



# Agriculture and Processing Financing Market Analysis



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FSDK's is implementing a new strategy 2022–2026 that 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)”*

This analysis informed FSD Kenya, 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.

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## 1 Introduction

Understanding the agriculture and processing landscaping is critical in innovating both the agriculture and financing solutions. In bid to understand the agriculture and processing business and financing landscape FSD Kenya continues to distil insights from secondary and existing primary resources, key market informants and FSD experience, to inform how value adding financing can evolved to support agriculture sector actors to improve their productivity, production, resilience, and market participation. This paper lays out an understanding of the performance of agriculture, the key participants in agriculture, drivers of the agriculture market system and some helpful lessons from selected FSDs prior work. In the paper we look at market performance for processors and producers through the prism of the four strategic drivers, Gender, MSE's, Green and Digitisation. In addition, the section shows the performance of the finance market as it relates to agriculture.

## 2 Performance of agriculture and processing markets

The agricultural production and processing landscape in Kenya is dotted by many small-scale operators who form the bulk of the sector players. Smallholder farmers produce more than 70% of the national output. Women farmers handle 80% of food production<sup>1</sup>, manage 40% of Kenya's smallholder farms, and provide most of the labour, yet they receive just 10% of available credit. SMEs in Kenya create 30% of the jobs, contribute close to 10% to GDP and receives less than 20% of national credit<sup>2</sup>. The bulk of SMEs are in trade and manufacturing, with the largest segment of traders (over 30%) dealing in agricultural produce. The country has many MSMEs agricultural processors with majority being micro or small. The MSMEs offer a large market to smallholder producers and are involved at different levels of processing with some undertaking basic activities like cleaning and packaging. Most of the MSMEs do not surmount business challenges to turn into growth SMEs.

**Table 1: Problems faced in Agriculture and Processing**

	Production	Processing
Managing day to day	<ul style="list-style-type: none"> <li>• Intermittent incomes affect farmers ability to allocate finance for their day-to-day needs</li> <li>• Income smoothing mechanisms are not effective and lock out most female farmers. Coping strategies like engagement in casual labour and petty trade is complimentary but not effective pathway (compared to increasing agriculture productivity) to prosperity for such households</li> <li>• Access to quality healthcare and education remain key aspirations of smallholder farmers that they struggle to finance</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of working capital affects processor's ability to procure raw materials efficiently and pay producers in a timely manner</li> <li>• Input supply gaps, skills gaps and market access challenges affect smooth business operations leading to operating below capacity</li> </ul>
Dealing with risk	<ul style="list-style-type: none"> <li>• Elevated production and market risks (outdated technologies, climate risks, pest &amp; diseases, poor soil health, fragmented supply chains etc.) increase users' real and perceived risks                             <ul style="list-style-type: none"> <li>◦ Rainfed production is unsuitable for areas with frequent droughts</li> <li>◦ Poor and insufficient inputs reduce productivity</li> <li>◦ Poor knowledge impairs decisions</li> <li>◦ Lack of access to food storage facilities and weak capital release models for goods held in storage facilities reduce the capacity of SHWF to participate in medium and long-term storage elevating food spoilage and loss of trade value</li> </ul> </li> <li>• Lack of appropriate risk mitigation tools reduces coping capabilities of farmers</li> <li>• Health, and death of an income earner is a key risk that can devastate a household</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of access to food storage facilities lead to increase operating cost &amp; lost opportunities for processors due to seasonality and price fluctuation</li> <li>• Lack of capital release models for goods held in storage facilities reduce the capacity of processors to participate in medium and long-term storage</li> <li>• Most SMEs processors retain business risks within the business often crippling them when huge shocks occur</li> <li>• SME business continuity is greatly hampered by death or sickness of owners</li> <li>• Limited economies of scale of processors due to lack of expansion capital increases cost of doing business</li> <li>• Underdeveloped business models to address agricultural seasonality leads to</li> </ul>

<sup>1</sup> Women only benefit from 7% of agricultural extension services; the sector accounted for 63.9% of total female employment in 2018. Source: UN Women and KNBS (2020), [Gender Sector Statistics Plan](#)

<sup>2</sup> Kenya Association of Manufacturers

	Production	Processing
		under-utilisation of labour and productive capacity during the low season losing opportunities and increased business cost
Investing in the future	<ul style="list-style-type: none"> <li>The high cost of inputs increases cost of farming reducing SHWF competitiveness</li> <li>Lack of coordination and informality among smallholder producers affects the ability to aggregate and move produce and their ability to participate in formal financial markets</li> <li>Reduced capability of women farmers to access factors of production affect their ability to invest (land, know-how, entrepreneurship, technology, capital, and efficient labour)</li> <li>Limited economies of scale coupled with inefficient aggregation and logistics models for smallholder producers increases cost of doing business and reduces ability to access better markets</li> <li>Most SHWF cannot afford to own large machinery independently due to low business scale, and lack of appropriate financing models</li> </ul>	<ul style="list-style-type: none"> <li>Most SMEs cannot afford to own large machinery independently due to low business scale, and lack of appropriate financing models</li> <li>Reduced capability of SMEs processors to access factors of production affect their ability to invest (physical infrastructure, know-how &amp; entrepreneurship, technology, capital, efficient labour)</li> <li>Most SMEs processors access raw materials at higher cost due to inefficient aggregation and have lower price elasticity in their output market reducing their competitiveness</li> </ul>

### 3 State of agriculture and processing in Kenya

FinAccess 2021 study reviews that the agriculture sector is the core livelihood provider with 4.99 million farmers (of which three quarters are smallholders mostly practising subsistence farming) relying primarily on the sector for their livelihood. Including those who farm as a secondary livelihood, 13.6 million (49.8%) adults practice some farming. From those earning mainly from casual labour (8.2 million), the agricultural sector is a major employer. Labour is concentrated in agriculture sector which has low labour productivity and yet the sector is the largest employer, with 57.5% of total employment as of 2018. After rebasing of Kenya's economy, the agriculture contribution the nominal Gross Domestic Product (GDP) dropped to 21.2% from 34.1% of Kenya's GDP directly and close to half (i.e., 48.4% from 59.1% before rebasing) if indirect contribution is included. Additional agriculture contribution to GDP through linkages to manufacturing makes it the dominant sector. Despite this huge contribution by the sector and large number of participants in the rural areas that are predominantly agrarian, child poverty and general poverty is high among households in the sector. For instance, five years ago rural poverty was at 43.9%. The high poverty level in rural areas is mainly driven by over-reliance on low-productivity agriculture. The agricultural sector exhibited declining productivity between 2000 and 2019, despite it employing the largest proportion of people. For instance, the share of agricultural labour productivity in total factor productivity decelerated from 64% in 2000 to 41% in 2019, while its employment share increased from 49% in 2000 to 55% in 2019. Reducing yields in most of the value chains is due to reduce soil fertility compared to level of nutrients availed to the crops affects labour productivity.

Kenya imports over 75 percent of its cereals (wheat, rice, and maize) largely from Asian countries; these are particularly vulnerable to trade disruptions (KNBS, 2019a) during situations like COVID-19 and the ongoing Russia-Ukraine conflict. Similarly, from over KShs 107.3 billion food import bill in 2021, Kenya imports food produce (cereals, legumes, sugar, and eggs mainly, oranges, lemons, pineapples and mangoes, onions, potatoes, and tomatoes), mainly from Uganda and Tanzania. Total marketed agricultural products for 2021 was KShs 527 billion with 73.1% coming from smallholder farms (KShs 385.3 billion). Total horticultural export earnings in 2021 amounted to KShs 157.7 billion with cut flowers contributing 70.3% (KShs 110.8 billion) followed by vegetables at KShs 28.5 billion and fruits KShs 18.4 billion. The sector is having low productivity with production predominantly rainfed with majority being smallholder farmers (80% of farmers producing on less than 1 hectare of land) with little access to finance and technology. The sector purchased inputs worth KShs 77.5 billion in 2021 with key being fertilizer taking KShs 20.5 billion, followed by fuel and power KShs 16.6 billion, manufactured and certified seeds at 16.5 billion, and crop chemicals KShs 16.2 billion.

The temporary closing of markets due to COVID-19 restrictions caused significant post-harvest losses, reduced income, and led to job losses for over 3.5 million Kenyans employed in the

agriculture sector (MAFF, 2020b). KNBS reported labour force participation at 56.8 percent in April 2020, as compared to 74.7 percent in December 2019 (KNBS, 2020a; KNBS, 2020b) due to COVID-19 induced shrinkage. Agriculture sector was impacted by COVID-19 local and global restrictions that affected the logistics and purchasing power of consumers and producers. For instance, cost of transport and raw materials like farm inputs remains high. A study by 60\_Decibels indicated that between June and October 2020 71% of farmers paid a higher price for inputs, land rent increased by 27% leading to farmers decreasing the cultivated land. They noted that majority of the farmers (67%) were seeking new buyers of their produce markets while 45% were seeking transportation support. The farmers core coping mechanism to COVID-19 impact are use of savings, sale of assets or borrowing money. This mirrors the coping mechanism to other shocks like illness, drought, etc.

The number of farmers (as a main source of income) has been declining over the years, from 6.8m in 2016 to 4.99m in 2021. Number of households earning mainly from casual labour significantly increased from 3.9m to 8.2m signalling the struggles of many rural households being concentrated in low incomes sectors. 18% of adults mention farming as their main source of livelihood. However, 50% of Kenyans (over 13 million) are involved in farming either as a main source of income, supplementary income, or subsistence farming in 2021. Just like other livelihood categories, agricultural households have multiple sources of income. Living off the farm is the largest source of income used by 55.5% (30.2% or 8.2 million people nationally) of the participating agricultural households. This is followed by relying on family or friends 24.4%, running other businesses 21.9%, and drawing on savings at 9.4%.

Majority of the agricultural households (67.9% vs. 52% national) have either no formal education or only primary education and only 5.9% (14.2% national) have tertiary education. This explains why the illiteracy levels for agriculture households is higher with almost half (48.2%) of them not able to correctly read a simple SMS. This has implications for agricultural extension, especially digitally enabled services.

Besides finance for agricultural ventures, education and health are other needs of the agricultural household that require financing. Farmers main life goals include putting food on the table (34.3%) followed by educating self or family (28.5%), starting, or improving

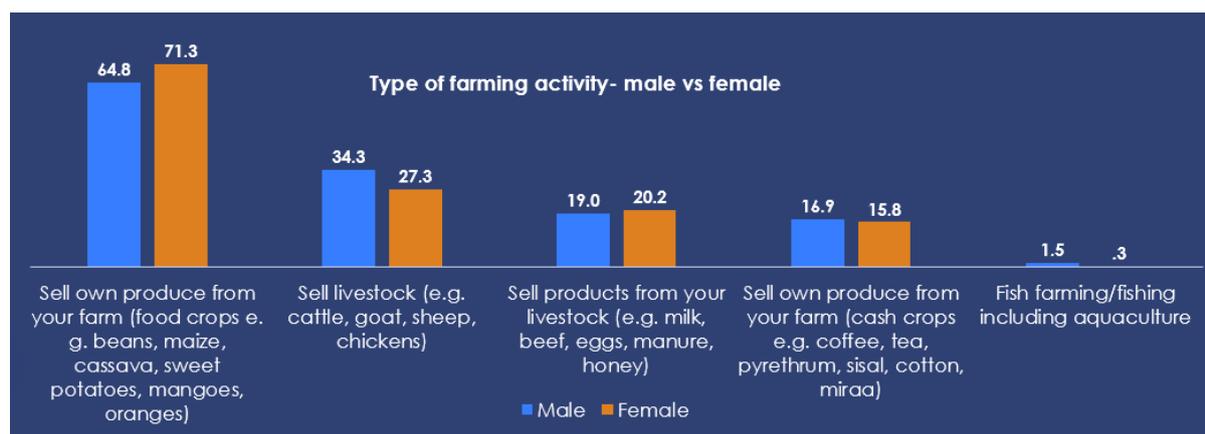
Central problem(s) that initiatives towards unlocking productivity would try to address
<ul style="list-style-type: none"> <li>Kenyan farmers are still lagging in terms of productivity across most crop and livestock value chains. Maize yields have dropped below 2MT/hectare due to soil acidity, weak seed varieties, and misuse of fertilizers.</li> <li>Less than 10% of Kenyan farmers use any form of on-farm mechanization. Between 20%-40% of produce is lost to spoilage due to weak-to-no storage infrastructure.</li> <li>This will only be exacerbated with increasing pressure from climate change and shocks.</li> <li>Addressing these core productivity gaps can make a major difference on bottom line and take-home pay for smallholders and MSEs. Women are disproportionately affected as they have less access to finance and inputs.</li> <li>Financial solutions for inputs and productive assets struggle to reach commercial scale. Innovation and value chain partnerships are required to reach millions of farmers across Kenya.</li> </ul>

business/farm 19.5% and health at 9.9%. Financing of an emergency is a major challenge for most of these households with 84.4% indicating they could not raise emergency funds. Of those that can raise emergency funds sale of an asset (mainly productive asset) like livestock is used by 26.4% followed by savings 23%, loan from family or friends 12.5%, chama 6.8%, Sacco 4.8%, and mobile banking loan 3.1%. Furthermore, more than half of the agricultural households (55.1%) would take more than one week to raise emergency funds.

Most of the farmers engage in farming food crops like maize, beans, cassava, sweet potatoes, mangoes, oranges etc. with women leading at 71.3% (64.8% men). Selling of livestock like cattle, goats, sheep, chicken is the next most common activity, followed by selling livestock products like milk, beef, eggs, manure, honey etc. then selling of own cash crops like coffee, tea, pyrethrum, cotton etc. Aquaculture remains small.

Source: FSD Kenya Market Scan study

Figure 1: Type of farming activities (male vs female)



Source: FinAccess 2021

Agriculture sector households had the lowest financial health in 2021 at 17.9% (national 19%) compared to employed at 43.9% and businesspeople 32.6%. More than half of farmers (55%) think their financial health has worsened (FinAccess 2021). The COVID-19 disruptions on input and output markets as well as the erratic rainfall affected the sector immensely. Whereas there was marginal reduction in the number of people earning less than KShs 7,500 per month from 67.6% in 2019 to 64% (55.7% nationally) in 2021, the percentage earning above KShs 15,000 reduced significantly from 11.1% to 7.1% in the same period. The vulnerability in the sector increased in the same year in tandem with the national average where number of people who went without food increasing from 36.6% to 57.8% in 2019 and 2021.

## 4 The agriculture processing sector

The quality of jobs in the manufacturing sector is better compared to primary agricultural production jobs that are more affected by seasonality and low labour productivity. Kenya has potential to further develop production and productivity in agriculture and agriculturally based manufacturing that tap into value adding agro-processing opportunities, create quality jobs and create better markets for farm products. Processing reduces the wastage that is estimated to be over 30% of the produced agricultural outputs. Efficient linkages between producers and processors could retain more value at farmgate. Market linkages should be carefully designed to ensure that processors and/or platforms are not extractive to smallholder farmers due to power imbalance. FSD will look at how to support and optimise financing solutions and arrangements that are cognisant of and/or leverage these linkages that occur along and between value chains and between MSEs themselves as well as between MSEs and medium/large players. The industrial growth projection of 4% by 2022 in the base case will be supported by the supply of raw materials from agriculture. The rapid urbanisation of around 4% and increasing income are healthy indicators of food manufacturing potential.

Central problem(s) that expanded agro-processing initiatives would try to address
<ul style="list-style-type: none"> <li>• Few farmers engaged in value addition and agro-processing; less than 5% of farmers own mechanized assets</li> <li>• Limited access to finance available to smallholders and MSEs for small-scale processing equipment</li> <li>• Upfront capex is prohibitively expensive for most smallholders and MSEs</li> <li>• Traditional FSPs require collateral (typically land) in addition to security over the asset being financed</li> <li>• And, where processing equipment is available, there is prevalence of low-quality appliances and limited assurance on repair &amp; maintenance</li> <li>• Often, aggregation and logistics is critical to ensure ROI on investment. However, in many regions and value chains, there is limited aggregation due to lack of coordination and sector development</li> </ul>

*Source: FSD Kenya Market Scan study*

From banking sector net domestic credit 2020/21, agricultural sector received the least credit at KShs 91.3 billion (3.1%) out of KShs 2.9 trillion total private sector credit representing a 3.7% growth against overall credit growth of 7.7%. However, the credit to the sector could be slightly higher due to agricultural loans booked under trade and manufacturing loans. To develop the sector, core intervention areas include building efficient agriculture supply chains for farm inputs and industrial raw materials, sustainably increasing agricultural production and productivity and efficient output markets.

Majority of county economies are heavily dependent on primary production agriculture, with only seven counties (15.0% of the counties) having significant manufacturing activities. Only seven counties (Nairobi, Kiambu, Mombasa, Machakos, Kisumu, Nakuru and Kericho) have manufacturing contributing at least 0.2% of the country's GDP. The small share

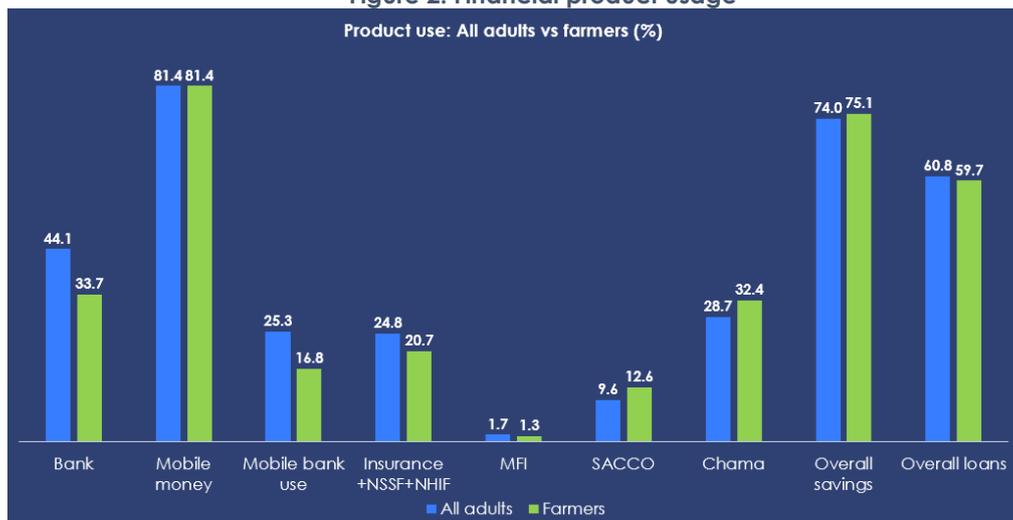
of manufacturing sector indicates limited productive employment opportunities at county level. Because of the important employment opportunities created, counties with robust manufacturing and agricultural sectors attract larger populations.

## 5 Access to finance and digitalisation

Agricultural households have a lower financial exclusion rate than the general population (9.7% vs 11.6%) due to a higher access to informal sources of finance by sector households. The formal inclusion rate for agricultural households is like the general population at 83.7% as at 2021.

Agriculture sector has similar access like the national average to financial products like mobile money, overall savings, and overall loans. Sacco usage among the farmers at 12.6% is higher than the general population at 9.6% (women 12.1% and men 13.1%). This is the same for use of groups/chama where 32.4% of farmers use against 28.7% overall (women at 43.0% and men 22.0%). However, the usage of bank and mobile bank is lower among farmers than general population. Farmers have a lower access to regulated FSPs at 33.7% compared to national at 44.1% - (women 29.1% and men 38.3%) and mobile bank (farmer 16.8%, national 25.3.1% with women in agriculture access at 13.5% vis men 20.0%). Low access to digital devices, lower literacy, and limited farmer bankable data affect access to formal sources of finance. Use of group-based financial instruments is higher for farmers because of closer social ties from permanency of residents and common activities, as well as lack of other better options.

**Figure 2: Financial product usage**



Source: FinAccess 2021

Women in agriculture overall save more than men (76.3% and 73.9%). Out of 31.4% of farming households saving informally, women are 41.7% and men 21.2%. Overall loan usage in the sector for women and men is 60.3% and 59.2%, with men using more formal loans at 26.5% vis women at 20.5% (total 23.6%), while for informal loans women have usage is 44.1% vis men at 34%. Access to mobile money is high for both women-79.3% and men-83.5%.

Access to insurance by farmers is at 20.7% with NHIF being the main type of insurance (16.9% total, women 15.7% and men 18%) with non-NHIF medical insurance accessed by only 2%. Agriculture insurance is accessed by less than 1% of farmers. The purchase of insurance by farmers is through insurance companies' branches (32%), followed by insurance agents at 29%, then employer or company 14%, brokers at 10% and friends or family at 5%.

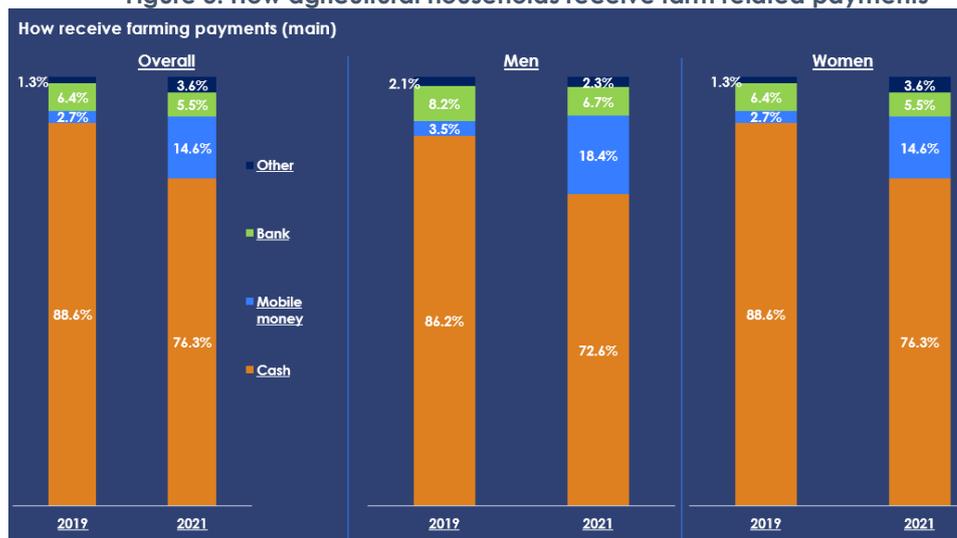
## 6 Digitisation of agriculture and processing

Access to digital devices, digital accounts and mobile money is high among farmers while smart phones, digital loans and savings is low:

- Access to phones and smart phones: Around 91% of farmers access mobile phone (borrowed or owned) and 19% to smartphone compared to 37.2% national average.
- Access to mobile money: active mobile money accounts based on 90 days active use for agricultural households is at 58.5% (national 69%).
- Access to digital loans and savings: Farmers digital access is high (digital account usage is 75.9%, national 80.7%) but savings & loan use low. Only 9% access formal digital loans and savings, and 4% to un-regulated digital loans and savings.

There was an increase in use of mobile payments by both the women and men between 2019 and 2021. Cash transactions remain high though mobile money payments (receiving and paying) grew significantly in 2021. The policy incentives around lowering of transfer cost for low ticket payments and COVID-19 restrictions helped drive the mobile payment. Cash payments deny farmers and agricultural produce buyers the opportunity to generate bankable data that can support FSPs in their credit underwriting. Farmers largely receive farm payments in cash (76.3% in 2021 from 88.6% in 2019) with 5.5% being done through bank transfer and a growing mobile money at 14.6% (more than four times growth in two years).

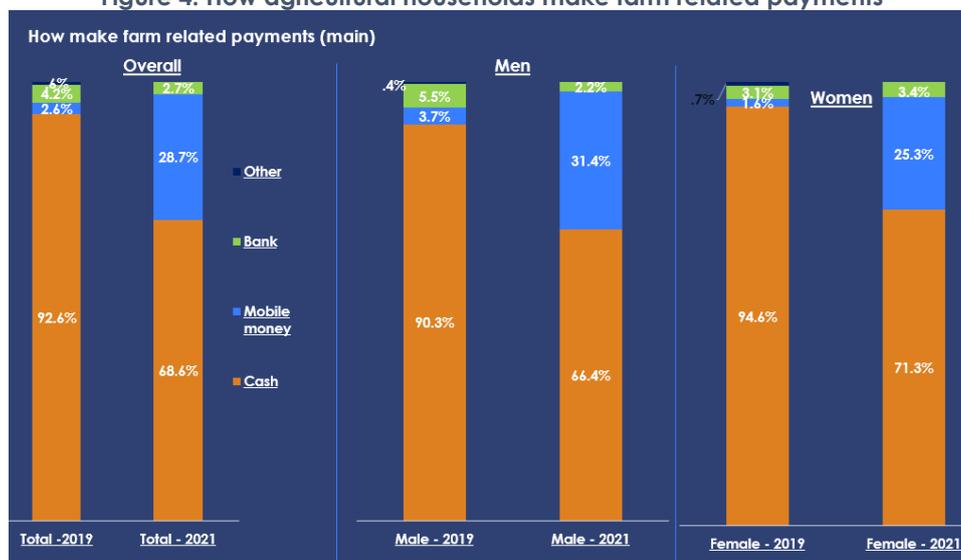
Figure 3: How agricultural households receive farm related payments



Source: FinAccess 2021

Use of mobile money to make farm related payments increased significantly in 2021 by over 1000% to 28.7% with cash payments reducing by 26% to 68.6%. The use of bank for payments reduced by more than a third from 4.2% to 2.7% due to COVID-19 mobility restrictions, banks push for digital channels as evidenced by growth of mobile money transfer. For women use of bank for payment increased marginally from 3.1% to 3.4% compared to men reduction from 5.5% to 2.2%. Women still had a higher cash payment at 71.3% compared to 66.4% for men.

Figure 4: How agricultural households make farm related payments



Source: FinAccess 2021

## 7 Agricultural financing

General access of credit by agricultural households is driven by informal sources like shopkeeper credit, family, or friends, and chamas. Mobile money loans are the leading formal source of credit ranking as the third overall source of credit by agricultural households followed by mobile bank loans and Saccos. The core usage of the loans to the sector is to manage day to day needs, for education, and emergencies. Loans from formal source like Banks, MFIs and Saccos are used for business including start of new businesses, purchase of inputs, livestock, equipment, and land albeit at a lower scale compared to non-agricultural needs. The Saccos have immense potential to increase lending to the sector. One of key limiting factors for

agricultural Saccos is lack of sufficient capital (insufficient liquidity) to lend during planting seasons when most farmers need credit.

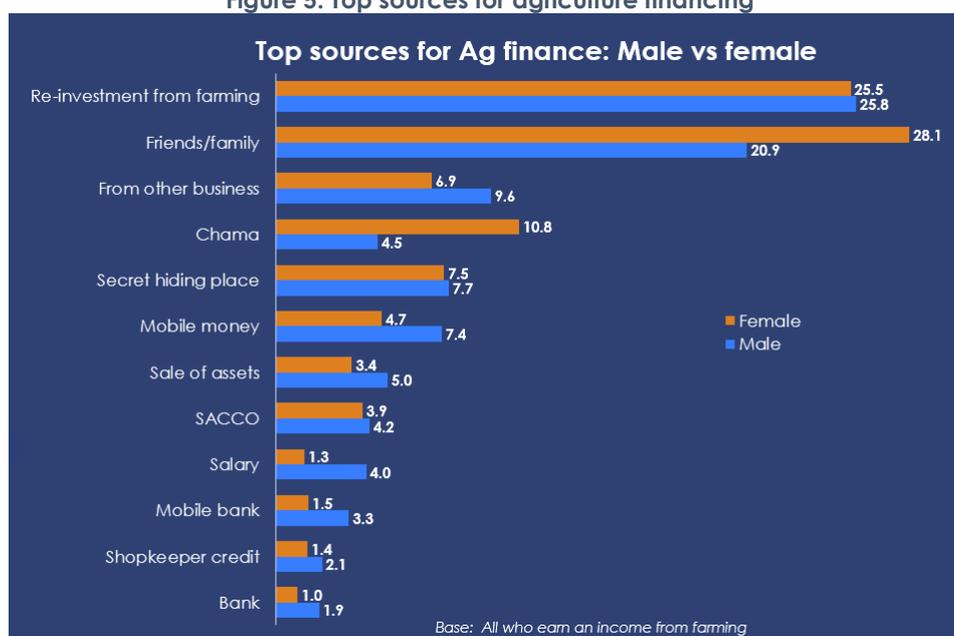
**Table 2: Source of credit for agriculture sector**

Source of all types of loans by agricultural households	Agriculture households using as main source of credit	
	Number	Percentage
Shopkeeper	1,616,798	33.4%
Family/friend/neighbour	761,350	15.7%
Mobile money loan provider e.g., Fuliza	751,142	15.5%
Group/chama	551,791	11.4%
Mobile bank (e.g., MShwari, KCB MPesa)	389,993	8.1%
Sacco	202,277	4.2%
Hire purchase (e.g., A.R.T., Amedo)	132,042	2.7%
Personal loan from a bank/ business	131,346	2.7%
Cash loan from shopkeeper	93,955	1.9%
Buyer of your harvest	73,483	1.5%
MFls	35,634	0.7%
Digital loans app (e.g., Tala)	35,171	0.7%
Government institution for education	25,658	0.5%
Moneylender/Shylock	22,327	0.5%
Overdraft	6,977	0.1%
Employer	6,427	0.1%
Credit Card	1,639	0.0%
Government or govt related ins	905	0.0%

Source: FinAccess 2021

While a sizeable number of lenders give unsecured loans, many secure loans through guarantors, group collateral and movable assets. Use of land as collateral is limited with usage being more for formal lenders though less than 10% of borrowers use land as collateral across all categories of lenders (except for government related lending institutions where 87.1% use land though it is accessed by very few people). Ability to use movable asset registry for collateral purposes provides a good opportunity to expand lending to the sector. Use of land titles for collateral could increase if the land security conveyancing would streamline to be affordable and easy to execute even for lower value of credit. The digitisation of land registries is one step towards making land title efficient for use as collateral.

**Figure 5: Top sources for agriculture financing**

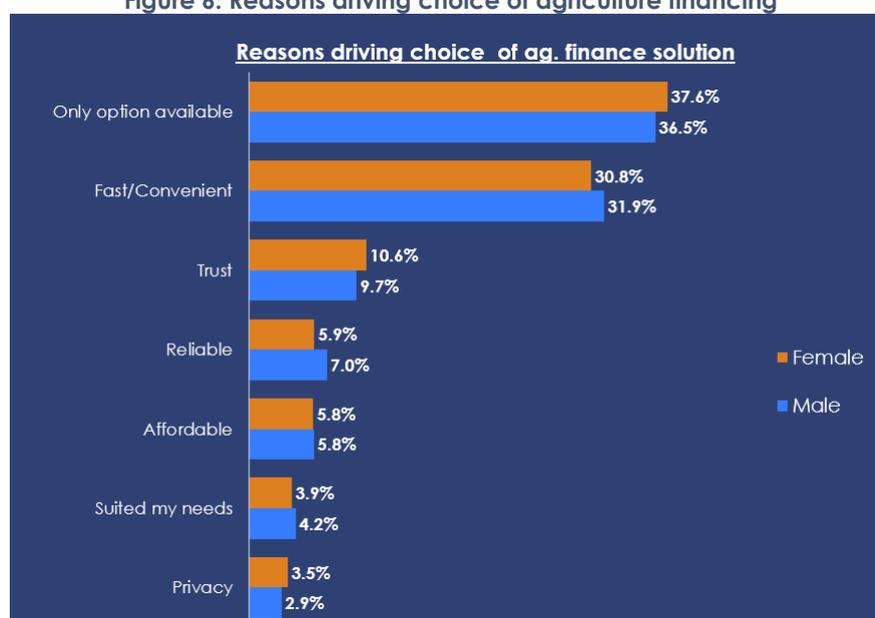


Source: FinAccess 2021

Use of formal finance for agriculture is the least used source of financing. Informal sources of finance are the main source of financing for agriculture sector. Women have a higher access to informal sources of finance with friends/family, re-investment from farming, and chamas topping the most common sources. Friends/family sources is the most accessed at 28.1% of followed by re-investment of farm proceeds at 25.5%. However, the average amount of finance accessed from informal sources of finance is low (largely below KShs 10,000) per borrower, for very short periods and at high costs. The formal sources are accessed by the least number of farmers with men accessing more than women from formal sources albeit at low scale. Banks and Saccos offer larger ticket credit with better repayment periods and lower interests compared to informal and digital sources. For instance, the mobile money sources lend on average for one month with some charging interest rate of more than 100% per annum.

Majority of the farmers access finance from informal sources that do not offer optimal solutions in terms of tenure of credit, the cost, and amounts available compared to the needs. Lack of choice make farmers access sub-optimal finance. The informal sources are also fast, reliable, and create a sense of trust between the lenders and borrowers due to the ability to negotiate. While affordability and suitability should be a core consideration while accessing investment funds, lack of options makes it hard to for farmers to make optimal choices.

**Figure 6: Reasons driving choice of agriculture financing**



Source: FinAccess 2021

Access to credit by agricultural households is largely through informal sources. Around 9% of the farmers have tried to borrow a loan and were denied (11% nationally). This number is low since majority of the farmers do not borrow since they believe they will not qualify for the loans. They were denied mainly by mobile banking loans like M-Shwari 28.1%, shopkeeper at 24.7%, banks 13.5%, and chama or groups 12.9%. The core reasons for being denied a loan are because of existing debt 24.1%, no records or credit history 15.8%, low savings 14.6%, bad credit history 14.0%, low income and unable to repay 13.8%, no reason given 12.8%, and collateral 6.6%. The farmers with loans from informal and digital sources tend to have multiple loans at any time. Of those who use a particular source of loan, multiple loans (two or more loans) are accessed from mobile money loans by 75.2%, family, and friends by 61.9%, mobile bank loans by 51.7%, chama 42.8%, shylocks 31.3%, Saccos 20.3%, banks 15.8%, and MFIs 12.8%.

Agriculture financing especially for smallholder farmers, traders and small and medium enterprises is not developed in Kenya e.g., financing short- and long-term investments in inputs, tools, irrigation, and technology. While financing for agriculture operations at production, trade and processing levels is low overall, women in agriculture face unique challenges that require interventions to increase their access to factors of production like land, equipment,

know-how and appropriate technology. Some of the inherent credit access constraints like use of conventional collateral affect women more than men. Access to land as a factor of production is also constrained by the skewed property ownership that favours men due to cultural orientation.

The banking sector is especially challenged by lack of good underwriting data and skills; high operational costs associated with serving remotely based small farmers/enterprises through brick-and-mortar financing models and for small ticket sizes. Others include trade risks posed by the sector informality and commodity price swings and risks aggravated by rain dependent agriculture and changing weather patterns as well as weak post-harvest trading, warehousing, and processing arrangements. The financiers are disincentivised to deploy capital due to lack of robust risk mitigation tools for these inherent risks. The data market eco-system for the sector is fragmented and largely un-digitised reducing underwriting capabilities. The financial innovation ecosystem in Kenya outside the banking sector is constrained by inability to access affordable innovation capital. Lack of robust financing models and infrastructure to support the supply chains make it difficult for players to integrate and redistribute value created by efficient supply chains. The poor organisation of value and supply chains makes it difficult for financiers to deploy capital.

## 8 Access to Markets

Most of the farmers, both men and women sell their produce in the local markets either at farm gate or at the nearest shopping centre or roadside. Due to higher levels of mobility and less

### Central problem(s) that initiatives towards unlocking productivity would try to address

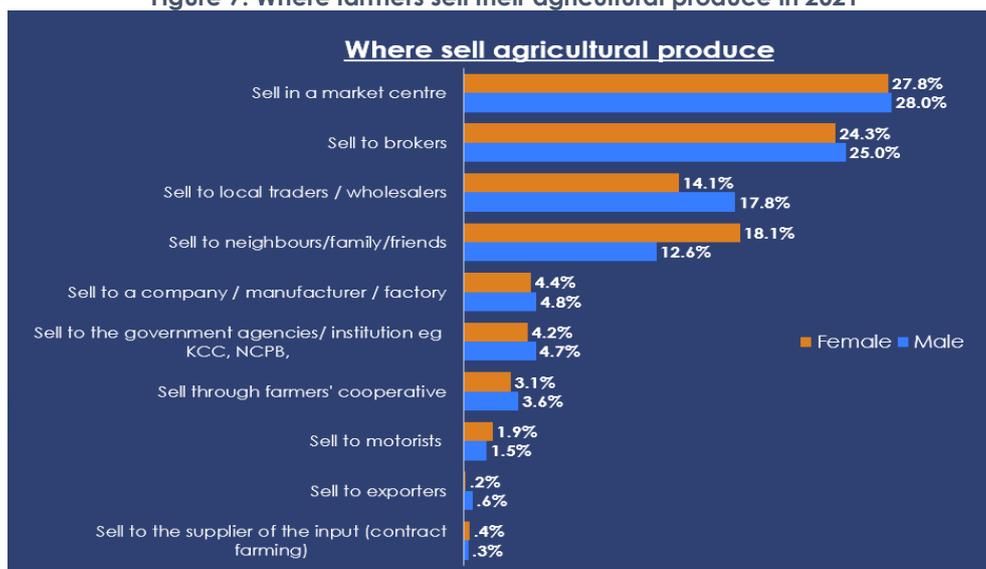
- Kenyan farmers are still lagging in terms of productivity across most crop and livestock value chains. Maize yields have dropped below 2MT/hectare due to soil acidity, weak seed varieties, and misuse of fertilizers.
- Less than 10% of Kenyan farmers use any form of on-farm mechanization. Between 20%-40% of produce is lost to spoilage due to weak-to-no storage infrastructure.
- This will only be exacerbated with increasing pressure from climate change and shocks.
- Addressing these core productivity gaps can make a major difference on bottom line and take-home pay for smallholders and MSEs. Women are disproportionately affected as they have less access to finance and inputs.
- Financial solutions for inputs and productive assets struggle to reach commercial scale. Innovation and value chain partnerships are required to reach millions of farmers across Kenya.

time poverty, male farmers have a better access to formal markets than women though generally these markets are accessed by a very small number of farmers.

Selling of produce primarily in the informal market denies farmers the opportunity to generate important data that would inform development of tailor-made financial solutions. The disjointed informal markets are inefficient and end-up reducing the value that farmers receive from selling their produce. The informal markets have long supply chains with multiple nodes with minimal capacity for players to enact and enforce rules. Most of the financiers structure their agricultural financial solutions around formal markets like cooperatives due to existence of underwriting data and ability to collect loan instalments through check-off system. More women sell own produce from farms compared to men (71.3% vs. 64.8%). Reduced women mobility and knowledge on markets deny the women farmers the opportunity to participate in better markets

Source: FSD Kenya Market Scan study

Figure 7: Where farmers sell their agricultural produce in 2021



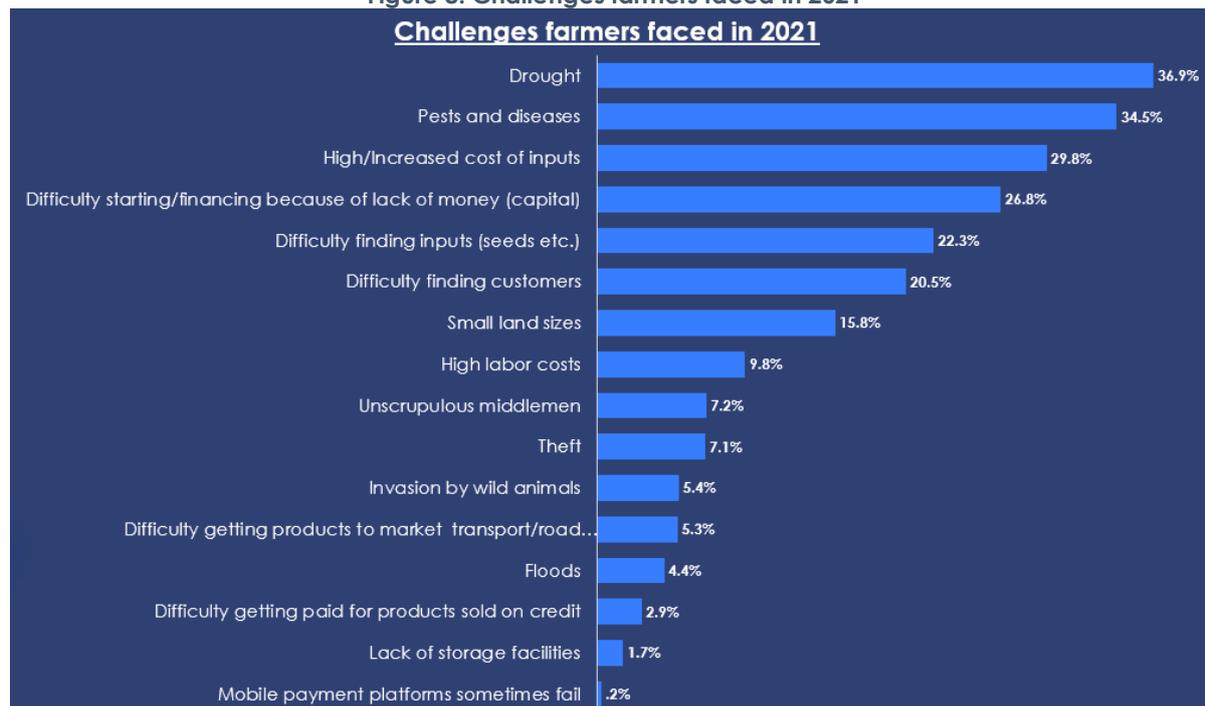
Source: FinAccess 2021

## 9 Challenges faced by smallholder women farmers and processors

Production challenges are the leading issues reported by smallholder farmers. These include climate risks - drought, pest and diseases, high cost of inputs, capital inadequacy, and fragmented land sizes. Some of the challenges like climate risks, capital and land fragmentation affects women more than men. Difficulties in finding market for their produce is the other core challenge that farmers face. The market does not have well developed solutions to mitigate and adaption tools for risks like adverse weather. For instance, agriculture insurance penetration is below 1% and access to irrigation water is below 7% of farmed land. Only about 17% of the country's land is high and medium potential agricultural land where most intensive crop and dairy production take place. The rest is arid and semi-arid, not suitable for rain fed agriculture needing irrigation.<sup>3</sup>

<sup>3</sup> [https://www.fao.org/fileadmin/user\\_upload/fsn/docs/Ag\\_policy\\_Kenya.pdf](https://www.fao.org/fileadmin/user_upload/fsn/docs/Ag_policy_Kenya.pdf)

**Figure 8: Challenges farmers faced in 2021**



Source: FinAccess 2021

Whereas 26.8% of farmers who recognise lack of capital as a challenge, lack of finance leads to most of the challenges listed below. For instance, lack of capital inhibits access to chemicals to control pests and diseases, finding seeds, accessing land, access water for irrigation among others. Besides lack of finance other challenges like business models for procuring inputs lead to challenges like high cost of inputs. Inputs procurement for majority of smallholder farmers is usually done through last mile agro-dealers who are part of a long supply chain which increases cost of goods. Coupled with this is lack of pre-season purchasing capability where farmers or farmer organisations could reduce their purchase costs if they procure inputs in advance. Usually, global inputs and local input prices surge during planting season. Procuring inputs a few months before planting season could reduce costs by almost a quarter. This requires proper financing solutions and business models like functional cooperative societies or robust input supplier.

## 10 Gender and Women Economic Empowerment

Rethinking the role of women in agriculture is key given women handle 80% of [food production](#), manage 40% of Kenya's smallholder farms, and provide the most of the labour. Despite this, women receive just 10% of available credit. Besides education and public administration sectors, agriculture is the third largest sector in employing women with significant job equality i.e., 11.9% women and 11.4% men. Youth and women are particularly disadvantaged when it comes to accessing factors of production such as land, capital, and technology. Financial and non-financial innovations should be developed to enable youth and women access factors of production to improve their livelihoods.

**Figure 9: Landscape study findings - Gender-lens**

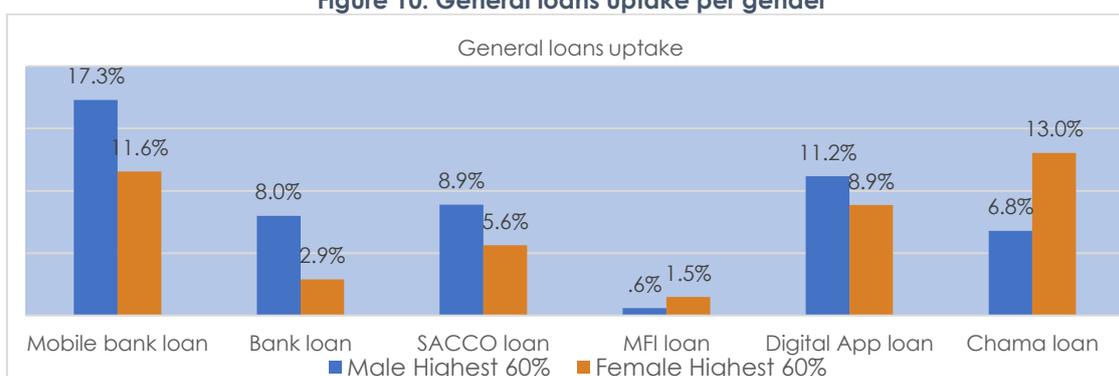
How to reach women in agriculture	What do women producers and processors need?
Focus on value chains with high women representation – go where the women are	Formalization and digitization of farmer groups / chamas
Work with agribusiness intermediaries who work with women farmers in their supply chains	Alternatives to collateral-based lending
Identify implementation partners with gender focus (NGOs, donors, associations, etc.)	Linkages to aggregators and off-takers
Products don't need to be women-centric; but use women as testing channel for products ("if they work for women, they will work for everyone")	Better access to extension services and information
Ensure women are included in sales agents / field force; and adopt marketing approaches that appeal to women	Processing equipment and productive use assets

Source: FSD Kenya, market scan study

Kenya has several women focused initiatives for agriculture financing with varying success. Some of the most notable sector relevant programmes include the Women Enterprise Fund (WEF) by the national government disbursing over KShs 6 billion to 1 million women, Women Financing by Agricultural Finance Corporation (AFC) disbursing over KShs 2 billion to over 200,000 women, and the Kenya Women Finance Trust (KWFT) Microfinance Bank focused lending to women. Some banks like Equity Bank, Standard Chartered, Bank of Africa, KCB, Family Bank and ABSA have created women focused products with mixed successes. There are other initiatives that support women's empowerment through capacity development and linkages to finances. Examples are the 10,000 Women Program by United State International University (USIU) Africa and Goldman Sachs, World Women Banking several collaborations like Nawiri Dada, GIZ Access to Finance for Women Program, among others.

The gender gap in financial inclusion is closing but there remain significant gaps that need to be addressed. Women have a low access to credit especially formal credit. The informal sources offer low ticket size loans with short tenures and high cost making them not very suitable for enterprises to utilise this type of capital efficiently.

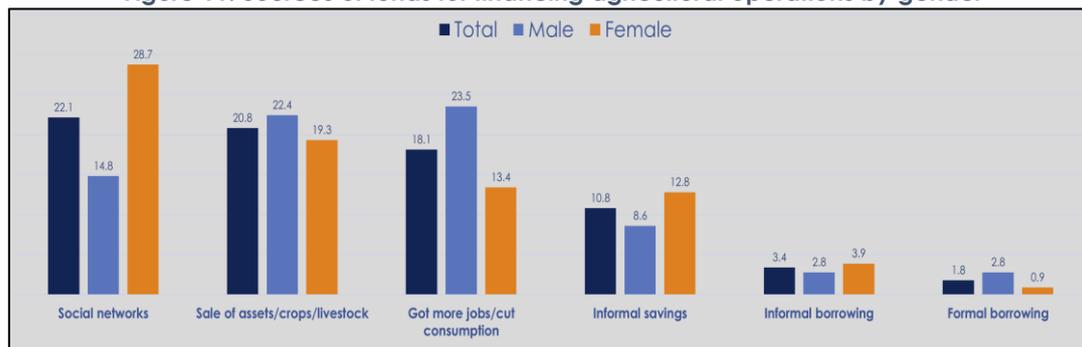
Figure 10: General loans uptake per gender



Source: FinAccess 2021

Capital raised from non-formal financial sources is the most used to financing agricultural activities, with women heavily relying on social networks. Much of the financing raised goes into financing day to day needs, education, and health with very little being channelled to agriculture financing (5.6% for men and 4.8% for women).

Figure 11: Sources of funds for financing agricultural operations by gender



Source: FinAccess 2021

Financing sources like social networks, and sale of crops present interesting financing landscape employed by majority of women to financier their agricultural operations. Other models like Warehousing Receipt System if well implemented to improve value retention for farmers who are selling their crops to raise capital.

## 11 Agriculture and Processing policies and regulations

Kenyan agricultural policy concerns summarised by an [FAO report](#) revolve around increasing productivity and income growth, enhancing food security and equity, emphasis on irrigation to introduce stability in agricultural output, commercialisation and intensification of production especially among small scale farmers; appropriate and participatory policy formulation and environmental sustainability. The concerns and possible interventions include:

- Increasing agricultural productivity and incomes, especially for small-holder farmers: Some of relevant policy implications include support on inputs financing e.g., through input-subsidy & credit guarantees, incomes stabilisation through warehouse receipt system, commodity exchange policy to streamline export of commodities etc
- Emphasis on irrigation to reduce over-reliance on rain-fed agriculture in the face of limited high potential agricultural land: The government and other development partners have tried smallholder irrigation albeit on limited basis e.g., irrigation schemes in Mwea, Ahero, Bura, and Pekera.
- Encouraging diversification into non-traditional agricultural commodities and value addition to reduce vulnerability: This is well articulated in the ASDSP where orphaned crops are considered for development.
- Enhancing the food security and a reduction in the number of those suffering from hunger and hence the achievement of SDGs.
- Encouraging private-sector-led development of the sector: Some of the policy interventions include recent digital input-subsidy implemented through private sector players as main importers and distributors of fertilizer, agriculture insurance scheme premium subsidy etc
- Ensuring environmental sustainability.

There are several existing policies related to these interventions. However, implementing of policies remains a challenge. The link between Ag finance and policy is weak especially where policy beneficiaries are to raise capital to participate. For instance, smallholder farmers need to raise capital to participate in policy interventions like access to water for irrigation (and other inputs), financing aggregation and transport for smallholder farmers for them to participate in warehouse receipt systems, among others. Other policies like input subsidies and insurance premium subsidies lack robust and transparent implementation frameworks & infrastructure to guarantee timely access by beneficiaries and private sector participants. Public financing for policy implementation is not harmonised due to lack of overarching policies. For instance, its common to find multiple policies subsidising price (of inputs and outputs) and insurance premiums targeting a single crop such as maize.

It is critical to understand how development partners' work and specifically how FSD Kenya work might compliment public and private sector players' initiatives. The Ministry of Agriculture,

Livestock, Fisheries and Cooperatives (MALFC) has a 10 year Agricultural Sector Transformation and Growth Strategy ([ASTGS](#)) and Agricultural Sector Development Support Programme ([ASDSP](#)), which seek to improve productivity, strengthen entrepreneur skills, improve market access and build structures and capacities for sector consultation. Kenya's [Big4](#) agenda includes food security which highlights key priorities though not fully implemented. In recent years, the sector has grappled with major events like adverse weather, locust invasion and the COVID-19 disruption of agriculture supply chains. The [Kenya Climate Smart Agriculture Strategy 2017-2026](#) aims at enhancing the sector's resilience and adaptation to climatic shocks, while contributing to greenhouse gas (GHG) mitigation.

The [Credit Guarantee Scheme](#) regulations managed by the National Treasury has potential of developing financing for MSMEs including those in agricultural production, trade, and processors. It aims at facilitating the financing of MSMEs by partially guaranteeing credit advanced to the enterprises. The [Warehousing Receipt System Act](#) that provide a legal framework for the development and regulation of a warehouse receipt system for agricultural commodities, and the establishment of the [Warehouse Receipt System Council](#) can enhance access to storage, aggregation services, and financing. The [Movable Property Security Rights Act](#) facilitate the use of movable property as collateral for credit facilities, to establish the office of the Registrar of security rights and to provide for the registration of security rights in movable property and for related purposes.

One of the notable national initiatives aimed at women empowerment is the Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MALFC) ASDSP programme also aims at improving women and youth uptake of innovations through:

- Identification of key challenges that hinder women and youth productivity in the priority value chains (PVCs) and their corresponding opportunities with high prospects for women and youth empowerment which is captured in the county specific Gender and Social Inclusion Action Plans (GSAIP)
- Provision of innovation grants that will support adoption of innovations and technologies by women, youth, and men to enhance their boost productivity

To enhance climate smart and green growth in the sector, the ASDSP proposes the following mitigations measures. i) Solar power interventions e.g., solar powered water pumps for irrigation, solar powered cooling systems in dairy ii) Silage making for dairy farmers as a way of fodder conservation iii) Water conservation technologies e.g., drip irrigation and iv) Conservation and protection of breeding sites in fisheries. The programme also proposes the following adaptation measures. i) Pasture conservation ii) Bio-gas generation iii) Drought tolerant crop varieties and livestock species and iv) Utilization of climate forecasts for local decision making.

The other national programme aimed at improving the sector performance is the Big4 Agenda where food security & nutrition, and manufacturing are flagged as core components that require Private-Public partnership to develop. Some of the sector reforms initiatives rolled out by the government include Warehouse receipt system through creation of the Warehouse Receipt System Council setting out a legal framework for the development and governing of a Warehouse Receipt System in Kenya. The tea sector reforms that focuses on streamlining leadership at factories level as well as trade opportunities. The Kenya Meat Commission was handed over to the Kenya Defence Forces to streamline its management. The government is streamlining the Kenya National Cereals and Produce Board with an aim of creating demand driven services. The digitisation of land registries has been ongoing in the country with an aim of reducing fraud and increasing land transactions efficiency. A related exercise has commenced aimed at digitising the agriculture value chains with an SIDA/FSD supported pilot ongoing. Private sector supported government initiatives by issuing 250,000 kitchen garden starter kits for an initiative aimed at setting up one million kitchen gardens to enhance food nutrition in Kenya.

Other public innovations include the rollout of warehouse receipt financing, the testing of digital input subsidy, and agriculture digitisation pilot. For instance, the government set to spend KSH 3 billion (USD 27.9 million) to supply farm inputs through e-vouchers targeting 200,000

small scale farmers. The package aims to cushion farmers from the effects of adverse weather and to secure food supply chains in the post COVID-19 period and beyond (in addition to opening the supply chain). KSH 1.5 billion (USD 14 million) set aside to assist flower and horticultural producers to access international markets. The government also runs an insurance premiums subsidy programme that pays 50% of the premiums cost for selected value chains and approved partners. The programme requires a policy direction to be able to scale and streamline participation by private sector.

## 12 Private sector Innovations in Agriculture and Processing

The private sector has several innovations related to agriculture and processing that have achieved mixed success. Some of the most notable innovations are:

- Digitalised food distribution models like the Twiga Foods, and Taimba where food is sourced and digitally distributed to urban merchants and institutions.
- Digital inputs distribution models where inputs are procured and distributed to farmers through digital models like DigiFarm, I-procure, Performeter Agri-business, Yara Fertilizer, One Acre Fund, and Apollo Agriculture.
- Pay-As-You-Go models where farmers access goods and pay small regular amounts with the assets acting as collateral. The asset can remotely be switched on and off depending on credit payment status. Examples include SunCulture Solar pumps.
- E-extension services are taking root in the country. Some of the notable models are Arifu, We-Farm, Apollo Agriculture Voice over Internet Protocol (VOIP), Yara App, several off-taker based initiatives among others. Some e-extension models have been integrated into lending solutions. The services are offered through SMS, mobile applications, Interactive Voice Response systems, social media platform, chat applications, blogs, radio programs and tv programs.
- Several risk mitigation models have been tested in the market. Some of the notable ideas that are gaining traction include Pula Advisors input bundling model.
- Weather forecast services have been tried for some time now with low traction due to the low accuracy of seasonal forecast. Some of the providers include the Kenya Agricultural and Livestock Research Organisation (KALRO) [with their Kenya Agricultural Observatory Platform \(KAOP\)](#), We-Farm, Climate Edge, Kenya Meteorological Society, Cropmon etc.
- Digitalised soil testing where soil tests can be conducted from the field and reports are automatically generated with specific advisory on input usage e.g., Soilcare Africa mobile Lab, CropNut dry soil testing.
- Leasing in agriculture sector exists especially for land and motor vehicle (pick-ups, trucks, and tractors). Several innovators are working on using digital platforms to streamline leasing for smallholder in land, and equipment. Examples include Hello Tractor for tractor leasing and Tinga by Vaell.
- The concept of shared manufacturing (contract manufacturing is old but has worked largely for large companies. Established companies include Orbit Chemicals, and Tetra Pack. Some of the medium companies offload excess capacities by processing for smaller companies. For instance, medium dairy processors with extra capacity for Ultra Heat-Treated (UHT) milk processing lease out equipment to start-ups or companies diversifying.
- The long-distance bulk transportation is witnessing some digitalised innovations like the uberised long-distance transport by companies like Sendy that coordinate trucks. The non-uberised pooled transport by G4S, EMS by Posta, Blessings, WellsFargo among others offers a reduced cost model for businesses that need to transport low volumes
- Shared storage models have been successfully tested for horticulture export under the Horticultural Crop Development Authority (HCDA), the National Cereals and Produce Board (NCPB) storage facilities have not been fully utilized due to stored asset management challenges.

### 13 SMEs

SMEs account for 24% of GDP, over 90% of private sector enterprises and 93% of total labour force in the economy (State Department for Industrialization). Kenya Micro and Small Enterprise Policy, Sessional Paper No. 05 of 2020).

**Figure 12: landscape study findings - mechanisation and processing**

<b>Need to support early-stage business models for mechanization and processing</b> , as it is a nascent segment – the focus will more likely be on innovation as opposed to scaling
<b>Upfront capex is the single biggest constraint to uptake of mechanization</b> – asset finance and leasing can move the needle, also digital / IoT remote monitoring can make a big difference
<b>Certain types of mechanization and processing (cold storage, tractors) requires scale to deliver ROI and justify capex i.e., not suitable for small farm deployment</b> – larger farms, <u>outgrower</u> schemes, and group-based models will be important here
<b>Shared use / group-based approaches will need to be accompanied with organization and technical / business training</b> , so important to plug into existing programs / find implementation partners
<b>High value “premium” segments will be more likely to justify investment in mechanization</b> – fresh fruit and vegetables for export, products for domestic market (dairy products, dried fruits, fish, poultry)
<b>Forward purchase contracts and linkages to <u>offtakers</u>/buyers are necessary to de-risk the initial investment</b> in processing equipment – these buyer relationships need to be facilitated
<b>Plugging into <u>GoK</u> initiatives, County priorities, and existing private sector clusters</b> can be important ways to find the scale required for positive ROI

Source: FSD Kenya, market scan study

The sector is particularly important for providing job and income opportunities for economically excluded segments of the population including youth, women, persons with disabilities and low-skilled persons, who experience disproportionately high unemployment.

The Micro and Small Enterprises Act of 2012 defines a micro enterprise as a business activity whose annual turnover is below KShs 1 million and employs less than 10 people. A small enterprise is a business activity whose annual turnover ranges between KShs 1 million and KShs 5 million and employs between 10-50 people. It further divides Kenyan SMEs into four areas including agriculture, trade, manufacturing, and provision of services.

Agri-SMEs can be defined as medium- and large-scale farms, agri-services companies, and the range of SMEs within value chains that facilitate input, offtake, and value addition activities. Agri-SMEs play a vital role in securing employment, livelihoods, and food/nutrition for their communities. They also generate a thriving local market for goods, services, and financing (ISF Advisors, CASA, 2022).

**Table 3: Types of agriculture SMEs**

<b>Inputs and Technology providers</b>	<b>Medium &amp; Larger Producers</b>	<b>Logistics, Trade and Distribution</b>
Design, assemble, or manufacture key inputs or equipment for use in agriculture <b>Key Needs and Challenges:</b> <ul style="list-style-type: none"> <li>• Research and development infrastructure</li> <li>• Financing at idea-stage through grants or equity difficult to access</li> <li>• Generally, have capital intensive models that require setting up of manufacturing facilities</li> </ul>	Sow, farm, and harvest crops, raise poultry and livestock, or fish <b>Key Needs and Challenges:</b> <ul style="list-style-type: none"> <li>• Financing for purchase of inputs and essential equipment (tractors, feeders,</li> <li>• fishing boats)</li> <li>• Most affected by weather and climate risks, and pests and crop diseases</li> <li>• Have difficulty accessing reliable and high-value markets</li> </ul>	Provide logistics, distribution, and trade services for agricultural produce <b>Key Needs and Challenges:</b> <ul style="list-style-type: none"> <li>• Generally, have capital intensive models that require setting up of warehouses, cold storages, and purchase of transport vehicles</li> <li>• Must rely heavily on public infrastructure such as roads, highways, and power supply</li> </ul>

Processors	Wholesalers	Retailers
<p>Process or package agricultural products to sale to consumers or traders</p> <p><b>Key Needs and Challenges:</b></p> <ul style="list-style-type: none"> <li>Working capital financing for purchase of raw materials</li> <li>Generally, have capital intensive models that require setting up of manufacturing facilities</li> <li>Often unable to access high-value international markets</li> </ul>	<p>Procure raw or processed products from farmers and processors for export or sale to retailers or processors</p> <p><b>Key Needs and Challenges:</b></p> <ul style="list-style-type: none"> <li>Working capital financing for purchase of produce during harvest</li> <li>Capital intensive models that may require setting up of warehouse and logistics</li> <li>May not to able to access high-value export markets</li> </ul>	<p>Sell agricultural products to consumers through retail markets</p> <p><b>Key Needs and Challenges:</b></p> <ul style="list-style-type: none"> <li>Working capital financing for purchase of different products, and operations of retail outlets</li> <li>Capital intensive models that may require setting up of retail outlets</li> </ul>

Source: *Small and Medium Enterprises in Agriculture Value Chains: Opportunities and Recommendations (OXFAM, 2014)*

Agri-SMEs can be further categorised according to their growth ambitions and potential as follows:

- High-growth ventures:** highly innovative business models serving large, addressable markets with high margins and experiencing a rapid growth trajectory. The pace of growth is impacted by industry, market, and asset intensity. High-growth ventures are expected to scale beyond SMEs status.
- Niche ventures:** business models that are creating innovative products and services that target niche markets or customer segments (e.g., high-end premium markets or small customer bases at the bottom of the pyramid).
- Diversifying enterprises:** small, family-run enterprises that have seen minimal growth, but are run by an entrepreneur with a desire to grow. These enterprises are unlikely to see desired growth through existing workstreams; thus, they will look to diversify business lines to expand growth potential.
- Dynamic ventures:** enterprises in stable “bread and butter” industries that are deploying established business models for producing goods and services. These ventures experience moderate growth over sustained periods.
- Livelihood-sustaining enterprises:** small, family-run enterprises that are opportunity-driven and on the path to formalisation. These enterprises operate to maintain an income for an individual family. They experience slow and steady growth as they incrementally improve their product or service via traditional models.
- Static enterprises:** small, family enterprises with no ambition to grow beyond their status. These enterprises are looking to maintain the family’s current income level, not grow or innovate the business. Typically, these enterprises are informal and primarily employ family members.

Key financing needs required by Agri SMEs as highlighted in the figure below can be summarised as:

- Sustaining their current growth** which requires finance to support day-to-day operations and cash flow cycles in the form of:
  - Working capital finance that is typically debt finance and short-term (<12 months) in nature; or
  - Sales and trading finance that is typically trade finance and short-term (<12 months) in nature.
- Accelerating their growth to market potential** which requires medium to long-term investment capital to finance either:
  - Productivity and cost efficiency investments typically financed over the short- to mid-term (1 to 5 years) with debt, equity, or retained earnings; or
  - Expansion investments that also typically span the mid- to long-term (5 to 10 years) in the form of equity.
- Adapting to their changing environment** which requires medium- to long-term investment capital to finance:
  - New product/service development, typically financed over the long-term (>3 years) though debt, equity, or retained earnings; or

- Building resilience within their business, typically financed over the mid- to long-term (5 to 10 years) through debt, equity, or retained earnings.

Figure 13: Key financing needs of Agri-SMEs

	↘ ↙ ↗ ↖ SUSTAIN CURRENT GROWTH		📈 ACCELERATE GROWTH TO MARKET POTENTIAL	🔄 ADAPT TO CHANGING ENVIRONMENT		
	1	2	3	4	5	
PATHWAY	GOODS & SERVICES	SALES & TRADING	PRODUCTIVITY & COST EFFICIENCY	EXPANSION	NEW PRODUCT/SERVICE/MODEL	6 BUILDING RESILIENCE
High growth venture	<b>WORKING CAPITAL</b> EXAMPLES: WC LOAN, OVERDRAFT, REVOLVING CREDIT, FACILITY, FACTORING	<b>TRADE FINANCE</b> EXAMPLES: EXPORT CREDIT, LETTER OF CREDIT, FACTORING	<b>SHORT TO MID-TERM ASSET FINANCE</b> EXAMPLES: SHORT TO MEDIUM TERM LOAN, EQUIPMENT LEASING, HIRE PURCHASE, FINANCE LEASE, ASSET REFINANCE	<b>MID TO LONG TERM ASSET FINANCE</b> EXAMPLES: LONG TO MEDIUM TERM LOAN, MORTGAGE, ASSET REFINANCE	<b>VENTURE CAPITAL</b> EXAMPLES: EQUITY, CONVERTIBLE, MEZZANINE  <b>GROWTH CAPITAL</b> EXAMPLES: EQUITY, CONVERTIBLE, MEZZANINE	<b>EMERGING RANGES FROM GRANT, CONCESSIONAL DEBT AND EQUITY FUNDING</b>
Niche venture						
Diversifying enterprise						
Dynamic venture						
Livelihood-sustaining enterprise						
Static enterprise						

Source: The state of the agri-SME sector - Bridging the finance gap (IFA Advisors, CASA, 2022)

### Challenges in Agri-MSMEs finance

There are a variety of obstacles encountered by SMEs during their operations. Fragile internal control systems, poor management culture, weak business models, corruption, security risks, regulation, lack of skilled workers, and lack of reliable infrastructure are a few of the barriers encountered by SMEs. According to the 2022 Africa Agribusiness Outlook report by AGRA, access to financial services remains one of the top barriers to growth and competitiveness of SMEs. From their analysis of survey responses, the key access to finance issues that Agri-SMEs face include:

**Knowledge gaps:** Agri-SMEs have challenges accessing formal financing partly because they do not know where to get it from and partly due to the difficulty of accessing finance even when they know where to source it e.g., not knowing how to approach financiers.

**Risk vs. reward for financiers:** The agri-finance sector has always struggled to accurately predict the risk of lending and price it appropriately. This often results in high costs of debt financing which was identified as a barrier to accessing capital by enterprises. Some respondents indicated that they shy away from applying for facilities even in instances where they qualify for them.

Other finance providers such as private equity investors shy away from investing in the sector due to the perceived risk and smaller ticket sizes. Flexibility is needed from all financiers to adequately support the sector. Funders and financiers need to rethink how they support the agricultural sector in ways that increase lending even with the additional challenges of COVID-19, and climate change.

**Limited financing instruments:** Several Agri-enterprises only use family and friends funding along with retained earnings to grow their businesses and are unable to access other sources of funding despite attempts to obtain them. According to an analysis by Aceli Africa of 31 Agri lenders, 75% of lending to Agri-SMEs in East Africa comes from commercial banks. Some banks focus on small, short-term loans of between US\$10k – US\$100k, while others have moved to corporate lending advancing between US\$50k to US\$500k. However, bank lending to the sector is far from optimum, and only reaching a fraction of the market as the banks analysed only had 8% of Agri-SMEs lending in their portfolio.

Generally, Agri-SMEs face significant constraints in accessing finance, even when they clearly qualify. Collateral requirements could be as high as 200% and most commercial banks demand tangible assets as security for agricultural loans. In addition, the processes are sometimes strenuous, demanding time and skill from the SMEs before they can access funding.

Lenders find serving Agri-SMEs even more difficult than SMEs in other sectors, due to agriculture-specific factors, including:

- Unpredictable external risk factors such as weather shocks and crop disease
- High cost to serve in low population density areas with poor infrastructure
- Irregular cash flow cycles due to crop seasonality or market conditions
- Weak enabling environment with inadequate institutional coverage of property rights
- Low understanding of agricultural enterprises and risks

For banks, portfolio risk is almost twice as high for Agri-SME lending compared to typical bank lending - even as many banks only serve the most formal SMEs, impose high collateral requirements, and stay away from value chains that are perceived as risky. If banks were to loosen these criteria and serve more of the market, their loss rates would likely be even higher

**Figure 14: Challenges faced by lenders in scaling Agri-SMEs finance**

	Local banks	Local NBFIs	Global social lenders
<b>A</b> Market challenges	✓ Inherent agriculture sector risks (e.g., price volatility and climate change)		
	✓ Unpredictable and/or unsupportive government interventions <sup>1</sup> (e.g., commodity export bans, interest rate caps)		
	✓ Low bankability of agri-SMEs (due to, e.g., informal management processes and systems)		
<b>B</b> Strategic limitations	✓ Low executive buy-in for agri-lending	✓ Limited physical presence in rural areas	✓ Limited local presence in countries of operation
	✓ Tight risk limits <sup>2</sup> on agriculture exposure		
<b>C</b> Capability gaps	✓ Low agri-specific credit assessment capabilities (especially for lenders without agri-units)		✓ Limited lending in new value chains
	✓ Lack of agri-tailored product terms (especially for lenders without agri-units)		✓ Limited range of product offerings

Source: *Bridging the Financing Gap: unlocking the Impact Potential of Agriculture SMEs in Africa* (Dalberg Advisors & ACELI Africa, 2020)

Lenders tend to adapt their business models to focus on a set of value chains they know better (often more organised value chains with closer links to export markets) or impose strict requirements on borrowers in terms of collateral or documentation standards

This has the result of shutting out certain segments of the Agri-SMEs market, especially smaller, newer businesses in less-formal value chains – often food crops for domestic or regional markets that play an important role in food security and farmer livelihoods.

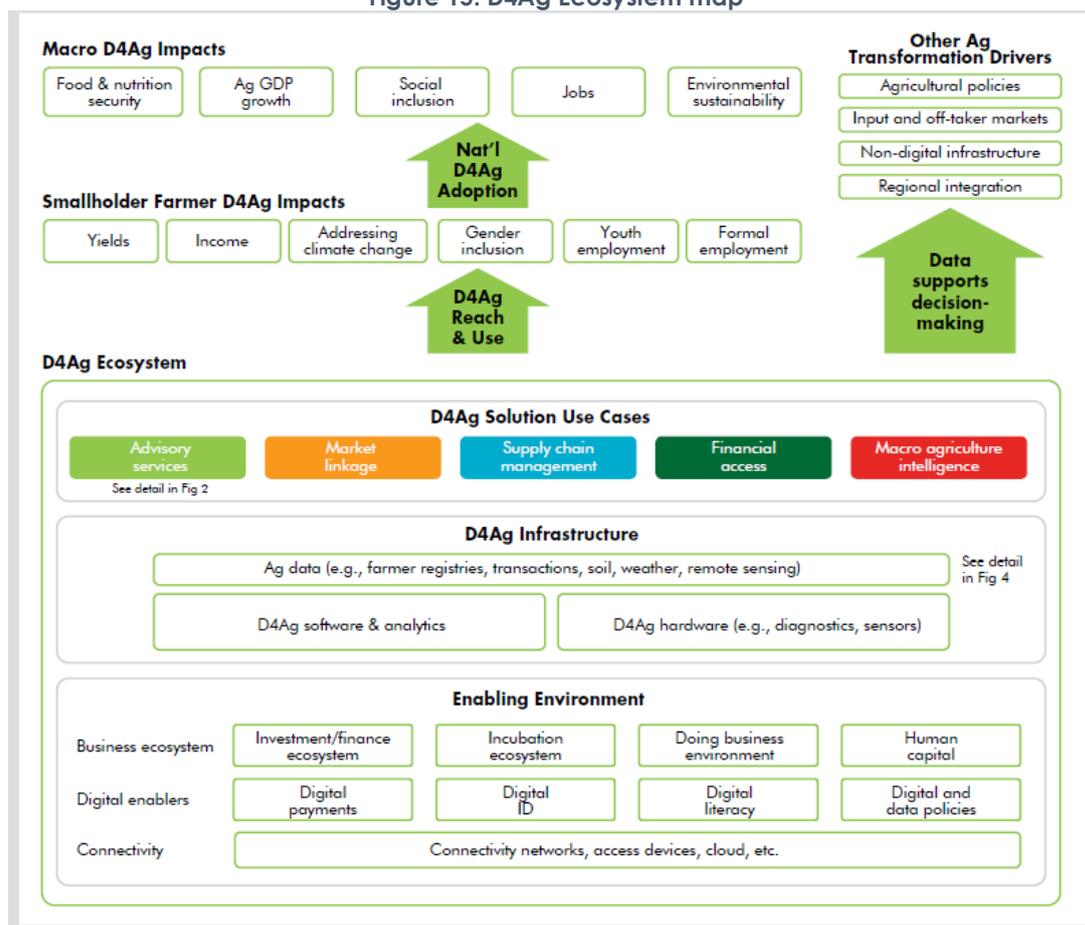
## 14 Inclusive Digital Economy

Inclusive, digitally-enabled agricultural transformation could help achieve meaningful livelihood improvements for Kenya's smallholder farmers and pastoralists. It could drive greater engagement in agriculture from women and young people and support employment opportunities along the agricultural value chain – and it could help build resilience to climate change. The expansion of digital for agriculture (D4Ag) solutions has the potential to dramatically improve agricultural income and livelihoods.

Kenya is at the forefront of digital innovation and technological adoption in sub-Saharan Africa (SSA) and is already home to more than 100 distinct digital agriculture solutions (~25% of all solutions identified in SSA). Despite the abundance of digital solutions in Kenya, many of them struggle to scale, and do not sufficiently add value to the end users – including farmers (i.e., for most applications, fewer than 30% of registered users are active)<sup>4</sup>.

<sup>4</sup> Excerpted from *The Digitalisation of African Agriculture Report 2018–2019* by Dalberg/CTA

Figure 15: D4Ag Ecosystem map



Source: The Digitalisation of African Agriculture Report 2018–2019 by Dalberg/CTA

### Challenges to scaling digital Agriculture solutions

Scaling digital solutions requires both the digital and non-digital aspects of the agriculture innovation ecosystems to work, from technology infrastructure (e.g., physical, research) to regulation, delivery systems (e.g., financing) and end-use support (e.g., pricing). It is important to note that not all solutions provide value to the farmer end-users, and many are not commercially viable.

**Digital barriers:** These range from access to technologies to people with the skills (both basic and digital literacy) and capacity to implement digital solutions:

- *Digital literacy and access to basic technologies* among farmers (especially women) are limited in certain parts of the country. Most Kenyan farmers are in rural parts of Kenya, where broadband access and 3G penetration is significantly lower than in urban areas.
- *Data accuracy and usability* varies significantly most data is stored in physical documents that are not readily accessible digitally. Where digital data exists accuracy and portability could be a challenge.
- *Data management systems* vary significantly in standards and complexity across the ecosystem. A lot of agricultural data is collected and processed manually, and few institutions have the capacity to integrate and store data in the cloud. FSPs systems might also not be ready to access and manage complex data.
- *Monetisation* is difficult. Farmers are unwilling/unable to pay for solutions – particularly advisory services which comprise ~20% of solutions in the space. They trust their agrovets to provide free, timely, and tailored advice. Most solutions have no clear value proposition.
- *Digital skills and expertise for agriculture* are in short supply across the ecosystem

**Non-digital barriers:** Barriers to scale range from the macro complexities of the food system to the on-the-ground needs of farmers in the last mile:

- *Policy and regulations* to support solutions are still quite nascent – there are no common standards for data management, sharing and privacy, including for open data. While the Data Privacy Bill (2018) is a step in the right direction, outstanding concerns around third-party liability and appropriate consent from farmers and other providers of primary data are yet to be addressed.
- *Last mile service delivery* is still required for farmers to gain familiarity and trust with digital solutions.

**Table 4: Digital solutions use cases in Kenya**

Category	Sub-type	Description	Examples in Kenya
Advisory services	Farmer Information Services	Farmer information services provide relatively general agricultural information and advice on agronomic best practices (e.g., planting, harvesting, pest and disease management), farming inputs, the weather, and market information (e.g., prices for key inputs and commodities), typically via SMS, USSD, and IVR, and occasionally with call centre support. Recommendations	I-shamba, iCow, Arifu
	Precision Advisory	Precision agriculture, in the context of digital advisory services, implies a move from offering generalised best practices to disseminating recommendations that are highly tailored to individual farmers, farms, and, ultimately, farm fields.	CLIMARK weather information service, Nuru, Earth-Is by ACCORD, Geodatics, Astral Aerial, CropNuts' Daktari Wa Udongo, Ujuzi Kilimo, Lentera, SunCulture, IBM's EZ Farm, Microsoft's Farmbeats, Lentera Africa,
	Participatory and Peer-to-Peer	Participatory solutions feature tight feedback flows from experts to farmers), and, in many cases, a role – direct or indirect – for farmers in creating or customising advisory content.	iShamba, Arifu, WeFarm, Africa Farmer's Club/Farm.ink, WhatsApp, Facebook
	Farm Management Software	Farm management software solutions for smallholder farmers featuring interactive tools/applications for farmers or agents interfacing with the farmers that go beyond the delivery of tailored recommendations to specific farms.	SmartCow, DigiCow, BudgetMkononi, Agrivi
Market Linkages	Digitally-Enabled Value Chain Integrators	Digitally-enabled value chain integrators are D4Ag solutions that use digital tools combined with either in-house or third-party human agents to link agricultural markets.	Farmers Pride, iProcure, One Acre Fund, DigiFarm, Twiga Foods, Selina Wamucii, Farmshine, Taimba, Virtual City, Tulaa, Mobigrow (KCB),
	Agri-Input and Food E-Commerce Services	Agriculture e-commerce services are online retailers of agricultural produce for urban consumers or agricultural inputs for smallholder farmers; they rely on online order fulfilment via either shipping or a combination of online and offline (i.e., brick and mortar store) footprints.	Herdy Fresh, Kitchen Soko, FarmIT, Apollo, DigiFarm,
	Agriculture E-Marketplaces	Agriculture e-marketplaces are D4Ag market linkage solutions that require little or no human intermediation, and that bring individual buyers and sellers together via virtual trading marketplaces.	MasterCard's Farmers Network (formerly known as 2Kuze), Usomi's Rubi, Mifugotrade, FarmAll,
	Mechanisation Access	Mechanisation access solutions use digital tools and channels to link smallholders to farm machinery or farm mechanisation services while disrupting or leapfrogging the affordability, availability, and logistics constraints of traditional smallholder farmer agriculture mechanisation business models.	Hello Tractor, E-Tinga, FarmAll, SunCulture, M-KOPA
Supply Chain Management	Traceability and Certification Solutions	Traceability and certification solutions help agribusinesses onboard farmers, document farm compliance with standards, and trace produce across value chains with higher fidelity and lower costs.	SourceTrace, SourceMap, EProd, FarmForce, SAP - Rural Sourcing Management platform
	Input Quality Assurance and Anti-Counterfeiting	Input quality assurance and anti-counterfeiting D4Ag solutions help agribusinesses ensure the integrity of their brands and help farmers validate the authenticity and quality of received inputs.	mPedigree, Sproxil
	Logistics	Digital logistics platforms are tools that support the surveillance and operational improvement of physical storage and transport infrastructure and, in particular, the transport of agricultural products across the full span of the value chain from producers to markets.	iProcure, Virtual City
	Supply Chain ERP platforms	Supply chain ERP platforms offer a fully integrated package of digital services to agribusiness that duplicates some elements of the solutions covered above, but goes well beyond this to include operational analytics, value chain intelligence, and tools for managing smallholder farmers and agent field forces.	Farmforce, Eprod, CropIn, SourceTrace, Annona, SAP - Rural Sourcing Management platform
Financial Access	Payments	Payments allow smallholder farmers, input providers, buyers, and others to transact with each other without cash.	Safaricom's Pochi la Biashara
	Savings	The use of savings products can make a big difference in the lives of poor farmers.	Safaricom & CBA Mshwari, Safaricom & KCB M-Pesa, Agri-Wallet, CARE International &

Category	Sub-type	Description	Examples in Kenya
			Aga Khan Foundation (DSG Platform) Savings Groups
	Credit	D4Ag experimental pathways toward confronting the approximately €25–30 billion financing gap facing African smallholder farmers.	KCB's MubiGrow, Tulaa, Apollo Agriculture, Musoni
	Crowd-farming	Use digital Platforms to link farmers who need capital with sponsors who wish to invest.	iFarmconnect, Crowd Farm Africa Ltd., ifarm 360
	Insurance	Agricultural insurance offers a valuable tool to help smallholder farmers avoid devastating financial losses and limit downside risk associated with investing in their own productive capacity.	Pula, ACRE Africa, Innov Agro, VanderSAT
Data Analytics and intelligence	Agri-data analytics	Aggregate farm-level geospatial data from multiple sources into single, easy to use databases with a fee to access, visualize big data and predictive analytics, and provide remote monitoring through sensors that give real-time assessments of farm status and crop health.	AgroCares, UjuziKilimo, Ag Observatory, FAO Country STAT
	Financial analytics	Specialise in collecting and analysing data on the financial habits of farmers and triangulating such information with alternative data sources including satellite data, weather data, and soil quality data.	FarmDrive, ACRE Africa

## 15 Climate Change

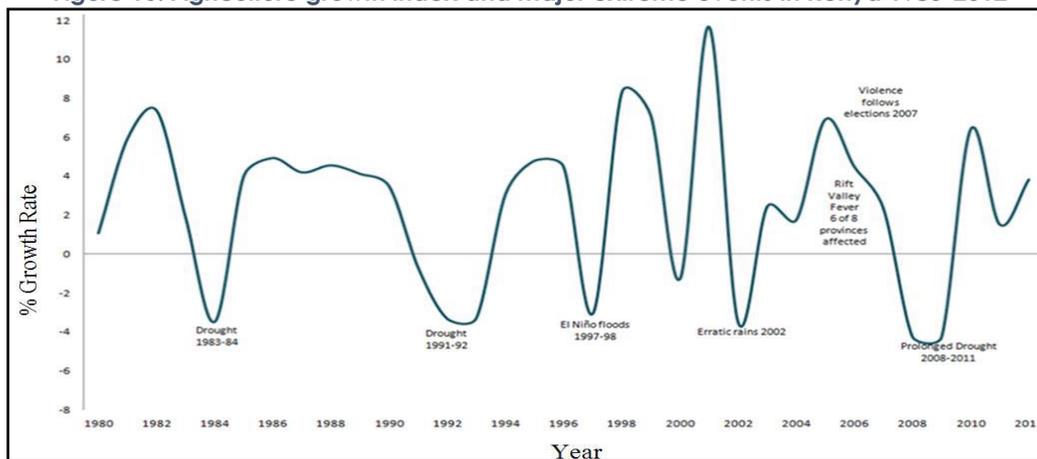
As a major component of the land-use, land-use change and forestry (LULUCF) sector, agriculture has an important impact on land use and land cover changes. Land cover and land-use patterns across the globe reflect the interaction of human activities and the natural environment. In Kenya for instance, agriculture remains the dominant driver of deforestation and forest degradation, as large swathes of land (including forestlands) continue to be cleared and converted into agricultural land to grow food, graze animals, and provide energy for the growing population.<sup>5</sup>

Further, Kenya's agricultural sector is highly vulnerable to climate change and climate variability because it is mainly rain-fed, and rainfall (or precipitation) is a climate element. This vulnerability of the country's agricultural sector to climate change and climate variability and its cascading impact on the economy – given both the direct and indirect linkages between agriculture and the economy – is well documented in a number of national climate change strategies and plans such as the first and second National Climate Change Action Plans (NCCAP I and II), the National Adaptation Plan (NAP) 2015-2030, the Kenya Climate Smart Agriculture Strategy 2017-2026 and the first Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC).

The sector's vulnerability stems from increasing temperatures, changing and unpredictable rainfall patterns and extreme weather events (in the form of frequent and prolonged droughts and flood events). Periods of extreme weather events – particularly droughts – are associated with low agricultural productivity and production, food and nutrition insecurity challenges, and economic decline. The specific sub-sector vulnerabilities and issues are highlighted below and are mainly a summary of the issues captured in key sectoral climate change strategies and plans such as the Climate Smart Agriculture Strategy 2017-2026.

<sup>5</sup> Government of Kenya (2013). *Analysis of drivers and underlying causes of forest cover change in the various forest types of Kenya*. Nairobi: Ministry of Forestry and Wildlife

**Figure 16: Agriculture growth index and major extreme events in Kenya 1980-2012**



Source: The National Adaptation Plan (citing the Climate Smart Agriculture Programme 2015-2030)

### Crops sub-sector

The major climate change-related challenges in the crops sub-sector include changes in enterprise suitability for specific areas (e.g., some studies predicting maize production falling by 10% in the central and western highlands by 2050), leading to a decrease in profitability; unpredictable timing of farming operations due to seasonal weather variability and reliability, leading to lower production efficiency; losses due to yield reductions, total crop failures, enhanced postharvest losses and increased production costs arising from extreme weather events or reduced land productivity.<sup>6 7</sup> With crop production in Kenya being mainly rainfall dependent (irrigated agriculture accounts for only 2.4% of the cultivated area, according to the National Irrigation Strategic Plan 2019-2023), rainfall availability and predictability is the most important variable for the sub-sector's performance. Due to climate change and climate variability, droughts have become more frequent and intense. Consequently, the country's famine cycles have reduced from 20 years (1964-1984) to 10 years (1984-1996), to two years (2004-2006), and to yearly, if not shorter intervals (at present).<sup>8</sup>

### Fisheries sub-sector

Kenya's fisheries sub-sector is mainly composed of freshwater (lakes, rivers, and dams) and marine (the Indian Ocean) sources with the rest coming from aquaculture. Lake Victoria is the most important source of fish in Kenya and the biggest source of freshwater fish in the country. The lake is also important in conservation terms because of its great biodiversity of endemic fish species. The other lakes that are important sources of fish are Turkana, Naivasha, Baringo and Jipe. Climate change is already impacting inland fisheries production. Increasing temperatures and reduced wind velocities weaken lake mixing, with a subsequent reduction in nutrient availability. Increasing water temperatures may force many aquatic species to relocate to colder areas of rivers and lakes as a coping strategy, thereby impacting fishing volumes. Climate change is predicted to lead to fluctuations of river volumes and lake levels by altering hydrological regimes. Such fluctuations affect the functionality of wetlands, altering the breeding ecology of both permanent and anadromous fish species. As populations grow and pressure to increase food supply increases, climate may reinforce existing challenges, such as, over-exploitation of fish, invasive species, eutrophication, pollution, and over-abstraction of water to match increasing demand.

### Livestock sub-sector

Climate change is already affecting ecosystems and natural resources that support livestock production. These impacts include increased frequency of extreme weather events, such as,

<sup>6</sup> Government of Kenya (2017). *Kenya Climate Smart Agriculture Strategy 2017-2026*. Nairobi: Ministry of Agriculture, Livestock, Fisheries and Cooperatives

<sup>7</sup> Mumo, L., Yu, J., Ojara, M. et al. (2021) *Assessing changes in climate suitability and yields of maize and sorghum crops over Kenya in the twenty-first century*. Theor Appl Climatol

<sup>8</sup> Government of Kenya (2010). *The National Climate Change Response Strategy (NCCRS)*. Nairobi: Ministry of Environment and Mineral Resources

droughts and floods, productivity losses due to physiological stress occasioned by temperature increase and changes in water availability, and increased incidences of emerging diseases. The breakout of zoonotic diseases such as Rift Valley Fever (RVF) is particularly linked to a changing climate. Drought leads to reduced forage availability, degradation of the environment and an increase in destitution. ASALs, and in particular the northern part of the country, are synonymous with drought occasioned food insecurity, the frequency and intensity of which have increased as a result of climate change and climate variability. Experts estimate livestock losses can be in the range of 70-100% in a location, depending on the severity of drought. The paradox is that the onset of rains does not often immediately bring the much-needed relief, as flash floods, another common occurrence in ASALS, decimate hundreds, if not thousands, of animals.

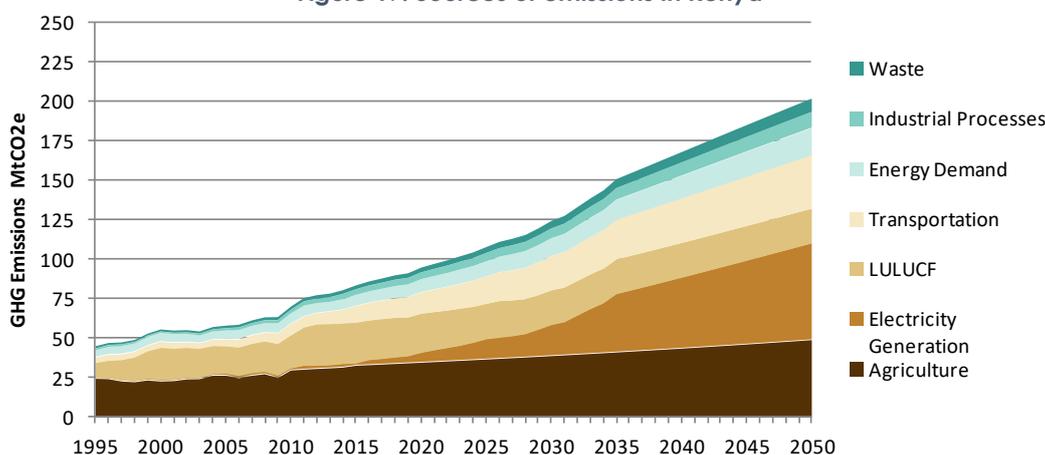
### Forestry sub-sector

In Kenya, forestry and agriculture are closely linked since agriculture is the major driver of deforestation and forest degradation. This implies that deforestation and forest degradation – because of either climate-change induced reduced agricultural productivity and production, necessitating further encroachment into virgin forestlands for agricultural activities or other factors – are the greatest threats to Kenyan forests. These two have caused significant reduction in forest cover, destruction of habitat, loss of biodiversity, and increasing GHG emissions. The degradation is particularly manifest in arid and semi-arid lands (ASALS) such as upper and lower eastern parts of the country (Machakos, Kitui, and Taita Taveta, as examples).

### Agricultural sector's greenhouse gas emissions

The latest official source of information on GHG emissions for Kenya is the Second National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC). According to the report, agriculture is the largest source of GHG emissions in Kenya, accounting for about 40% of the 83 million tonnes of carbon-dioxide equivalent (MtCO<sub>2</sub>e) emitted in 2015, with sector's baseline emissions rising to about 39.5 MtCO<sub>2</sub>e in 2030 (Figure 19). The main sources of the sector's emissions are from livestock (mainly enteric fermentation that accounts for more than half of the emissions), conventional tillage (that releases soil organic carbon), burning of savannah and crop residues, and rice cultivation.

Figure 17: Sources of emissions in Kenya



Source: Kenya's Second National Communication to the UNFCCC

### Key mitigation and adaptation strategies

The government's policy with respect to climate change response for the agricultural sector, as stated in all relevant policy documents such as the Climate Smart Agriculture Strategy 2017-2026 and both Climate Change Action Plans I and II is that the aim for the sector is to "increase food and nutrition security through enhanced productivity and resilience of agricultural systems, in as low-carbon a manner as practically and economically feasible". Food security, and therefore adaptation and resilience, takes precedence over mitigation. That said, many agricultural management practices that reduce climate vulnerability and improve agricultural production potential also reduce emissions and vice versa. These include agroforestry (has the largest estimated technical potential emission reduction in 2030), conservation tillage and

limiting the use of fire in range and cropland management, all of which are primarily mitigation in nature, but also do have adaptation co-benefits. Similarly, irrigation, particularly small-holder irrigation, while primarily an adaptation measure, has the potential to contribute to limiting the sector's emissions through enhancing productivity and production, and therefore limiting the need to expand agriculture into virgin forested lands.

### Financing agricultural sector's climate actions

Finance has been identified as a critical enabler of all priority climate change mitigation and adaptation activities not just in the agricultural sector, but all sectors. The main sources of funding for the sector's climate change actions are the Exchequer, private sources (including investments by small-holder farmers) and multilateral and bilateral institutions. While the government continues to meet the Maputo Declaration of ensuring that agricultural public expenditure is at least 10% of total public expenditure (e.g., for the period 2007-2018, it averaged 12%, according to FAO's Public Expenditure on Food and Agriculture in sub-Saharan Africa report of 2021), funding to the sector is generally inadequate, owing to other pressing government priorities. Funding from the private sector is inadequate due to lack of structured partnership arrangements, while many of the much-needed interventions by development partners, non-governmental organisations (NGOs) and civil society organisations (CSOs) are poorly coordinated, leading to duplication of efforts.

Solutions to these challenges include structured partnerships with all partners, particularly the private sector, improving coordination of donor funded programmes and projects, and improving the capacity to access and absorb climate finance from new and existing sources such as the Green Climate Fund (GCF), Adaptation Fund, and Global Environmental Fund, and the yet-to-be-established National Climate Change Fund.

## 16 Value chains in Kenya

Several value chains prioritisation studies have been conducted. Some of the factors include functioning demand and supply relations, economic relevance, food security potential, interest by financial institutions, contribution to national agenda, availability of complementary technical and business development services and geographical relevance. The national government, Ministry of Agriculture, Livestock, Fisheries and Cooperative -Agriculture Sector Development Support Programme Phase Two (ASDSP II) funded by Sida outlines four results areas including increasing productivity of selected value chains, strengthening entrepreneurship skills for value chain actors, improving access to markets, and strengthening structures and capacities of the to collaborate and coordinate

**Figure 18: Working in GoK priority value chains based on empowerment potential**

	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.

Source: FSD Kenya, market scan study

Some of the potential value chains identified under the ASDSP II programme that would be relevant to women producers and processors include indigenous chicken, cow milk, tomatoes, maize, and bananas (NB: the most common ASDSP value chains are marked in bold below).

**Table 5: ASDSP II Value chain prioritisation**

Prioritized value chains			
COUNTY	PRIORITISED VALUE CHAINS	GARISSA	Camel Milk, Beef, <b>Tomato</b> ,
NAIROBI	Broiler, <b>Cow Milk</b> , Kales	WAJIR	Camel Milk, <b>Tomato</b> , Watermelon
KIAMBU	<b>Banana, Cow Milk, Indigenous Chicken</b> ,	KAKAMEGA	<b>Cow Milk, Indigenous Chicken, Maize</b> ,
KIRINYAGA	<b>Banana, Cow Milk</b> , Rice	VIHIGA	<b>Banana, Cow Milk, Indigenous Chicken</b> ,
MURANGA	<b>Cow Milk</b> , French Beans, Mango,	BUNGOMA	<b>Cow Milk, Indigenous Chicken, Tomato</b>
EMBU	<b>Banana, Cow Milk, Indigenous Chicken</b>	BUSIA	<b>Fish, Indigenous Chicken</b> , Ground Nut
NYERI	<b>Cow Milk</b> , Irish Potato, <b>Indigenous Chicken</b>	KISUMU	Cotton, <b>Fish, Indigenous Chicken</b> ,
LAIKIPIA	<b>Cow Milk, Maize</b> , Sheep & Goats	SIAYA	<b>Indigenous Chicken, Fish</b> , Mango,
THARAKA NTHI	<b>Banana, Cow Milk, Indigenous Chicken</b>	MIGORI	<b>Cow Milk, Indigenous Chicken</b> , Sweet Potato
MERU	<b>Cow Milk, Indigenous Chicken</b> , Sorghum,	HOMABAY	<b>Fish, Indigenous Chicken</b> , Sorghum
ISIOLO	Beef, Camel Milk, <b>Tomato</b>	KISII	<b>Banana, Cow Milk, Indigenous Chicken</b>
MANDERA	Camel Milk, Meat Goat, <b>Tomato</b> ,	KERICHO	<b>Cow Milk, Indigenous Chicken, Tomato</b> ,
TURAKANA	<b>Fish</b> , Meat Goat, Sorghum,	NANDI	<b>Cow Milk, Fish, Maize, Indigenous Chicken</b> ,
SAMBURU	Beef, Honey, <b>Maize</b> ,	NYAMIRA	<b>Banana, Cow Milk</b> , Indigenous Vegetables
MARSABIT	Camel Milk, Kale, Meat Goat,	UASIN GISHU	<b>Cow Milk, Maize, Indigenous Chicken</b> ,
MACHAKOS	<b>Cow Milk, Indigenous Chicken</b> , Mango	TRANSNZOIA	<b>Cow Milk, Maize, Indigenous Chicken</b> ,
KITUI	<b>Indigenous Chicken</b> , Sorghum, Green Gram	WEST POKOT	Honey, <b>Indigenous Chicken</b> , Meat Goat,
MAKUENI	<b>Indigenous Chicken</b> , Mango, Green Gram	ELGEYO MARAKWET	<b>Cow Milk, Indigenous Chicken</b> , Irish Potato,
TAITA TAVETA	<b>Banana, Cow Milk, Indigenous Chicken</b>	BARINGO	<b>Cow Milk</b> , Honey, Meat Goat,
MOMBASA	<b>Fish, Indigenous Chicken</b> , Indigenous Vegetables	NAKURU	<b>Cow Milk, Fish</b> , Pyrethrum,
KILIFI	African Bird Eye Chilli, Cassava, <b>Indigenous Chicken</b>	NYANDARUA	<b>Cow Milk, Fish</b> , Irish Potato
KWALE	African Bird Eye Chilli, <b>Indigenous Chicken</b> , Passion Fruit,	BOMET	<b>Cow Milk, Indigenous Chicken</b> , Irish Potato, <b>Maize</b>
LAMU	Cashew Nut, <b>Fish, Indigenous Chicken</b> ,	NAROK	Beef, <b>Cow Milk, Maize</b>
TANA RIVER	Beef, <b>Fish</b> , Mango	KAJIADO	Beef, <b>Cow Milk, Tomato</b>

Source: ASDSP II

## 17 Key participants

The Agricultural sector has diverse players that play distinct roles. By virtue of the sector being the largest in terms of number of households and enterprises, it receives more attention. However, the access to finance remains one of the leading challenges affecting the sector. Whereas, several organisations focus on increasing access to finance, this is the least developed functionality with a spiral effect to almost all other functions like access to inputs, knowledge, markets, etc.

**Table 6: Key participants in Agriculture and Processing landscape**

	Production	Processing
<b>Input suppliers</b>	<ul style="list-style-type: none"> <li>Seed suppliers: Leaders are Kenya Seeds, Syngenta, Simlaw Seeds, East Africa Seed Co., Pannar Seeds, Royal Seeds, and Elgon Kenya Seed</li> <li>Chemical and additives suppliers: Leaders are Coopers Brand, Bayer East Africa, Osho, BASF E.A, Orbit Chemicals, Syngenta</li> <li>Animal feed suppliers: Leaders are Unga, Pembe, Sigma, Mombasa Millers, Isinya Feeds, Vital, VitaCare, Empire Feeds, Chania Feeds, Joy Millers</li> <li>Fertilizer: Leaders are Yara, ETG, MEA, ARM</li> </ul>	<ul style="list-style-type: none"> <li>Raw materials (agricultural produce): Farmers, brokers, cooperatives, aggregating companies</li> <li>Raw materials (additives): Mainly importers like Ingredion, Promaco</li> <li>Packaging materials: Local producers like Thermopak, ASL, General Plastics etc and imports mainly from China and India</li> </ul>
<b>Mechanisation and technology</b>	<ul style="list-style-type: none"> <li>Tractors: CMC Motors, Hello Tractor, John Deere, Holman Brothers E.A, Vaell, SAME tractors Kenya</li> <li>Small equipment: Makiga Engineering Services, Muharata Food Co, Marina Machineries, Ikonic Agricultural Machinery, Hardi Kenya, Ndume Ltd, FDM E.A, Camco Equipment, Pan Agri Intl</li> <li>Irrigation and pumps: SunCulture, Future Pumps, National Irrigation Board, Davis &amp; Shirliff, Honda</li> <li>Storage: NCPB, HCDA, SokoFresh, Grain Handlers,</li> <li>Logistics: HCDA, Blessings, Grain Handlers</li> <li>Energy: KPLC, M-Kopa</li> </ul>	<ul style="list-style-type: none"> <li>Equipment: Vaell, ASL, Allwin, Tetra Pack,</li> </ul>
<b>Market access</b>	<ul style="list-style-type: none"> <li>Fintechs: Twiga Foods, Taimba Ltd,</li> <li>Processors: Dairy, fruit, livestock, vegetables, oil, nuts, flour,</li> <li>Cooperatives: Dairy, coffee, tea</li> <li>Strategic Grain Reserve: NCPB</li> <li>Exporters: Fruits, vegetables, flowers, coffee, tea, nuts</li> </ul>	<ul style="list-style-type: none"> <li>Wholesale and retail network</li> <li>Export market: fruits, vegetables, flowers, nuts, coffee</li> </ul>
<b>Policy enactment</b>	<ul style="list-style-type: none"> <li>Agriculture and Food Authority (AFA), Ministry of Agriculture, Livestock and Fisheries and Cooperatives (MoALFC)</li> </ul>	<ul style="list-style-type: none"> <li>Kenya Bureau of Standards, National Environment Management Authority (NEMA), Kenya Revenue Authority</li> </ul>
<b>Policy implementation</b>	<ul style="list-style-type: none"> <li>Kenya Agricultural and Livestock Research Institute (KARLO), Kenya Plant Health Inspectorate Service (KEPHIS), Pest Control Products Board of Kenya (PCPB), Kenya Dairy Board, Tea Board of Kenya, Sugar Board of Kenya</li> </ul>	<ul style="list-style-type: none"> <li>Kenya Bureau of Standards (KEBS), KenTrade, Export Promotion Zone (EPZ)</li> </ul>
<b>Crop &amp; livestock directorates</b>	<ul style="list-style-type: none"> <li>Coffee Directorate, Tea Directorate, Sugar Directorate, Horticultural Crops Directorate, Fibre Crops Directorate, Nuts and Oil Crops Directorate, Miraa, Pyrethrum and Industrial Crops, Directorate, and Food Directorate</li> </ul>	<ul style="list-style-type: none"> <li>Coffee Directorate, Tea Directorate, Sugar Directorate, Horticultural Crops Directorate, fibber Crops Directorate, Nuts and Oil Crops Directorate, Miraa, Pyrethrum and Industrial Crops, Directorate, and Food Directorate</li> </ul>
<b>Credit</b>	<ul style="list-style-type: none"> <li>Banks: Equity, KCB, Cooperative, Family, ABSA, Stanbic, Credit Bank, Standard Chartered</li> <li>Saccos: Chai, Enea, Fortune, Lainisha, Nawiri, Nyamira Tea, Southern Star, Kiambaa Dairy, Githunguri Dairy, Meru Union, Ukulima Cooperative, Thika Farmers Center,</li> <li>Fintechs: Examples DigiFarm, Apollo, SunCulture, Myfugo, Performer Agri-business, One Acre Fund</li> </ul>	<ul style="list-style-type: none"> <li>Most of the banks with focus on SMEs focused banks: Equity, Family, KCB, Family, Cooperative, ABSA</li> <li>Equity and Impact Investors: AECF, Agribusiness Loans (ABC), Alpha Mundi, Goodwell, Grey Matters, Anthemis, Accion Venture Lab, Omidiyar Network</li> <li>Non-bank Credit: Root Capital, Dodore, AECF, Pearl Capital,</li> <li>Leasing: Vaell Leasing, Zohari Leasing, Rental Works E.A, Elesee Ltd, Capital Leasing, Rentco, Rivières Finance Ltd, Star Rentals</li> </ul>
<b>Knowledge &amp; Facilitation</b>	<ul style="list-style-type: none"> <li>E-extension: Arifu, Performer Agri-business, We-farm</li> <li>Field extension: Private input suppliers, veterinary officers</li> </ul>	<ul style="list-style-type: none"> <li>Kenya Manufacturers Association</li> <li>USAID SME financing project</li> <li>MSEA</li> </ul>
<b>Insurers</b>	<ul style="list-style-type: none"> <li>APA, Jubilee, CIC, UAP, Heritage, Amaco, ICEA, Kenya Orient, Britam</li> </ul>	<ul style="list-style-type: none"> <li>All insurers offer corporate insurance solutions</li> </ul>
<b>Insurtech</b>	<ul style="list-style-type: none"> <li>Pula, ACRE Africa, Innov Agro, VanderSAT</li> </ul>	<ul style="list-style-type: none"> <li>Mainly through Brokers, agents and Bancassurance</li> </ul>
<b>Reinsurers</b>	<ul style="list-style-type: none"> <li>Swiss-Re, Zep-Re, Africa-Re, Munich-Re</li> </ul>	<ul style="list-style-type: none"> <li>All reinsurers offer corporate covers reinsurance</li> </ul>
<b>Facilitation</b>	<ul style="list-style-type: none"> <li>AGRA, USAID, JICA, Danida, SIDA, FAO, IFAD, GIZ</li> </ul>	<ul style="list-style-type: none"> <li>GIZ, USAID,</li> </ul>
<b>Industry associations</b>	<ul style="list-style-type: none"> <li>Kenya Livestock Producers Association (KLPA), Cereal Growers Association (CGA), Kenya Forest Growers Association, Kenya National Farmers Federation (KENAFF), Kenya Flower Council, Kenya Tea Growers Association, Pyrethrum Growers Association</li> </ul>	<ul style="list-style-type: none"> <li>Kenya Manufacturers Association, Fresh Produce Exporters Association of Kenya (FPEAK), Kenya Agro-business and Agro-industry Alliance (KAAA), Fresh Produce Consortium of Kenya (FPC Kenya)</li> </ul>

The agriculture and processing landscape has a wide number of players offering various products and services. Below are the relevant players to the financing eco-system.

## 18 Relevant lessons from FSD Kenya's work

**Table 7: Lessons from FSD Kenya's FIRE work**

Key lessons	Relevance for agriculture and processing
<b>Positive lessons</b>	
Innovations have high attrition rates and the many tasks conducted catered for this	Whereas there its more desirable to undertake larger and fewer tasks, the new project should balance the need for few large activities and the power created by testing many activities.
It is important to leverage existing FSD Kenya strategic partnerships to nurture new opportunities and to fast-track performance	FSD Kenya has many relevant internal projects activities that should be leveraged for faster achievement of results (especially policy, health finance and market information). Partnership with other market facilitators would create resource and implementation synergy. Intentionally create new synergistic partnerships to build implementing ecosystems.
Publicising successes and failures of financial solutions tailored to the real economy can catalyse increased interest, investment, and modification of solutions	The new project will be deliberate in communicating what works and what doesn't work throughout implementation. The project will incorporate a strategic communication intervention.
Some innovation partners were already engaging in innovations/ experiments and were putting in significant effort on their side and had relevant capabilities and human talent though some had inadequate capacity to conduct the innovation process activities sufficiently	The selection of partners should consider their ability and willingness to invest in human capital and their innovation culture. Whereas FSD would occasionally approach the partners with a proposed innovation, the partner should have the capacity, willingness, and history of innovating or FSD Kenya activities must include capacity support.
Alignment of FSD Kenya and partners priorities as well as evidence-based approach is critical in forming strong partnerships	FSD Kenya should also be results-driven during implementation where use of outcome data is central to decision-making. The clarity of experiments activities and the basis of conducting each activity is critical.
<b>Negative lessons</b>	
Lack of mid-term evaluation delayed documentation and sharing of vital insights for programming and for market influence	The new project should plan and budget for a reviews and/or early impact mapping to improve programming and implementation.
Lack of robust knowledge management and clear communication strategy to grow its reputation internally and externally	The new project should dedicate results to support knowledge capture and sharing. This should be a fully-fledged intervention that is reported on the QMFR.
Weak internal hand-over of information on tasks by outgoing staff	The new project will continue with tasks teams of at least two people for institutional memory and for enhancing quality of support.
Misalignment between FSD Kenya and some innovation partners on how the innovation process would pan out	While this is an inevitable outcome due to changing internal and external business environments, the project should mitigate it by conducting a thorough due diligence. The release of funding where possible should be milestone based to reduce chances of misused funds
Internal teams being stretched resulting in the project not being sufficiently resourced	The project design should factor the human and financial resources available. Some of the human technical capability can be outsourced through third party consultants to fast-track execution and performance.

## Annex 1: Relevant resources for more information

1. [Gendered review of Financial Sector Laws in Kenya](#)
2. Agriculture and processing landscape market scan report – FSD Kenya
3. [Understanding agricultural value chains Northern Nairobi study report](#)

4. [Kenya Economic Survey 2022](#)
5. [Central Bank of Kenya Annual report 2021](#)
6. [National Agrifood systems and COVID-19 in Kenya report – FAO](#)
7. [Kenya Economic Survey 2022](#)
8. [Agriculture Sector Transformation and Growth Strategy \(ASTGS\) - abridged version](#)
9. [Use of platforms to advance credit to smallholder farmers blog](#)
10. [Gender and agricultural advisory services, issue brief – BMGF](#)
11. [Women in manufacturing – Mainstreaming gender and inclusion \(KAM\)](#)
12. [Gendered review of financial sector laws in Kenya](#)
13. [MSEs in food systems, a framework for engagement \(ISF and Argidius\)](#)
14. [Use of platform and data to advance working capital to last mile agro-dealers and smallholder farmers blog](#)
15. [Role of public financing in agricultural sector in Kenya blog](#)
16. [Tea bonus, a blessing or a dependency blog](#)
17. [Understanding financing for mango value chain \(2015\) blog](#)
18. [Understanding financing for mango value chain \(2015\) report](#)
19. [Introducing index-based weather insurance in Kenya \(2013\) report](#)
20. [Towards a National Crop and Livestock Insurance Program \(2015\) report](#)
21. [Understanding the role of digitising agriculture supply chains in Northern Nairobi \(2019, 2020\) reports](#)
22. [Rethinking agricultural financing models: A case of DFI blog](#)
23. [Gendered financial products and services for women in Kenya](#)
24. [Gendered transformative toolkit – Agrifin and Mastercard Foundation](#)
25. [Digitization and coordination of Kenya's sector data - MoALFC](#)
26. [Gender case study – Agrifin, June 2021](#)
27. [Gender equality in rural Africa: from commitments to outcomes – IFPRI](#)
28. [Gender sector statistics plan – KNBS and UN Women](#)
29. [Warehouse Receipt System Act – 2019](#)