



Agriculture & Processing Landscape Report

*Overview of the landscape for Kenyan agriculture,
processing, and agricultural financing*

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Reflections to inform project design



Overview of the scope of the Ag & Processing project

Project Objectives and Study Scope

FSDK's new strategy from 2022–2026 seeks to contribute to the development of *“A financial system that increasingly delivers value for a green and inclusive digital economy while improving financial health and capability for women and micro and small enterprises (MSEs)”*

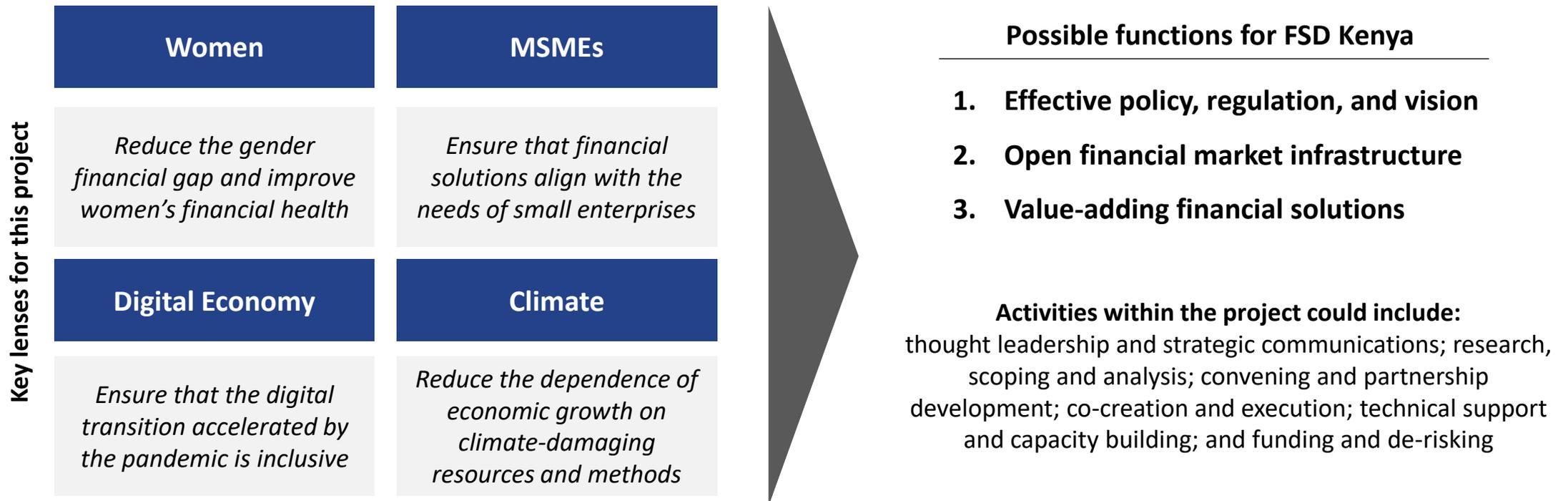
The Agriculture and Processing project (a 5-year project) – under the new strategy seeks to accelerate development of value-adding finance to **catalyze increased production, productivity and profitability of female smallholder farmers, agricultural traders, and processors.**

To inform the project design, the study intends to:

- Conduct a study on the current landscape in Kenya in the agriculture production, Ag processing, and Ag financing – overall, and with deep-dives into the gender and climate lenses, drawing on FSD Kenya experience, desk research, and stakeholder interviews
- Develop key design elements for the project, e.g., Theory of Change, priority interventions, budget, results framework to be vetted by the FSD Kenya board to unlock the necessary financing.

The Agriculture & Processing project will seek to impact four critical areas of the real economy, through three functions

Why a focus on the real economy and on agriculture and processing. In its previous strategy, FSD Kenya sought to catalyze financial inclusion. As of 2021, financial inclusion is near universal, thanks to widespread innovation in the financial sector and the rapid uptake of mobile money. However, it has become evident that financial health has declined over the last few years and that the Covid-19 pandemic may be leading to increased social inequality. FSD Kenya now aims to shift its focus from boosting access to ensuring that the financial inclusion that has been achieved delivers value for all populations, especially the vulnerable, and is climate-friendly.



Study methodology and structure of this document

Methodology

Through scoping discussions with the FSD Kenya team, we settled on the following decisions:

- FSD Kenya will aim for interventions that benefit at least 35% women among beneficiaries
- Given the duration of the project (5 years), place emphasis on scale rather than innovation, as the completed FIRE project (previous project by FSD Kenya)
- Place emphasis on processing, as a separate project under the strategy will target Trade specifically

To prepare this report, the consultants and the FSD Kenya team:

- Reviewed key program documents from FSD Kenya around previous project objectives and performance and strategic goals for the future
- Drew on secondary resources from various bodies of research, particularly FSD Kenya's 2021 FinAccess Survey, and
- Interviewed 25 stakeholders in agriculture, financing, and women empowerment in Kenya.

Structure of the document and context

- **Executive summary**
- **Overview of the overall agriculture landscape** | This section presents on the latest trends and noteworthy developments in the sector at a high level
- **Overview of Kenya's agricultural policy** | This section showcases the Government of Kenya's ambitions for the agriculture sector along multiple dimensions
- **Role of women in Kenya's agricultural sector** | This is where we do a broader deep-dive into key facts about participation, key enabling and restricting factors for women in the sector. In sections that follow, we present a gender-agnostic as gender-disaggregated data are not available for all the major takeaways
- **Overview of the agriculture financing landscape** | This section presents the state of play with key actors, formal and informal, and a snapshot of gender considerations
- **Overview of the agriculture processing landscape** | This section takes a similar approach as the above (broad + gender lens). Here, it was also necessary to provide snapshots of key value chains, as the processing landscape and hence the implications are value-chain dependent.

Contents

- Executive summary
- Overview of Kenya's agricultural landscape at large
- Kenya's agricultural policy
- Role of women in agriculture in Kenya
- Overview of the landscape for agricultural financing
- Overview of the agro-processing sector
- Annex



Executive Summary (1/4)

STATE OF PLAY OF THE KENYA AG SECTOR

- **Overall, Kenya’s agricultural performance has been mixed. On the one hand, high ambitions at the government level to transform the agriculture sector**, by boosting processing and export-focused production, integrating smallholder farmers into commercial value chains, and mitigating the effects of climate change.
- **On the other, boom-bust cycles of agricultural GDP growth, driven by an almost predictable pattern of fortunate agro-climatic conditions followed by very unfortunate ones** – characterized by droughts, floods, and crop and pest diseases. Farmers and households are not doing well in the last two years, this time not because of poor climatic conditions but because of unforeseen and significant external events – specifically the Covid-19 pandemic and the Russia-Ukraine conflict – that have shone a major spotlight on Kenya’s increasing dependency on imported staple goods and that threaten to turn back the clock on the modest progress farmers had made in their adoption of yield-boosting technologies.
- **There is cause for concern, however, as a large share of the population is rapidly shifting away from the agriculture sector** (which has long contributed the largest share of employment) and into equally or more precarious casual labor. Combining this labor shift or “flight” with decreasing agricultural productivity, increasing climate change, soaring food import bills, and ongoing structural exclusion of farmers into a big segment of the economy (i.e., financing) means that the sector’s immediate future is precarious.
- **It is not all bad news; the bright spots are:** first, unlike the staple food segment, the food export segment has been doing well in part because of up-and-coming value chains like oilseeds and some expansion in long-standing others such as horticulture, flowers, and coffee. Secondly, there has been increasing innovation in the sector, with commercial but impact-minded players setting up or expanding operations that serve or integrate smallholder farmers.

WOMEN IN AG

- **Women farmers in Kenya face the same challenges male farmers face, and then a whole set of gender-related challenges** layered on top that limit their productivity, commerciality, and individual performance in the sector.
- **As a whole, though, women are critical to food security in Kenya, as the largest base of agricultural producers in the country and in their role as decision-makers for what gets produced and what gets consumed in the household.** It is important to note that women are active not only in subsistence value chains, but also in highly-commercialized ones for local and export markets – just that their roles and their levels of ownership / autonomy in those value chains vary.

Executive Summary (2/4)

PRIORITY VALUE CHAINS FOR WOMEN

Value chain	Core participation by women (as producers or laborers)	Opportunities for gender-focused investments / interventions
Maize	Producer	Provide targeted subsidies for inputs and working to improve soil quality to reverse declining yields
Other grains (sorghum, wheat)	Producer	Boost production of these grains to reduce dependency on exports (wheat is Kenya's biggest food import) and link female smallholder farmers into supply chains of large processors.
Legumes /beans	Producer	Invest in aggregation to enable more product to reach local markets
Dairy	Producer	Bring cooling stations closer to farm-gate, ideally with innovative financing structures that smooth the economics for smallholder farmers
Fruit	Producer, Laborer	Invest in small-scale fruit juice processing, including providing cold storage equipment to reduce post-harvest losses, and link SHF to large-scale processors
Vegetables	Producer, Laborer	For local market varieties: invest in aggregators for more produce to reach market For export varieties: help acquire international certifications to open up premium markets, bring cold storage closer to farm-gate with innovative financing
Coffee	Producer, Laborer	Provide targeted input subsidies to revive yields; acquire additional certifications to access premiums
Tea	Producer, Laborer	Continue providing targeted inputs and pulling smallholders into the value chain
Oilseed / nuts	Laborer	Address lack of competitiveness with regional oilseeds (e.g., Tanzania, Malawi); provide start-up and scale financing for niche oilseed processors, and facilitate linkages to local, large-scale retailers to help replace imports
Poultry	Producer	Support women entrepreneurs to scale up their poultry rearing enterprises with finance and linkages
Floriculture	Laborer	Help open new markets for Kenya's floriculture products, such that the sector absorbs more female employees; help upskill women into mid-level roles within these enterprises

Executive Summary (3/4)

- **Kenyan farmers are often shut out of the formal financial system:** most farmers rely primarily on income from their farm activities to reinvest into their operations, and when they seek external sources of financing, they bias towards informal ones or non-credit-bearing ones (especially women) over banks.
- **The agriculture portfolios of commercial banks have not kept pace with the rest of their loan portfolios, nor with growth in the sector, and continue to favor larger enterprises** able to fit into traditional credit requirements for liquidity and predictability of cash flows, etc. This is not to say that banks are doing nothing: they deployed over USD 900M in loans in the sector in 2020, and several banks have created agriculture-focused strategies and committed dedicated units to their financing, but if you look closely, their preferred way of engaging with farmers and their preferred value chains means that most farmers will remain underserved or excluded.
- **As an alternative, SACCOs (formal, but community-led actors) are the most active lenders in the sector with a total loan portfolio size two-thirds the value of that of the formal banks, even though they own only 12% of all formal banked assets in the country** (on the flip side they deploy more than 10x the total number of loans than do banks each year). Interestingly, though SACCOs are popular with farmers, their usage is not as high as one would expect: they too favor a few value chains over others, and there is room to make them a more inclusive lender.
- **A third, smaller but meaningful set of actors is agribusiness intermediaries who provide inputs on loan to smallholder farmers.** Together, the largest firms (e.g., One Acre Fund, Apollo Agriculture) would probably come second in line as providers of agri-financing to smallholder farmers, after SACCOs. These intermediaries are largely “going it alone” – lending off their own balance sheets, not for disinterest in partnering with banks but little traction in setting up such partnerships. External funders (donors, private equity players) have stepped in to provide the capital. These intermediaries are a promising entry point for providing farmer financing: they learn to deeply know them and their realities as customers, can provide targeted agri expertise alongside financing, and share common goals.
- **Outside of these actors, farmers are mostly relying on their own means for financing, or a more ill-suited option: unsecured mobile lenders** which have grown exponentially in the last decade and especially since the start of the Covid-19 pandemic. Though they are primarily an urban product (and short-term), farmers are beginning to access them, risking drawing themselves into vicious cycles of debt.

Executive Summary (4/4)

- **Processing is still largely concentrated in a handful of value chains: only 16% of Kenya’s agro exports are processed**—a lower share than regional peers such as Cote d’Ivoire and Ghana. This share has increased slightly in 2016-21, but only marginally.
- **Of the processed agro exports, the growing segments have been around edible and non-edible oils** (largely driven by the handful of major oil processors). The traditional cash crops for export - tea and coffee - have been stagnant or on the decline.
- **Exports in horticulture has grown steadily, but mostly this is driven by non-processed goods or “primary processed”** with just grading, washing, and packaging. In the domestic (non-export) sector, growth in processing has been flat across the board.
- **Policy: GoK’s Agri Transformation highlights agro-processing and value addition as key pillar and objective of the national development plan.** One of the flagship initiatives is to develop 6 processing hubs strategically located around the country in the food corridors in proximity to both fast-growing populations and regions of production.
- **GoK is far behind on its agro-processing strategic pillar** - while locations for the agro-processing hubs are identified, only the Naivasha zone is reasonably well progressed. There is primary initial focus on the large anchor commercial processors. The priority is to lock in these large processors first and think about clustering smaller processors around them afterwards.
- **Lack of capital to invest in the assets is the single biggest constraint (but not the only one).** There are generally few sources of capital for farm equipment and machinery. The larger leasing companies like RentCo Africa do offer financing for tractors and processing units, but this requires full collateral and strong financial standing so only available to more commercial actors and large cooperatives.
- **In some cases, there is a lack of well-suited machines which are tailored to needs of the market.** Equipment is of poor quality and can break down and sit idle. Where equipment is specialized, there are few engineers / technicians with skills required to service and repair them (and if there are, they can charge high prices making the farmer wait to get it fixed).
- **Investing in processing equipment needs to make economic sense for the producer(s).** For most small-scale producers, such investments do not have positive ROI as they cannot reach sufficient utilization of the asset. For example, with larger grinding and threshing machines.
- **Opportunities: For this reason, shared ownership / use models can improve the ROI for producers.** But this is only possible where either (1) a farmer is entrepreneurial and decides to rent out the asset to their peers and / or (2) the farmer is well-organized in a group which is able to ensure high utilization.

Kenya Landscape:

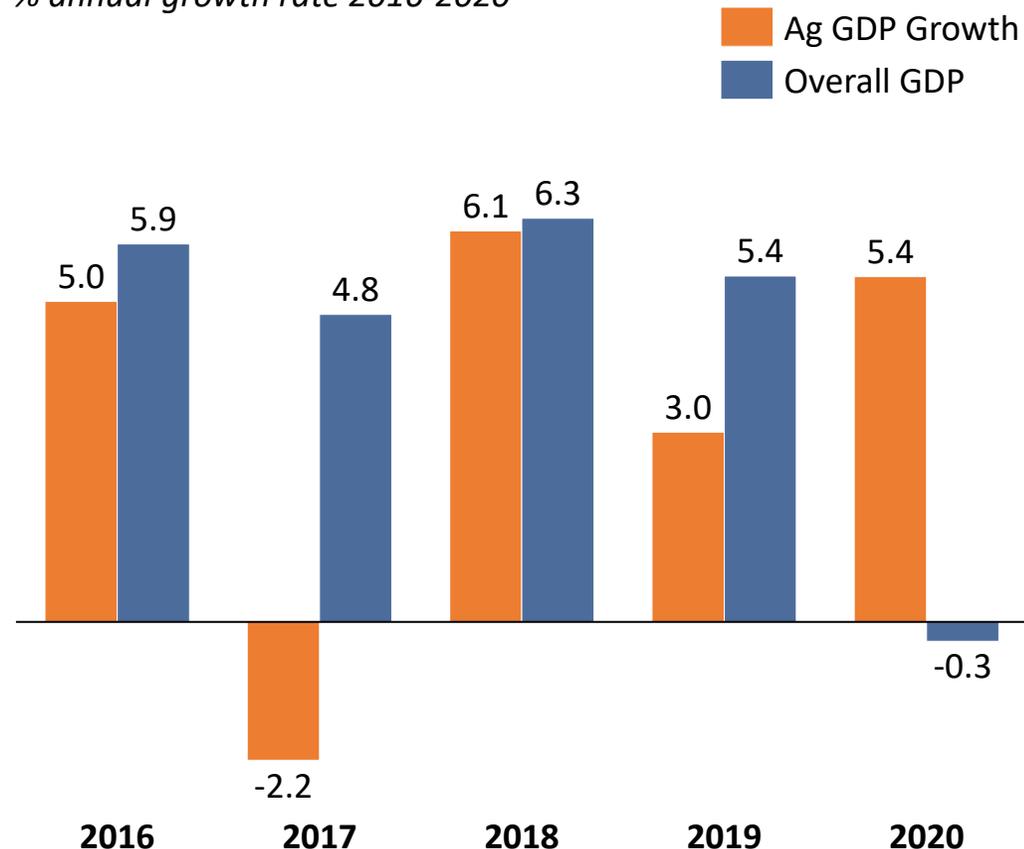
**The Agriculture Sector
at large**



Kenya's agriculture sector has performed relatively well in the last three years, at least based on top-line figures

Kenya agriculture sector vs. overall GDP growth

% annual growth rate 2016-2020



- **Top-line figures for agricultural performance the last five years have generally been positive – though the sector goes through boom-and-bust years every two years.** Though the Agri sector does not always keep up with overall GDP, it does come close, on average, within a percentage point (3.5% for Ag vs. 4.4% overall)
- **2020 was a rebound or “boom” year:** The sector achieved a 5.4% annual growth rate, compared to 3% the previous year, and higher than overall GDP growth, which declined as a result of a drop in the tourism industry. Agro-climatic conditions were favorable, despite the Covid-19 pandemic, a locus wave, floods, and droughts in part of the country
- **Though no official data are out for 2021/22, the boom-and-bust likely cycle repeated:** Kenya overall reported poor rains in mid 2021 that would have negatively impacted the sector's performance
- **A key reason for these fluctuations is the lag or decline in agricultural productivity and in uptake of mechanization:** for example, cereal yields have declined since the 1990s, while those of neighboring countries have increased
- **Another important one is that the sector's performance is highly influenced by (and influenceable on) the political landscape.** Bad years may not just be driven by weather conditions but also by the uncertainty caused in the change of political regimes, e.g., 2017

However, the lived experience for many farmers and household consumers suggests a different story

Though there have not been widespread food shortages as was feared when the pandemic hit, many farmers and households are worse off than they were before 2020.

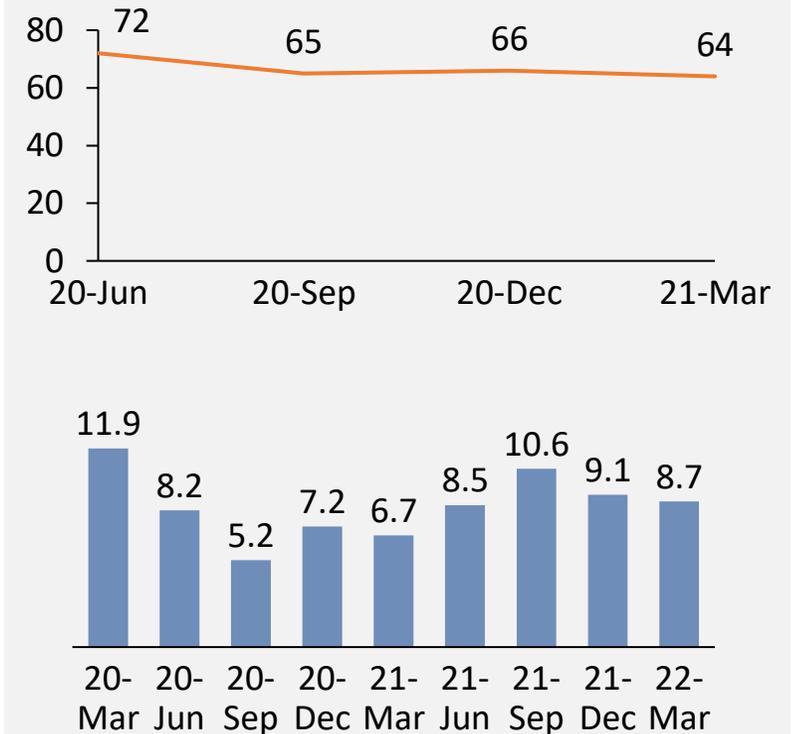


- **On the farmer side:** Despite agro-climatic performance having been positive on the whole, farmers still experienced shocks to their income brought on by the Covid-19 pandemic that persisted well into late 2021: increased input and transportation costs, market supply chain slowdowns, below-average prices for local produce, below-average non-agricultural labor opportunities, reduced remittances from urban areas. For a sector in which productivity has stagnated over the last decades, there is a risk that farmers further reduce their use of yield-boosting inputs and return to a reliance on rain-fed agriculture.



- **On the consumer side:** The average household was already spending more than a third of monthly income on food. Food inflation has worsened the situation. It has ranged from 7% to 11% every month in the 12 months leading to this report, after an initial peak in the first months of the pandemic – not unexpected – and a steep decline in the last quarter of 2020.

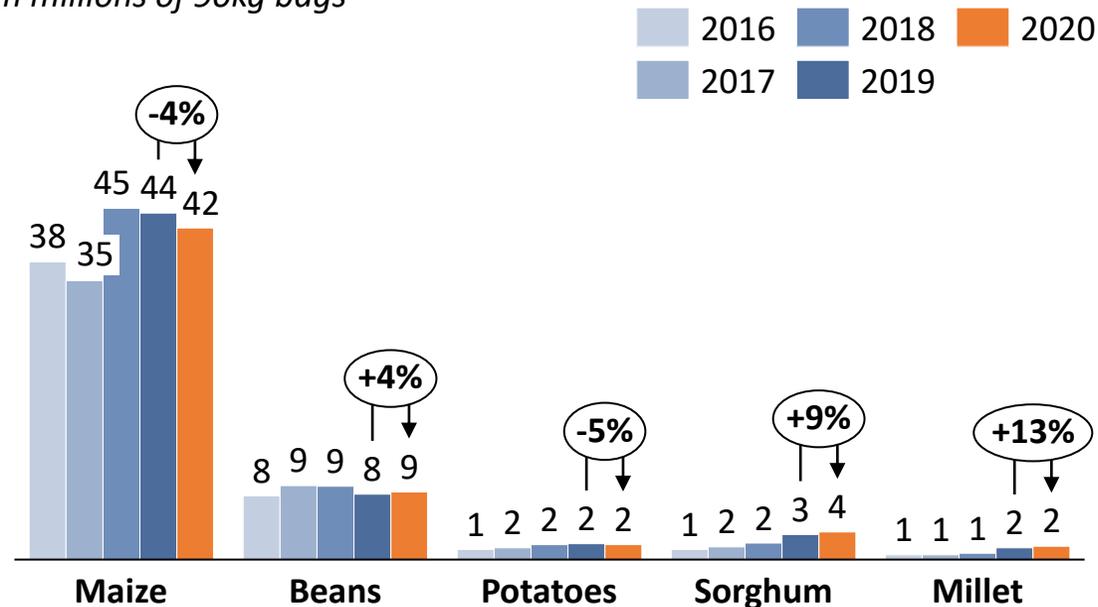
Top: % of farmers who reported lower sales prices for their produce
Bottom: Monthly food inflation in Kenya, %



In fact, some staple crop production has stagnated or declined – increasing the risk of food insecurity...

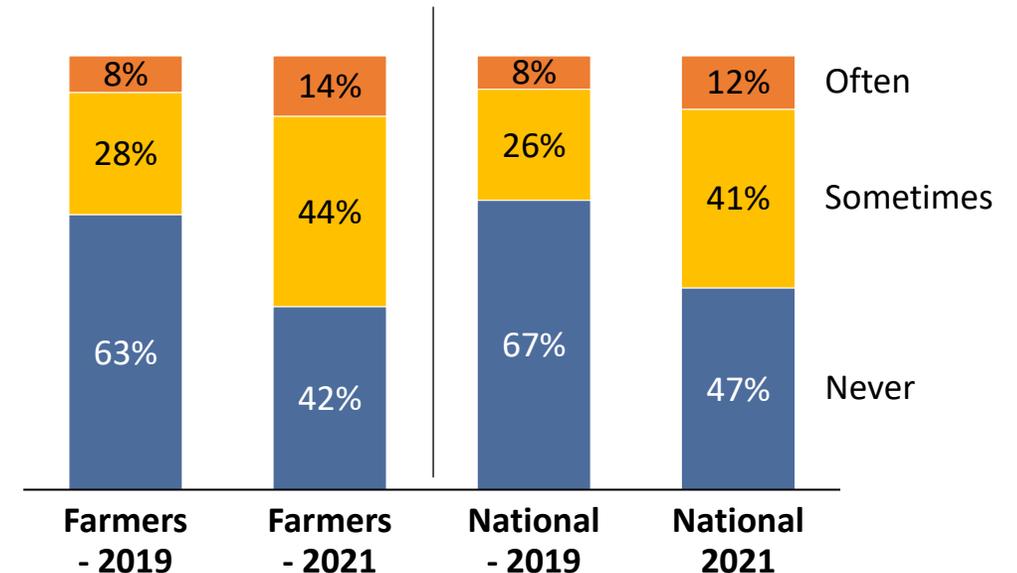
Performance of key food crops in Kenya: 2016-2020

In millions of 90kg bags



Kenya food vulnerability: Farmers vs. national 2019-2021

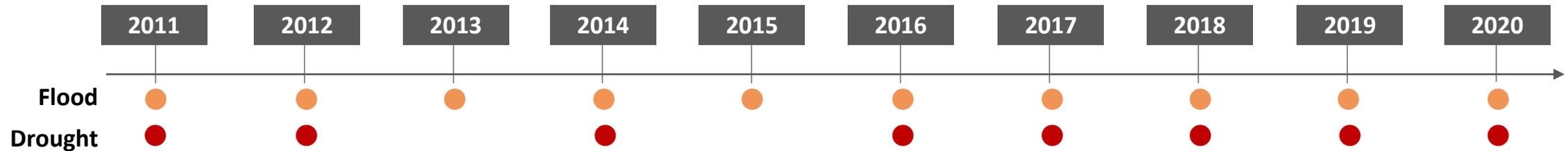
Percentage of total Kenyans who go without food



- **Maize production is estimated to have declined in 2020 and again in 2021, while other many other staple crops have also stagnated or declined.** To meet consumption needs, Kenya’s food imports have hit record values for the third year in a row (essentially growing at +10% annually since 2016). 2022 is already estimated to be another record year, at KSH 155Bn or (USD 1.4B) overall
- **Food vulnerability has increased nationwide, including (paradoxically) for farmers:** Over the last three years, the percentage of Kenyans who reported going without food sometimes or often jumped up +20 %points, including among the farmer population.

... and recurrent inclement weather events are making farming increasingly precarious

Incidences of floods and droughts in Kenya: 2011-2020



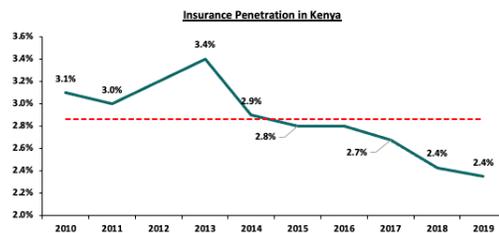
- **Based on official data, Kenya has experienced floods every year since 2011, and drought 8 out of 10 years during that same period** – either in very localized parts or in large swaths of the country. In 2021, an additional half a million farmers (up to 3M people) reported having experienced climate shocks during that year.
- **If not mitigated, climate change will lead to devastating impacts for Kenyan agriculture:** studies estimate losses in maize production of USD 100-200M per year by 2050, declines in staple crop yield between 12-23%, and increases in food prices by 75 to 90% by 2055
- **Adoption of climate-adaptation techniques and tools is still low and weather-based insurance is a nascent offering on the market.** Less than 1% of smallholder farmers currently access it, though there are many pain points to address to improve customer experience and satisfaction. For example, making it possible for farmers to estimate their claims throughout the coverage period (currently they only find out at the end), and making it possible for third-party insurance providers to make pay-outs in addition to the underwriter (who have a long lag time between claim filing and claim reimbursement – which negatively impacts farmer trust in the product).

Weather-based insurance is now available on the market but only reaches a small minority of Kenya's farmers

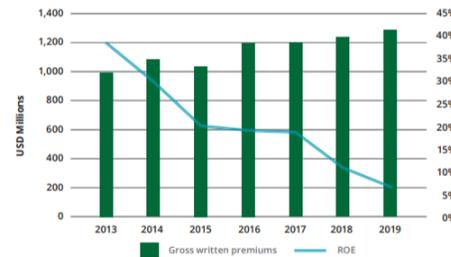
Insurance penetration in Kenya and Kenyan agriculture

- **Insurance in Kenya remains under-penetrated across the whole economy, even below average in Africa.** The sector continues to struggle with underlying profitability, pricing sensitivity, and flat demand. Agricultural insurance remains a low share of overall total premiums in the country at under 1 per cent.

Insurance Penetration (2010-2019)



General Insurance Industry Performance (2013-2019)



- **Leading insurers like UAP Old Mutual and APA (a consortium of underwriters insure the government agriculture insurance scheme) offer crop and livestock protection** which covers loss as a result of weather or disease for premiums somewhere in range of 4-6% of covered amount per annum.
- For example, APA works through aggregator partners like WFP and Apollo Agriculture, and targets larger cooperatives and other organizations providing inputs to farmers. They support on product design / pricing, quantitative data models, and otherwise play the role of underwriter while their partners work directly with farmers.

Two agtechs are leading the way on agri insurance for smallholders, leveraging multiple data sources and algorithmic models to offer policies to farmers:



- Microinsurance firm with range of products including weather index, multi-risk crop protection, and livestock cover
- Digital component used for customer registration, premiums collection, claims management and payouts
- Currently reaching 50,000 farmers each season
- ACRE partners with, APA and UAP Old Mutual who provide the underwriting
- 90% of policies are accompanying an agricultural inputs loan – **digital insurance enables credit into agriculture (digital or otherwise)**

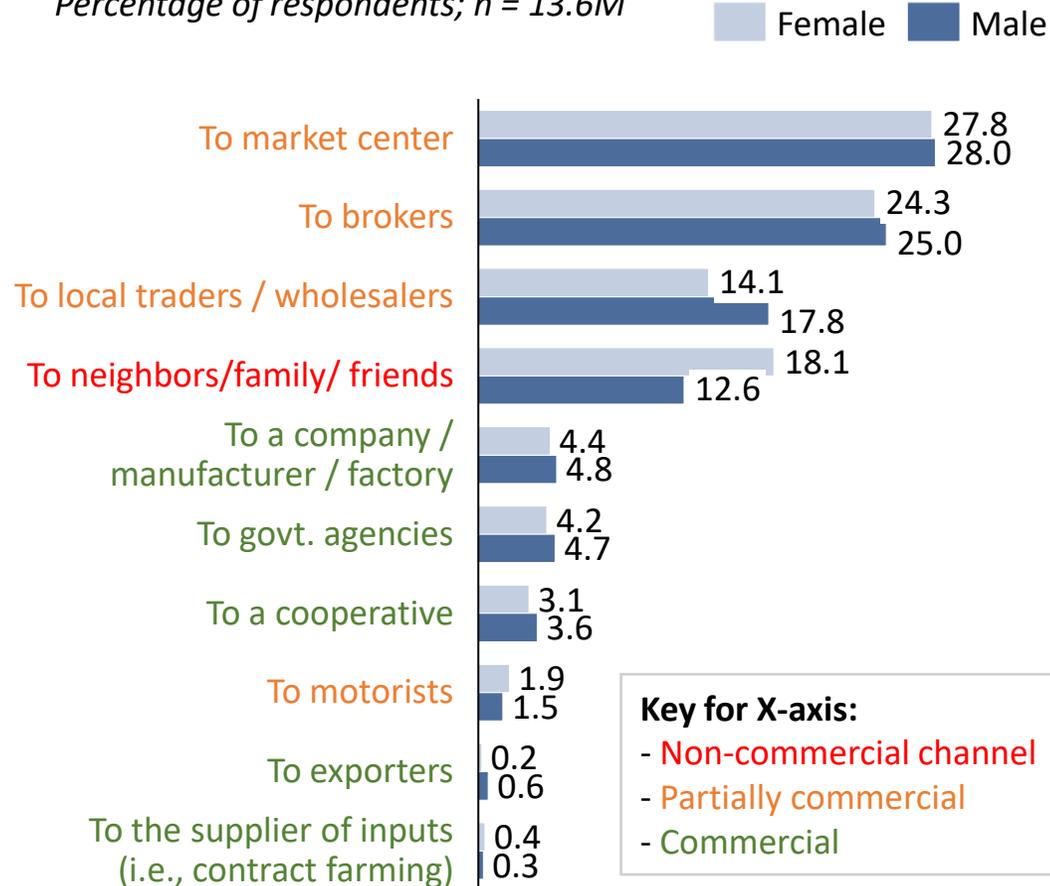


- Microinsurance firm offering index-based input insurance for crop and livestock cover
- Deploys B2B partnerships with input companies / agribusiness, and with government in Nigeria (NIRSAL), to reach more than 2 million farmers across Africa
- Works with aggregators and cooperatives to minimize the risk of providing cover to individual farmers
- Like ACRE, partners with insurance firms to provide the underwriting capacity

Efforts to formally commercialize smallholder agriculture have yet to take off: it is costly and risky for many reasons

Channels through which farmers sold their produce in 2021

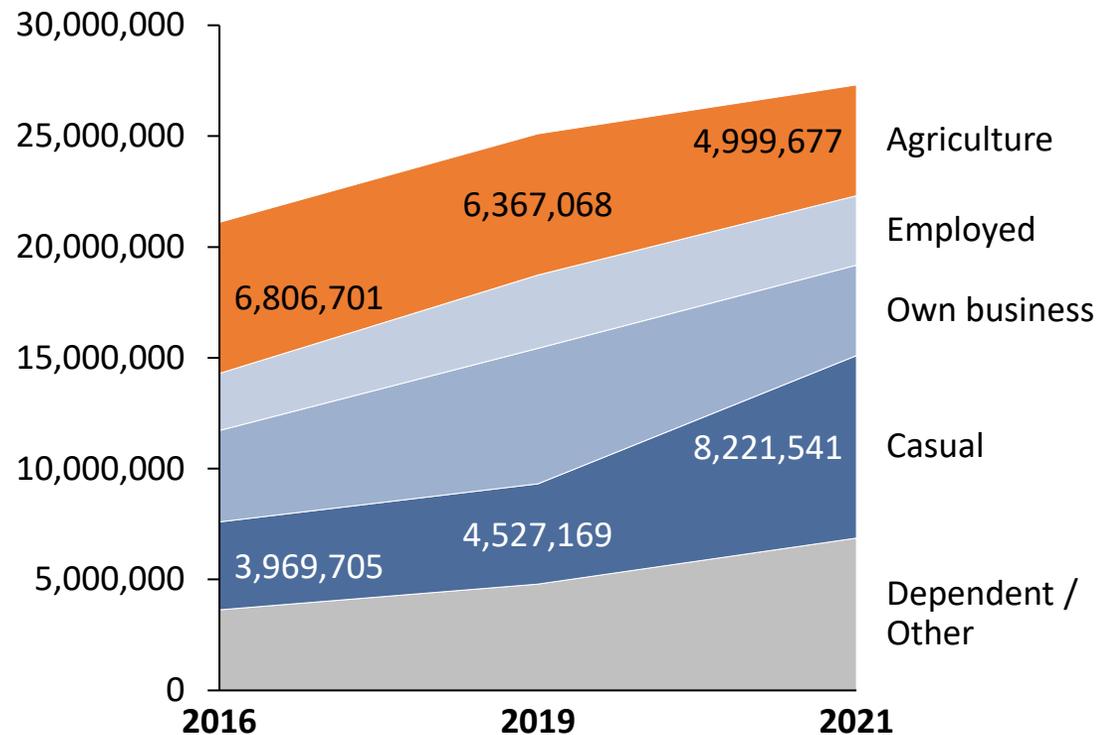
Percentage of respondents; n = 13.6M



- **Smallholder farmers are still largely selling their produce on the open market, through non-guaranteed / uncommitted channels.** Fewer than 13% of all farmers are selling their produce to commercial channels
- **Even some aggregator players who started off with a mission to source from smallholders (e.g. Twiga Foods) have pivoted away** from the segment for cost-efficiency reasons. No-one has cracked smallholder sourcing at scale, though several players are still trying
- **Instead, aggregators favor medium-sized farms**, who have typically grown incrementally from being small-sized, whose owners are more entrepreneurial and who produce a wider variety of crops (typically at the same yields as smallholder farmers) targeted to urban or export market demand
- **Others whose models have focused on input provision to smallholder farmers (e.g., One Acre Fund, Apollo Agriculture) see opportunities to get involved in market access, but there are many tough challenges to crack:** the issues of side-selling / need for instant payments, product quantity and quality

Though Kenyans are still committed to the sector, they are also increasingly diversifying away from it. This is cause for concern

Number of Kenyans per employment category: 2016-2021



- **Agriculture has long been an important contributor to employment in Kenya. That is still true today, but** just in the last five years its contribution to total employment has dropped drastically – 32% to 18%
- **Most of that employment has been absorbed by the “casual labor” segment,** which has increased by 11 %points during that same period. Agriculture sector could have absorbed most of the casual laborers
- **Overall, while an estimated 50% of adult Kenyans or 13M people are still engaged in the sector to some degree as of 2021, many are diversifying** their sources of income (nearly 2M Kenyans have moved away from Ag as their main source of income during that period)
- **Youth are leaving the sector, while older investors are coming in for commercial purposes:** Kenyan youth less engaged in farming than in previous decades, in part due to lack of land inheritance (one-quarter start their family lives without having inherited any land from their parents). As a result, they turn towards casual work. On the flip-side, older urban dwellers are beginning to invest in the sector, though targeting crops for export markets rather than for local consumption – but they are a minority segment
- **All of this is cause for concern:** livelihoods are less secure, and locally-grown food is less available (as evidenced by Kenya’s rapidly growing food import bill).

The pandemic and the ongoing war in Ukraine have highlighted that Kenya must address its heavy reliance on food imports

Disruptions caused by the Russia-Ukraine war: Wheat (unmilled or in flour form) constitutes a significant share of Kenya's +KSH 155B (or USD 1.4B) annual food import bill. The ongoing war between Russia and the Ukraine has heavily disrupted global food markets, particularly for wheat, edible oils and crude oil, such that the United Nations have warned that already-high food costs could surge by another 22% as a result.

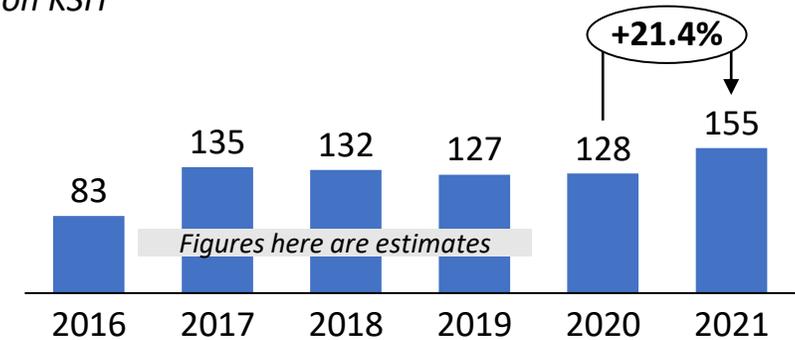
Africa-wide mitigation plans: Awareness of the acute risk for food security in Africa is prompting development actors to accelerate plans to boost production in select countries, such as Ethiopia, to unblock project finance initiatives that were put on hold in the early years of the Covid-19 pandemic, and to transition settlement of intra-Africa payments from European banks to more local ones to save USD 5B transaction costs / yr.

Kenya situation and what Kenya could do: In terms of volume, Kenya's largest food imports are wheat, edible oils, rice, sugar, and maize – in order of magnitude. The food import bill is growing at +10% per year in the last five years (7% in terms of volumes) and saw the highest jump last year since 2016. What Kenya could do:

- Make immediate investments to boost local production of key import crops
- Address cost efficiency challenges that make these crops uncompetitive in the local market even against regional alternatives
- Promote consumption of or a return to authentic African-grown cultural foods (e.g., less wheat, more alternatives)
- Boost local processing to substitute imports of non-staple products, e.g., condiments

Kenya annual food imports bill: 2016-2021

Billion KSH

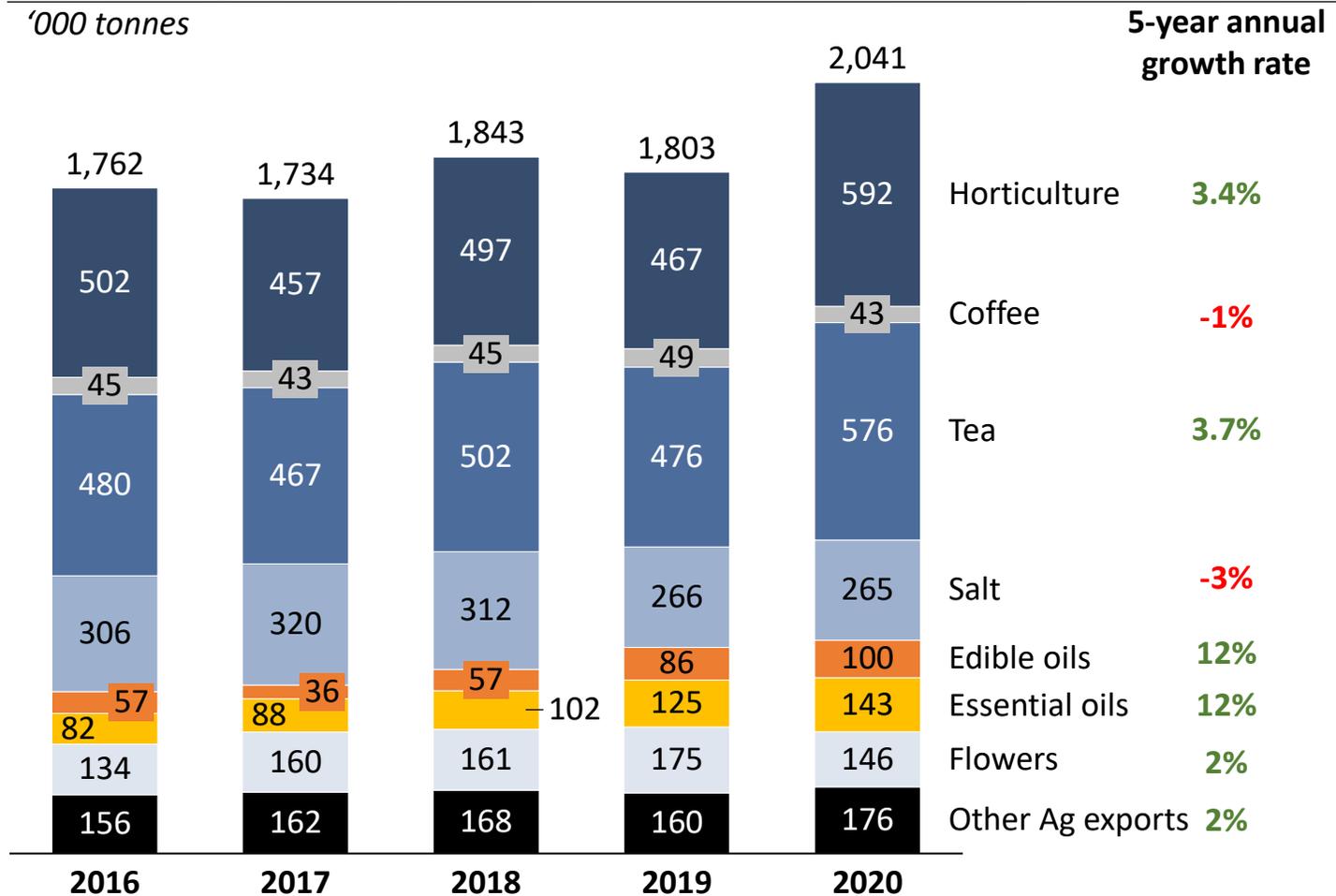


In addition to the increase being driven by enhanced shipment of grains and cereals for local processing and a weakened currency, “retailers link the jump to the growing popularity of online trading that has increased direct ordering/shipping of food and a deficiency in condiments used to add flavor or color to food like barbecue sauce, compound butter, teriyaki sauce.” *BusinessDaily*

But it's not all bad news: Ag exports are growing, as is the share that includes some value-addition, albeit from a low base

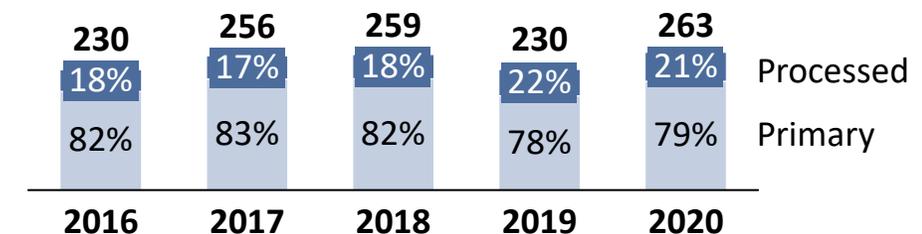
Volumes of Ag exports from Kenya: 2016-2020

'000 tonnes



- **Overall growth:** Agricultural exports have grown at slightly more than 3% per year over the last five years, even during the first pandemic year
- **Categories:** This is largely driven by long-standing crop categories such as horticulture, tea, and flowers, but oilseeds are also a fast-growing category
- **Level of processing:** Important to note that most Kenyan Ag exports are unprocessed, however. Though the share of processed exports has grown in the last few years, it still hovers around 20% of total food exports

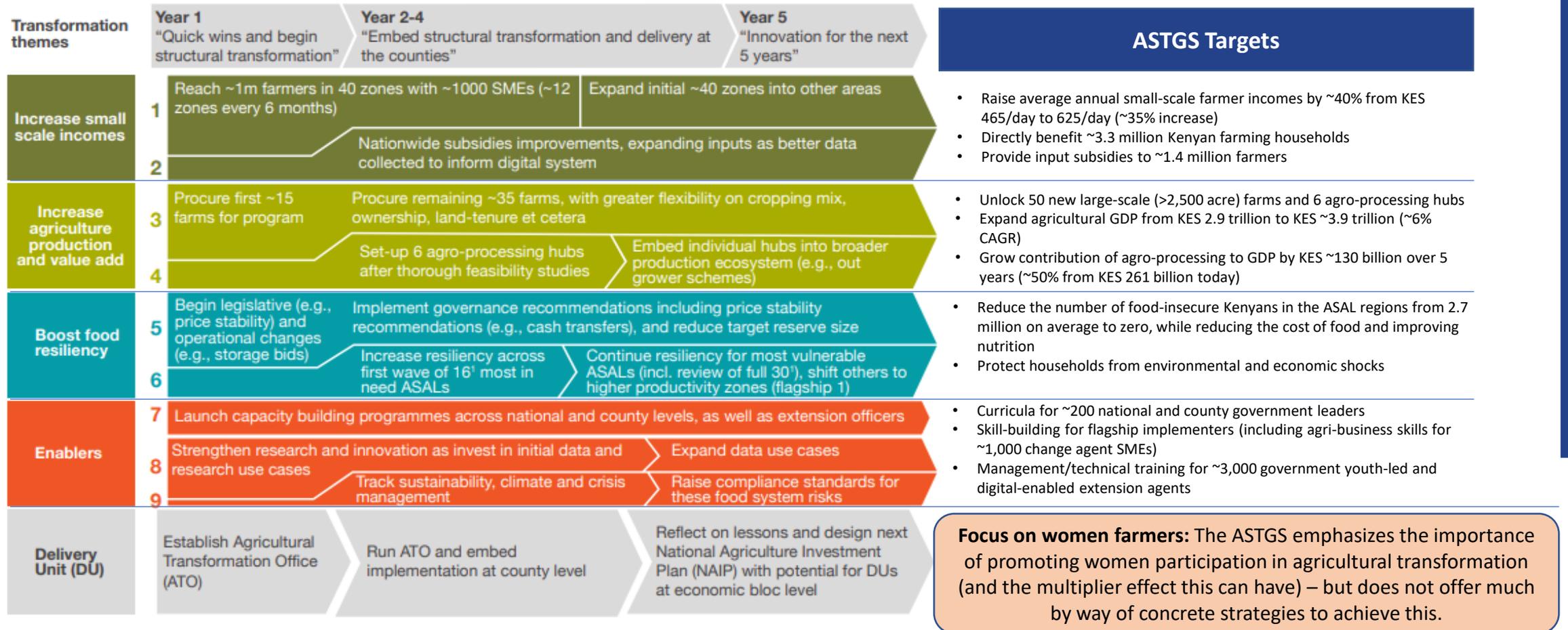
Processed vs. primary value for Kenya's food exports
In billions KSH and in %



Kenya Landscape: Agricultural Policy



GoK set out long-term priorities in its 2019 ASTGS strategy, focusing on new farms, SHF productivity, food security, and agro-processing



GoK identified priority value chains based on smallholder impact, job creation, yield improvement, and agro-processing potential

10 = highest

	Potential yield increase	Smallholder share of production	Agro-processing potential	Relative transformation rank
Maize	157%	75%		7
Potatoes	50%	83%		6
Beef	0%	90%		8
Fish		80%		5
Bananas	0%	80%		7
Dairy	42%			8
Flowers		3%		4
Tea	102%	58%		5
Sugar	0%	92%		6
Poultry	9%			6
Oil crops	0%			4
Rice	0%			7
Wheat	84%			6
Cotton	102%			4
Beans	393%			7
Coffee	111%			5

- **13 value chains emerged with the highest potential for agricultural transformation**, including: staples (maize, potatoes, rice, beans), horticulture (fruits, vegetables), livestock and fish (beef, poultry, sheep/goats, fish, dairy), and others (imported wheat)
- 25 similar value chains to these (e.g., other pulses for beans, other cereals such as millet and sorghum for maize, and cassava in lieu of potatoes).
- **Maize, Beef, Rice, Beans, Poultry, Wheat, and Dairy scored the highest in terms of transformation potential** – essentially these are the Staple crops as well as the High Protein value chains
- **Counties are the key agents of implementation, and the Strategy anticipates that each County will select similar value chains that best suit their agro-ecology.**

GoK recognizes the financing gap in agriculture; its flagship agri-finance programs include fertilizer subsidies and loans for MSEs

GoK priorities	Policy initiatives	Status of implementation
<p>Input subsidies for smallholder farmers</p>	<ul style="list-style-type: none"> GoK has for many years provided subsidies to maize farmers for fertilizers (approximately 5B KES / year in 2019) – this has led to increased kg/ hectare fertilizer use of 40% in the past decade. However, simultaneously maize yields have declined – likely as a result of fertilizer over-use driving down pH levels in the soil (soil acidity). The subsidy scheme has also distorted the market and led to uncompetitive practices. E-voucher subsidy: The ASTGS strategy sets out plans to shift the subsidies so that they are (i) digitized as e-vouchers and directly redeemable by farmers to avoid middlemen, leakage, and price distortion and (ii) give farmers ability to choose appropriate inputs to match their soil needs. 	<ul style="list-style-type: none">  E-voucher system not yet introduced  Unclear whether subsidies are still routed through middlemen (this is highly politicized)
<p>Financing and capacity building for agri-MSEs</p>	<ul style="list-style-type: none"> Youth Enable has been established within the MoA to manage a KES 3.3B loan over five years from AfDB. The program aims to support young entrepreneurs in agribusiness with incubation, financing and training. The program will target both fresh graduates aged 18-35 with agribusiness ideas, and some already established agribusinesses. Agriculture Finance Corporation (AFC) will provide loans under the scheme The ASTGS strategy set out plans to establish Agri-SME Accelerators across the country which would support enterprise development and access to finance 	<ul style="list-style-type: none">  Youth ENABLE has started to disburse but has been slow to date
<p>Supporting crop and livestock insurance</p>	<ul style="list-style-type: none"> MoA is currently in consultative process on the National Agricultural Insurance Policy – a policy document that sets out the GoK priorities and objectives for agri-insurance. The draft policy includes commitment on part of national and county governments to facilitate the use of agricultural data for use in insurance data models. It also includes a softly worded commitment to create incentives for microinsurance firms providing cover to smallholder farmers. 	<ul style="list-style-type: none">  Not yet passed into law No premium subsidy contemplated
<p>Promoting mechanization and asset finance</p>	<ul style="list-style-type: none"> MoA is currently in consultative process on the National Agricultural Mechanization Policy which was drafted in late 2021. It notes that: <i>Private sector investment in agricultural mechanization is low. Financial institutions offer credit facilities...beyond the reach of targeted farmers, fisher folks and service providers</i> The draft policy indicates appetite to increase public expenditure, provide fiscal incentives for private investment in farm assets, and establish a National Mechanization Fund to provide subsidies and concessional asset finance 	<ul style="list-style-type: none">  Not yet passed into law

GoK has highlighted priorities around climate smart agriculture and enhancing smallholder resilience to climate shocks

Climate risk	National strategies and priorities
<p>Changes in temperature regimes and rainfall patterns</p>	<ul style="list-style-type: none"> • Provision of accurate, timely and reliable climate/weather information to inform decisions of actors on crops, livestock and fisheries value chains • Promotion of crop varieties, livestock and fish breeds and tree species that are adapted to varied weather conditions and tolerant to associated emerging pests and diseases • Diversification of enterprises and alternative livelihoods - this includes incorporation of integrated farming and pastoral production systems based on agro-ecological zones and priorities • Enhancement of productivity and profitability of agricultural enterprises - this entails promotion of use of improved technologies and post-harvest approaches such as improved storage, cold chain, and distribution of agricultural products
<p>Extreme weather events and shocks (e.g., drought, storms, floods, etc.)</p>	<ul style="list-style-type: none"> • Development and implementation strategies for early warning and response, and ensure preparedness for extreme weather events, including use of digital platforms and geospatial data • Promotion of index based agricultural insurance products for both crops and livestock producers that cover weather-related losses and shortfalls in output
<p>Unsustainable natural resource management (water, soil, forests)</p>	<ul style="list-style-type: none"> • Promotion of sustainable management and utilization of natural resources: soil nutrient management, soil and water conservation, conservation agriculture; restoration of degraded soils and conservation of soil biodiversity; protection of riparian reserves, fish landing stations, wildlife corridors and stock routes • Promotion of water harvesting and storage for irrigation of crops, aquaculture, livestock watering and agroforestry • Development of appropriate irrigation infrastructure and technologies, including waste-water management • Promotion of conservation and propagation of germplasm of species with adaptive capacity

The implementation of Kenya’s Climate Smart Agriculture plan is **estimated to require a total of KES 500B investment** for both adaptation and mitigation actions up to 2026. Progress to date on this plan is limited, and it is not clear how the plan will be funded.

There are high-potential “climate smart” opportunities for SHFs and MSEs, with high financing need (natural focus for FSD Kenya)

	Why is this a promising opportunity?	What is the adaptation (and mitigation) impact?
Small-scale irrigation	<ul style="list-style-type: none"> • Small-scale water pumps and irrigation kits are increasingly affordable - \$200-\$800 / unit • Some firms are offering customer financing to allow farmers to pay over 12-24 months • MFIs and banks have tested the segment, but hesitant 	<ul style="list-style-type: none"> • Reduces reliance on rain-fed agriculture (land under irrigation still at 6% in Kenya) and increases yields – enhances resilience in face of low rainfall/drought • Can help to achieve sustainable water resource management (although some centralized planning is required for this)
Index-linked insurance	<ul style="list-style-type: none"> • Embedded insurance with input loans / purchase for livestock and crop inputs • Demonstrated market traction with firms like Pula and ACRE, in partnership with APA as underwriter • More work is needed to mainstream with local insurers 	<ul style="list-style-type: none"> • Contributes significantly to resilience for smallholders vulnerable to weather or disease related shocks • Allows farmers to plan around more stable cashflows and smooths income from season to season; creates more incentive for farmer to invest, given protection against risks
Cold storage	<ul style="list-style-type: none"> • The case for cold storage is strong – between 20%-40% of crop output is lost due to spoilage • Cold store technology is expensive and requires innovative financing solutions or pay-per-use models to make it available to wider farmer base – there is innovation from early-stage firms in this space 	<ul style="list-style-type: none"> • Cold storage reduces output losses and increases take-home income for farmers, giving them resilience to climate risks • With rising temperatures, food spoilage will only be accelerated making the need for cold chain solutions greater • Farmers can often get premium price for their produce when it is cooled and delivered to market in superior condition
Animal waste management and biogas solutions	<ul style="list-style-type: none"> • Biogas technology is now affordable and available to Kenyan farmers – firms like Sistema.bio are providing customer finance on 12-24 month payment terms 	<ul style="list-style-type: none"> • Enteric fermentation and deforestation are two of the largest contributors to GHG emissions in Kenya • Biogas solutions address these by converting animal waste into gas for cooking/heating which displaces firewood and charcoal • Farmers are also less dependent on imported chemical fertilizers

Others...

Digital platforms for early warnings systems

Financing for climate smart inputs (bio-fertilizers, drought-resistant seed varieties)

Financing for storage / silos, warehouse receipt programs

Kenya Landscape:

Role of women in farming

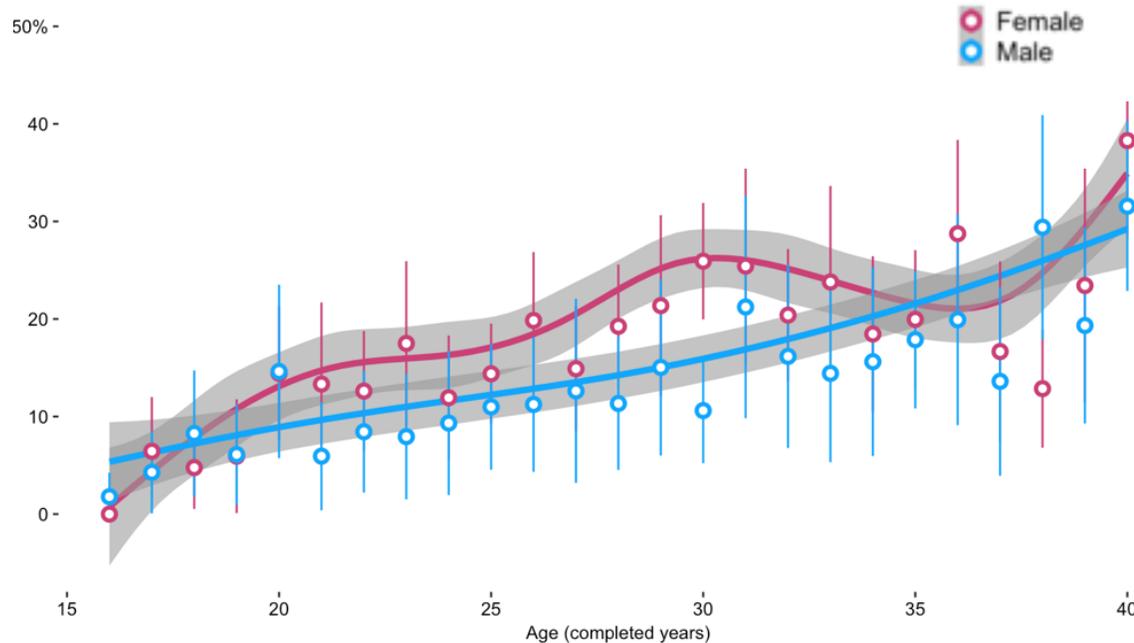
Note: The challenges that female farmers in Kenya face are extensively studied. For this reason, this section focused on providing only a summarized set of points and the latest data about this segment. An annex provides a more detailed summary of the research on women farmers.



Women constitute the larger share of agricultural producers and workers in Kenya

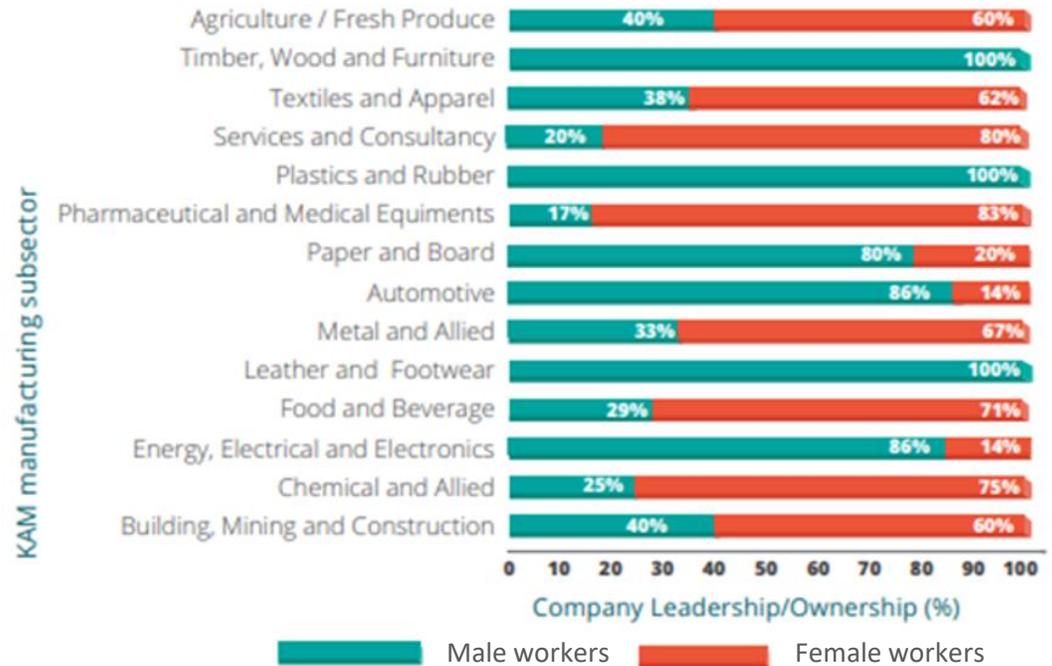
Kenyan farmers, by age and sex

% of the population whose primary income source is farming



Source: Author's own calculation based on 2018 FinAccess survey (KNBS/CBK)

Gender distribution of workers in Kenya's manufacturing sectors



54% of agricultural producers in Kenya are women, many of whom are farming for their own consumption. This is important because in most societies, including in Kenya, women “own” decisions about what food gets consumed in the home. They also produce for other women (donating, trading, or selling to them) and for export markets

They face the same challenges all Kenyan farmers face, as well as challenges unique to women

Challenges faced by all farmers in Kenya:

- Low public expenditure in the sector
- Increasingly diminishing land sizes
- Climate change –soil fertility and land degradation, and increased frequency of extreme weather events
- Limited access to loans or insurance
- High costs of inputs
- Distorted markets
- Limited autonomy over price-setting
- Limited aggregation

Challenges faced by female farmers in Kenya:

- **Limited land ownership:** Over 65% of land in Kenya is governed by customary laws that discriminate against women, limiting their land and property rights. Though women farm the land, most do not own it. That lack of ownership shuts them out of opportunities to use it as collateral to access financing or to join farmer groups. Only 7% of women in Kenya own land alone and those who own land do so jointly (31%),
- **Limited access to education**
- **Cultural restrictions on their mobility and their choice of work:** Due to their outsized role in providing homecare and in child-rearing, and due to cultural expectations, Kenyan female farmers have less freedom to explore work opportunities that would take them far away from the homestead. In some sub-cultures, they may also be discouraged from engaging in commercial activities seen as “men’s work”
- **Limited exposure to and understanding of technology innovations:** Reasons are a mix of low education and poor product design that do not take into account women’s starting point. A digital marketplace in Kenya reported having fewer than 30% female users
- **Limited access to training on agricultural practices:** Male-headed farms are reportedly more productive than female-headed ones for many reasons, one of which is that women may be forbidden or discouraged from engaging with male agricultural extension workers, who make up the vast majority of that workforce (only 15% of extension personnel globally are women). But also, male extension workers are incentivized to go to high-usage farmers, who tend to not be women
- **Exclusion from many sources of financing:** as a result of low savings and low ownership of assets.

By virtue of cultural norms, female farmers in Kenya tend to be more active in select value chains, and typically in upstream roles

Female farmers tend to gravitate, by choice or otherwise, to value chains that:

- Allow them to work closer to home, or ideally directly on the homestead
- Are less labor intensive - especially if not requiring outside paid labor
- Are less tech intensive
- Are higher value / lower volume i.e., can be farmed on smaller land parcels

Data shows that:

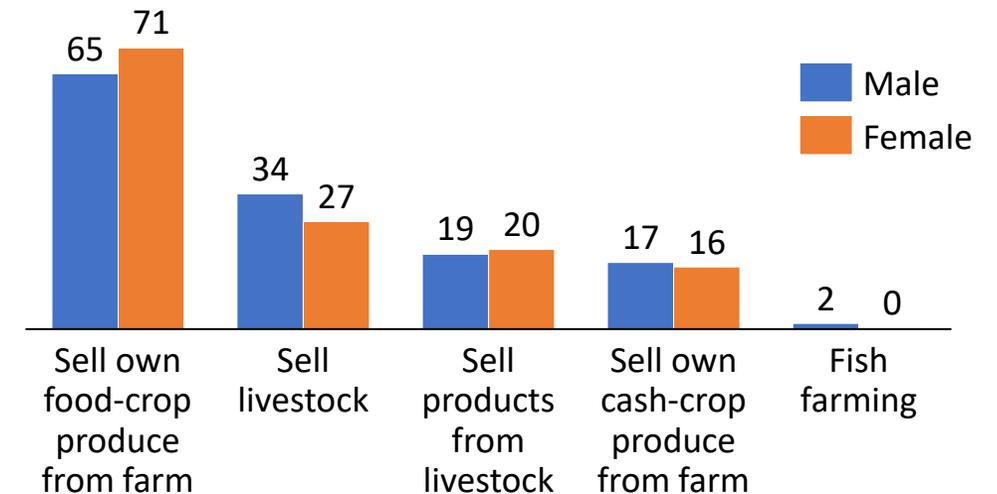
- **Women's participation in economic activities was highest for food crop farming** – beans, maize, cassava, sweet potatoes, mangoes, oranges – followed by livestock raising, **but lower for non-farm activities** and cash crop farming
- **Women report least ability on decisions about major household expenditures**, vs. higher ability to make decisions on minor household expenditures and type of crops to grow
- **In a study, a considerably smaller proportion of women reported to make decision on purchase of mechanized farm equipment (just 5%),** compared to non-mechanized farm equipment (35%) and poultry (55%)
- **On the farm, more women are involved in light duties like weeding while men are involved in heavier tasks** like ploughing, harvesting and marketing

Top: Value chains favored by women

Bottom: Women's value chain and market participation in Kenya as of 2021 (% share of respondents who engage in farming)



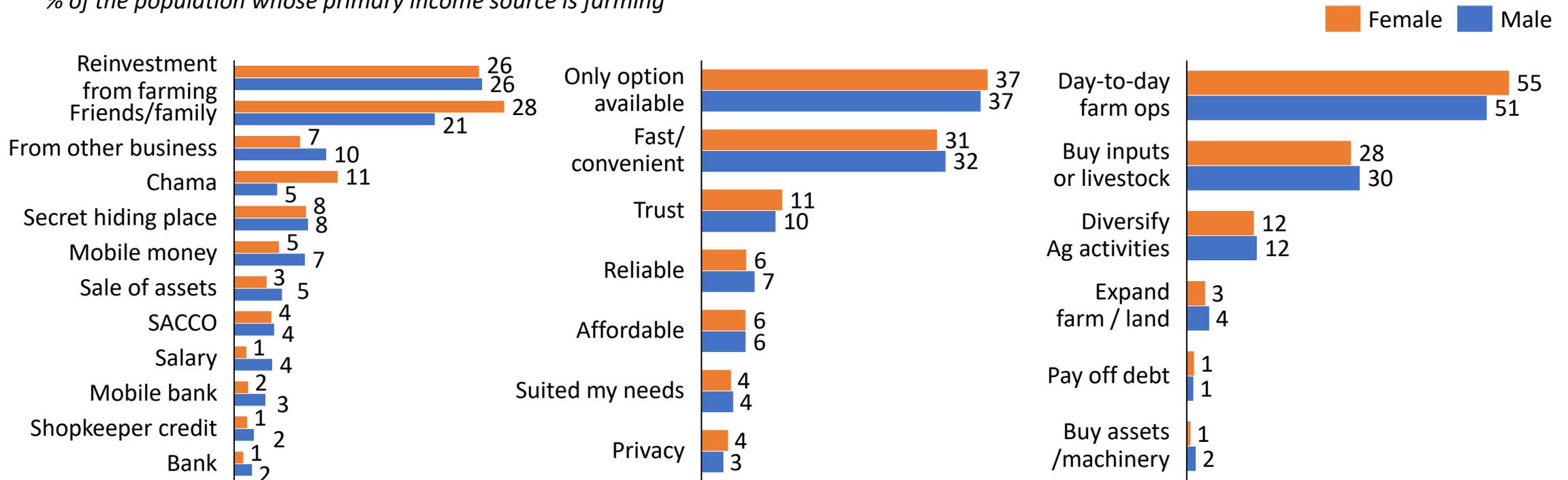
Poultry, dairy, low-volume, high-value horticulture, fruits, dry beans



Women also tap into fewer and less formal sources of financing, for lack of options/trust/affordability, and make fewer investments

From left to right: sources of agri-financing, reason for accessing this source, uses of agri-financing – by male vs. female

% of the population whose primary income source is farming



Most farmers do not access external sources of agri-financing at all, and when they do, these sources tend to be informal – especially for women

As expected, this reflects in the reasons why farmers choose one source over another. Helpful to note that for women, trust, affordability, and privacy are priority

All farmers, but especially women, use financing for everyday operations rather than for investments. Noteworthy that women score lower on most business-minded reasons for their financing use

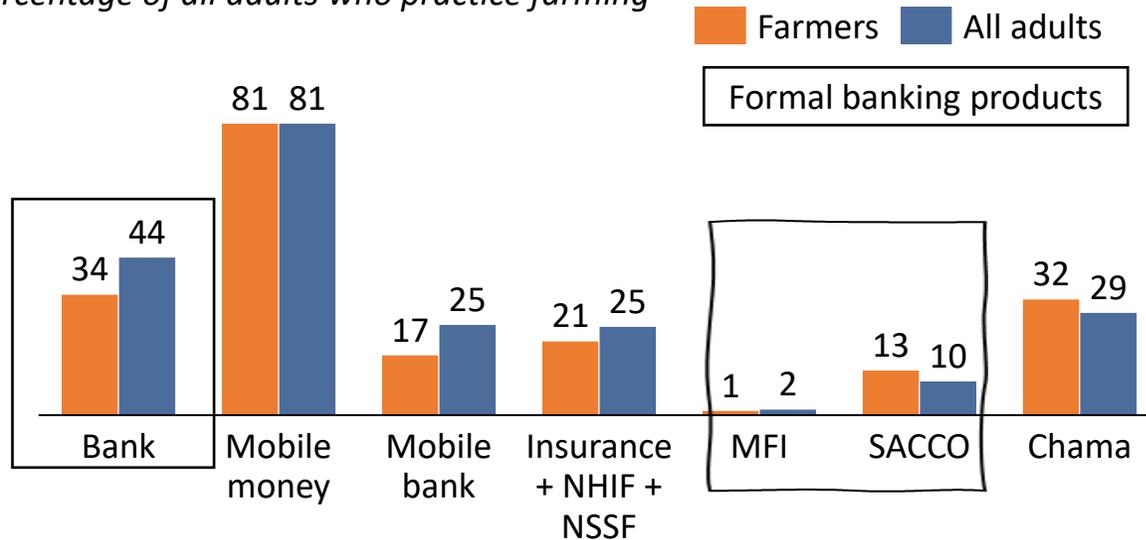
Kenya Landscape: Agricultural Financing



Farmers, especially women, are shut out of the formal financial sector in Kenya

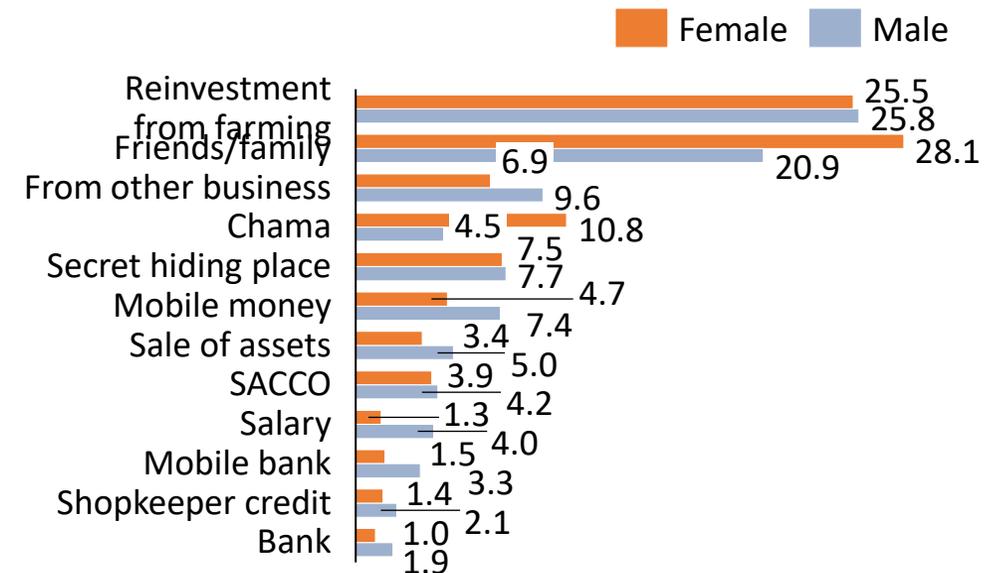
Financial product use by farmers vs. Kenyan adult population

Percentage of all adults who practice farming



Top sources for Ag finance: male vs. female

In % from population who derive main source of income from farming

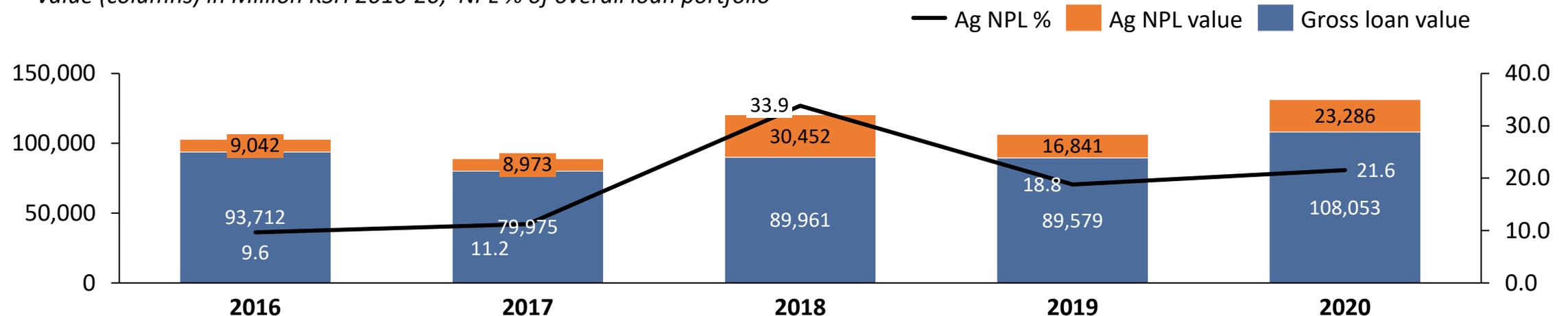


- **Kenyan farmers lag the rest of the population in their usage of formal financial products (only 10% overall access agri-financing through formal sources – most do not access any type at all).** Many of the reasons, on both the demand and supply sides, are structural – e.g., low appetite from formal lenders, exclusionary credit assessment mechanisms, etc.
- **This is especially the case for female farmers, who a) prefer to use informal sources overall, and b) shy away from any form of credit – formal or informal.** Chamas are a major source of financing for female farmers, outside of social networks. There are reportedly 300,000 such groups in Kenya, managing assets of KSH 300 billion. But the failure rates of such groups is high (at 13%) as a result of poor governance and management of funds

Banks do deploy a large (nearly \$1B) portfolio in Ag, but their activities in the sector have stagnated over the last five years

Gross loans and NPLs in agriculture portfolio of Kenyan commercial banks

Value (columns) in Million KSH 2016-20; NPL % of overall loan portfolio

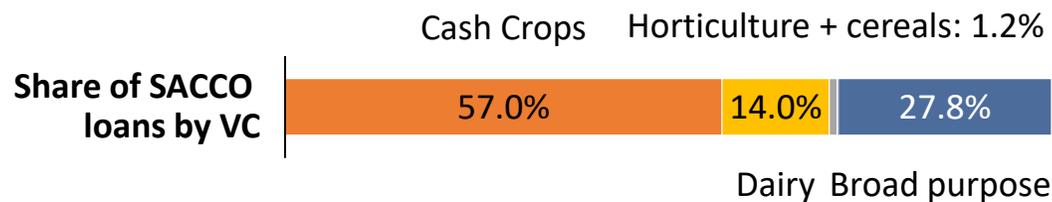
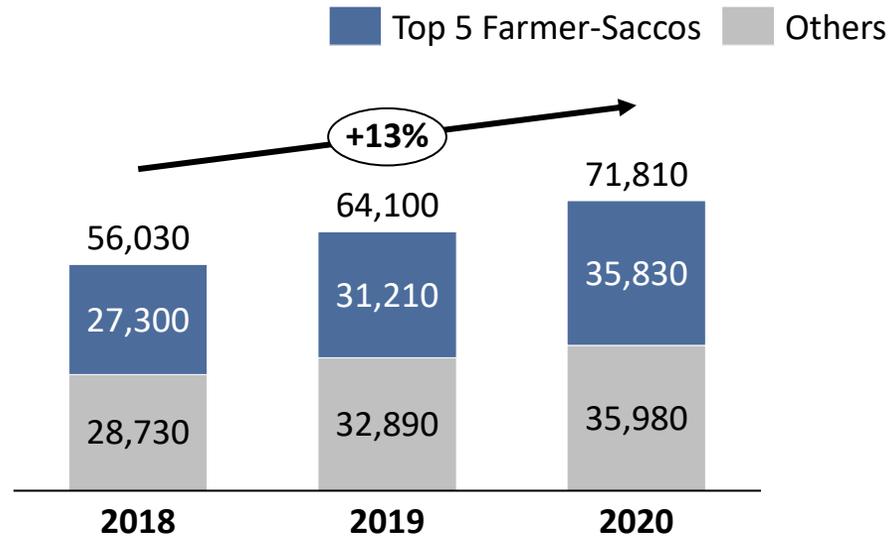


- **Commercial banks are doing some lending to the agriculture sector (KSH 108 Billion or USD 972M in 2020), but their activity in the sector is still largely conservative:** growth in the number of loan accounts has been variable – some years on pace with the loan book in other sectors, some years flat or negative. In addition, the total loan value deployed in 2020 is only marginally higher than it was in 2016, and the agriculture share of the overall loan portfolio has remained stagnant at just 3-4% per year
- **High NPLs in the portfolio could be the reason:** CBK Annual Reports show anywhere between 10 to 34% NPL per year since 2016. In fact, 2020 was not even the worst year despite the Covid-19 pandemic; the sector recorded a 34% NPL in 2018
- **Perhaps consequentially, the average loan amount also has not expanded much in the last five years:** KSH 750K to 950K
- **Important notes / caveats:** Some “personal” loans sourced from banks are used for agricultural activities, but the “intended use” of loans is not captured. Banks also lend directly to SACCOs, who then onward lend to Ag actors - \$40B estimated

In contrast, farmer SACCOs alone deployed USD 674M in loans last year, and there is room for them to lend to more farmers

Gross loans and VC-share of loans among Farmer-based SACCOs

Value in Million KSH 2018-20



- **SACCOs (i.e., Savings and Credit Cooperative Organizations) are member-run financial institutions**, with about 12% of the asset base of commercial banks in Kenya
- By early 2020, membership across all Saccos stood at 5M people, with membership in Farmer-SACCOs specifically accounting for 50%
- **Loan books for the 49 Farmer-led SACCOs grew 13% over the last 3 years**, and total loans deployed reached KSH 72Bn (USD 674M) in 2020
- **For Ag actors, SACCO credit offerings are much more attractive than other formal alternatives:** Farmers can access interest rates that are up to 2/3 lower than what is offered by banks (5-10% vs. 14-20% at commercial banks). Because many SACCOs were started by individuals active in the Ag sector, loan products are better tailored to specific value chains – a key missing aspect among bank offerings
- **Farmers are more likely to seek financing from SACCOs than do other Kenyans (13% vs. 10%)**
- **There is still room for SACCO lending to be more inclusive, as SACCO models are pegged towards cooperatives:** 57% of value chains loans extended by SACCOs went to coffee, tea, and sugarcane farmers, 14% to dairy, and less than 2% to horticulture and cereals farmers

Though microfinance institutions (MFIs) are another type of formal lender, this report will not focus on them. Not only is uptake of their products low (first slide in this section) but their financial performance has been on a steep decline in the last several years

Formal institutions – banks in particular – prefer to engage with farmers using a distinct (though restrictive) model

Across our conversations with several banks, we heard common themes around how the banks that intend to work with farmers go about it. Though this common engagement model makes a lot of sense, it does pose limiting implications for the sector.

Preferred engagement model between banks and Ag borrowers

- **They (banks) set up an agricultural desk / unit within the bank**, to make up for the lack of agriculture expertise among traditional bankers
- **They select specific counties** – in big part because agro-climatic regions and ag performance can vary widely by region
- **They select specific value chains and expand to new value chains slowly**, as each value chain requires tailored expertise and hence tailored resourcing
- **They build deep expertise up and down the selected value chains**, learning about the seasons, value-chain specific risks, financing needs, off-takers, cash cycles, etc.
- **They prefer to engage with groups rather than individual farmers**, for various reasons (e.g., more formality, lower engagement costs)
- **They require that prospective clients set up accounts with them**
- **They deploy on-the-ground agents who execute on the marketing, customer acquisition, and customer follow-up steps**, which are largely face-to-face

Implications for the Ag sector

Unfortunately, the implications are that:

- **Banks agriculture financing offerings are highly localized**, even for institutions that have a nationwide branch network
- **Many value chains are discriminated against** – by virtue of being less commercialized and/or organized
- **The costs of operating in this manner are not scalable**

Banks not only favor specific value chains, but also certain actors within these value chains

Preferred value chains

Formal lenders (e.g., banks, SACCOs) tend to prefer a) highly commercialized and b) well-organized value chains: e.g., dairy, tea, coffee, sorghum, export-oriented horticulture.

Highly commercialized:

- Quantifiable and reliable market/demand and pricing, based on historical data
- Guaranteed / established and large-scale internal or external off-takers
- Guaranteed localized (e.g., at/near farmgate) traders / off-takers

Well-organized:

- Formally registered groups with clear governance structures
- Evidence of bankability (accounts, receipts, contracts, bank statements, invoices)

+

Preferred agricultural actors

Type and size of agricultural actors also matters.

Actor type:

- Even banks with a clearly stated impact mission (of improving livelihoods for smallholder farmers) prefer to “back into the value chain” by working at least with aggregators (whether standalone, or engaged in contract farming, or vertically integrated)

Size:

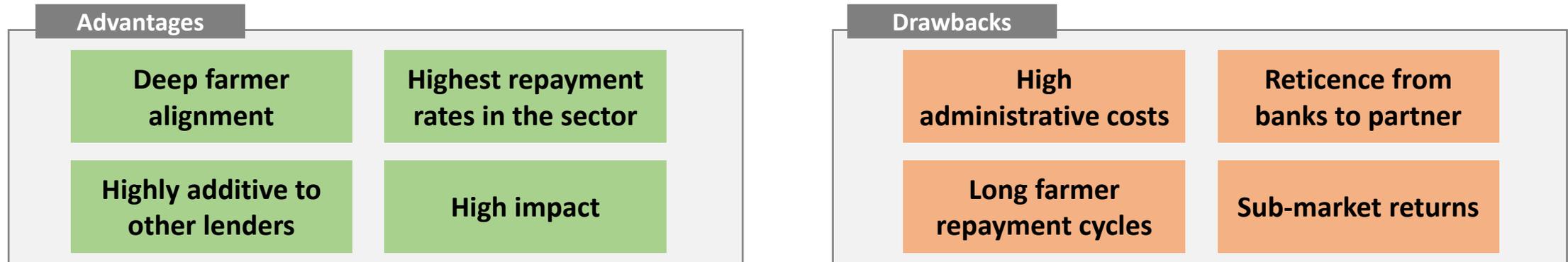
- Not surprisingly, they favor larger enterprises – at the very least SMEs rather than micro-enterprises. Requirements vary across banks but the fact that total loans are increasing by just 3% per an. suggests they are out of reach



Implications

- A “missing middle” for financing for Ag enterprises
- Technical support required in getting registered and setting up formal governance structures (can take 1 year of support before deal closing)
- Low growth and weak performance for banks’ agri portfolios, as some of their priority value chains are on the decline, with new opportunities under-penetrated
- Chicken-and-egg challenge for up-and-coming value chains

Other players – agribusinesses / intermediaries – have stepped in to provide smallholder financing, but they face their own struggles

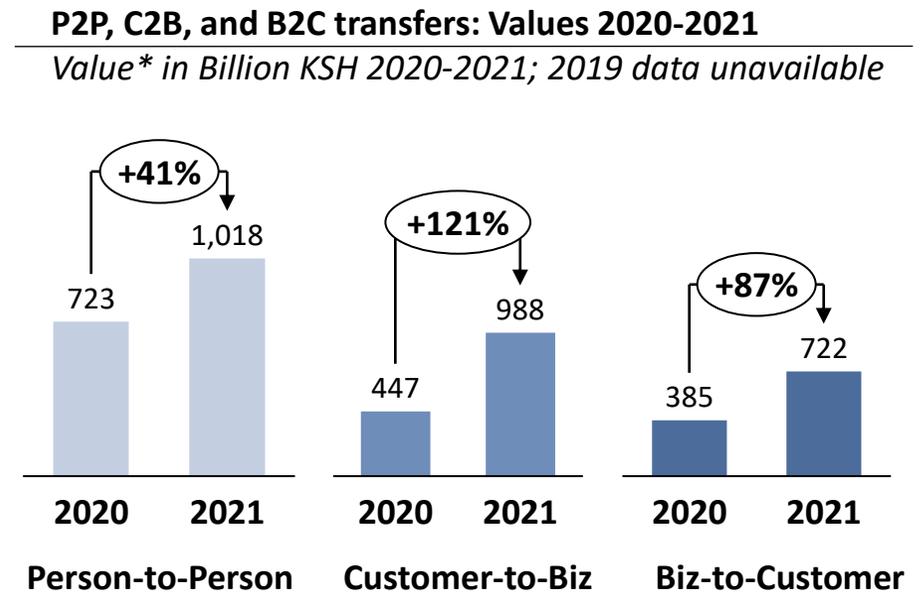
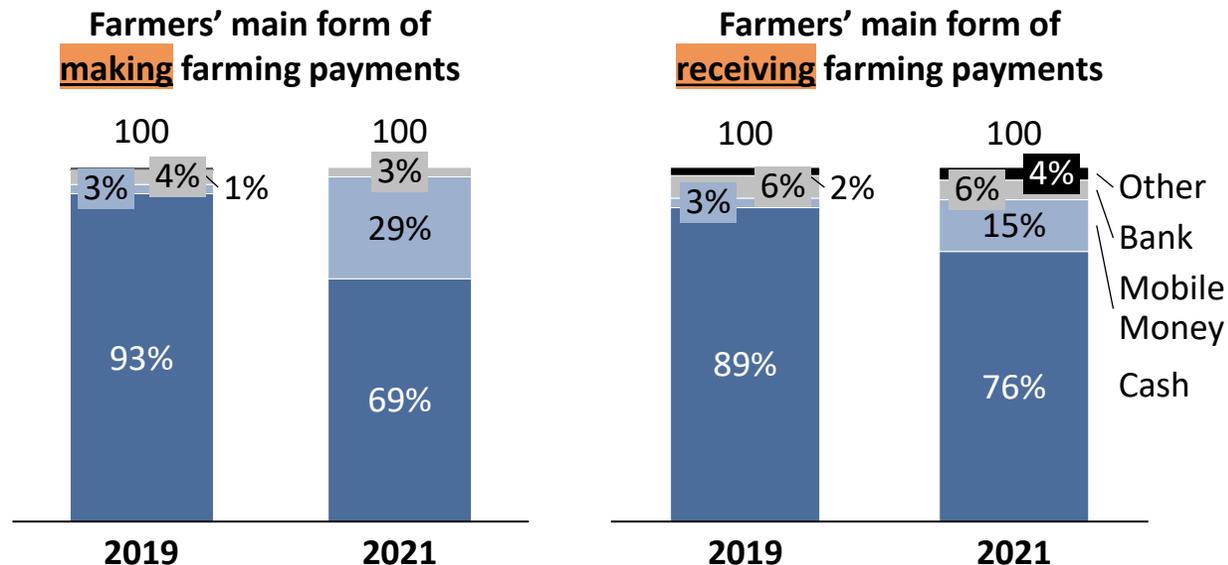


Some intermediaries / agribusinesses of various sizes (e.g., DigiFarm / iProcure, One Acre Fund, Apollo Agriculture) provide financing directly to smallholder farmers, unlike banks. But they encounter four significant challenges that hamper their growth:

- **High administrative costs:** Engaging with smallholder farmers directly requires a foot-based field force, which is costly to establish and grow
- **Reticence from banks to partner:** Capital constraints for growth are a major challenge. Banks are less keen to provide the capital for onward lending to farmers, so some of these organizations have no choice but to lend from their own balance sheets. The capital would come from development actors or private investors, with long timelines to secure. One Acre Fund is the largest in Kenya with USD c.50M loan book
- **Long farmer repayment cycles:** Depending on the value chain, farmers may require upwards of a year to repay their loans, which are already at small ticket sizes. This ties up significant working capital for the lending institutions / these agribusinesses
- **Below-market returns on loans:** Low farmer ability to pay fundamentally means that interest rates cannot be anywhere near market levels. While these smallholder farmer loans do perform very well (i.e., single-digit NPLs), not only are they expensive to administer, but the organizations can only target cost-recovery, not profit. 2020 saw the winding up of several Ag fintech players (e.g. Tula, FarmDrive) for these exact reasons.

One bright spot is that the pandemic has accelerated the use of digital payments, even among farmers who have long lagged behind

- For farming transactions, cash has long been king, even though most (+80%) of farmers have had mobile money accounts for several years
- The pandemic years have changed that: more farming are now taking place over mobile money: +25% points (making); +10% points (receiving)
- This mirrors a broader trend across Kenya: mobile money transfers have increased rapidly across all channels during the last two years as a result of a government push to go cashless during the early days of the pandemic (zero-rated fees for the most common transaction types).
- Technical and financial challenges are likely primary constraints to the growth of B2C transfers: ability to do on-the-spot payments, especially in bulk, to farmers (often a necessity), and the typical challenges around liquidity for SMEs. The B2C functionality is also more recent than C2B.
- Noteworthy: the share of bank transactions has either remained the same or declined over that period.



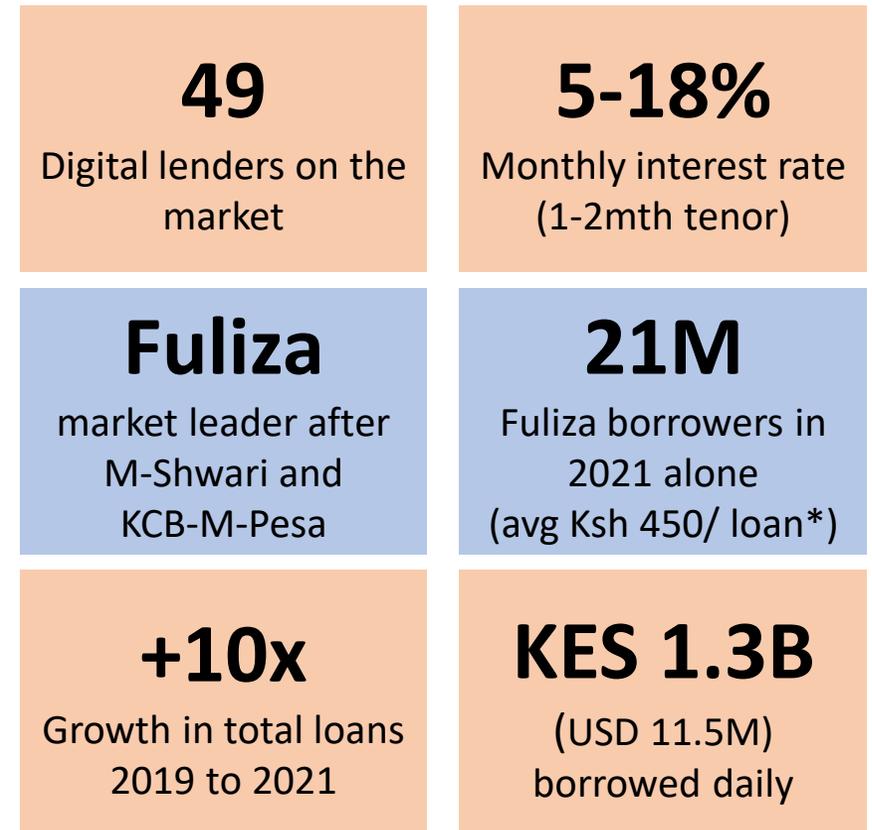
*Note: Transaction value data illustrated in lieu of volume data, which is only available for P2P transfers

Source: FSD Kenya FinAccess Survey 2021; Communication Authority of Kenya Annual Reports 2020-2021; 60Decibels – Oct 2021: Things We Learned from Kenyan Farmers during Covid-19; desk analysis

But not all digital is positive: unsecured mobile lenders are on the market, but their offerings are ill-suited for farming and predatory

- **Farmers are shut out of the formal financial sector precisely because – among other key reasons – they are unable to demonstrate a financial history or provide collateral** for loan products. In essence, then, they need access to unsecured loans
- **This is the exact problem that agribusiness intermediary lenders such as DigiFarm, One Acre Fund, and Apollo Agriculture are addressing – but there are limitations.** But other than DigiFarm, which is much more of a purely-digital provider, the services of One Acre Fund and Apollo Agriculture are more localized / concentrated in some parts of the country
- **What can a farmer who does not live in the areas of operations of the above players, or who wants to “top up” her existing loan unexpectedly do?** Other than accessing social networks or table banking, another option is unsecured mobile lenders, which have proliferated the Kenyan market since 2019 (as of 2021, there are 49 such players in Kenya)
- **Not only are unsecured mobile loans easy to get (within minutes) they have exorbitant interest rates with tenors that are often too short for farming cycles and gamify the process, such that users are continually incentivized to seek out higher loan amounts.** As a result, these loans can easily trap farmers into predatory cycles of debt.

Key facts about unsecured mobile lenders in Kenya



Note: * For a loan of 450 KSH, a borrower would repay 630 KSH at the 30-day mark, 1.4x the amount borrowed

Source: FSD Kenya; ReelAnalytics: State of Digital Lending in Kenya 2021; StandardMedia – Oct 2020: “21 million broke Kenyans take a record KSH 245b Fuliza loans”; AllAfrica – Nov 2021 “Kenyans borrow Sh1.3 billion on Safaricom’s Fuliza Daily”; Techweez – May 2021: “Fuliza revenue overtakes KCB M-Pesa, M-Shwari, makes telco 4.5billion”

To accelerate financing for smallholder agriculture, agribusiness intermediaries and SACCOs could be the best entry point

Banks have higher capacity if their incentives would be aligned

Lender group	Potential opportunity	Feasibility
Banks	Banks' track records so far suggest they are not ready / do not have the appetite to alter their credit assessment models. However, there could be some middle ground – around helping them to modestly scale activities in their existing agriculture desks / units. Such efforts could focus on helping banks with existing agriculture units to bring on new value chain expertise – especially the non-traditional value chains – though additional human resources or helping banks without these dedicated units to learn from those that are doing well.	 <p><i>Banks have not shown significant appetite for change</i></p>
Saccos	It is promising that farmers tend to prefer Saccos as a lender more than does the rest of the population. Given their track record of lending to individual farmers and their embeddedness in many communities, we need to investigate the factors that could make them an even more prominent lender in the sector.	
Agribusiness intermediaries	<u>This is the real opportunity area.</u> Given banks' risk aversion, Agri intermediaries would be best placed to directly own the relationship with farmers and take on the credit risk of that segment. They engage with them regularly, are closest to them, and their goals are tightly aligned. But these intermediaries cannot operate alone beyond a certain scale. Once these organizations have built a track record, then banks should feel derisked and provide the credit to these organizations and potentially do some risk-sharing. Here, too, MNOs have an indirect role to play – in making it easier to make bulk B2C payments to farmers.	 <p><i>Already strong alignment and benefits both farmers and agribiz</i></p>

Kenya Landscape: Agro-processing



GoK has set out big ambitions to increase domestic processing in agriculture; however, the pandemic has slowed down their delivery

Context

- One of the key pillars of ASTGS is to develop 6 agro-processing hubs, in proximity to both fast-growing populations and regions of production
- The hubs could add more than 150B KES to GDP over next 5 years
- However, GoK is behind on its agro-processing plans; only the Naivasha zone is reasonably well progressed with focus on dairy, meat, fish, and horticulture. The costs estimates indicate the Naivasha Zone will cost USD 210M, with most of the investment to come from private sector
- The primary initial focus is on the large anchor tenant commercial processors; once these operators are locked in, GoK will work on clustering smaller around anchors.
- Outside of the flagship Hubs, MoALF and County Governments support different processing projects at county level, looking to integrate commercial processors with small-scale producers.



Opportunity

1. One area of activity for FSD Kenya to piggyback on could be working with medium-sized processors to incorporate small-scale suppliers in their value chain and roll out financial solutions
 - ASTGS anticipated launching a Processing Accelerator to support early-stage processing projects in and around the Agro-Processing Hubs – FSD Kenya could look to partner with initial accelerator participants
2. A second opportunity area is to work with development partners to support farmer groups (ranging from cooperatives to less formal farmer-based organizations) to develop group-based business models for agro-processing equipment, and then bring in FSPs or leasing companies once the model is designed and the group organized.

Three observations about the sector: too little agro-processing, concentrated in “primary” processing, and not using local inputs

Of course, the presence and intensity of agro-processing will be value-chain dependent, but if we attempt to categorically describe the state of the agro-processing sector, these three observations emerge:

1
**TOO LITTLE
AGRO-PROCESSING
OVERALL**

2
**TOO CONCENTRATED
IN PRIMARY
PROCESSING**

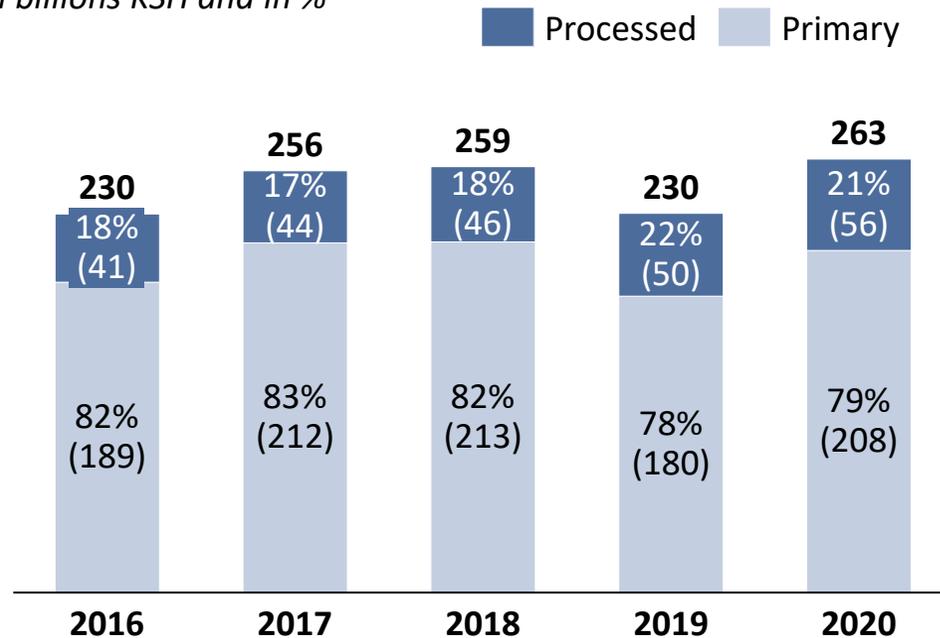
3
**NOT MAKING
SUFFICIENT USE
OF LOCAL INPUTS**

This means that Kenya is not only “leaving money on the table” but also not creating enough opportunities for earnings to trickle down to local producers

Only c.20% of Kenya's food exports are processed, behind several African other countries

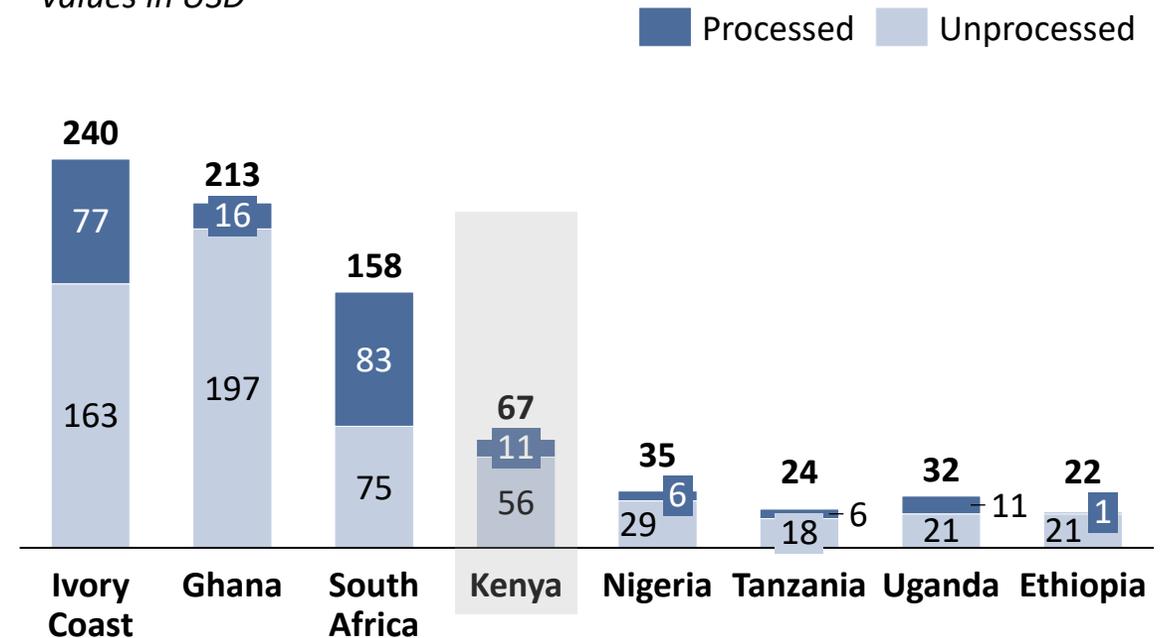
Share of processed vs. primary value for Kenya's food exports

In billions KSH and in %



Agro-exports per capita, 2013: Kenya vs. other countries

Values in USD



Agro-processing is growing at moderate pace (5% per annum in the last five years) but from a low base, and Kenya lags behind several other African countries in the strength of its agro-processing industry

Most local agro-processing happening is at the primary level, and many secondary processors do not use local ingredients

	Primary Processing	Secondary Processing	Tertiary Processing
<i>Definition / Scale of processing</i>	<i>Starts with raw agricultural products. Ends either with a more homogenous or desirable version of the raw agricultural product (e.g., graded avocados) or an ingredient that can then be made into consumable foods (e.g., flour)</i>	<i>Uses ingredients produced through primary processing to create products whose shape, form, and / or consistency have been altered, most often to achieve longer shelf life (dried fruits) – and the original raw ingredient is still recognizable in the end product</i>	<i>Further transforms the product such that the original raw ingredient is not easily discernible in the end product, and/or combines multiple ingredients to create an end product</i>
Dairy	Large-scale: fresh milk		Medium-scale: yogurt. Small-scale: cheese – due to limited local demand
Poultry	Mostly medium (e.g., Kenchic) and small-scale		
French beans	Medium-scale: cut French beans		
Maize	Large-scale: flour, using significant imports		Medium scale
Avocados	Small-scale (though growing quickly): graded avocados		
Wheat	Large-scale: wheat flour, reliant on imports		Medium-scale
Edible oils			Medium-scale for vegetable oils with imported inputs, small-scale with local inputs
Juice		Large-scale	



Snapshot | Large-scale, centralized, locally sourced: Milk and dairy

Processing – who and how

- Kenya processes milk largely for fresh milk consumption, and to a smaller extent into dairy products (yogurt, butter, ghee, etc.) sold through formal retail channels – though a large majority of milk still gets sold on informal channels or consumed on-farm
- **Large processors:** 30 or so processors control the market, with 80% of the market controlled by 4 companies: Brookside, Kenya Creameries Cooperative, Githunguri, and Sameer
- **Smaller processors:** Another 67 mini dairies are active in the space. Together with the large processors, they have an annual capacity of 3.75M liters of milk, of which only 11% is currently utilized.



Role of women

- **The sector contains an estimated 1.8 million farmers – most of whom are women** – who produce 56% of the total milk output. However, women’s activities tend to be concentrated at the production level (or, on more commercial but family-owned farms, supervisory roles)

MSE opportunities

- Per-capita consumption of milk in Kenya is already nearly 3x that of other African countries (120 liters vs. 50 liters)
- With rising incomes and population growth, total demand is expected to grow significantly in the next decade
- To meet the demand, room to bring in more players – suppliers of milk and/or processors. A key barrier is availability of cooling stations within proximity of smallholder farms
- Farmer group sharing / lending for purchase of equipment can help



Snapshot | Large-scale, centralized, reliant on imports

Fruit juices

Processing – who and how

- **Mango production in Kenya is at about 1 million tons annually as of 2019-20, but only 10% of the production will go towards any form of processing (e.g., dried mango and juices).** The rest is consumed domestically, and there is significant post-harvest wastage (+40%)
- **Though processed juices are increasingly available on the market, targeting all income segments, most of the pulp used for mango juice is imported** (5,000 metric tons of fruit juice imported, including mango – only 50% of demand is met by local supply)
- **Other than perishability and consistency of quantity, local varieties tend to have high fiber content, less ideal for juicing**
- **Only six major pulping plants exist in the country (Kevian Industry, Premier Foods), though small-scale processors do exist and are on the rise**



Role of women

- As is the case for many value chains, mango production is largely at the smallholder scale, with producers owning <2 acres of land
- Some studies suggest that in many parts of the country, most mango trees are owned by men, with women only owning 15-20%
- Women are more represented in the small-scale processing industries, however, both as laborers and increasingly as owners

MSE opportunities

- Proximity of cold storage is a major challenge, contributing to the high post-harvest loss rate as fruits rot on trees
- Forming associations to sell the fresh product or to co-own machinery or a plant would help
- However, other opportunities exist for small-scale processing that helps to reduce or bypass the perishability challenge, specifically processing into dried mango for snacking



Snapshot | Small-scale, decentralized, locally sourced Maize

Processing – who and how

- Maize is mostly processed for maize meal; it is also used for animal feed.
- **Large / medium millers:** Twenty or so millers producing sifted maize meal or flour under their own brands (capacity averaging 200 MT per day, with ranges of 100-600 MT per day).
- **Small millers:** Fifty to 75 smaller-scale millers producing sifted maize meal and other processed maize products, sometimes in their own brand consumer packaging, but at much smaller volumes (annual capacity average under 400 MT).
- **Cottage industry “micro” processing:** Tens of thousands of posho millers producing un-sifted flour using hammer mills with capacities of 10-50 bags per hour.



Role of women

- Over 4 million Kenyan households farm maize, so in absolute terms women have high participation
- Maize farming tends to require more heavy lifting and time away from home, so is typically dominated by men
- Posho mills tend to be owned and operated by men and male farmer groups, similarly the means of transport for local grain “assemblers”

MSE opportunities

- Solar-powered grain posho mills
- Farmer group sharing / lending for purchase of small milling equipment
- Local assembler working capital finance and vehicle financing



Snapshot | Small-scale, centralized, local sourced French beans

Processing – who and how

- **Kenya is the second largest exporter of green beans to the European market**
- **In Kenya the crop is traditionally grown in for export purposes;** local market is negligible. Averaging in the last years around 40,000 tons for export
- **Processing is done at various stages – from basic to complex:** fresh market vs. freezing vs. canning
- **The value chain is highly regulated and subject to strict rules** around pesticide use on the production side and end-product specifications (size, length, etc.) that it is most suited to specialized or sophisticated actors who can acquire and maintain the qualifications
- **Key players and exporters:** VegPro, the largest, alongside seven others, such as Kenya Fresh Produce Exporters, HomeFresh Horticulture, and InterVeg.



Role of women

- The value chain is largely dominated by smallholder farmers on the production side: 60% of production by smallholders
- Though women are involved in all parts of the value chain, they are over-represented in the labor force within the processing operations. It is estimated, for example, that 80% of workers at packhouses are women - though with much less representation at middle and senior management levels

MSE opportunities

- Given Kenya's success in the green bean export market, producers are keen to engage in contract farming to expand their supply
- A key challenge, in addition to the quality requirements, is the availability, proximity, and affordability of cold storage. Cold storage closer to the production source would enable producers to harvest more regularly (hence more volume) to avoid the crop surpassing the size requirements for export markets

Various factors limit growth of the agro-processing sector

Category	Blockers for growth
Processor	<ul style="list-style-type: none">• The sector has developed with a bias to unprocessed / primary processing, based on historicals – there are strong actors who made their business around exports being unprocessed and may not have sufficient incentive to change course• Lack of clustering / coordination – processing benefits from scale economies, but this is hard to get when value chains are so fragmented, particularly at the production levels• Though this is changing, lack of knowledge about the viability of crop-based processing
Producer / Supplier	<ul style="list-style-type: none">• Insufficient aggregation• Limited exchanges with farming expertise (only a small share of extension curriculum touches upon processing)• Limited formalized market linkages• Habit and incentive of side-selling in most value chains with diverse buyers (given extreme cash sensitivity), which in turn disincentivizes some agribusiness intermediaries from investing backwards into the value chain
Ecosystem	<ul style="list-style-type: none">• Cheap imports of processed goods – all but a few value chains can compete, such as meat (sausages, chicken) and flour products; but many cannot – e.g., tilapia from China, mango pulp from India, tomato paste from Egypt• Poor infrastructure (road quality, electricity access) further ramp up costs• Lack of availability of back-up services for equipment

Women are the de-facto suppliers of ag produce, favored as laborers in some processing, and under-represented as processors

Women as Suppliers

- As the majority of agricultural producers in Kenya, women are essentially also the largest number of suppliers of produce on the open market – though this does not mean they reap the financial benefits
- However, they are severely under-represented in formal contract farming relationships
- In processing, it is mixed bag: women benefit from the fact that heavily feminized value chains such as dairy and poultry source raw inputs locally, but this is not the case across the board
- Solving the broader aggregation challenge, especially for select value chains, would improve women's lot in their roles as producers and suppliers (only 2% women belong to ag coops)

Women as Workers

- Export- or processing-focused value chains with high quality requirements are said to favor female laborers, for their high attention to detail and reported handling of delicate produce.
- This is the case for example with flowers and horticulture fruits, where there are gradations in market price based on the product quality. We heard from several stakeholders that female laborers are over-represented in packhouses
- At the managerial level, however, there is less representation: unless an agribusiness is intentional, very few women make it to mid-level roles
- If you help these quality-focused VCs grow, women will invariably benefit

Women as Owners

- Women are active as processors across multiple value chains but either at the village level, or at sub-scale (cottage industries), or in niche value chains, such as dried fruits. They are much less represented as owners of major processing outfits
- Women owners employ various strategies to help sustain their businesses, given the structural constraints facing them, that on the flipside limit their growth potential: accessing credit facilities from relatives and friends; using low level tech; operating their businesses illegally to avoid heavy licensing costs; and managing enterprises close to home
- A range of interventions, broad and targeted to value chains, is needed

Opportunities around equipment design, financing models, and policy could help boost agro-processing in Kenya

Opportunities / Pockets of innovation

Details

Equipment-side

- **Small-scale equipment:** moving from industrial machines to smaller-scale ones that can improve the economics for small processors (e.g., nut oil presses)
- **Off-grid options:** broader range of uses cases for solar energy, now moving into productive use items (e.g., solar irrigation, water pumps, refrigerators) – though their efficacy still needs to be improved
- **More accessible suppliers – abroad and in-country:** Alibaba has made equipment much more readily available for imports, either by the processor themselves or by resellers

Financing-side

- **Pay-as-you-go / leasing models:** increasing usage of such models in the agriculture sector, typically for very large assets such as tractors, but can also be used for equipment (here, smaller-scale equipment adds an additional in that it can be movable / be brought closer to new types of users)
- **Pay-per-quantity models:** one stakeholder we spoke to expressed interest in piloting such a model, so that the company “walks the journey” with the agro-processor / exporter as he/she improves sourcing operations
- **Group financing:** this is the model employed by banks, but requires high standards of group governance

Policy-side

- **“Buy Kenya, Build Kenya”:** initiative to increase competitiveness and consumption of locally produced goods and services, by public and private sectors as well as citizens. Much more needs to be done on establishing and enforcing commitments for local sourcing of produce and on boosting price competitiveness to make a clear business case for doing so
- **Tax and fiscal incentives for climate-smart and mechanized assets:** carbon finance, such as prefinance of climate smart assets like biodigesters, clean cookstoves, solar water pumps; tax and fiscal incentives for import of mechanized farm assets

Annex 1: Stakeholder List



Stakeholder List

Organization	Stakeholder Name
Acre Africa	Patrick Sampao
Agriculture Finance Corporation	Sarah Wacheckeh
AgriWallet	Sijmen de Hoogh
APA Insurance	Siani, Cheriyyot, Isaiah
Bayine Organics	Lorraine Atieno
CGAP	Jamie Anderson
Family Bank	Anthony Mbithi
FarmWorks	Yi Li
Githunguri Dairy	Fredrik Mureithi
Gmaurich	Carol Mutika
GOK - Agri Transformation Office	Thule Lenneiyee
Hand in Hand Kenya	Lucy Kerei
Inspira Farms	Julian Mitchell
KCB	Anthony Mbithi
Kenya Manufacturers Association	Abel Kamau
Kenya Nut Company	Michael Mwaniki
Mercy Corps AgriFin Accelerate	Sieka Gatabaki
One Acre Fund	Patrick Bell
Performeter Agribusiness	David Maina
Rentco Africa	Julius Motaroke
Self-Help Africa	Miriam Cherogony
Vaell	Bertha Mvati
Women Farmers Association of Kenya	Daphne Muchai

Annex 2:

Synthesis of Kenya gender / agriculture reports



Women in Rural and Agricultural Livelihoods (WIRAL) - CGAP

Key findings

- Women in rural agricultural livelihoods experience the following constraints which can be structured around labor, markets, and socio-cultural norms as follows:
 - Their ability to maximize output and earn income is constrained by their lower ability to hire and provide labor
 - Limited access to the income generating opportunities offered through local and digital markets
- Access to and returns from labor and markets are interlinked to socio cultural norms and should be considered together. Access to financial assets, time, and mobility are other cross-cutting constraints that should be considered as limiting to their opportunities.

Implications for our work

- The key challenges faced by women farmers include both inequitable access to and returns from labour and markets; and social and cultural norms.
- Women's financial inclusion is constrained by limited access to market information, market linkages, digital technology as compared to men. They have lower access to or control over the resources required to access finance (e.g. collateral)
- Availability of time and mobility impacts women's view or use of both financial and non-financial services, in relation to roles and responsibilities which leaves women with less time to dedicate to both labour and market opportunities, both of which have an implication on financial and non-financial services.
- Successful approaches to reaching women farmers include collective engagement with other market actors to target the drivers of social norms alongside financial service providers
- Designing better financial services for women farmers, requires special consideration and product design for serving rural women that cannot meet conventional qualification requirements and support financial service providers to collect gender disaggregated data and use this to develop business cases that incentivize the development of female-specific financial products.

Gender Case Study - Mercy Corps AgriFin

Key findings

Farmers in SSA experience similar challenges, however, there are certain challenges that affect women disproportionately which results in the gender gap in agriculture as below:

- Women's low access to markets and market information is due to limited access to digital infrastructure. E.g., A digital marketplace in Kenya reported only having 30% women users
- Only 7% of women in Kenya own land alone and those who own land do so jointly (31%), a clear manifestation of lower access to productive resources
- In Kenya, access to formal agricultural finance is lower for women (7%) compared to men (14%) due to lack of collateral and lower access to financial information. This is manifested in their lower access to both credit and digital savings products.

Implications for our work

- Challenges include low access to markets and market intelligence, digital literacy levels, access to productive assets, and have additional time and mobility constraints due to gendered norms.
- Gaps in financial inclusion include limited access to credit and digital savings products, marked with lower trust in digital financial products, limited decision-making power at the household level and lower control over finances
- Design gender transformative approaches to tackle the root causes of gender inequality and create sustainable impact
- Financial services can be designed to better serve women, by adopting end-to-end value chain solutions as they are effective in supporting women with financial services and provide education to women on alternative collateral requirements.

Gender and Agricultural Advisory Services - BMGF

Key findings

In SSA, the availability of AAS services is limited for all farmers, however it is consistently lower for women compared to men as below:

- While AAS providers are predominantly male, female farmers in many cultural contexts may not be comfortable interacting with male extension workers.
- FAO also estimates that only 15% of extension personnel are women globally.
- Male bias is also experienced in the choice of which crops and technologies are included in the training curriculum
- Top-down training approaches, as used by some AAS providers implicitly require a certain level of literacy, numeracy skills which women lack
- Their attendance in terms of time and/or location are sometimes incompatible with social expectations about women's caregiving work.

Implications for our work

- Challenges include women's limited access to appropriate agricultural advisory services (AAS), which impedes their ability to learn and adopt new technologies and lack of access to complementary inputs such as land, labor, and financial capital.
- Focus is on non-financial services where women farmers may be more reluctant to participate in extension activities led by male providers,
- To reach women farmers, utilization of advisory methods that are proven to work for them; identifying and promoting agricultural advisory services that are most relevant for their crops, activities, and access to inputs would make up successful approaches. Using videos to deliver agricultural information is another promising method of reaching women farmers.

Women's Empowerment in Agriculture & Agricultural Productivity: Evidence from Rural Maize Farmer Households in Western Kenya- Gracious M. Diiro et. al

Key findings

- Heterogeneous effects are reported with respect to women's empowerment on maize productivity for farm plots managed jointly by a male and female and plots managed individually by only a male or female.
- Female and male managed plots especially experience significant improvements in productivity when the women who tend them are empowered, providing evidence that women's empowerment contributes not only to reducing the gender gap in agricultural productivity but also to improving, specifically, productivity from farms managed by women.
- In Kenya, a mere 0.5% of women have access to financial services while only around 6% own land, which is a key collateral for access to credit.

Implications for our work

- Challenges include gender inequalities that persist in respect of access to, control over and utilisation of productive resources such as land, livestock, labour, education, extension and financial services, technology, including limited access to labour and agricultural markets.
- Women have low access to financial services due limited land ownership, hindering their access to formal credit, since land is a major form of collateral
- The successful approach to reaching women farmers for increased productivity is through integration of women's empowerment into existing and future projects.

Gender, Agriculture and Climate Change - BMGF

Key findings

- The gendered disparities in agriculture also impact adoption of CSA, despite multiple international, national and local institutions pursuing promising approaches to fill the gap.
- The significant opportunity however exist in investing in research that could produce strong empirical evidence on effective approaches to integrating a stronger gender focus to agricultural adaptation efforts.

Implications for our work

- The challenges include gendered disparities in access to and agency over key resources—chiefly land, labor, financial capital as well as a lack of agency in household decision-making and inequitable division of labour - men have greater access to animals and mechanization for ploughing and clearing of land, while women’s agricultural work tends to be more manual and labor-intensive.
- Women's relative lack of land tenure security is a longstanding constraint to investments focused on improving agricultural productivity.
- Successful approaches include integrating a strong gender focus to agricultural adaptation initiatives which has the potential to produce multiple benefits. Policies to strengthen women’s land rights may also provide incentives for greater uptake of adaptive practices.

Gender Impact Study: Crosscutting Final Report - Mercy Corps AgriFin

Key findings

The farmer user journey for both digital services and products in Kenya, show the following results, across the 4 platforms:

- Knowledge scores achieved through Arifu shows most users scoring 70% above with women outperforming men mainly in poultry and prepalnint
- Over 50% of both men and women who use AgriPay are dormant (as defined as 6 months of inactivity) with slightly more dormant women than men.
- 32% of users of DigiFarm had engaged with the access to markets module to sell of their harvests to off takers. Slightly more women than men (6%) engaged with the access to market module
- Women participated more than men in FtMA PHH training and significantly less in CP trade fairs.

Implications for our work

- Women face systemic challenges in the agricultural sector such as access to markets, credit, inputs, knowledge, land, limited agency, time poverty and mobility constraints. Women farmers have limited agency using products with higher perceived risk such as credit, resulting in a need for spousal engagement and more time for decision making.
- Gendered roles in agriculture limit usage of some services, such as learning modules on value chains or activities in which women farmers have limited participation. This results in a longer decision-making process for women farmers than men farmers, to decide if to use a service.
- Working with farmer associations and use of farmer and savings groups to recruit are some of the effective channels through which to recruit women farmers. Use of personalized messaging and association with strong brands also create trust and drive buy-in among women farmers.
- Financial services can be better designed to service women by providing more education to farmers, particularly women, on the alternative collateral requirements for loans, offering a combination of group and individual loans to farmers, Consider bundling input credit with savings and increase support to build digital identity for women farmers.

How to Improve Gender Equality in Agriculture - IISD

Key findings

Lessons learnt include the following:

- Land tenure is crucial for gaining access to the economic benefits of certification, but women are often excluded because they have fewer statutory land rights than men
- Investors in outgrower schemes should collaborate with women to identify cultural and economic barriers to their access to productive resources, including to training and information on production techniques.
- Investors, in consultation with local civil society groups, should support the creation of women's groups that develop strategies for alleviating their heavy work burden, by creating access to labour-saving technologies
- Investors must develop strategies to promote women's authority within cooperatives and producer groups and in negotiating with investors

Implications for our work

- The key challenges faced by women farmers are exhibited in these five dimensions to gender inequality in agriculture - land rights, productive resources, unpaid work, employment and decision making
- Gaps in financial inclusion for women existing in forms of gender discrimination in credit markets makes, which makes it more difficult for women farmers to acquire labour-saving and innovative production inputs.
- Some of the successful approaches to reaching women include adopting a gender equity approach, ensuring women farmer participation in community consultations and accounting for local gender norms.
- Considering pre-financing for women can help them gain access to credit, through certification.

Women's Access to Agricultural Finance in Kenya: Baseline Report - KIPPRA

Key findings

- While access to agri-finance is generally low (below 15%) for both women and men across the country, the levels are much lower for women especially those above 65 years and residing in urban areas (6.8%). The lowest access levels among men is observed for those between 16 and 34 years residing in rural areas (11.5%).
- 19.1% of women of ages 16-34 years residing in rural areas sought credit needs for buying agricultural assets/machinery.
- About 24.6% of women of ages 16-34 years residing in urban areas sought credit for diversification of agricultural activities.
- Women in rural areas are mainly denied credit because they have low savings (40.8%, have existing debts (25.5%, have bad credit history (19.5% for ages 16-34 years) and lack collateral (17.4% for ages 35-64 years)
- Women largely participate in production of food crops such as beans, maize, cassava, sweet potatoes, mangoes and oranges

Implications for our work

- The key challenge facing women farmers is are mainly denial of credit from financial institutions due to low savings, existing debts, lack of collateral, and bad credit history as well as facing social and cultural barriers in accessing credit . However, women in Kenya in general have agency with regard to financial decision making as the agency constraints tend to reduce with age.
- Some of the gaps in financial inclusion for women farmers include low level of awareness/usage of different agri-finance channels, financial literacy and access to agri-finance information.
- Some of the recommended approaches to reaching women include undertaking affirmative financing targeting women and undertaking initiatives that are aimed at inclusivity and economic empowerment.
- Good financial product for women should be aimed at navigating stringent conditions as emphasized through collateral, including other agri-finance attributes such as capacity building, financial literacy.

Women & Agriculture in Rural Kenya: Role in Agricultural Production - Paul Otieno Onyalo

Key findings

Women’s constraints in accessing land is affirmed by a 2014 study by the African Women’s Studies Centre, with findings indicating that only 20.7% women own land compared to 43.8% of men. Division of labour is equally influenced by gender as illustrated on the table below.

Task	Male (Percentage %)	Female (Percentage %)
Ploughing	55	45
Weeding	49	51
Harvesting	51	49
Marketing	53	49
All processes	47	53

Source: NALEP, 2010

The data shows more women are involved in light duties like weeding (51%) while men are involved in heavier tasks like ploughing (55%), harvesting and marketing (53). However, female farmers dominate in all other processes, indicating that their productive roles embraces both subsistence crops and cash crops for the market.

Implications for our work

- Women face a number of constraints as a result of the gender inequalities that persist in respect of access to, control over and utilisation of productive resources such as land, livestock, labour, education, extension and financial services, and technology.
- Women cannot benefit from credit facilities in contexts where land can be used as collateral to secure loans, as land is unavailable to them.
- Non financial services such as agricultural extension services, which play an important role in the dissemination of agricultural information on new technologies and research aimed at improving agricultural productivity, are in favour of males in Kenya.
- Supporting women’s organisations is one of the recommended approaches to reaching women. The the government should also partner with the civil society organization to offer civic education to community members regarding the legal rights of women.
- The government should consider special programs that have potential to encourage existing female farmers and target potential female farmers to invest in the agriculture sector by supporting them financially.

Gender Aware Approaches in Agricultural Programmes: Kenya Country Report - SIDA

Key findings

Greater equity gains can be achieved by encouraging women to take on new roles in value chains, e.g., by engaging in value-adding strategies, or to take on new roles in value chains.

Differentiating between value chain development activities that are likely to benefit women and those likely to benefit men is also necessary by the following approaches:

- ensuring gender equity in market led development focusing on commodities and value chains such as vegetable production, poultry and small ruminants; where women are recognized to have more decision-making capacity and are often able to retain the monies from sale.
- ensuring that women maintain a strong presence as crops become commercialized, while strengthening their market presence.

Implications for our work

- The challenges faced by women farmers include gender and human rights issues which include heavy workloads for women and associated inefficiencies; women's limited access to, and control over, productive resources; limited ownership of farm tools and implements; limited access to credit; and limited access to technology and information
- An affirmative action policy to ensure that women are offered specific support in presentation and leadership skills, is one of the approaches recommended for reaching women.
- Women can be reached through organized groups, which also show that women themselves are working for change when they are able to demand for essential services such as extension services.

Women Grow 70% of Africa's Food. But Have Few Rights over the Land They Tend - World Economic Forum

Key findings

Over 65% of land in Kenya is governed by customary laws that discriminate against women, limiting their land and property rights.

Implications for our work

- Customary laws in some parts of Kenya dictate that women cannot own land. These laws that discriminate against women, limiting their land and property rights.
- Without collateral, women farmers are not able to access financial credit services
- Community-led grassroots solutions are some of the approaches that seem to work to reaching women farmers, and improve their rights, including helping the community, without necessarily creating animosity between men and women. Bottom-up solutions that bring both women and men together to come up with solutions, like in the case of Naatum women's group is also recommended.

Do Farmer Groups Improve the Situation of Women in Agriculture in Rural Kenya? - Rose Ingutia and John Sumelius (IFAMA)

Key findings

- A 1-unit increase in female farmer membership in a farmer group increases women's participation in agriculture by 1.8 units, while a similar increase in farmer groups' good prices for farm products increases their participation in agriculture by 1.2 units
- Farmer groups with credit facilities increase female farmers' probability to participate in farmer groups by 47%, as revealed by the marginal effect.
- The farmer group platform is however largely under-utilised, particularly in rural Kenya, evidenced by only 31% of the female farmers participating in farmer groups.

Implications for our work

- The multiple constraints in the inequitable distribution of productive resources such as land limit women's effective participation in agriculture and compromise their production potential in Kenya. Their attempts to access and gain control over land are constrained due to social inequalities associated with customary and traditional tenure systems and reinforced by a lack of enforcement and implementation of new land laws and policies on gender equality in gaining access and control over land
- Female farmers lack collateral (usually land), and have a limited scale of enterprises, and thus are disadvantaged in accessing credit and loans from banks. Moreover, women have less time and money to travel to credit institutions, which typically are situated in urban centres
- Women's access to non-financial services and products such as improved seeds, fertilisers and pesticides is also limited mostly because extension services fail to cover women, and government subsidised inputs are generally not granted to women
- Farmer groups can play important roles in reaching women and overcoming the constraints faced by rural women; empowering them both economically and socially by offering them a range of services that facilitate access to productive resources such as finance

Improving Women Farmers' Access to Extension Services - Janice Jiggins, R. K. Samanta, and Janice E. Olawoye

Key findings

- Agricultural extension strategies traditionally have focussed on increasing production of cash crops by providing men with training, information, and access to inputs and services and largely excluding women's involvement.
- Recommendations for more effective extension systems for rural women include initiatives that build on present potentials; strengthens institutional capacities, interagency cooperation, training programs; retaining benefits and stakeholder engagement for expanded and sustainable opportunities.

Implications for our work

- The constraints affecting rural women's ability to improve yield, profit, and efficiency in agriculture include, women's legal and cultural status, which affects the degree of control women have over productive resources, inputs such as credit, property rights and inheritance laws, which govern access to and use of land and other natural resources, the relationship among ecological factors such as the seasonality of rainfall and availability of fuelwood, economic factors such as product market failures, and gender-determined responsibilities such as feeding the family, and the way that agricultural services are staffed, managed, and designed .
- Women-to-women extension has proven to be successful in reaching women, while the group mechanism also provides a culturally appropriate means for follow up contact by male extension staff.
- As part of designing financial services for women to improve access to extension services, the development of efficient savings and credit services for rural women is recommended.

Deconstructing Leisure Time and Workload: Case of Women Bean Producers in Kenya - Eileen B.N, Mercy M, Collins O, David K

Key findings

- Results show that 28% of disempowerment (5DE) in women farmers is due to lack of time for leisure activities and 18% from being overworked. This means that the time indicator accounts for 46% of disempowerment in Kenyan women bean farmers.
- Mobility is also highlighted as a factor that can overcome women and men farmers' constraints to access and utilize agricultural inputs (seed and fertilizer) that may improve both farm productivity and household incomes

Implications for our work

- Work overload is a constraining factor to women's empowerment in agricultural productivity. Women experience a time burden which is exhibited in inequitable division of labour and has been exacerbated by culturally underpinned expectations, such as women's submission

Gender Inclusive, Responsive and Transformative Agricultural Insurance: A Literature Review - CGIAR

Key findings

Currently, there has been a growing interest in the use of agricultural insurance as a tool to manage covariate risks related to climate and weather uncertainties. However:

- Low access and usage of agricultural insurance among women farmers is attributed to both demand and supply-side barriers - where demand side barriers include high premiums while supply side barriers are due gender blind agricultural insurance products.
- Offering group insurance as opposed to individual insurance could also be more beneficial especially to women, since group contracts can help promote a dialogue around insurance and thereby allow group members to better understand the product.

Implications for our work

- Women farmers face a host of social, institutional, and economic constraints that increase their vulnerability to climate-related production and income shocks. These include limited control over fewer productive assets, including land and livestock, mobility and access to important agricultural services and systematic gender biases in parental allocation of intra-household resources such as educational investments that constrain women's economic opportunities.
- Women are likely to purchase lower value coverage insurance products compared to men.
- Identification and alleviation of gender-based constraints to participation is recommended to ensure women's reach and participation.
- A gender-responsive approach of improving insurance benefits to both men and women through bundling complementary risk management strategies, and long-term monitoring of individual outcomes is recommended.

Gendered Impacts of COVID-19: Insights from 7 Countries in Sub-Saharan Africa and South Asia - USAID, IPRI, CGIAR, CCAFS

Key findings

- On labour and time use, women experienced increased care burden as compared to men.
- Closed input and output markets negatively impacted agriculture further by lack of access to reliable and timely agriculture information, in an environment where formal systems of agriculture extension are already lacking
- Women were more likely than men to report lower yields and pest attacks as a result of not being able to access timely information

Implications for our work

- Restricted mobility and increased care burden are some of the challenges experienced by women generally - farmers or not

Feed the Future Kenya Zone of Influence Baseline Report - USAID

Key findings

- The Women's Empowerment in Agriculture Index (WEAI) domains that contributed most to women's disempowerment were limited decision-making in agricultural production (30.6%), time burden (29.4%), and lack of control over resources (22%).

Implications for our work

- Challenges faced by women farmers include limited decision-making in agricultural production, time burden, and lack of control over resources. Other factors include little autonomy in production, excessive workload, and lack of access to credit and the ability to make decisions about it.

Feed the Future Kenya Zone of Influence Interim Assessment Report - USAID

Key findings

- The WEAI results show that a large proportion of women had attained adequacy in most of the indicators, the highest for input in productive decisions, ownership of assets and control over use of income (above 90% for each) and lowest for access to and decisions on credit (50%)
- Participation in economic activities was highest for food crop farming (97%) followed by livestock raising at 86%, but lower for non-farm activities (32%) and cash crop farming (32%)
- Only 40% of women had an input into decisions on use of income from cash crop farming.
- Women reported higher ability to make decisions on minor household expenditures (49%) and type of crops to grow (42%) but least ability on decisions about major household expenditures (26%).
- A larger proportion of women reported to make decisions on purchase of poultry (55%) as well as on non mechanized farm equipment (35%), but much less purchase on purchase of mechanized farm equipment (5%)

Implications for our work

- Women still disproportionately represented in ownership of livestock and mechanized equipment, where large livestock and mechanized equipment which is largely associated with the head of the household, mostly male.
- Despite the systemic challenges that women farmers keep facing, women empowerment, results show a large proportion of women had attained adequacy in most of the indicators, especially on input in productive decisions, ownership of assets and control over use of income.
- Women still experience the least input on use of income from cash crop farming, creating a constraint in financial access including their own wage and or salary employment. Women still have low decision making on credit access and on how to use the loan.
- Group-based micro-finance institutions seem to be a viable avenue for obtaining loans among women.

The Critical Role of Women in Avoiding Covid-19 “Food Pandemic” in Sub-Saharan Africa - CGIAR

Key findings

- Due to the pandemic, women dairy farmers reported to have not earned and produced as much as men because their household work made it very difficult to travel to central cooling facilities to sell their milk. In response, the New Kenya Co-operative Creameries (NKCC) promoted the use of small coolers in local neighborhoods where women can easily deliver milk for pick-up.
- Some of the lessons learnt include the need to develop solutions that account for the limited mobility many women face.

Implications for our work

- Women are faced with key disadvantages due to long-standing gender roles that can limit their mobility and access to economic resources—both within their households and communities in the context of food security. African women farmers also face challenges finding time to get their goods to market, even long before covid including access to information.
- Besides low literacy levels among women, limited ownership of a cell phone and lack of finances to purchase airtime, the social network many women use to overcome these barriers were at risk of closure by the COVID-19 clampdowns.
- Critical to reaching women farmers during the pandemic is how information delivery is tailored.

Gender Equality in Rural Africa: From Commitments to Outcomes - ReSAKSS

Key findings

- On Assets - A gender-transformative financial inclusion system should have three interrelated outcomes: (1) enhanced women's empowerment; (2) strengthened relationships and improved negotiation dynamics and (3) enabling policies, regulatory frameworks, and sociocultural norms
- To increase women's agricultural productivity their contributions needs to be recognized by involving them in programming and ensuring that they benefit from the increased productivity—which, in turn links to issues of financial inclusion.
- On shocks and stresses, there is need for higher quality evidence to demonstrate impacts on women's well-being, as well as to inform how impacts differ depending on local underlying gender inequalities.
- Growing knowledge on both value chains and trade liberalization should be used to intentionally promote gender equality and women's empowerment.

Implications for our work

- Gender norms that designate men as heads of household and privilege male control over productive resources. Gender norms and gendered images of who is a farmer may limit women's access to timely information and quality extension services.
- While laws in most countries no longer discriminate against women in financial services, there are still legal and traditional limitations on land ownership and ownership of other assets that limit women's ability to access finance. Women in are also less financially literate, have less experience with formal banks, have less access to information, and have lower ownership of mobile phones. The design of products that do not suit the needs and priorities of women is another key barrier to women using financial services.
- Besides MFIs and VSLAs, low cost digital financial services such as mobile money implemented from a gender transformative approach address several barriers to financial inclusion for women, including proximity, affordability, and know-your-client requirements, as well as engaging on changing norms, and building women's agency to seek and utilize financial services.

Women and Agriculture The Untapped Opportunity in the Wave of Transformation

Key findings

Suggested action points for closing the gender gap have been broadly clustered as below, with a focus on gender and women's empowerment:

- Institutional transformation
- Access to productive resources
- Investment in both hard and soft infrastructure
- Development of high-value agricultural value chains
- Increased Access to Technology and Mechanised Methods

A key highlight according to a FAO analysis is that Kenya is putting its local producers at a disadvantage as the country spends only 4.8 % of its national budget on agriculture. In contrast, Kenya's neighbouring countries Uganda and Tanzania spend 6% and 7% respectively.

Implications for our work

- Challenges facing women farmers include access to information due to gender gap in education, access to productive resources such as land, access to finance and financial services due to perceived risks and lack of management and absorptive capacities or women farmers
- Helping small-scale farmers, especially women, will require explicitly examining gender issues and proactively integrating gender components into agricultural policy and development strategies
- Adopt tailor-made financing instruments for both the banked and unbanked women in agriculture, with a clear knowledge of the various women SME predicaments vis-à-vis access to finance in order to design the specific type of financial product that is needed for their business.

Extent and Determinants of Women Participation in Agro-Processing SMEs in Dar es Salaam - Tanzania

Key findings

- Up to 60.3% of respondents belong to the Women economic groups as opposed to sole proprietorship form of business ownership, an indication that, capital accumulation and knowledge sharing for the growth of agro-processing are influenced by collective action.
- 67.9% of the respondents sold their product in unstructured market; while 33.8% of the respondents sold their products to customers who were available directly at the market, suggesting that direct markets receive more than 65% of the products produced by women in agro-processing.
- 52% of respondents received market information directly from the market, indicating that, market information obtained by directly visiting the market is important and reliable in making decision to engage in Agro-processing activities.

Recommendations include but not limited to:

- Policy on inclusion of women in Agro-processing sector, with co-ordinated support for women engagement in agro processing activities
- Strengthening women's groups and cooperatives at the processing level to enable a significant improvement in the agro-processing sector
- Strengthening entrepreneurship and Agro-processing capacity building, combined with expert visit and consultation.

Implications for our work

- Challenges facing women farmers include constraints in making decisions about their participation in agro processing. Such constraints are attributed to the dynamic landscape of agriculture globally, which is characterized by increased demand for high value agricultural products, processed products, and pre-prepared foods. Other challenges include access to storage because of the required access to transport and financing.
- Experts' visit and consultations to agro-processing entrepreneurs play a key role in influencing women engagement in agro-processing activities

The State of Food and Agriculture: Women in Agriculture - Closing the gender gap for development - FAO

Key findings

- Closing the gap in **access to land** requires recognize the importance and power of customary land rights, educating women regarding land rights and ensuring their voices are heard.
- For the **financial services** gap, promote financial literacy and designing products that meet the needs of women is recommended:- E.g., Kenya Women Finance Trust Limited, targeted medium and low-income women, with option health insurance to cover family members
- To close the **technology** gap, developing technologies and environments that address women's needs, Improve extension services and scaling up farmer field schools are some of the key initiatives

Implications for our work

- Women face a surprisingly consistent gender gap in access to productive assets, inputs and services, many of which are socially determined. Female farmers have less access to the productive resources and services required by agricultural producers and are less likely than men to own land or livestock, adopt new technologies, use credit or other financial services, or receive education or extension advice.
- Women are much less likely to use purchased inputs such as fertilizers and improved seeds or to make use of mechanical tools and equipment
- Building women's social capital can be an effective way to improve information exchange and resource distribution, to pool risks and to ensure that women's voices are heard in decision-making at all levels. Community-based organizations, including women's groups, can be an effective means of generating social capital.
- Promoting financial literacy by simplifying application procedures and adapting them to women's literacy and numeracy levels as well as designing products that meet the needs of women such as insurance products.

Advancing Gender Equality through Agricultural and Environmental Research: Past, Present, and Future - CGIAR

Key findings

While gender-blind VCD efforts can exacerbate disempowering processes, the review also illustrates ways in which gender-responsive research efforts can enhance women's empowerment, by enhancing conceptual clarity of "empowerment"—particularly in relation to value chains among other priorities.

- E.g., In Kenya, the process of dairy intensification appears to be generating both potentially empowering and disempowering outcomes for women via their participation in formal and informal milk markets.

Implications for our work

- Women's limited access to new knowledge and skills affects their ability to use new seed technologies. Extension services also often fail to adequately reach women and provide the services they need