way during the 2023 Rootical bootcamp. In the next chapters we first take a deepdive in the food systems mapping efforts and outcomes that led to these insights.

# A ROADMAP TO REGENERATE UGANDA'S FOOD SYSTEM



### 3. Food Systems Map

This section describes the outputs of the bottom-up, participatory food systems mapping during the 2023 Rootical food system leadership bootcamp. While this exercise did not pretend to result in a complete and scientific food system study, the number and diverse backgrounds of the 40 Uganda food system practitioners that conducted this analysis as well as the depth of the process, drive its legitimacy and relevance.

To focus the discussions, the first step was to identify 7 key problem areas for analysis. All participants identified events, patterns, structures and mental models (based on the Iceberg model) and strengths, weaknesses, opportunities and threats in the Ugandan food system. This warmed up the brain muscles on food systems thinking. From that work, 21 different farmer or consumer centric stories were extracted and voted on. These were the highest ranking stories:

- ❖ How do we access, multiply and promote indigenous seeds?
- ❖ As a farmer I find agri-inputs expensive, and of unreliable quality.
- ❖ My soils have been drastically degraded.
- ❖ If only I had more access to training and knowledge, I would improve my farming methods and revenues.
- ❖ My business has stayed small due to challenges of sales and distribution. If only I could connect to farmer friendly markets.
- ❖ With knowledge and capital I could add value to my crops and reduce my farmgate food losses.
- ❖ Can we improve storage and shelf life at markets?
- ❖ How can we better value organic waste?
- ❖ How can I access affordable money to finance my farm operations?
- ❖ I can't find affordable nutritious and healthy food (vegetal and animal foods)



*Based on this top 10, the participants organised in 8 work groups and conducted an in-depth analysis focusing on 7 key problem areas: i) soil degradation, ii) access to indigenous seeds & other bio-inputs, iii) food loss during transport and storage, iv) market access, sales and distribution, v) farm-gate food losses and value addition, vi) access to nutritious, safe, and affordable food, and vii) repurposing organic waste streams. Two groups worked on the topic of food loss and value addition; their work has been combined in the rest of this document to avoid repetition.*

### 3.1 North stars and framing questions

Food system analysis efforts are usually guided by defining a North Star and framing questions to fall back on and re-centre the conversation in case it gets stuck or drifts off.

1. Regenerating Soil Health	
North Star	Our North Star is a living farming system that is resilient, sustainable, commercially viable, and creates healthy soils and healthy Ugandans
Framing question	What accounts for the current state of poor soil health? What accounts for the current levels of soil degradation, pests and diseases, and reduced biodiversity?
2. Indigenous seeds & other inputs	
North Star	A reliable production system that increases accessibility, affordability and quality of indigenous seeds and other natural agro-inputs.
Framing question	Why are indigenous seeds and other natural agro-inputs not accessible and affordable for farmers?
3. Storage and Transport	
North Star	A storage and distribution system where no perishable food is lost, wasted and contaminated from the farm, to and at the market, which creates increased revenues for farmers and vendors, retains nutritional value and good quality in Uganda.
Framing question	What accounts for the current levels of high loss, contamination, wastage, compromised quality and low nutritional value of perishable food from the farm to and at the market in Uganda?
4. Sales & Distribution	
North Star	A Uganda food system that will enable farmers and consumers to access free and fair markets, distribution channels and increase profitability.
Framing question	What forces in the Ugandan food sales and distribution systems account for the current levels of farmers and consumer exploitation?
5. Food loss and value addition	
North Star	Our North Star is a robust regenerative value addition system that promotes food and nutrition security, zero wastage and diversified products for local and regional markets.
Framing question	What forces account for 40% farmgate loss of perishable produce? What accounts for agriculture products being sold in raw form, wasted, market unfit and less nutritious?
6. Healthy, Nutritious, and Affordable Food	
North Star	All food value chain actors are involved in the refined and regulated production of affordable, accessible, nutritious and healthy food for all Ugandans.
Framing question	What forces account for the current lack of access to affordable, available, nutritious and healthy food?
7. Valuing Organic Waste (“No Waste to Waste”)	
North Star	Our North Star is an effective organic waste management system that reduces farmers’ use of conventional agricultural methods leading to production of safer and healthier foods.
Framing question	What is limiting the exploitation of the value from organic waste resulting in accumulation and mismanagement of organic waste?

Based on all this preparatory work, each work group had identified forces in their subsystem, upstream causes and downstream effects. These were then laid out to start identifying feedback loops. A loop connects forces that are correlated, based on assumptions around cause and effect relationships (that need to be tested). Usually four types of loops are discerned:

- **Vicious feedback loop:** A feedback loop that amplifies negative behaviour in the system and can lead to a runaway effect.
- **Virtuous feedback loop:** A feedback loop that reinforces positive behaviour in the system and can lead to a virtuous effect.
- **Stabilising feedback loop:** A loop that helps to keep a system in a stable state, preventing things from running out of control negatively.
- **Stagnating feedback loop:** A feedback loop that can lead to a system becoming stuck, preventing positive behaviour from happening.

By combining the different elements that are repeated in several loops, these loops can be connected and an overall food systems map established. Most work groups identified 3 feedback loops related to their subsystem analysis. These were integrated and harmonised to get to Uganda's Rootical Food Systems map that is depicted below and [linked here](#) in high quality resolution.

*The reader will be guided through this map on the following pages. This overall map is meant to provide a visual overview. It contains 18 Loops, 200+ food system forces, even more connections and 4 information clusters.*

### Building the map.

This map has been built by combining the loops and forces mapped by the aforementioned working groups. Identifying a gap regarding cultural aspects, mental models, and other Uganda specific dynamics after the bootcamp, we harvested a lot of additional insights from the cohort and integrated them as an extra layer into this map. These grey elements provide a lot of context and make this map unique for Uganda.

This map by Rootical is far from perfect. It is impossible to tell, and visualise, all the stories in the Ugandan food system. We had to balance between giving a good overview and providing a sufficient level of granular detail. That also implies some connections were not explicitly drawn or narrated, and some forces not mentioned.

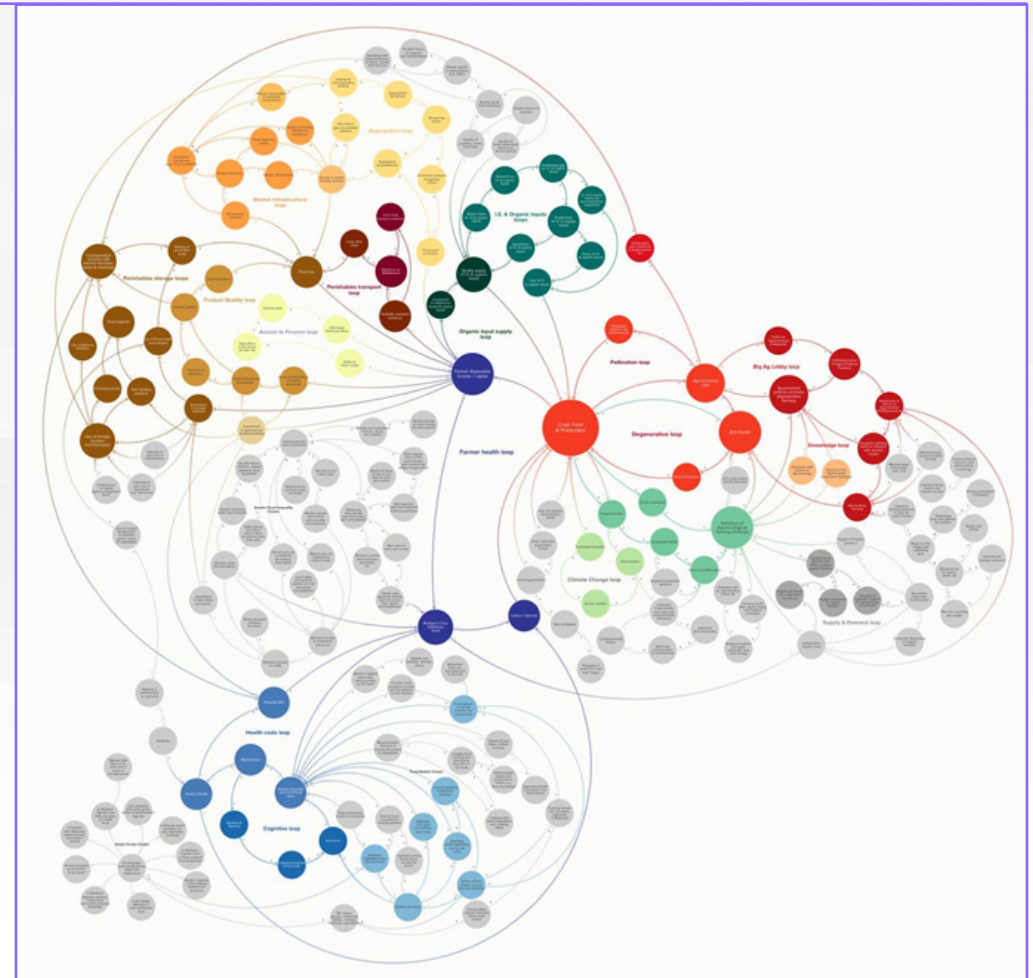
### Interpreting the map.

The Degenerative (red) and the Farmer Health loops (blue) are the central loops and stories in Uganda's food system that have to be told.

They are narrated first on the following pages. In section 3.3, the additional loops are explained. Where relevant, contextual forces (in grey) are highlighted.



Scan me!



### 3.2 The central narrative and loops: Human health & Soil health

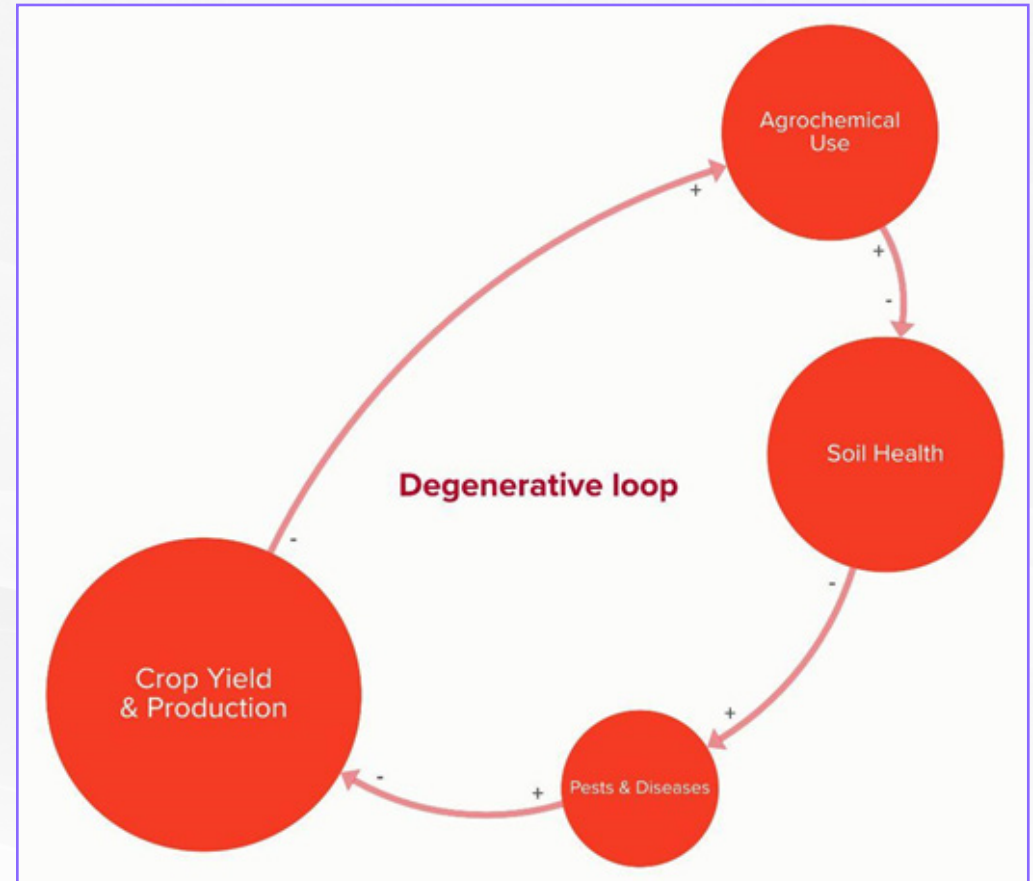
Two main loops stand out as the central story that has to be told in the Rootical analysis of the Ugandan food system: the Degenerative and the Farmer Health loops. This is their narrative presentation.



Ask any farmer what they care about, and the answer will always involve crop yield and production. Hence, this is one of the central driving forces in this food systems map. In Uganda, crop yields and production volumes (per acre) are generally low. Because of this, farmers tend to apply ever more agrochemicals.

This in turn, leads to further degrading soil health. Lower and poor soil health, creates an imbalance in the farm ecosystem and leads to an increase in pests and diseases in crops. This contributes to and brings us back to lower yields and production. The Degenerative loop is a vicious feedback loop — a negative dynamic in the food system that is spiralling out of hand, over time — and considered critical by the Rootical 2023 cohort.

This central loop has several side stories to contextualise it: the Pollination, the Big Ag, the Knowledge, and the Climate Change loops. But, more importantly, it can be contrasted with an actual counterforce that is also and increasingly materialising in Uganda's food system at present, the Regenerative loops. *These are developed in section 3.3.*





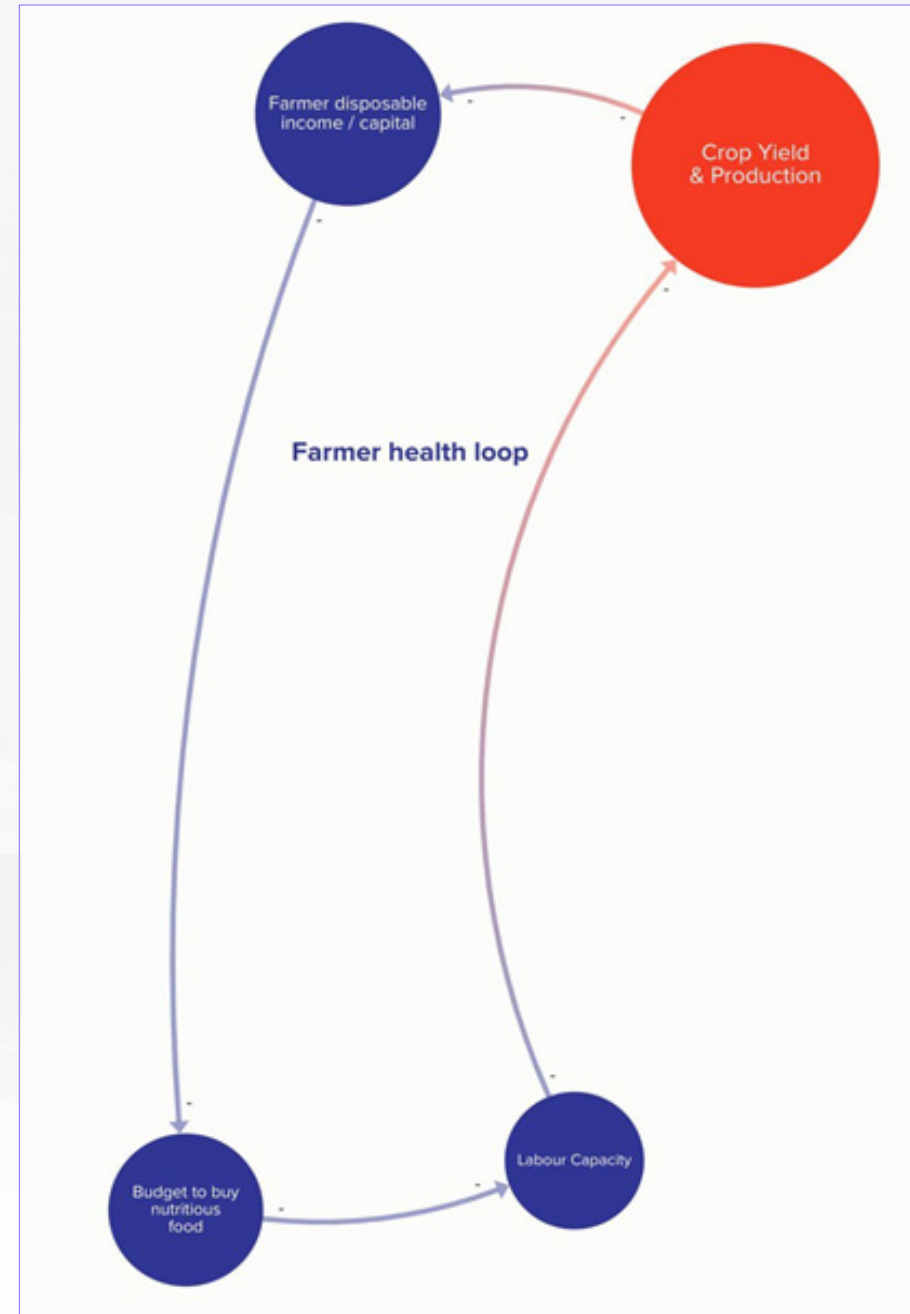
*The second central loop and story that has to be told, is about human health. An increasing body of evidence on bionutrient density actually connects soil health, plant health, and gut health to human (and animal) health. But that is another story.*

**The Farmer health loop** starts with lower crop yields and production (explained by the Degenerative loop). These lower yields lead to less farmer income being disposable or capital to invest. This leads to a smaller budget to buy nutritious food (and monotonous, insufficiently varied diets as explained in the other light blue loops). Less money spent on healthy food unavoidably leads to a decreased labour capacity, which in turn leads to lower crop volumes being produced (closing the loop).

The Farmer health loop is partly explained by the Health costs loop and Cognitive loop; whose stories are enriched by the Food Cultures, Food Beliefs and Gendered Food Inequality Clusters. These information clusters do not necessarily contain closed feedback loops, which are central to systems mapping and narrating the map. We have added them nevertheless, because they provide a lot of context and help to dig deeper into some of the underlying dynamics related to culture, tradition, mental models, values, beliefs and roles that are upheld in the Ugandan food system. They can be found in the lower left area of the map.

In addition to insufficient dietary diversity, the Farmer health loop, and the strongly connected element of disposable farmer income within, lead to underinvestment in knowledge, training, seeds, post-harvest handling and storage, suitable transport solutions, etc. These loops are located in the

upper left area of the map. The downward spiralling dynamics of the Degenerative and Farmer health loops are the crux of the system: the central stories that have to be understood when analysing Uganda's food system.



**3.3 Narrating the other loops: production, supply and demand**

**The Regenerative loops.**

As the organic sector and agroecology and regenerative agriculture movements grow stronger in Uganda, the Regenerative loops increasingly provide a real opportunity to counterbalance the current degenerative dynamics. To imagine another possible future food system.

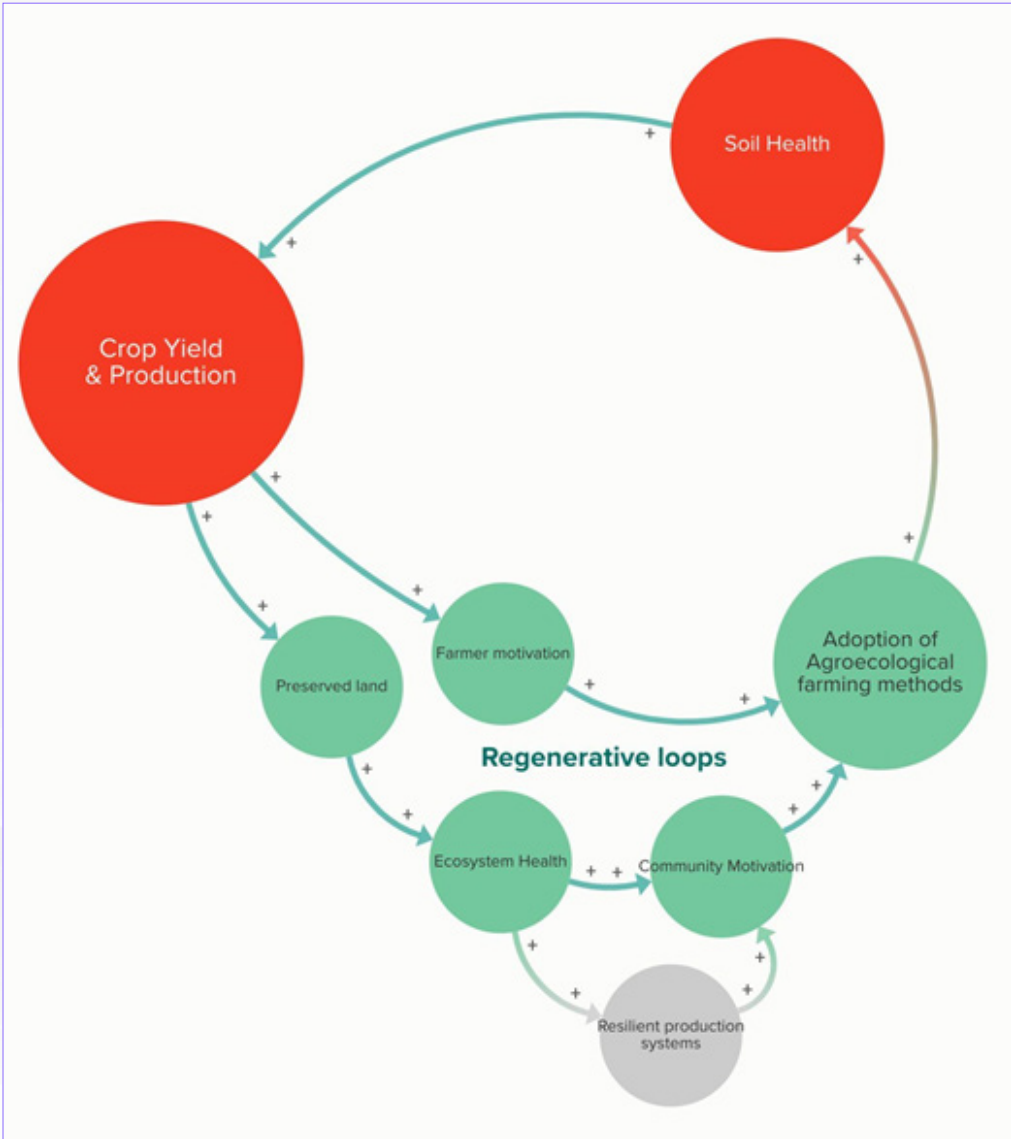
The adoption of agroecological farming methods leads to better soil health. Improved soil health leads to higher crop yield and production over time, in particular in terms of their resilience to shocks. Better, more stable yields lead to higher farmer motivation and more land being preserved (the need to clear more land for low productivity farming reduces).

More land being preserved leads to higher ecosystem health, more resilient production systems and an increase in community motivation. Higher motivation of farmers and their communities, leads to an increase in the adoption of agroecological farming methods, to close the circle. These are virtuous feedback loops, spiralling positive behaviour upwards in the system.



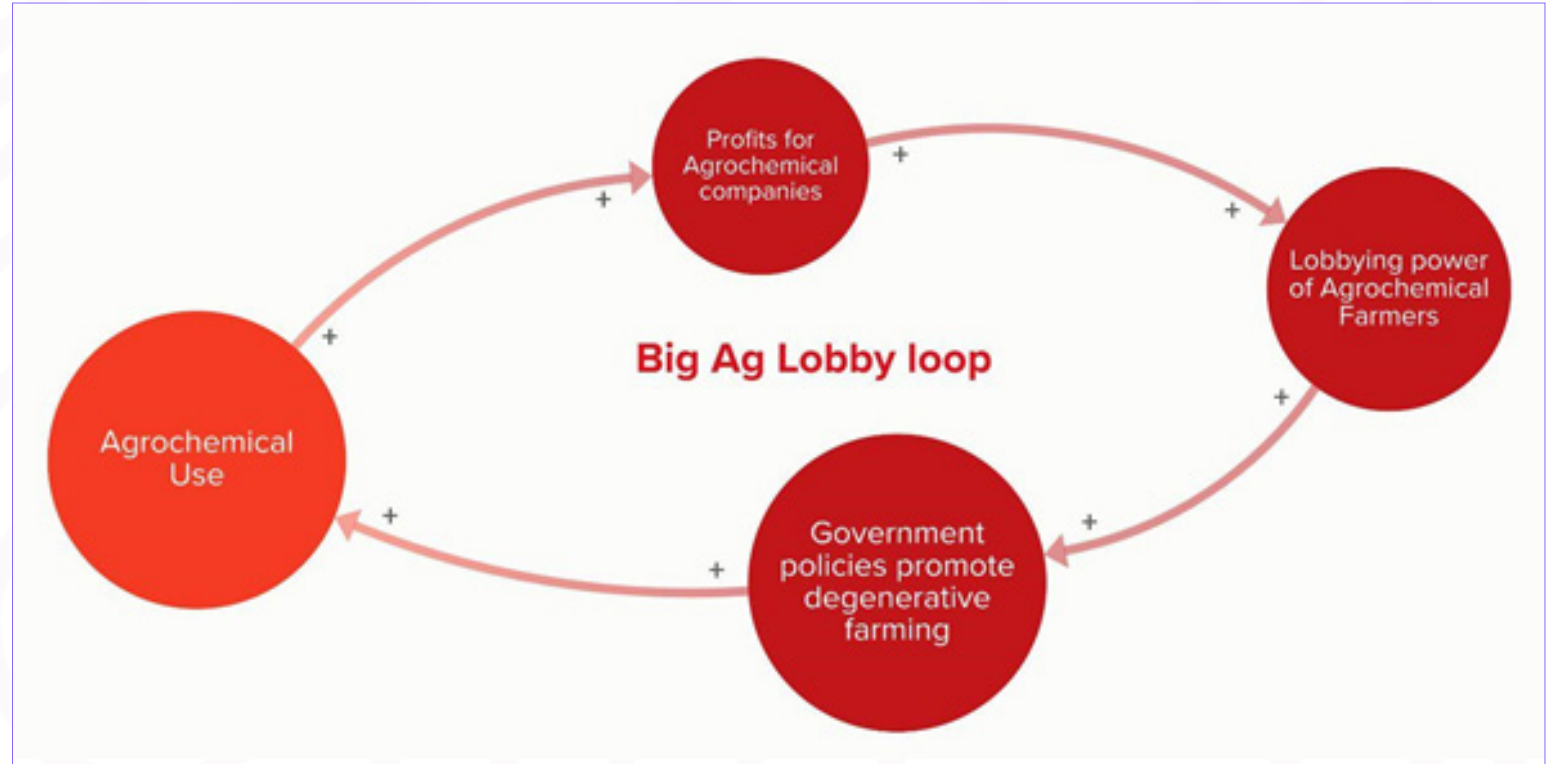
The map includes some additional forces, not shown here: i) the strongly respected position of religious leaders and increasing uptake of “Farming God’s Way” — agroecology and permaculture based on biblical principles — drives (or might drive) the adoption of more agroecological farming practices; ii) the shift of communalism to individualism leads to less communal land tenure and more individual land ownership, which in turn leads to less collective responsibility and stewardship of land and environmental resources; iii) polygamy being seen as “the real man status” causes large families and, hence, land fragmentation.

This leads to the (overly) intense exploitation of land, which combined with the low adoption of irrigation technologies, further pushes down crop yields and production.

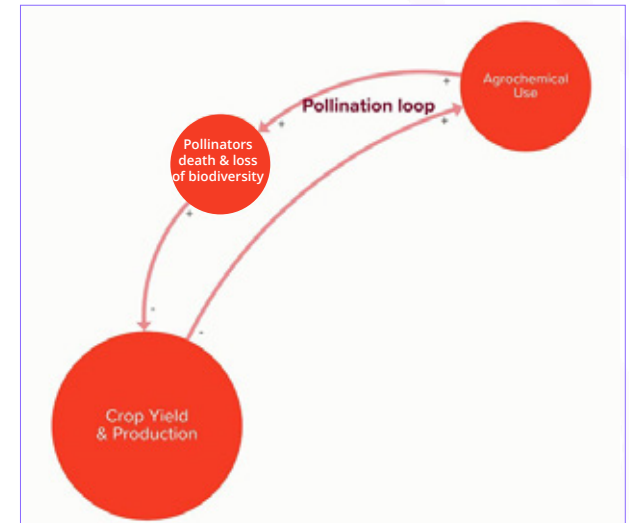


Furthermore, opposing forces are strong. **The Big Ag Lobby loop** shows that the dominance of global chemical agro-input and industrial food corporations over what we eat and how it is produced, is continuously reinforced. More agrochemicals being used leads to higher profits for these agrochemical concerns and further increases their lobbying power. As a result, Government policies (in Uganda and elsewhere) promote degenerative farming even more. This, in turn, leads to more use of agrochemicals and exacerbates this vicious feedback loop.

As the government promotes the degenerative industrial farming model of large-scale farming and mechanisation, less public resources are invested into researching the agroecological transition and its practices. In addition, less extension staff are equipped to facilitate this transition with their outreach efforts. Both lead to lower adoption rates of agroecological farming methods. This, in turn, leads to less soil and biodiversity conservation, which reduces soil fertility and health.



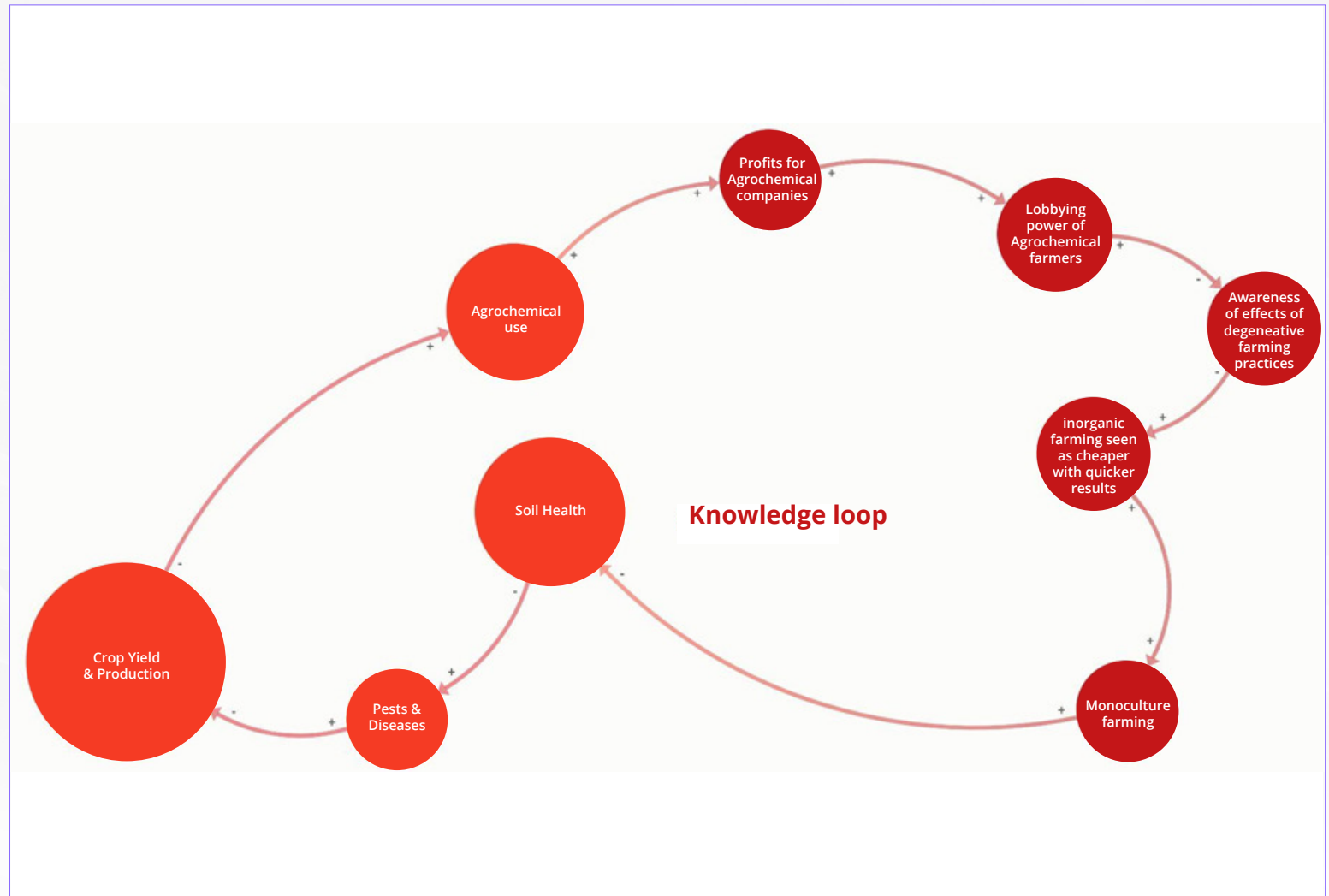
**The Pollination loop** adds to the fragility of the ecosystem and biodiversity within. The more agrochemicals are being used the more pollinators die and biodiversity is lost, both on- and off-farm. The more this happens, crop yields and production go down, resulting again in more agrochemicals being used.



**The Knowledge loop** (better said, the lack of knowledge) starts with limited farmer (and consumer) awareness of the negative effects of degenerative farming practices on our health and planet. One of the identified factors contributing to this low awareness is that farmers tend to not participate in training and sharing their concerns, as farmers are shamed as lazy when they face poor production levels and famine.

This low awareness of the negative effects of degenerative farming practices leads to inorganic farming being seen as cheaper with quicker results and, thus, more monoculture farming which in turn leads to degrading soil health. Lower soil health leads to more pests and diseases, which leads to lower crop yields and more agrochemical inputs being used.

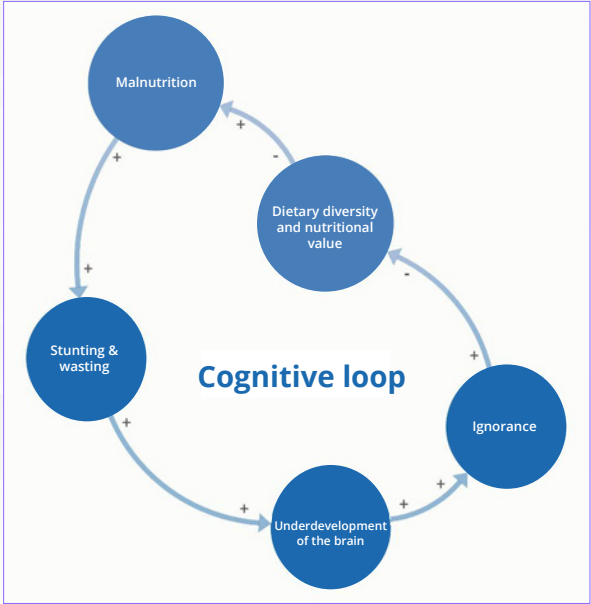
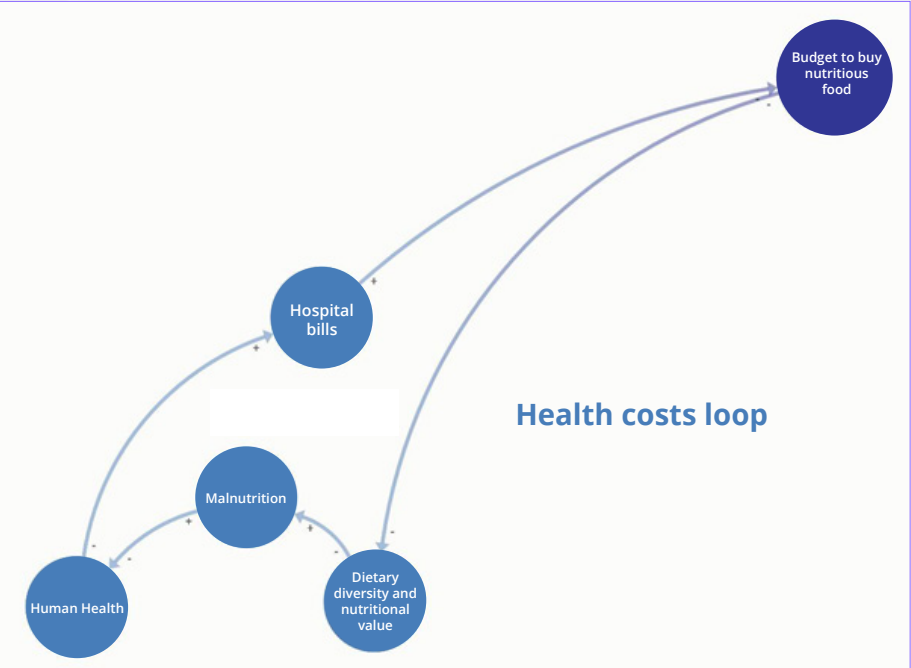
This further drives upwards the profits of “Big Ag” agrochemical companies and their lobbying power. This further halts and reduces the general awareness of the adverse effects of the degenerative farming practices they promote. That closes this complex and global, vicious feedback loop. **A growing culture**, AgraWatch and their “**Rich Appetites**” film series, and the Alliance for Food Sovereignty in Africa (**AFSA**) illustrate this loop very well.





### 3.4 Narrating loops: health, gender and food cultures

**The Health costs loop** affects both farmers and the Ugandan population in general. Low disposable household budget for nutritious food leads to less dietary diversity and nutritious value. This leads to malnutrition — an alarming 29% of children under five years old, 2.4 million children, are stunted — which negatively impacts human health and leads to increased healthcare costs and hospital bills. This, in turn, affects household budgets to buy nutritious food again, closing this negative feedback loop.



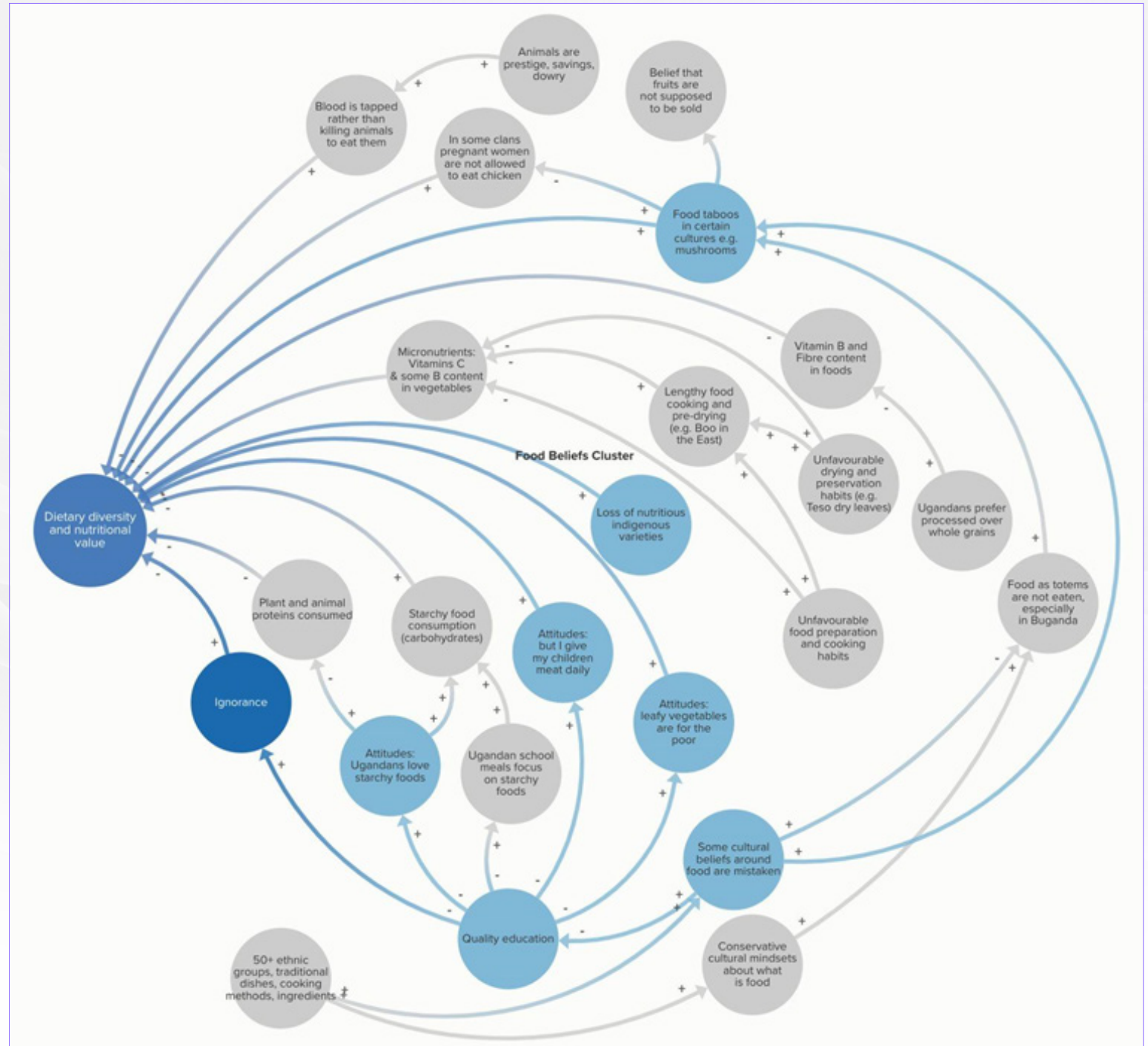
Closely linked to the farmer health and health cost loops, is the **Cognitive loop**. Low dietary diversity and low nutrient intake lead to malnutrition. More malnutrition brings more stunting and wasting, and leads to the underdevelopment of the brain (which after occurring in the first years of life can never be undone). This brain capacity impairment leads to different types of ignorance, which in turn leads to lower diversity and nutritional value in people's diets.

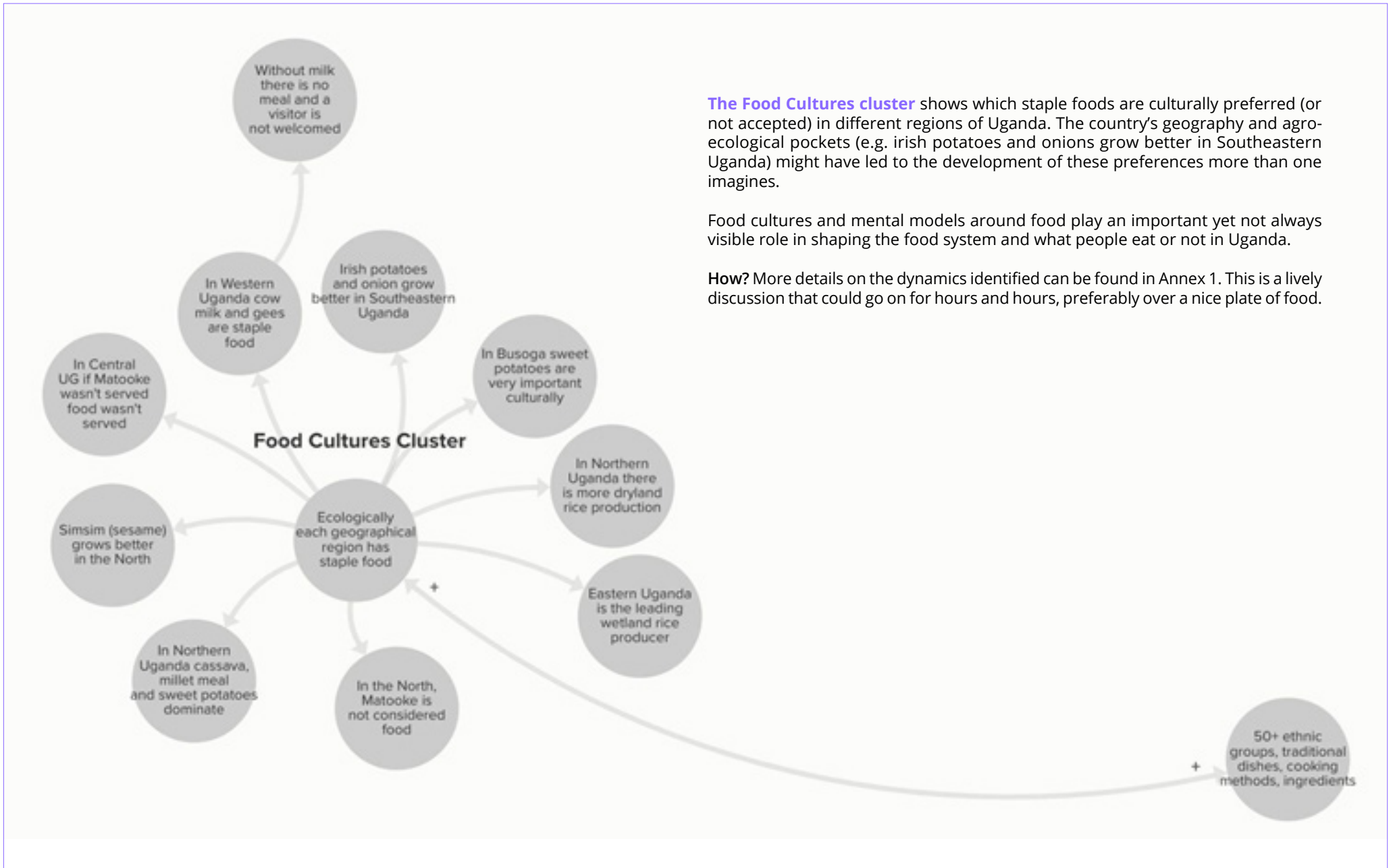


Around the cognitive and health cost loops, two information clusters are constructed. The Food beliefs and the Food culture clusters. They gather a rich array of information to contextualise this information in Uganda's cultural background and mental models.

**The Food Beliefs cluster** combines a series of attitudes, beliefs and traditions around food. For instance, leafy vegetables are considered food for the poor; and this leads to a lower dietary diversity and nutritional intake among those who need it most.

Uganda's great ethnic and cultural diversity as well as the low quality of education are believed to play a central role in this cluster that leads to high levels of not-knowing or adhering to false beliefs and, as a result, low dietary diversity.





**The Food Cultures cluster** shows which staple foods are culturally preferred (or not accepted) in different regions of Uganda. The country's geography and agro-ecological pockets (e.g. irish potatoes and onions grow better in Southeastern Uganda) might have led to the development of these preferences more than one imagines.

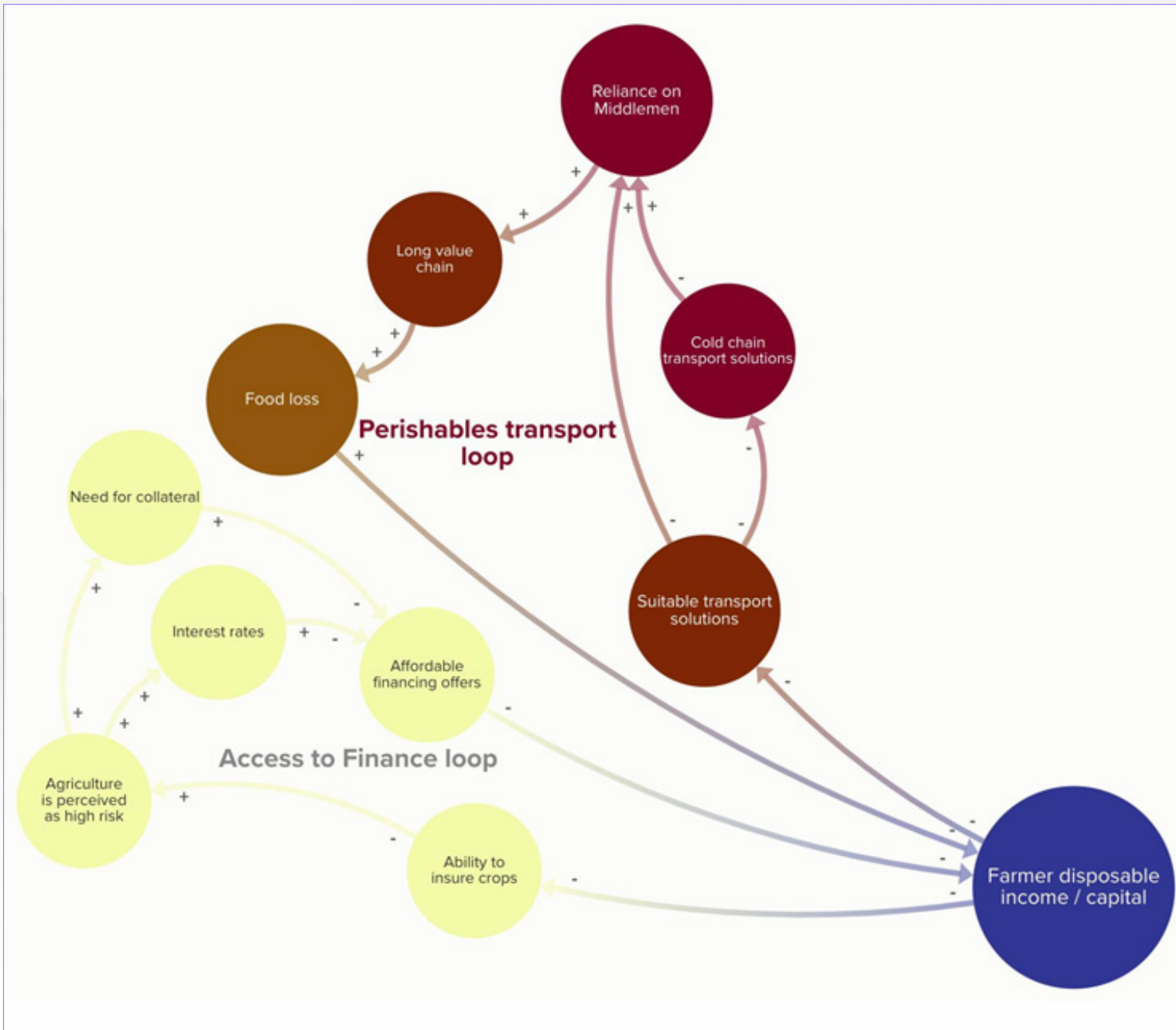
Food cultures and mental models around food play an important yet not always visible role in shaping the food system and what people eat or not in Uganda.

**How?** More details on the dynamics identified can be found in Annex 1. This is a lively discussion that could go on for hours and hours, preferably over a nice plate of food.





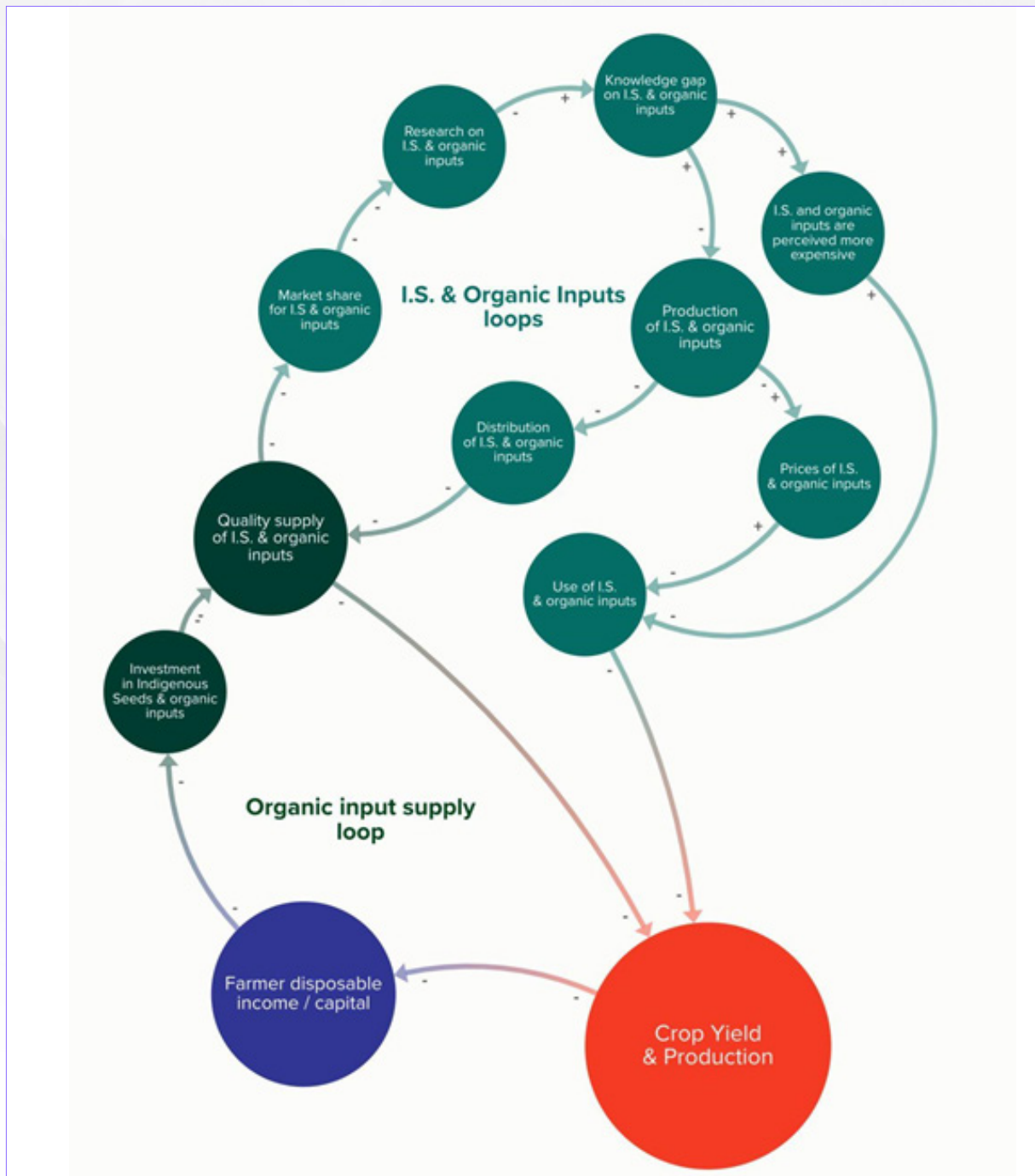




Similarly, **the Perishables transport loop** visualises how limited availability of capital leads to the use of less suitable transport methods, let alone cold chain solutions during transportation. This drives higher levels of reliance on middlemen and longer value chains, which in turn causes additional food loss or unsold produce that both further reduce farmer income. The dynamics around the power of middlemen and how this affects food loss, unsold produce and the margins for farmers (all affecting their livelihoods) come back in the market and aggregation loops. However, please note that these dynamics are not fully untangled and represented in this map.

**The Access to Finance loop** shows a glimpse of how farmer disposable income is further reduced by their inability to afford crop insurance, agriculture further being perceived as high risk and, thus, high interest rates and the excessive cost of capital leaving them with limited financing offers and ever lower levels of capital to invest. The latter, ties back to the (lack of) investment in storage, handling, transport etc. all further reducing farmer livelihoods.





As shown in the Market Infrastructure loop, limited access to markets leads to higher levels of unsold produce, and more food loss. Combined with corruption, clientelism and lack of accountability at different government levels, this leads to less government revenue captured and, as a result, lower budget allocation for less market infrastructure being built and lower quality road networks. All of which, combined with commercial cartels controlling the markets via middlemen, further reduces access to farmer friendly markets.

On the input side the map shows how the low quality supply of indigenous seeds (I.S.) and organic inputs, just like their low levels of use, further exacerbates low crop yields and production and, hence, the negative impact of the aforementioned Degenerative loop. In the Organic Input Supply loop, farmers' limited disposable income leads to underinvestment in (the development of) indigenous seeds and organic inputs, directly limiting their quality supply.

As shown in the Indigenous Seeds & Organic Inputs loops, this limited quality supply leads to a low market share for and limited research on I.S. and organic inputs. This, in turn, leads to high knowledge gaps on the matter, low levels of production and distribution of I.S and organic inputs and, finally, further limiting their quality supply. In addition, the use of I.S. and organic inputs is further reduced by their high prices — both perceived (due to the knowledge gap), and as a result of limited production. Low use of I.S. and organic inputs further aggravate the problem of low yields and production levels that reduce farmers' livelihoods at the heart of this food systems story and map.



### 3.7 Gaps analysis

Only partially (or sometimes more implicitly) covered in this mapping exercise, are the role of politics and policymakers, of civil society and their advocacy efforts. Two guest contributors have been asked to shed light on these aspects in chapter 7.

Other identified gaps in this mapping exercise include: a deeper understanding of the dynamics at the soil (micro) biology level, land use changes and the politics of it, the biophysical effects of climate change — the effects of land use changes on local water cycles and the landscapes' water holding capacity (including the halting of or potentially bringing back rains), soil degradation, droughts and heavy rainfalls.

Furthermore, this collective analysis barely scratched the surface on topics of:

- ❖ Bionutrient density: regenerative crops containing more essential nutrients than conventional
- ❖ Dietary diversity under heavy cultural influences, and the potential for cultural preservation
- ❖ The human health potential of food as medicine approaches
- ❖ Environment friendly food packaging and transport solutions
- ❖ The issues related to overgrazing, large scale monocropping and deforestation
- ❖ Low availability and quality of field-level data on smallholder farm productivity and production, particularly for non-cash crops
- ❖ How global market forces and trade policies impact Ugandan food security and food producers
- ❖ How marketing and advertising drive degenerative and unhealthy food choices and potential overconsumption.

*The implications of rapid urbanisation for food systems, including changing dietary patterns and pressure on peri-urban agriculture have not been included. A differentiated analysis to focus on the specific challenges and opportunities of urban food systems, was not part of the scope of this analysis.*

## 4. Systems Level Theory of Change

To continue sense-making and to bring together all the insights from the previous mapping exercises, the group then proceeded to develop a systems level theory of change, as suggested by the colleagues at [Metabolic](#). Such a Theory of Change (TOC) answers the following question: What does this system need, and which pathways are most likely to create the change being sought?

Not to get lost in the details of the how, and to avoid getting fixated on potential solutions (for the time being) — we focused on a system level theory of change that connects (desirable) results with intermediary outcomes and final impact. The assumptions underlying these connections are also included, because researching and learning more to (in)validate these assumptions is crucial in making this theory of change work in practice. The theories of change from the different work groups have been combined into one simplified and high level system's theory of change for practical purposes and inspiration. Please find it on the following pages.



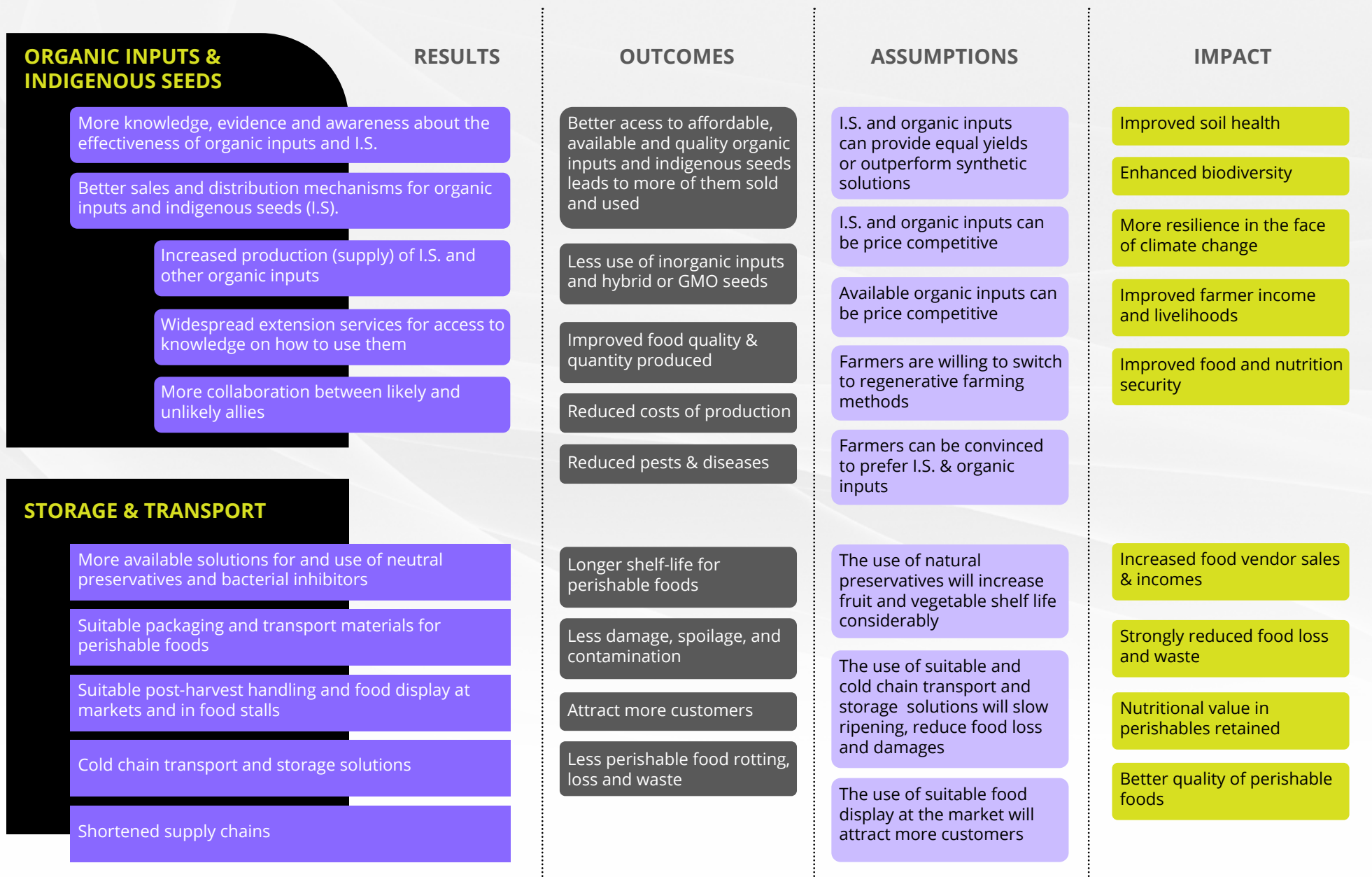
- ❖ The (key) **results** have been developed as tangible, potential outputs that could be achieved by a business or project initiative.
- ❖ The **outcomes** are effects that these results could lead to, if the underlying assumptions hold.
- ❖ The (final) **impact** is the long-term, desirable effect that results from the initial results and intermediate outcomes. This is the change we want to see in our soils, fields, farms and communities. This is why we want to build impactful regenerative agri-food businesses.
- ❖ The **underlying assumptions** are expected relations of cause and effect that need to be tested for. If they prove to be weak or wrong, the entire theory of change is built on thin ice. The actions and results the business controls, will likely not lead to the desired impact.

### User-centred validation

This theory of change is another way to look at the problem and the desired change one wants to bring about with the business solution. After understanding the deep food systems map and these potential impact pathways, all participants selected a specific problem area and problem definition. Next up, is the phase of problem validation to start testing the series of underlying assumptions to make sure that one is addressing a key problem area, and the design challenge is formulated right at the heart of the potential customer's pain point.

This is when, where and how we connect the realm of Systems Thinking and Practice, with the concepts and meticulous iteration based learning of Human-Centred Design (HCD).

## Illustration 2. Regenerating Uganda's food system (system level theory of change)



## VALUE ADDITION

Good and effective bulking models developed

Ready market for produce as ingredients

Better post-harvest handling by farmers

More produce from farms being processed

More people trained in value addition

More adherence to quality standards

## RESULTS

## OUTCOMES

Established supplier-buyer relationships

Better supply chain transparency and traceability

More product diversification

Improved processing methods and practices

Higher cost efficiency, returns on investment

## ASSUMPTIONS

Proper bulking infrastructure and handling reduces post-harvest losses significantly

There is skilled labour to operate, service and repair the processing facilities

Increased revenues will enable farmers to buy into post-harvest handling solutions

Farmers will use the improved income to increase (and diversify) agricultural productions

Enough quantity and quality supply for processors

## IMPACT

Decent employment

Poverty reduction

Healthy communities

## SALES & DISTRIBUTION

Farmers are well organised for aggregation

Structured, farmer-friendly markets and sales distribution models

Effective market information systems and reliable data for decision making

Access to local, national and regional markets

Context specific applications developed for tech-enabled market access, sales & distribution

Reduced dependency on middlemen

Increased production and consistent supply

Reduced cost and increased ease of doing business

Regional redistribution of food

Excluding middle men will improve the price paid to farmers significantly

Increased farmers income will increase their supply capacity

Technological innovations can be made to work for and be accepted by farmers

Better prices paid to farmers

Increased government tax job revenue

New job opportunities



## ACCESS TO HEALTHY FOOD

More campaigns on the nutritional value of different foods in the market

Strong increase of farmer produce on the market that is organic, safe and affordable

Larger market share for indigenous foods that are mainly supplied by SMEs and smallholder farmers

More producers and processors of nutritious, safe, healthy and affordable food

Proper inclusion of all food value chain actors

## RESULTS

## OUTCOMES

Increased part of the population educated on the different foods on the market

Increased production of and access to safe, affordable and nutritious food

Widespread adoption of more healthy & nutritious diets

## ASSUMPTIONS

Adoption of more healthy, nutritious diets leads to lower health costs and amlnutrition

Indigenous breeds and regenerative farming methods provide higher nutrient value food products on the market

Healthy, safe, nutritious food can be made available and affordable to the masses. It does not have to be expensive

Political momentum to address pressing safety and health concerns in Uganda's food industry and markets

## IMPACT

Safe and healthy diets

Reduced health costs

Reduced malnutrition

Reduced obesity and diseases of affluence

## VALUING ORGANIC WASTE

Proper sorting at the source and timely pick-up

Models to convert waste into energy

Models to convert waste into compost

Increase in the number of waste management sub-contractors (due to a good business case)

Reduced odour and air pollution (at markets f.i.)

Cleaner energy source

Cheaper compost

Reduced costs of waste processing, management and higher quality outputs

The availability of (affordable) organic compost will lead to a reduction in synthetic fertilizers

Better waste management (at the market f.i) will reduce prevalence of communicable diseases (like cholera)

Better sorting and management of waste leads to new business and job opportunities

Reduced use of inorganic fertilizers

Better, safer working environment where waste accumulated

Job creation in waste management

Circular economy: waste turns into value

## 5. Design Challenges, Rootical Priorities & Solutions

The participatory food systems map is in itself packed with potential problem (and solution) areas to work on. To zoom in, and to connect from deeply understanding the problem with systems practice to working on specific design opportunities, each group has formulated a series of How-Might-We (HMW) questions. This is a very clear and concise way (ideally, not too broad or too narrow) to define a design challenge or opportunity one is going to work on. An overview of all the generated HMW questions is presented in Annex 2.

**Please find the Rootical priorities and business solutions being developed below. While they are being presented together here, it is important to note that there has been a 5-months Human-Centred Design process in between defining the problem as a How-Might-We question and the advanced stages of piloting at the time of writing. This process includes:**

- a. **Food systems mapping** (the focus of this write-up)
- b. **Problem definition:** formulating How-Might-We questions and setting priorities
- c. **Problem validation:** using the 4 human-centred design methods to deepen one's understanding of the problem and validating it with potential customers (talking with people, talking with experts, context immersion, and analogue comparison).
- d. **Ideation:** brainstorming on all kinds of potential solutions to address the HMW questions; gathering as many ideas as possible first (divergence) and then narrowing down to the most promising ones (convergence).
- e. **Prototyping:** when zooming in on a specific idea, it is utmost important to make it tangible and find practical ways of making it visual to put the idea in front of people and learn how they interact with it. From a flyer to building a mock-up version or roleplay, there are dozens of exciting ways to make it real and talk to real people.
- f. **Iterations:** going several times through the process of ideation and prototyping in order to iterate on the most promising ideas, adjust or fine-tune based on feedback, to then gather more feedback with an updated or different version of the prototype.
- g. **Business modelling:** integrating all learnings from prototyping with each generation, the teams narrowed it down to further develop their business model with the Social Venture Canvas and identified all underlying assumptions to focus on testing for the most critical ones.
- h. **Rapid testing:** with only 2 weeks time, practical ways were explored to speed test (part of) the idea in a real-life setting.
- i. **Pitching:** the milestone of presenting at the Rootical Pitch Day worked as a pressure cooker, and allowed the teams to focus on bringing it all together in a compelling narrative to gauge the excitement and potential of the idea as perceived by the jury, industry experts, Rootical investment committee and the audience in general.
- j. **Piloting:** the selected teams continued the journey of iterating, learning and integrating with an extended piloting phase; developing the idea into a minimum viable product (focusing on all essential features only) and piloting it in real life. Not yet focused on making profits as such, this is where a lot can be learned by driving real sales and interactions with real customers.



## 1. Regenerating Soil Health

HMW	<ul style="list-style-type: none"> <li>❖ How might we improve organic input aggregation and distribution?</li> <li>❖ How might we make organic inputs more affordable and scalable?</li> </ul>
Company	Ecologic
Value proposition	We bring back life to Ugandan soils by sourcing organic inputs from local producers to distribute them to smallholder farmers via a network of lead farmer agents.

## 2. Indigenous seeds & other inputs

HMW	<ul style="list-style-type: none"> <li>❖ How might we improve farming methods to produce indigenous seeds?</li> <li>❖ How might we increase the distribution channels to deliver indigenous seeds and other organic inputs to smallholder farmers?</li> </ul>
Company	Eden Seeds
Value proposition	A farmer-owned seed brand that partners with existing seed producers and community seed banks to multiply and market resilient and performant indigenous seeds.

## 3. Storage and Transport

HMW	<ul style="list-style-type: none"> <li>❖ How might we increase the shelf life of perishables at the market?</li> <li>❖ How might we reduce food loss through development of preservation and cold chain facilities?</li> </ul>
Company	Garden Fresh
Value proposition	Garden Fresh provides a solution to prolong the shelf life of fruits and vegetables by developing natural alternatives to widely misused chemical fungicides, which pose a major health hazard in Ugandan markets.

## 4. Sales & Distribution

HMW	<ul style="list-style-type: none"> <li>❖ How might reinvent bulking models to ease aggregation of raw materials for processing?</li> <li>❖ How might we create a model for bulk transport and cost sharing with smallholder farmers?</li> </ul>
Company	Regen Harvests ( <i>company names might be still subject to change</i> )
Value proposition	ARH offers a crop advance payment system for grains and pulses to link smallholder farmers to off-takers directly. The model is de-risked with the VSLA model and leads to increased farmer income and quality and reliable supply for agro-processors.



## 5. Value Addition

HMW	<ul style="list-style-type: none"> <li>❖ How might we provide affordable solutions for value addition?</li> <li>❖ How might we leverage on processing to improve the quality of farm produce and fetch better prices?</li> <li>❖ How might we reduce the risks of aflatoxin in grains?</li> </ul>
Company	Plenti (formerly GreenRays)
Value proposition	Plenti offers mobile solar drying services to ensure food safety and quality, while drying 6 times faster. It provides a holistic management approach for mitigating the risk of aflatoxins, which lead to major losses and health risks.

## 6. Healthy, Nutritious, and Affordable Food

HMW	❖ How might we increase the access to and affordability of nutritious indigenous food (products)?
Model 1	Flourish Food Pharmacy
Value proposition 1	Flourish develops a network of Food Pharmacies, physical stores that offer flours mixed-on-the-go as well as Earth's Delight, a premix for children to meet their daily nutritional needs. Each shopkeeper is qualified to provide nutritional advice that goes with the flours being sold.
Model 2	Native Harvest
Value proposition 2	Native Harvests nourishes Ugandans indigenously, by sourcing under-utilised crops like pigeon peas and amaranth grains. We develop the B2B market and supply chain for these crops from the farmer to any food brand that cares.

## 7. Valuing Organic Waste ("No Waste to Waste")

HMW	❖ How might we better value organic waste streams?
Company	SoilTrit
Value proposition	We transform organic waste streams into value for farmers with a mobile compost pelleting service.

Please note that, at the time of writing, the 2 business teams working on healthy and affordable food were discontinued. Find all updated (and much more) information about the [Rootical pipeline of systemic ventures here](#).



## 6. Ways Forward

This document is a working document, its intent is to unlock decisive action and collaborations for transforming Uganda's food system. It is Rootical's inaugural contribution to the wider ecosystem for building more agroecological enterprises. Therefore, a way forward is suggested below for food system entrepreneurs, funders, the agroecology movement in general, and Rootical itself.

### 6.1 For Rootical

As showcased in the previous chapters, Rootical firmly believes in the power of building purpose-driven businesses to regenerate the food system — to move from decay to thriving farming and food ecosystems.

The power of the regenerative venture studio model is clear: faster build times, opportunity for systemic design, building fundraising infrastructure to leverage and de-risk money flows into agroecological entrepreneurship, matching and nourishing talented founders, closing the gender gap, growing the ecosystem, bringing down the barriers, it all leads to drastically increased chances of successfully building commercially viable, lasting and impactful agri-food businesses.



#### The food systems analysis and design opportunities laid out herein:

- ❖ Give direction to Rootical's ongoing venture building efforts.
- ❖ Inspire and inform our future venture building efforts. Rootical has already identified building priorities and key gaps for building more food system shaking businesses in the near future and next cohorts.
- ❖ Contextualise our work, rooting it in Uganda's smallholder farmer reality and giving way to new partnerships and collaborations in the ecosystem.

## 6.2 For Food System Entrepreneurs

Rootical starts from the observation that many business development support initiatives in Uganda are light-touch, short-term, without skin in the game nor providing access to finance. Moreover, many agri-food entrepreneurs work on business models with limited uniqueness or differentiation. This makes it hard to stand out and grow their businesses beyond a certain level, with lower profitability, reach and impact as a result

For entrepreneurs that care about contributing to a more regenerative and inclusive food system, this study is an invitation to:

- ❖ **Review your business model** and how it could contribute to the transition to agroecology — by using the B-ACT, and contextualising your work in this food systems analysis, to better understand the positive/negative feedback loops you are or can be part of.
- ❖ **Re-think, re-design** your business model, if you are in a position to do so, based on your deepened understanding of the dynamics and opportunities in Uganda's food system.
- ❖ **Carve out a niche**, a unique position in this wider network of radars and forces in the food system. Which gap are you best placed to fill? Where can you provide most value in your own unique way?
- ❖ **If you are yet to build** and launch your idea, consider designing your business model with a systems perspective, based on deepening your understanding of the food system dynamics in Uganda with this analysis, and then ground it in reality by working with human-centred design methods — or join the next Rootical cohort as a potential founder!

## 6.3 For Food System Funders

In addition to the business-level agroecology criteria tool (**B-ACT**) developed by Biovision and the Systems Investing Assessment (**SIA**) tool created by TIFS Initiative and a [study on food systems investing in East Africa](#), co-authored by Shona and Rootical, this methodology and blueprint provides a complementary framework for investing in food systems transformation.

We invite food system funders to take interest in the powerful combination of systems practice and human-centred design, brought together in Rootical's [regenerative venture studio model](#) and protected from mission drift with [steward ownership](#).

Rootical is both a venture builder and an ecosystem player. We are among the driving forces behind the East-African community of practice on Agroecological Entrepreneurship, and have started working on a co-creation trajectory for developing a funding vehicle for agroecological entrepreneurs in the region (and beyond).

**We constantly ask: what needs to be built for food systems change? And how do we finance it? This is an invitation to join us and our partners on this journey.**

- ❖ To drive up the rate and scale of replication and impact.
- ❖ To leverage, ease, and de-risk more money flows into agroecological entrepreneurship
- ❖ To co-design new ways and friendly modalities for funding early-stage food system entrepreneurs.
- ❖ To rethink, decolonise and regenerate your ways of funding and investing based on insights from [Be The Earth Foundation](#), public impact professor [Toby Lowe](#), [Equality Impact Investing](#), the [Global Alliance for the Future of Food](#), the Alliance for Food Sovereignty in Africa ([AFSA](#)) and the [Money Flows](#) report.

## 6.4 For the Agroecology Movement

To our knowledge, this participatory food systems mapping exercise is the first of its kind in Uganda. With all its shortcomings in mind, we hope this contribution can inspire the Ugandan organic agriculture and agroecology movements at large to undertake action in different areas of change.

As implied in the different loops covered at the heart of this food system analysis, there is a lot of opportunity for leveraging change, from access to knowledge and Agroecology extension to farmers, to organisational strengthening, promotion and awareness raising, and organic research and advocacy efforts. See the next chapter.



## 7. The Realms of Civil society and policy makers

Social entrepreneurs do not operate in a vacuum. Nor is purpose-driven entrepreneurship the only solution needed to address the triple planetary crisis of hunger & malnutrition, environmental degradation & climate change, and staggering inequality. We need all actors to play their part to transition to food systems that are more inclusive and regenerative.

In this section we zoom in on the role of government, policy makers and advocacy with a contribution by Chariton Namuwoza (NOGAMU). Ruth Nabaggala (AFSA) highlights the role of civil society, NGOs and international NGOs in furthering that transition.

### 7.1 The role of civil society for Uganda's transition to Agroecology.

By Ruth Nabaggala (AFSA)

Civil society has a pivotal role to play in propelling Uganda's transition towards agroecology. Their unique strengths position them to push for change at both the policy and practice levels.

*Through these strategic interventions, civil society can act as a catalyst, guiding Uganda's food system towards a more healthy and equitable future through agroecology.*



#### Policy Advocacy.

Civil society can leverage their capacity to come together and advocate for agroecology. By highlighting the advantages of agroecology for the environment, communities, and health, they can create a groundswell of support for this transformative approach. Funding is available to support this vital process of raising awareness and advocating for a shift in agricultural practices across Africa.

#### Sharing Success Stories.

Civil society has the distinct advantage of being embedded within communities, witnessing firsthand the positive impact of agroecology. They can document and disseminate success stories of farmers and entrepreneurs. These stories serve as powerful tools, demonstrating how agroecology fosters environmental well-being, strengthens communities, and enhances the health of both producers and consumers.

#### Agroecology Businesses Skills.

While passion for agroecology is abundant among entrepreneurs, business management skills may be lacking. Here, civil society can step in, providing training on communication, marketing, product packaging, bookkeeping, and overall business management. By equipping entrepreneurs with these essential skills, civil society empowers them to navigate the marketplace and ensure the long-term sustainability of their agroecological ventures.

#### Consumer Awareness.

Many consumers are not aware of the potential health risks of products that have been treated with agrochemicals, and food safety regulations are generally not enforced in Uganda. Therefore, civil society plays a key role in educating consumers about agroecological products, highlighting the positive impact these products have on their health, the environment, and community development. By informing consumers about where to find agroecological produce and how to access it, civil society can bridge the gap between producers and consumers, creating a robust market for these sustainable products.

#### Beyond Capital.

A common misconception is that capital is the primary obstacle to success in agroecological businesses. While access to capital is important, it's not the sole challenge. Civil society recognizes that building business skills and market awareness for agroecological products are equally critical steps. Once entrepreneurs are equipped with these skills and consumers understand the value of agroecological produce, then access to capital becomes a more effective intervention.

#### Policy Reform.

Many existing policies favour conventional business, e.g. monoculture and mono-business, creating an uneven playing field. By advocating for policies that incentivize and support agroecological approaches, civil society can help create an environment where these businesses can flourish.

## 7.2 The opportunities for organic policymakers in Uganda.

By Chariton Namuwoza (NOGAMU)

Uganda's organic agriculture sector is booming as never before — with exports skyrocketing to US\$159.8 million in 2021, up 30% from 2018. This growth is fueled by a flourishing community of organic farmers and a growing base of organic exporters. The government's recent approval of the National Organic Agriculture Policy (NOAP) in 2019 further strengthens this commitment to organic practices, based on Uganda's advantages:



### Strong Organic Foundation.

The majority of Ugandan farmers are smallholders who already practise organic methods to some extent. Uganda is home to over 400,000 certified organic farmers, the second highest number in the world (after India). As MAAIF Minister Kyakulaga aptly stated, "Organic Agriculture is Uganda's Culture."

### Minimal Synthetic Input Use.

Uganda boasts the least usage of synthetic fertilisers in Sub-Saharan Africa, creating a natural springboard for organic production. Developing and promoting locally-made organic inputs can further empower Ugandan farmers.

### Favourable Climate and Resources.

Uganda's diverse climate allows for year-round production, while abundant water resources (rain and irrigation) support organic farming practices in most parts of the country. The vast amount of arable land, with only a fraction currently used for agriculture, presents immense potential for organic expansion. The FAO boasted Uganda's potential to feed 200 million people and be the food basket of the region.

### Organic growth opportunities.

doors for domestic production of organic fertilisers, pesticides, and other essential inputs, creating significant manufacturing opportunities. Importation and distribution of organic products, training and research institutions, inspection and certification bodies, logistics and warehousing — all stand to benefit from (and contribute to) the organic agriculture boom. Product testing facilities can further ensure quality cont

### Policy and Partnerships.

Strengthening regulations and mainstreaming organic agriculture into government plans and budgets are crucial. Supporting the NOAP implementation and collaborating with initiatives like Rootical and the NOGAMU Academy can empower farmers and small businesses. Certification and Innovation: Enhancing access to both third-party and internal control system (ICS) certifications, alongside promoting farmer-led Participatory Guarantee Systems (PGS), will support organic production and its appeal in the market. Investment in product innovation, development, and marketing will further solidify Uganda's position as a leading organic producer.

*With a supportive policy environment, the enactment of the Bill to implement the NOAP, a strong foundation in traditional practices, and a wealth of natural resources, Uganda is poised to be a leader in organic agriculture on the continent. By seizing the opportunities presented, Uganda can unlock significant economic growth, empower farmers and communities, and solidify its position as a global organic powerhouse.*



## EPILOGUE



*Edie Mukiibi, the global president of Slow Food, has rapidly become one of Uganda's most influential people in food systems worldwide. He leads with his focus on healthy soils, indigenous seeds and food varieties, and the movement's call for acting together to ensure good, clean and fair food for all. We invited him to share his reflections and write a conclusion to this blueprint for regenerating Uganda's food system.*

### Contribution by Edie Mukiibi, Slow Food

Uganda's food system stands at a crossroads and is faced with several paradoxes — one of them being due to the fact that it is a richly endowed country with evergreen productive hill sides, good climate (at least for the largest part of the country) and yet it still faces poverty, hunger and malnutrition. The production and consumption models based on foreign resources, ingredients and inputs are not bringing us any relief. They are further driving the land and other bio-physical and cultural resources towards degradation.

It is at this point that we open up to the reality that our agri-food system needs regeneration. Subjecting the ecosystem to exploitative production models that pollute and poison the ecosystem; that displace communities off their land; systems that degrade biodiversity and systems that make the entire food and agriculture economy dependent on foreign inputs like seeds and agrochemicals, are detrimental to the future of food in Uganda and Africa at large. We need to regenerate our relationship with the planet, the ecosystem, and the communities of people, as well as with the resources like soil, land and water bodies that feed us. We need to work out new business models that strengthen our relationships with the people involved in the food web and in the landscapes, including our local biological and cultural diversity.

In a bid to regenerate our food system and regenerate our relationships with every player across the food value chain, we need to open up to innovative solutions and ideas that will drive us safely to a better

and more inclusive and people driven food system. The emergence of purpose-driven entrepreneurship stands as a beacon of hope. With a focus on sustainability, innovation, and community impact, the regenerative start-up studio model has the potential of reshaping and transforming the landscape of agri-food systems investments. Central to this transformation is a levelling of the playing field for young and female social entrepreneurs to build their expertise, increasing their access to funding and other resources, training in business development and management. This will raise talented entrepreneurs with a clear understanding of the interconnectedness between food, environment, and society.

The true transformation of our food system can only occur through concerted efforts from all stakeholders. The collaboration between Rootical as Uganda's first regenerative start-up studio that provides talented entrepreneurs with access to expertise, funding, tools and a systemic approach to building business models; and other private sector players, civil society organisations and public institutions is key for accelerating the transformation of Uganda's food system to a just, regenerative and inclusive one. Government institutions, businesses, academia, and communities must come together, leveraging their unique strengths and resources to address the multifaceted challenges facing Uganda's food system as laid out in this publication. Collaboration rather than competition is the key to unlocking the regenerative and innovative solutions that benefit the entire food system.

In everything we do, every social business idea we build or even every policy proposal we develop, our commitment to regenerative food systems and regenerative business models should be evidently visible and followed by concrete regenerative actions. This is also our commitment as Slow Food. By nurturing and promoting local innovations, stimulating local food cultures, biodiversity, and agroecological production practices, entrepreneurs should continue to build more inclusive purpose-driven food business — while leaders and members of the civil society should continue to mobilise communities in the pursuit of the just, inclusive, environmentally healthy and economically viable food system that Uganda needs.

As we look towards the future, I call upon each one of us to take a regenerative action today and stand to support the agroecology entrepreneurs. They are redefining agri-business and they are the future of food and agriculture business development. Together, let us cultivate a food system that nourishes both people and the planet, embodying the principles of equity, resilience, and regeneration. The journey may be challenging, but the rewards are boundless — a healthier, more prosperous Uganda, where food is not only sustenance but also a symbol of hope and abundance for all.

## ANNEX 1. Food Cultures and social norms in Uganda

*To enrich the Rootical Food Systems Map above, we sourced more cultural patterns, beliefs and mental models around food from the cohort of 40 high potential founders. In no time a wealth of information was gathered. Because not all of it could be included in the map, a more detailed overview of Uganda's food cultures is presented here. This is a snapshot of what has been shared freely and informally by participants, and not intended to be exhaustive or present any social science evidence.*

*Uganda is rich in culture and diversity with over 50 different ethnic groups. This diversity is reflected in the food system, where each tribe has its own traditional dishes, ingredients, and cooking methods. On the bright side, culture promotes sovereignty of local traditional foods. This amplifies local food production and self-sufficiency, hence communities are considered to still have control over their own food. This annex explores (some of) the regional variations, cultural beliefs, and social norms that shape the way Ugandans eat.*

### A Land Defined by Staples.

Travel across Uganda, and you will embark on a culinary adventure defined by regional staples. In the verdant Central and Western regions, matooke, a green banana dish, reigns supreme. As one participant shared, "If matooke is not served, food wasn't served". Here, steaming bunches of green bananas are transformed into fragrant accompaniments to stews and sauces. Venture eastward, and the landscape changes. Millet, sorghum, and cassava take centre stage, offering a contrasting yet equally delicious foundation for meals. Northern Uganda embraces these staples as well, with a special fondness for white sesame seeds (simsim), as noted by one source, "Simsim is best grown in the north for its warm climate".

### Cultural Beliefs Shaping Food Practices.

Culture plays a powerful role in shaping Ugandan food habits, influencing not just what people eat, but also how they prepare and consume it. Certain groups hold strong beliefs around specific foods. For instance, "In Teso if Millet is not there, a local brew can't be made and that means children can't be named. Because for a new born baby to be brought out of the house for naming, they first have to drop Maluwa or Ajono into the baby's mouth. That's why you can't compete with these people in taking that local brew!". This link between food and cultural practices highlights the deep significance attached to specific ingredients.

In Busoga, a region on the shores of Lake Victoria, sweet potatoes are deeply intertwined with the cultural identity. One interviewee stated, "You can't separate the two. You would rather refuse to give them cows for dowry but when you have packed

sweet potatoes, it is all good." While in the west among the Banyankole (people of Nkole), "cow gees and milk are a staple food and used as smearing oil for beautification. Culturally if a Munyankole (Nkole person) came to visit you and you didn't serve them milk, then you didn't welcome them in your home. Milk is the first food and last meal they take, and it's part of every meal. Without which there's no meal at all. Amata (milk) is the water they drink.

### Food taboos and gender Roles.

Food taboos are another facet of Ugandan food culture, adding a layer of complexity to dietary choices. In Buganda, the largest ethnic group, people avoid certain foods considered totems, potentially linked to bad omens. This belief system, as noted by a nutritionist, restricts access to certain foods and highlights the role of cultural beliefs in shaping dietary patterns. "There are some crops that are a delicacy and acceptable to plant in some regions (e.g the famous small choroko beans or green grams in the north). They are very healthy, nutritious and, in addition they are a natural pest control measure and soil cover crop. Yet in some other regions or cultures like in Buganda they are forbidden to touch or pass by them because of cultural beliefs that if you touch it, you will get an accident or bad omen. This nutritionally limits people in the Buganda region."

Gender roles also influence food systems. "Cultural factors affect nutritional and production choices". For instance, "in some clans, pregnant women are not allowed to eat chicken". Women typically handle the labour-intensive tasks of cultivation and food preparation, as highlighted by one interviewee, "Women are considered an asset



## ANNEX 1. Food Cultures and social norms in Uganda



and subjugated to the husband, with no right to land (only through their husbands). Men, on the other hand, oversee post-harvest activities and trade. As a result they control most of the money". Polygamy further drives land fragmentation and intensive (over) exploitation of the land to sustain the large family numbers. Land ownership also follows patriarchal lines, limiting women's access to resources and influence over what gets cultivated, and the choice for food versus commercial cash crops in particular. The latter being men's principal focus.

### Women, local leaders, and change.

Despite these challenges, there are glimmers of hope for a more diverse and nutritious food system in Uganda. Women are recognized as the custodians of food security. As one interviewee stated, "Women are considered the custodians of food, seeds and nutrition in most communities! They make decisions on what is to be consumed, and save seeds for the next planting season". Empowering women by providing them with greater access to land and resources can lead to a more diversified and nutritious food system. One participant highlighted the importance of cultural and religious leaders: "They are also seen as trusted sources of information, with the potential to champion sustainable food practices. A study conducted in Lira, Soroti and Karamoja indicated that agricultural technologies recommended by cultural/religious leaders were highly adopted. They are trusted and respected. When they promote an innovation, it is likely their followers will adopt it! They are influential and can advocate for regenerative food systems if brought on board!" In addition, Farming God's

Way, agroecology with biblical principles, has some traction already and might be a good venue to promote regenerative agriculture practices.

### The paradox of abundance and nutritional challenges.

While cultural practices promote local food production and self-sufficiency, an overreliance on certain staples can lead to nutritional deficiencies. For example, "the popular Malewa stew in Bugisu, though high in fibre, might be mistaken for protein due to its texture". "This dependence on starchy staples," as noted by one source, "contributes to the prevalence of malnutrition in Uganda". This is further reinforced by the fact that "farmers who face hunger are socially labelled as 'lazy', which creates a sense of shame, making them more reluctant to voice their concerns and participate in group training". In contrast to mostly carbohydrate-rich plates across the country, a more balanced diet incorporating a wider variety of vegetables and legumes would be crucial for optimal health.

*While some traditions pose challenges to balanced nutrition, there's a growing awareness of the need for change. By embracing local knowledge, empowering women, and leveraging the influence of cultural leaders, Uganda can ensure a food system that is both culturally rich and nutritionally sound.*

## ANNEX 2. Design challenges for regenerating uganda's food system



All the How-Might-We Questions elaborated after food systems mapping, are presented here. The ones that start with an asterisk (\*), were voted as priority challenges to address first.

### 1. Regenerating Soil Health

- ❖ How might we make organic solutions available to both smallholder farmers and large scale farmers alike?
- ❖ How might we make inputs more accessible through local resellers (district level, county & sub-county levels)?
- ❖ How might we make inputs more accessible through farmer groups?
- ❖ \*How might we improve organic input aggregation and distribution?
- ❖ \*How might we make organic inputs more affordable and scalable?
- ❖ How might we get CBOs and others involved in distribution of organic inputs to all value chain actors?
- ❖ How might we improve the go-to market strategy for organic inputs?
- ❖ \*How might we identify and collaborate with unlikely partners or unsuspected allies in improving availability of organic inputs?
- ❖ How might we demonstrate the effectiveness of organic products?

### 2. Indigenous seeds & other inputs

*"As a farmer I find indigenous seeds and agri-inputs expensive and of unreliable quality" | "If only I had more access to training and knowledge, I would increase my farming methods and revenues".*

- ❖ How might we access, multiply and promote indigenous seeds?
- ❖ How might we improve the productivity of indigenous seeds (I.S)?
- ❖ How might we demonstrate that I.S. can produce higher yields?
- ❖ How might we lobby for more funds from government and private sectors to invest in I.S.?
- ❖ \*How might we improve farming methods to produce I.S.?
- ❖ \*How might we increase distribution channels to deliver organic inputs to farmers?
- ❖ How might we better deliver organic agro-inputs?
- ❖ How might we disseminate knowledge on regen Ag to more people?
- ❖ How might we engage extension workers to promote organic inputs?
- ❖ How might we promote more use of organic inputs?

### 3. Storage and Transport

*There is rotting of perishables during transportation and at the market due to damage and contamination with harmful microbes.*

- ❖ How might we increase the shelf life of perishables at the market?
- ❖ How might we prevent damage of perishables during transportation and at the market?
- ❖ How might we prevent contamination and rotting of perishables during transportation?

*There is drastic loss of food due to lack of access to preservation and cold storage facilities*

## ANNEX 2. Design challenges for regenerating uganda's food system

- ❖ How might we create or develop affordable preservation and cold storage facilities?
- ❖ How might we reduce food loss through development of preservation and cold chain facilities?
- ❖ \*How might we develop portable preservation & cold chain facilities?

*There is loss of perishable food due to inappropriate storage and display equipment at the market.*

- ❖ How might we create awareness to market vendors about proper storage and display facilities/mechanisms?
- ❖ How might we improve the display of perishable food at the market?
- ❖ How might we improve the storage of perishable food at the market?

### 4. Sales & Distribution

- ❖ \*How might we create a model for bulk transport and cost sharing with farmers?
- ❖ \*How might we create decentralised sales points?
- ❖ How do we widen the existing market opportunities to reduce reliance on the middlemen?
- ❖ How do we leverage existing agricultural technology to link farmers to potential buyers and suppliers directly?

### 5. Value Addition

- ❖ How might we find alternative markets with better prices for farmers?
- ❖ How might we develop better platforms/ methods for market and value-added product information dissemination?
- ❖ \*How might we provide affordable solutions to value addition?
- ❖ How might we better package and label processed and safe products to attract profitable markets?
- ❖ How might we leverage on processing to improve the quality of farm produce and fetch premium prices?
- ❖ How might we work with cooperatives to achieve the required supply for value addition through aggregation?
- ❖ \*How might reinvent bulking models to ease aggregation of raw materials for processing?
- ❖ How might we improve on storage facilities?
- ❖ How can we increase access to preservation technology among rural farmers?
- ❖ \*How can we provide storage facilities as a service?

- ❖ How can we create meaningful partnerships to support small holders to access ambient storage facilities?
- ❖ How might we leverage storage technology for fresh produce during bumper harvest?
- ❖ How do we avoid price fluctuations during bumper harvests?
- ❖ How can we increase access to markets for smallholder farmers?
- ❖ How can we increase the shelf life of fresh produce to avoid exploitation during bumper harvest?

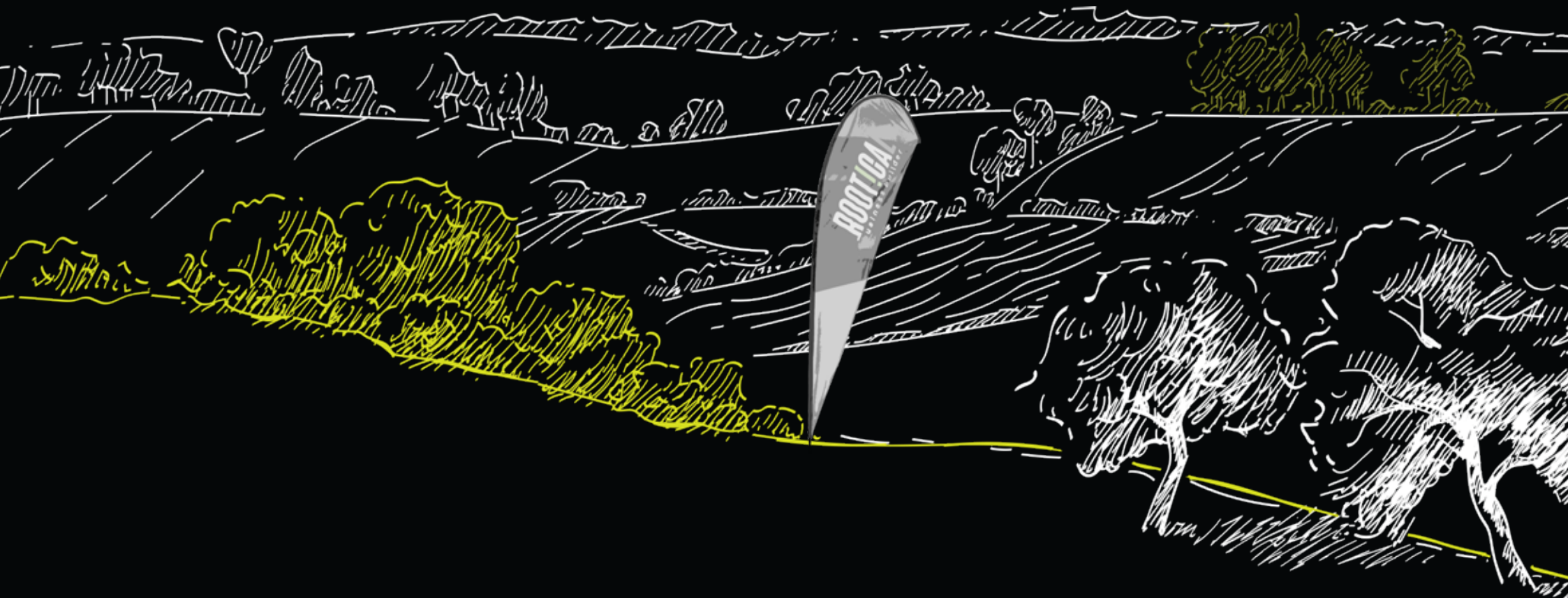
### 6. Healthy, Nutritious, and Affordable Food

*I can't find reliable and traceable food.*

- ❖ How might we increase income opportunities for low income earners in the food value chain?
- ❖ How might we get more people to spend on nutritious, organic food?
- ❖ How might we ensure production of safe, tasty and healthy food products for the market?
- ❖ \*How might we increase access and affordability of nutritious indigenous food (products)?
- ❖ How might we help a frustrated farmer access indigenous breed genetics in order to produce high nutritious, high yielding food?
- ❖ How might we educate people on or ensure that customers are aware of the nutrient value of the foods on the market?
- ❖ How might we change people's attitudes on what they (should) want to eat?
- ❖ How might we ensure safe delivery of food and meat products from the farm to and on the market?
- ❖ How might we increase access to indigenous foods in the market?
- ❖ How might we increase awareness and training of smallholder farmers on food, nutrition and production of healthy food?

### 7. Valuing Organic Waste ("No Waste to Waste")

- ❖ How might we create awareness on waste sorting?
- ❖ \*How might we ensure effective sorting at the collection sites?
- ❖ How might we make sure that there are labelled collection bins at the collection site?
- ❖ How might we involve market leaders in supporting effective waste management?
- ❖ How might we subcontract to the other waste recycling companies?
- ❖ How might we schedule timely picking and delivery to the waste processors?



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