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INITIATIVE ON
Sustainable Animal Productivity

Theory of change for the pig value chain in Uganda, developed for the CGIAR Initiative Sustainable Animal Productivity for Livelihoods, Nutrition and Gender Inclusion

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Contents

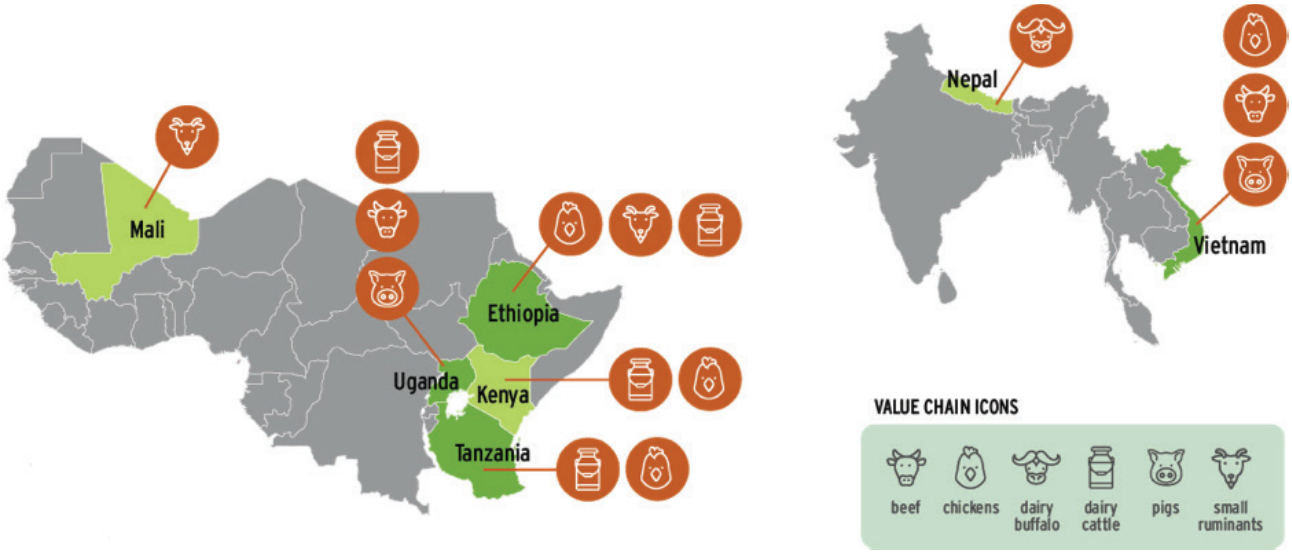
1 The SAPLING Initiative

The CGIAR Initiative Sustainable Animal Productivity for Livelihoods, Nutrition and Gender Inclusion (SAPLING) is a CGIAR initiative focusing on sustainable animal productivity. This initiative aims to contribute to transforming livestock sectors in target countries to make them more productive, resilient, equitable and sustainable. See Box 1 on how this objective will be achieved.

The initiative is working in seven countries located in East Africa (Ethiopia, Kenya, Tanzania, Uganda), West Africa (Mali), Southeast Asia (Vietnam) and South Asia (Nepal), on 15 livestock value chains in total (see Figure 1).

Within the one CGIAR, SAPLING is mapped to the action area termed Resilient Agrifood Systems.

Figure 1. SAPLING focal livestock value-chain, which number 5 in total, across 7 countries (Ethiopia, Uganda, Kenya, Tanzania Mali, Nepal and Vietnam) and 6 livestock types (beef cattle, chicken dairy buffalo, dairy cattle, pigs and small ruminants).



Source: https://cgspace.cgiar.org/handle/10568/128150.

Box 1 SAPLING's objective will be achieved through five work packages:

Technologies and practices for sustainable livestock productivity: developing, adapting and testing new and existing productivity- and resilience-enhancing, low-emission, scalable technologies and practices across the three main pillars of livestock productivity: improved feeds, animal health products and genetics (**Work package 1**).

Innovations and practices for safe consumption of livestock-derived foods as part of diverse diets: co-creating innovative models and approaches for social and behaviour change communication, and testing and evaluating approaches for incentivizing market actors to enhance the supply of safe, nutritious and affordable livestock-derived foods (**Work package 2**).

Sustainable livestock productivity for gender equity and social inclusion: understanding constraints and opportunities, identifying best-bet entry points, addressing constraints and developing tools to measure progress (**Work package 3**).

Competitive and inclusive livestock value chains: generating evidence on institutional arrangements and technical interventions to transition towards more profitable,inclusive and sustainable livestock value chains (**Work package 4**).

Evidence, decisions and scaling: generating and consolidating evidence, models and tools to support public and private decision-making for a sustainable (**Work package 5**).

A pig farmer in Masaka, Uganda (ILRI/SSarduni).

2 Pig value chain in Uganda

2.1 Overview

Pig production provides more than two million Ugandan households with income. Pigs are mostly produced by smallholder farmers; three-quarters of these are women. Uganda has the highest per-capita consumption of pork in East Africa, estimated to be 3.4 kilograms per person per year (FAO, 2019). Demand for pork products is rising, along with rapid increases in the number of pigs in Uganda—from 0.2 million to 4.1 million between 1980 and 2018 (Uganda Bureau of Statistics, 2020). A decade's worth of research and extension by Livestock CRP and its academic, public and private sector partners (2012–22) is helping pig producers meet this demand, but smallholder producers still face issues with low productivity, along with biosecurity and climate risks. More still needs to be done by government and private sector to provide the enabling environment and transform the pig sector so smallholder farmers and businesses can meet the growing demand.

Pigs are assets that women and youth can build easier than they would build other assets like land or even dairy/beef cattle. They can be acquired through familial gifts, through collective action processes, through markets, etc, and be multiplied in a relatively short time. Pigs are therefore a potential pathway for women and youth mpowerment. Empowering women and youth to enhance their skills in pig production, trading and processing has the potential to enhance the performance productivity of the pig's value chains. One of the emerging pieces of evidence though shows that in the central region of Uganda, complex cultural norms and practices prohibit consumption of some livestock derived foods such as pork, for some members of the society. Besides, such norms also limit the participation of especially women in certain nodes of the pig value chain post the production nodes. Women are generally not expected to trade in pigs (aggregate the pigs, ferry them to market outlets, slaughter them, trade pork in a butchery) which effectively reduces the monetary benefits women can get from participating in the pig value chain. Very few youth are engaging with the pigs value chain and when they do, they are only using the pigs as a stepping stone to generate initial income capital for investment in other interests. They invest into growing pigs for only a season or two and using the money to buy other assets like the motorbikes that they use for boda-boda business. The young women either rear pigs, formulate pigs feed or fry/roast pork at the pork joints. These dynamic gender issues lead to gender gaps in participation of women and youth in the pig value chain.

2.2 Sites

The sites for the pig value chains are the district local governments of Masaka, Mukono, Wakiso and Mpigi, located in the Central region of Uganda. The description of the sites can be found in Caulfield et al.(2021). The districts have several similarities such as proximity to Kampala Capital City, and a high pig population density of more than 50 heads/km (Uganda Bureau of Statistics, 2020). Under the Livestock CRP phase 2, Masaka and Mukono districts were project intervention sites while Wakiso and Mpigi districts were control sites. Such a design allowed for before-after and with or without comparison of the target outcome of the project interventions for farmers, pig aggregators, and input suppliers, and the adoption of productivity enhancing technologies and practices in the intervention and control districts. Under SAPLING, the 4 districts are intervention districts but specific pig farmer groups located within the sub-counties in each district have been selected as control and counterfactual sites to allow for comparison of target intervention outcomes using a factorial design.

2.3 Key value chain research questions

- How effective is the model farmer approach combined with PigSmart digital extension messaging and herd health training, in delivering integrated innovations in pigs genetic improvement, herd health and feed-forages for increased pig productivity, including under a future changed environment?
- What is the impact of a herd health package (delivered through trained herd health champions and model farmers), on pig health, productivity, and welfare in selected districts in Uganda and its viability at farm level?
- How do empowered pig agripreneur businesses enhance input delivery and output market linkages and catalyse uptake of pig productivity innovations (technologies/best practices in herd health x genetics x feeds and forages) by pig farmers and increased sustainable pig productivity?
- To what extent does the business incubation program enhance pig agripreneurs' entrepreneurial capacities and business growth of the pig businesses?
- What are the context-specific barriers to achieving food and nutrition security in the context of pig keeping communities and which interventions should be prioritized to address the constraints?
- What is the impact of a SBCC nutrition education intervention for men and women, that focus on (a) delivering knowledge on household, maternal and child nutrition, including consumption of livestock derived foods as part of diverse diets, and food safety practices, and (b) addressing norms to demystify LDFs consumption particularly for women and children, on nutrition outcomes of children 6–59 months of age, women of reproductive age, and behavior change in men?
- What partners, systems and capacities are required to support SAPLING livestock innovations to go to scale?
- How can livestock genetic improvement, feed-forages and animal health technical innovations support women's empowerment towards gender equality? What GAAs and GTA in livestock value chains can be adopted to support women's participation and progress towards empowerment?
- What are the most profitable and otherwise beneficial entry points for male and female youth to engage in different livestock value chains?
- What are the trade-offs and synergies between productivity, economics, gender & social equity, and environmental factors that need to be considered when developing and scaling livestock innovations and at national level for policy making?

Key partners in this work are Makerere University; National Livestock Resources Research Institute (NaLiRRI); Entrepreneurship for Impact (E4Impact); Pig value chain actors; Zonal Agricultural Research and Development Institutes (ZARDIs); Innovation Village; Ministry of Health – Nutrition Division; Africa Institute for Strategic Services and Development (AFRISA), District Veterinary Office, District Community Development Office, and District Health Offices of Masaka, Mukono, Wakiso and Mpigi.

3 Theory of change overview

Since past research has shown that successful livestock development requires integrated packages of productivity enhancing technologies and innovations along the value chain and in the enabling environment, SAPLING organizes its outputs not as individual "silver bullets" but rather in innovation packages—"*combinations of interrelated innovations and enabling conditions that, together, can lead to transformation and impact at scale in a specific context*[1]"—that target specific sets of interrelated, context-specific opportunities and constraints.

SAPLING chose to develop theory of changes (ToCs) at VC level to show how the outputs of SAPLING's Work Packages come together in Innovation Packages to contribute to outcomes on the ground. ToCs were initially developed in participatory workshops with stakeholders and later updated to reflect changes in programming, to clarify and firm up the underlying logic—via specification of sub-pathways—and to increase consistency across value chains. See here for information on the stakeholder workshop that initiated the development of the ToC for pigs in Uganda. Going forward, regular review and updating is planned as part of program management and MELIA. For more information on how the Value Chain ToCs fit into the overall SAPLING monitoring, evaluation and learning plan, see the SAPLING MEL Brief.

Annex 1 provides additional information on the elements included in the ToC.

1 Definitions from CGIAR MEL glossary unless otherwise noted

4 Theory of change for the pig value chain in Uganda

Figure 2. Schematic of the theory of change for the pig value chain in Uganda.

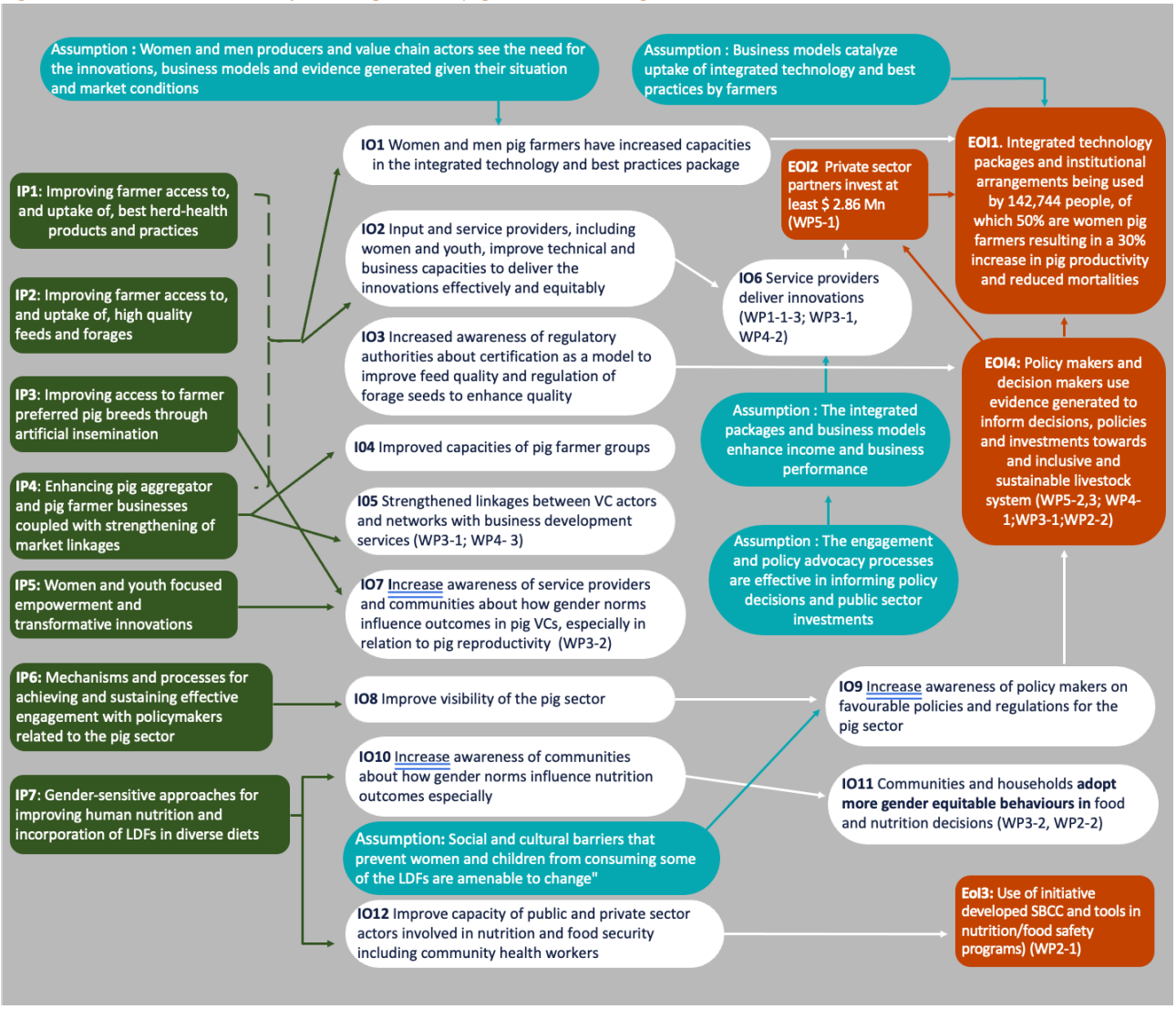


Figure 2 presents the ToC of the pig value chain In Uganda with target values determined as given here. It contains 4 sub-pathways, targeting service providers, pig producers and other VC actors (1); communities and households (2); policymakers (3); and implementers of nutrition programs (4). While the four pathways are mutually reinforcing, especially in the longer run, it is useful to describe them separately to make it clear how SAPLING expects early interactions and outcomes to occur. Further details about innovations and enabling elements within each innovation package are given in boxed text.

The **first sub-pathway** rests on the recognition that sustainable improvements in farm-level productivity will come not only through better technologies and technology packages but also through high-quality service providers who make the technologies, and related skills necessary for their effective use, available to pig producers in the context of efficient and transparent value chains that ensure profitability and equity for all actors along the chain. The first set of productivity enhancing innovation packages (IP1 – IP3) focus on improving farmer access to, and uptake of, herd health products and practices (IP1), high-quality feeds and forages (IP2) and farmer preferred pig breeds through artificial insemination (IP3). As can be seen in Boxes 1–3, these IPs includes technological and institutional innovations as well as capacity development activities targeted at different actors. Gender is integrated into all of them, and in addition IP3 plans to include a gender transformative intervention to support women in pig AI

provision. IP4 is focused on enhancing pig aggregator and pig farmer businesses coupled with strengthening of market linkages. IP4 includes technologies aimed at improving business performance as well as institutional innovations designed to improve networks and collective action (Box 4).

IPs 1-4 together will contribute to the first two immediate outcomes (IOs) in this sub-pathway, namely that men and women pig farmers (IO1) and service providers such as vets, feed and seed producers, and AI service providers (IO2) improve their technical and business capacities related to the use and the efficient and equitable delivery of the individual technologies and the integrated package. IP4 will contribute to strengthening the capacity of pig farmer groups, especially related to marketing (IO4) and to strengthening linkages between value chain (VC) actors and networks with business development services (IO5[2]). Taken together, these changes are expected to provide service providers with the capacity and the economic incentives to deliver the innovations packages to women and men farmers (IO6[3]). EOI2[4] is achieved as service providers invest their own resources, a total of USD 2.86 million in actively promoting the integrated technology packages to farmers. EOI 1 is achieved when producers adopt technology packages and engage in innovative marketing arrangements, resulting in improvements in productivity.

IP2 is also expecting to increase the awareness of regulatory authorities, mainly in the crop sector, about certification as a model to improve feed quality and regulation of forage seeds to enhance quality (IO3). Ultimately this will contribute to changes in regulation (EOI4) that improve the enabling environment for pig nutrition, further contributing EOIs 1 and 2.

Several assumptions underlie the logic of the first sub-pathway. The first is that farmers and VC actors see the need for integrated packages at farm level and for new business models at VC level. Whether this is true, and whether it needs to be true for the expected outcomes to be achieved, will be important to the design of SAPLING capacity development activities as well as to scaling efforts. Another key assumption is that the integrated packages and business models enhance income and business performance of service providers. This is being tested through a study to assess the business performance effects of a business incubation and mentoring intervention targeting feed traders, AI technicians, pig aggregators and herd health champions. Finally, the assumption that the new business models catalyzes uptake of integrated technology and best practices by farmers is being tested by a study to assess farmer pig practices and technology use at baseline and endline using the Rural Household Multi-Indicator Survey – RHoMIS.

The **second sub-pathway** focusses on strategic gender research. Through its work with GTA approaches, IP3 will increase the awareness of service providers and communities about how gender norms influence outcomes in pig VCs, especially in relation to pig productivity (IO7). In the longer term, this is expected to contribute to improving women's empowerment. Empowering women and youth are also the outcome of IP5 however this IP and the second sub-pathway are still being developed.

The **third sub-pathway** recognizes the important role that policy often plays in achieving and maintaining sustainable, equitable improvements in productivity and profitability for actors in the pig value chain. IP6 consists of mechanisms and processes for effective engagement with policymakers through which relevant evidence, tools and experiences can be shared with policymakers and through which policymaker concerns can be feed back into SAPLING (Box 6). IP6 is expected to enhance the visibility of the pig sector (IO8) and to raise awareness among policy and decisionmakers on favourable policies and regulations for the pig sector (IO9) ultimately leading to the use of SAPLING evidence to inform decisions, policies and investments (EOI4). A more supportive policy environment is expected to reinforce other outcomes, especially investment by private sector. A key assumption underlying this sub-pathway is that the engagement and policy advocacy processes are effective in informing policy decisions and public sector investments.

A **fourth sub-pathway** focuses on enhancing the role of livestock derived foods (LDFs) in safe, nutritious human diets. IP7, Gender-sensitive approaches for improving human nutrition and incorporation of LDFs in diverse diets (Box 7) includes frameworks, tools and strategies for identifying and addressing bottlenecks that prevent safe incorporation of LDFs in diverse diets, with a particular emphasis on social norms that influence LDF consumption by women and children. Using GTA, IP7 expects to increase awareness of communities about how gender norms influence nutrition outcomes especially for women and children (IO10), ultimately contributing to communities and households adopting more gender equitable behaviours in food and nutrition decisions (OI11). A key assumption underlying this

pathway is that the social and cultural barriers preventing women and children from consuming some of the LDFs are amenable to change.

A second target group in this sub-pathway are the public institutions and development partners involved in human nutrition programming. The capacity of public and private sector actors, including community health workers (CHWs), to use the SAPLING-developed framework, tools and SBCC strategies for informing the design of food security and nutrition interventions that include LDFs is expected to increase (IO12), ultimately resulting in their use in nutrition and food safety programs (EOI3), and contribute to OI11.

ILRI staff demonstrate to pig farmers how to sanitize as part of biosecurity before accessing the piggery (photo credit:ILRI/PWairagala).

Box 1 IP1: Improving farmer access to, and uptake of, best herd-health products and practices

Components of the package comprise:

* Context-specific gender-sensitive pig herd health packages
* Capacity building of vets in herd health using digital platforms
* Delivery models for existing pig vaccines, based on demand from women and men pig farmers
* Capacity building of pig keepers and other actors on biosecurity and herd health practices via PigSMART (SBCC)
* Model farms to demonstrate the benefits of the integrated technology package and best practices at farm level
* Guidelines for strengthened multistakeholder platform to increase linkages between value-chain actors and shared learning

IP1 draws on work from Work Packages 1, 3, and 4.

A rider prepares to transport pig carcasses from a butchery in Kampala, Uganda (photo credit: ILRI/D.Kabir).

Box 2 IP2: Improving farmer access to, and uptake of, high quality feeds and forages

Components of the package comprise:

* Training & certification program for small scale feed producers
* Technical capacity building for forage seed producers
* Capacity building of pig keepers and other actors on appropriate feeds and feeding practices via PigSMART (SBCC)
* Model farms to demonstrate the benefits of the integrated technology package and best practices at farm level
* New drought tolerant and adapted forage varieties
* Guidelines for strengthened regulations and enforcement to ensure high quality of forage seeds
* Approaches for strengthened multistakeholder platform to increase linkages between value-chain actors and shared learning

IP2 draws on work from Work Packages 1, 3, and 4.

Box 3 IP3: Improving access to farmer preferred pig breeds through artificial insemination

Components of the package comprise:

* Business acceleration program for pig artificial insemination service providers, including women and youth
* Technical training of artificial insemination service providers
* Capacity building of pig keepers and other actors on artificial insemination via PigSMART (SBCC)
* Model farms to demonstrate the benefits of the integrated technology package and best practices at farm level
* Strengthened linkages between artificial insemination service providers and pig keepers
* Approaches for strengthening multistakeholder platform to increase linkages between value-chain actors and shared learning
* GTA (community Dialogues; Intra household sensitization etc) supporting women in pigs AI provision

IP3 draws on work from Work Packages 1, 3, and 4.

Box 4 IP4: Enhancing pig aggregator and pig AI businesses coupled with strengthening of market linkages

Components of the package comprise:

* Business acceleration program for pig aggregators, including women and youth
* Enhanced pig agripreneur networks
* Approaches for strengthening pig farmers group for enhanced negotiating power and more profitable businesses, including equitable governance (women and youth represented)
* Pig profit app for use by pig keepers for enhanced decision making on their household pig enterprise, including on marketing
* Pig weigh band for use by pig keepers and other actors to increase transparency in trade
* Approaches for strengthening multistakeholder platform to increase linkages between value-chain actors and shared learning

IP4 draws on work from WPs, 1, 3, 4 and 5

Box 5 IP5: Women and youth focused empowerment and transformative innovations

Components of the package comprise:

* GTA (community Dialogues; Intra household sensitization etc) supporting women in pigs AI provision…. to be confirmed
* Community Dialogues; Intra household sensitization etc engagement in post-production pig business
* GTAs to demystify LDFs consumption particularly for women and children
* Youth innovation challenge

IP 5 draws on work packages 1, 2, 3 and 5

Box 6 IP6: Mechanisms and processes for achieving and sustaining effective engagement with policymakers related to the pig sector

Components of the package comprise:

* Multistakeholder platforms (MSPs) for policy advocacy and lobbying
* Assessment of effectiveness of MSPs (as per assumption in this sub-pathway)
* Engagement with policymakers to share evidence generated and identify policy gaps
* Engagement with policymakers to enhance the visibility of the pig sector by co-hosting a high-level pig VC workshop
* Assessment of demand for a livestock master plan from policymakers and potential donors

IP6 includes work from work packages 1,3,4 and 5

Box 7 IP7: Gender-sensitive approaches for improving human nutrition and incorporation of LDFs in diverse diets

Components of the package comprise:

* Frameworks and decision support tools to identify bottlenecks in nutrition and LDF incorporation in diets to inform prioritization of nutrition interventions
* Capacity building of public and private sector actors on frameworks and decision support tools to inform prioritization of food security and human nutrition interventions that incorporate LDFs
* SBCC strategies to enhance inclusion of safe LDFs in diverse diets
* Approaches to involve men in food and nutrition decisions
* GTAs to demystify LDFs consumption particularly for women and children
* An impact assessment study to assess outcomes of the SBCC interventions with a focus on nutrition outcomes for young children and mothers
* Study of the factors that determine the social and cultural barriers preventing women and children from consuming some of the LDFs

IP7 draws on work from WPs 2, 3, and 4

Next steps

ToCs are living documents that should be developed and updated in response to concrete programmatic needs. This theory of change will be reviewed in collaboration with stakeholders on an annual basis, with changes made as necessary. The strategic gender sub-pathway (sub-pathway 2) will continue to be developed and validated. The reflection process, changes to the ToC and reasoning behind these changes will be documented as annexes to this report.

References

Marshall, K., Poole, J., Njehu, A. and Baltenweck, I. 2022. Monitoring, evaluation and learning within the CGIAR Initiative Sustainable Animal Productivity for Livelihoods, Nutrition and Gender Inclusion (SAPLING). ILRI Research Brief 117. Nairobi, Kenya: ILRI. https://cgspace.cgiar.org/bitstream/handle/10568/128150/SAPLING_MEL_Brief.pdf?sequence=2.

ILRI. 2022. CGIAR's SAPLING Initiative targets Uganda's pig and cattle sectors to expand benefits for farmers. Blog Post. Montpellier, France: CGIAR System Organization. https://cgspace.cgiar.org/handle/10568/125801.

Food and Agricuture Organization of the United Nations (FAO). 2019. FAO statistics: https://www.fao.org/statistics/en/.

Uganda Bureau of Statistics. 2020 Statistical Abstract. (Available at: https://www.ubos.org/wp-content/uploads/publications/11_2020STATISTICAL__ABSTRACT_2020.pdf).

Caulfield, M., Hammond, J., Teufel, N., Ouma, E., Lukuyu, B., Lutakome, P., Kariuki, E., Dione, M., Marshall, K. and van Wijk, M. 2021. Baseline survey of smallholder pig producers in central Uganda under the MorePork project. Nairobi, Kenya: ILRI. https://cgspace.cgiar.org/handle/10568/117698.

Annex 1. Elements included in the ToC

The ToC includes three standard elements: outputs (Innovation packages), outcomes and assumptions. CGIAR defines an outcome as "a change in knowledge, skills, attitudes and/or relationships, which manifests as a change in behavior in particular actors, to which research outputs and related activities have contributed." In these ToCs, immediate outcomes (IOs) are initial changes in things like awareness and capacity that occur among next-users of the innovation packages. End-of Initiative outcomes (EoIs) are outcomes that occur further along the pathway and reflect changes in behavior among target actors and, in some cases, the consequences of that behavior such as increases in productivity or the value of investments. EoIs are the same across all ToCs while the immediate outcomes that lead to them are context-specific. In order to see the whole VC ToC in a single diagram, multiple similar outcomes are grouped together in a single IO or EoIs. These could be unpacked in a series of nested ToCs if further detail on sub-pathways is needed.

Just as Innovation packages combine innovations from different Work Packages, IOs and EoIs combine expected outcomes of different Work Packages that were specified in SAPLING's results framework[2]. As expected, the mapping of WP to ToC outcomes (IO and EOIs) is not one to one; for example use by value chain actors of a gender-aware business model can contribute to expected outcomes of work package 3 (strategies and approaches for enhancing gender equity and social inclusion) and work package 4 (evidence and approaches for strengthening competitive and inclusive livestock value chains). In Figure 1 each IO or EoI notes the WP outcome(s) to which it maps. Being explicit about how the different types of outcomes relate to each other is intended to facilitate use of the ToC for program-level monitoring and learning and avoid confusion and duplication.

Assumptions are "hypotheses about factors or risks which could affect the progress or success of a development intervention… It is useful to distinguish between: (i) theoretical assumptions, about how the intervention is expected to contribute to a process of change based on facts, and; (ii) contextual assumptions, about current conditions and the trajectory and risks that could affect the progress or success of a development intervention." While both types of assumptions are important, these ToCs focus on key theoretical assumptions since these are the ones that programs address as part of their research programs, investing resources to understand and test them.

2 Work package outcomes that are not included are those that occur outside of value chains, for example among research partners or among scaling partners outside the target value chain.

Annex 2. Initiative and work-package level outcomes from the SAPLING results framework

Outcome code (EOI – end of initiative; WP = work package)	Outcome
EOI1	Co-created, demand-driven innovation packages of productivity- and resilience-enhancing, low emissions technologies and the institutional arrangements (including markets) necessary for their adoption are being used by 800,000 people (male and female), including at least 100,000 people using SAPLING promoted improved forage and food feed crops, in households keeping cattle, chickens, small ruminants, pigs and buffalo in Ethiopia, Kenya, Tanzania, Uganda, Mali, Nepal and Vietnam, resulting in a 30-50% increase in livestock productivity
EOI2	Private and public sector partners invest at least $30M in co-creation and delivery of novel, low emissions, demand-driven, gender and youth inclusive, and productivity enhancing technologies and practices for genetics, feed/forages, and health
EOI3	6 public and private sector organizations utilize Initiative-developed social behavior change communication strategies, tools or campaigns targeted at incorporating safe livestock derived foods into diverse diets to inform nutrition education strategies and/or campaigns
EOI4	Public and private decision makers utilize the Initiative innovation packages to inform policies and investments in Ethiopia, Kenya, Tanzania, Uganda, Mali, Nepal and Vietnam towards an inclusive and sustainable livestock system, including progress towards equity and inclusion
WP1-1	Use by public and private sector value-chain actors of promoted genetic improvement programs in smallholder systems, built on the needs and preferences of livestock keepers in 7 countries and incorporating ICT, genomic and reproductive technologies as appropriate
WP1-2	Development partners, public and private seed sector use, promote and commercialise improved forage and food-feed crops and feed companies employ prioritization approaches to improve feed options and reduce livestock feeding gap
WP1-3	Animal health system actors in 7 countries promote and use tools and technologies (herd health packages and disease control) to reduce disease burden
WP2-1	Government and development practioners take up the decision support tools to diagnose and prioritize livestock deived foods in food and nutrition interventions
WP2-2	Government and development practioners support and promote social behavior change communication and market-related innovations that enhance affordability and safety of livstock derived foods.
WP3-1	In 4 selected countries policy, private sector and the development community acknowledge gender- and youth-based discrimination in livestock value chains and co-develop strategies to close the gender and age gap
WP3-2	Community and household members in selected livestock value chains adopt gender-transformative approaches and show more gender-equitable behavior to enable participation and benefitting from livestock assets and opportunities
WP3-3	Scientists, practitioners and extension agents in animal health, feeds and forages, genetics and environment collaborate with gender scientists to generate gender- and youth-responsive livestock innovation bundles
WP4-1	Government and development practitioners support new business models and interventions that ensure improved competitiveness of the livestock value chains
WP4-2	Government and development practitioners support and promote SAPLING innovation packages
WP4-3	Market actors invest in profitable and inclusive business models promoted by SAPLING, that provide transparent and efficient markets
WP5-1	Value chain actors are adjusting their investments and practises based on prioritisation, trade-off and/or scaling readiness analysis
WP5-2	Public and private decision makers utilize Initiative-developed tools and recommendations to inform policies and investments in the 7 focus countries and beyond (scaling)
WP5-3	Researchers and decision makers have access to and use improved analytical tools (environmentally and gender-sensitive), evidence and processes to guide livestock master plans (LMP)

CGIAR's Sustainable Animal Productivity for Livelihoods, Nutrition and Gender inclusion (SAPLING) is working in seven countries focusing on livestock value chains to package and scale out tried-and-tested, as well as new, innovationsin livestock health, genetics, feed and market systems. SAPLING aims to demonstrate that improvements in livestock productivity can offer a triple win: generating improved livelihoods and nutritional outcomes; contributing to women's empowerment; and, reducing impacts on climate and the environment. Its seven focus countries are Ethiopia, Kenya, Mali, Nepal, Tanzania, Uganda and Vietnam.