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# ACCESS AND UTILIZATION OF DIGITAL FINANCIAL SERVICES AND DIGITAL INFORMATION SERVICES AMONG SMALLHOLDER FARMERS, PASTORALISTS AND AGRO-PASTORALISTS IN ETHIOPIA

FINAL REPORT

JUNE 2023

UKaid from the British people

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Dareshe women, Ethiopia Photo by Rod Waddington - CC BY-SA 2.0

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# Background of the Study

In the world, close to one and a half billion poor people live on less than US$1.25 a day. One billion of them live in rural areas where agriculture is their main source of livelihood (IFAD, 2013). Smallholder farmers, who typically farm two hectares or less, provide over 80% of the food consumed in a large part of the developing world, contributing significantly to poverty reduction and food security (Peck et al, 2011). Pastoralism is the dominant livestock production system in African arid and semi-arid lands (ASALs or drylands). In Sahel region of the Northern Africa which hosts as many **as 367 million people**, pastoral and agropastoral systems contribute to more that 80% of animal products, 70-90% of cattle and 30-40% of sheep and goats. Transhumant pastoralism alone contributes to around 65% of beef, 40% of mutton and goat meat, and 70% of milk (ECOWAS). Pastoralism contributes to the livelihoods of millions of people in Africa and play a significant role in the continent's economy and food security.

In Ethiopia, agriculture is the main source of livelihood, 1) **accounts for 75% of the overall workforce**; **40 per cent of the annual GDP; and** about **80% of the export earnings**. The country's major agricultural exports are tea, coffee, cut flowers, fruits, vegetables and livestock products (meat and dairy) (USAID).

Ethiopia being one of the top three populous countries in Africa, pastoral and agropastoral production system are threatened by eminent droughts, shrinkage of open rangelands, tribal conflicts and insecurity, global warming, change in demographics, and large-scale migration of the rural population to rapidly expanding urban centers. Smallholder farmers on the other hand are limited by climate change, poor infrastructure, lack of access to credit, limited access to markets, land degradation and limited access to inputs (Cordaid, 2021)

**Information, communication and knowledge are key in agriculture**, with farmers continuously seeking information, communicating with each other and sharing knowledge on new agricultural technologies. Effective knowledge and information management in the agricultural sector requires proper channels/infrastructure and a farmer based participatory approach integrating traditional or tacit knowledge of farmers with the modern forms of knowledge, and further employing mechanisms that enhance adoption of knowledge disseminated to smallholder farmers (World Bank Group, 2017).

With this information, Dalberg Research in collaboration with two of Mercy Corps programs i.e., 1) AgriFin Accelerate, and 2) Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises (SPARC) that support innovation for farmers, pastoralists and agro-pastoralists have come together with the aim **of understanding the use and access of Digital Information Services (DIS) and Digital Financial Services (DFS) among the smallholder farmer, Pastoralist and agro-pastoralist communities.**

It is common for banks in developing countries to provide financial services to only about 20 percent of the population, which means that most people; including pastoralists, have to rely on semi-formal and informal financial options (ICPALD, 2016). AgriFin Accelerate envisions a future where every smallholder farmer prospers in a digital world, with a primary target group of un-banked smallholder farmers living on less than USD 2 per day. Their main objective is to link smallholder farmers to products and services that increase their productivity and income by 50%, with 40% target population of women and youth.

**SPARC's aims at creating innovative solutions to strengthen resilience in the drylands,** the objective is to develop, broker and manage knowledge, to improve the ability of the development communities to assist pastoralists, agro-pastoralists and farmers living in the context of climate change, protracted crises and unending conflicts.

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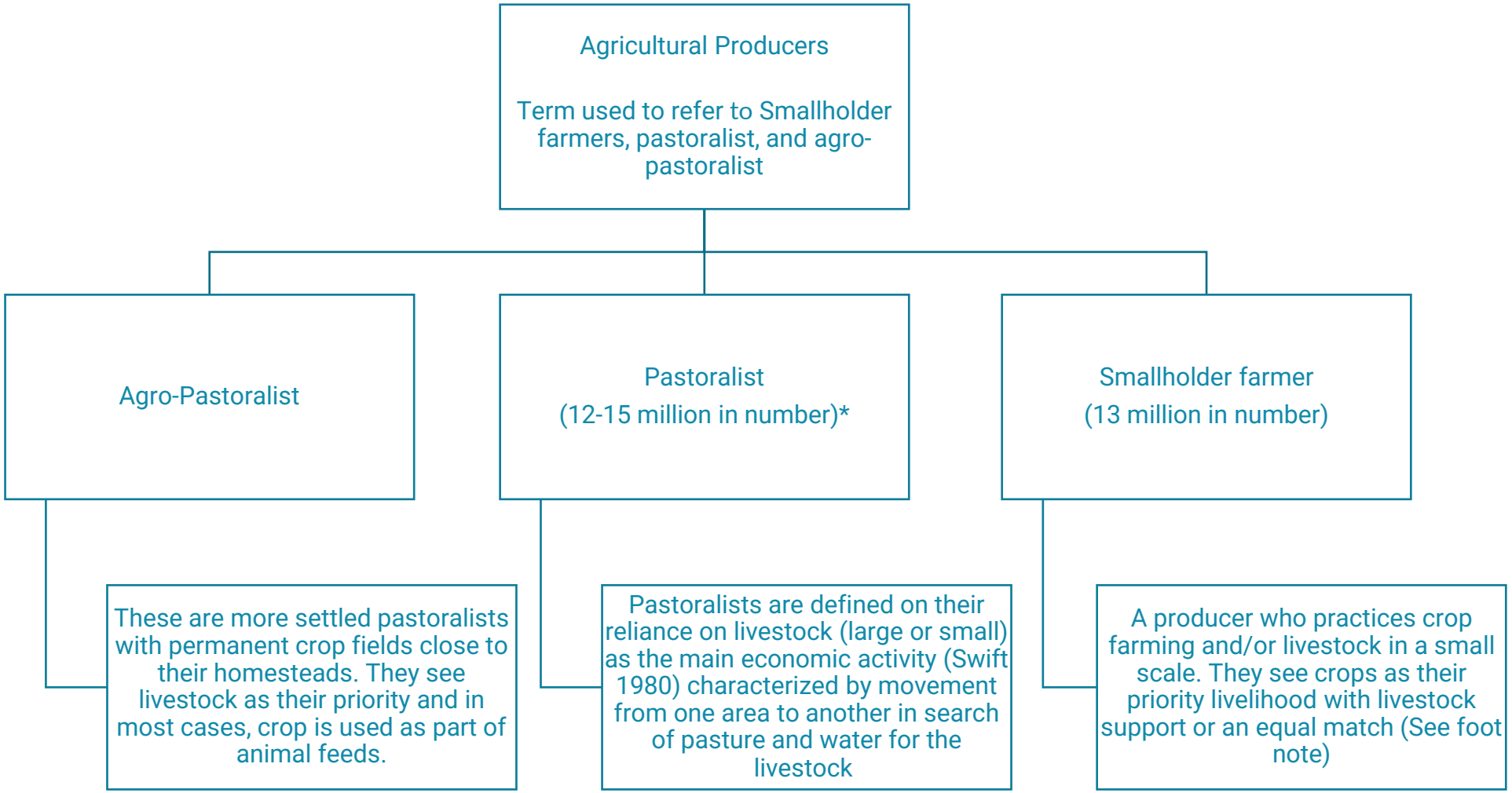
Transhumance - a system of animal production characterised by seasonal and cyclical migration of varying degrees between complementary ecological areas and supervised by a few people, with most of the group remaining sedentary

# Within the Agricultural sector, producers are key stakeholders; ~90% of Ethiopia's farmers are smallholder[1] while pastoralists occupy ~60%[2] of Ethiopia's landmass

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Source: [1]FAO, Small family farms country factsheet- Ethiopia, 2018
[2]UNICEF, 2019
Note: Size of land or income generated to define a small holder farmer do not agree across different reports, policy and framework
* - includes the population of both pastoralists and agro-pastoralists

# Study methodology & objectives

This study employed purely secondary research, triangulating publications, journals, white papers and other credible literatures from top agricultural stakeholders and research organizations.

Further the findings were bolstered through analysis of proprietary datasets from different Public, Private and Non-governmental institutions.

The objective to this study was to:

1) Conduct in-depth profiling of producers, both crop and livestock, through studying the value chains they participate in and how they access and use Digital Financial Services (DFS) and/or Digital Information services (DIS), with aim of enhancing the existing knowledge.

2) Interrogate existing information on access and utilization of DFS and/or DIS, exploring opportunities to enhance information sharing and adoption by producers

**Digital Financial Services (DFS)** refers to the use of digital technologies such as mobile phones, the internet, and other electronic devices to deliver financial services. DFS includes services such as mobile banking, mobile money transfers, online payments, and other electronic financial transactions. These services are aimed at increasing financial inclusion by providing affordable, convenient, and secure financial services to individuals who have limited access to traditional banking services[1]

**Digital Information Services (DIS)** refers to the delivery of information and knowledge to individuals or organizations through digital channels, such as mobile phones and the internet. DIS can include weather updates, market prices, agricultural advice, and other relevant content that can improve decision-making processes and livelihoods, particularly for those living in remote or underserved areas[2]

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Source:
[1]Digital Financial Services (DFS) | Alliance for Financial Inclusion (afi-global.org);
[2]How digital technologies can help Africa's smallholder farmers | E-Agriculture (fao.org)
Note: The literature considered to generate insights in this study was seven years old as opposed to five years required due to effect of COVID 19 which hampered data collection efforts.

# Our analysis of the producers' access and use of information focuses on the following key dimensions

| | |
|---|---|
| 1 **Country overview** | High-level landscape of smallholder farmers and pastoralists in agriculture within Ethiopia.<br>What governing frameworks support agriculture including targets and signed declarations |
| 2 **Producer profile** | How are producers split across different demographics?<br>a. Where are they located?<br>b. What are the major value chains (VCs)?<br>c. What are the producer level characteristics e.g., gender, income sources, financing mechanisms etc. ? |
| 3 **Access to DFS and DIS** | Where, why and how do producers acquire finance and information on different aspects like inputs, weather, markets among others?<br>What opportunities exist to enhance provision of financial services and information to producers? |
| 4 **Challenges/ opportunities in DFS & DIS provision** | What are the key challenges that hinder growth among producers in their operations?<br>Which opportunities can be harnessed to increase information sharing and enhance digital access to information among producers? |
| 5 **Shock/ coping mechanisms** | What are the common unexpected occurrences faced by producers in their operations and how have they adapted or managed their impact? |

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# High-level summary findings of Smallholder farmer section 1/2

**Smallholder farmers in Ethiopia play a crucial role in the country's agriculture sector, with a vast majority of the rural population engaged in crop and livestock production.** In the crop sector, smallholder farmers are involved in the production of both staple and high-value crops, including maize, teff, sorghum, wheat, coffee, fruits, and vegetables. In the livestock sector, they produce cattle, sheep, goats, and poultry, which contribute significantly to the country's economy.

**The age group involved in smallholder farming in Ethiopia is diverse,** with both youth and non-youth actively participating in agriculture. Females and youths are more involved in smallholder farming in Ethiopia due to factors such as male migration to urban areas for employment, tradition, and the limited availability of alternative livelihood opportunities. Women also play a significant role in smallholder farming, particularly in the livestock sector.

**Education levels among smallholder farmers are generally low, with most having only primary education or less**. There is gender-based inequality in literacy levels in Ethiopia, as indicated by self-reported data showing that males have higher literacy rates, i.e., can read and write in any language, (57 percent) compared to females (43 percent) in all age groups and regions. The low level of education among SHFs can have significant implications for their livelihoods and the overall development of the agricultural sector in Ethiopia. Lack of education can limit SHFs' ability to access information and technologies, to make informed decisions about farming practices and market opportunities, and to participate effectively in agricultural extension programs and other support services.

**Income levels show stark differences, with female farmers and those with lower education levels** earning lower incomes compared to their male counterparts and those with higher education levels. **SHFs report a median annual income** of ETB 19,700 per year (USD 680), with a median per capita income of about ETB 4,125 (USD 150). This corresponds to earnings of a little over ETB 54 (USD 1.85) per family per day. Most SHF households receive their income primarily during the harvest period at the end of the main rainy season (November-February), with low regular income between March and October. Vulnerability during this period is highest, especially from April to August, when the risk of food shortages peaks. Farmers with year-round income are more likely to own and trade livestock and have other sources of income such as salaries, remittances, etc.

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# High-level summary findings of smallholder farmer section 2/2

**Access to digital financial services (DFS) and digital information services (DIS) has the potential to improve the productivity of smallholder farmers in Ethiopia significantly.** DFS can provide farmers with access to credit, insurance, and savings services; while DIS can provide them with timely, and relevant information on weather patterns, crop and livestock prices, and best agricultural practices. However, the use of DFS and DIS among smallholder farmers in Ethiopia is still limited due to various barriers, including low literacy rates, lack of infrastructure especially in the rural areas, and limited awareness of the available services.

**Smallholder farmers in Ethiopia still face significant difficulties in accessing agricultural credit, which contributes to the low agricultural productivity in the country.** The SHFs are unable to access credit even with collateral due to a range of factors, such as stringent loan requirements, limited access to financial institutions, inadequate financial literacy, lack of trust in formal financial institutions, limited sharia-compliant financial service providers and products, and the perceived high risk of lending to small-scale farmers. Additionally, some farmers may have insufficient collateral to meet the requirements for obtaining a loan, for instance, less than 10% of the women have credit access. Agriculture credit requires some form of guarantee of repayment and since women do not own either the land, equipment, or the produce it is more difficult for them to qualify for a loan. The SHFs prefer credit compounded with inputs which are mostly provided by the MFIs at favorable rates of interest. In cases where the SHFs don't have collateral, they opt for informal sources such as borrowing from traders who are exploitative.

**Smallholder farmers in Ethiopia face various constraints that limit their productivity, including poor access to finance, extension services, and market information.** Additionally, the livestock sector faces challenges such as limited access to veterinary services, limited access to reliable and sustainable market, limited access to market price information, and inadequate feed supply. Shocks such as protracted droughts, floods, livestock diseases and pest infestations significantly impact the productivity of smallholder farmers in both the crop and livestock sectors. To cope with these shocks, farmers engage in various coping mechanisms, such as diversifying crops, storing food reserves, and seeking assistance from family and friends. Livestock farmers also opt to collecting crop husk as feed for animals during the dry seasons.

**To improve the productivity and livelihoods of smallholder farmers in Ethiopia, it is necessary to address the constraints they face in both the crop and livestock sectors**. Improving access to finance, extension services, and market information can help to enhance the productivity of both crop and livestock agriculture among smallholder farmers. In the livestock sector, improving access to veterinary services, reliable and timely market price information, and feed supply can play a significant role in promoting growth. Encouraging and supporting the participation of women and youth in both the crop and livestock sectors can also help to promote inclusive growth.

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# COUNTRY OVERVIEW

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# Despite economic growth, Ethiopia remains a highly unequal society.

**Population statistics**

**123 million**
Population in Ethiopia

**60%**
Proportion of adults (above 15 years)

**57%**
Labor force (15-64 years)

**Economy**

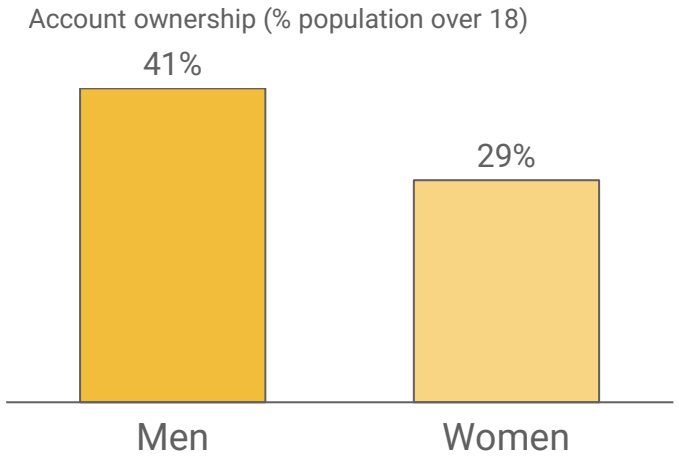
**80%**
Ethiopians rely on agriculture as a source of income

**24%**
Ethiopians who fall below the poverty line

**6.4%**
Proportion of unemployed youth

Source: World Bank, 2021;

**Financial Inclusion by gender, 2017 (Findex)**

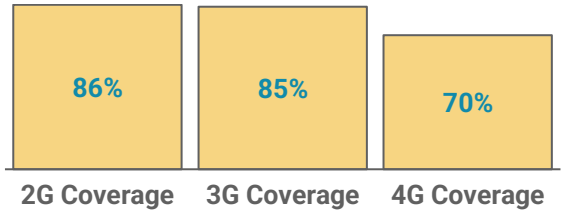



**Technological advancement**

**45.3%**
Have a mobile subscription

**19%**
Use internet regularly

**Mobile Network Coverage**




- Human Development Index: Ethiopia is the second most populous nation in Africa and the fastest growing economy in the region with 6.3% growth in FY2020/21. Its entrepreneurship and human capital give it potential for growth, job creation and poverty reduction.
- Despite a decline of the country's absolute poverty rate, Ethiopia remains a highly unequal society by income, gender and by geographical location.
- Rapid population growth is a major challenge, complicated by high unemployment rates especially among the youth. More than 70% of Ethiopia's population is below the age of 30 and 40% are under the age of 14.
- The driving forces behind economic growth in the past have been an export-oriented agriculture, tourism, light manufacturing for domestic markets.

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*Source:* Ethiopia (ifad.org); CIAT, Digital Agriculture Profile: Ethiopia, 2022
*Note: Poverty line – USD 1.9*

# In 2016, GoE set out policies focused on agriculture in its Growth and Transformation Plan II.

SHF

| | |
|---|---|
| **Agricultural commercialization** | ❖ The government aims to promote commercial agriculture to increase productivity and profitability in the sector. This involves supporting smallholder farmers to move from subsistence farming to market-oriented agriculture. |
| **Irrigation development** | ❖ The government plans to develop and rehabilitate irrigation schemes to expand the area of land under irrigation and increase agricultural productivity. |
| **Rural infrastructure** | ❖ The government aims to improve rural infrastructure, including roads, water supply, and electricity, to support agricultural production and marketing. |
| **Research and development** | ❖ The government aims to promote research and development in agriculture to improve productivity, quality, and competitiveness of agricultural products. |
| **Value chain development** | ❖ The government plans to promote value chain development in agriculture to increase the value of agricultural products and improve farmers' income. |
| **Agricultural extension** | ❖ The government plans to strengthen agricultural extension services to provide farmers with the knowledge and skills to adopt new technologies and improve productivity. |
| **Land administration** | ❖ The government aims to improve land administration to increase security of land tenure, support land consolidation, and facilitate investment in agriculture. |

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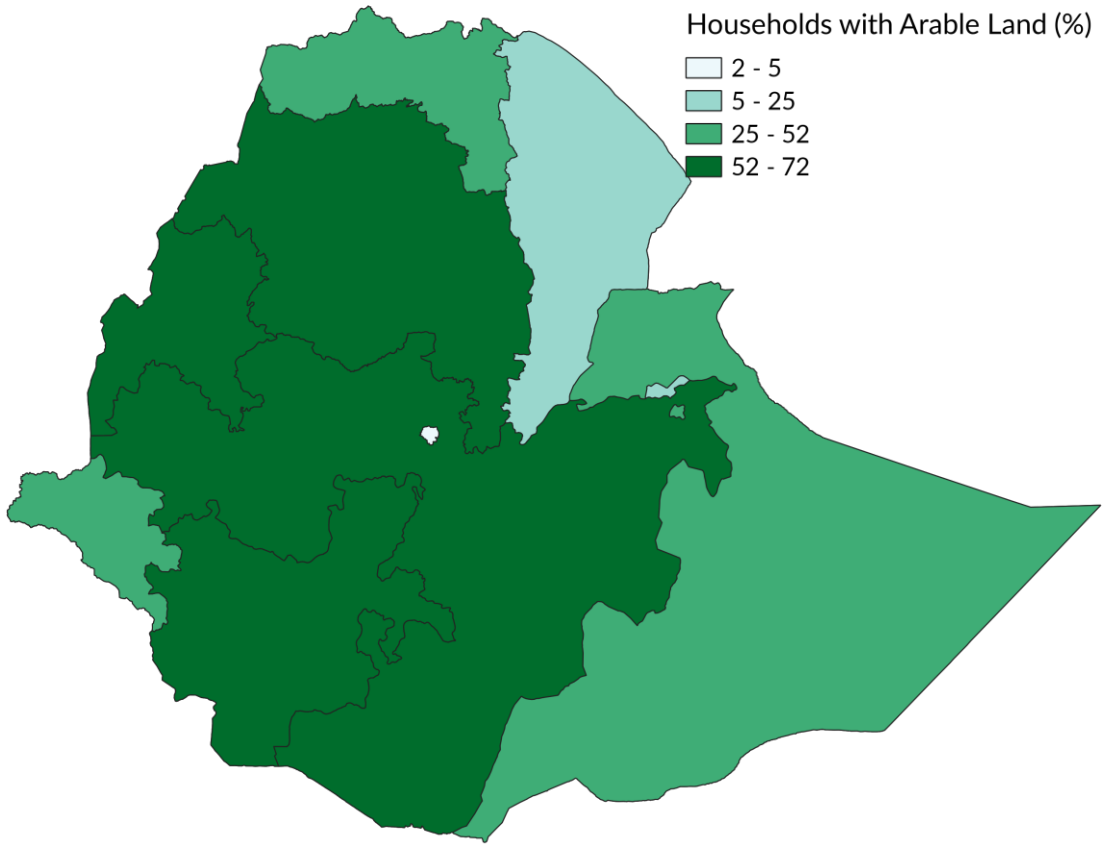
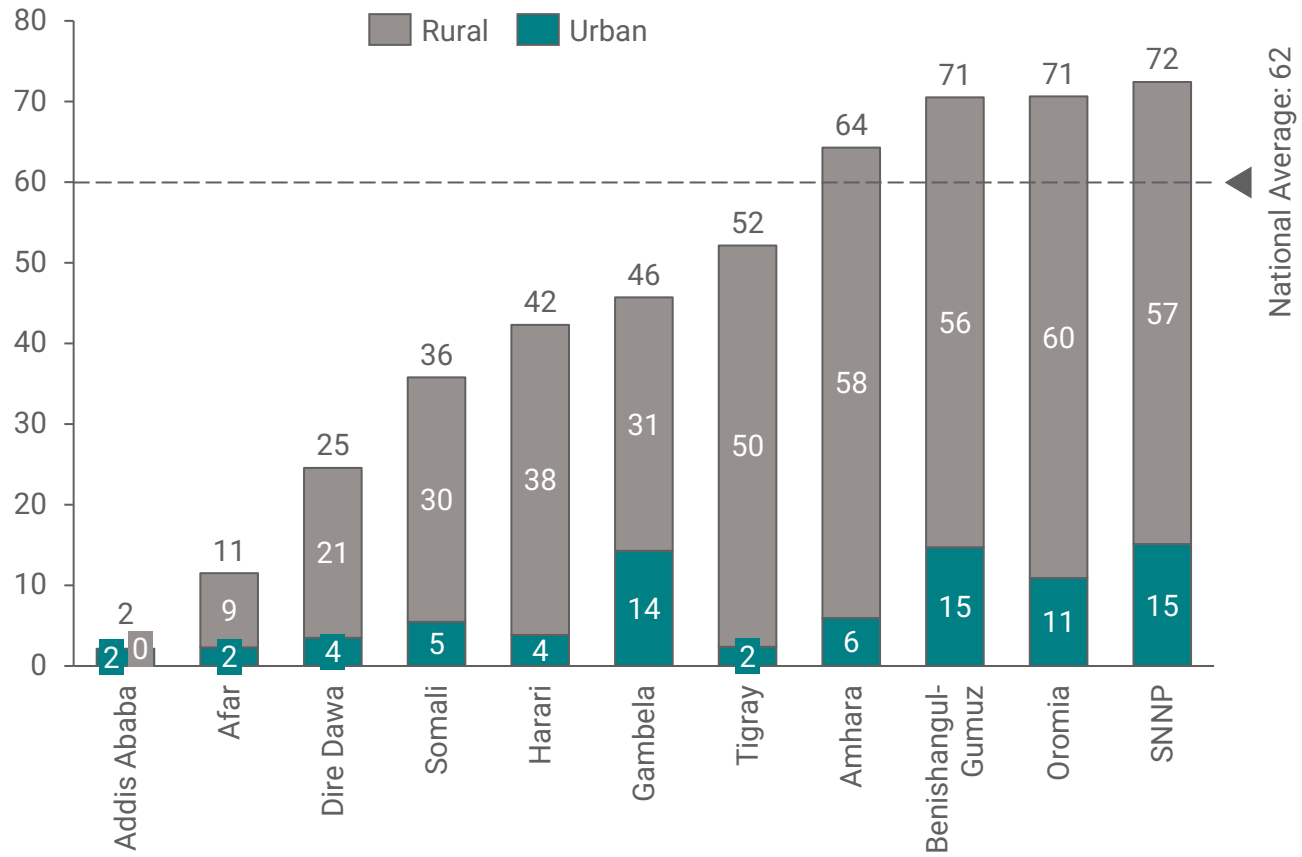
Source; Government of Ethiopia (GoE), Growth and Transformation Plan II (GTP II), 2016

# Ethiopia's Western and Central regions have higher number of households with arable land; dominantly present in the rural areas

## Share of Households Owning Usable Land for Crop Agriculture

% of households owning agricultural land per region and residence type



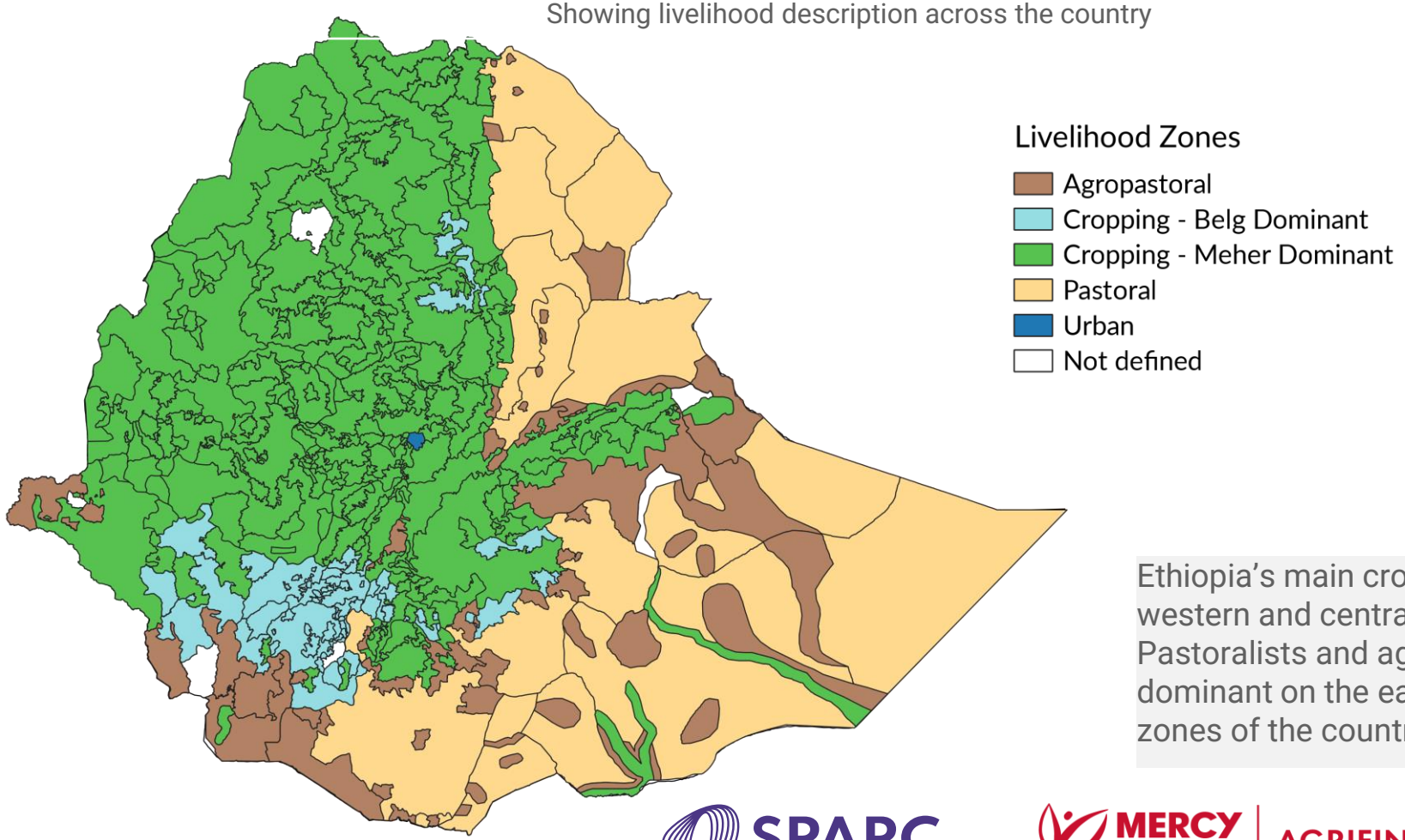




Source: DHS Ethiopia 2019 and LOCAN Analysis
Note: As there was a lack of data that was categorized according to the newly established regions of Sidama and Southwest, we had to use data from the older regions in Ethiopia to represent the information on this report

# Ethiopia's zones dominating cropping livelihood are found within the western and central parts, while the eastern parts do pastoralism and agro-pastoralism

## Livelihood Zone Map

Showing livelihood description across the country




Ethiopia's main cropping zones are in the western and central parts of the country. Pastoralists and agro-pastoralists are dominant on the eastern and southeastern zones of the country.

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Note: Livelihood zone maps define geographic areas of a country where people generally share similar options for obtaining food and income and similar access to markets. Factors considered include agro-climatology, elevation, land-cover, market accessibility, sources of food, and major economic activities.
.Source: Fews.net-livelihood zones

# Smallholder farmers contribute to most of the farmers and total production in Ethiopia; typically, they farm for subsistence.

SHF

## Smallholder Farms

**SHFs make up 95% of the total farmers** (13M farmers) and **produce 90% of output**

**62% of their income is** from crop production

**12M Ha of cultivated land**

**0.78 Ha average land holding**

**Mostly traditional practices**
(labour intensive, low input)

**Marketed surplus – 21%**

## Commercial Farms

**Commercial farms make up 5%** of the total farmers in Ethiopia

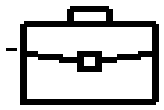
**74% of income** from crop production

**461,000 Ha cultivated land**

**3.23 Ha of average landholding**

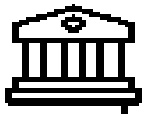
**Mostly modern agricultural practices**
(improved inputs and mechanization)

**Marketed surplus – 100%**



**Less than 8% of SHF income is generated from nonagricultural wages or Self-employment**

**SHFs generate a gross annual Average income of about USD 1246**



**3.5 percent of smallholder farm income is supplemented by PSNP**

**2% of the arable land of a Smallholder is irrigated**

**Average annual credit borrowed is USD 58 which only covers 2% of value of production**

**3.7% of SHFs have access to Agricultural machinery**

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Source: FAO, Small family farms country factsheet- Ethiopia, 2018; FAO, The economic lives of smallholder farmers; An analysis based on the household data from nine countries, 2015.; UNDP Ethiopia, An assessment of operation and performance of commercial farmers in Ethiopia, 2014
Notes: PSNP – Productive Safety Net Program; **Based on FAO definition of Ethiopian SHFs: average farm size of less than 2 Ha and 2 TLUs

# Ethiopia is the richest country in livestock inventories in Africa; this is attributed to the country having a large number and diverse population of livestock.

| Factor | Pastoral Production | Commercial Ranches/Farms |
|---|---|---|
| Ownership and Land Tenure | • Communal land tenure, often governed by customary law | • Privately owned with secure land tenure |
| Herd Composition | • Mixed breeds for hardiness and adaptation to local conditions | • Purebred breeds for high productivity |
| Herd Size | • Smaller herds, typically between 50 and 500 head of cattle | • Large herds, often exceeding 1,000 head of cattle |
| Herd Management | • Extensive management practices, relying on grazing and mobility | • Intensive management practices, including regular veterinary care and feeding |
| Production Goals | • Maintaining herd size and social status within the community | • Maximizing productivity and profit through meat and milk sales |
| Market Access | • Limited access to formal markets, relying on informal and traditional markets | • Access to formal markets for meat and milk sales |
| Livelihood Strategies | • Livestock production and diverse livelihood strategies, including off-farm activities | • Commercial production and wage labor |
| Vulnerability to Climate Change | • Vulnerable due to dependence on natural resources and limited access to adaptation strategies | • Vulnerable due to high reliance on inputs and limited adaptation strategies |

## Key highlights on pastoral communities

Constitute 15% of the population who occupy 61% of the total land mass; 97% dwell in the lowlands of Afar, Somali (55%), Oromia and SNNPR

They generate average annual income that ranges from 6,862 to 8,486 Ethiopian Birr (ETB) per annum

They contribute to 45% of Ethiopia's agric. GDP, 21% of the national GDP and 10% exports (live animals)

Of the national livestock count, they rear 23% of cattle, 62% of goats, 50% sheep and 100% camels

Livestock is the main source of income (USD 2.76B in 2019) with animal off (28%), milk(56%), manure (15%) and daft power (1%)

Their alternative sources of income include beekeeping (12%), gum and resin (3%), tourism (15%) and forest/trees (70%)

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Source: ICPALD, Total economic valuation of agro-pastoral and pastoral systems of Ethiopia, 2020; Mohamed AA, Pastoralism and development policy in Ethiopia: a review study, 2019; Viewpoint: Orphaned Pastoralists in Ethiopia demand socio-economic inclusion - Addis Standard, 2021.

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# SMALLHOLDER FARMER FARMER FOCUS

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# SMALLHOLDER FARMER PROFILES

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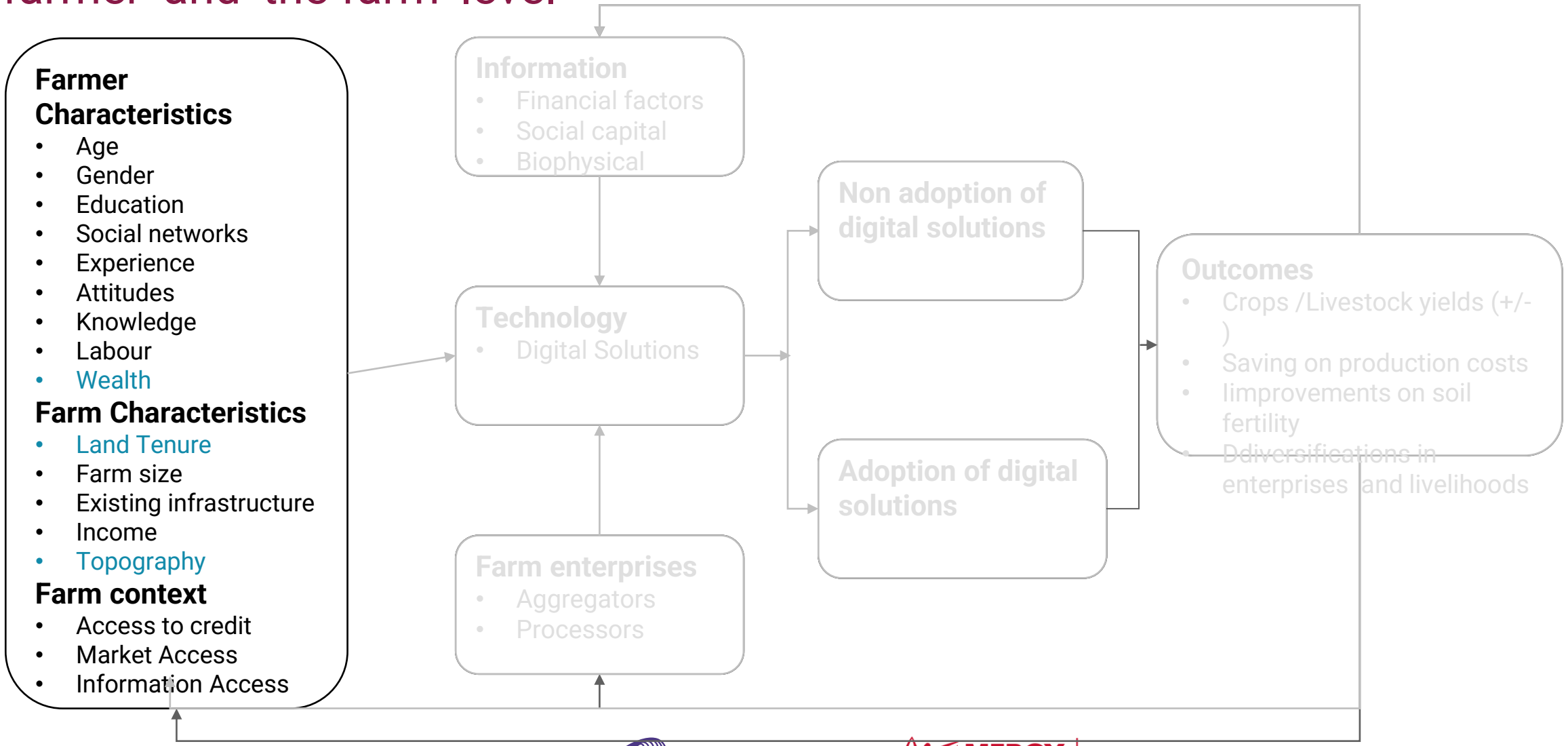
# Our farmer profiling analysis targets to describe smallholder farming at 'farmer' and 'the farm' level




Framework. Source: Adapted from Lugandu (2013).

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Highlighted metrics were not reported in this study

# FARMER CHARACTERISTICS

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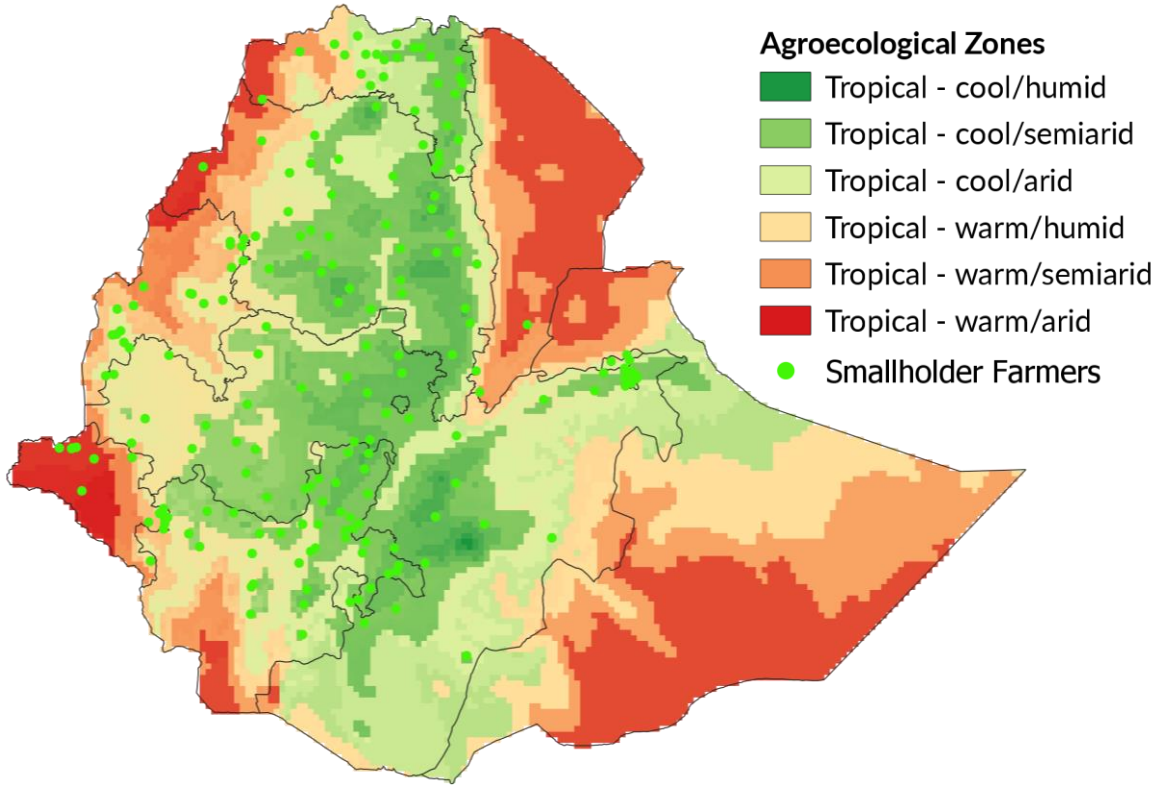
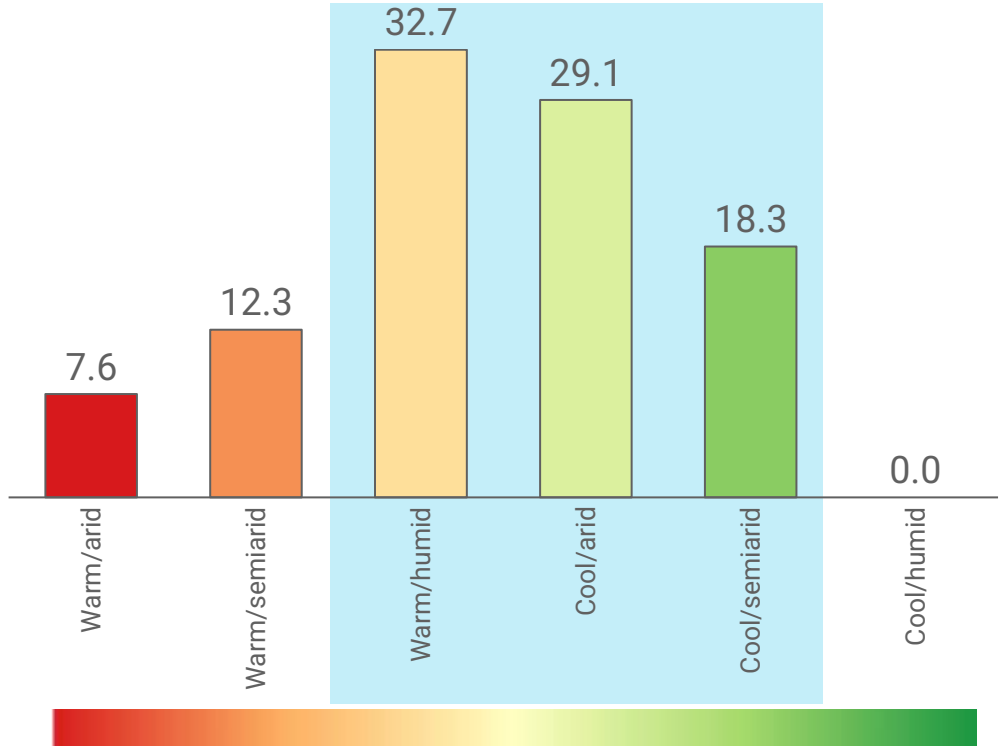
# Majority of SHFs in Ethiopia are located within suitable agroclimatic zones in Ethiopia

## Agroecological Zones in Ethiopia

The agroecological zones in Ethiopia




## Proportion of SHFs in each agro climatic zone category (%)




The agro-climatic zones of Ethiopia are based on climate (temperature and precipitation ranges within which the main crops of Ethiopia can flourish) and the main zones (probability of meeting the temperature and water requirements of the leading crops). These zones give an estimate of the climatic yield potential.

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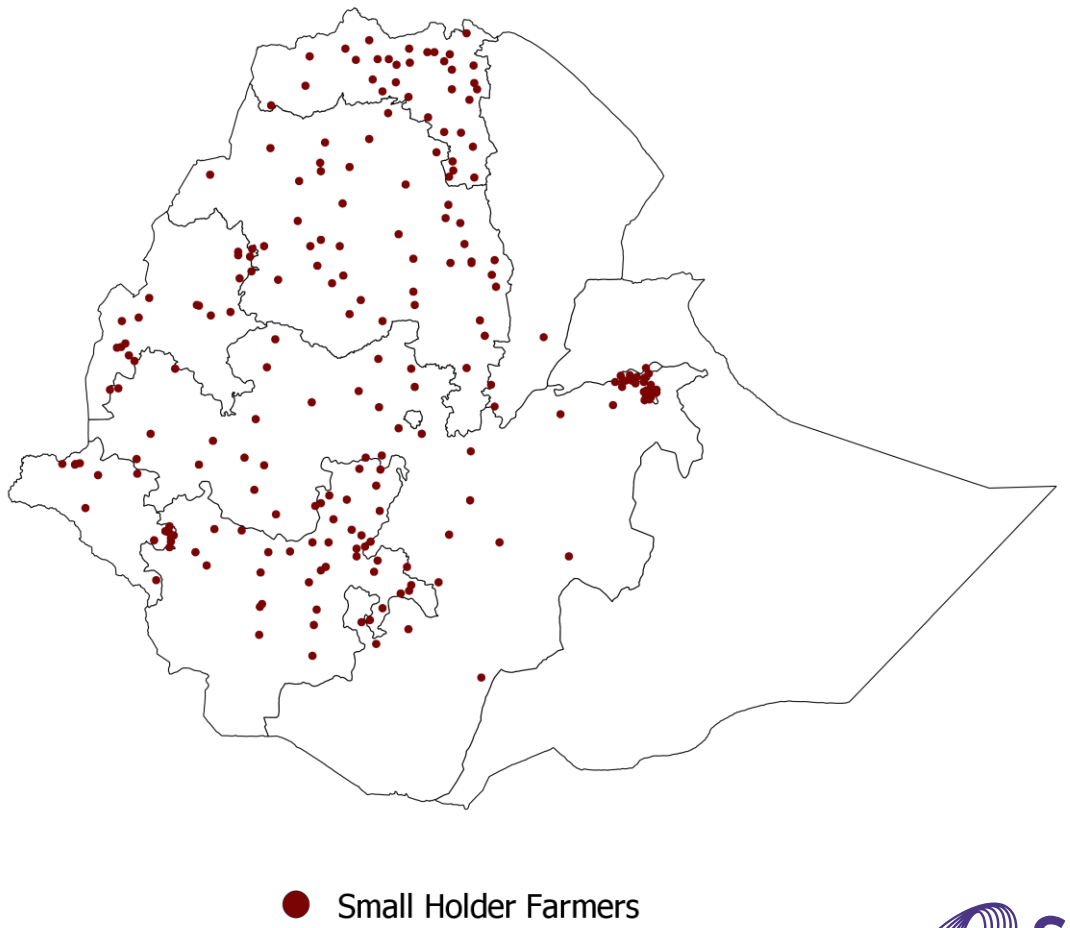
Source: Global Yield Gap Analysis

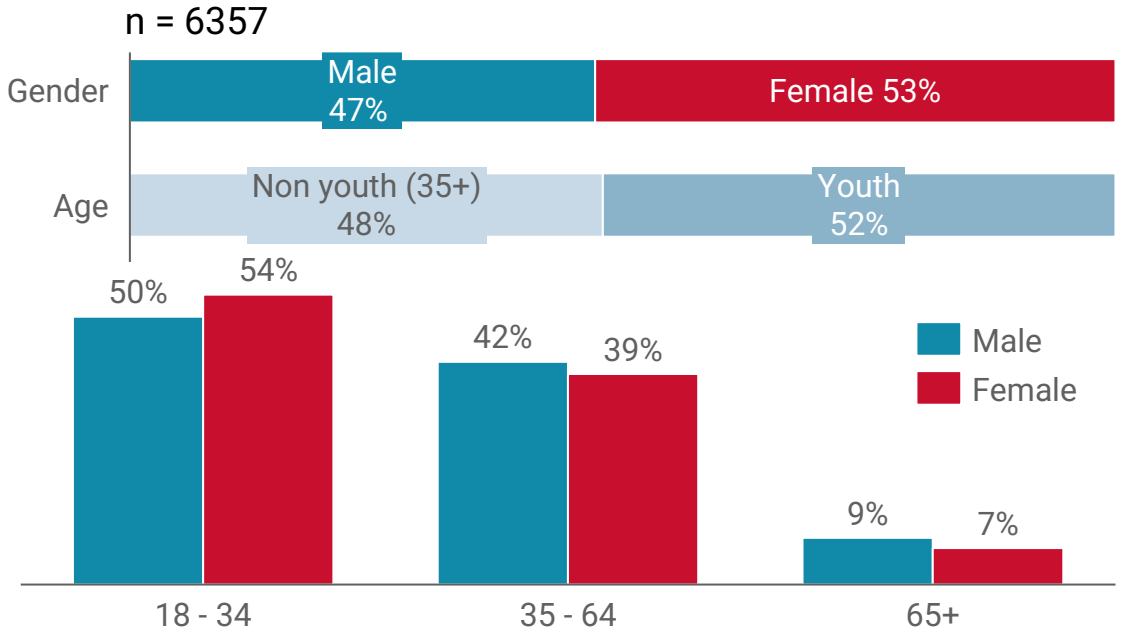
# Therefore, they are dominant in the North-West, Western and Central regions of Ethiopia; with more females and youths involved

Age

## Distribution of SHFs in Ethiopia




## Distribution of SHFs by gender across Agrarian Regions




- The average smallholder farmer is 36.8 years old. The median age is 33 years. More than half of the SHFs are youth (below 35 years) whose majority are females.
- Females and youths are more involved in smallholder farming in Ethiopia due to factors such as male migration to urban areas for employment, tradition, and the limited availability of alternative livelihood opportunities[1].

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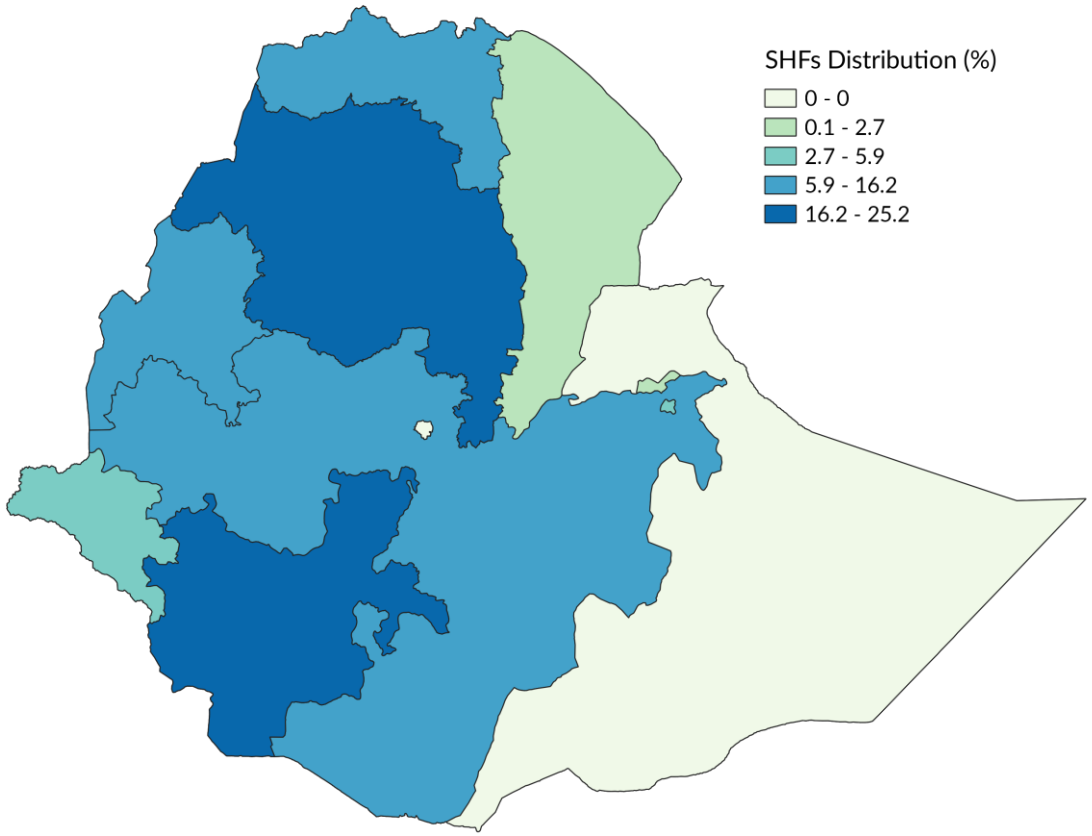
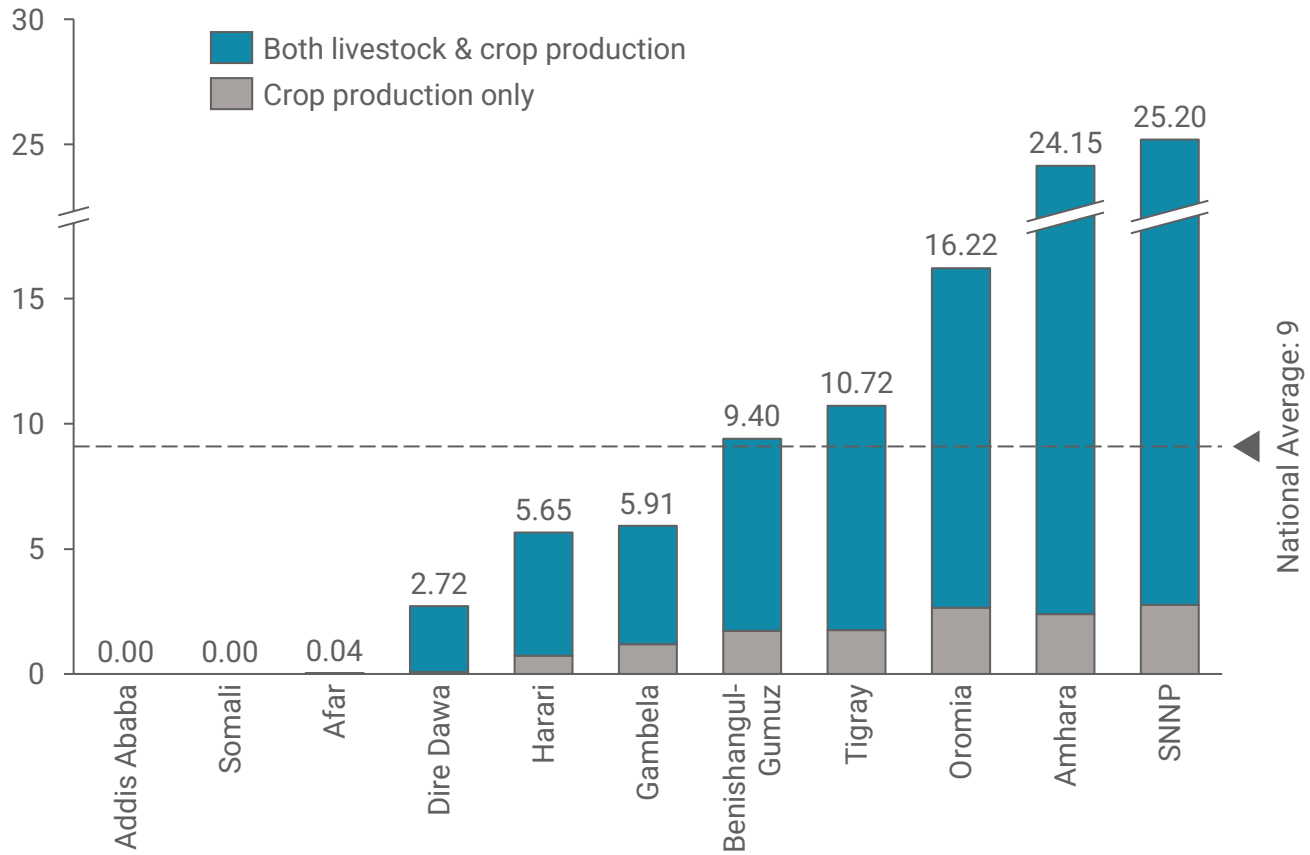
Note: ESS data is representative at the 1st admin level, however Addis Ababa, three zones in Afar and six zones in Somali regions were not surveyed. Sample size was 3969 households, with 3408 cleaned households. Source: World Bank and CSA, Ethiopia Socioeconomic Survey (ESS) Wave 4 data, 2018/2019; [1]World Bank, Gender and Youth Action Plan: Feed the Future Ethiopia Value Chain Activity, 2018

# ..and their distribution across the regions is highest at SNNP and Amhara regions and non-existent in Addis Ababa; mixed farming type is dominant

## Distribution of Small Holder Farmers Across the Regions

% of small holder farmers across the regions and their specific farming type



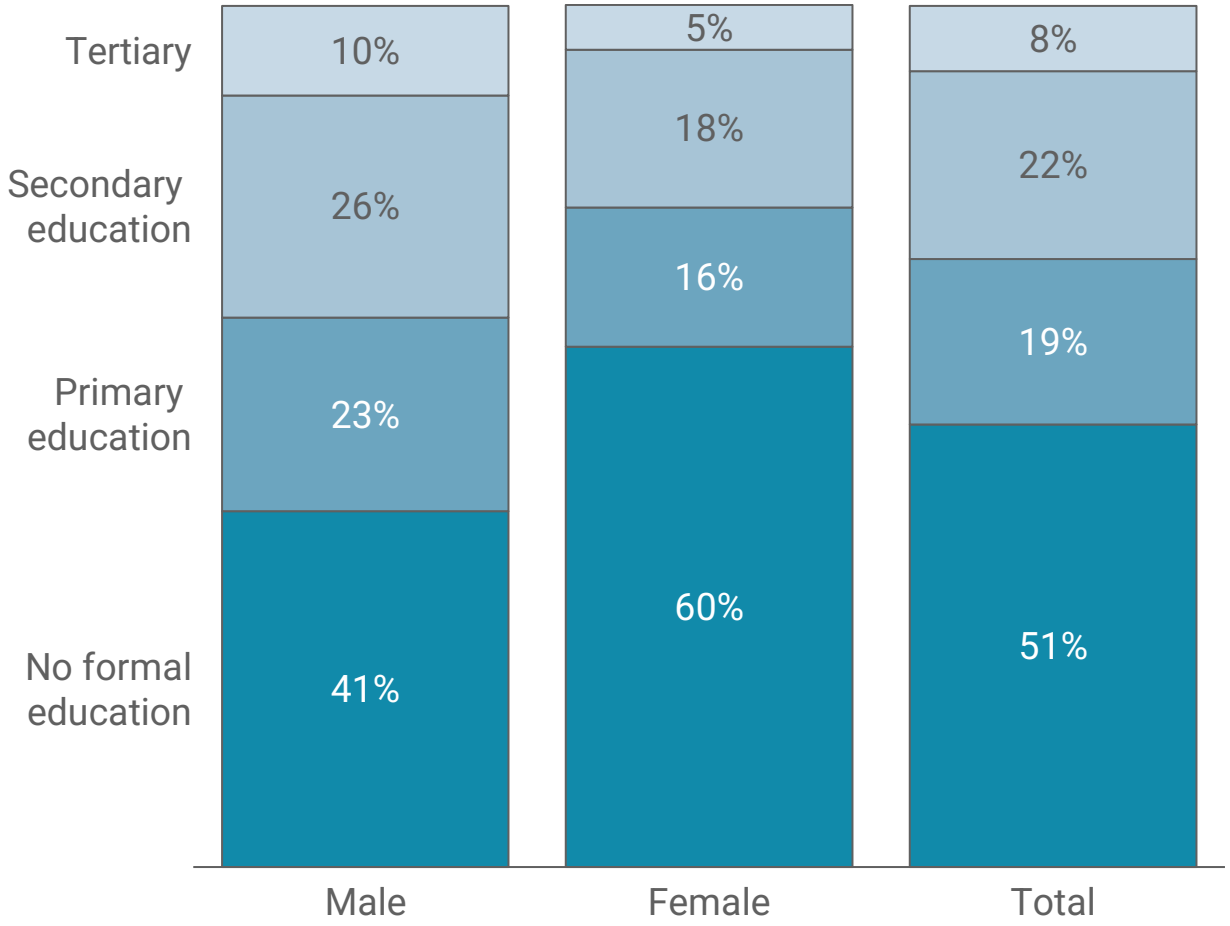

Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

# More than half of SHFs have no formal education; more males have at least secondary level of education compared to female SHFs



## Education level of SHFs (n = 6357)

% distribution of SHFs by level of education




- There is gender-based inequality in literacy levels in Ethiopia, as indicated by self-reported data showing that males have higher literacy rates, i.e., can read and write in any language, (57 percent) compared to females (43 percent) in all age groups and regions[1]
- This gender gap in education is likely to be even more pronounced among parents, with many women in Ethiopia facing significant barriers to accessing education, such as poverty, cultural norms, and limited access to educational resources. This can have significant implications for their own socio-economic status as well as the education levels of their children[2]
- The low level of education among SHFs can have significant implications for their livelihoods and the overall development of the agricultural sector in Ethiopia. Lack of education can limit SHFs' ability to access information and technologies, to make informed decisions about farming practices and market opportunities, and to participate effectively in agricultural extension programs and other support services[2]

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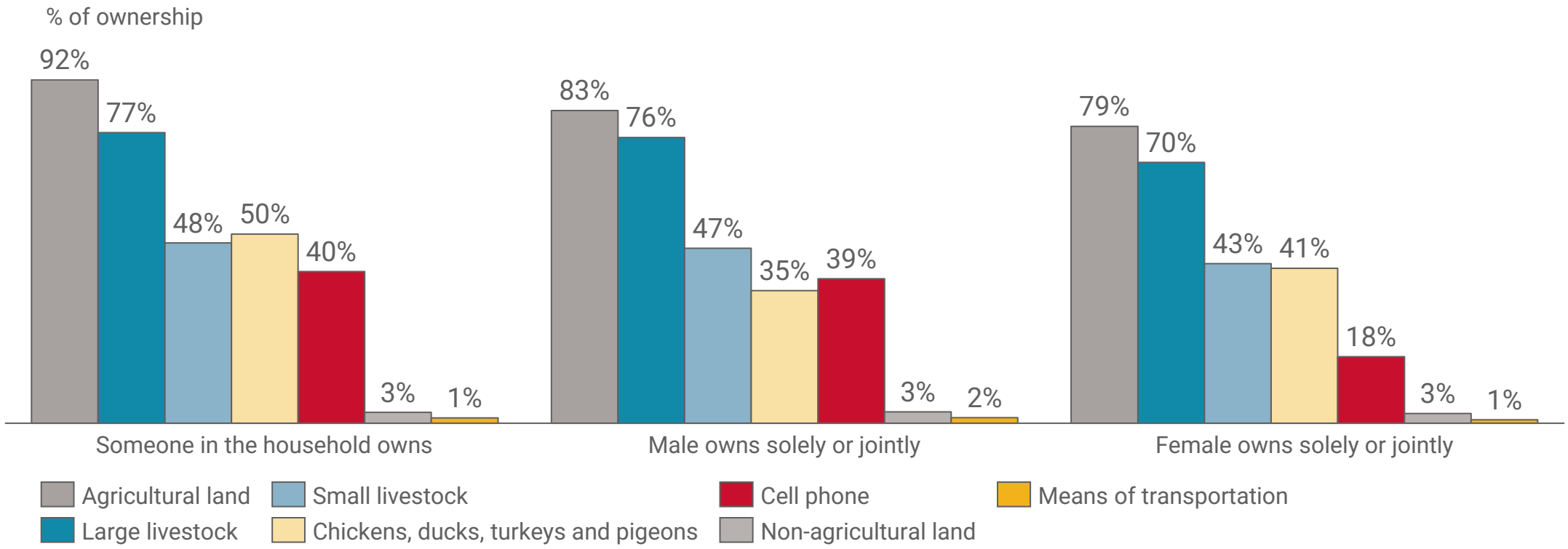
Source: CSA and World Bank, ESS4 survey data, 2018/2019; [1]Central Statistical Agency (CSA) and World Bank, LSMS-Integrated Survey on Agriculture, Ethiopia Socioeconomic Survey (ESS) report, 2021; [2]UN Women, the cost of gender gap in agricultural productivity in Ethiopia, 2018; UN Women, Changing the lives of women and girls, 2018

# As much as households have access to ownership of resources, women still have low access to resources compared to men even as joint owners

## Household ownership of productive resources (sample; total = 5,779, male = 2,527, female = 3,252)




- About 91.5% of households own agricultural land, 77.4% own large livestock, and 71.5% own non-mechanized farm equipment. Only 1.4% own means of transportation, 0.8% own mechanized farm equipment, and 0.3% own fishpond or fishing equipment.
- Men in Ethiopia own more assets than women, with a significant gap in cellphone ownership - 39% of men own cellphones compared to only 17.7% of women. However, women own more poultry and small consumer durables than men.

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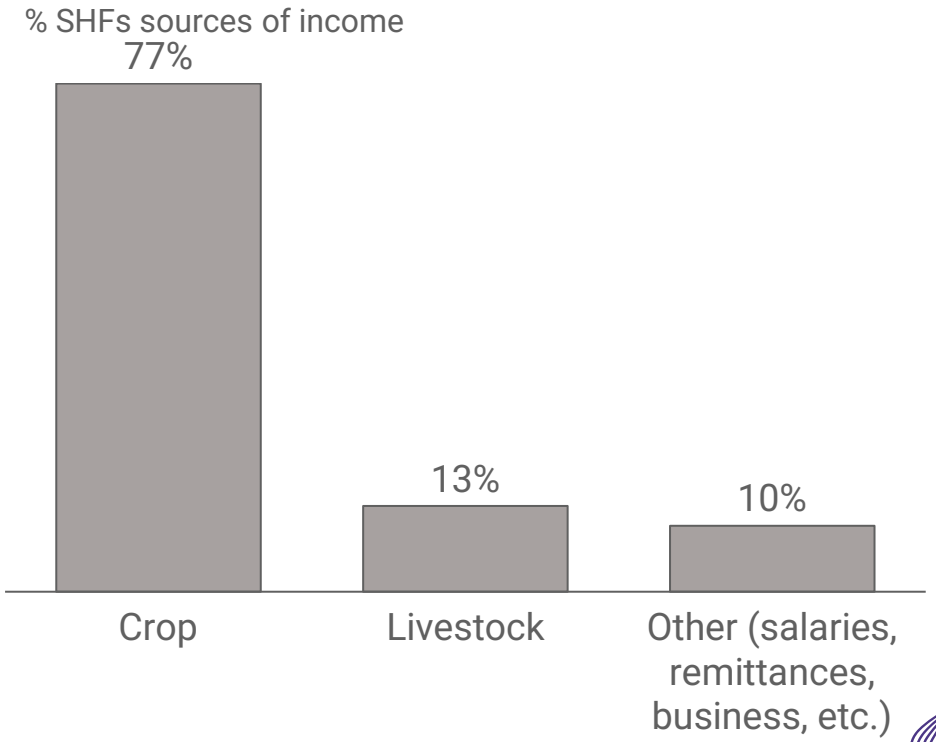
*Source*: *Feed the Future End-line ZOI Survey 2018, Ethiopia; Feed the Future, Zone of Influence End-line Assessment Report, 2019.*

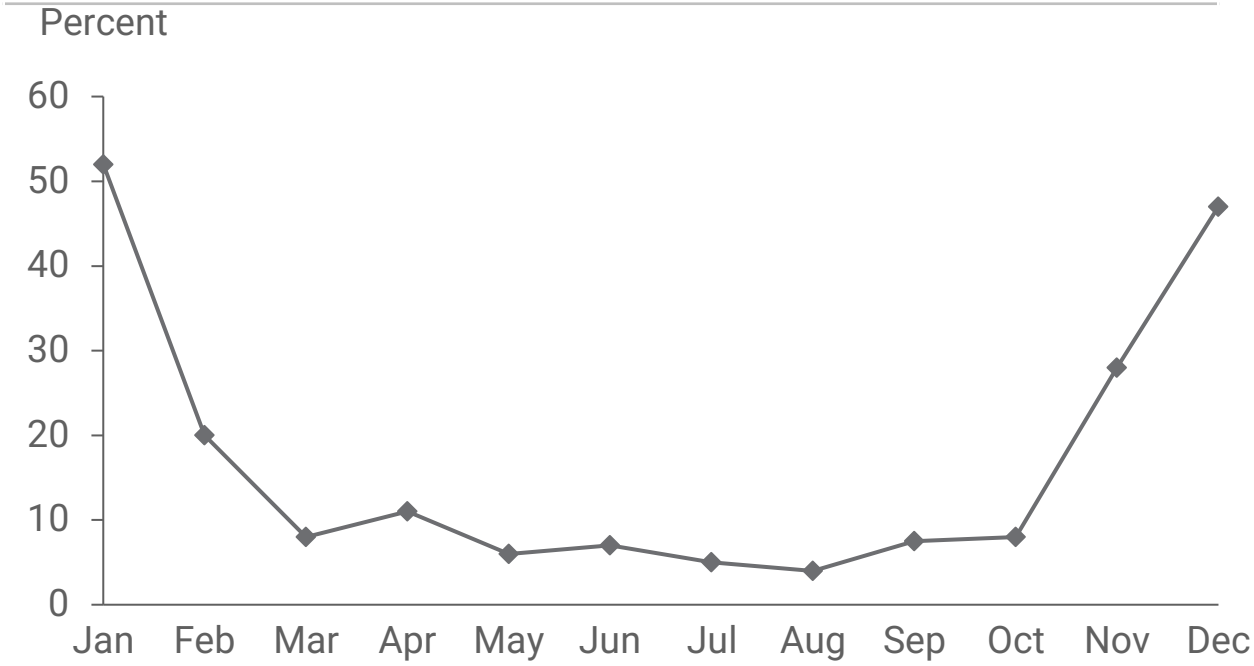
# The SHFs derive ~90% of their income from agriculture; they report a median annual income of ETB 19,700.

- SHFs reported a median annual income of ETB 19,700 per year (USD 680), with a median per capita income of about ETB 4,125 (USD 150). This corresponds to earnings of a little over ETB 54 (USD 1.85) per family per day.
- Most SHF households receive their income primarily during the harvest period at the end of the main rainy season (November-February), with low regular income between March and October. Vulnerability during this period is highest, especially from April to August, when the risk of food shortages peaks. Farmers with year-round income are more likely to own and trade livestock and have other sources of income such as salaries, remittances, etc.

## SHF sources of income




## Proportion of SHF HH that receive income in a given month

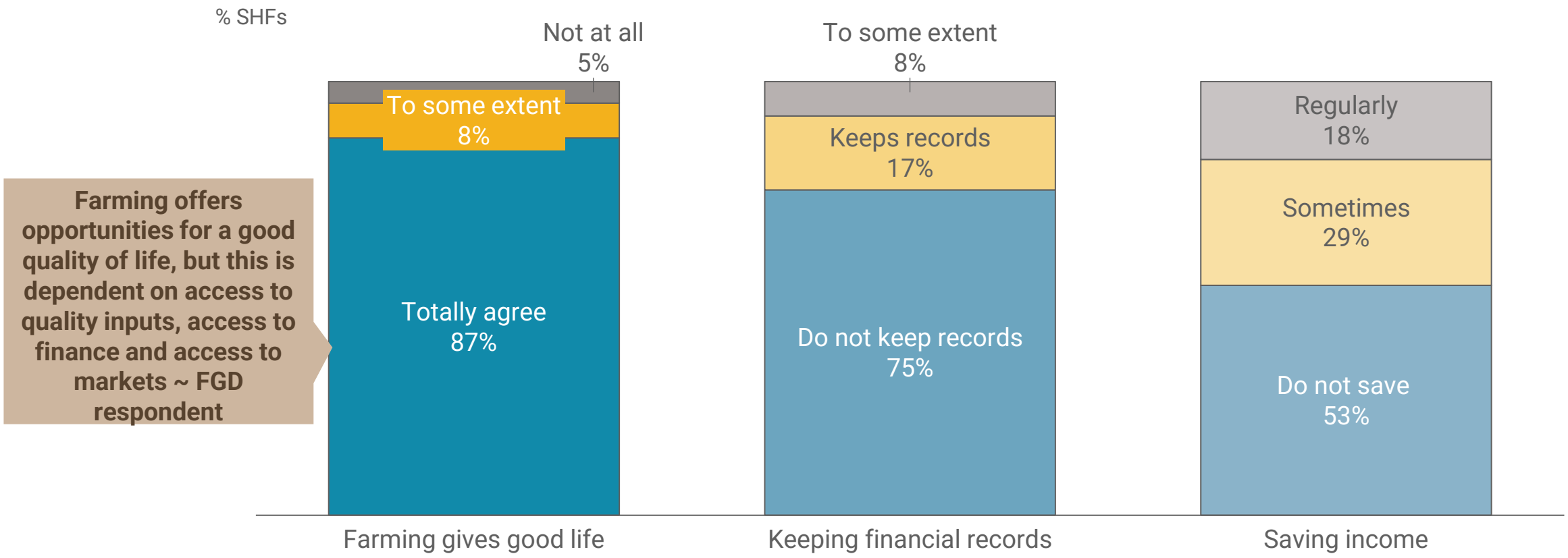



Source: Laterite, Ethiopian smallholder farmers' willingness to pay (WTP) for Crop Micro-Insurance | Final Report, 2019;
Note: The study was done in Amhara, Oromia, SNNP and Tigray regions of Ethiopia

# Most SHFs are optimistic about their prospects in farming; they do not have a large savings base neither do they keep financial records.

- Many farmers in Ethiopia have limited savings and do not keep financial records due to low income, lack of financial literacy, and limited access to financial services. However, initiatives such as the Rural Financial Intermediation Program, Ethiopian Commodity Exchange (ECX), and mobile-based financial services are helping to improve financial inclusion and provide farmers with access to credit, savings, and financial education.

## SHF profiling by satisfaction with farming, financial record keeping and saving their income (n = 1,020)




**Farming offers opportunities for a good quality of life, but this is dependent on access to quality inputs, access to finance and access to markets ~ FGD respondent**

Source: ICCO, Smallholder farmers of Ethiopia - Report by ICCO Cooperation, STARS Program, 2019;
Note: The study was done on Barley and Potato value chains in West Shewa and West Arsi Zones of Oromia region

# FARM CHARACTERISTICS

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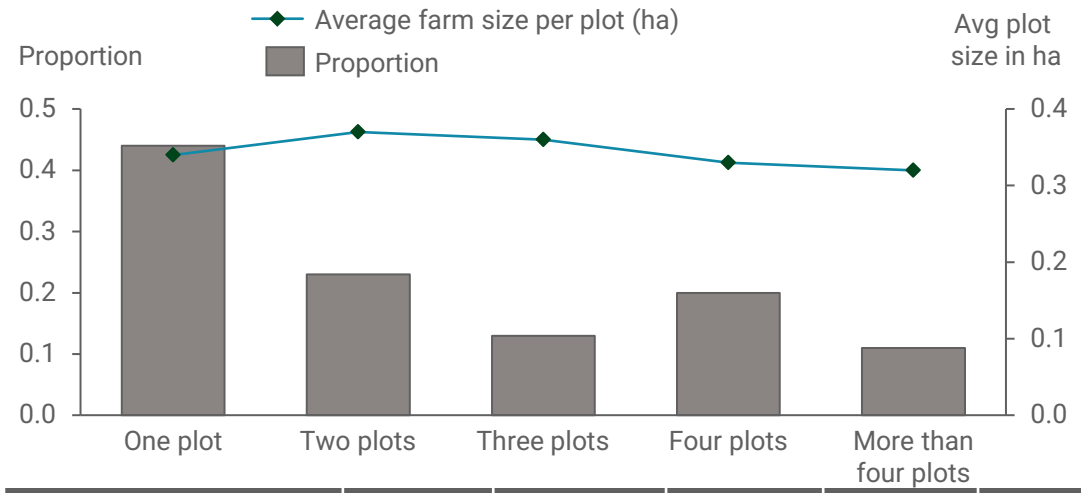
# The average size of land under cultivation varies with the regions in Ethiopia (urban/rural); ~75% household land by SHFs is under cultivation.

Farm size

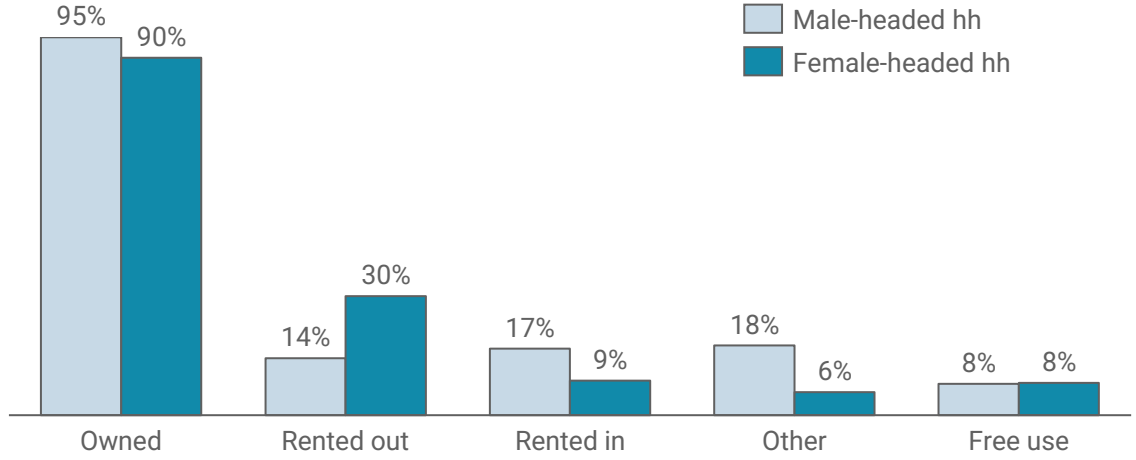
## Land fragmentation in Ethiopia

Proportion of plots owned and average farm size per plot in ha




## Household land tenure by gender (n = 33,302)

% household land tenure by gender of the household head




| Field size | Tigray | Amhara | Oromia | SNNP | Other regions | Rural | Small towns (urban) | Male headed HH | Female headed HH |
|---|---|---|---|---|---|---|---|---|---|
| Average HH land holding (ha) | **1.15** | **1.34** | **1.84** | **0.77** | **0.87** | **1.48** | **0.21** | **1.53** | **0.87** |
| Average cultivated land (ha) | 1.04 | **1.07** | **1.34** | **0.57** | **0.62** | **1.12** | **0.12** | **1.17** | **0.63** |

Female farm managers have smaller plots of land (average of 0.6ha) and grow fewer crops than male managers, which widens the gender gap in productivity. However, smaller plots tend to be more efficient, which can reduce the gender gap in yield[1].

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Source: Central Statistical Agency (CSA) and Living Standards Measurement Study (LSMS), World Bank, LSMS-Integrated Survey on Agriculture, Ethiopia Socioeconomic Survey (ESS), 2015/2016; [1]Gender Innovation Lab(GIL), Africa gender innovation lab Ethiopia gender diagnostic: building the evidence base to address gender inequality in Ethiopia.

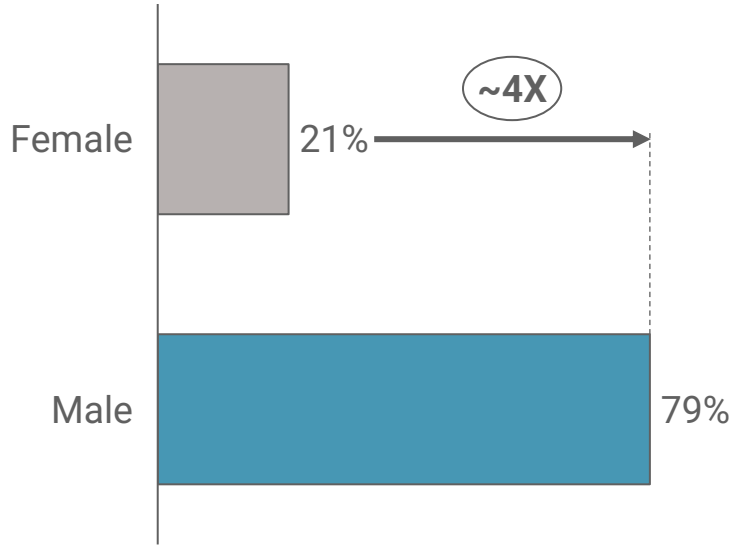
# There are ~4X male farm managers than female; the male managers have a higher yield rate per hectare compared to their female counterparts

Farm size

- In Ethiopia, female farm managers have a 36 percent lower yield per hectare compared to male managers. However, when considering other factors such as individual, household, and plot characteristics, this gap decreases to only 6 percent. This indicates that a significant portion of the gender gap in productivity is due to differences in these resources. While demographic characteristics can explain some of the gap, the main reason for the difference in productivity between male and female farmers is attributed to the level of resources available to them.
- The gender disparity in farm management in Ethiopia may be due to patriarchal societal norms, limited access to education and resources for women, and gender-based discrimination. Efforts to promote gender equity in the agricultural sector could address these disparities and create more opportunities for women to take on leadership roles and increase their income through digital financial and information services.

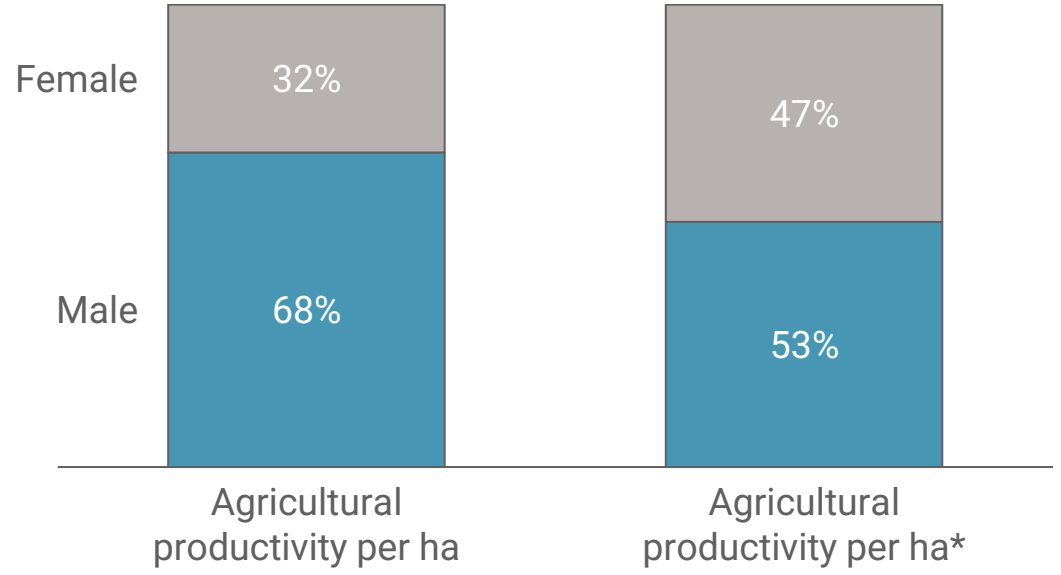
## Farm management by gender (n = 2907)

% of SHFs farm management by gender




## Farm productivity per hectare by gender

% of farm productivity by gender



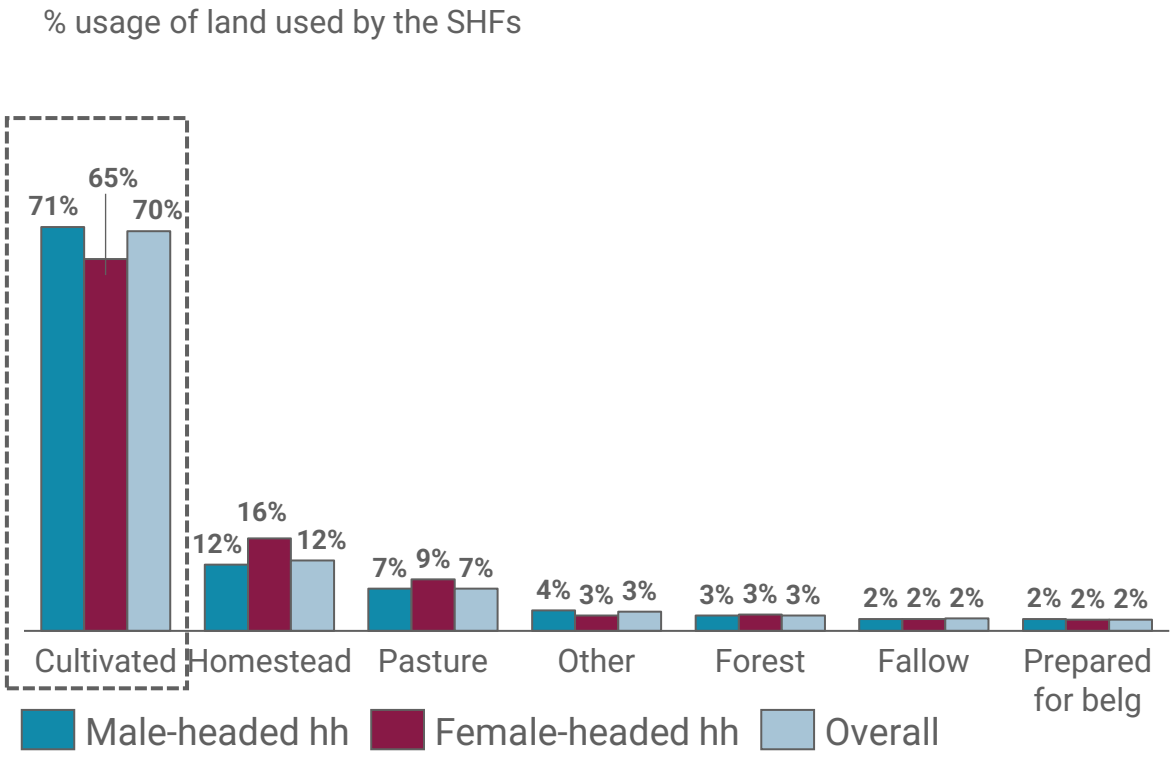

Source: Gender Innovation Lab(GIL), Africa gender innovation lab Ethiopia gender diagnostic: building the evidence base to address gender inequality in Ethiopia. Note: * - difference after accounting for observable characteristics such as individual, household and plot characteristics

Farm size

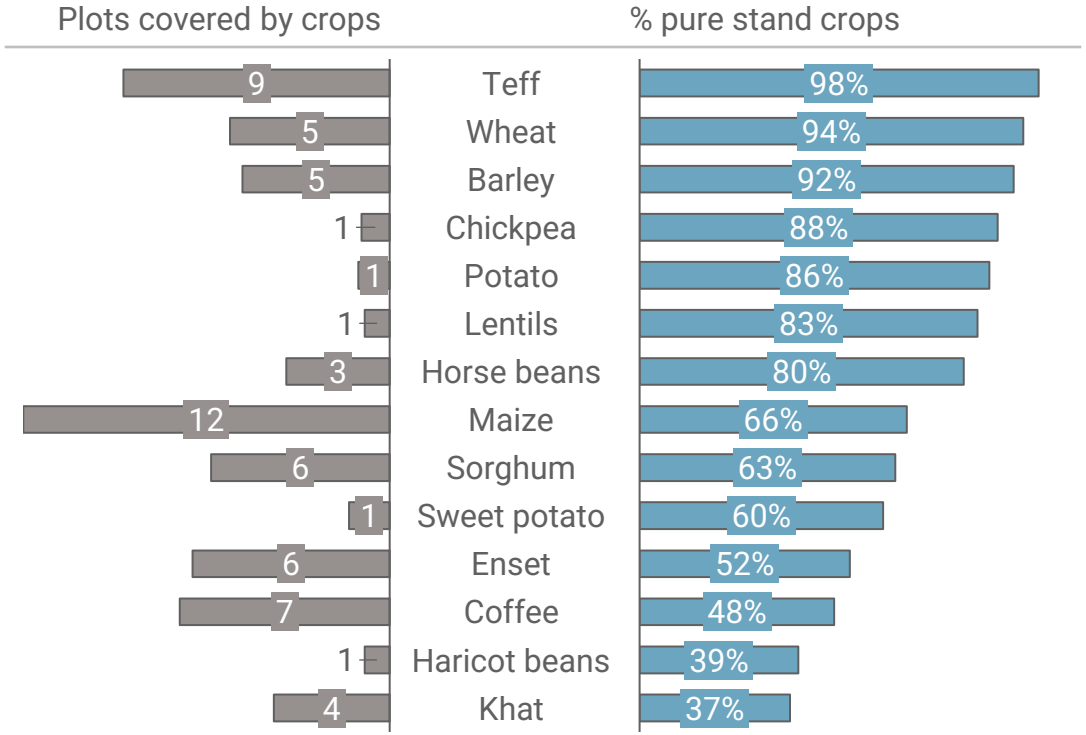
# On average, ~70% of the land owned by SHFs is used for crop cultivation; most crops are planted as pure-stand status.

- Rural households cultivate an average of 9 fields, each about 0.12 ha. Average land holding is 1 ha; of which about 0.75 ha is cultivated
- Male-headed households have larger holdings than female-headed households; on average, male-headed households cultivate 9 fields, and female-headed households 6; the former owns an average of 1.1 ha of cultivated land and the latter only 0.4 ha.
- Mostly maize, barley, teff, wheat, and horse beans are planted as a pure-stand status, but intercropping is common in khat, coffee, ensete, and haricot-bean fields[1]

## Usage of land owned by SHFs (n = 33,302)




## Field status crop plot coverage and pure stand status

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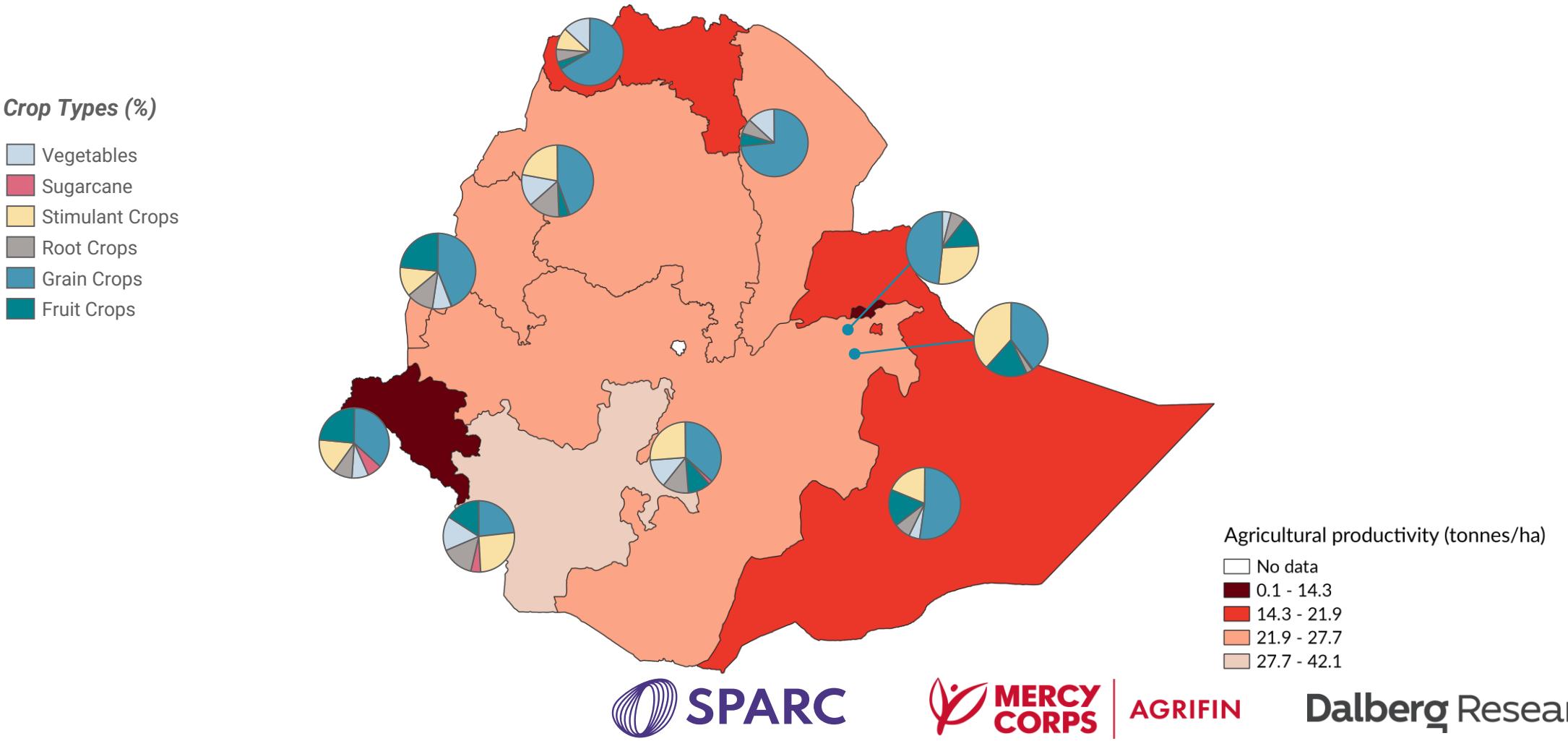
Source: Central Statistical Agency (CSA) and Living Standards Measurement Study (LSMS), World Bank, LSMS-Integrated Survey on Agriculture, Ethiopia Socioeconomic Survey (ESS), 2015/2016; [1]World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4, 2018/2019.
Notes: belg – short rainy season

# Production is dominant in the SNNP region with stimulant crops being the major produce, unlike in all the other regions that mostly produce grains

## SHF Crop Production per hectares

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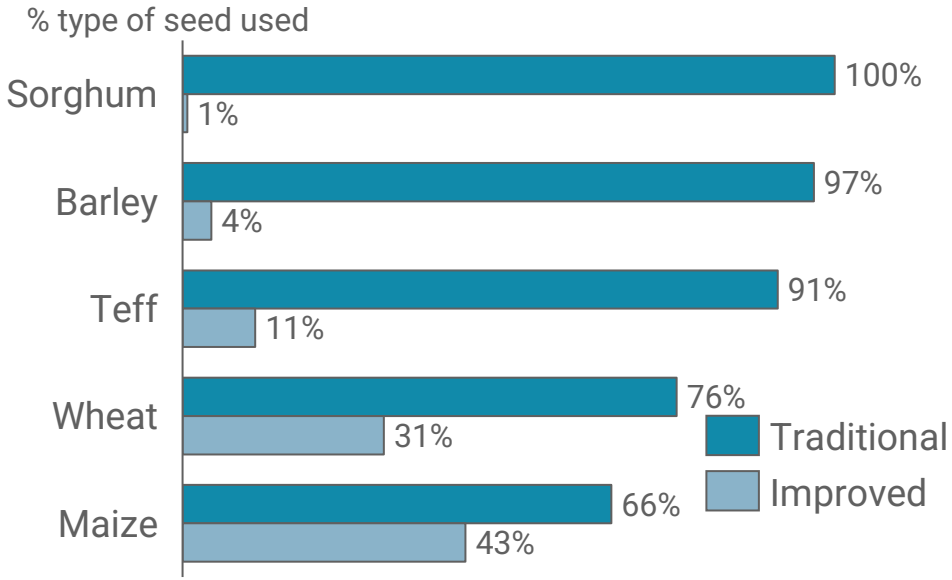
Note: Addis Ababa was not part of the agriculture survey. Grain crops include cereals like maize, teff, sorghum, etc., pulses such as faba beans, haricot beans, chick-peas etc., and oil seeds such as neug, sesame and linseed. Root crops like potatoes, sweet potatoes etc., and stimulant crops included chat, hops and coffee. The percentage include share of smallholder farmers producing the different crops. SNNP is the Southern National Source: Agricultural Sample Survey 2018/19 (2011 E.C.)

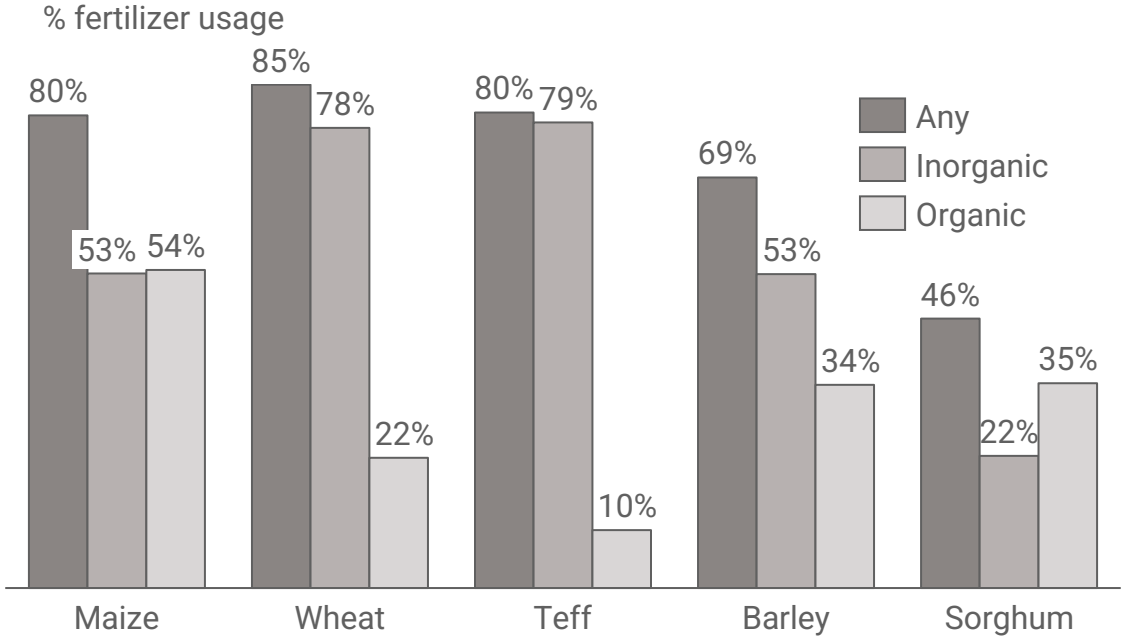
# To optimize the cultivation of the top five major grains, SHFs use a combination of traditional and modern inputs.

- Traditional seeds are used for almost all sorghum, barley, and teff fields. Improved seeds are used in 43 percent of fields with maize, 31 percent with wheat, 11 percent with teff, and 4 percent with barley.
- More than 80% of teff, maize, and wheat fields use some form of fertilizer. Inorganic fertilizer is applied to ~78% of wheat and 77% of teff fields, while about 53% of maize and barley fields also use inorganic fertilizer.
- Traditional methods such as organic fertilizers and crop rotation can improve soil fertility, while modern techniques like precision agriculture and improved seed varieties can increase yields. Digital tools such as mobile apps and drones can also assist in monitoring crops. The integration of both traditional and modern practices can enhance productivity, quality, and sustainability of agricultural production[1]

## Type of seeds used by SHFs




## Fertilizer usage by SHFs



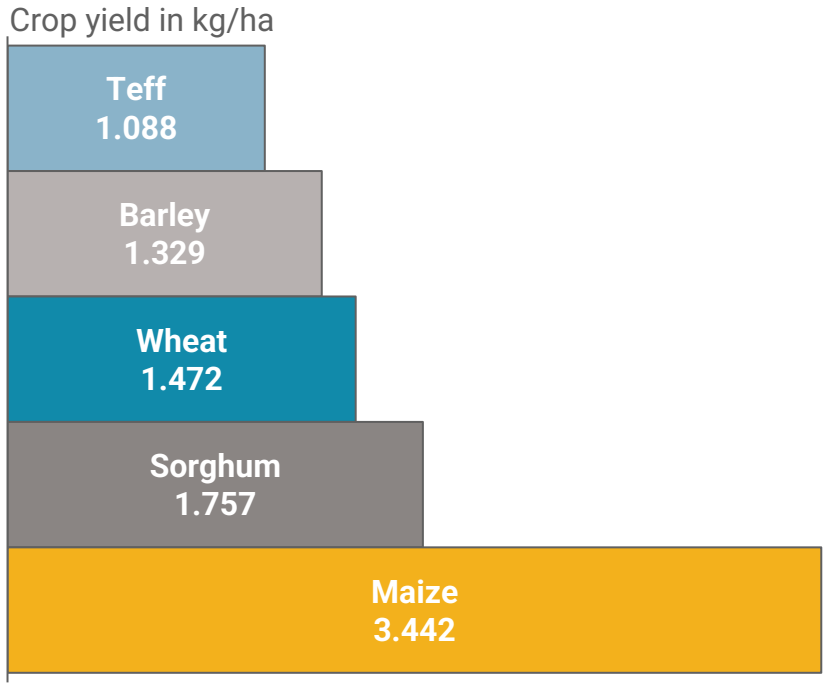

SPARC MERCY CORPS AGRIFIN Dalberg Research

Source: Central Statistical Agency (CSA) and Living Standards Measurement Study (LSMS), World Bank, LSMS-Integrated Survey on Agriculture, Ethiopia Socioeconomic Survey (ESS), 2018/2019; [1]FAO, Climate Smart Agriculture Sourcebook. Food and Agriculture Organization of the United Nations, 2016. Notes: Values under seed traditional and seed improved do not add to 100 as households may use traditional for one plot of a crop, and improved for another; major grains - barley, maize, sorghum, teff and wheat

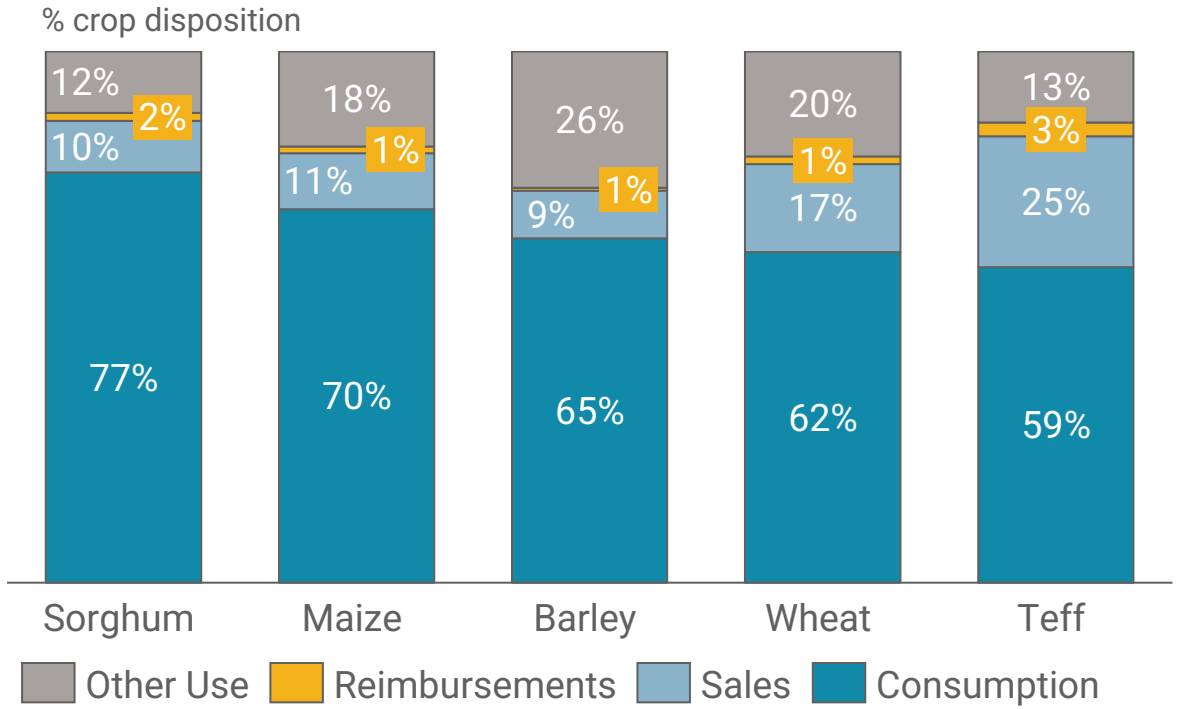
# SHFs get the most yield/ha from maize; they grow sorghum and maize for household consumption whilst teff and wheat are their most sold

- On average, yields per ha of maize were about 3,442 (34.4 quintals [q]), sorghum 1,757 (17.6 q), wheat 1,472 (14.7q), barley 1,329 (13.3 q), and teff 1,088 (10.9 q)
- A significant portion of the harvest from the top five crops is used for household consumption, with 62% of wheat, 59% of teff, 65% of barley, 70% of maize, and 77% of sorghum being consumed at home
- Only a small proportion of the harvest is used for in-kind wages or animal feed, and the remaining harvest is typically either saved for seed (7-21%) or sold (10-25%), depending on the crop. Farmers tend to sell high-value food grains such as teff and consume grains such as sorghum.

## Yield for major crops ('000s)




## Crop disposition by SHFs during the *Meher Season*

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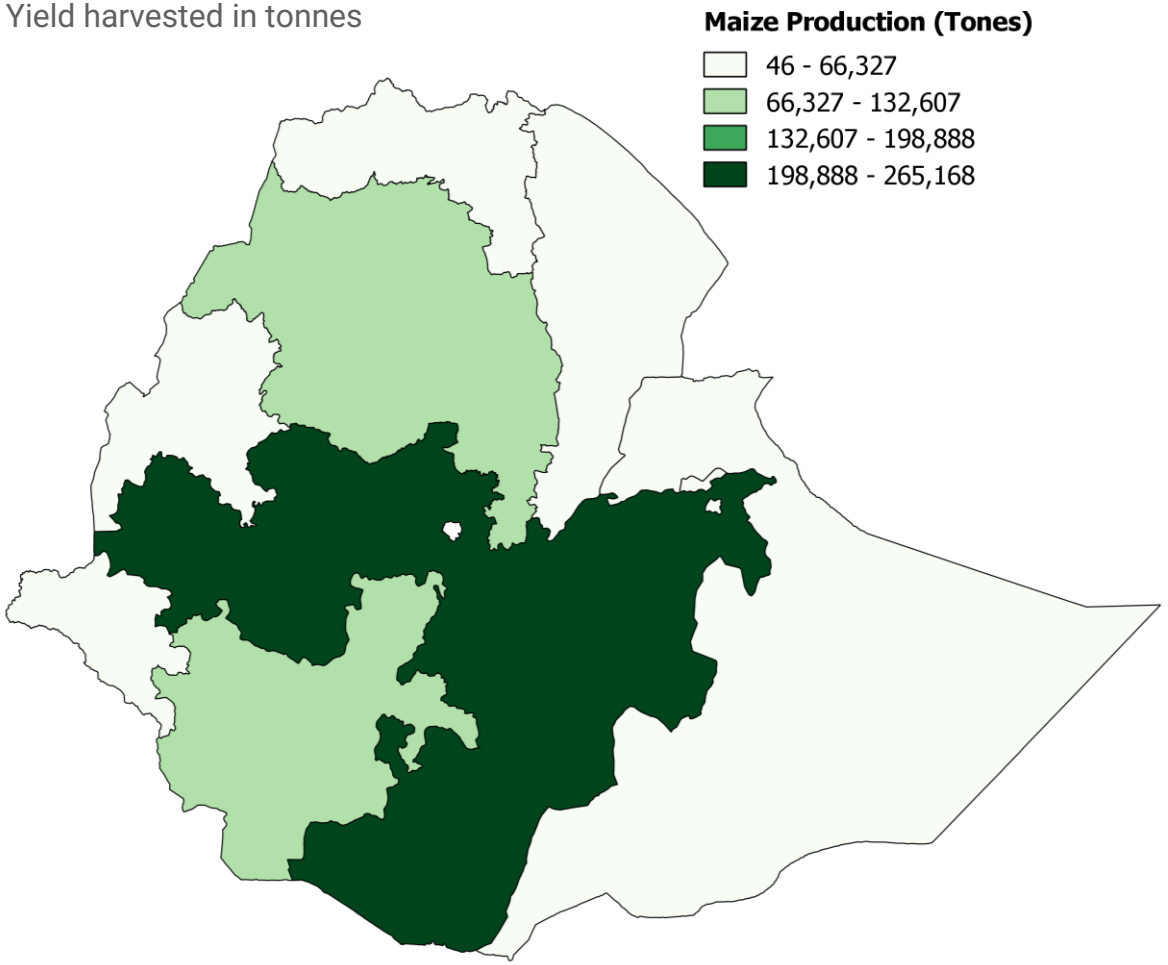
Source: Central Statistical Agency (CSA) and Living Standards Measurement Study (LSMS), World Bank, LSMS-Integrated Survey on Agriculture, Ethiopia Socioeconomic Survey (ESS), 2018/2019;
Notes: Other use – seed, gift, animal feed; reimbursements – for land, labor or inputs, Meher – main season (May-September)

# Maize production is dominant in Oromia region, which accounts for approximately 38% of the total population in Ethiopia.

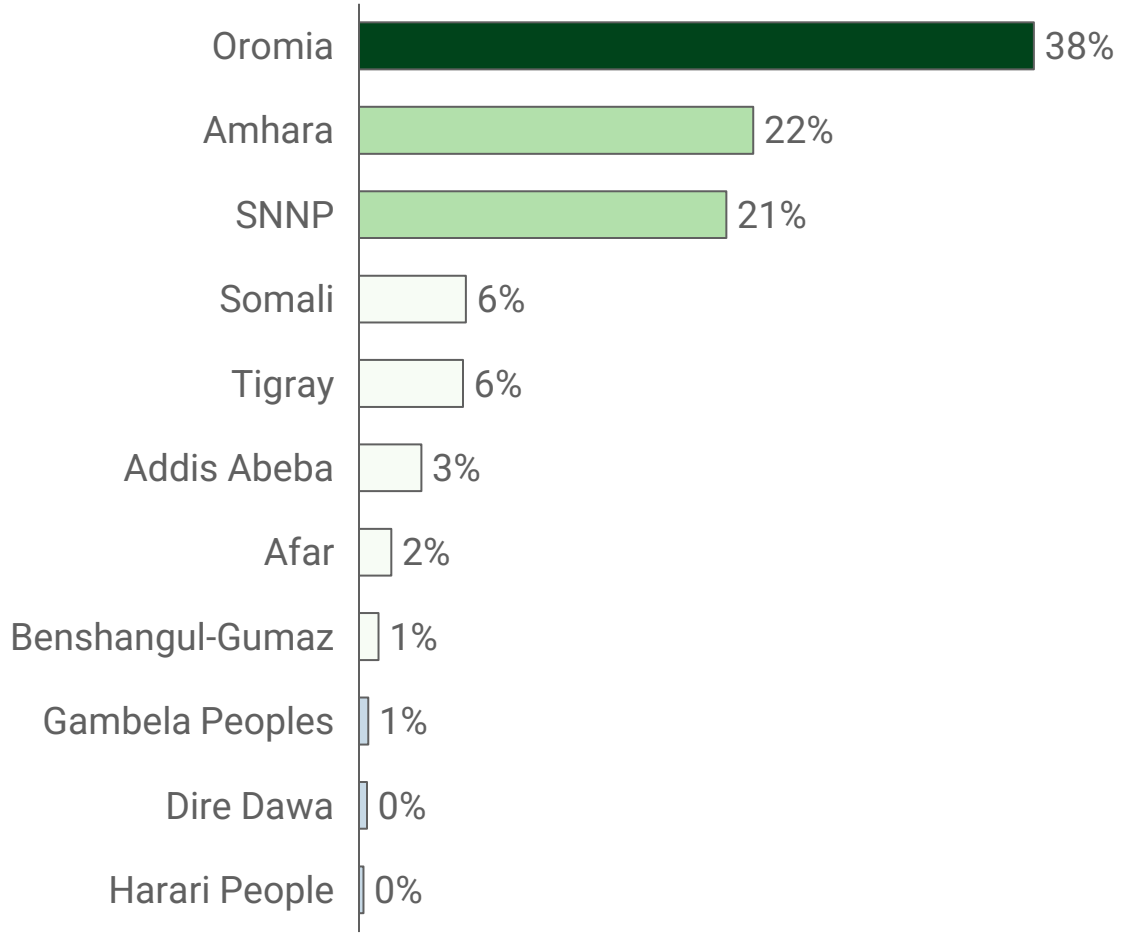
## Maize production in Ethiopia

Yield harvested in tonnes




## Population Distribution in Ethiopia

Regional population

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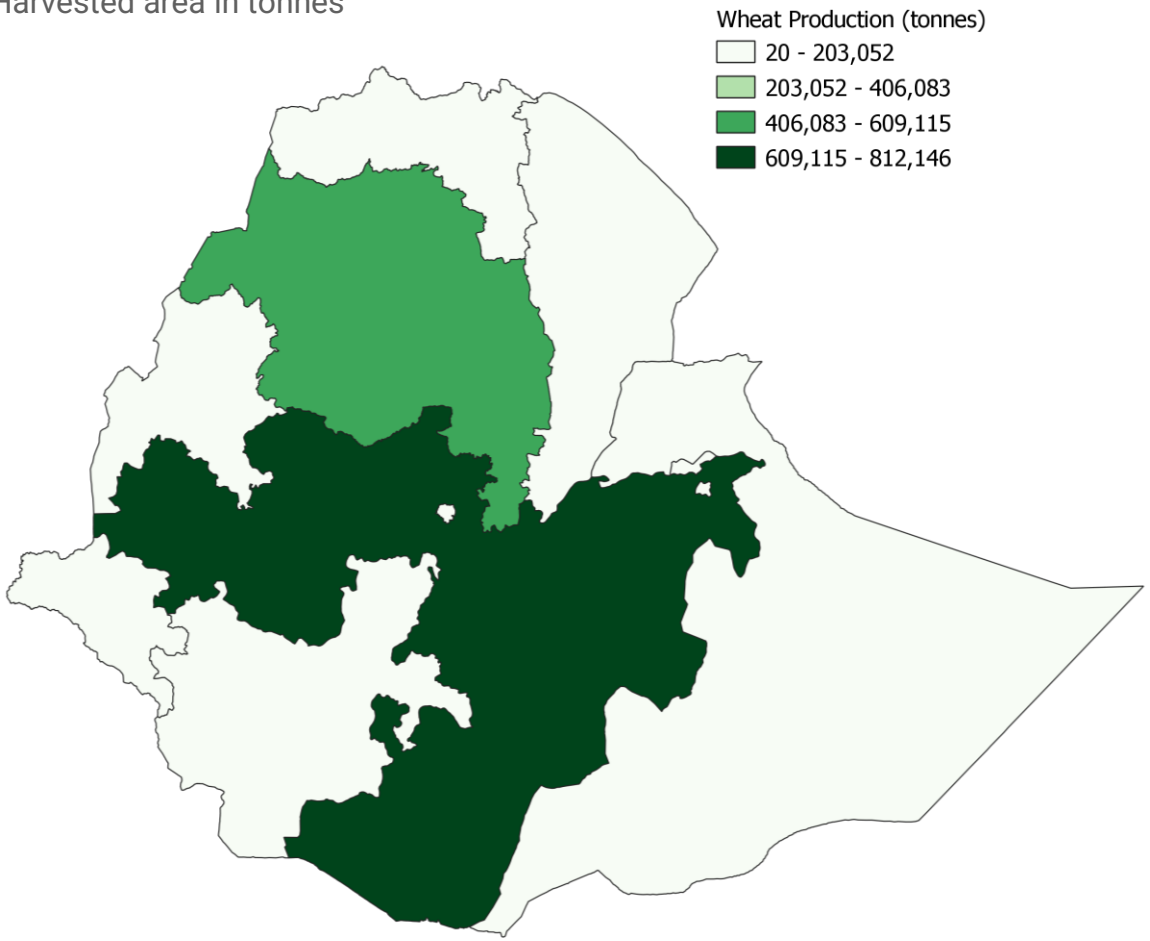
Source: FAOSTAT, 2017, & WorldPop 2017

# Wheat production is dominant in Oromia and Amhara which collectively contribute approximately 50% of the total population in Ethiopia.

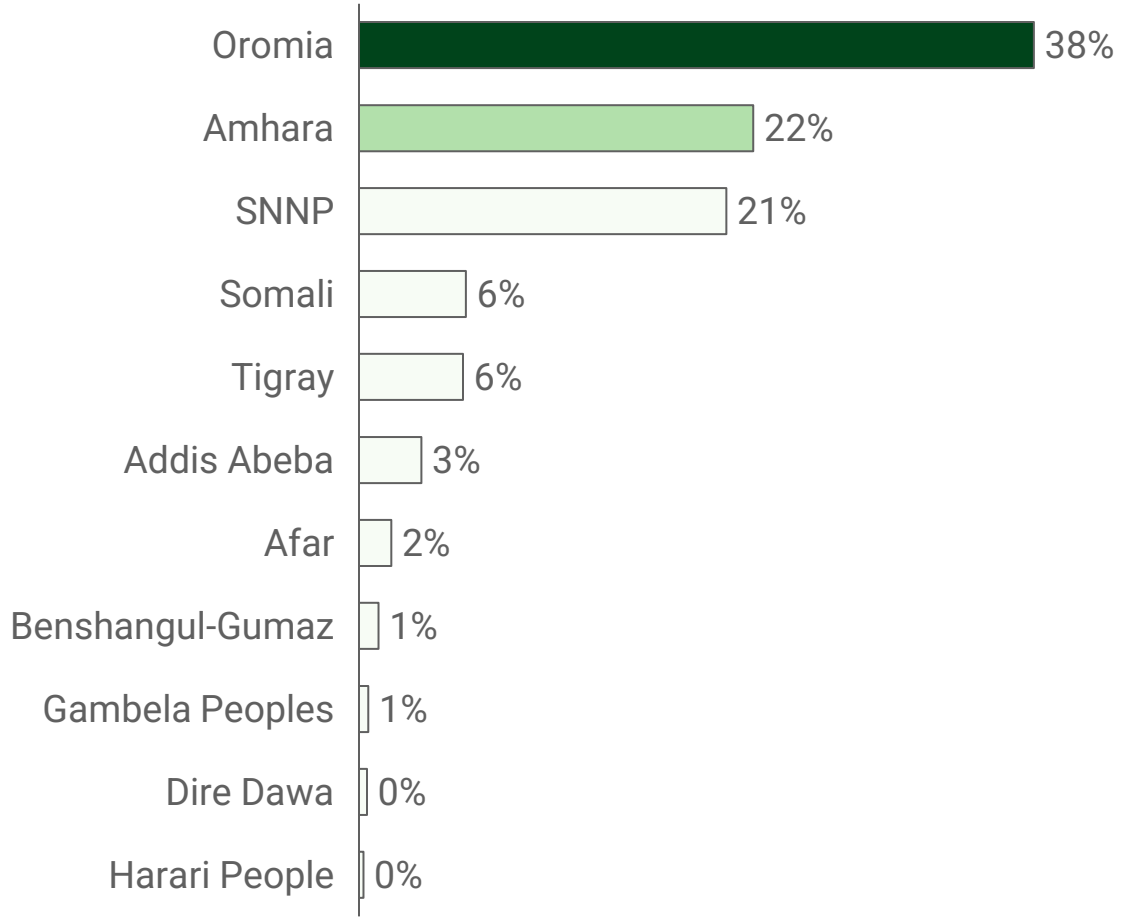
## Wheat harvested in Ethiopia

Harvested area in tonnes




## Population Distribution in Ethiopia

Regional population

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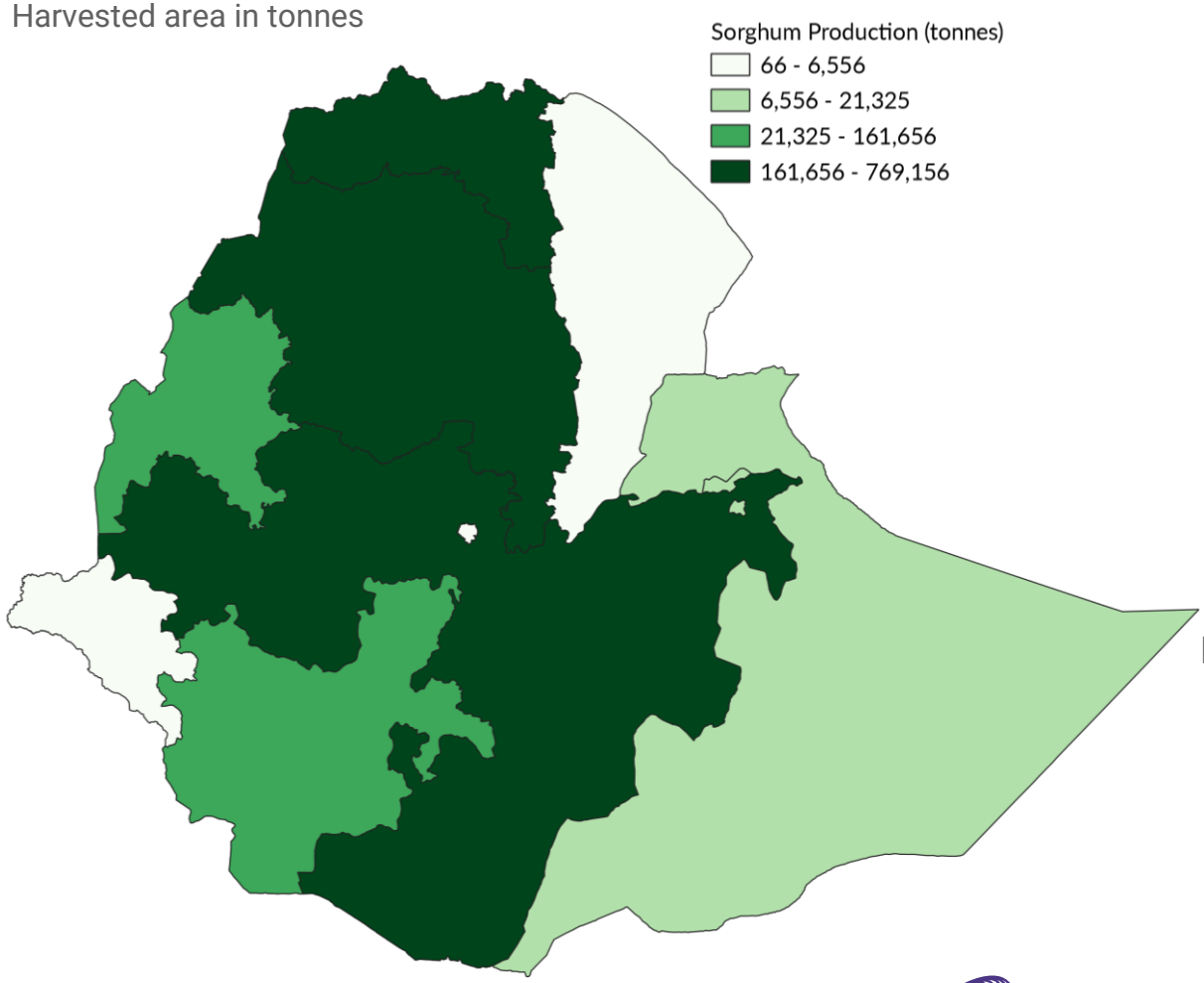
Source: FAOSTAT, 2017, & WorldPop 2017

# Sorghum production is dominant in places that have high population density

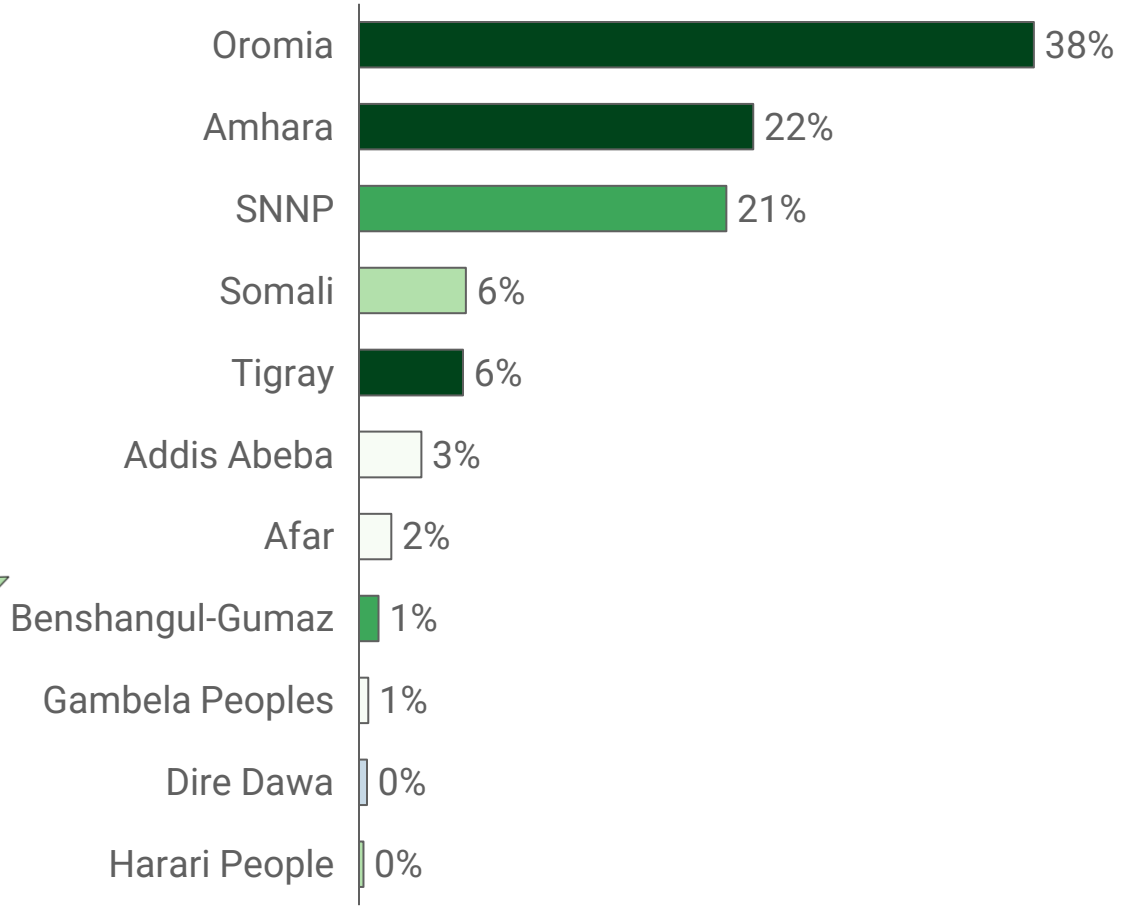
## Sorghum harvested in Ethiopia

Harvested area in tonnes




## Population Distribution in Ethiopia

Regional population

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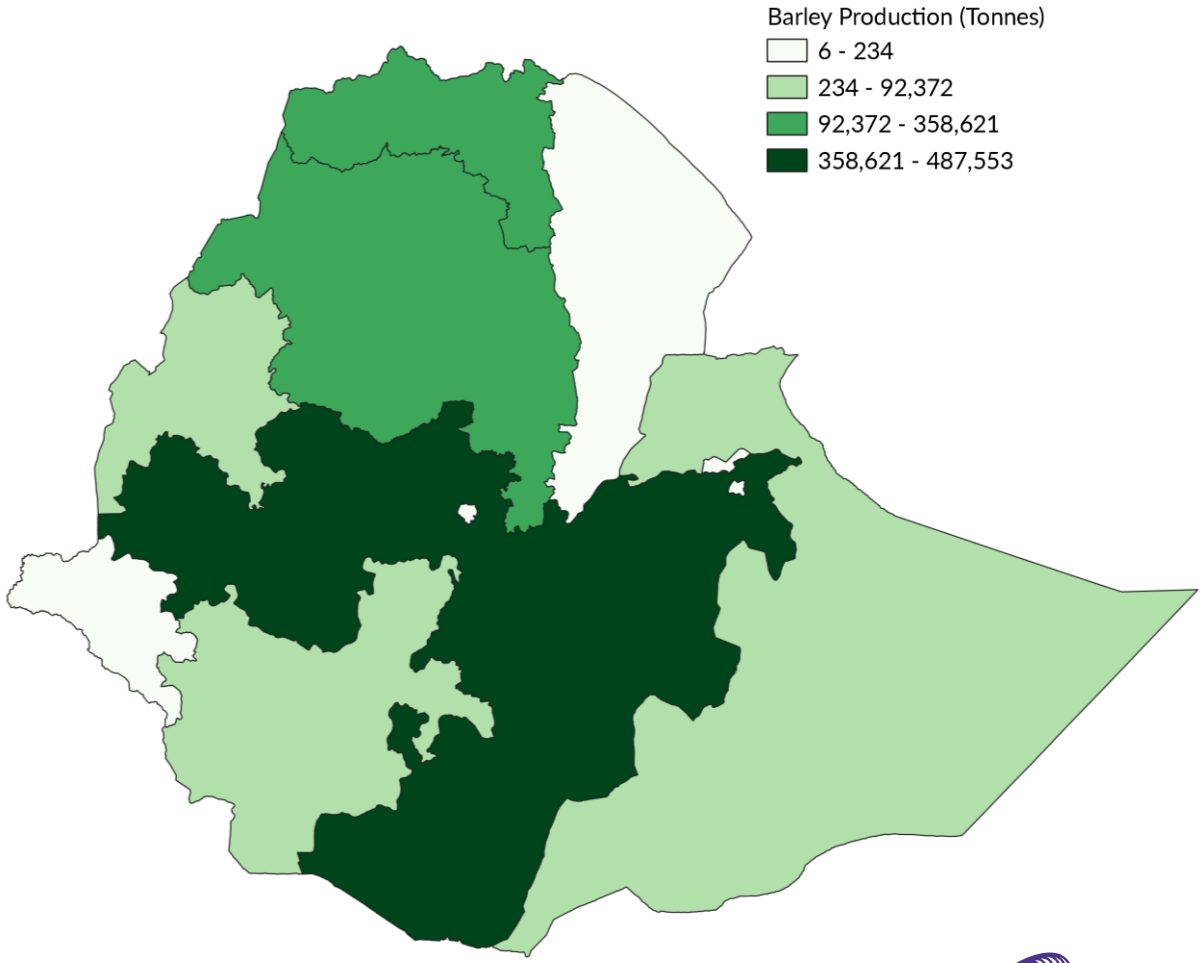
Source: FAOSTAT, 2017, & WorldPop 2017

# Barley production is dominant in places that have high population density

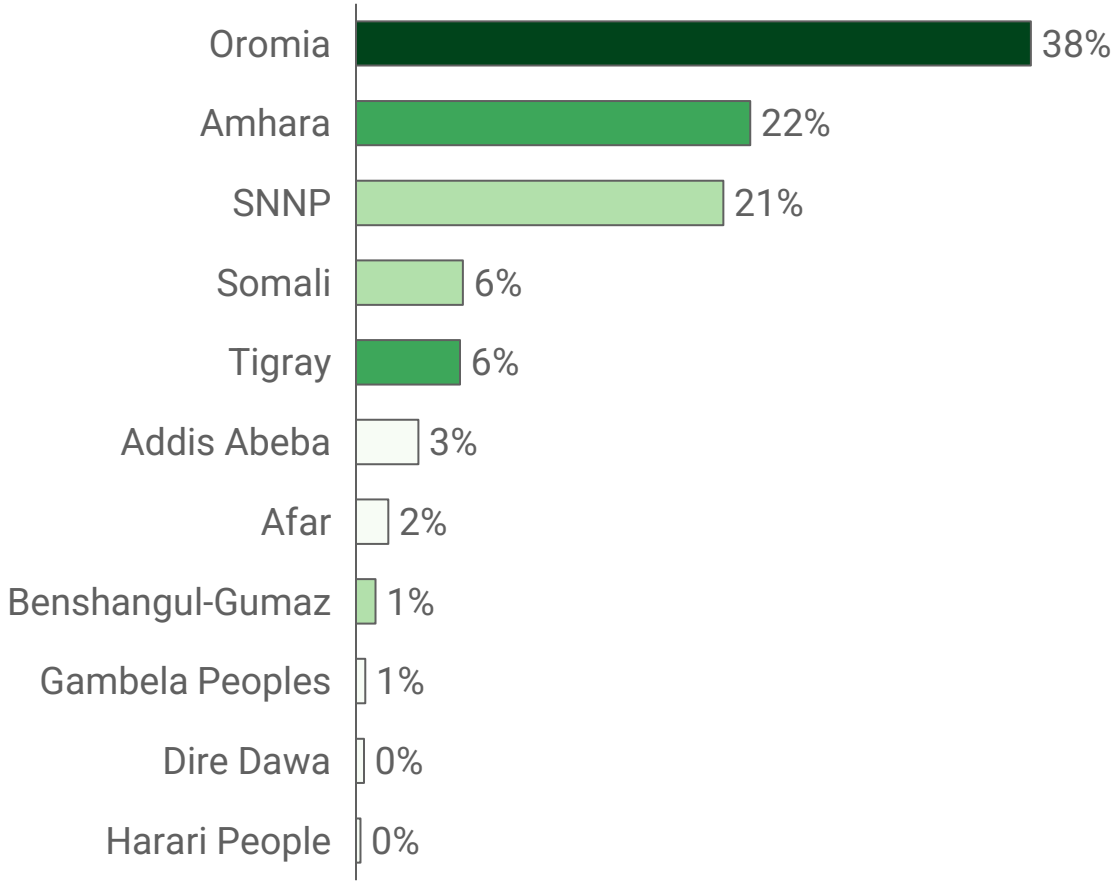
## Barley harvested in Ethiopia

Harvested area in tonnes




## Population Distribution in Ethiopia

Regional population

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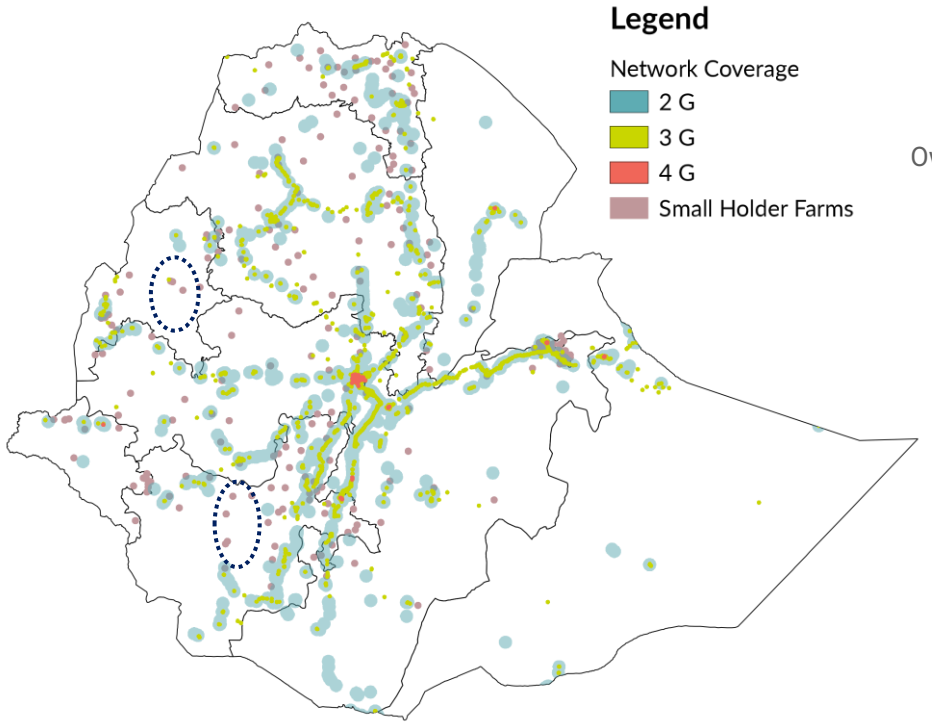
Source: FAOSTAT, 2017, & WorldPop 2017

# Most of the areas where SHF exist is well covered by network; however, some central parts of SNNP and Benishangul-Gumuz remain underserved.

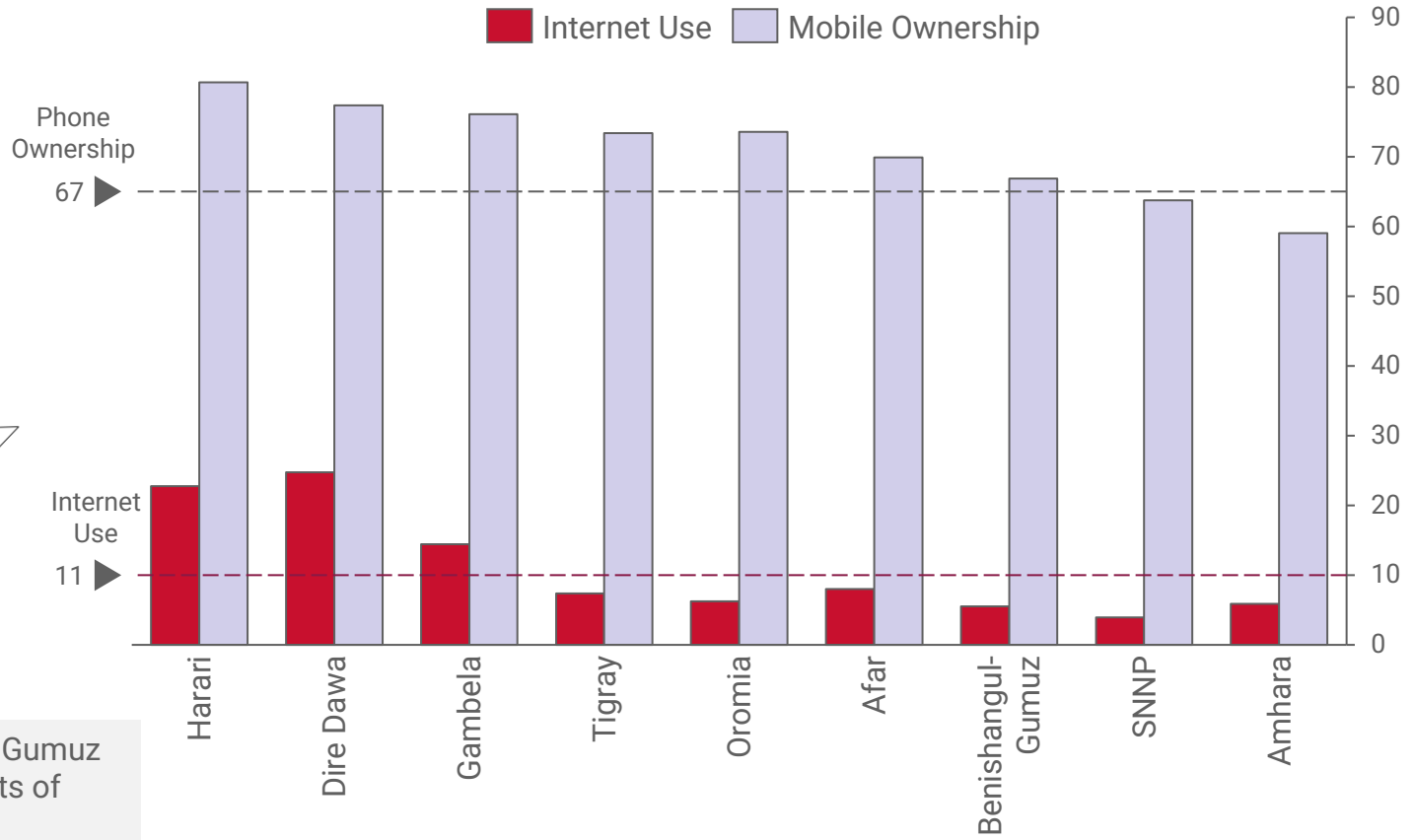
## Network coverage among SHFs, 2021

Coverage by type




Small holder farmers in the central parts of SNNP and Benishangul- Gumuz have limited network coverage making it difficult to enjoy the benefits of accessing useful information on yield

## Level of digital penetration




Note: Addis Ababa and Somali regions were excluded due to low presence of farming households
Source: Malaria Atlas Project, Open Street Maps, DHS 2015 & 2019 and GSMA

# FARM CONTEXT

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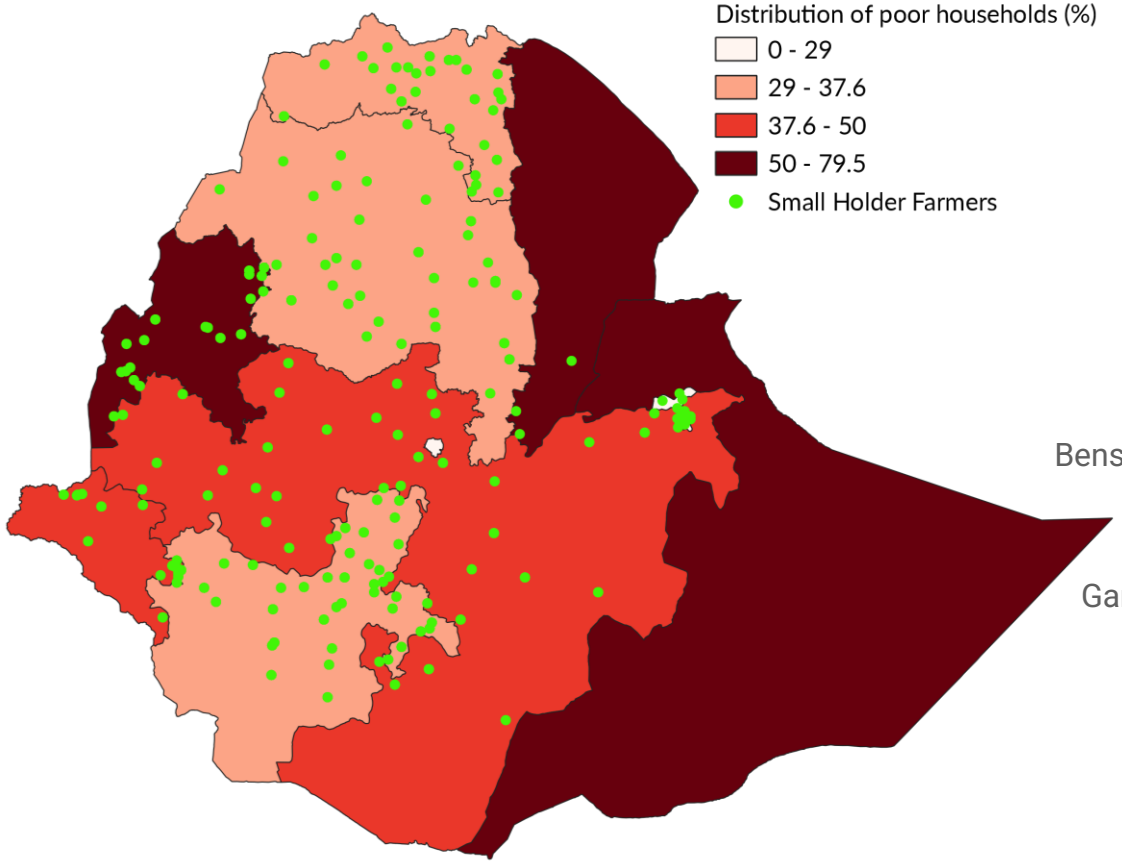
# Most SHFs Regions have poor households; more than half of Benishangul-Gumuz's households are living in poverty.

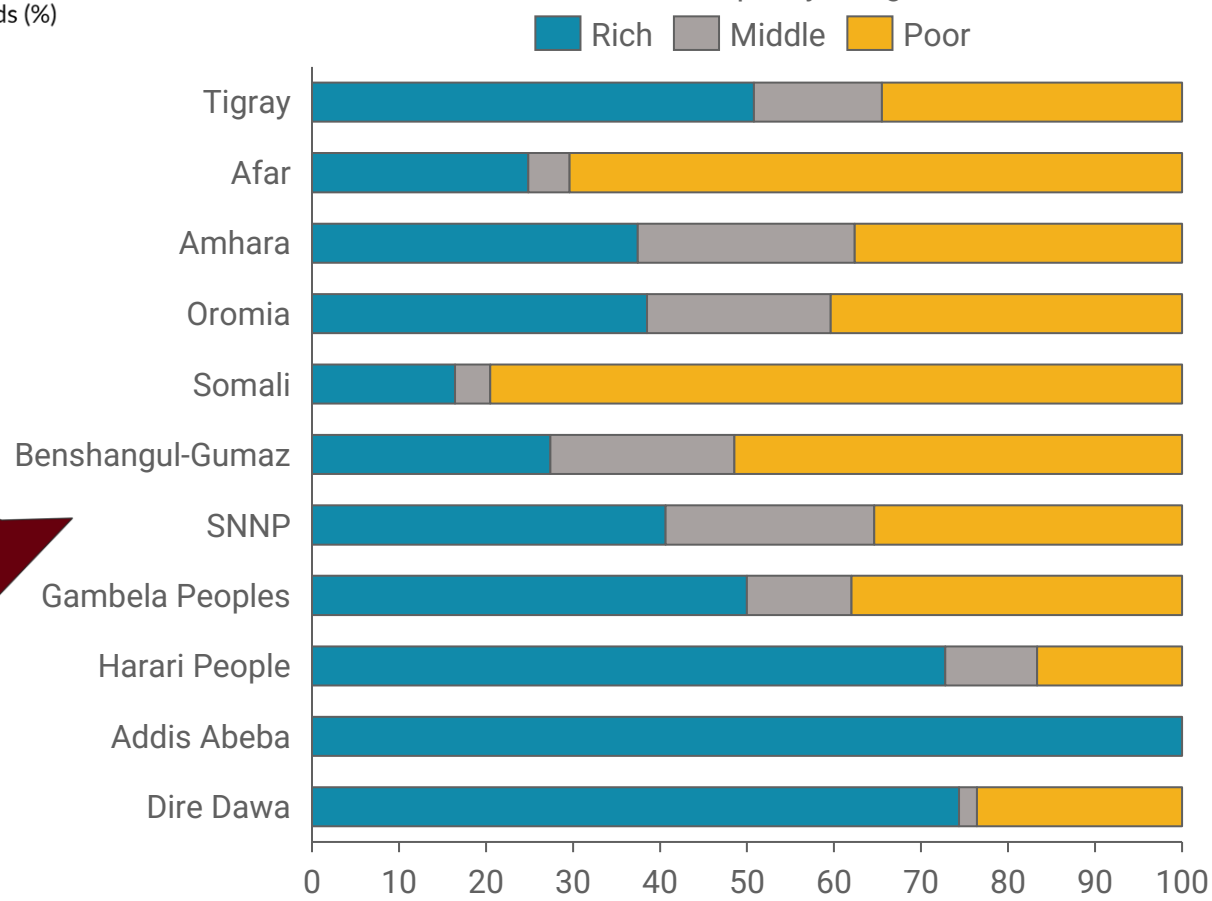
## Wealth Index[1] among SHFs in Ethiopia

Distribution of poor households in Ethiopia




## Wealth Index in Ethiopia by Regions

Distribution of households in Ethiopia by living standards

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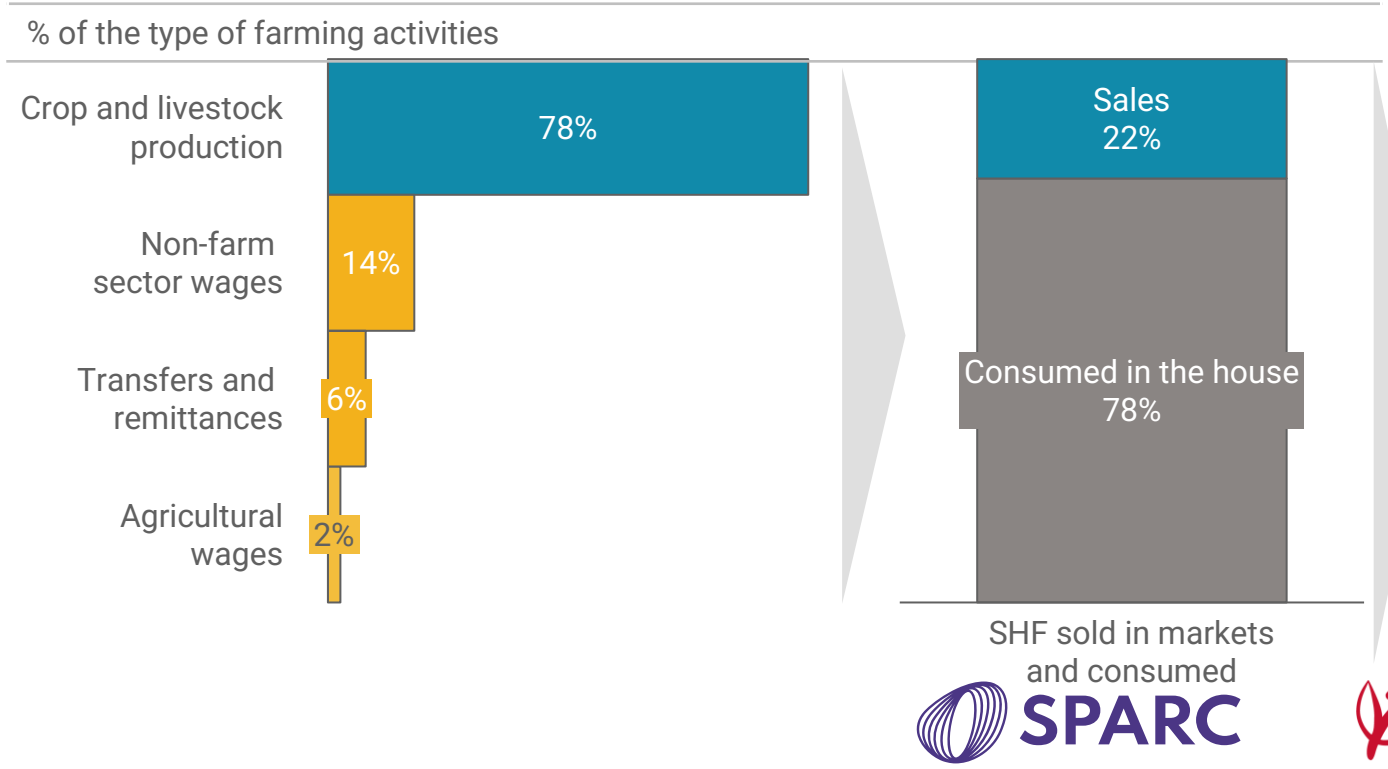
Source: Demographic and Health Survey (DHS), 2018

Notes: The Wealth Index is a composite measure of a household's cumulative living standard using easy to collect data on households' ownership of selected assets

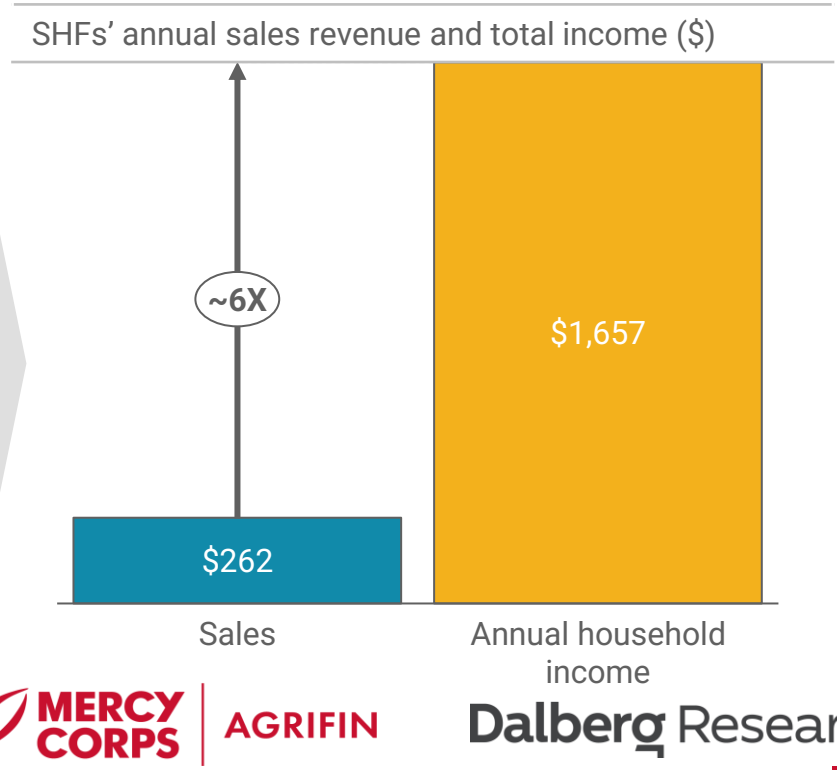
# SHFs have diversified their income sources; crop and livestock sales is their main source of income

- SHFs rely mainly on crop and livestock production for income, with only 14% coming from non-farm sector labor. Despite low productivity, they pursue off-farm employment opportunities, with about three family members working per day, but these jobs pay very little, with an average daily return of $1.30
- Smallholders diversify their income to reduce their exposure to risk and supplement their limited income from crop and livestock production. Their limited productive assets often force them to supply their labor for low returns in the unskilled labor market
- Smallholders who face cash constraints rely on off-farm income sources, including employment in other farms. This option is particularly important for those without specific skills

## Income diversification patterns




## Annual sales revenue and total income

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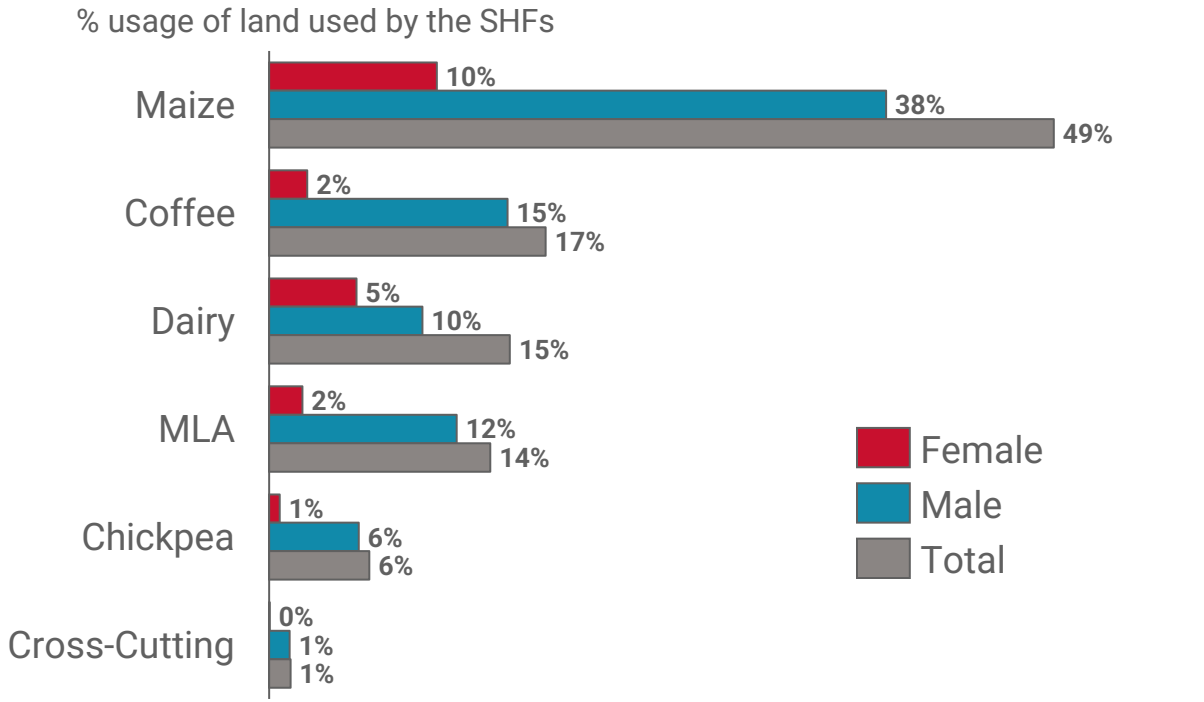
Source: FAO, The economic lives of smallholder farmers, an analysis based on household data from nine countries, 2015.

Farm size

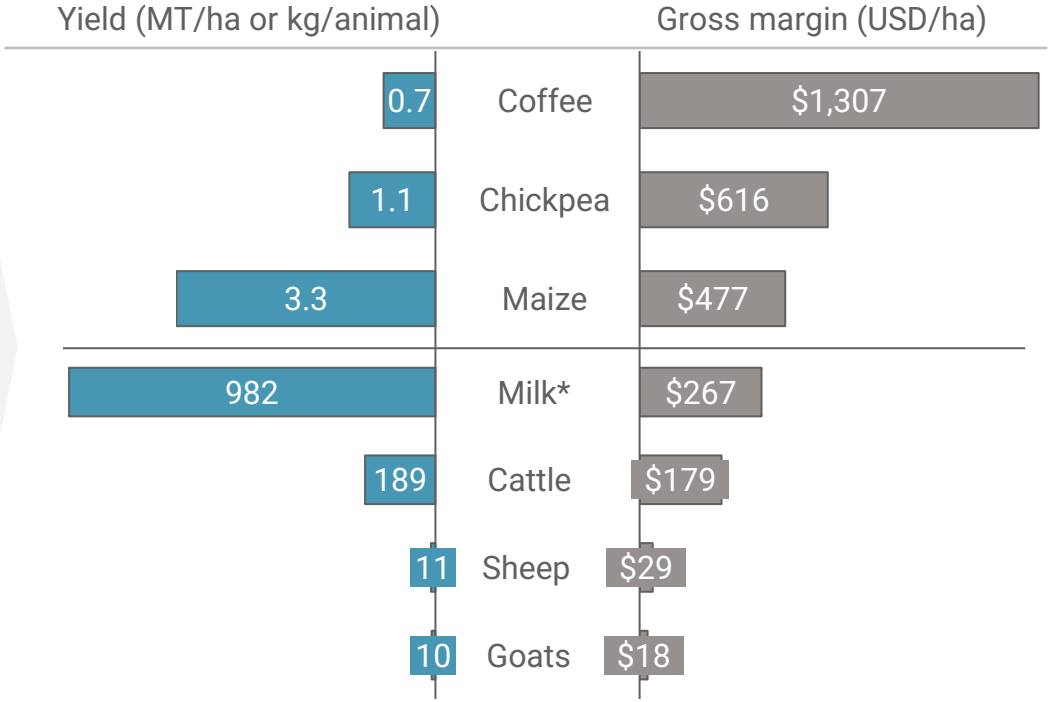
# The SHFs practice a mixed farming system as their source of income and livelihood; maize farming is the most practiced type of crop farming

- The SHFs engage in both subsistence and commercial crops, with maize being the favored crop for almost half of the farmers, as it is used for both home consumption and commercial purposes. Coffee is the major cash crop grown by SHFs, with an average of 17% of them being involved in its cultivation
- SHFs keep livestock for meat, sale as live animals and milk. Milk is the major income earner for the smallholders followed by cattle
- The average household income has more than doubled from $507 in the base year to $1.272 for the FY 2018

## Usage of land owned by SHFs (n = 71,676)




## Annual Yield and Gross Margin for crop and livestock

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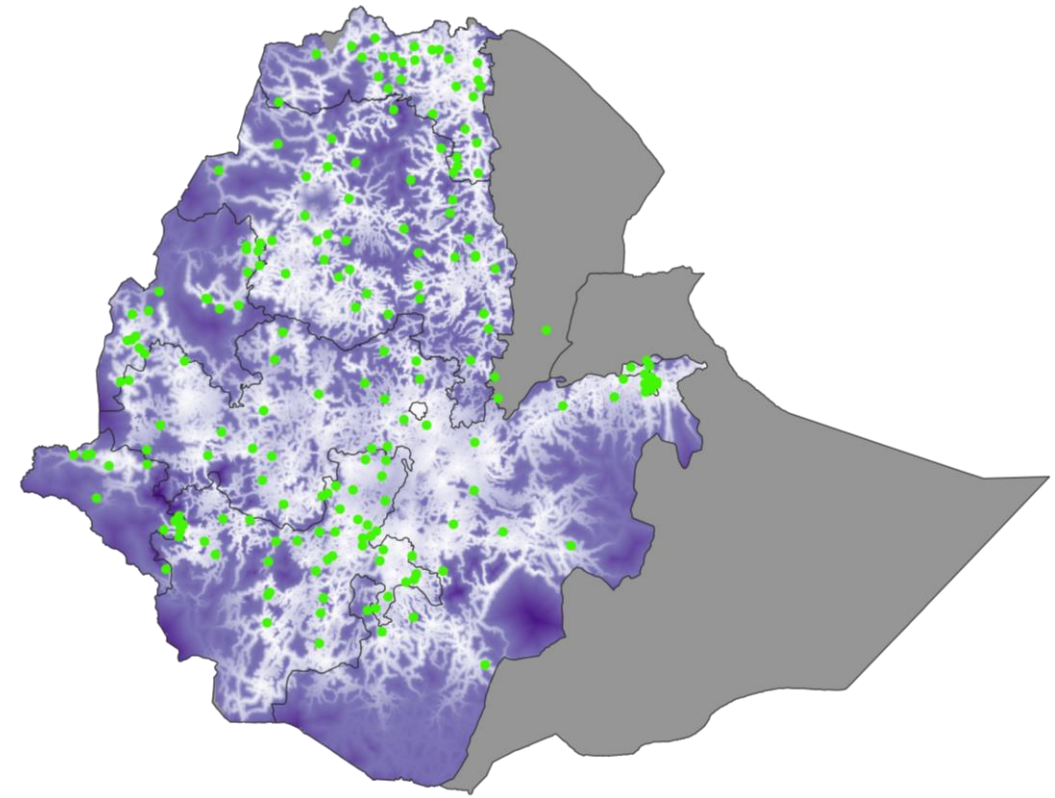
Source: USAID, Feed the Future Value Chain Activity | FY 2018 Annual Report
Notes: MLA – Meat and Live Animal; Cross-cutting – practicing more than one value chain; Milk* - milk measured in litres/animal/year

# Almost 80% of small holder farmers take approximately an hour to access the nearest market

## Travel time to markets in Ethiopia

Travel time in minutes



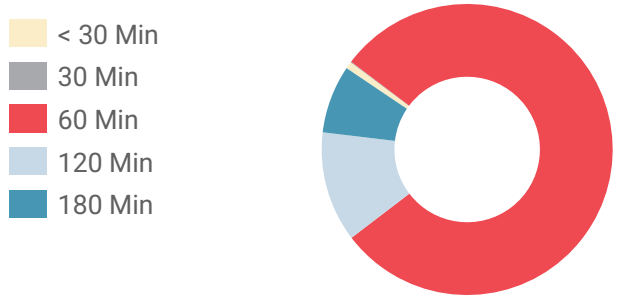
Travel time (Minutes)

0 — 1,500

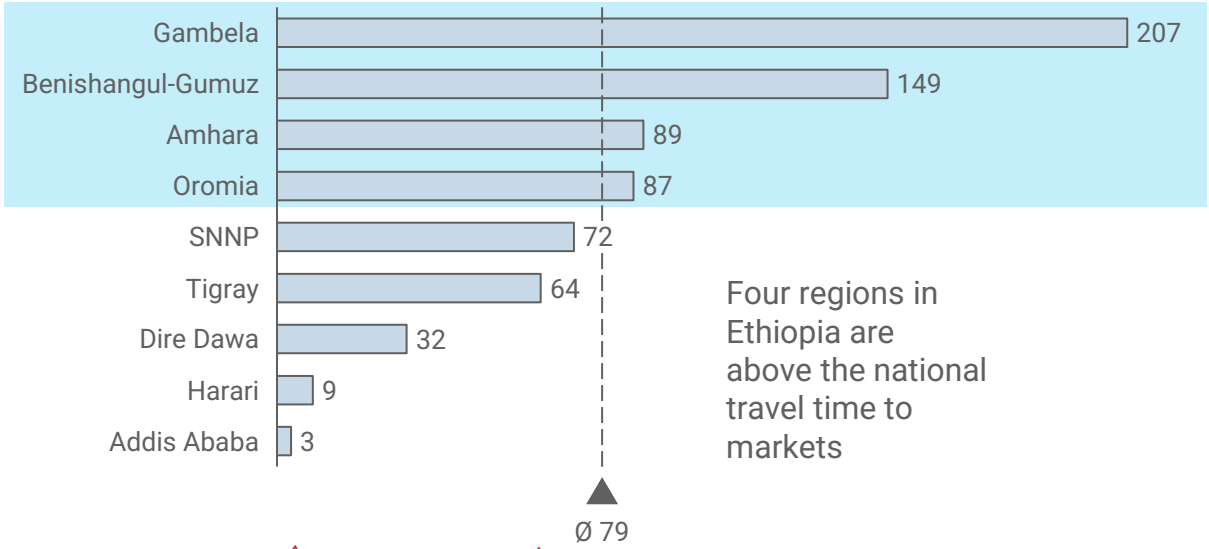
Smallholder Farmers

## Proportion of SHFs by travel time to markets

% of SHF by time taken to access markets




## Median travel time to markets (Minutes)




Four regions in Ethiopia are above the national travel time to markets

Notes: Regions represented on the map are those that dominantly practice small holder farming
Source: Malaria Atlas Project (MAP)

# ACCESS TO FINANCE

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Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises
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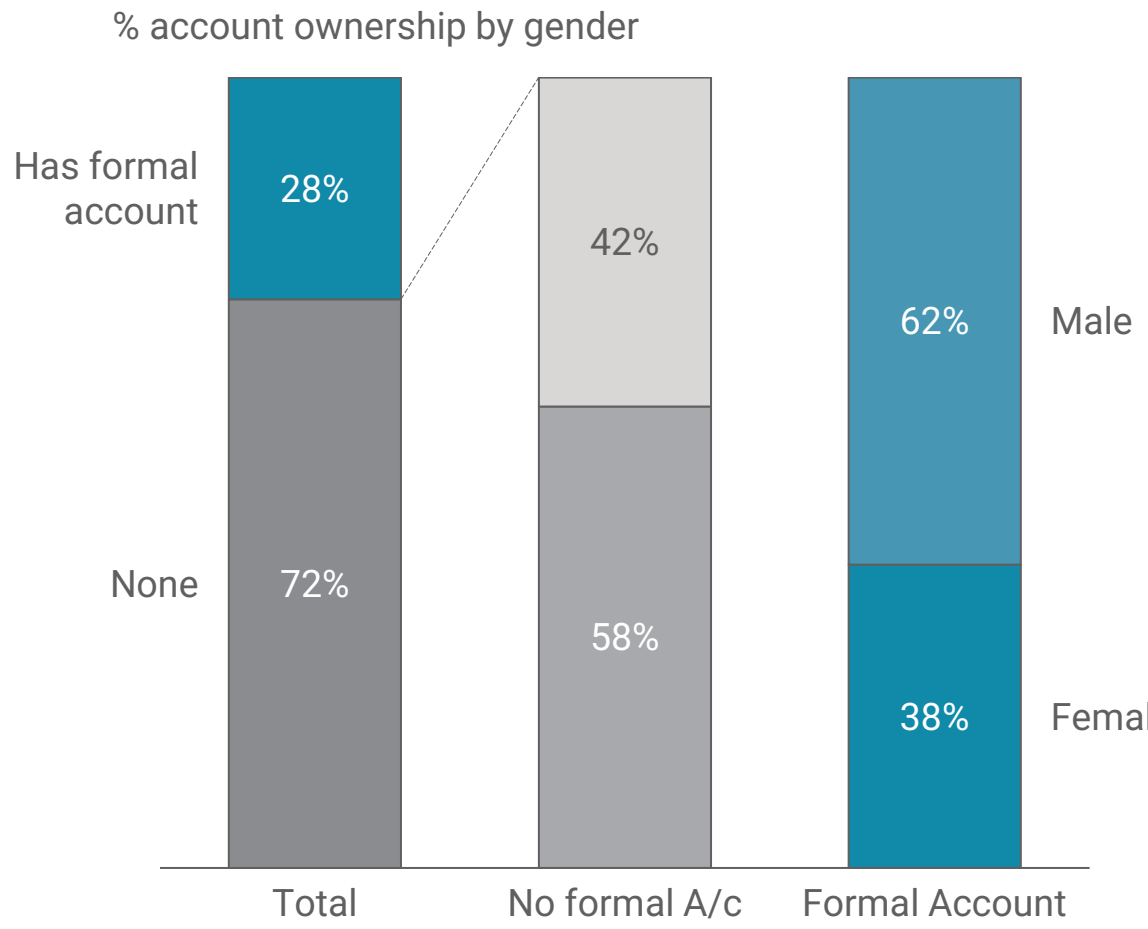
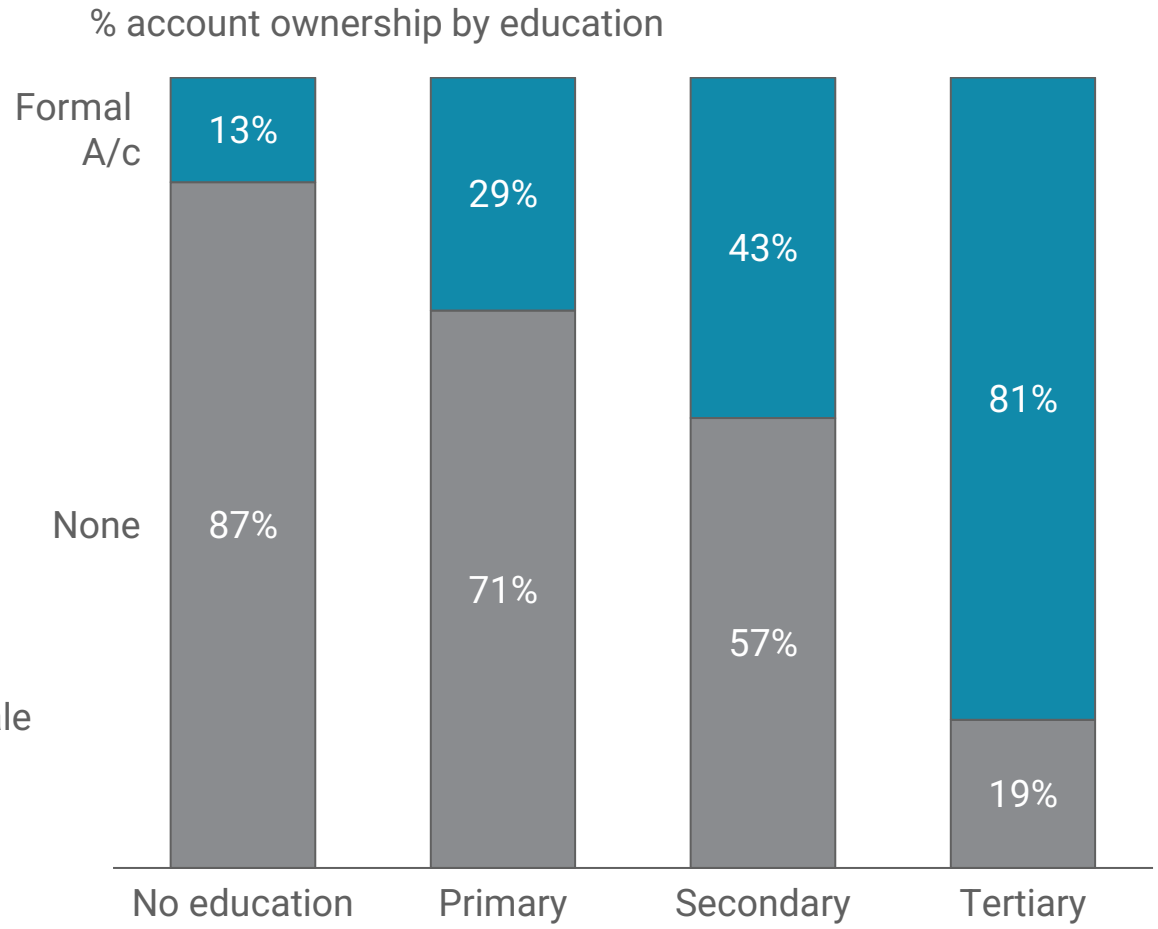
# The uptake of formal financing among SHFs is low, accounting for less than one third of the SHFs; Education is seen as a key promoter of formal financing

## SHF formal account ownership by gender (n=6357)




## SHF formal account ownership by education level

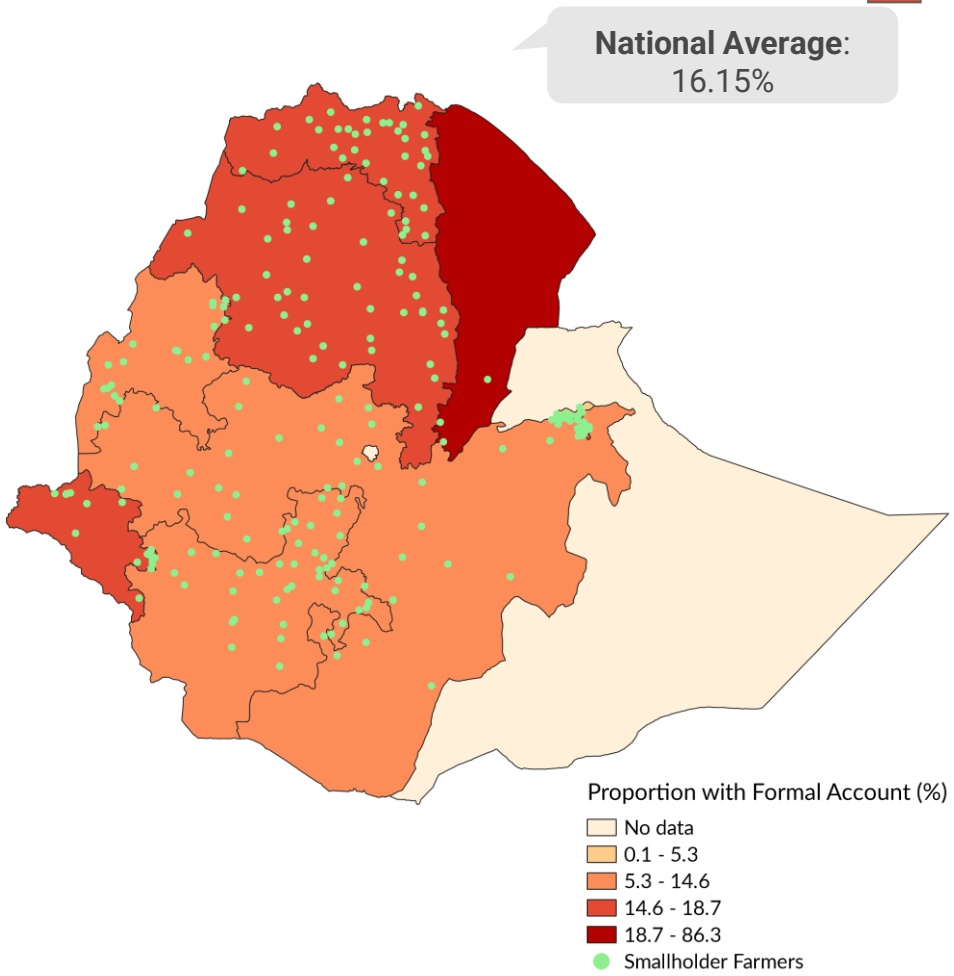



Source: World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019

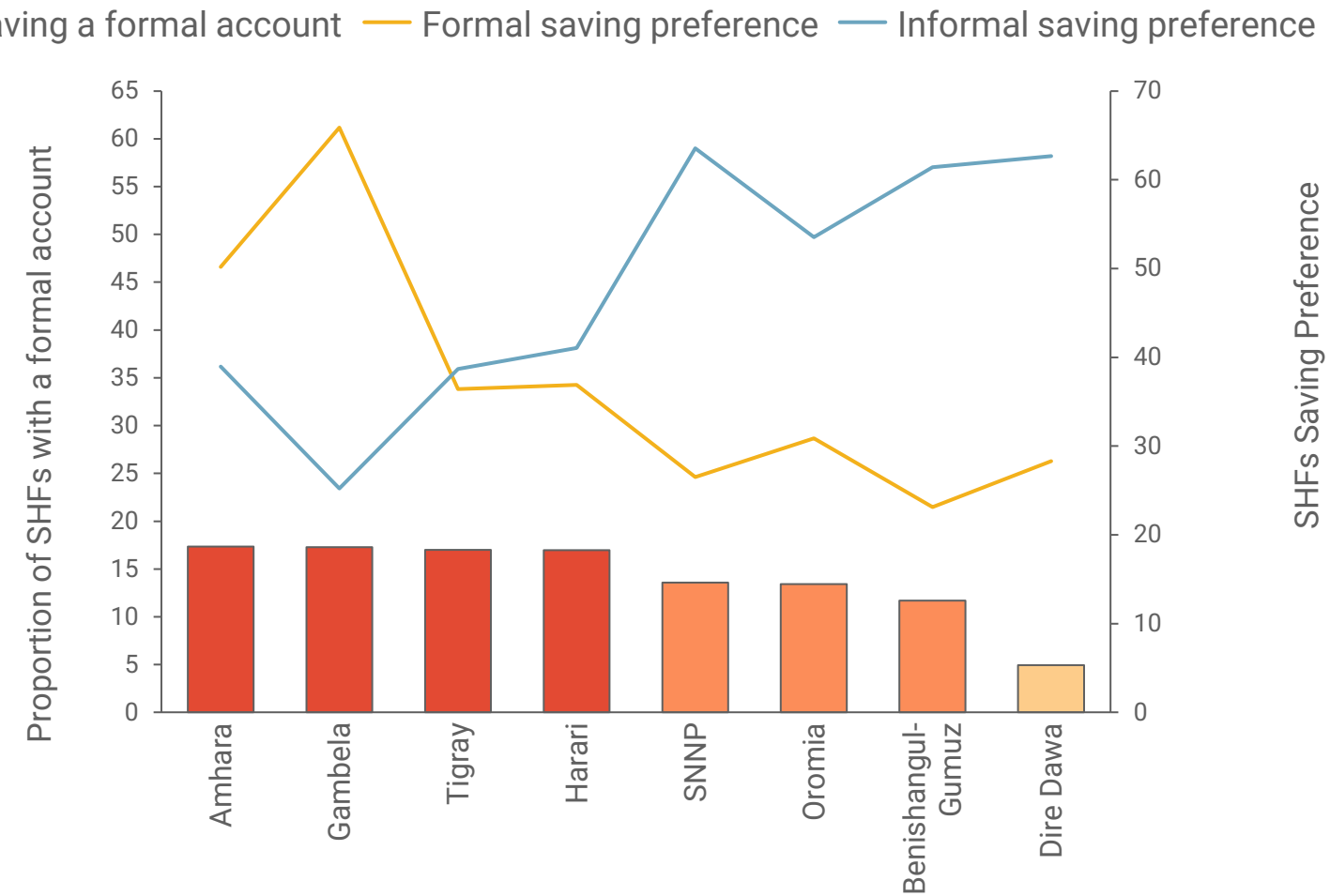
# Generally, Northern Ethiopia has a higher proportion of SHFs under formal banking

## SHFs Having a Formal Account

Share of SHFs having formal bank accounts




## Proportion having a formal account and saving preference institutions

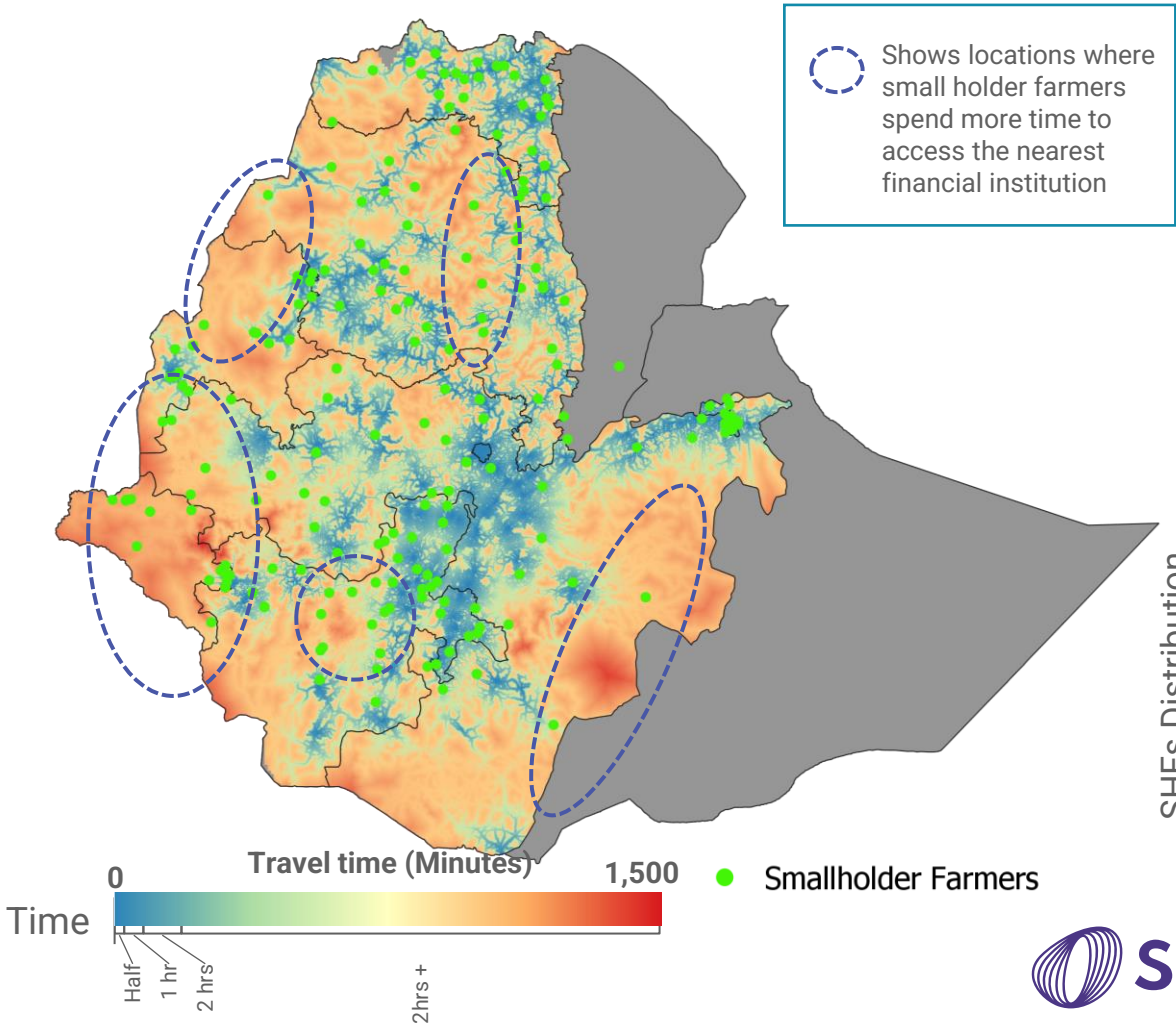



Notes: Addis Ababa and Somali regions had no entry points on SHFs financial situations while Afar had little number of SHFs, hence the exclusion
Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 (Sample size: 10,109)

# Generally, Northern Ethiopia has a higher proportion of SHFs under formal banking

## Travel time to financial institutions in Ethiopia

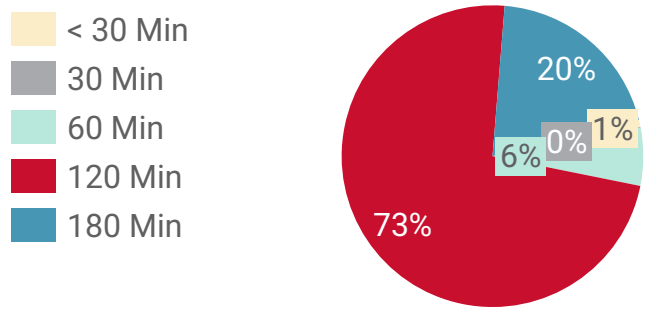
Travel time in minutes



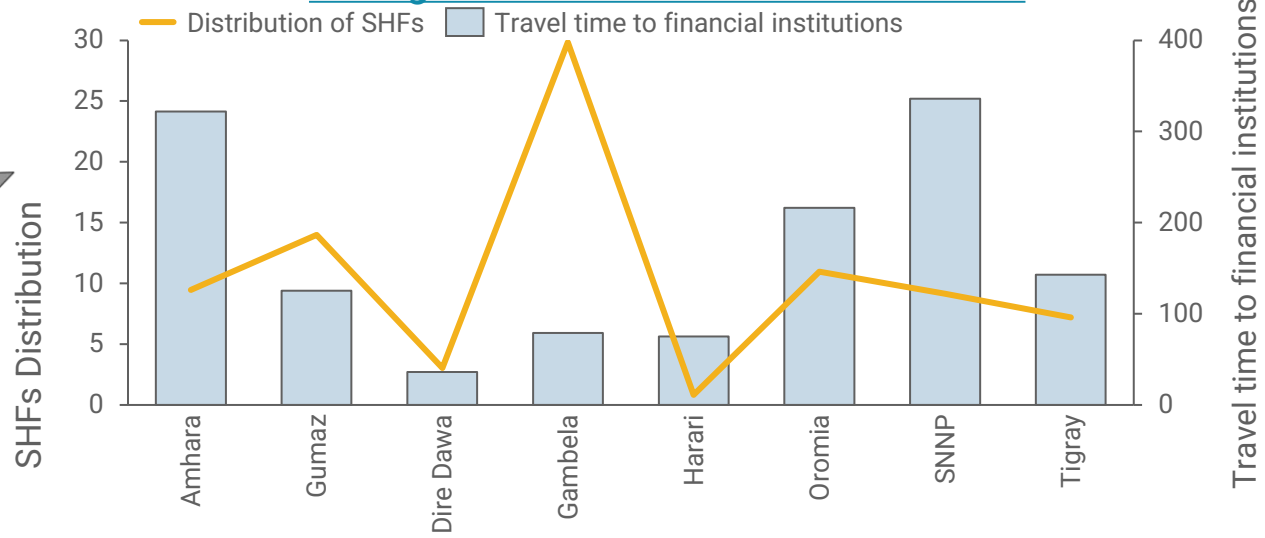

Source: Malaria Atlas Project (MAP): Note: Regions represented on the map are those that dominantly practice small holder farming

## Proportion of SHFs by travel time to financial institutions

% of SHF by time taken to access financial institutions




## Average travel time to financial institutions

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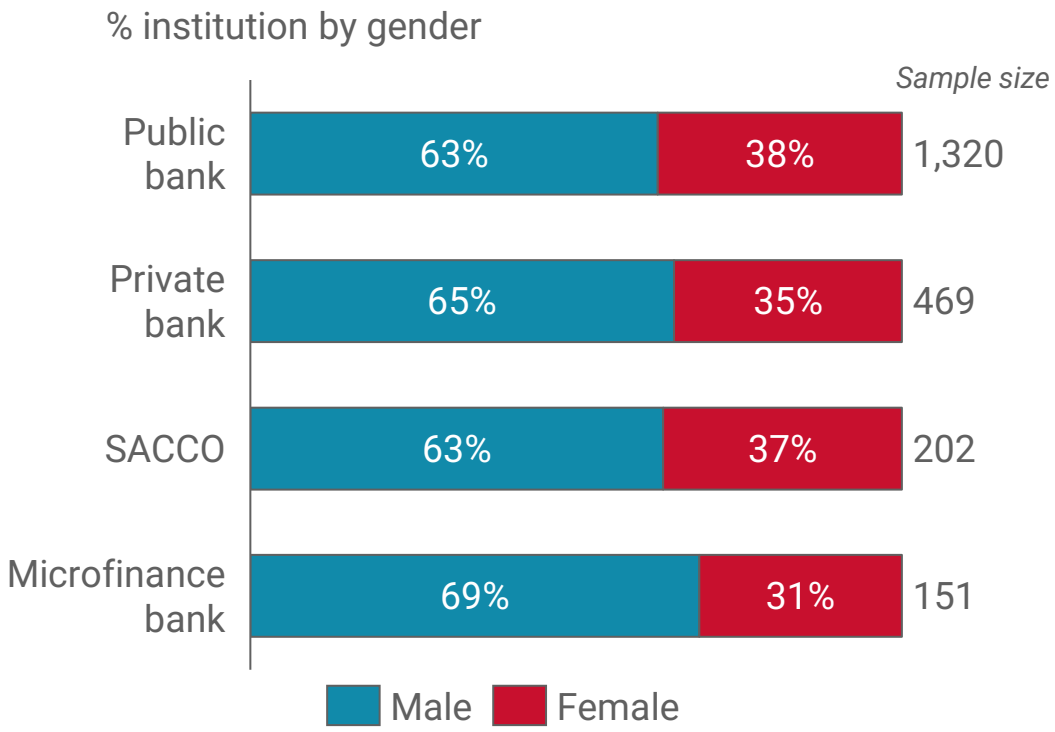
# Most SHFs prefer public banks to other financial institutions across multiple regions

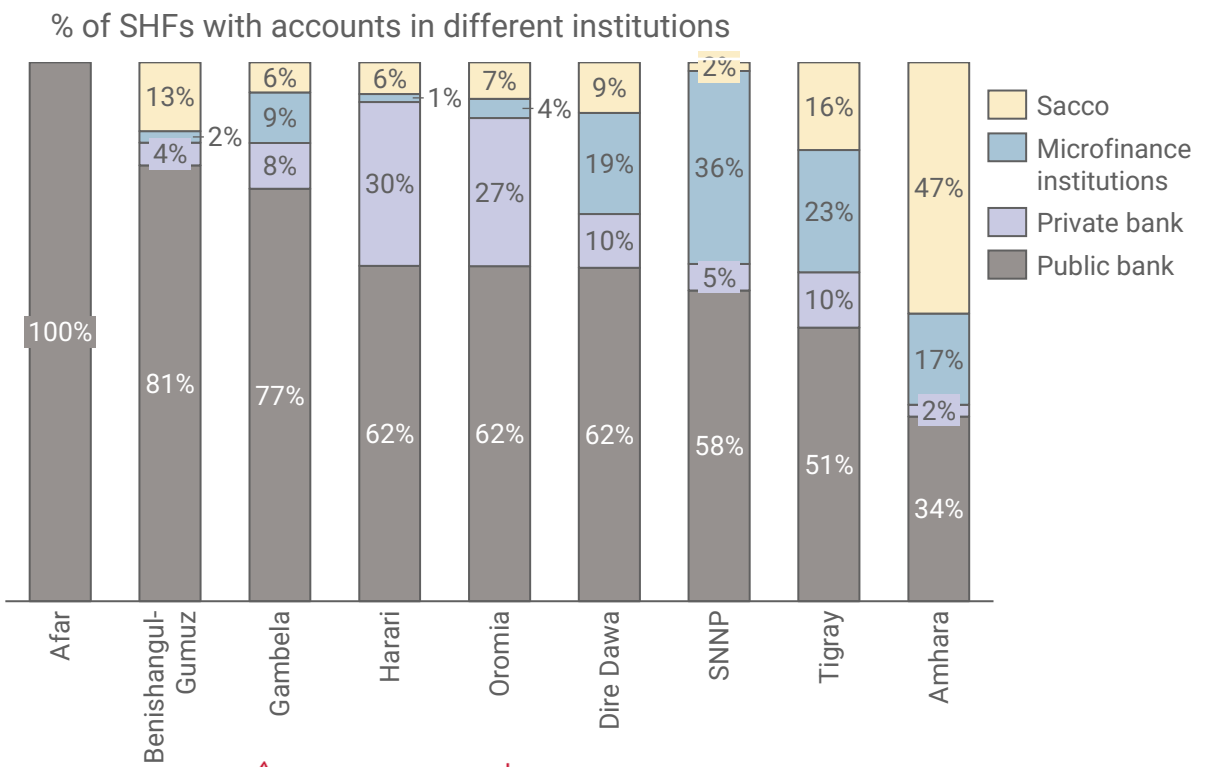
Smallholder farmers in Ethiopia prefer public financial institutions for several reasons:

- Firstly, they perceive public banks to be more trustworthy and stable than private banks, SACCOS, and micro-finance institutions.
- Secondly, public banks have more lenient loan requirements, which makes it easier for small-scale farmers to access credit.
- Finally, public banks offer more favorable interest rates and longer tenure, which are beneficial to financially constraint farmers.

## SHFs financial institution by gender



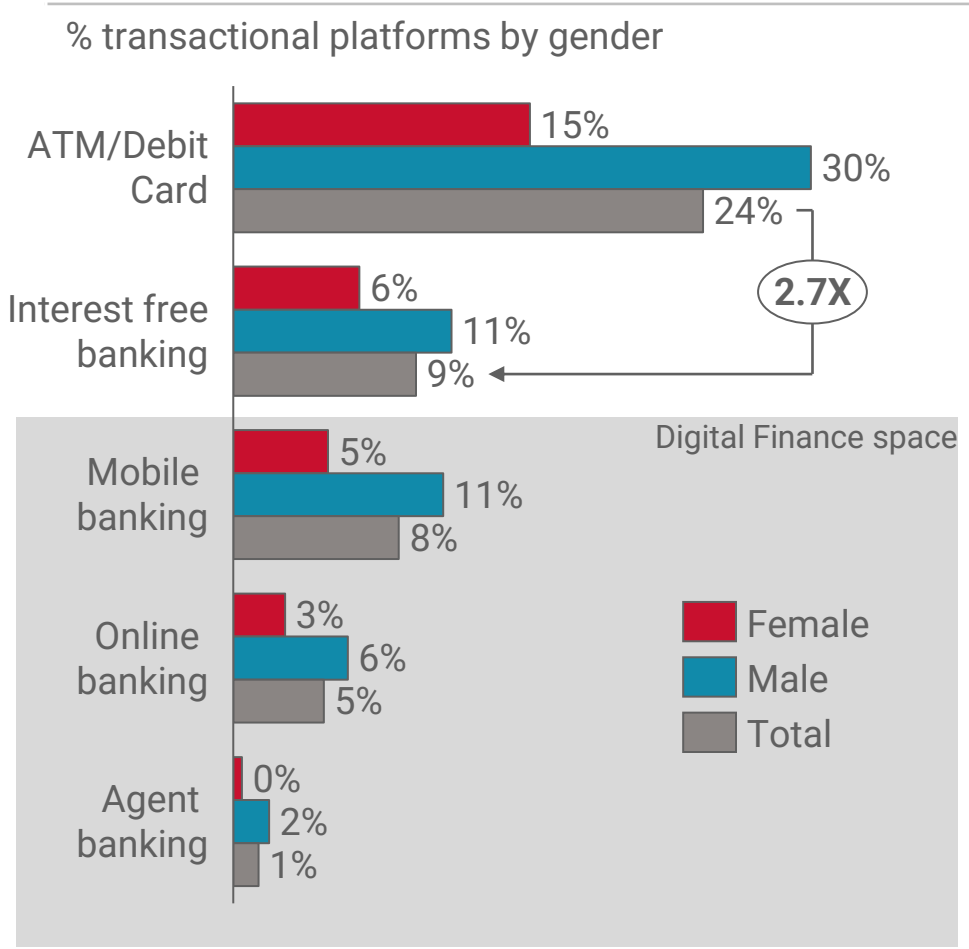

## Having an account in formal financial institutions



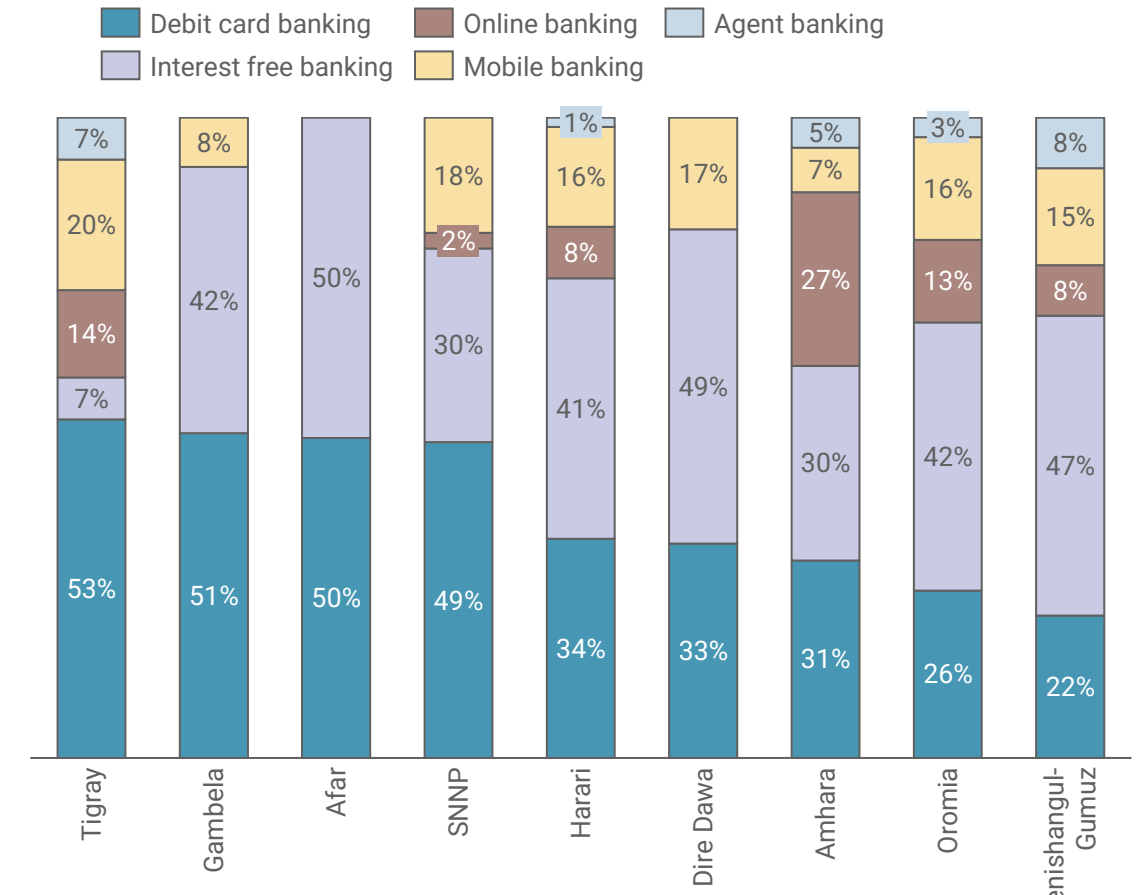

Source: 1) World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019; 2) Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis: Addis Ababa and Somali regions had no entry points on SHFs financial situations, hence the exclusion

# Digital finance channels are still underutilized by more than half of the SHFs to access money from the accounts held.

## Platforms used in the last 12 months by gender (n=1,771)




## Usage of formal institutions services



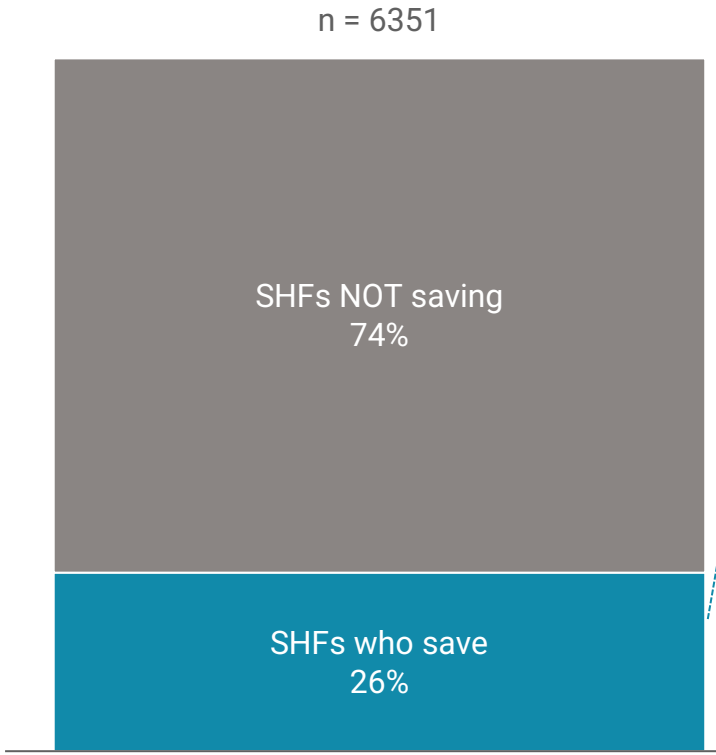

SPARC MERCY CORPS AGRIFIN Dalberg Research

Source: 1) World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019; 2) Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis: Addis Ababa and Somali regions had no entry points on SHFs financial situations, hence the exclusion

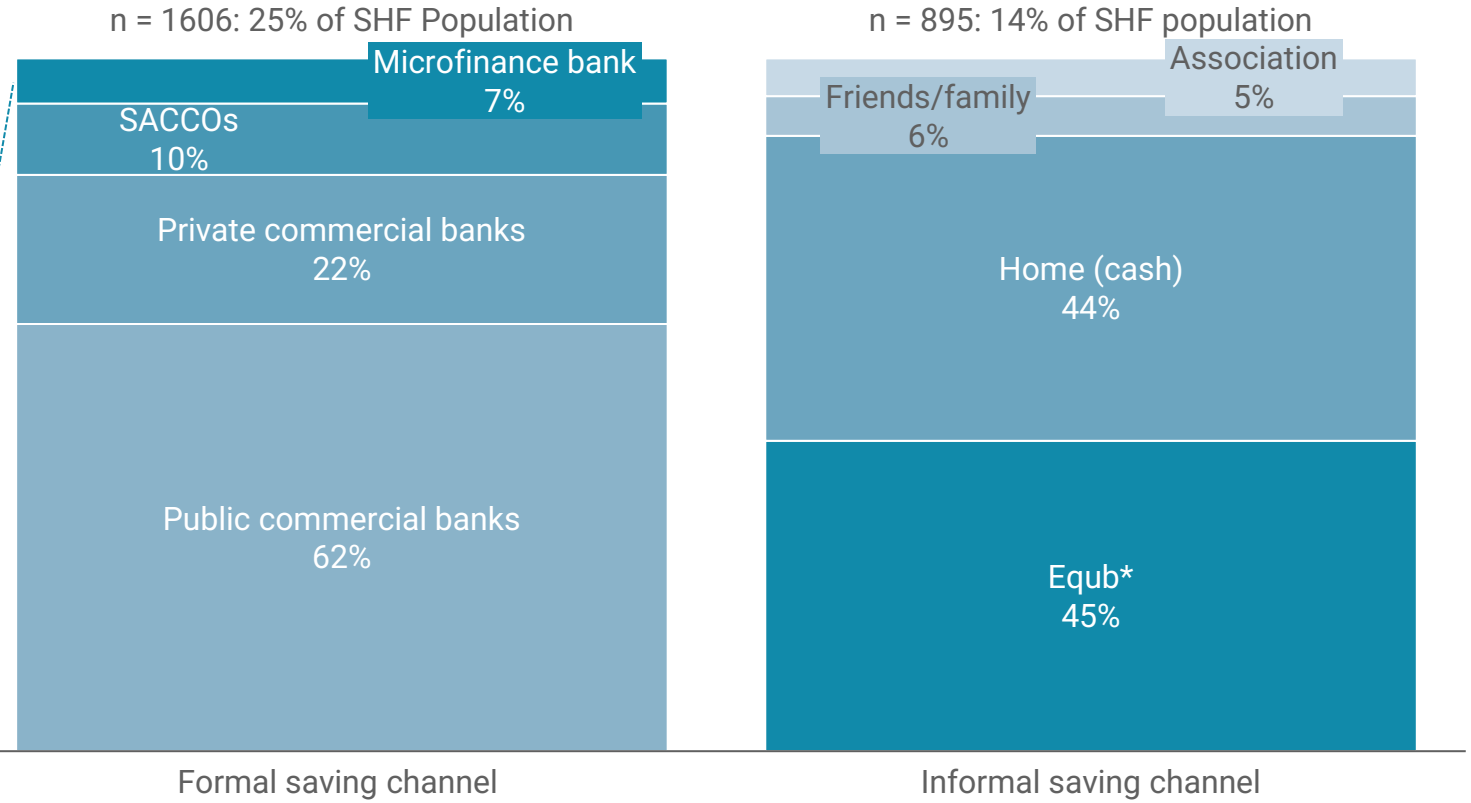
# About a quarter of SHFs save either formally or informally; ~14% of the SHFs save informally (at home or in associations).

- More than 80% SHFs save with commercial banks (public or private). Only a few save with SACCOs and Microfinance institutions
- Among the SHFs that save informally, majority save either in cash at home (44%) or with Equb (45%).

## SHFs saving in the last 12 months




## Channels used by SHFs in the last 12 months

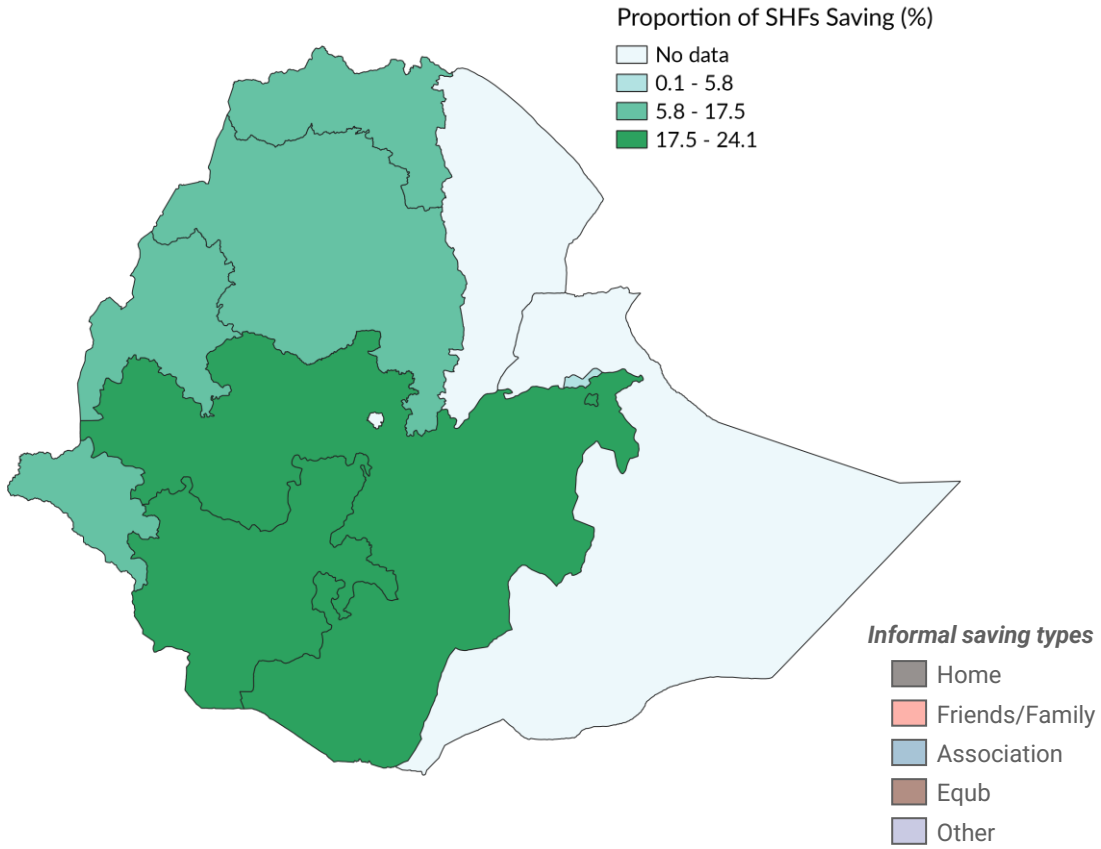



Source World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019
Notes; Equb* - Temporary association of people in Ethiopian culture with the aim of mobilizing resources, especially finance, and distributing them on a rotating basis

# The SHF dominated regions have highly embraced saving; ~two-thirds of SNNP population save informally and prefer the Equb saving method.

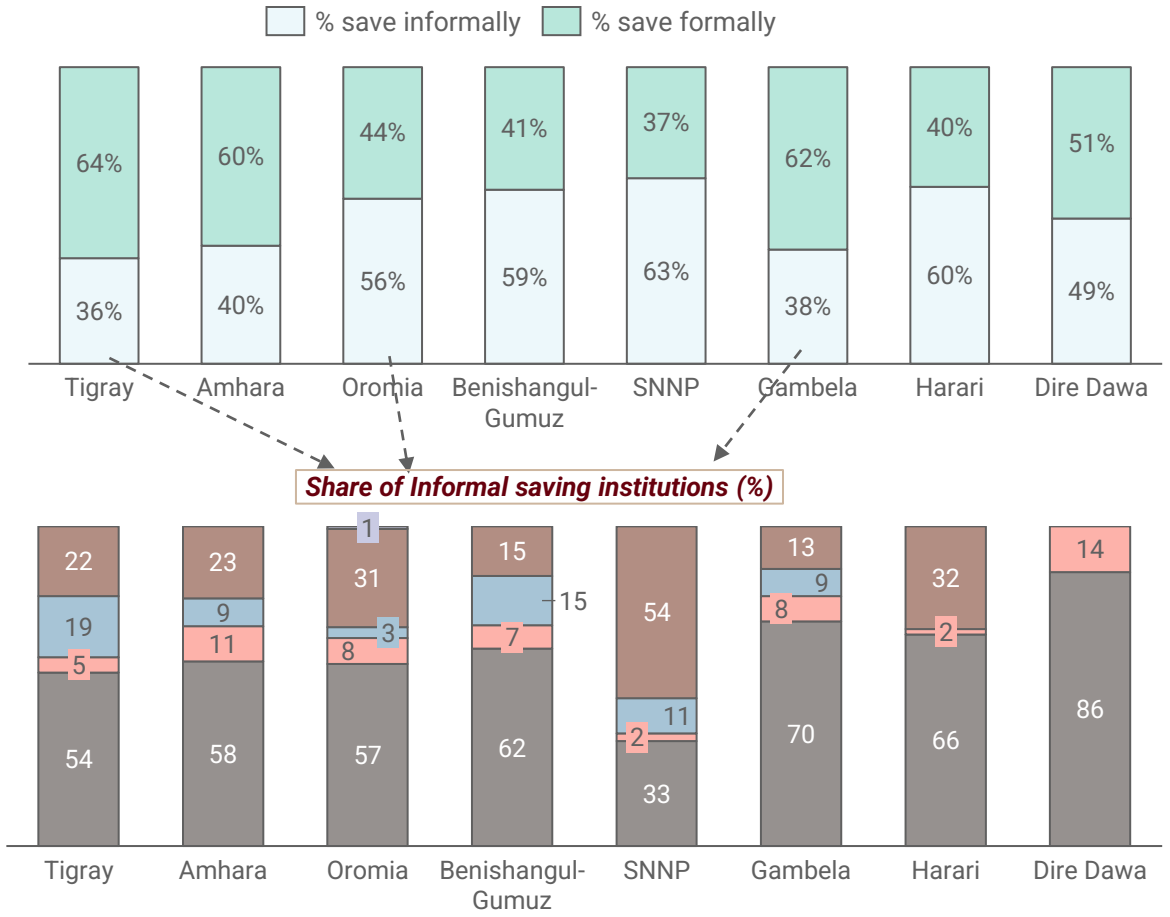
## SHFs Saving

Share of SHF saving




## Saving Formally and Informally and Informal Saving Types

Proportion of SHFs saving formally and informally

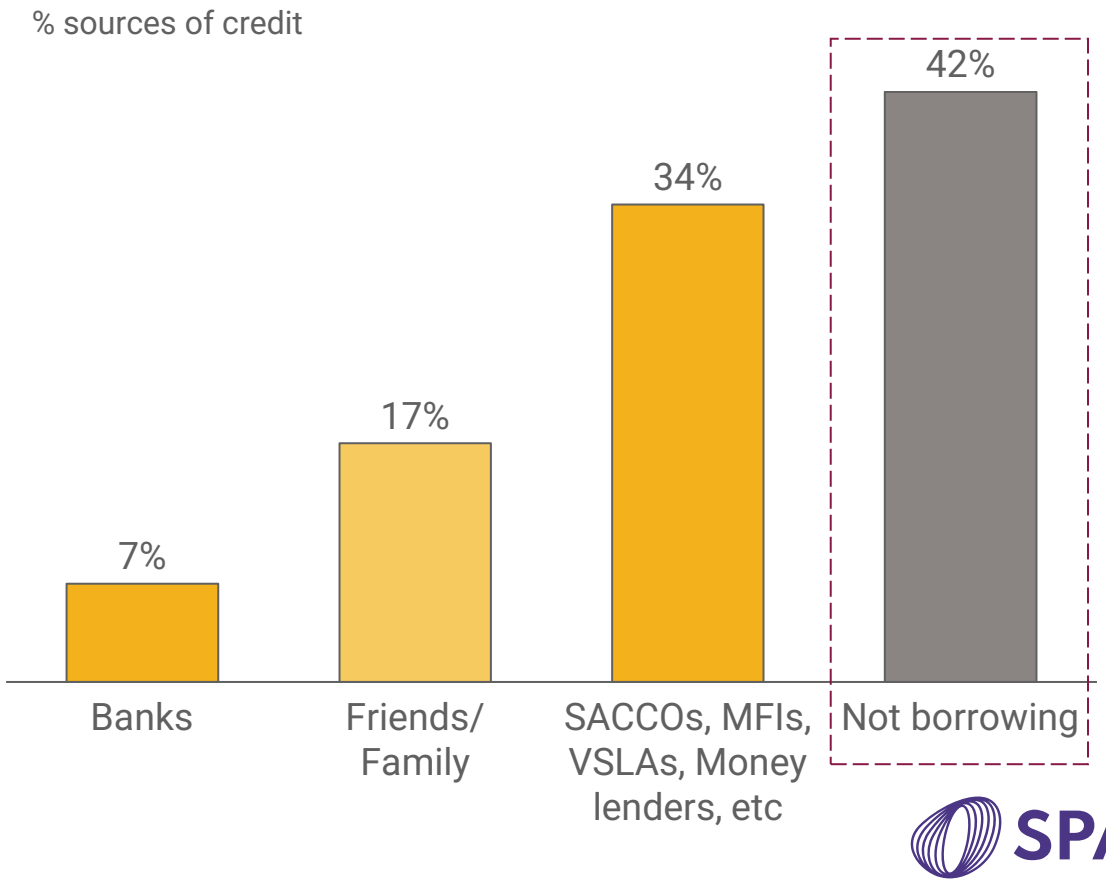



Notes: Addis Ababa and Somali regions had no entry points on SHFs financial situations while Afar had little number of SHFs, hence the exclusion. Equb* - Temporary association of people in Ethiopian culture with the aim of mobilizing resources, especially finance, and distributing them on a rotating basis .Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019

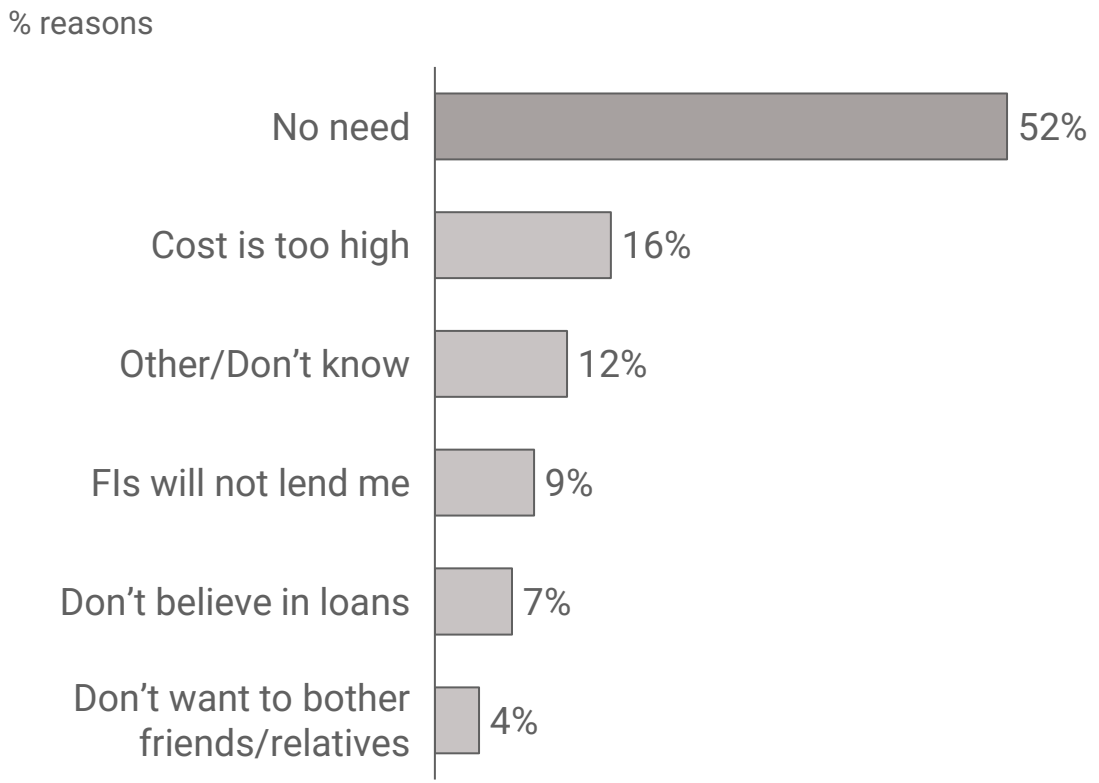
# More than half of the SHF households borrow formally or informally; they mention prohibitive cost among other reasons for not borrowing.

- SHFs have been borrowing for last five years, generally consistent across gender, with a higher percentage of female-headed households (55%) from SACCOs, MFIs, and VSLAs than male-headed (49%) reporting to have taken a loan.
- Constraints to credit seem to be limited, at least in perception: For those who did not borrow, just 31% reported a form of constraint as the reason either prohibitive cost, inability to get a loan from a financial institution, or not wanting to bother family

## Sources of credit by SHFs




## Reasons for not borrowing




Source:; World Bank Group, What people want: Investigating Inclusive Insurance Demand in Ethiopia, 2018.

# SHFs widely consider access to inputs or loans at appropriate times more than low interest rates.

## Credit catalysts

**Credit combined with farm inputs: Farmers prefer combined packages of credit loans, quality agro-inputs, and training because open market inputs can be of inconsistent or poor quality. Providing these packages can improve agricultural productivity and rural livelihoods.**

**Credit meeting farmers actual financial needs: Farmers tend to avoid taking small loans that do not meet their financial requirements, as they prefer not to secure loans from multiple sources. This holds true even when the interest rates offered are low.**

**Flexible repayments: Flexible repayment options are favored by farmers as they enable them to repay loans based on their harvest cycles and cash flow.**

**Credit availability during critical periods: Farmers are more interested in loans that have a quick credit appraisal process and are available during crucial periods when they need to buy inputs.**

**Respectful treatment: SHFs report that the way formal and informal credit providers treat farmers, whether disrespectful or poor, influences how farmers perceive the credit product.**

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Source: ICCO, Rural Financial Services and Financial Product Innovation in Ethiopia, 2018

# SHFs also report barriers to credit access that lead to the farmer's inability to access credit or reluctance to access credit.

- When examining the factors related to the inability to access credit, certain demographic groups such as women and youth, have more difficulty accessing formal credit. Farmers who cannot meet the requirements of service providers may also be limited by various characteristics, resulting in their inability to access loans. Below is the highlight of some of the barriers to access to credit:

❖ **Social networks:** To access both formal and informal loans, social networks are necessary. For formal loans, a guarantor is required, while for informal loans, effective networking is essential to build relationships with money lenders.

❖ **Collateral:** Providing collateral is necessary to obtain a loan, but young, female, or impoverished farmers may find it challenging to provide sufficient collateral to secure a loan from a formal source like an MFI. Moreover, the size of the collateral and loan may be disproportionate, as reported by some farmers.

❖ **MFI loans to groups:** In some cases, MFI loans are granted to groups instead of individuals, which means being part of a group is necessary to access the loan. The study indicates that young people face difficulties in joining groups and applying for group loans. Additionally, some farmers prefer smaller groups or individual loan options rather than group loans.

❖ **Farmers may not be able to obtain loans if another household member has already taken out a loan**. If the household shares financial decision-making, this may be less of an issue. However, the study suggests that some women may be unable to access credit for themselves or make loan decisions for their households due to a lack of permission from their husbands.

- **Farmers may be reluctant to access formal credit due to various reasons**. Risk-averse farmers are unwilling to take the risk of becoming over-indebted, suffer reputational harm or lose collateral, both of their own household and the guarantor household if they fail to repay loans on time.
- Some farmers are apprehensive of "institutional" financial services if they do not comprehend the terms and conditions and are worried about being exploited. Instead, they may be more familiar with informal money lender models, even though the terms are generally less favorable.

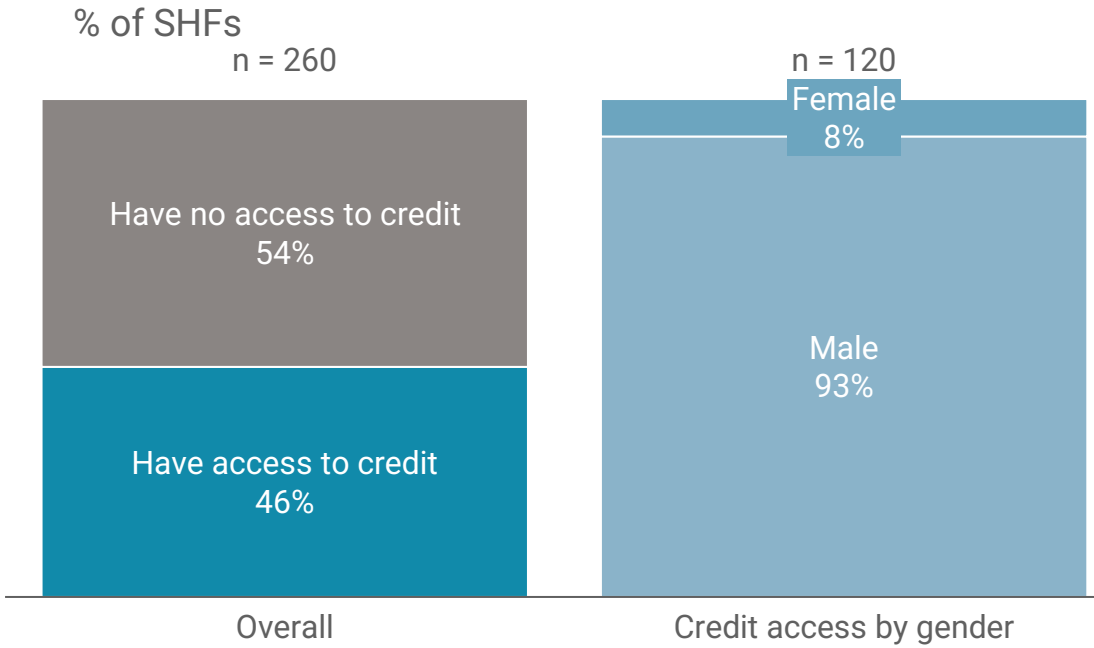
Source: ICCO, Rural Financial Services and Financial Product Innovation in Ethiopia, 2018

# Less than a half of the SHFs have access to agricultural credit; even with collateral, some still are not able to access credit.

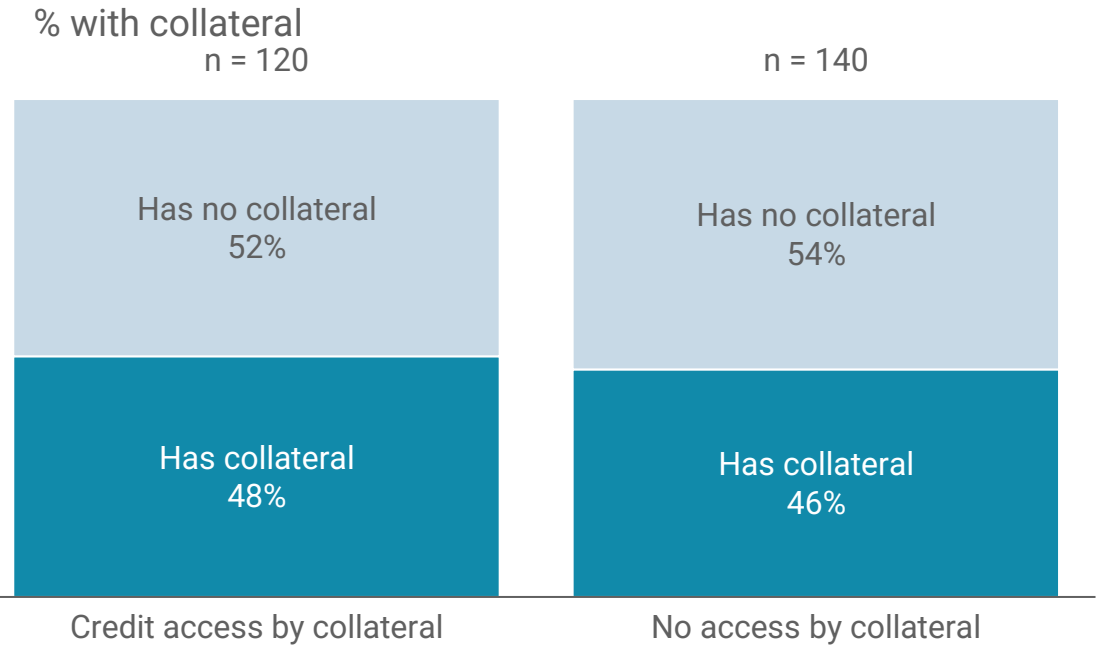
Case Study
Wollega Zone
Oromoa region
Ethiopia

- Smallholder farmers in Ethiopia still face significant difficulties in accessing agricultural credit, which contributes to the low agricultural productivity in developing countries, including Ethiopia.
- SHFs in Ethiopia may be unable to access credit even with collateral due to a range of factors, such as stringent loan requirements, limited access to financial institutions, inadequate financial literacy, lack of trust in formal financial institutions, and the perceived high risk of lending to small-scale farmers. Additionally, some farmers may not have sufficient collateral to meet the requirements for obtaining a loan.
- Less than 10% of the women have credit access. Agriculture credit requires some form of guarantee of repayment and since women do not own either the land, equipment, or the produce it is more difficult for them to qualify for a loan[1]

## SHFs who accessed credit




## SHFs who accessed credit with collateral

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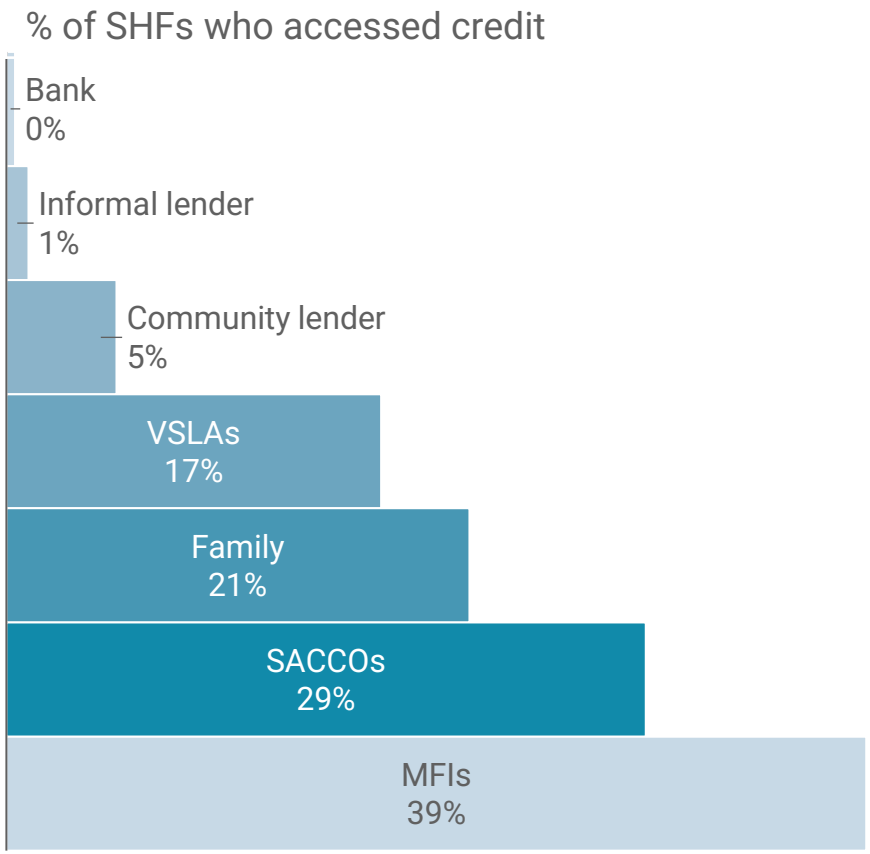
Source: Gebeyehu et.al., Determinants of Access to Agricultural Credit among Smallholder Maize Farmers: The Case of Hababo Guduru District, Horro Guduru Wollega Zone, Ethiopia, 2019;
[1]CGIAR, ILRI, Gender-based constraints and opportunities to agricultural intensification in Ethiopia: A systematic review, 2016

# SHFs use different sources to access credit but MFIs are common

- The SHFs prefer credit compounded with inputs which are mostly provided by the MFIs at favourable rates of interest.
- In cases where the SHFs don't have collateral, they opt for informal sources such as borrowing from traders who are exploitative

## SHFs who accessed credit (n=1020)[1]




## Comparison of loan features between MFI loan and trader loan from farmer's perspective[2]

| MFI AGRI-LOAN | INFORMAL TRADER LOAN |
|---|---|
| **Attractive features** | **Attractive features** |
| • Low Interest rates (18-24% p.a.) and a high profit margin for the farmer<br>• Freedom to run your own farm as you wish | • Cash is accessible in adequate amounts<br>• No collateral requirement<br>• No monthly payments, flexible conditions<br>• Loan is rescheduled in case of default |
| **Unattractive features** | **Unattractive features** |
| • Inadequate loan size<br>• High collateral requirement<br>• Fixed repayment period, no flexible conditions | • High costs (50% profit sharing) and low profit margin for the farmer<br>• Lack of freedom to run your farm as you wish<br>• Trust issues between the farmer and the trader around the selling price received by the trader |

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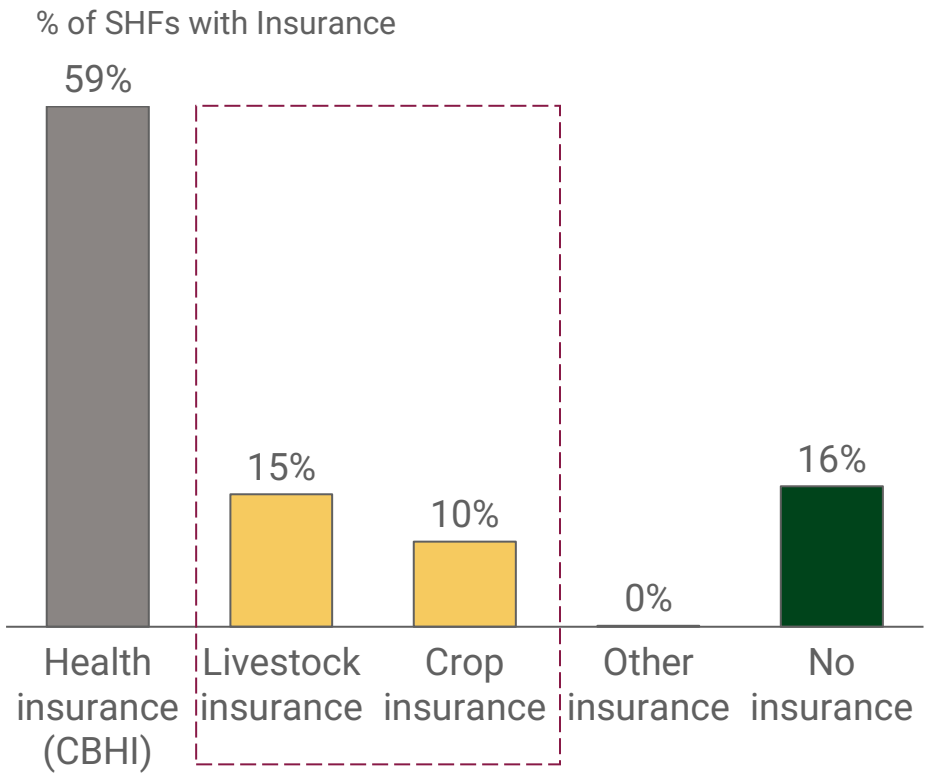
Source: [1]ICCO, Smallholder farmer report-Report by ICCO Cooperation, STARS Program, 2019; [2]ICCO, Rural Financial Services and Financial Product Innovation in Ethiopia, 2018; Note: The study was done on Barley and Potato value chains in West Shewa and West Arsi Zones of Oromia region

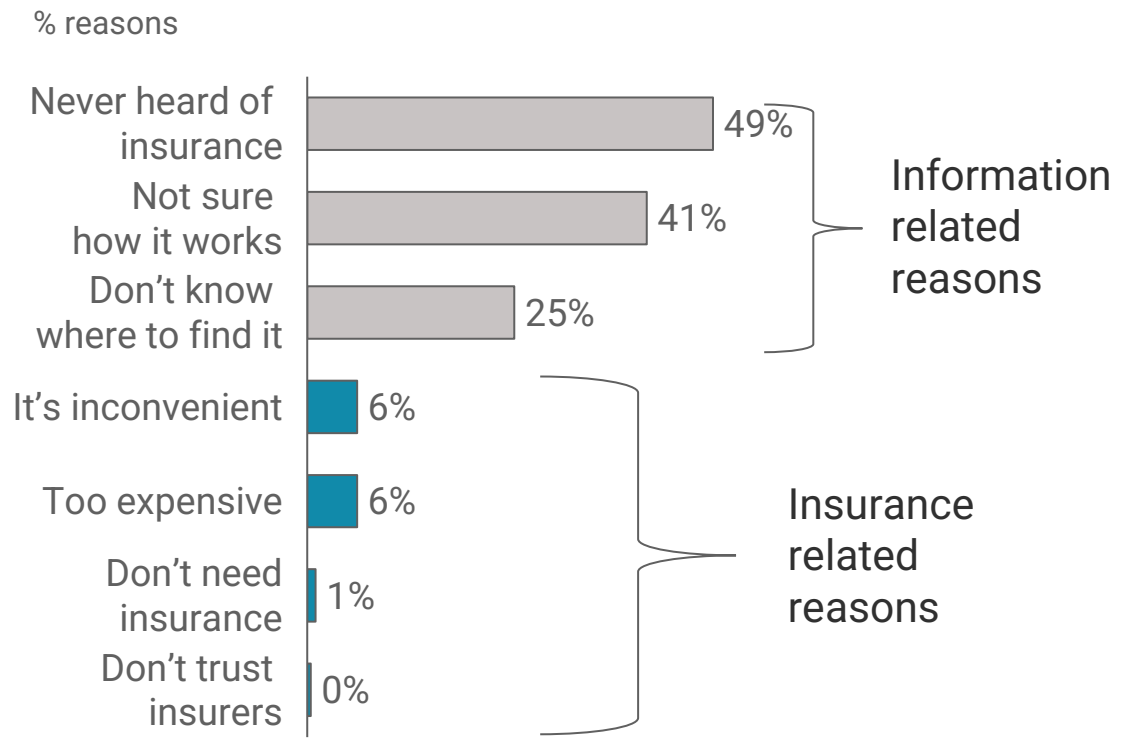
# The uptake of insurance (agricultural or non-agricultural) is very low among SHFs; this can be attributed to low awareness levels.

- In rural areas, households are mainly familiar with the government health insurance and funeral insurance.
- The main barrier to households getting insurance is a lack of information, particularly in rural areas where 62% of respondents have never heard of any insurance products. Issues related to insurance itself are less common, which is positive for insurers because lack of knowledge is easier to address than negative attitudes.

## Access to insurance services[1]




## Reasons for not having insurance[2]

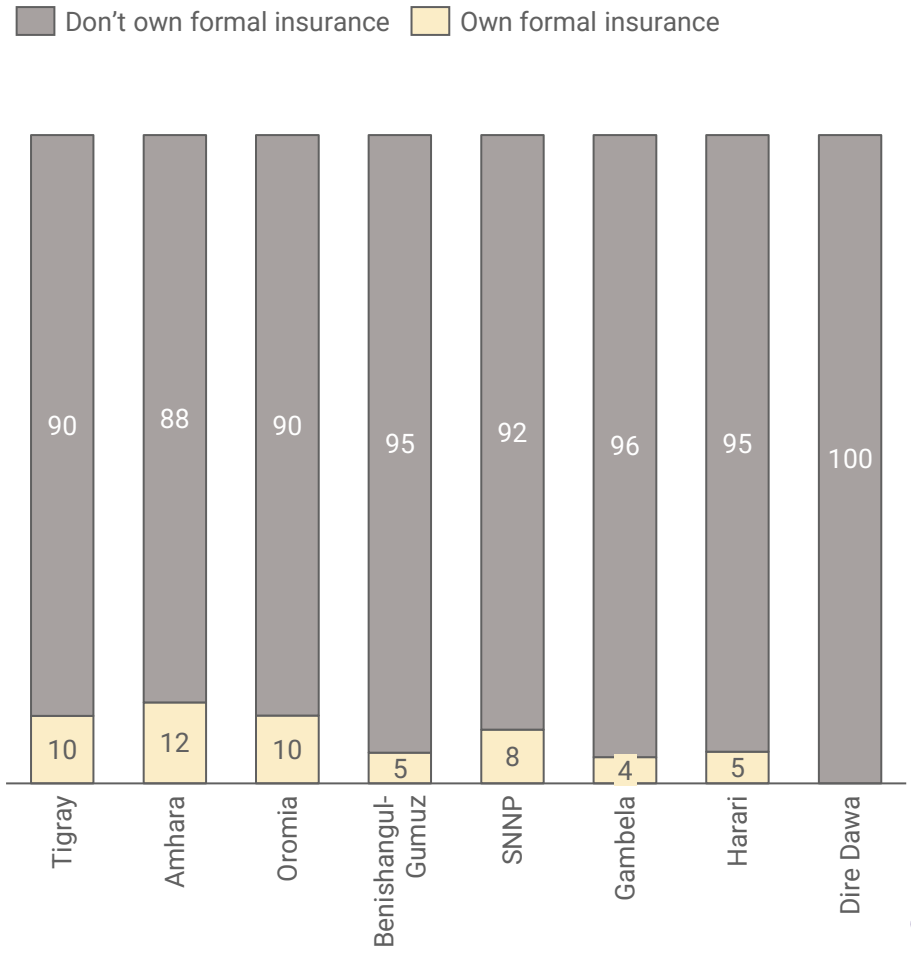



Source:; [1]Laterite, Ethiopian smallholder farmers' willingness to pay for crop micro-insurance, 2019; [2]World Bank Group, What people want: Investigating Inclusive Insurance Demand in Ethiopia

# Only a few SHFs have formal insurance; they primarily have public insurances except for Gambela that has purely employer insurance.

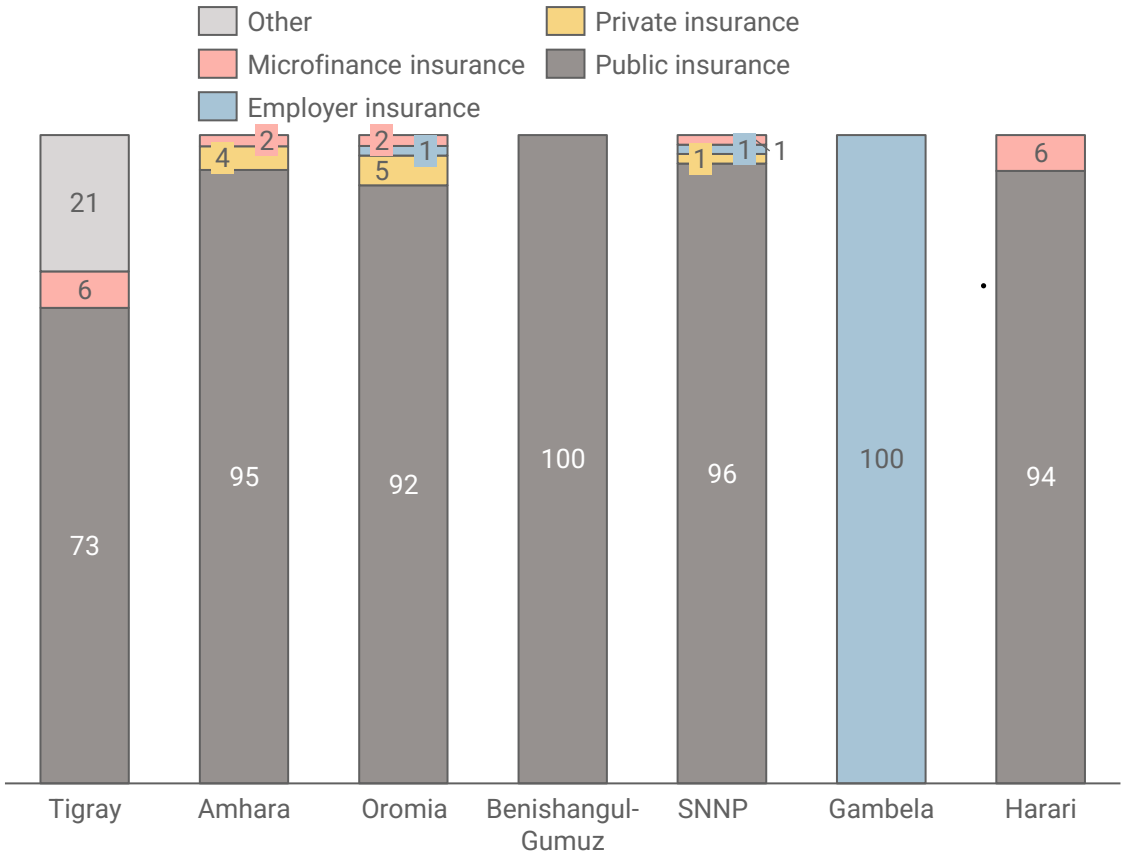
## SHFs with formal insurance

% of SHFs having formal insurance




## Access to formal insurance

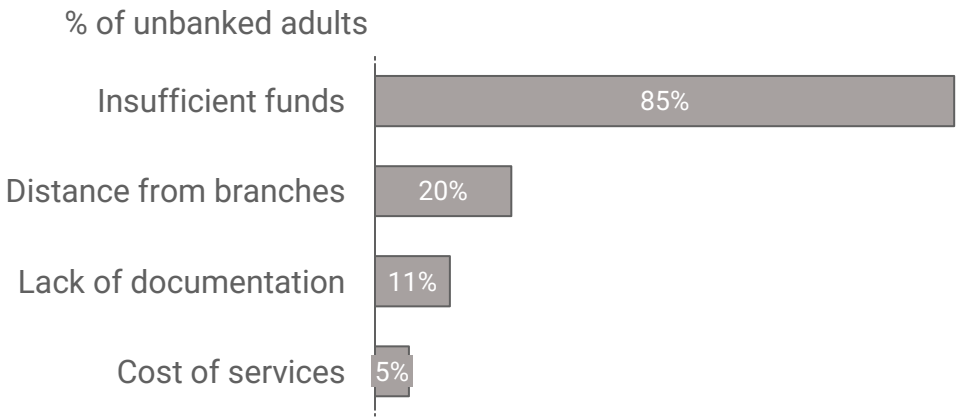
% of SHF who are insured on the formal insurance types in the last 1 year



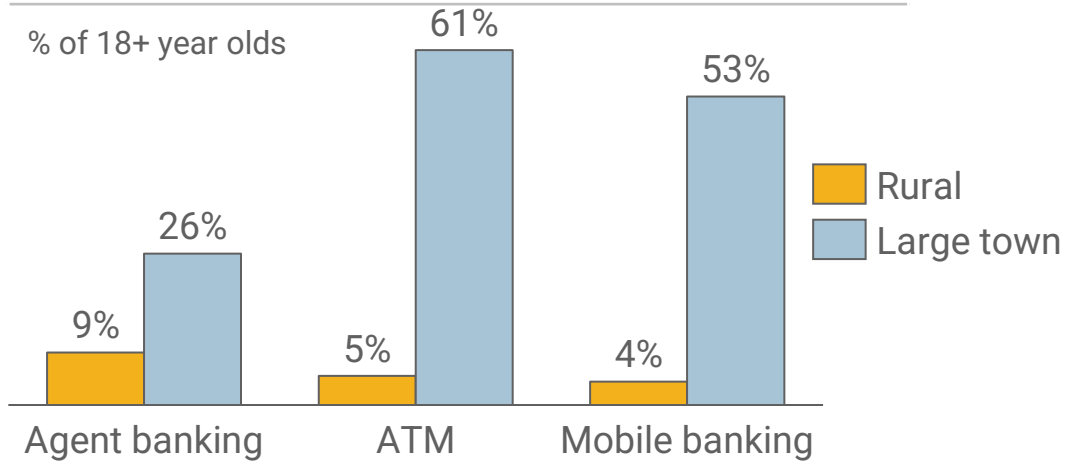

Notes: Addis Ababa and Somali regions had no entry points on SHFs financial situations, hence the exclusion. Afar and Dire Dawa have no formal insurance as per the data hence not included in access graph. Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

# The main barriers to uptake of formal financial products are insufficient funds, accessibility, familiarity and trust

## Stated barriers to uptake of financial services




## Familiarity with financial services




## Key highlights

- The key barriers for financial inclusion include the perception of having insufficient funds (distinct from unwillingness to pay), distance from financial institution branches and agents (due to low penetration in rural areas), and lack of required documentation.
- Rural populations are also significantly less likely to be familiar with financial services than urban populations. For instance, only 4% of rural people are familiar with mobile banking, compared to 53% of urban people
- In addition, many people lack trust in financial services and perceive them as unreliable — 62% of rural people reported being worried about unexpected expenses linked to their accounts.
- Other challenges include low literacy and digital literacy, whilst the cost of services is a much less significant barrier.

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Source: FINDEX report 2017, CSA, Integrated surveys on agriculture Ethiopia Socio-economic Survey, 2015-2016.

# ACCESS TO INFORMATION SERVICES

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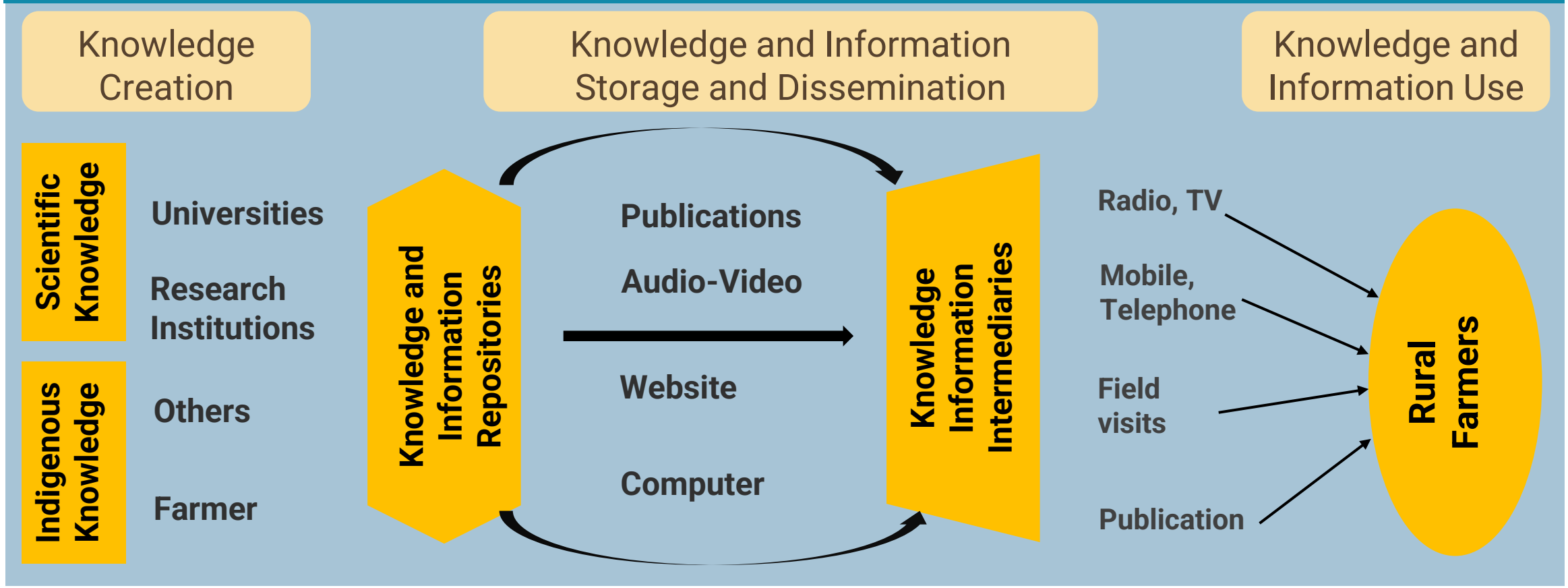
# Farmers have a distinct DIS and DFS knowledge and information dissemination patterns in Ethiopia.

- Access to education and knowledge is crucial in agriculture as it enables farmers to acquire and effectively use information for decision making, leading to the adoption of technology and modern inputs. This knowledge can be disseminated to rural farmers through various intermediaries, including traditional and modern forms of ICT.




SPARC MERCY CORPS AGRIFIN Dalberg Research

Source; Mulutega and Akalu, Review on Potential of Mobile Phone Usage in Agricultural Information Dissemination in Ethiopia, 2017

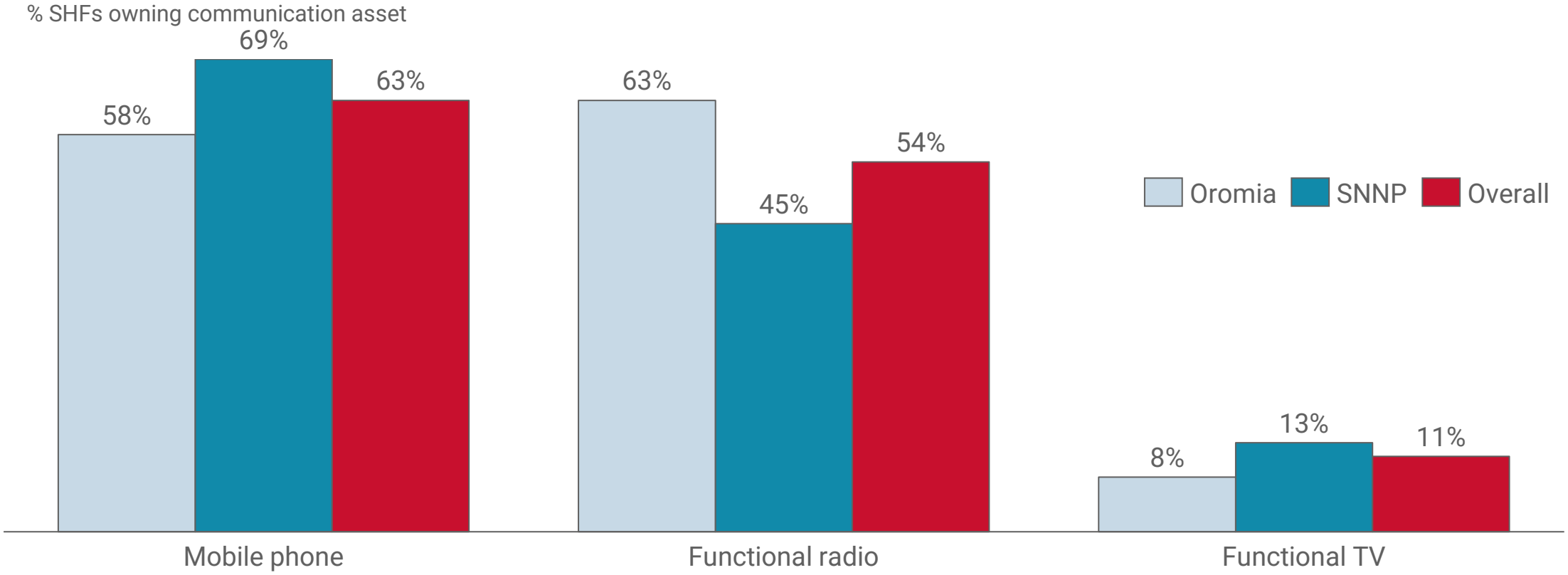
# SHFs have access to both digital and conventional communication assets; about 2/3 two-thirds own a mobile phone

Case study

Coffee farmers in Oromia and SNNP regions

- Access to, and use of information is a critical factor in promoting the adoption and diffusion of agricultural production technologies among smallholder farmers.
- Farmers require access to information on new technologies and innovations to improve their productivity, increase their income, and enhance their resilience to challenges such as climate change.

## Communication asset ownership across the regions



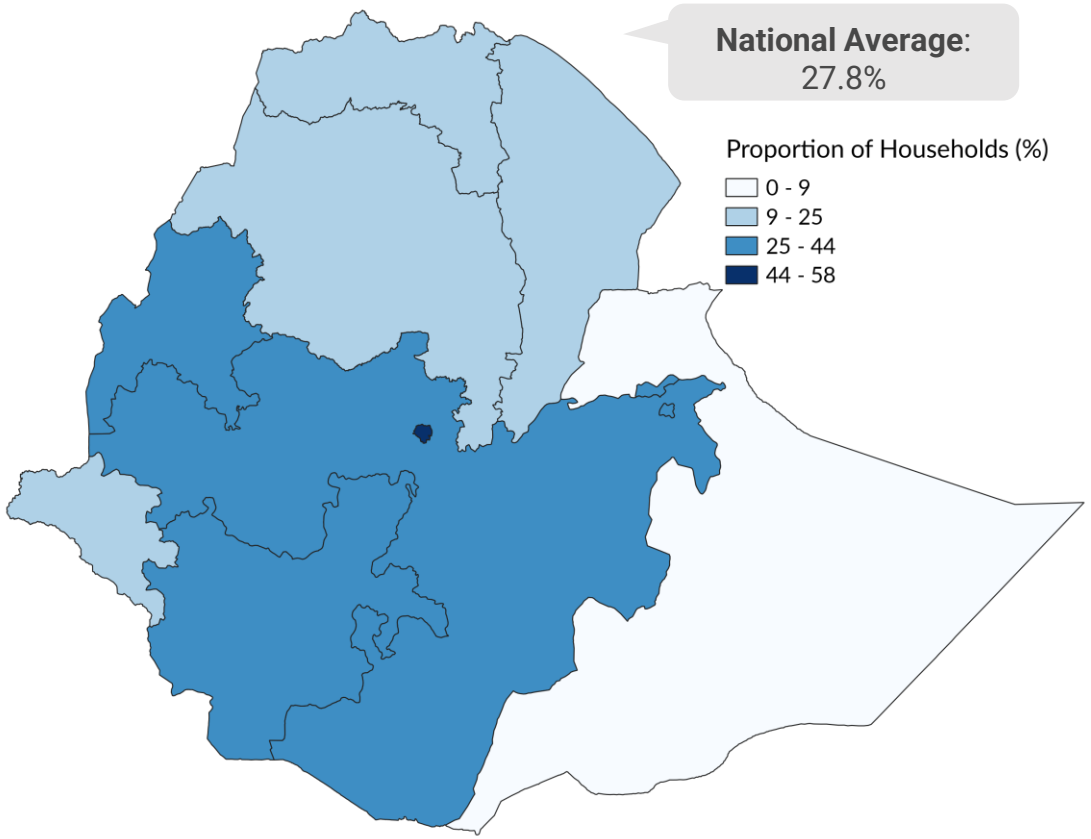

SPARC MERCY CORPS AGRIFIN Dalberg Research

Source; Diro, S., Tesfaye, A. & Erko, B., Determinants of adoption of climate-smart agricultural technologies and practices in the coffee-based farming system of Ethiopia, 2022.

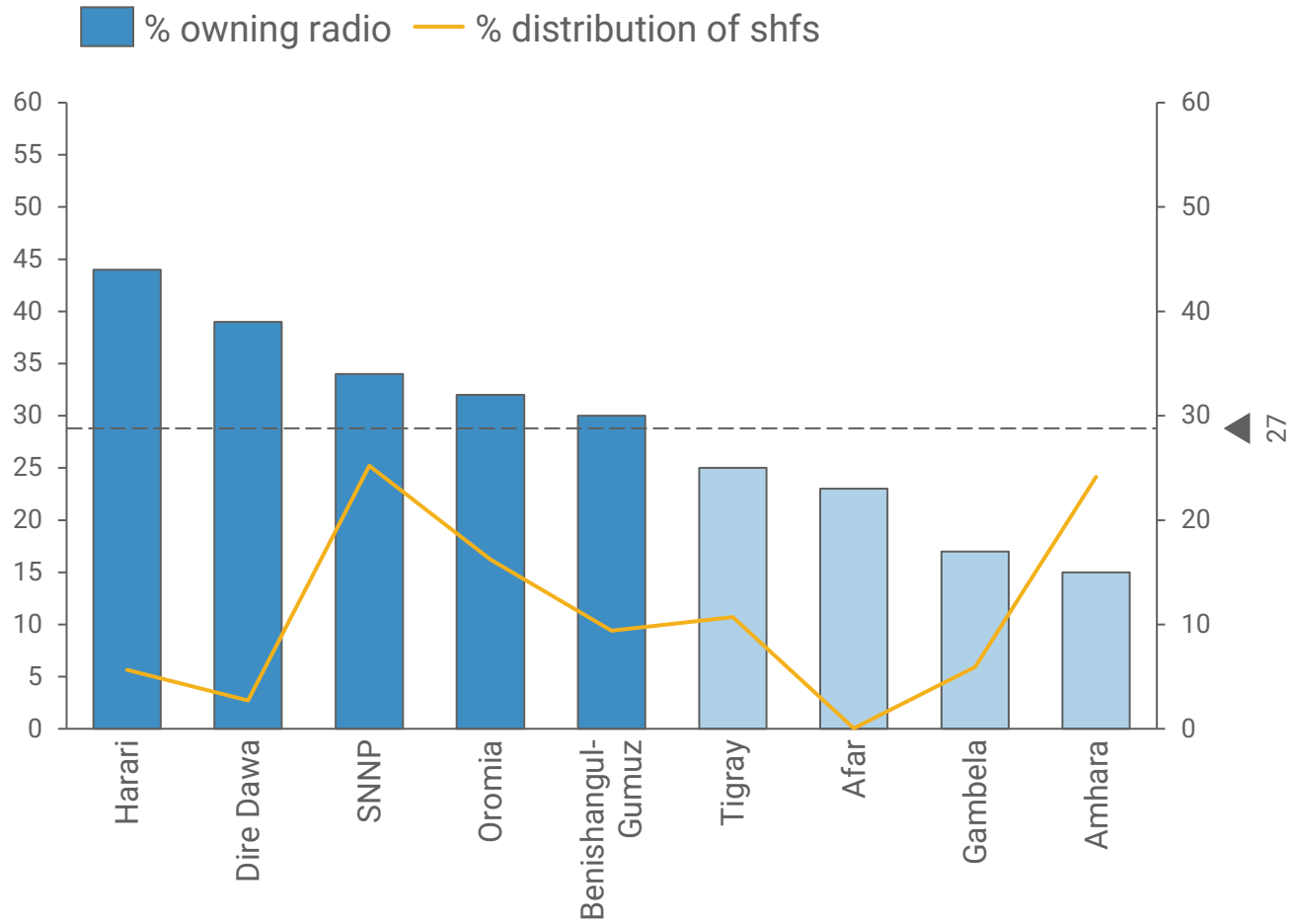
# Less than half of the households in the country own a radio; Western and Central regions with highest concentration of SHFs have high proportions

## Radio ownership status

Stand alone radio




## Radio ownership status

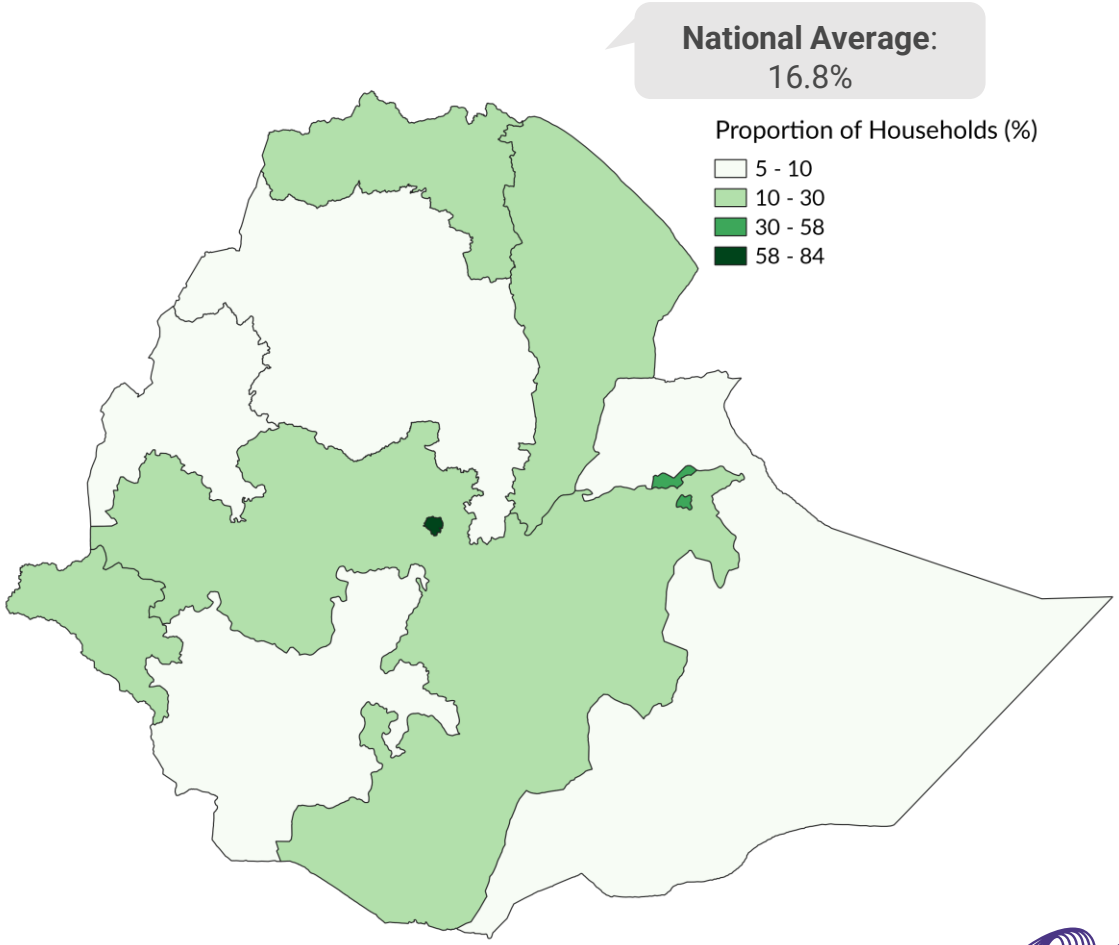



Notes: Addis Ababa and Somali regions were excluded due to low presence of farming households
Source: DHS Ethiopia, 2019, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

# Some regions that had better radio access have lower TV ownership like Benishangul-Gumuz and SNNP, showing radio media dominance over TV

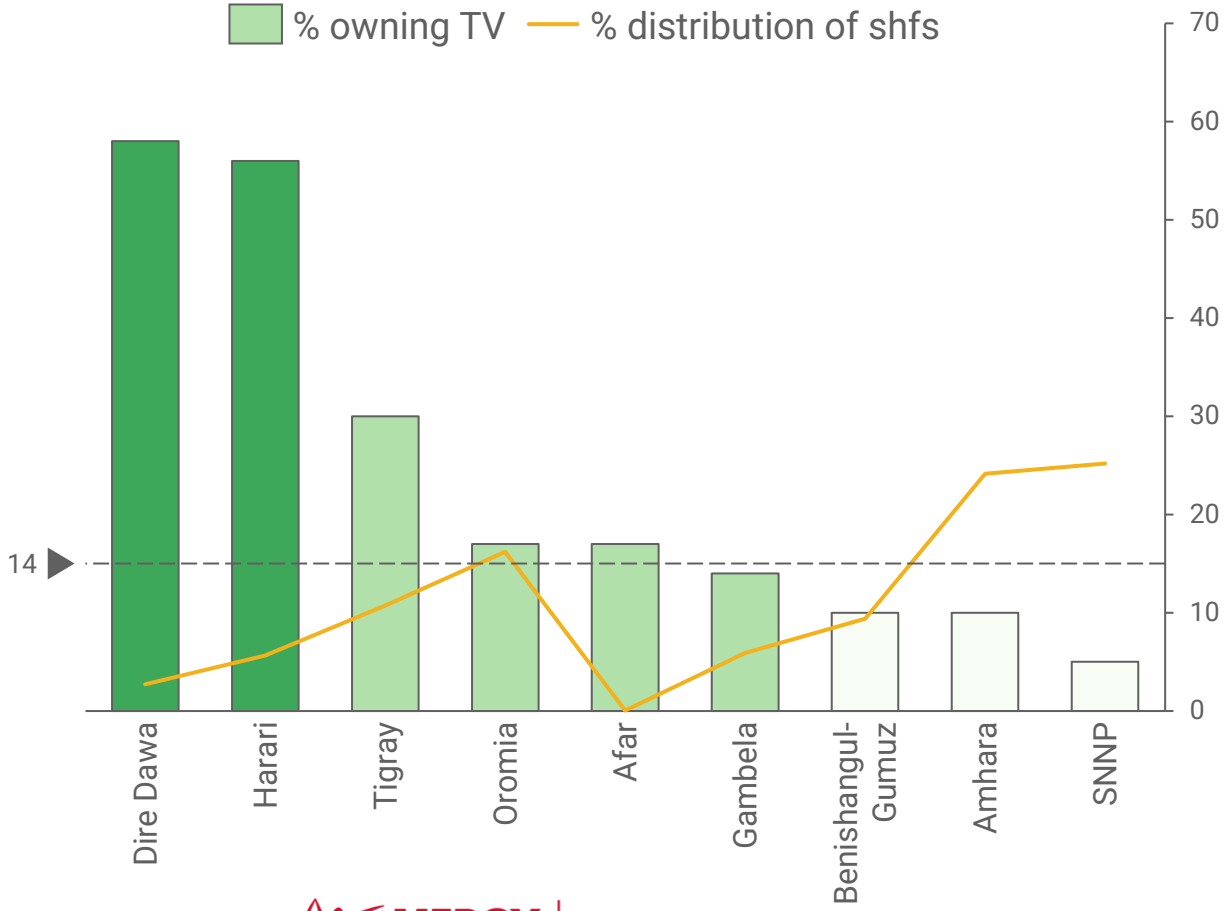
## Television ownership status

Functional television




## Television ownership status

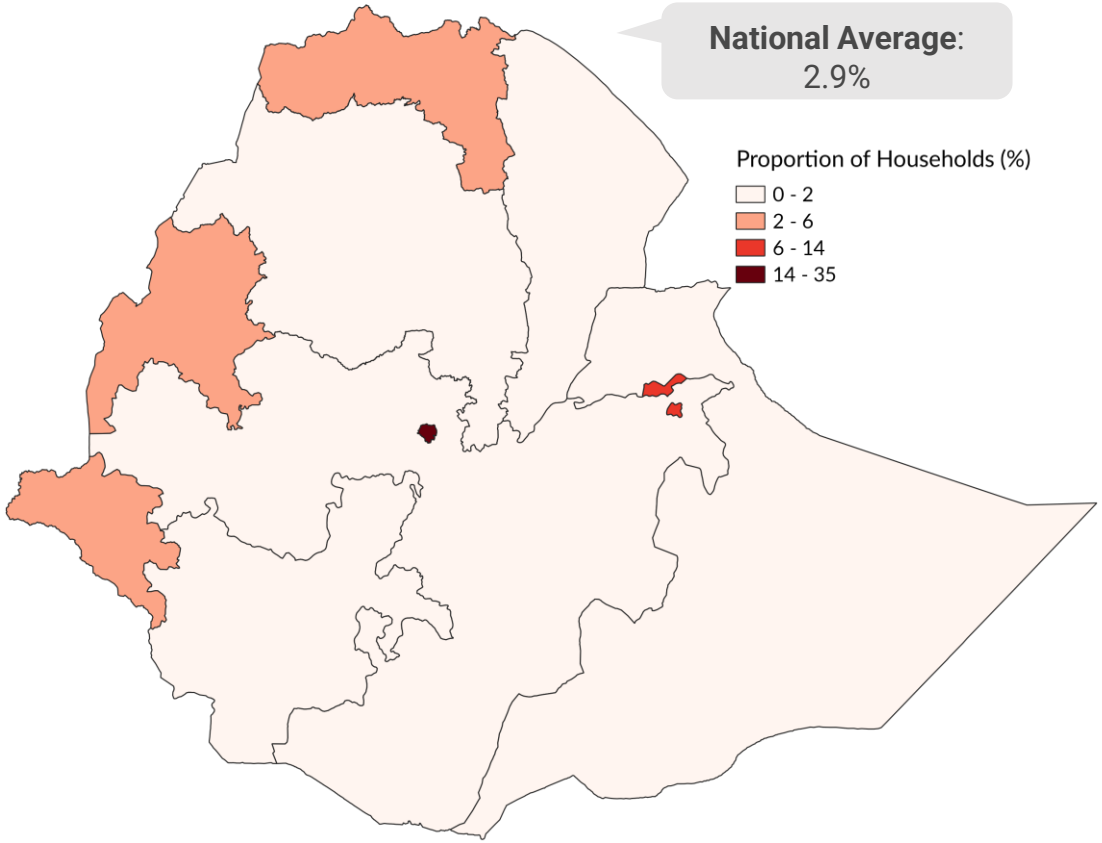
In proportions (%)



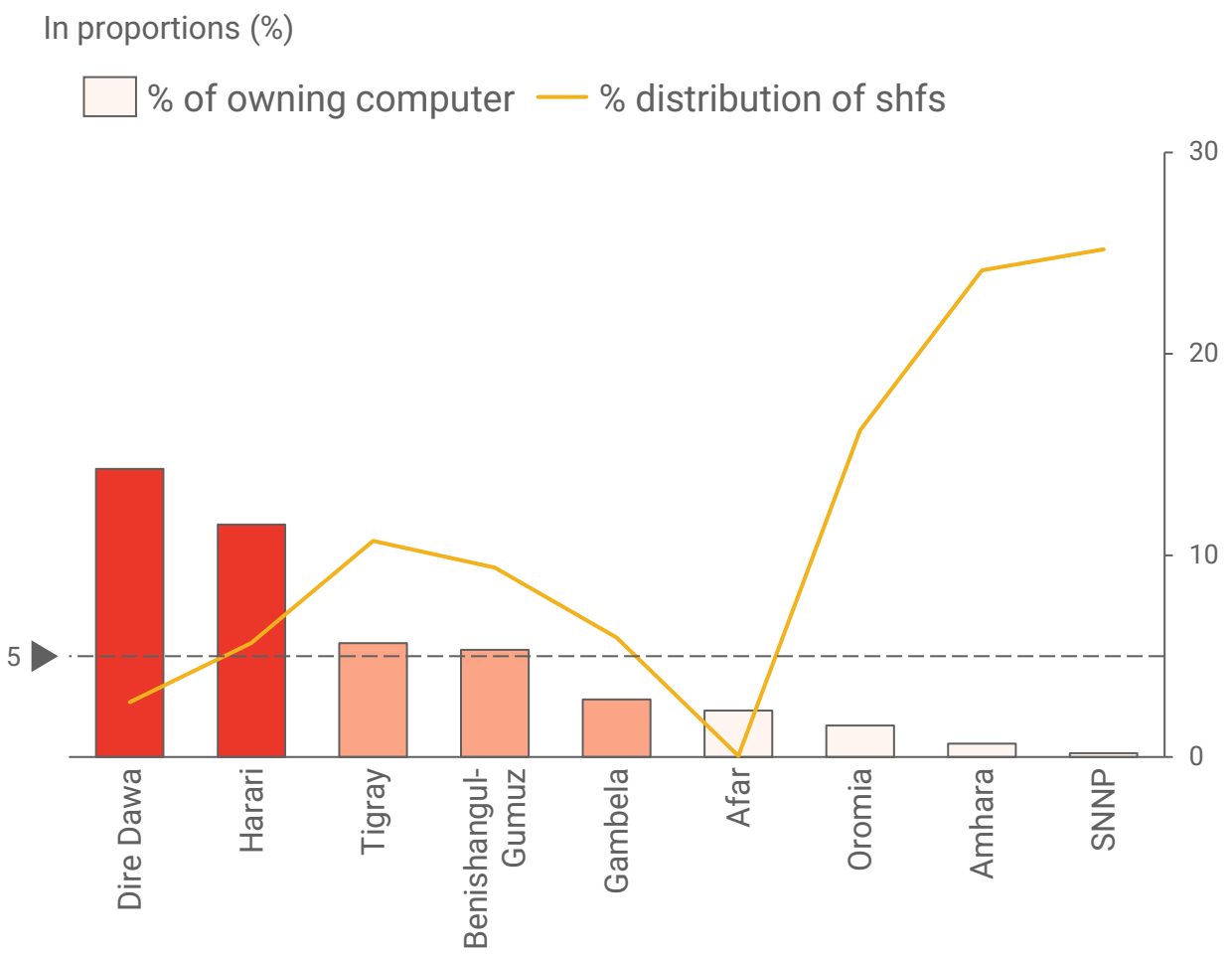

Notes: Addis Ababa and Somali regions were excluded due to low presence of farming households
Source: DHS Ethiopia, 2019 and LOCAN Analysis

# Nearly 1 in 10 SHF households have access to computer, it's the least accessible media probably due to financial reasons

## Computer ownership status




## Computer ownership status

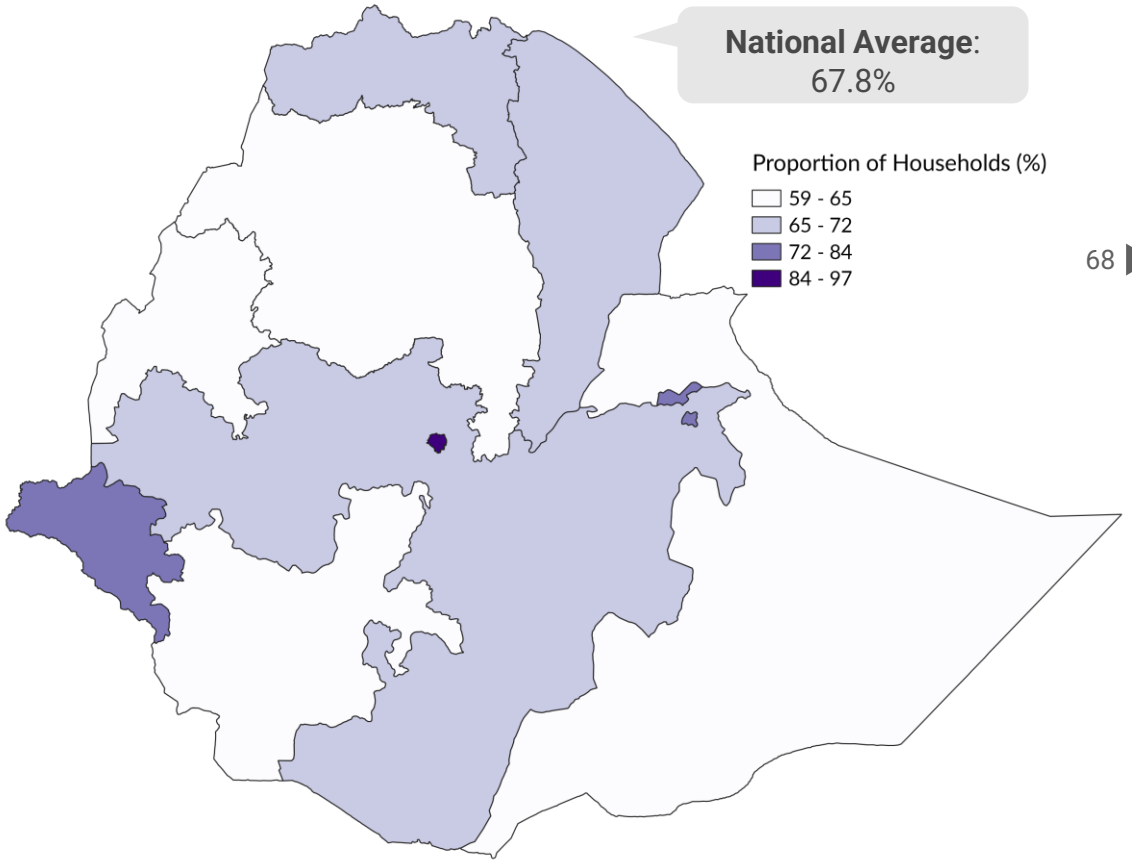



Notes: Addis Ababa and Somali regions were excluded due to low presence of farming households
Source: DHS Ethiopia, 2019 and LOCAN Analysis

# More than half of the regions are above the national average of cell phone ownership of 68%

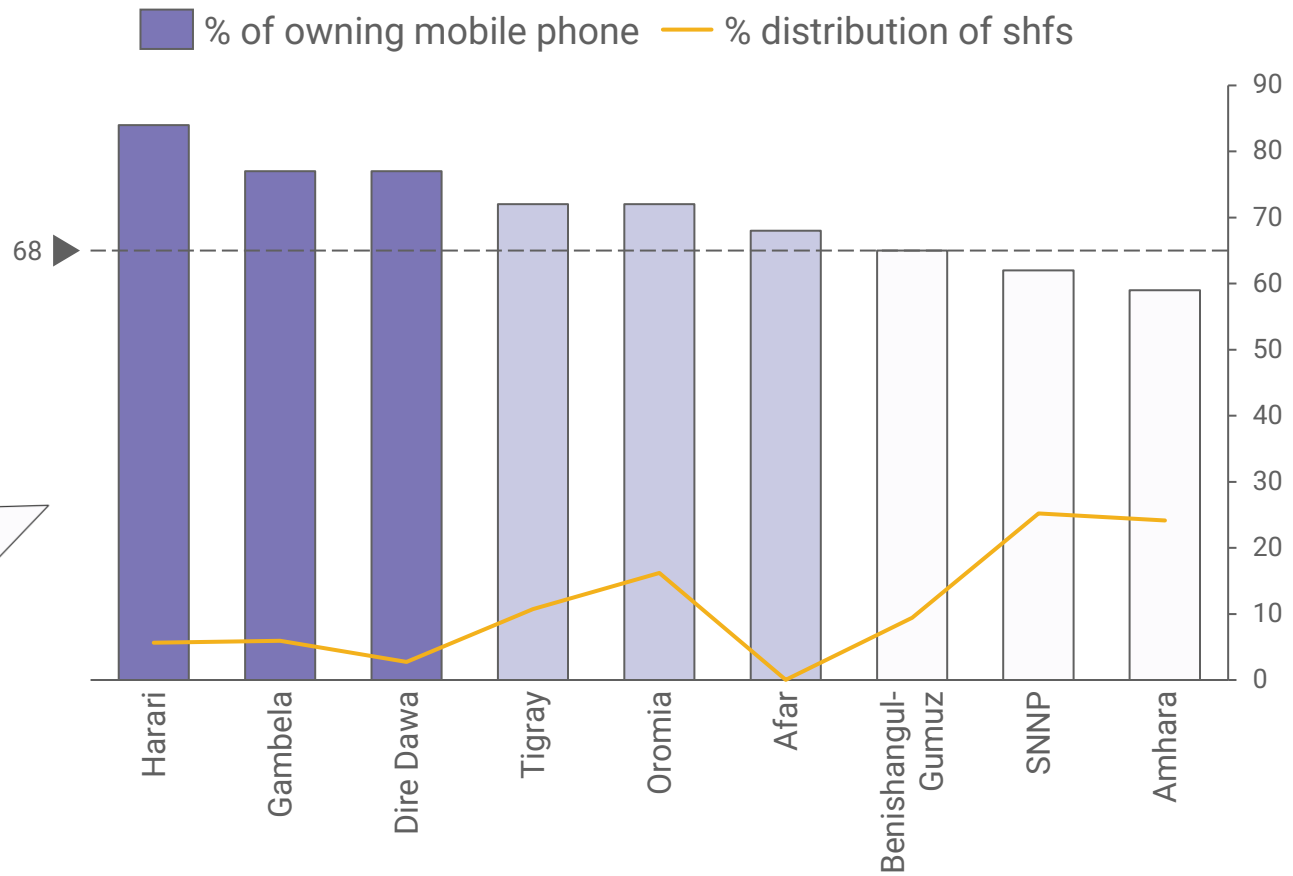
## Cell phone ownership status

Both smart phones and feature phones




## Cell phone ownership status

In proportions (%)




Notes: Addis Ababa and Somali regions were excluded due to low presence of farming households
Source: DHS Ethiopia, 2019 and LOCAN Analysis

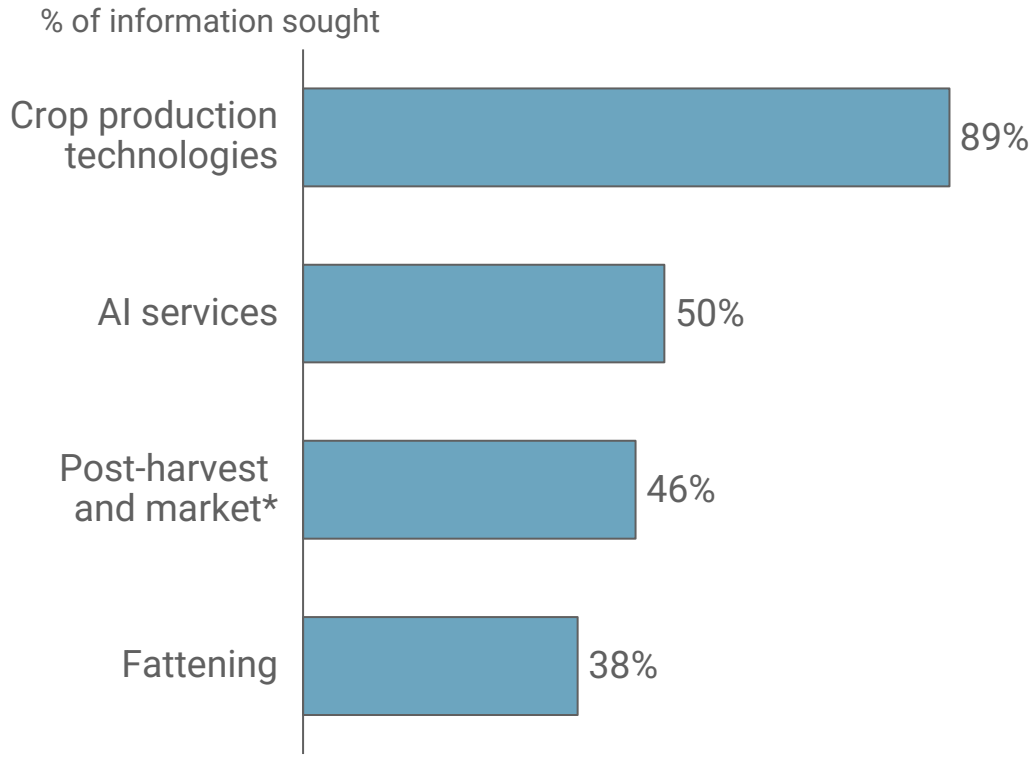
# Agricultural extension network plays a pivot role in production information dissemination within smallholder communities.

Case study

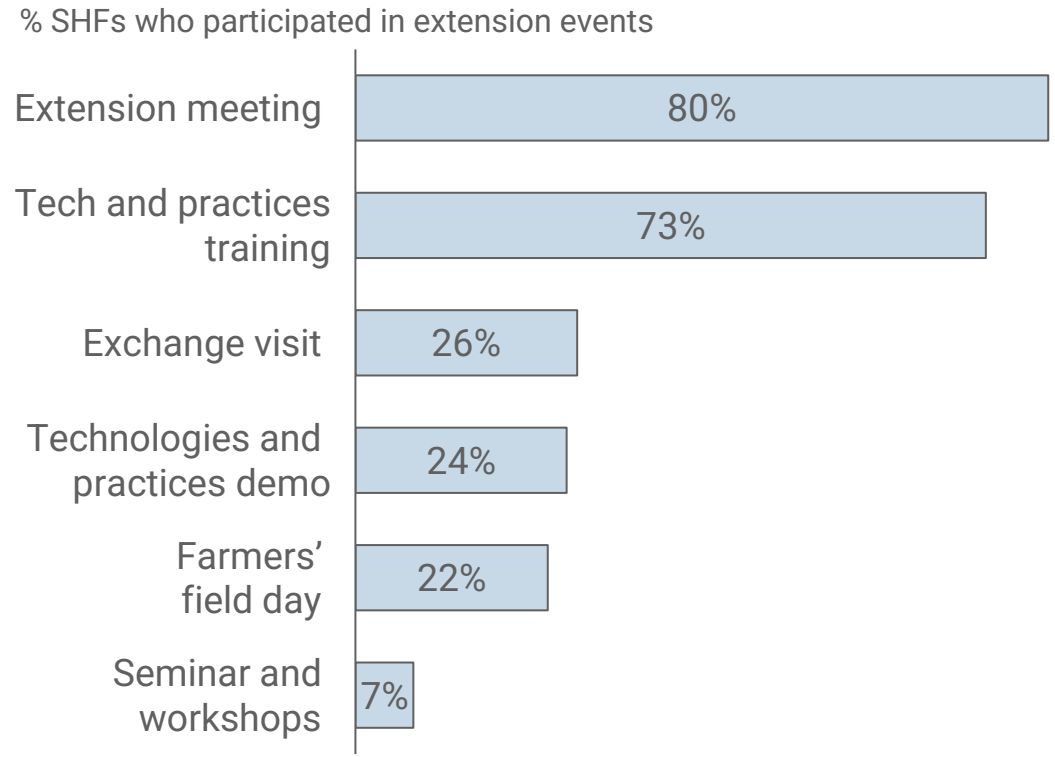
Central Rift Valley (Lume, Adama and Shallain) – Oromia region

- Most of the SHFs (89.4%) had access to agricultural extension services, mainly through their field level extension agents and supervisors. More than 73% attended training on improved crop production technologies, and 24.4% hosted at least one farm demonstration trial during the cropping season.

## Type of information farmers seek




## Participation in extension services

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Source; Ethiopian Institute of Agricultural Research (EIAR), Sources and Access to Agricultural Information of Smallholder Farmers in Central Rift Valley of Ethiopia, 2015. Notes: * - post-harvest management and market related information
Note: AI –Artificial Insemination

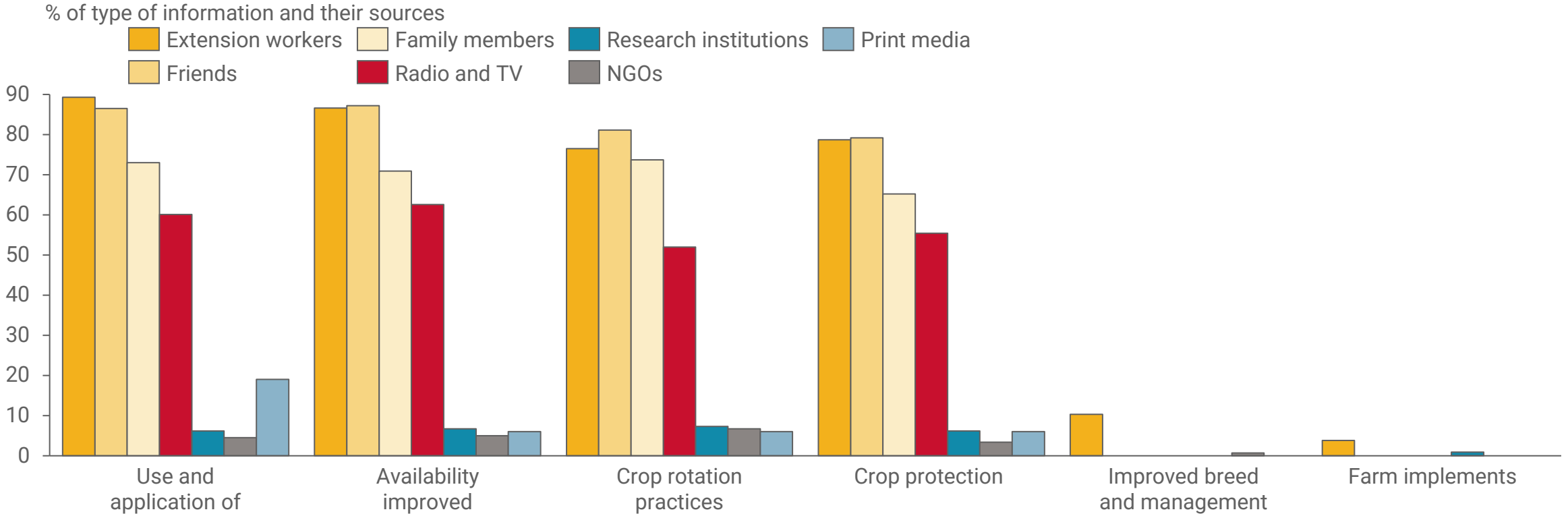
# SHFs also access agricultural information from other varied sources for instance extension workers, friends/family members or mass media

Case study

Central Rift Valley (Lume, Adama and Shallain) – Oromia region

- Extension officers are the primary sources of information for the SHFs. This information is delivered through trainings, farm visits or through mass media (radio/tv) platforms. The information delivery system is limited to certain extension activities with less use of print and electronic media.
- Agricultural extension is thus expected to cover a wide scope, including information acquiring, storage, processing, and communication from different sources.

## Type of information and their sources on improved agricultural technologies




Source; Ethiopian Institute of Agricultural Research (EIAR), Sources and Access to Agricultural Information of Smallholder Farmers in Central Rift Valley of Ethiopia, 2015.

# Use of this information is critical in promoting the adoption and diffusion of agricultural production technologies among SHFs

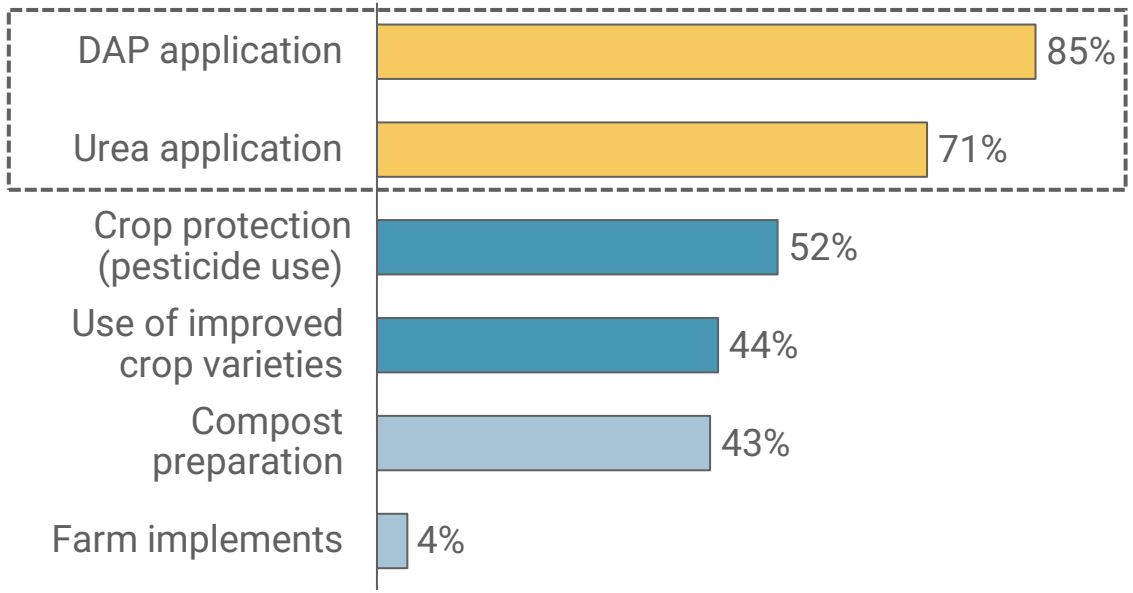
Case study

Central Rift Valley (Lume, Adama and Shallain) – Oromia region

- Farmers require access to information on new technologies and innovations to improve their productivity, increase their income, and enhance their resilience to challenges such as climate change.
- Generally, SHFs use the acquired information on fertilizer application to a large extent. ~98% of the SHFs understand the importance of agricultural information in increasing crop production and productivity.
- More than 80% have medium to high level of access to agricultural information based on the number of sources of information they have or the frequency of their participation in different extension events.

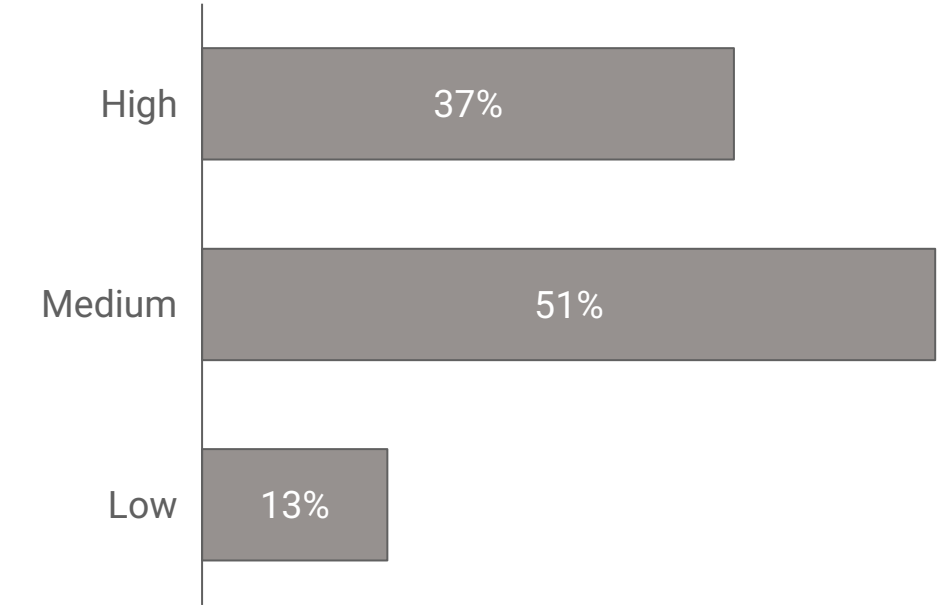
## SHF utilization of information

% of how SHFs use information sought



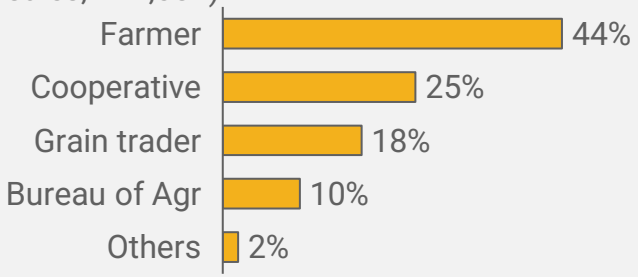
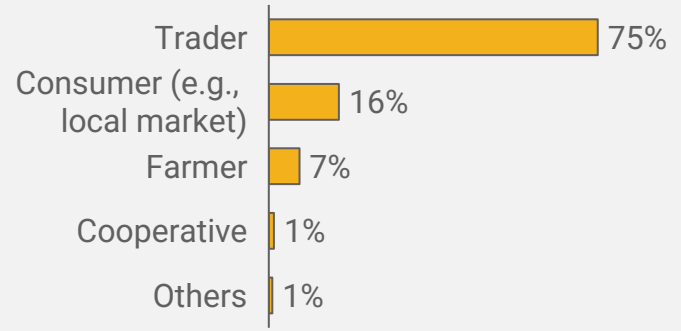

## Level of access to agricultural information

% SHFs level of access




Source; Ethiopian Institute of Agricultural Research (EIAR), Sources and Access to Agricultural Information of Smallholder Farmers in Central Rift Valley of Ethiopia, 2015
Notes: * - post-harvest management and market related information

# Farmers access inputs, information and markets through a range of sources; physical barriers and personnel gaps remain pertinent.

| | Input Purchase | Information Access | Market Access |
|---|---|---|---|
| **Current needs and access** | • **Improved seeds** usage is relatively low (~31% of fields with maize, ~8% of wheat ~3% of teff, as of 2015/16) while **fertilizer** application is well below other countries (~20kg per hectare vs. ~80 per hectare in Kenya)<br>• **Other farmers** and **cooperatives** are the primary sources of seed purchase:<br>• **Sources of purchased seed in Ethiopia** (% of sales, n=2,087)<br>  | • **90%** of farmers rely primarily **on informal social learning** (from other farmers, friends and relatives) as opposed to public extension services<br>• Formal access to agricultural information is primarily through the **national extension system** –the largest in Africa with over 50k extension agents (~3 per kebele, or ~21 per 10k farmers)<br>• **Participatory extension system** introduced by MoA in 2010 – underpinned by farmer groups (e.g., model farmers showing techniques to groups of five other farmers)<br>• Other sources include supplementary services e.g., 8028 hotline | • Only 21% of SHF production is **marketed surplus** (vs. ~23% in Kenya, ~38% in Vietnam)<br>• Market transactions are primarily **through traders**, given long travel times to markets and cooperatives (~1 hour avg.)<br>• Amongst farmers overall, <2% of sales transactions are **under contract** (2012)<br>• **Main buyers of crop** (% of sales. n=5,451)<br>  |
| **Key barriers** | • Limited **distribution networks** – all planning & supply via government and co-op networks<br>• **High tariffs** on improved inputs<br>• SHFs' ability to afford inputs at the times they are needed given **seasonal incomes**, compounded by **limited access to finance** | • **Low ICT** capacity and usage<br>• **Insufficient consideration for SHFs' needs** in extension design – complex stakeholder environment<br>• Low motivation and high churn of **development agents** (given low pay, high workload) limiting ability to **improve training** | • **Physical infrastructure** – long distances to travel to roads, marketplaces or agricultural coops<br>• **Limited pricing power**, due to power imbalance vs. brokers and aggregators as well as limited<br>• information |

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Source; CSA, Socio-Economic Survey, 2015-2016; Gerba Leta, The Ethiopian Agricultural Extension System, 2018, FAO, Smallholder Farmers' Data Potrait; MoA Agricultural Extension Strategy

# FACTORS HINDERING THE USAGE AND ACCESS OF DIS/DFS BY SHF

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Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises

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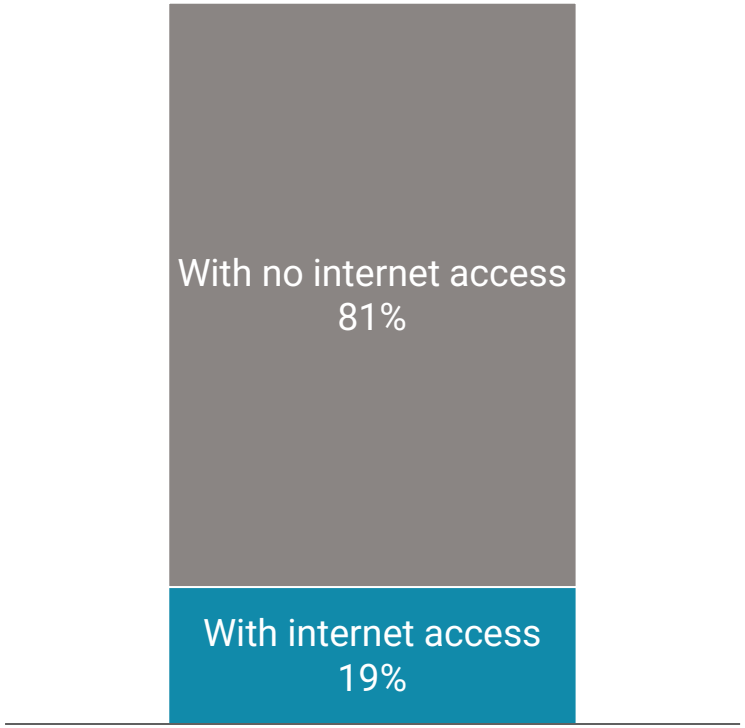
Dalberg Research

# Some of the barriers and capacity gaps for utilizing digital extension advisory support include …

- Low digital literacy and prohibitive cost of internet and digital devices hampers the utilization of digital extension and advisory services
- Farmer Perceptions -These perceptions are shaped by farmers' personal characteristics (e.g., age, education, conservation attitude, norms beliefs) and the physical characteristics of the land.
- Some of the listed challenges to utilization of extension advisory support are as shown below:




Level of access to internet in Ethiopia

Low awareness of digital services availability

Lack of access to affordable internet services

Limited technical support to use digital services

Low digital literacy levels

Lack of ownership and control of digital devices

Inadequate power supply

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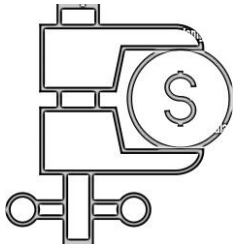
Source; CIAT, Digital Agriculture Profile: Ethiopia, 2022;

# Additionally, various studies have cited factors hindering the adoption and utilization of DIS/DFS by the farmer

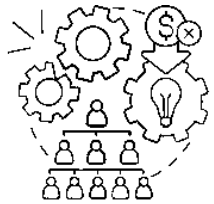
**Lack of trust and awareness**: Farmers in Ethiopia often do not trust digital services and may not be aware of their benefits. This is often due to a lack of education and understanding about the technology.

**Data privacy and security concerns:** Farmers in Ethiopia may be concerned about the security and privacy of their personal and financial data, leading them to avoid using DIS/DFS.



**Financial and economic constraints:** The small-scale farmers in Ethiopia may not have the financial means to purchase the technology needed to access DIS/DFS, such as smartphones, and may not have access to financial services to pay for these services.

**Limited digital literacy:** many farmers in Ethiopia may not have the necessary digital skills to effectively use DIS/DFS and may require additional training and support.



**Inadequate infrastructure:** In many rural areas of Ethiopia, there is a lack of infrastructure, including lack of electricity and internet access, which can limit the use of DIS/DFS.

**Internet restriction:** Internet blockage and social media censorship hinder digital agricultural information services in Ethiopia, limiting access to vital resources and impeding knowledge sharing among farmers. Addressing these challenges is crucial for agricultural development and improving farmers' livelihoods.

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Source; Consultative Group to Assist the Poor (CGAP), Annual Report, 2015; International Food Policy Research Institute (IFPRI), Annual Report, 2019; Building Resilience Through Digital Financial Services: Ethiopia.pdf (ifc.org); Building Ethiopia's Digital Financial Services Ecosystem: Barriers and Opportunities - UN Capital Development Fund (UNCDF)

# OPPORTUNITIES OF INCREASING SHFS INCOME THROUGH DIGITAL FINANCIAL AND INFORMATION SERVICES

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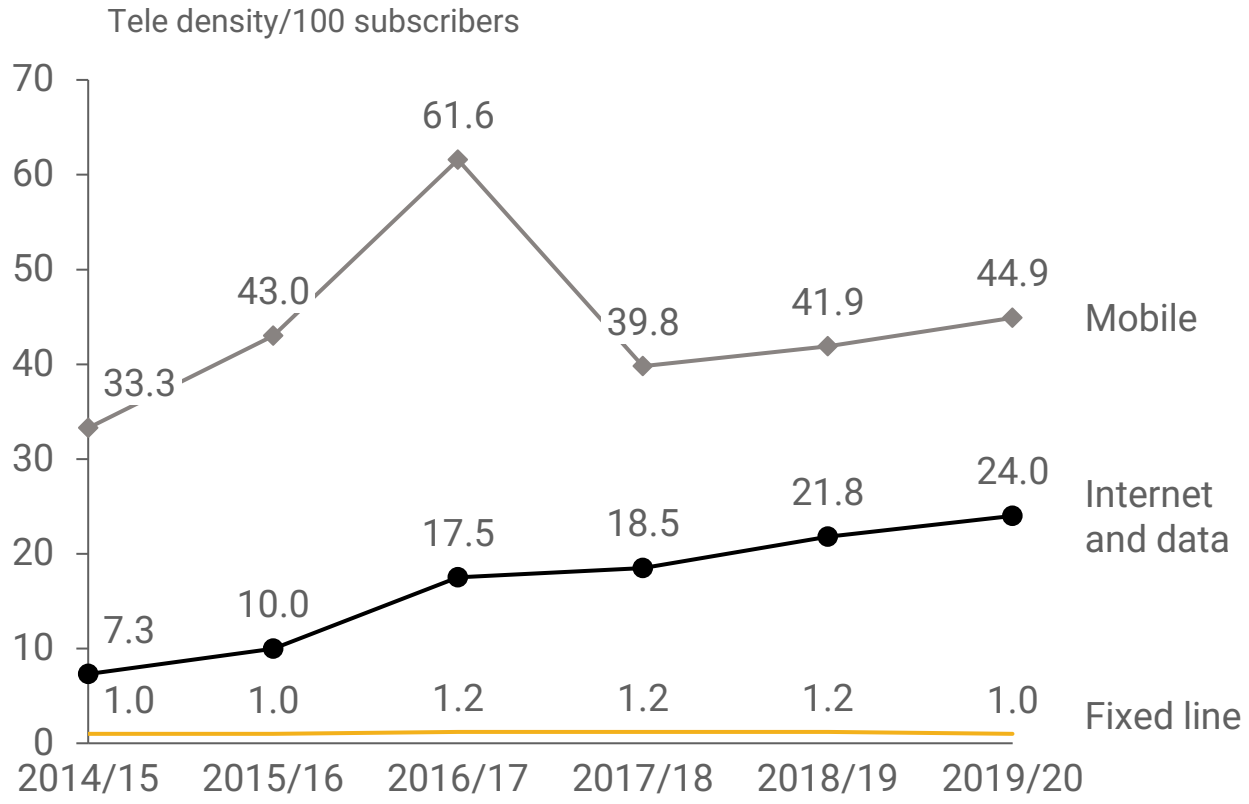
# The telecom density in Ethiopia has been increasing steadily; the SHFs can leverage on this for DIS on agricultural practices

- Developing digital skills is crucial for individuals to thrive in the modern economy. In Ethiopia, digital literacy among smallholder farmers is currently low. The country ranks 112 out of 138 economies in terms of digital skills, which could be problematic given that over two-thirds of the population is under the age of 29. Utilizing this young workforce in agriculture with the help of digital technologies could greatly benefit the national economy.

## Telecom density Ethiopia



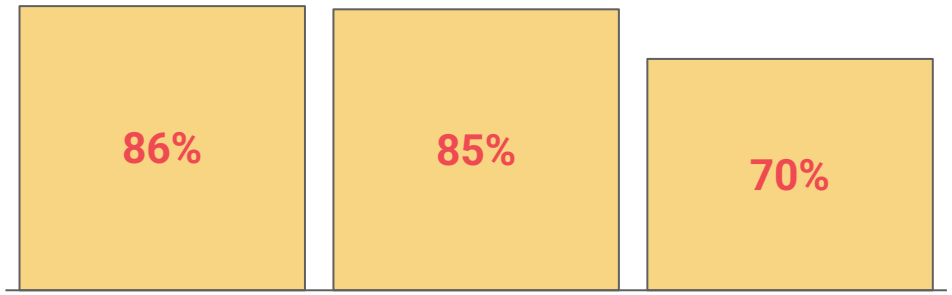

**45.3%**

Have a mobile subscription

**19%**

Use internet regularly

## Mobile Network Coverage

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Source; CIAT, Digital Agriculture Profile: Ethiopia, 2022

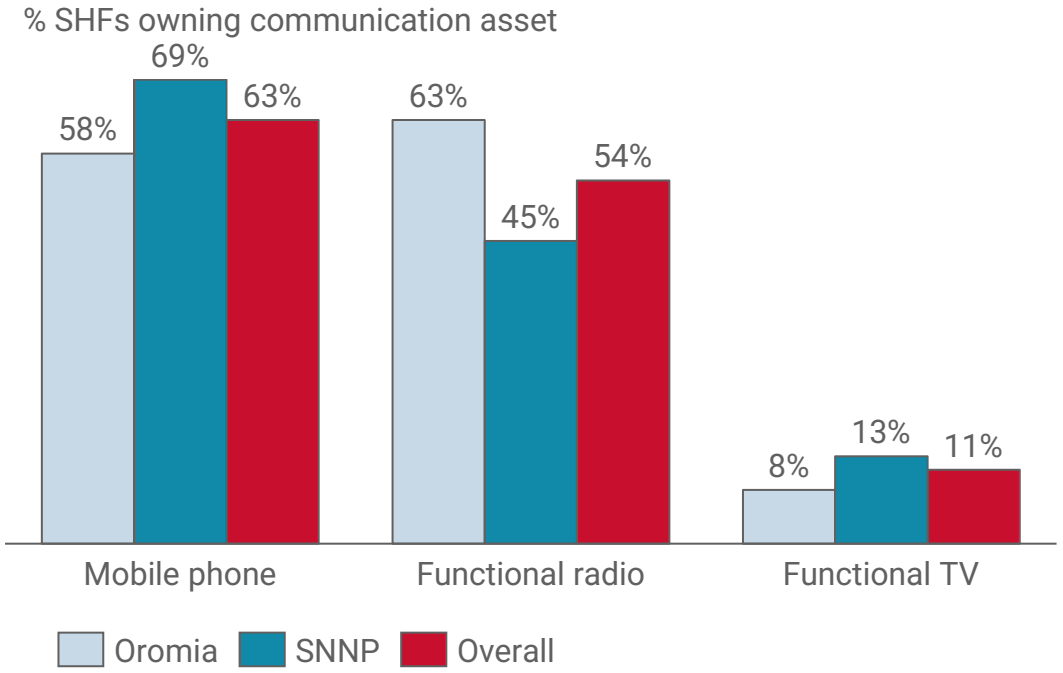
# Nearly two-thirds of the SHFs own a mobile phone; these farmers also practice various climate smart agricultural activities

Case study

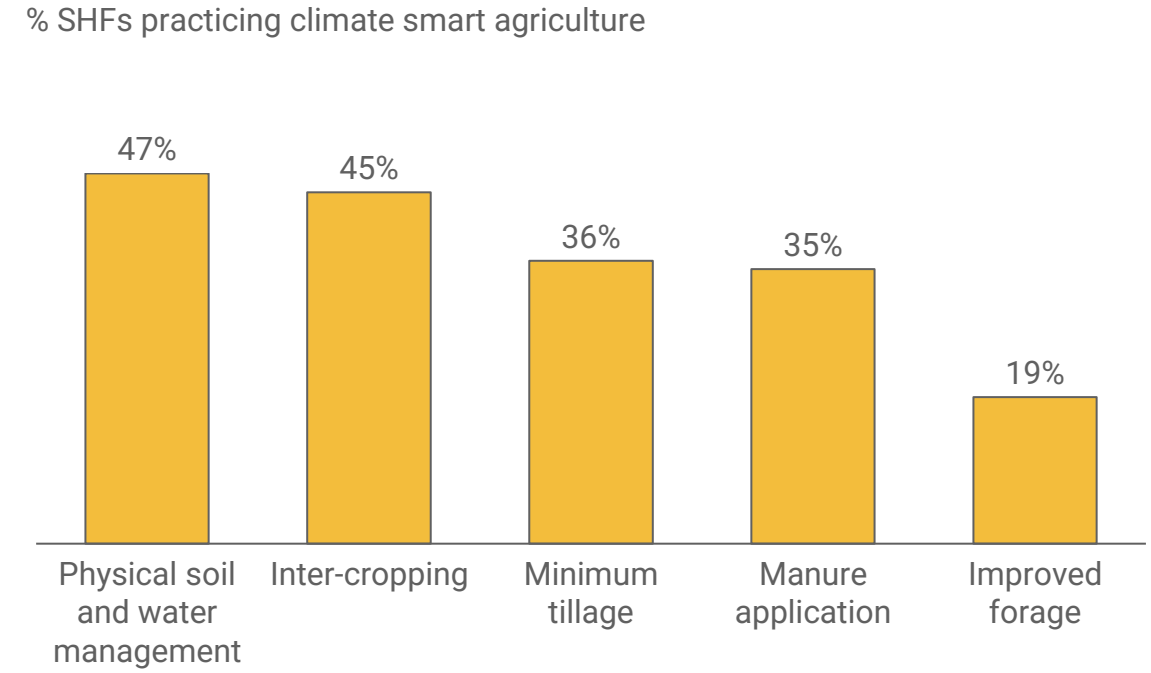
Coffee farmers in Oromia and SNNP regions

- Access to and use of information is a critical factor in promoting the adoption and diffusion of agricultural production technologies among smallholder farmers.
- Farmers require access to information on new technologies and innovations to improve their productivity, increase their income, and enhance their resilience to challenges such as climate change.
- The communication gap between researchers and farmers is a key challenge, which can be addressed through effective dissemination of information and feedback mechanisms. Bridging this gap can accelerate the adoption of new technologies and innovations and contribute to sustainable agricultural development.

## Communication asset ownership between the regions




## SHFs practicing climate smart agriculture




Source; Ethiopian Institute of Agricultural Research (EIAR), Determinants of adoption of climate-smart agricultural technologies and practices in the coffee-based farming system of Ethiopia, 2022.

# GoE has been implementing various policies and initiatives to create opportunities for increasing SHFs income through DFS and DIS.

| Transformation themes | Description |
|---|---|
| Expansion of telecommunication infrastructure | • The government has invested in the expansion of the telecommunications infrastructure to increase access to mobile phone and internet services, which are critical for the delivery of digital financial and information services. Case in example: onboarding Safaricom to extent GSM coverage |
| Establishment of transformation agency and partnerships | • The government has established the Ethiopian Agricultural Transformation Agency (ATA) to lead and coordinate efforts to transform the country's agricultural sector, including promoting the use of digital technologies and information services. GoE has steered partnerships with other organizations including INGOs through ATA to help promote the adoption of DFS/DIS among farmers |
| Initiatives to improve access to credit | • The government has launched various initiatives to improve access to credit for smallholder farmers, including the Agricultural Transformation Agency's Initiative for Smallholder Finance (ATISF) and the Commercial Agriculture Transformation Program (CATP). |
| Policies and regulations | • The government has also established policies and regulations to promote the use of digital financial services, such as the National Payment System Proclamation and the Mobile and Agent Banking Directive. These policies have created an enabling environment for the growth of digital financial services, including for smallholder farmers. |

Source: Agricultural Transformation Agency (ATA): Agricultural Transformation Agency - ATA

# CONSTRAINTS TO SHFS INCREASED PRODUCTIVITY

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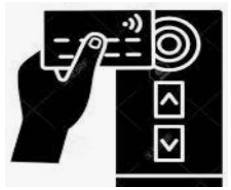
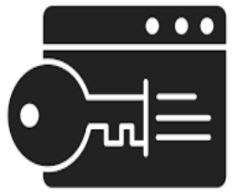
# Factors that hinder SHFs optimum productivity range from access to farm inputs to lack of timely and accurate market information.



**Limited Access to Credit:** Many SHFs have limited access to credit, which limits their ability to invest in inputs such as improved seeds, fertilizers, and equipment. This can result in low yields and reduced productivity.



**Limited Access to Information:** Many SHFs have limited access to information on best agricultural practices, market prices, and weather forecasts. This can limit their ability to make informed decisions and improve their productivity.

**Low tech skills:** Many SHFs still struggle with low tech adoption (still use rudimentary farm equipment) and poor post-harvest handling, leading to low quality output

**Limited access to markets:** SHFs often face challenges in accessing markets, especially for crops that are perishable. This can result in low prices for their crops and reduced income.

**Climate change:** Climate change is affecting smallholder farmers in Ethiopia, with changes in rainfall patterns and increasing temperatures having a negative impact on crop yields

**Soil fertility and land degradation:** Adoption of sustainable land management practices is low, and land degradation is increasing.

**Political instability:** Political instability and conflicts in some parts of Ethiopia can disrupt agricultural activities and limit smallholder farmer productivity.

**Land tenure issues**: Many SHFs lack formal land titles or have insecure land tenure, which can limit their ability to invest in their land and improve their productivity

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Source; CIAT, Digital Agriculture Profile: Ethiopia, 2022; Zeleke et al., Vulnerability of Smallholder Farmers to Climate Change-Induced Shocks in East Hararghe Zone, Ethiopia, 2021. Ethiopian Institute of Agricultural Research (EIAR), Sources and Access to Agricultural Information of Smallholder Farmers in Central Rift Valley of Ethiopia, 2015

# SHOCKS FACING SHFS AND THEIR COPING MECHANISMS

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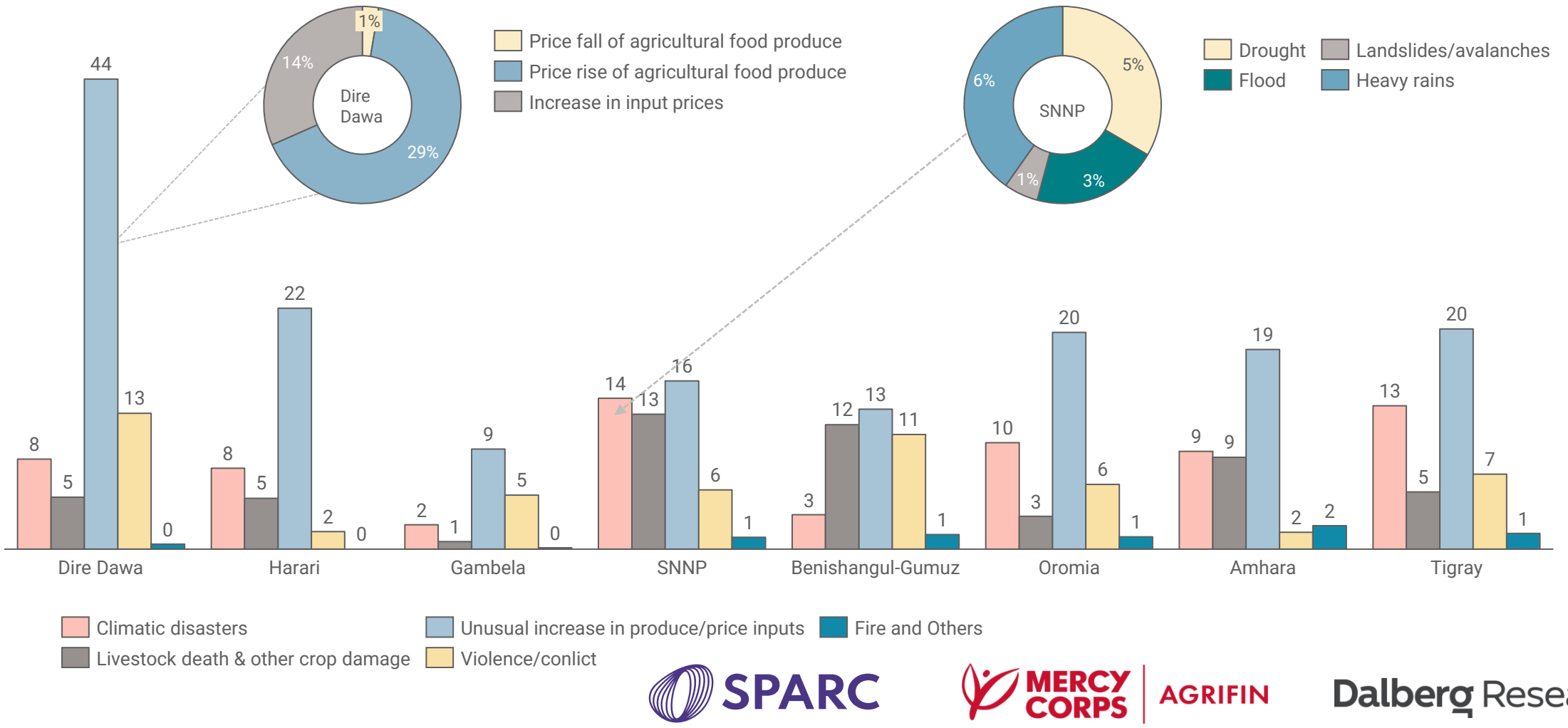
# Frequent shocks experienced by SHFs in the regions differ, but unusual increase in food items from agricultural produce and inputs are common

*Share of shocks experienced across the regions (%)*

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Notes: Addis Ababa, Afar and Somali regions were excluded due to low presence of SHF households. Climatic disasters include drought, flood, landslide/avalanches and heavy rains. Unusual increase in both price rise and price fall of agricultural produce food items and violence/conflict includes theft/robbery violence, involuntary loss of house/land, government displacement and local unrest.
Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

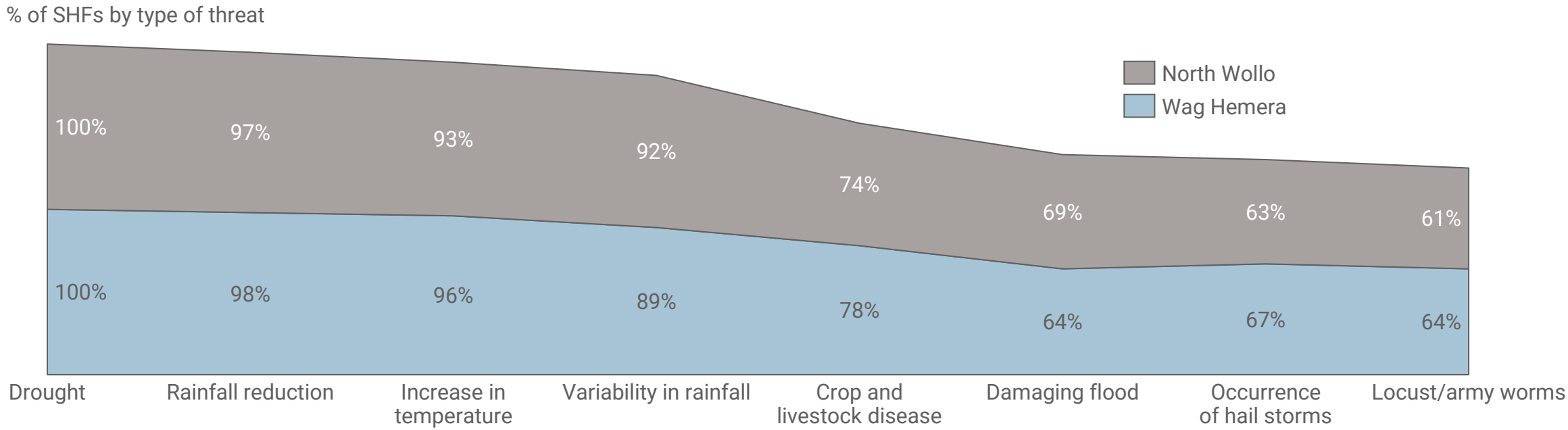
# SHFs report climate change-induced shocks such as increased temperatures and rainfall-related variables as the major shocks they experience

Case study

North Wollo and Wag Hemera zones of Amhara region of Ethiopia

- SHFs indicate that climate change has resulted in significant shocks in the region, including rising temperatures and changes in rainfall patterns, such as shifts in rainy seasons, rainfall shortages, and increased variability. Furthermore, droughts, crop and livestock diseases, as well as water and pasture shortages, are widespread in the area.

## Major threats in agriculture experienced by SHFs (n = 398)




***"There are a lot of extreme events in this area, and drought has been a problem for a long time. To be honest, we had experienced a drought in our lives. Rather, it has been steadily increasing over time, notably in terms of frequency. Since 2015, we've been battling drought year after year" – FGD participant***

Source: Tofu et a;., Smallholder farmers' vulnerability and adaptation to climate change induced shocks: The case of Northern Ethiopia highlands, 2022

# SHFs cite various impacts of climate-change induced shocks

Case study

North Wollo and Wag Hemera zones of Amhara region of Ethiopia

## Impact on Natural Resources Base

- Climate change has had significant impacts on the natural resources base, including both terrestrial and aquatic ecosystems, and their biodiversity.
- Increase in surface temperature and a decrease in rainfall, have an impact on land resources. The rise in surface temperature affect microorganisms important for soil fertility, while increased evapotranspiration results in a loss of soil moisture and nutrients.
- Torrential rain, which commonly follows a prolonged drought, causes the removal of topsoil. The combined effects of these shocks have resulted in land degradation and, notably, soil fertility degradation. Severe soil erosion and water shortages are major climate change-related problems that cause crop failure and consequent food insecurity.
- The depletion of natural resources has become the main environmental problem in Ethiopia, and all efforts to rehabilitate natural resources through soil and water conservation and biological measures have met with limited success.

## Impact on agriculture

- The SHFs report that the productivity of crops has been declining, and extreme climate events such as irregularities in the onset of rainfall, temperature increase, floods, and droughts were identified as the principal impacts of climate change-induced shocks on crop production.
- Crop pests, particularly earthworms and locusts, were noted by the entire survey and group discussants as crop production restrictions.
- Drought events and trends were underscored by informants who could recall some of the events, including the complete loss of their crop fields following a shortage and early cessation of rain, which extended the duration of dry months.
- Among the severe climate change-induced shock periods, the years 1985, 1988, 1995, and 2015 were the major ones. As a result, many people died, and the rest were displaced within the zones and outside, such as Wollega and Ilu-ababora in the West; Gojam in the Northwest; and Korem and Raya in the Northeast of the country.

## Impact on Human livelihood and Health

- SHFs reported that the loss of soil fertility has become prevalent to the extent that the situation is no longer reversible with the practice of applying soil and water conservation practices on one side and farming on the other side. This has resulted in a decrease in crop production, and subsequently, food insecurity.
- Climate change has also led to the displacement of people from their homes, as severe climate change-induced shocks have caused crop failure and a shortage of water. The loss of livelihoods has led to poverty and a decrease in overall well-being. Furthermore, climate change has had direct and indirect impacts on human health.
- Extreme climate events such as floods and landslides have led to injuries and deaths. Additionally, the displacement of people from their homes due to climate change has led to the spread of diseases and a decrease in access to healthcare.

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Source: Tofu et a;., Smallholder farmers' vulnerability and adaptation to climate change induced shocks: The case of Northern Ethiopia highlands, 2022; FAO, Adaptation to climate risk and food security: Evidence from smallholder farmers in Ethiopia, 2015

# SHFs are practicing diverse adaptation strategies to develop resilience to climate change-related risks like droughts and floods.

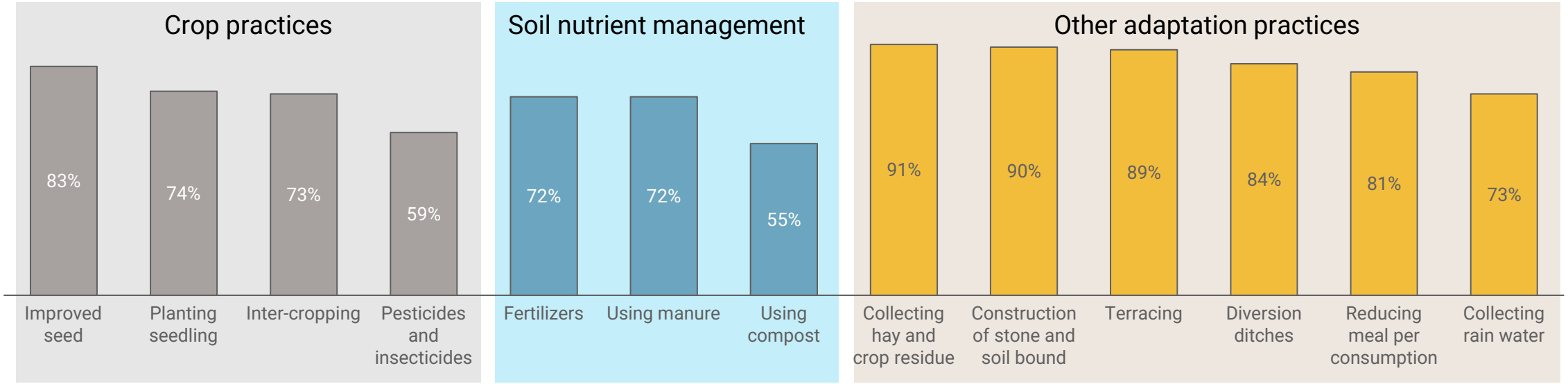
Case study

North Wollo and Wag Hemera zones of Amhara region of Ethiopia

- SHFs are using technological, behavioral, managerial, and policy approaches to reduce the impact of climate change-induced shocks.
- The farmers are practicing drought-tolerant improved seed, applying fertilizers, insecticides, and pesticides as part of technological approaches. Managerial approaches include intercropping, the use of compost and manure, and flexible calendars for land preparation. Soil and water conservation is also practiced at both the household and community levels.

## Adaptation strategies to threats in agriculture experienced by SHFs

% of adoption by SHFs



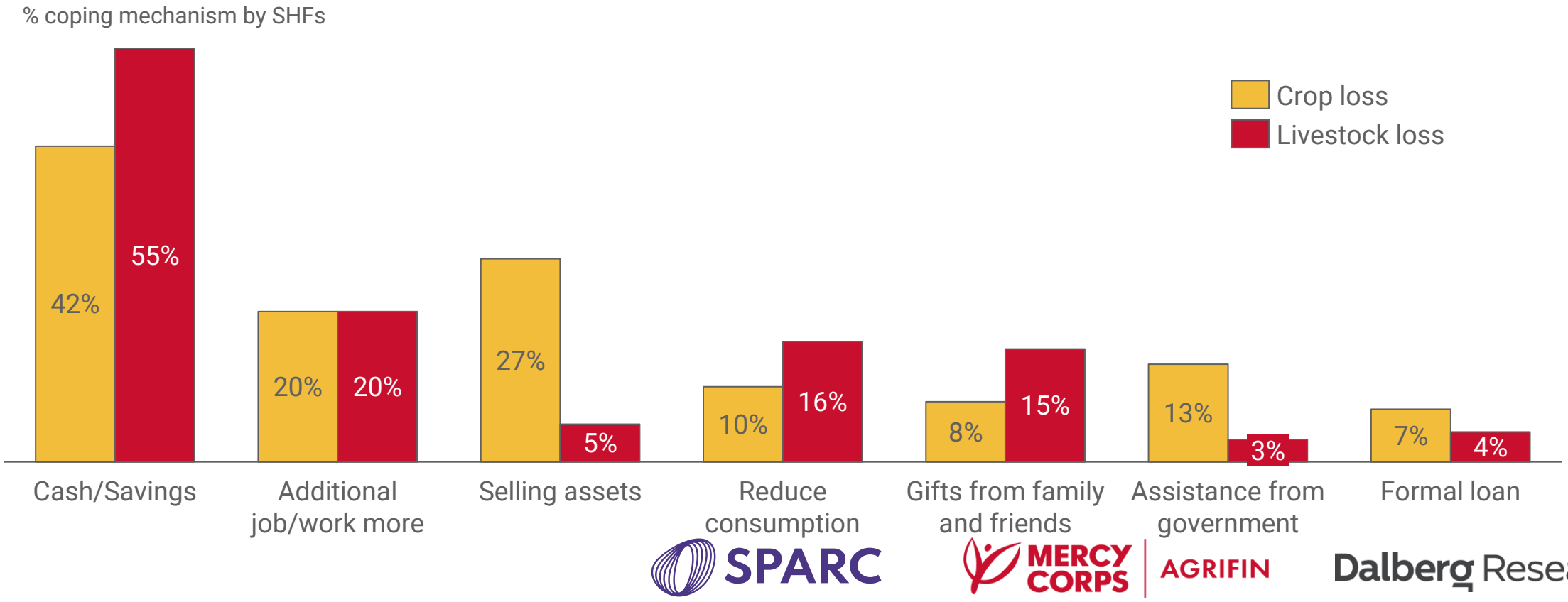

***"Before the last five years, we spent a lot of time looking for water to conduct all our household chores. But today, this is no longer the case, and we no longer spend a lot of time obtaining water. This is because we began to rebuild previously degraded watersheds in our area, and as a result, formerly dry water spots began to give water." – FGD participant***

Source: Tofu et al., Smallholder farmers' vulnerability and adaptation to climate change induced shocks: The case of Northern Ethiopia highlands, 2022

# … also, the SHFs have utilized various strategies to cope with agricultural losses that result due to shocks.

- Government assistance for agricultural losses was the most effective coping mechanism for households, with a recovery rate of almost 75%. Selling assets was also a common strategy for coping with crop losses, but it was recognized that it could negatively impact future income.
- Assistance from family and friends was limited due to the widespread impact of crop shocks. Formal loans were not readily available, and migration was viewed as a last resort.
- Coping mechanisms differed for livestock losses, with asset sales being less common and government assistance not as effective.

## Mechanisms used to cope with agricultural losses by SHFs




Source: World Bank Group, What people want: Investigating inclusive insurance demand in Ethiopia, 2018

# Coping Mechanism- Low uptake of de-risking opportunities;

- The low insurance adoption by SHFs is attributed to both demand and supply functions

| Demand-side barriers | Supply-side barriers |
|---|---|
| Low awareness of insurance, Poor understanding of how insurance works | Insurance services for smallholder farmers can be costly and complicated to design |
| Low trust in the provider and the chance of receiving a pay-out | Distribution and operations: smallholder farmers are expensive customers to acquire and serve |
| High cost of premiums and lack of government subsidy | Low profitability potential due to low premiums |
| Difficult to register and claim, which requires travelling to a nearby town | Difficult to provide some policies without government support and subsidies |

However, there are some proposed solutions that can counter the low uptake. This is through bundling and cross-selling index insurance with other value-added services which is key to driving uptake amongst farmers. Bundling allows farmers to access a suite of relevant services, such as agronomic advisory and input loans. Cross-selling index insurance with other types of insurance, such as health insurance, offers farmers greater cover for their risks and can often allow insurance providers to cross-subsidise the cost of index insurance services.

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Source; GSMA, Agricultural insurance for smallholder farmers, 2020; ISF Agri insurance for smallholder farmers , 2022; How crop insurance is helping Ethiopia's farmers | World Economic Forum (weforum.org)

# SHF LITERATURE GAP ANALYSIS

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# The literature research and data analysis surfaces the following gaps

| Theme | Literature | Gaps |
|---|---|---|
| **Farmer profiles** | • USAID Ethiopia Fact Sheet - Agriculture - October 2020<br>• FAO, Small family farms Country Fact sheet-Ethiopia- 2018 (fao.org)<br>• Ethiopia (ifad.org)<br>• Ethiopia Overview: Development news, research, data \| World Bank<br>• Second Growth and Transformation Plan (GTP II: 2016-2020) \| Diversity of Cultural Expressions (unesco.org)<br>• FAO, The economic lives of smallholder farmers; An analysis based on the household data from nine countries, 2015 (The economic lives of smallholder farmers (fao.org))<br>• An Assessment of Operation and Performance of Commercial Farmers in Ethiopia \| United Nations Development Programme (undp.org)<br>• Demographic and Health Survey (DHS), 2018<br>• Livelihood Zones - FEWS NET Data Center \| Famine Early Warning Systems Network<br>• Climate zones - Global yield gap atlas<br>• World Bank and CSA, Ethiopia Socioeconomic Survey (ESS) Wave 4 data, 2018/2019<br>• World Bank, Gender and Youth Action Plan: Feed the Future Ethiopia Value Chain Activity, 2018: Gender-and-Youth-Action-Plan.pdf (banyanglobal.com)<br>• UN Women, the cost of gender gap in agricultural productivity in Ethiopia, 2018; UN-Women-Policy-brief-11-The-gender-gap-in-agricultural-productivity-in-sub-Saharan-Africa-en.pdf (unwomen.org)<br>• Final_Report-on-Farmers-Willingness-to-Pay-for-Micro-insurance-GGGI-Sept-2019_web.pdf (laterite.com)<br>• final-stars-ethiopia-smallholder-farmer-report-gecomprimeerd.pdf (icco-cooperation.org)<br>• CSA, World Bank, LSMS-Integrated Survey on Agriculture, Ethiopia Socioeconomic Survey (ESS), 2015/2016<br>• Africa Gender Innovation Lab Ethiopia Gender Diagnostic: Building the Evidence Base to Address Gender Inequality in Ethiopia (worldbank.org)<br>• Climate Smart Agriculture Sourcebook \| Food and Agriculture Organization of the United Nations (fao.org)<br>• FAOSTAT, 2017, & WorldPop 2017<br>• USAID, Feed the Future Ethiopia Value Chain Activity \| Banyan Global | • Despite the significant contribution of smallholder farmers to the Ethiopian economy, there is lack of comprehensive data on the farm profiles of smallholder farmers in Ethiopia.<br><br>• There is a need for a research that provides a detailed understanding of the farm profiles of smallholder farmers in Ethiopia, including the size and type of farms, crop and livestock production systems, access to land and resources, and the socio-economic characteristics of farmers. |

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# The literature research and data analysis surfaces the following gaps cont.'

| Theme | Literature | Identified Gaps |
|---|---|---|
| **Digital/Non-digital financial access** | • World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019<br>• World Bank Group, What people want: Investigating Inclusive Insurance Demand in Ethiopia: World Bank Document<br>• New rural finance programme to help millions of Ethiopian farmers build resilience in the face of climate change and COVID-19 (ifad.org)<br>• Financial Inclusion in Ethiopia: Key Findings from the Ethiopia Socioeconomic Survey 2018/19 (worldbank.org)<br>• Determinants of Access to Agricultural Credit among Smallholder Maize Farmers(aipublications.com)<br>• Gender-based constraints and opportunities to agricultural intensification in Ethiopia: A systematic review \| CGIAR GENDER Impact Platform<br>• final-stars-ethiopia-smallholder-farmer-report-gecomprimeerd.pdf (icco-cooperation.org)<br>• [PDF] Rural Financial Services and Financial Product Innovation in Ethiopia \| Semantic Scholar<br>• Agricultural_Insurance_for_Smallholder_Farmers_Digital_Innovations_for_Scale.pdf (gsma.com)<br>• What people want : investigating inclusive insurance demand in Ethiopia (worldbank.org)<br>• FINDEX report 2017, Ethiopia - Global Financial Inclusion (Global Findex) Database 2017 (worldbank.org)<br>• CSA, Integrated surveys on agriculture Ethiopia Socio-economic Survey, 2015-2016.<br>• Malaria Atlas Project, Open Street Maps | • While there have been some studies on the use of digital financial services by smallholder farmers in Ethiopia, there is a need for more research that examines the barriers to digital financial inclusion, particularly for women and marginalized groups.<br>• There is also a need to understand the impact of digital financial services on smallholder farmers' access to credit, savings, and insurance. |
| **Digital/Non-digital information access** | • How digital technologies can help Africa's smallholder farmers \| E-Agriculture (fao.org)<br>• CIAT, Digital Agriculture Profile: Ethiopia, 2022: Digital Agriculture Profile: Ethiopia (cgiar.org)<br>• Review on Potential of Mobile Phone Usage in Agricultural Information Dissemination in Ethiopia (ijsrp.org)<br>• Determinants of adoption of climate-smart agricultural technologies and practices in the coffee-based farming system of Ethiopia \| Agriculture & Food Security \| Full Text (biomedcentral.com)<br>• (PDF) Sources and Access to Agricultural Information of Smallholder Farmers in Central Rift Valley of Ethiopia (researchgate.net)<br>• Determines of smallholder farmers willingness to pay for agricultural extension services: article1432729540_Temesgen and Tola.pdf (academicjournals.org)<br>• CSA, Integrated surveys on agriculture Ethiopia Socio-economic Survey, 2015-2016.<br>• The Ethiopian Agricultural Extension System and Its Role as Development Actor : Cases from Southwestern Ethiopia (uni-bonn.de)<br>• World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019; DHS Ethiopia, 2019<br>• FAO, Smallholder Farmers' DataPotrait;<br>• MoA Agricultural Extension Strategy | • There is a need for research that explores the different channels through which smallholder farmers in Ethiopia access information, including digital and non-digital platforms.<br>• There is also a need to understand the impact of information access on farmers' decision-making processes and their adoption of new agricultural technologies and practices. |

# The literature research and data analysis surfaces the following gaps cont.'

| Theme | Literature | Identified Gaps |
|---|---|---|
| **Opportunities for increasing income through digital financial and information services** | • Digital Agriculture Profile: Ethiopia (cgiar.org)<br>• Determinants of adoption of climate-smart agricultural technologies and practices in the coffee-based farming system of Ethiopia \| Agriculture & Food Security \| Full Text (biomedcentral.com)<br>• GSMA, The Mobile Economy Sub-Saharan Africa 2022: GSMA \| The Mobile Economy Sub-Saharan Africa 2022 - The Mobile Economy<br>• Agricultural Transformation Agency – ATA<br>• Agricultural_Insurance_for_Smallholder_Farmers_Digital_Innovations_for_Scale.pdf (gsma.com) | • While there has been some research on the potential of digital financial and information services to increase smallholder farmers' incomes in Ethiopia, there is a need for more comprehensive studies that examine the different models and approaches that have been used to promote these services and their effectiveness. |
| **Constraints to SHFs increased productivity** | • Digital Agriculture Profile: Ethiopia (cgiar.org)<br>• (PDF) Vulnerability of Smallholder Farmers to Climate Change-Induced Shocks in East Hararghe Zone, Ethiopia (researchgate.net)<br>• (PDF) Sources and Access to Agricultural Information of Smallholder Farmers in Central Rift Valley of Ethiopia (researchgate.net) | • There is a need for research that identifies the main constraints to smallholder farmers' productivity in Ethiopia, including access to inputs, markets, and technology. There is also a need to understand the role of social and cultural factors in limiting farmers' productivity and to explore potential solutions to these constraints. |
| **SHFs unexpected events and their coping mechanisms** | • World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019<br>• Smallholder farmers' vulnerability and adaptation to climate change induced shocks: The case of Northern Ethiopia highlands \| Semantic Scholar<br>• Adaptation to climate risk and food security: Evidence from smallholder farmers in Ethiopia (fao.org)<br>• Agricultural_Insurance_for_Smallholder_Farmers_Digital_Innovations_for_Scale.pdf (gsma.com)<br>• What people want : investigating inclusive insurance demand in Ethiopia (worldbank.org)<br>• GSMA \| Agricultural insurance for smallholder farmers: Digital innovations for scale \| Mobile for Development<br>• State of the Sector: Agri-Insurance for Smallholder Farmers – ISF Advisors<br>• How crop insurance is helping Ethiopia's farmers \| World Economic Forum (weforum.org) | • There is a need for research that examines how smallholder farmers in Ethiopia cope with unexpected events such as droughts, floods, and market shocks. There is also a need to understand the role of social networks, informal institutions, and government policies in supporting farmers' resilience and recovery from these events. |

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# ANNEX 1

# Example digital solutions and actors that can stimulate and support agricultural transformation in Ethiopia

| Products, Services, advisories | Description/Application | Partners responsible |
|---|---|---|
| **8028 Farmers' Hotline** | A toll-free advisory service to strengthen the extension system by disseminating agronomic information to smallholder farmers, development agents, and experts through the use of IVR and SMS. It disseminates agronomic best practice advisories and collects field information via an automated hotline in real time. The system is composed of an automated call service, IVR-based help desk, broadcast IVR and SMS alerts, and an interactive survey with over 5.5 million registered callers. It broadcasts more than one million alerts in five different local languages (Amharic, Afaan Oromo, Tigrigna, Sidamigna, and Wolaitigna). | • Agricultural Transformation Agency<br>• Ministry of Agriculture<br>• Ethiopian Institute of Agricultural Research, • Ethio Telecom |
| **National Market Information System (NMIS)** | Collects, processes, and disseminates price data and other related information on the dynamics of agricultural commodities markets to help smallholder farmers and other market actors make informed decisions related to where, when, and through which channels to sell and buy. The process involves data collection by Open Data Kit mobile application and automated call services (6077), data validation, and market data analysis services. As of 2021, the NMIS had 694,000 registered callers, receiving over 3.9 million calls to access validated market information. Approximately 66,000 users collect weekly market data (price and volume), and over 59,000 disseminate market information. It is operational for 5 commodities in 157 marketplaces across 5 regions. http://www.nmis.et | • Agricultural Transformation Agency<br>• Ministry of Trade and Industry<br>• Federal Cooperatives Agency<br>• Regional bureaus of trade |
| **Farmer Production Cluster (FPC) Digitization** | Data management ecosystem that digitizes the process of data collection, storage, and visualization of agricultural data from the Kebele87 by establishing a standardized and automated data management system. Five thousand FPCs have been digitized, around 148,770 farmers registered, and 126,041 ha of land digitized across 5 regions and 30 Agricultural Commercialization Cluster woredas. The digitization has two components: a Smart Farm Plus mobile application, and a web application dashboard and reports module. | Agricultural Transformation Agency |
| **Ethiopian Soil Information System (EthioSIS)** | A database of over 100,000 soil samples used to develop maps of soil properties and fertility covering the whole country. The information and maps were developed using point soil data assets generated and analyzed by wet chemistry, soil infrared spectrometry, remote sensing-based covariates, and machine learning techniques. The generated digital soil properties and nutrient content maps are being used to inform fertilizer blending decisions and fertilizer and liming requirements. | • Agricultural Transformation Agency<br>• Ministry of Agriculture |
| **Input Voucher Sales System (IVS, e-voucher)** | An e-voucher system to support smallholder farmers to access credit for agricultural inputs such as fertilizer, improved seeds, and labor-saving tools. The system engages local microfinance institutions and rural saving and credit cooperatives to qualify farmers for loans and issue cash or credit vouchers that can be used to redeem inputs at nearby cooperative stores. Such a system can encourage farmers to experiment with and use improved technologies. | Agricultural Transformation Agency |

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Source: CIAT, Digital agriculture profile: Ethiopia, 2022, Internet search
*** this list is inexhaustive

# Example digital solutions and actors that can stimulate and support agricultural transformation in Ethiopia cont'd…

| Products, Services, advisories | Description/Application | Partners responsible |
|---|---|---|
| **Ethiopian Digital AgroClimate Advisory Platform (EDACaP)** | An innovative integrated digital web platform for decision support and learning, providing interactive agro climate information and customized and near real-time advisories to improve crop management decisions and reduce production risks associated with climate variability and change. The platform can be used to extract and communicate advisories related to the onset of rains; planting date; type, amount, and date of fertilizer application; and harvesting time. It is being piloted at different sites across the country. Once finalized, it will be an essential advisory service reaching millions of farmers. https://ethioagroclimate.net/ | • Ethiopian Institute of Agricultural Research, • Alliance of Bioversity International and CIAT, • CIMMYT, • CCAFS, • International Research Institute for Climate and Society |
| **Wheat rust early warning platform** | An early warning system that can detect and predict wheat rust diseases using field and mobile phone surveillance data together with forecasts for spore dispersal and environmental suitability for disease. It uses near real-time information from wheat rust surveys carried out by the Ethiopian Institute of Agricultural Research, regional research centers, and CIMMYT and recorded on a smartphone app called Open Data Kit. This is complemented by crowd-sourced information from the Agricultural Transformation Agency-managed Farmers' Hotline. The system enables detection of wheat rust and dissemination of early warning messages to wheat farmers in real time. It integrates a web portal and mobile app to collect real-time data and report incidences in advance. https://repository.cimmyt.org/handle/10883/20549?show=full | • Ethiopian Institute of Agricultural Research<br>• CIMMYT<br>• University of Cambridge<br>• UK Met Office<br>• Agricultural Transformation Agency |
| **Ethiopian seed system mapping and digitalization (Ethio-Seed)** | An integrated system that has mapped and digitalized major actors in the seed system in order to enhance management of seed supply and demand patterns over time and across space. This is crucial to make informed decisions related to seed distribution and associated logistics. This intervention aims to tackle one of the most complex challenges facing the country's agricultural system. http://213.55.95.30 | • Alliance of Bioversity International and CIAT, • Addis Ababa University • Ministry of Agriculture, • Ethiopian Institute of Agricultural Research, • ICARDA, • ILRI92 |
| **Data standardization guidelines** | Guidelines developed to standardize data collection and laboratory analysis. This is a crucial step that can rectify the problem of unstandardized data collection that has undermined integrated analysis. The guidelines cover attributes associated with soils/agronomy (https://hdl.handle.net/10568/110586), soil biology (https://hdl.handle.net/10568/110585), and soil-water-plant laboratory analysis https://hdl.handle.net/10568/115840). Guidelines related to soil surveys, natural resource management, and agricultural water management are being finalized. These sets of guidelines will be essential to address the lack of findable, accessible, interoperable, and reusable (FAIR) data to support advanced analytics. | • Alliance of Bioversity International and CIAT, • GIZ<br>• Ethiopian Institute of Agricultural Research , • Ministry of Agriculture<br>• Members of the Coalition of the Willing |
| **NextGEN DAAS (location- and context-specific agro-climate digital agro-advisory services)** | A decision support tool for location- and context-specific agricultural advisories covering fertilizer, climate, and good agronomic practices. The tool is agile in the sense that it aims to provide information for purposes ranging from operations at local community levels to regional and federal support for strategic decisions. It integrates different services: a fertilizer recommendation tool, climate information advisory tool, good agronomic practice tool, and wheat rust and disease monitoring tool. An API93 integrating the three components is currently being developed. | • Alliance of Bioversity International and CIAT, • GIZ ,• Ethiopian Institute of Agricultural, Research, • Ministry of Agriculture, • Members of the Coalition of the Willing, • Digital Green |

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The list of organizations has been obtained through searching in the internet and looking at their websites

# Example of organizations that deal with smallholders in Ethiopia

| Name | Mandate | Services Offered | Digital Tools/Platforms | Value Chains Involved |
|---|---|---|---|---|
| **AGRIinsight** | Private sector company | Provides a mobile app that allows farmers to track their production, access market information, and connect with buyers and extension services | Mobile app | Maize, wheat, sorghum, teff, coffee, sesame, soybeans, vegetables |
| **Digital Green Ethiopia** | Non-profit organization | Provides smallholder farmers with video-based agricultural extension services and connects them with local markets and buyers | Mobile phones, community video screenings | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables |
| **Ethiopian Agricultural Transformation Agency (ATA)** | Government agency | Works to improve smallholder access to extension services, market information, and finance through digital channels | Mobile phones, radio, TV, online platforms | Maize, wheat, teff, barley, sorghum, pulse crops, vegetables, dairy |
| **eSAP Innovation Lab** | Private sector company | Develops and implements digital solutions to support smallholders with market information, extension services, and access to finance | Mobile apps, online platforms, SMS | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables |
| **Farm Africa** | Non-profit organization | Provides training and support to smallholder farmers in digital tools and practices to improve productivity and market access | Mobile phones, online platforms | Coffee, honey, spices, vegetables |
| **AgriService Ethiopia** | Non-profit organization | Provides training and support to smallholders in digital tools and practices to improve productivity and market access | Mobile phones, online platforms | Coffee, maize, wheat, sorghum, teff, barley, pulse crops, vegetables, livestock |
| **Amhara Credit and Saving Institution (ACSI)** | Microfinance institution | Provides access to finance and digital tools to smallholders to improve their productivity and income | Mobile phones, online platforms | Coffee, sesame, honey, fruits, vegetables, livestock |
| **EthioAgri-CEFT PLC** | Agribusiness company | Provides digital solutions to support smallholders with input supply, extension services, and market access | Mobile phones, online platforms | Maize, wheat, teff, sorghum, barley, pulse crops, vegetables |
| **Fintrac Inc.** | Non-profit organization | Develops and implements digital solutions to support smallholders with market information, extension services, and access to finance | Mobile phones, online platforms | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables, livestock |
| **One Acre Fund Ethiopia** | Non-profit organization | Provides smallholders with access to digital tools and services to improve their productivity and market access | Mobile phones, online platforms | Maize, sorghum, teff, wheat |
| **iCOW** | Private sector company | Provides smallholder dairy farmers with access to market information, training, and veterinary services through a mobile app | Mobile app | Dairy |
| **IGNITE** | Non-profit organization | Provides training and mentorship to smallholder women farmers to improve productivity and access to markets through digital solutions | Mobile phones, online platforms, SMS | Maize, wheat, teff, barley, sorghum, pulse crops, vegetables |

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The list of organizations has been obtained through searching in the internet and looking at their websites
***This list is inexhaustive

# Example of organizations that deal with smallholders in Ethiopia cont'…

| Name | Mandate | Services Offered | Digital Tools/Platforms | Value Chains Involved |
|---|---|---|---|---|
| Precision Agriculture for Development (PAD) | Non-profit organization | Delivers customized agricultural advice and information to smallholder farmers via mobile phones | Mobile phones | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables |
| Project Concern International (PCI) | Non-profit organization | Develops and implements digital solutions to support smallholders with market information, extension services, and access to finance | Mobile phones, online platforms | Maize, wheat, sorghum, teff, pulse |
| Oromia Agricultural Research Institute | Research institute | Develops and disseminates digital tools and services to improve crop productivity and reduce post-harvest losses | Mobile apps, decision support tools | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables |
| Mercy Corps | Non-profit organization | Develops and implements digital solutions to support smallholders with market information, extension services, and access to finance | Mobile phones, online platforms, SMS | Maize, wheat, teff, barley, sorghum, pulse crops, vegetables |
| Dalberg Advisors | Consultancy firm | Works with the Ethiopian government and development partners to support smallholder access to digital services for agriculture and rural development | Mobile phones, online platforms | Maize, wheat, teff, barley, sorghum, pulse crops, vegetables, livestock |
| SNV Netherlands Development Organisation | Non-profit organization | Provides training and support to smallholders in digital tools and practices to improve productivity and market access | Mobile phones, online platforms | Coffee, honey, fruits, vegetables, dairy |
| TechnoServe | Non-profit organization | Develops and implements digital solutions to support smallholders with market information, extension services, and access to finance | Mobile phones, online platforms, SMS | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables, dairy |
| The Hunger Project Ethiopia | Non-profit organization | Provides training and support to smallholders in digital tools and practices to improve productivity and market access | Mobile phones, online platforms, SMS | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables |
| United Nations Development Programme (UNDP) | International organization | Works with the Ethiopian government to support smallholder access to digital services for agriculture and rural development | Mobile phones, online platforms, SMS | Maize, wheat, teff, barley, sorghum, pulse crops, vegetables, livestock |
| Welthungerhilfe | Non-profit organization | Provides training and support to smallholders in digital tools and practices to improve productivity and market access | Mobile phones, online platforms, SMS | Maize, wheat, sorghum, teff, pulse crops, vegetables, livestock |
| World Agroforestry Centre (ICRAF) | Research organization | Develops and disseminates digital tools and services to support smallholder farmers in agroforestry practices | Mobile apps, online platforms | Fruits, coffee, honey, timber |
| World Food Programme (WFP) | United Nations agency | Provides smallholders with access to market information, weather updates, and crop prices via mobile phones | Mobile phones | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables, livestock |
| World Vision | Non-profit organization | Provides training and support to smallholders in digital tools and practices to improve productivity and market access | Mobile phones, online platforms, SMS | Maize, wheat, sorghum, teff, barley, pulse crops, vegetables |

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The list of organizations has been obtained through searching in the internet and looking at their websites
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# FOCUS ON AGRO-PASTORALISTS AND PASTORALISTS

SUB-TITLE AND DATE

March 2023

This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

Camels carry the salt extracted from the desert, Dallol, Ethiopia Photo by Trevor Cole

# PASTORALIST AND AGRO-PASTORALIST OVERVIEW



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# High-level summary finding of Pastoralists and Agro-pastoralists 1/2

**Pastoralists and agro-pastoralists are prevalent in Ethiopia's arid and semi-arid lands (ASAL), which cover approximately 60% of the country's land area.** These regions are characterized by low and erratic rainfall, high temperatures, and poor soil fertility, making crop cultivation difficult. However, the region supports livestock rearing, which provides a livelihood for the pastoral and agro-pastoral communities.

Both crop and livestock value chains are involved in ASAL communities. **Pastoralists rely mainly on livestock rearing for subsistence, while agro-pastoralists combine crop cultivation with livestock rearing**. Cattle, goats, sheep, and camels are the main livestock raised by these communities, providing meat, milk, and other products. Crop cultivation is mainly subsistence-oriented and involves crops such as maize, sorghum, millet, and beans which are also used as husk for feed.

**Age and gender play significant roles in determining the roles and responsibilities of individuals in pastoral and agro-pastoral communities.** Older men lead the management of livestock, while women and children help with tasks such as milking, herding, and gathering firewood. Young men often take up the task of herding, and women often manage small ruminants and poultry.

**Education levels are generally low among pastoralists and agro-pastoralists.** On average, 47% of the pastoral households have at least primary level education whereas 53% have no education at all. ~35% of males have secondary and above level of education compared to the females' 20%. Access to education in Ethiopia is limited in rural areas and for marginalized communities, such as pastoralists and those living in conflict-affected regions. Poverty, economic constraints, and gender disparities also contribute to low levels of education among these populations. Overall, education remains a challenge for many Ethiopians.

**Income levels vary widely among pastoralists and agro-pastoralists, with many living in poverty.** The average income from pastoral areas in Ethiopia ranges from 6,862 to 8,486 Ethiopian Birr (ETB) per annum, which is equivalent to approximately 192 to 238 US dollars. Women are generally more economically disadvantaged than men, with limited access to assets such as livestock and land. Education plays a significant role in income levels, with those who have completed secondary education earning significantly more than those with no education or only primary education.

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# High-level summary finding of Pastoralists and Agro-pastoralists 2/2

**Access to financial services, such as credit, insurance, and savings accounts, is limited among pastoralists and agro-pastoralists.** Limited collateral, low levels of financial literacy, and not being able to trust formal financial institutions are significant barriers to accessing financial services. In addition, inadequate infrastructure and limited access to technology, such as mobile phones, also hinder access to financial services. Ethiopia has a lower rate of mobile phone ownership, particularly in rural areas, compared to other emerging markets. GSMA data shows that Ethiopia's mobile penetration rate is 42%, while Kenya(78%), Tanzania(71%), Sudan(68%), and Uganda(60%) have higher rates. In rural areas, 40% of households report not having a mobile phone, indicating that mobile distribution is not a quick or complete solution for expanding inclusive financial services in Ethiopia.

**DFS and DIS offer significant opportunities to improve the productivity of pastoralists and agro-pastoralists**. DFS, such as mobile money, can provide access to credit and insurance, allowing pastoralists and agro-pastoralists to invest in their businesses and mitigate risks. DIS, such as weather information and market prices, can help pastoralists and agro-pastoralists make informed decisions about planting and selling their crops. In Ethiopia, digital literacy among pastoralists and agro-pastoralists is currently low. The country ranks 112 out of 138 economies in terms of digital skills, which could be problematic given that over two-thirds of the population is under the age of 29. Utilizing this young workforce in agriculture with the help of digital technologies could greatly benefit the national economy.

**Several factors hinder the productivity of pastoralists and agro-pastoralists**, including limited access to water, inadequate infrastructure, and land degradation. In addition, climate change has increased the frequency and intensity of droughts, floods, and other extreme weather events, posing significant challenges to these communities.

**Pastoralists and agro-pastoralists are particularly vulnerable to shocks such as droughts, floods, disease outbreaks and conflicts.** Coping mechanisms include diversifying income sources, selling livestock, and relying on social networks for support.

In conclusion, DFS and DIS offer significant opportunities to improve the income and livelihoods of pastoralists and agro-pastoralists. DFS can provide access to credit and insurance, enabling farmers to invest in their businesses and mitigate risks. DIS can be leveraged to provide access to weather information, market prices, and other relevant information, allowing farmers to make informed decisions about their businesses. However, significant investments in infrastructure, education, and technology are needed to realize these opportunities fully.

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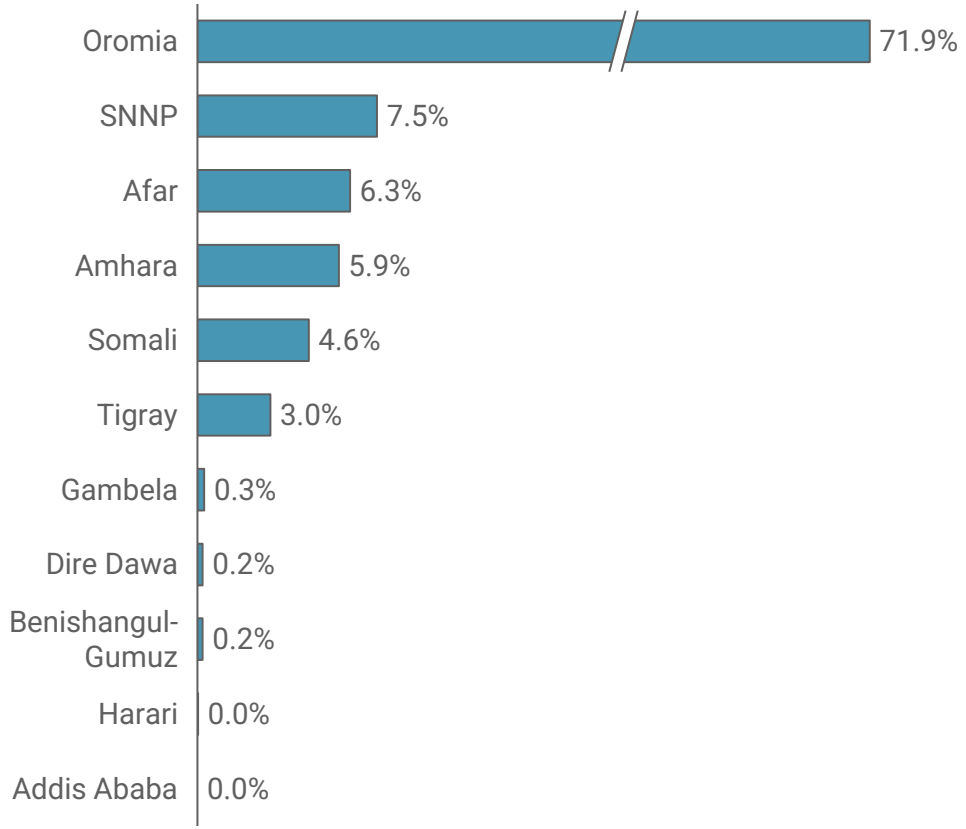
# Pastoralist households are dominantly present in regions that have low population density such as Afar, Somali and parts of Oromia Region

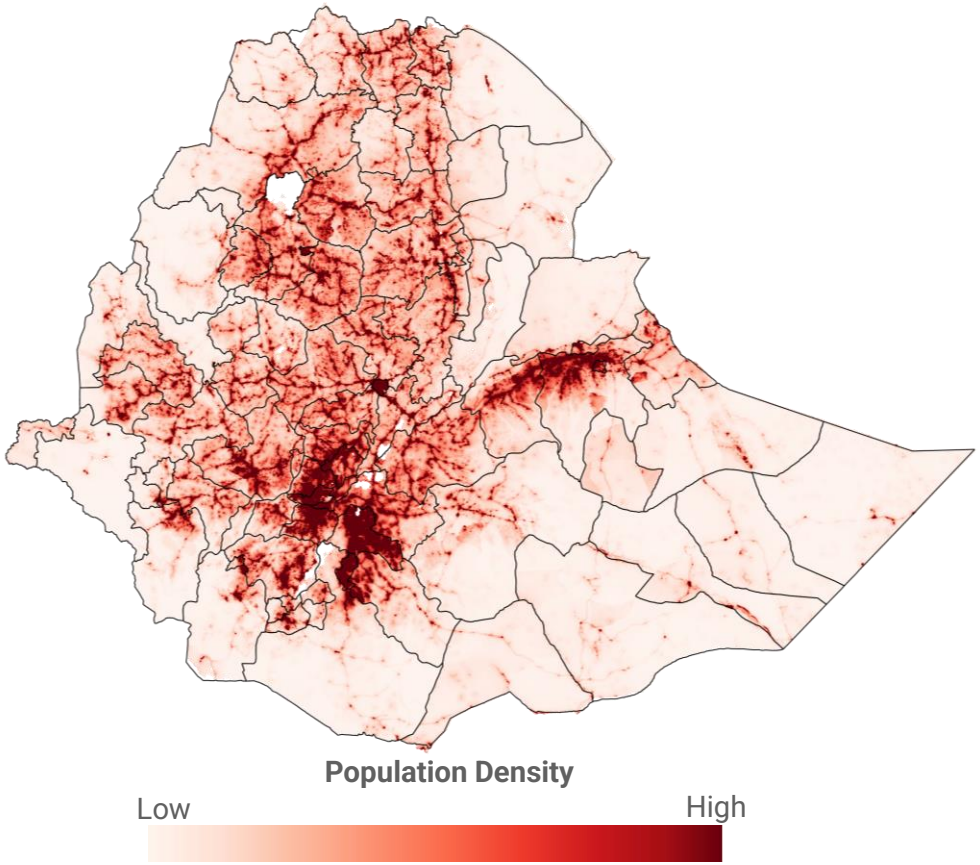
## Distribution of pastoralists and agro pastoralists

(%) Share across the country




## Population density in Ethiopia

Number of people per $km^2$




Note: Note: ESS data is representative at the 1st admin level, however Addis Ababa, three zones in Afar and six zones in Somali regions were not surveyed. Sample size was 3969 households, with 3408 cleaned households Source: Ethiopia Socioeconomic Survey (ESS) Wave 4 data, 2018/2019 and WorldPop 2017

# AGRO-PASTORALISTS AND PASTORALISTS PROFILE

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# Pastoralist profiling focuses on understanding the ASAL region, pastoralist characteristics, and delved into the value chains practiced

**ASAL region**

- Key characteristics of the Arid and Semi-Arid Lands (ASAL) where pastoralism is commonly practiced including income activities, value chains practiced and key shocks

**Pastoralist**

- Description of the composition of pastoralist and pastoral communities by gender, common income generating activities, and livelihoods

**Livestock value chains**

- Digest of the value chains practiced including the type of cattle kept across different regions

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# THE ASAL REGION CHARACTERISTICS

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Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises

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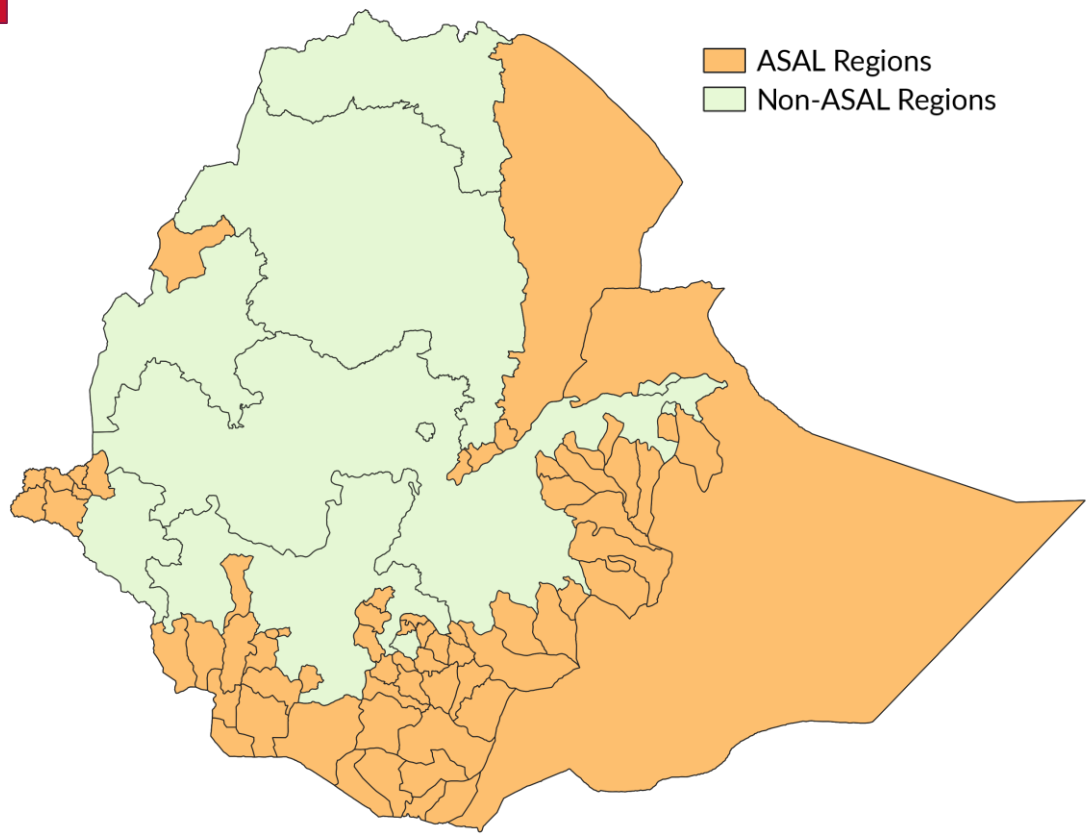
# The ASAL includes Afar and Somali regions, parts of Oromia, SNNP as well as few parts of Gambella, and Benishangul-Gumuz regions of Ethiopia[1]

## Map of ASAL and Non ASAL Regions in Ethiopia




## Key highlights on Pastoralists and Agropastoralists

Typically, pastoralists belong to ethnic groups such as the Somali (Dir, Isaq, and Darod), Afar, Borana, Gabra, Karrayyu and Oromo (Barentu, Guji)

The pastoral population ranges between 12-15M from 2-3M households[1]

~60% live in poverty and face significant economic, social and political marginalization

Practice a traditional and highly mobile lifestyle that involves seasonal migration patterns with their livestock

Have limited access to education, healthcare, financial services, clean water and sanitation and transportation

Face frequent shocks e.g., drought, floods, disease outbreaks, and conflict which threaten their livelihoods and food security

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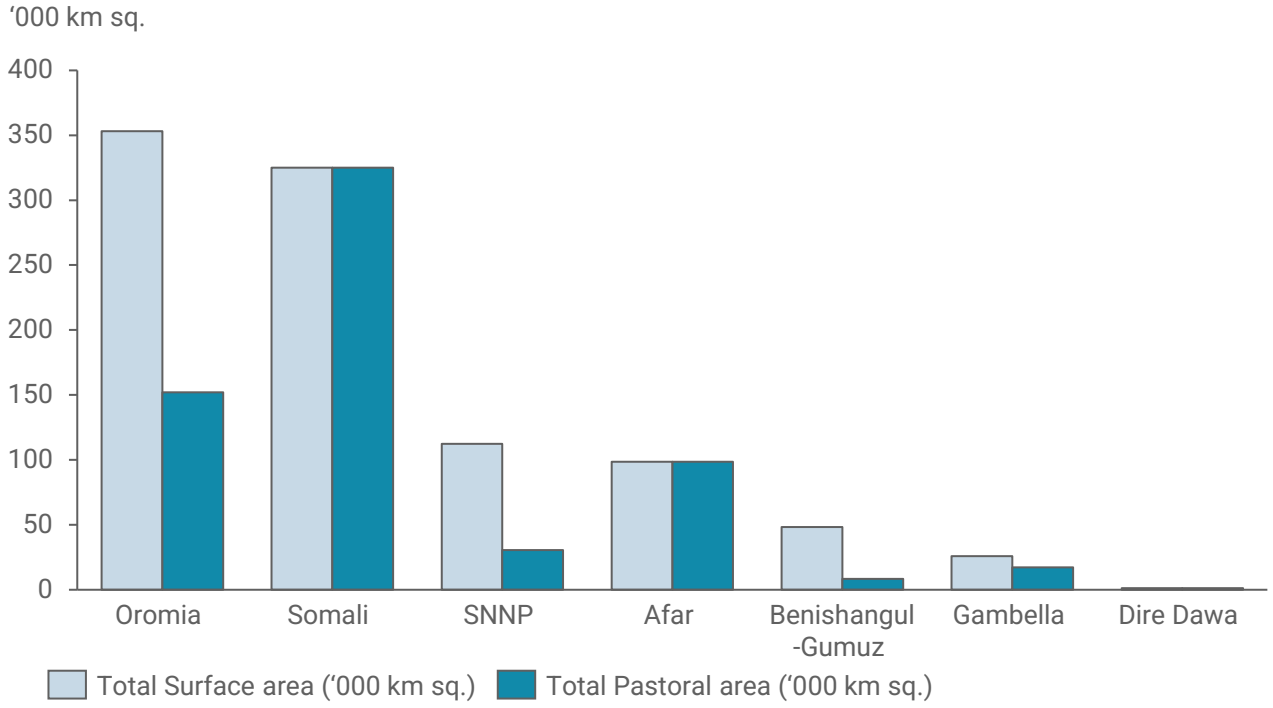
Source: IGAD, Ethiopia IGAD Drought Resilience and Sustainability Initiative (IDDRSI) Progress Report, 2022; FAO, Pastoralism in Africa's drylands. Rome, 2018, Tiruneh S and Tegene F., Impacts of Climate Change on Livestock Production and Productivity and Different Adaptation Strategies in Ethiopia, 2018; Central Statistical Agency (CSA) and World Bank, LSMS-Integrated Survey on Agriculture, Ethiopia Socioeconomic Survey (ESS) report, 2021.

# Pastoral communities occupy ~61% of the total land mass; more than 90% are found in lowlands of Afar, Somali, Oromia and SNNP[1]

- Most pastoralists and agro-pastoralists in Ethiopia are situated in sparsely populated, arid or semi-arid lowlands. These areas comprise 61% of Ethiopia's total land area, and 97% of pastoralists are in the northeast, east, and south regions[2]

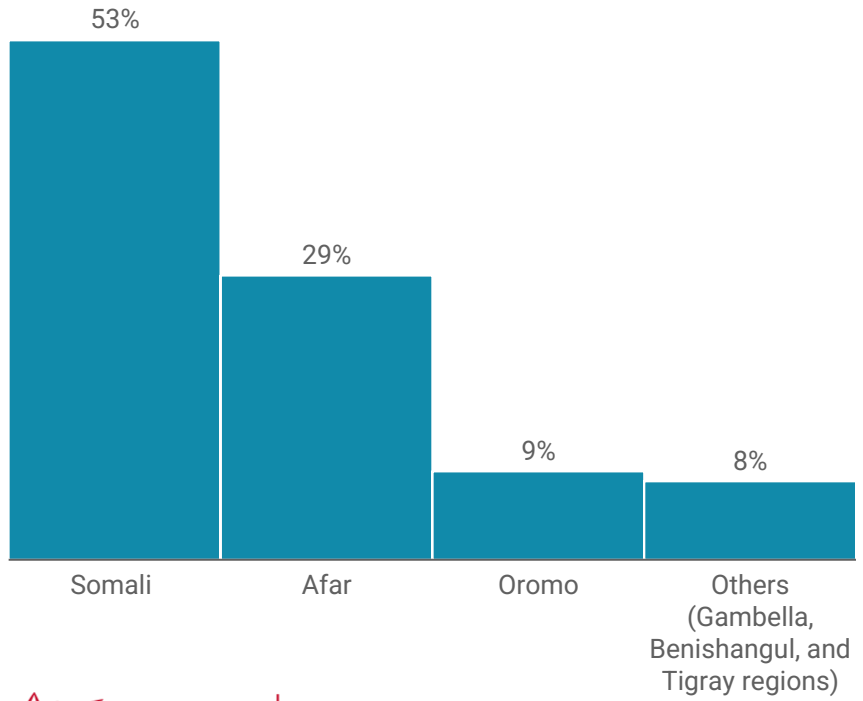
## Location and size of pastoral areas Ethiopia*

Total surface area vs Total pastoral are in '000 km sq.




## Pastoralists and agro-pastoralists by ethnicity[1]

% ethnicity

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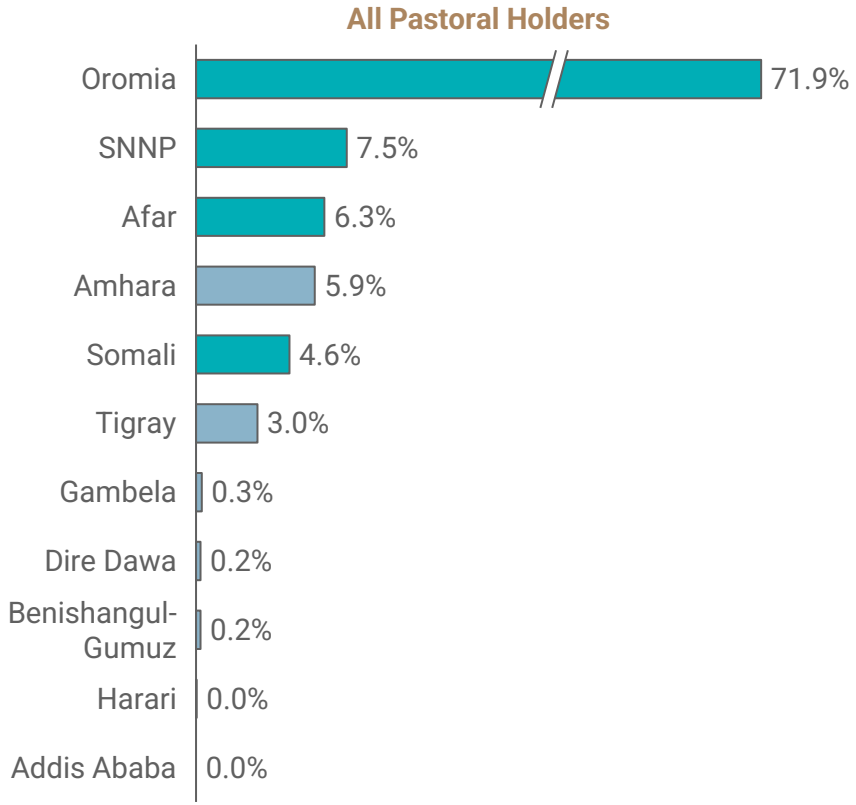
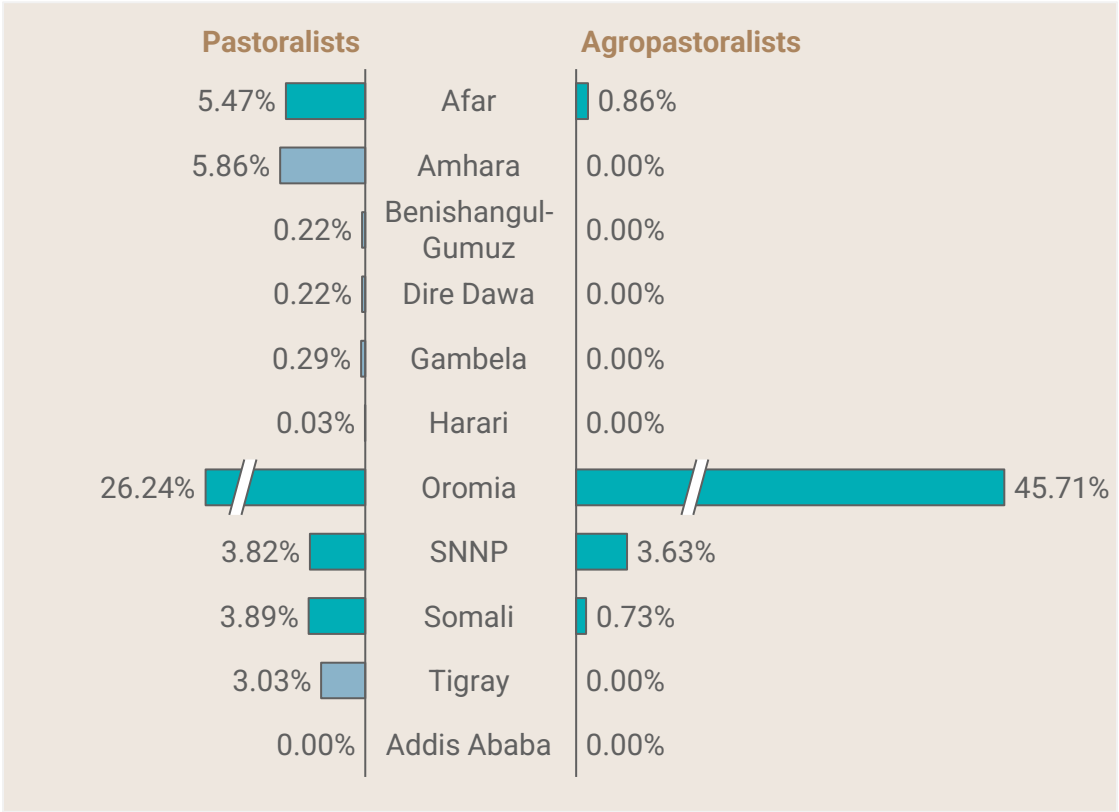
*Source: Mohamed AA, Pastoralism and Development Policy in Ethiopia: A review study, 2019; [1]USAID, Resilience at USAID 2016 progress report, 2016; [2]FAO, Livestock production systems spotlight cattle sectors in Ethiopia, 2018.*
*Note: * - Cited in UNDP, 2010; Pastoral communities – implies pastoralists and agro-pastoralists*

# Agropastoralists are mostly dominant in Oromia whilst Afar and Somali households mainly have pastoralists

## Distribution of pastoralists and agropastoralists

(%) share of total combined pastoral households and separately as pastoralists and agropastoralists across the regions



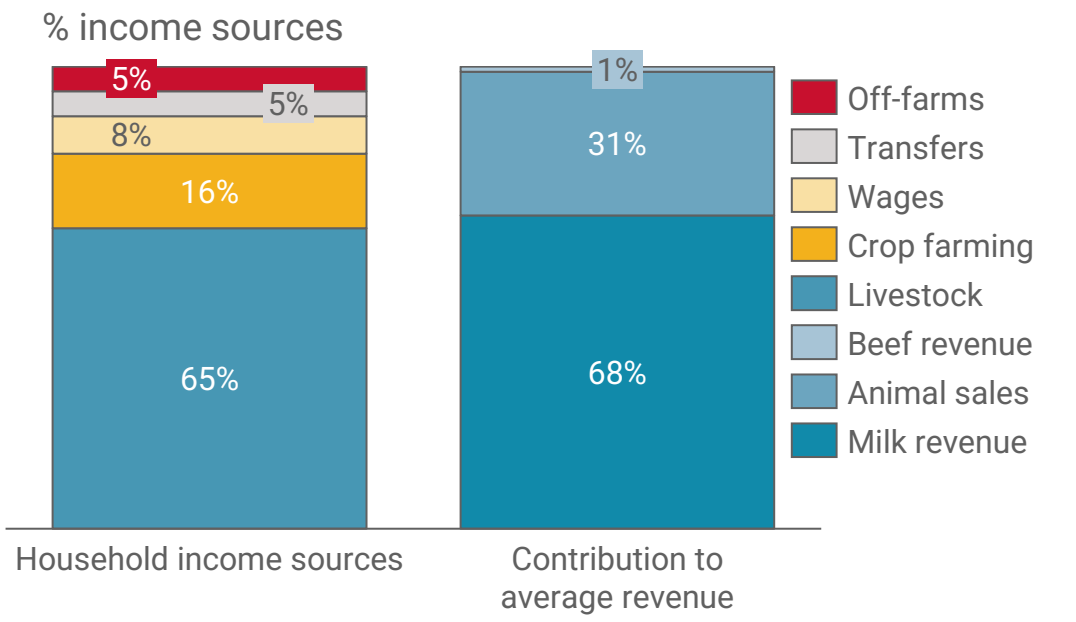




Note: ESS data is representative at the 1st admin level, however Addis Ababa, three zones in Afar and six zones in Somali regions were not surveyed. Sample size was 3969 households, with 3408 cleaned households.. Source: Ethiopia Socioeconomic Survey (ESS) Wave 4 data, 2018/2019

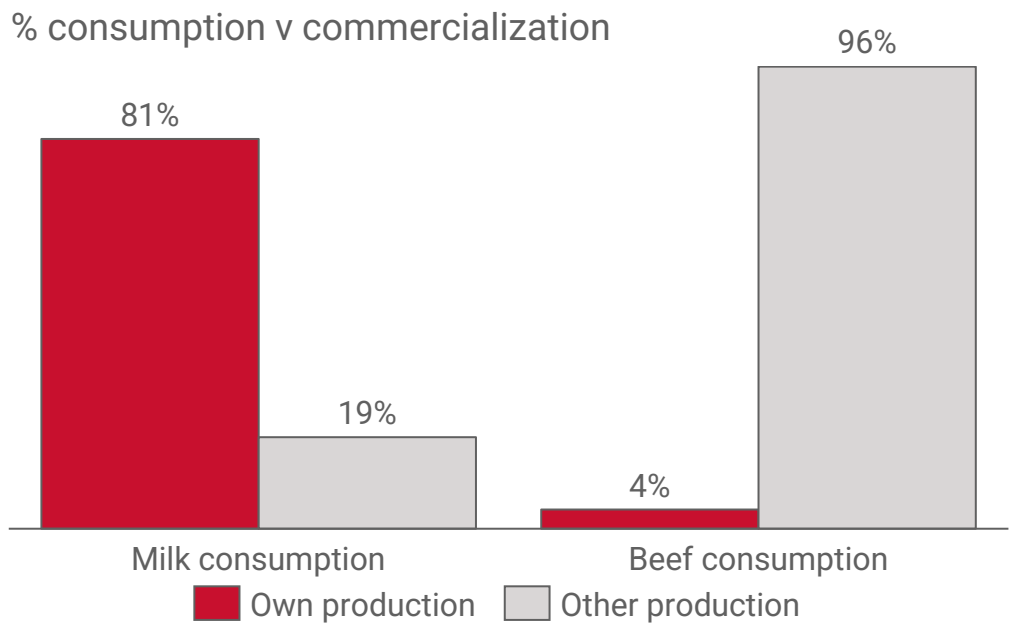
# Livestock, particularly milk and live animal sales, is the primary source of income and livelihood for pastoral households.

- More than 12M Ethiopian's derive their income from keeping livestock and complementing it with farming; the sector contributes 20% to GDP[1]
- Only 54% of households regularly consume animal-sourced food, which tends to be more expensive. This consumption is highly dependent on income levels, with poorer households having more incentives to sell rather than consume high-priced animal products[2]
- The consumption of milk by income group also varies, with only 30% of the poorest households consuming milk, and their consumption amount is less than half that of the richest quintile. The poorest 40% of households rely heavily on their own animal production, with more than 70% of their consumption coming from their own animals[3]
- The average income from pastoral areas in Ethiopia ranges from 6,862 to 8,486 Ethiopian Birr (ETB) per annum, which is equivalent to approximately 192 to 238 US dollars[4]

## Income sources for pastoral households




## Household share of own production consumed

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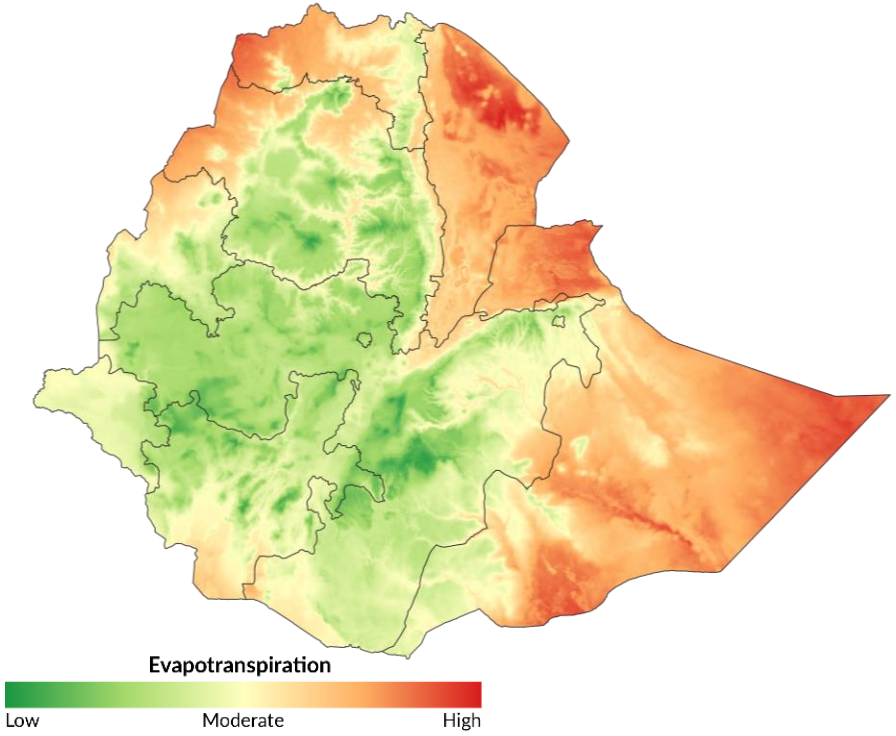
*Source*: [1]Abduletif, A.A., Benefits and challenges of pastoralism system in Ethiopia, 2019; [2]FAO, Africa Sustainable Livestock (ASL) 2050 report, 2018; [3]Africa Sustainable Livestock (ASL) 2050: Livestock production systems spotlight – Ethiopia, 2018; [4]Total-Economic-Valuation-of-Agro-pastoral-and-Pastoral.pdf (igad.int)

# Parts of the ASAL region are characterized by low annual rainfall and high evapotranspiration with the Eastern regions being adversely affected

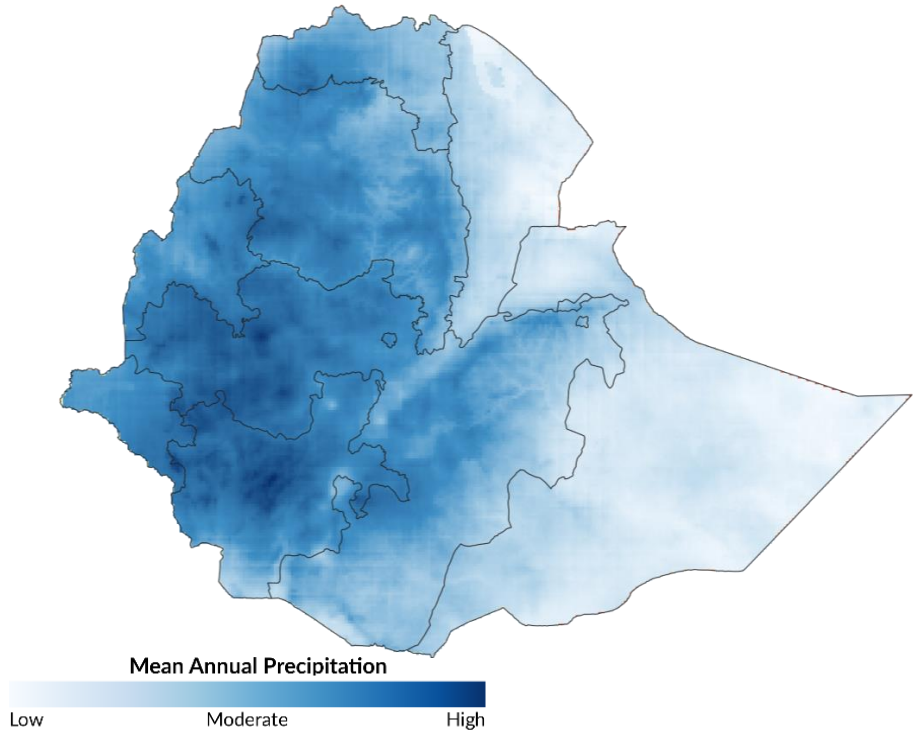
## Evapotranspiration rates in Ethiopia

Map of evapotranspiration rates millimeters (mm)




## Mean annual precipitation in Ethiopia

Long-term mean annual precipitation in millimeters (mm)

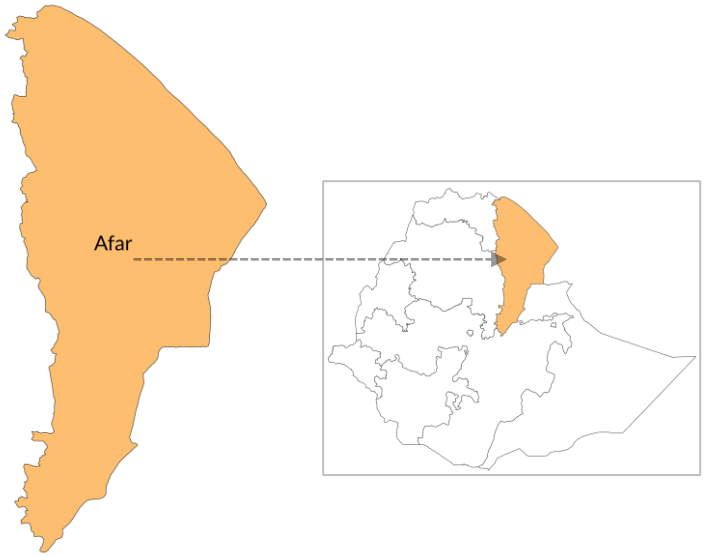



Evapotranspiration relates to rainfall deficits in the country. The rates are highest towards the eastern regions (**ranging from 1,200mm to 3,000mm**) where the mean rainfall is lowest. The little amounts of rainfall received in these regions are subjected to higher evapotranspiration rates, further reducing the amount of rainfall in ASAL regions, making these regions susceptible to the effects of severe drought

Source: Food and Agriculture Organization & LOCAN Analysis

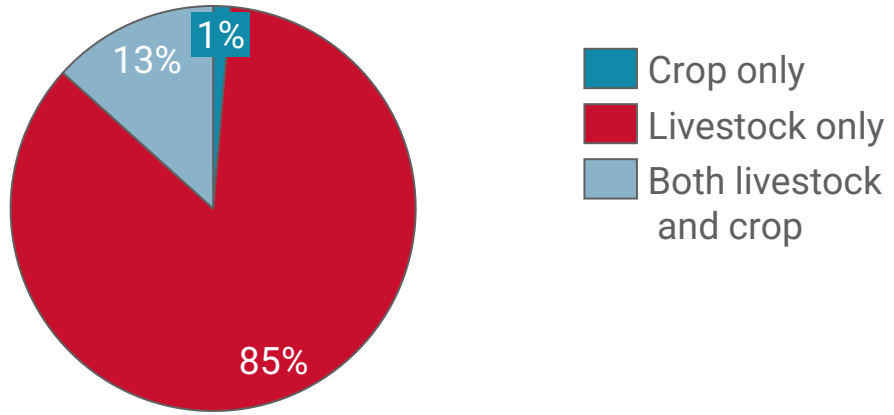
# More than three quarters of the population in Afar region practice pastoralism; they supplement this with crop farming.

## Afar Region




| | |
|---|---|
| Cash income | Livestock and livestock products |
| Value chains | Camel, Goats, Sheep, Cattle, Donkeys, Shoats, Maize, Barley, Teff, Date palm Sorghum |
| Hazards | Drought, livestock pest and diseases, conflict |
| Endemic livestock diseases | CCPP, PPR, FMD |

## Population proportion by production activity




## Drivers of food and nutrition insecurity

- Below average rainfall
- Resource - based conflicts and insecurity
- Limited market access
- Crop failure
- Low agricultural productivity

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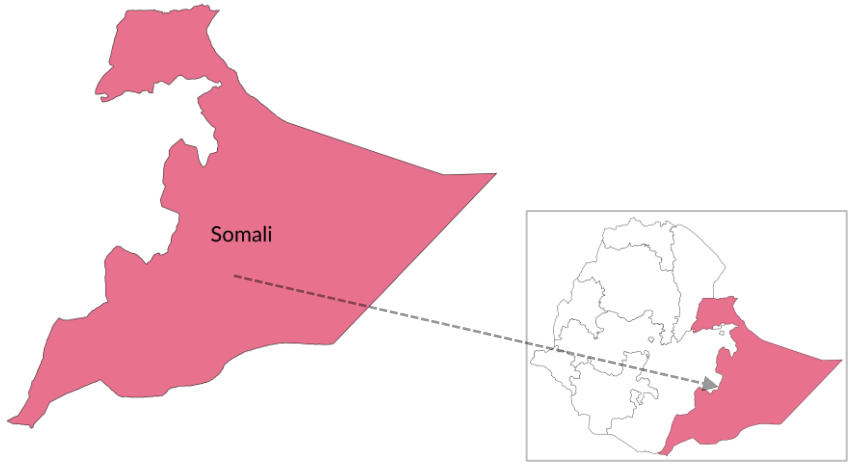
Source; World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019. Ethiopia - Livelihood Zones (fews.net) and IGAD-IDDRSI-PSC_-Report.
*Note: The analysis is based on the pastoral regions of Ethiopia i.e., Oromia, Somali, SNNP, Afar, Benishangul-Gumuz, Gambella and Dire Dawa*

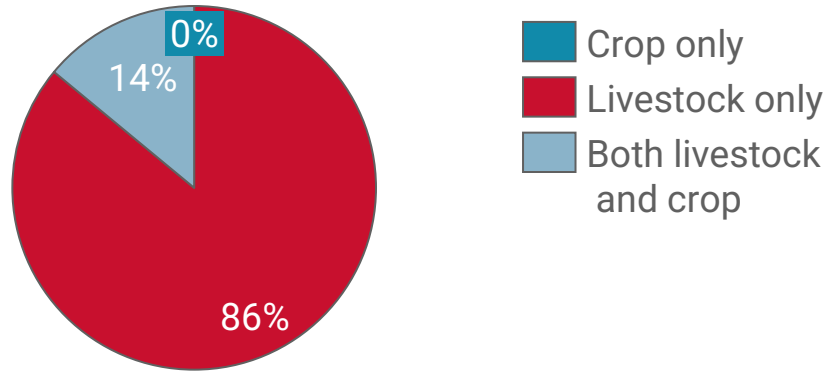
# Somali region has nearly 90% of its population practicing livestock keeping only; the region dominates camel rearing and trading

## Somali Region




| | |
|---|---|
| Cash income | Livestock and livestock products, bush products |
| Value chains | Camel, Goats, Sheep, Cattle, Shoats, Maize, Sorghum |
| Hazards | Drought, Floods, Livestock pests and diseases, restricted access to dry season grazing, ethnic conflict |
| Endemic livestock diseases | PPR, CBPP |

## Population proportion by production activity




## Drivers of food and nutrition insecurity

- Below average rainfall
- Resource - based conflicts and insecurity
- Limited market access
- High food prices
- Low agricultural productivity

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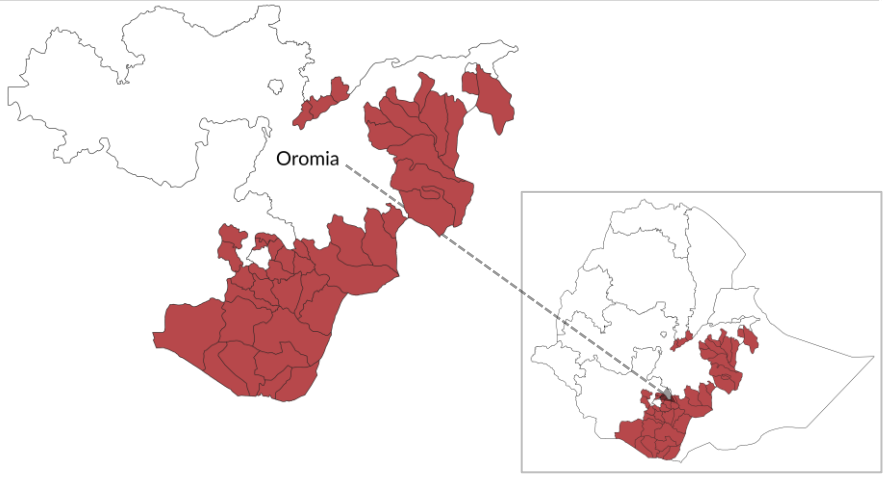
Source; World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019, Fews.net and IGAD-IDDRSI-PSC_-Report.
*Note: The analysis is based on the pastoral regions of Ethiopia i.e., Oromia, Somali, SNNP, Afar, Benishangul-Gumuz, Gambella and Dire Dawa*

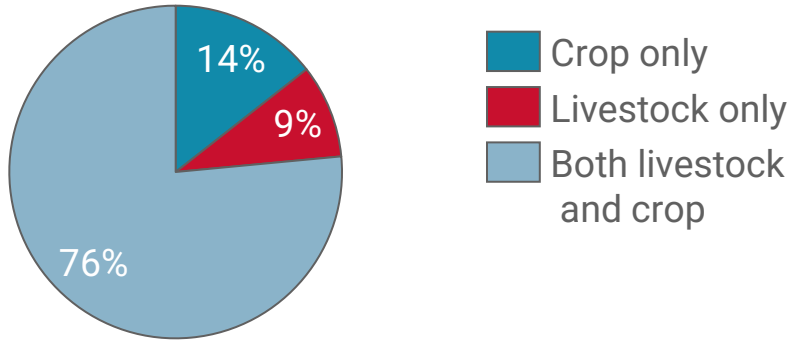
# To the South, Oromia boasts agropastoralism dominance; more than three quarters of its population practice both livestock and crop production.

## Oromia region (South-eastern & Eastern region)




| | |
|---|---|
| Cash income | Food and cash crop sale, Livestock and livestock products, honey |
| Value chains | Goats, Sheep, Cattle, Camel, Maize, Pulses, Coffee, Wheat, Teff, Groundnuts |
| Hazards | Drought, Floods, Crop and livestock pests and diseases, animal rustling, ethnic conflict |
| Endemic livestock diseases | CBPP, FMD |

## Population proportion by production activity




## Drivers of food and nutrition insecurity

- Below normal rainfall
- Low market access
- Low agricultural productivity
- Insecurity (banditry and cattle rustling)
- Crop pests and diseases
- Livestock diseases

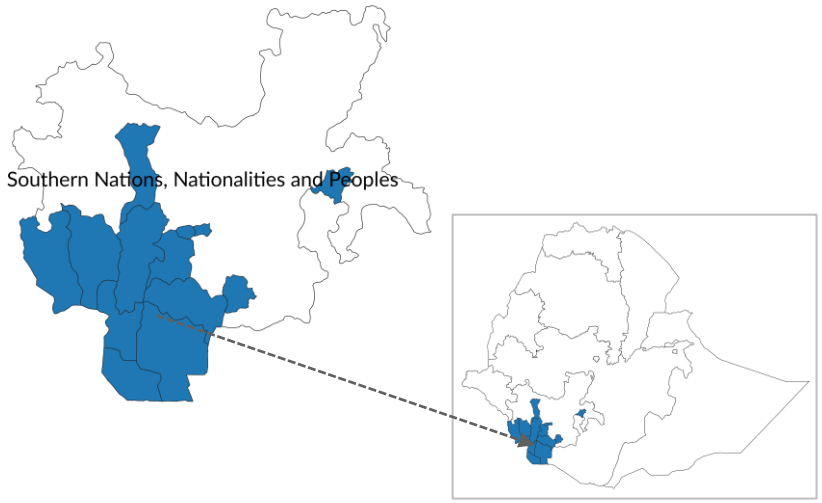
Source; World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019, Fews.net and IGAD-IDDRSI-PSC_-Report.

*Note: The highlighted part of Oromia is the ASAL region. The analysis is based on the pastoral regions of Ethiopia i.e., Oromia, Somali, SNNP, Afar, Benishangul-Gumuz, Gambella and Dire Dawa*

# SNNPR is another region in the South that has agropastoralism dominance; less than 5% of its population practices livestock rearing alone.

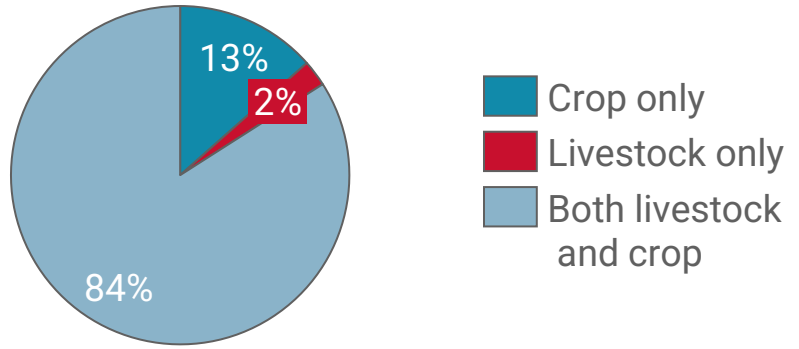
## Southern Region

Map of SNNP (Southern Nations, Nationalities and Peoples)

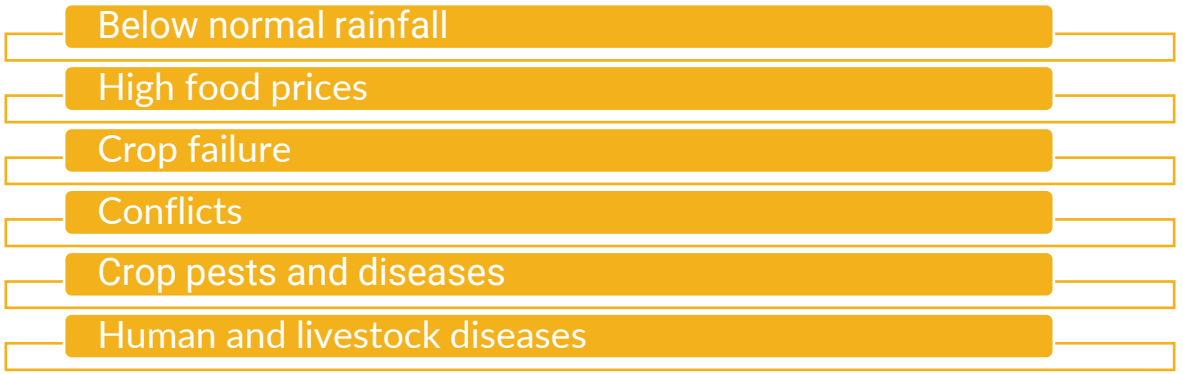



| | |
|---|---|
| Cash income | Food and cash crop sale, Livestock and livestock products, honey |
| Value chains | Goats, Sheep, Cattle, Maize, Coffee, Enset, Sorghum, Cassava, Fruits/Veg, Pulses, Teff |
| Hazards | Drought, Drought, Crop and livestock pests and diseases, restricted access to dry season grazing, |
| Endemic livestock diseases | CBPP, FMD, Rift Valley Fever(RVF) |

## Population proportion by source of livelihood




## Drivers of food and nutrition insecurity

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Source; World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019, Fews.net and IGAD-IDDRSI-PSC_-Report.
*Note: The highlighted part of SNNP is the ASAL region The analysis is based on the pastoral regions of Ethiopia i.e., Oromia, Somali, SNNP, Afar, Benishangul-Gumuz, Gambella and Dire Dawa*

# Mixed farming is the most common source of livelihood in the Benishangul-Gumuz and Gambela regions; this is practiced by two-thirds of the population

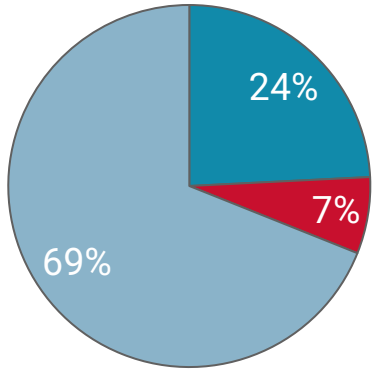
## The Western Regions

Map of Benishangul-Gumuz and Gambela Regions


| | |
|---|---|
| Cash income | Food and cash crop sale, Livestock and livestock products, honey |
| Value chains | Goats, Sheep, Cattle, Poultry, Sorghum, Maize, Sesame, Sorghum |
| Hazards | Drought, Floods, Crop and livestock pests and diseases, ethnic clashes |
| Endemic livestock diseases | CBPP, FMD, Rift Valley Fever(RVF) |

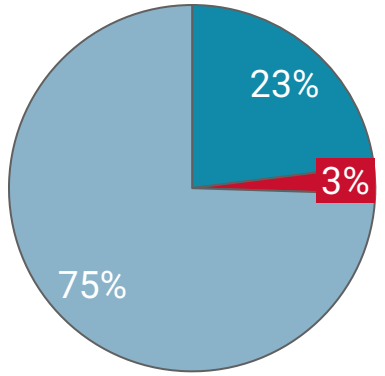
## Population proportion by source of livelihood

*Benishangul-Gumuz*




Crop only
Livestock only
Both livestock and crop

*Gambela*




## Drivers of food and nutrition insecurity

- Below normal rainfall
- Flash floods
- Crop failure
- Conflicts/ Insecurity
- Crop pests and diseases
- Human and livestock diseases

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Source; World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019; Land-Policy-Review-Report.pdf (icpald.org) and Fews.net, IGAD-IDDRSI-PSC_-Report. *Note: The highlighted parts for both regions in the map are ASAL. The analysis is based on the pastoral regions of Ethiopia i.e., Oromia, Somali, SNNP, Afar, Benishangul-Gumuz, Gambella and Dire Dawa*

# PASTORALIST CHARACTERISTICS

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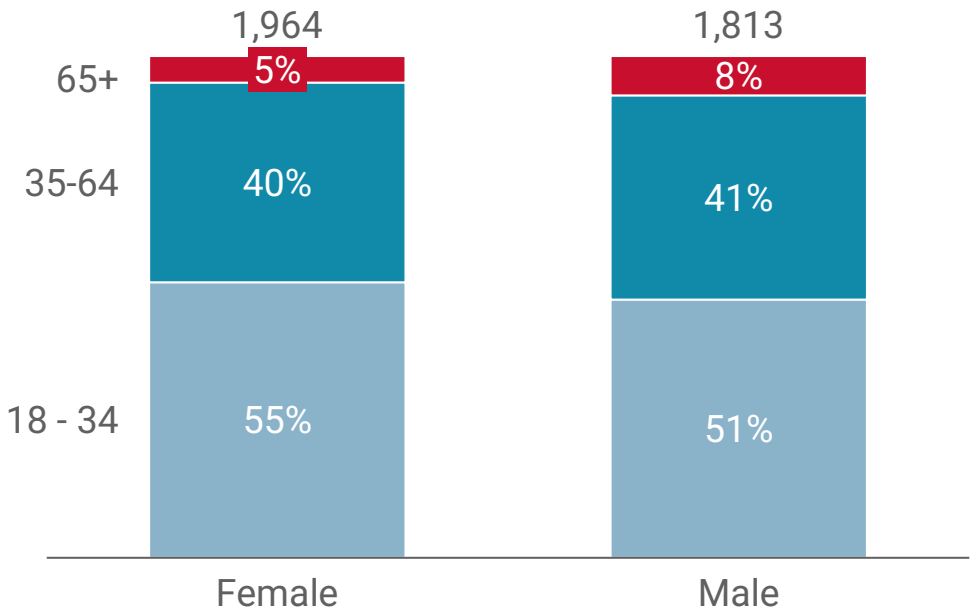
# More than half the pastoral households are youth; the household members are characterized by low levels of education, especially females.

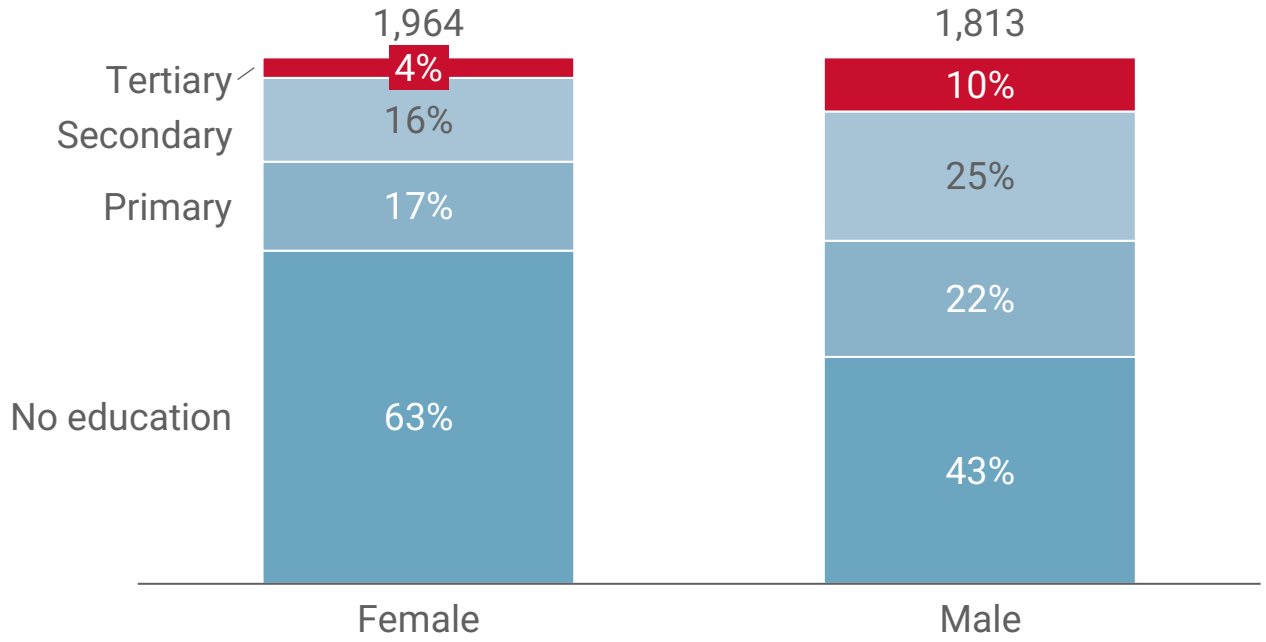
## Population of pastoral households

% of population by age and gender




## Education level of the pastoral households

% of level of education by gender




- On average, 47% of the pastoral households have at least primary level education whereas 53% have no education at all. ~35% of males have secondary and above level of education compared to the females' 20%.
- Access to education in Ethiopia shrinks as you head to rural areas and marginalized communities, such as pastoralists and those living in conflict-affected regions. Poverty, economic constraints, and gender disparities also contribute to low levels of education among these populations. Overall, education remains a challenge for many Ethiopians.

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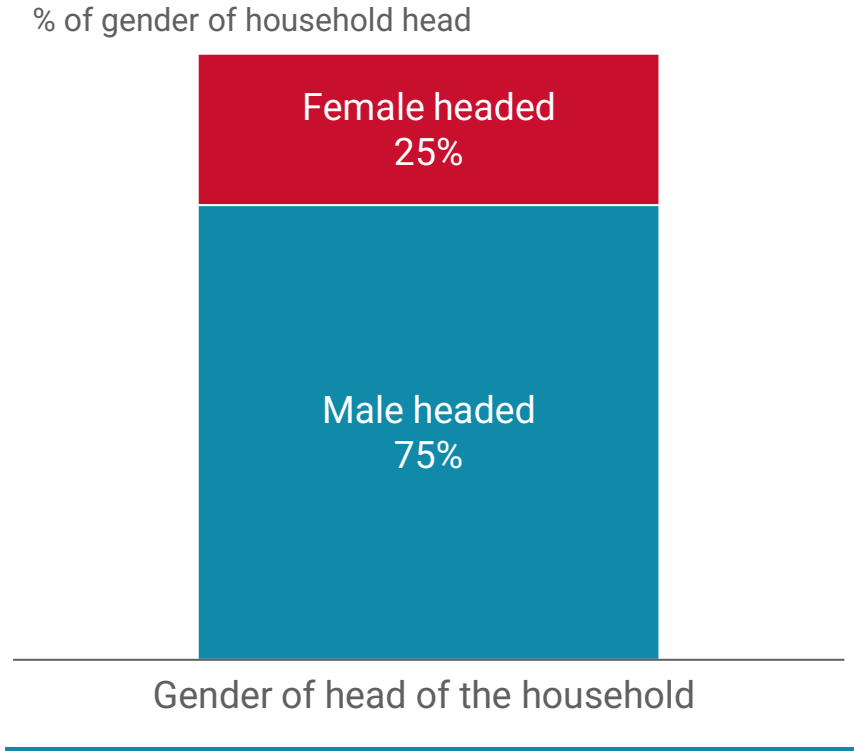
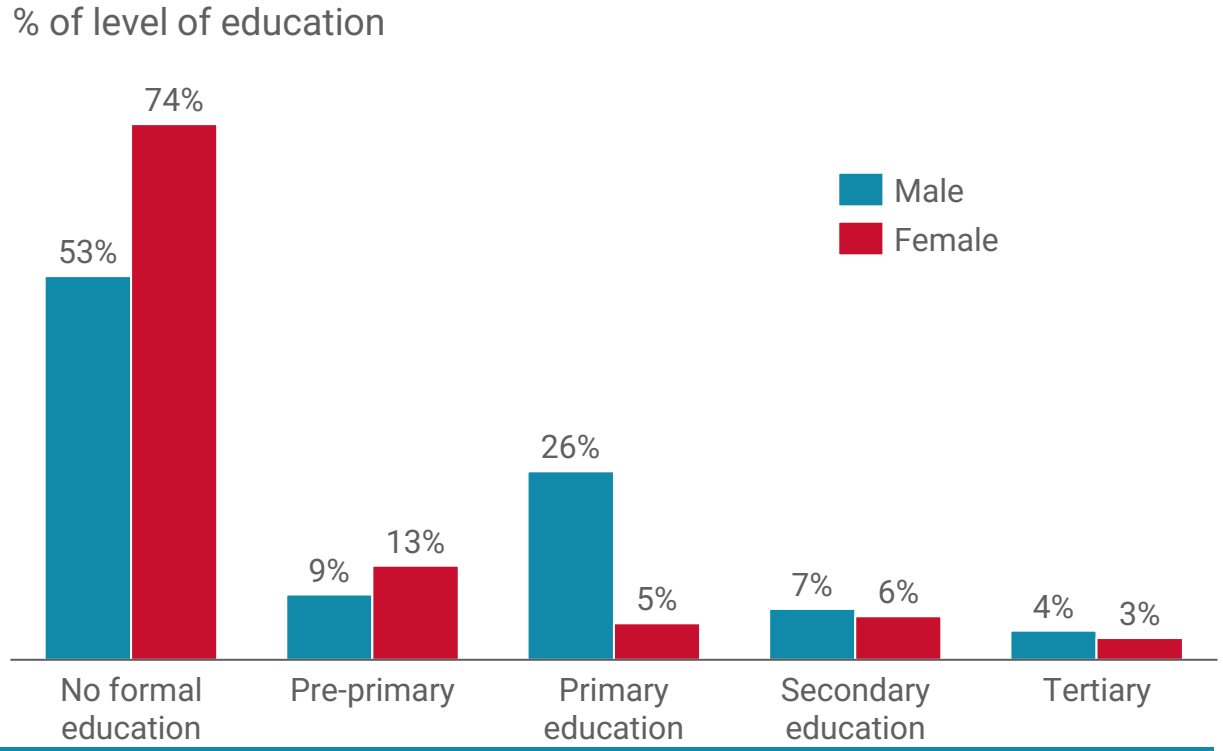
***Source***: World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019
*Note: The analysis is based on the pastoral regions of Ethiopia i.e., Oromia, Somali, SNNP, Afar, Benishangul-Gumuz, Gambella and Dire Dawa*

# About three-quarters of the pastoral households are male-headed; the average age of household head is 49 years with low education levels.

## Gender of household head of pastoralists




## Education of household head by gender




- In Ethiopia, most of the household heads have a low level of education. Specifically, 61% of household heads have no formal education, 7% have completed primary education, and only 2% have completed secondary education.
- There is disparity in education levels of household heads by gender; about three quarters of female household heads lack formal education

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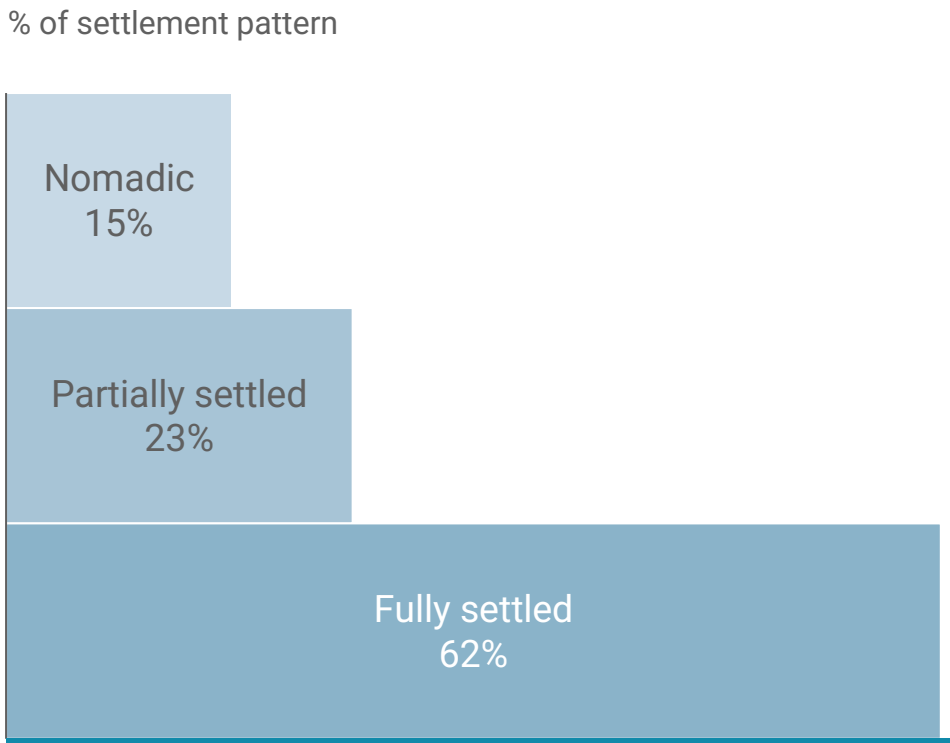
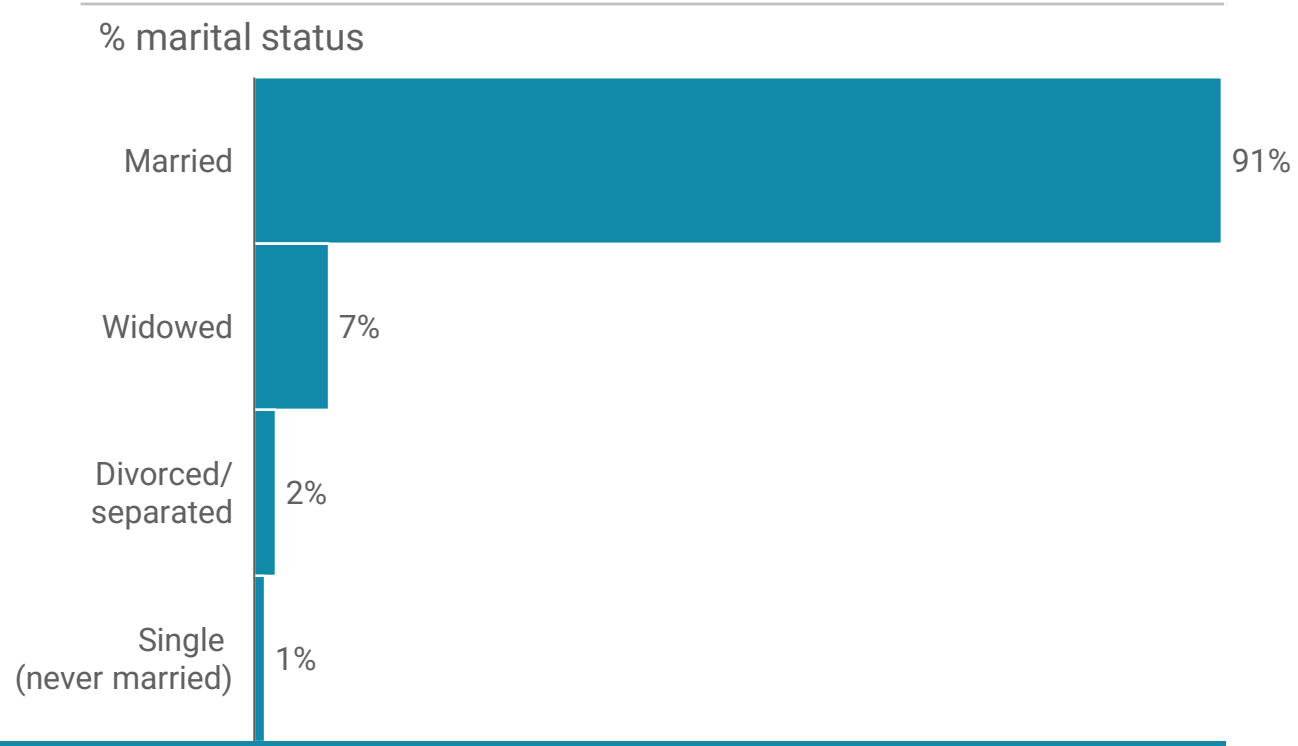
***Source***: *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report, 2022; n = 182.*
*Note: The study was carried out from pastoral households in Oromia, Somali and Afar regions of Ethiopia*

# Majority of these pastoral households are fully settled; ~ 91% are married with an average family size of 9

## Settlement patterns of the households




## Marital status of the household head




- A good number of pastoralists are either fully settled or partially settled (62% and 23% respectively) while 15% move from place to place with their livestock. They average a family size of 8.5 household members. They report to have resided in the regions for about 26 years and thus understand the climatic shocks and changes that have occurred in the study regions
- More than 90% of the household heads are married with a considerable proportion (7%) being widowed. Their most dominant religion is Islam

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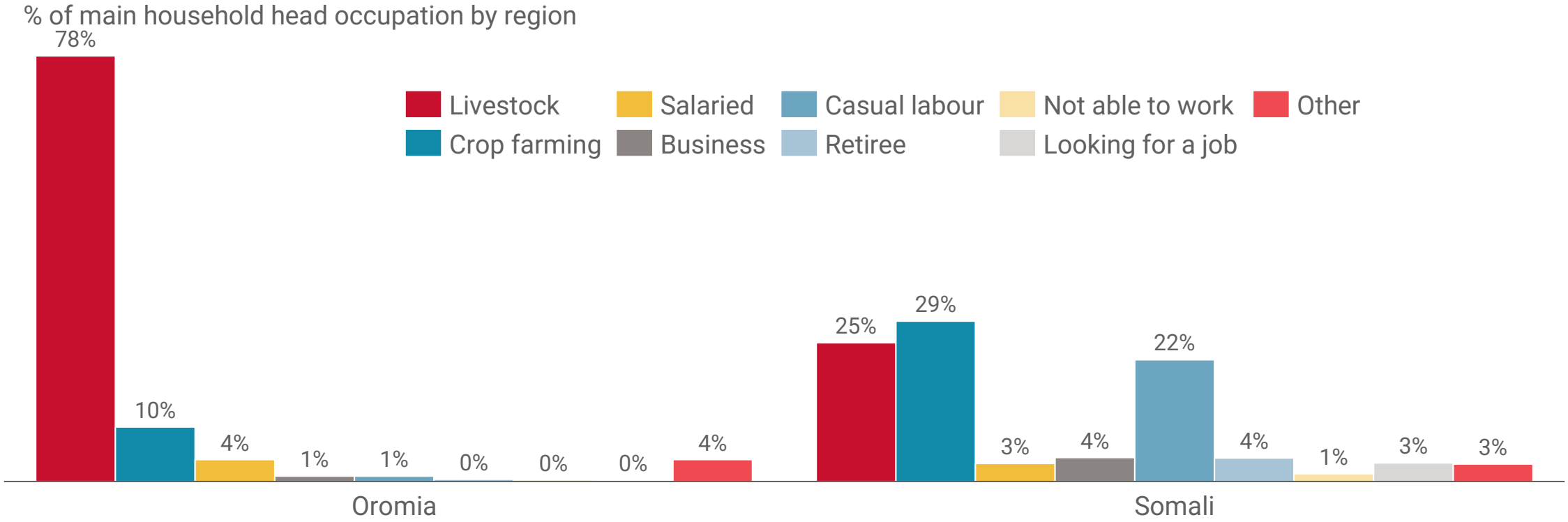
***Source***: *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report, 2022; n = 182*
*Note: The study was carried out from pastoral households in Oromia, Somali and Afar regions of Ethiopia,*

# The household heads have both agricultural and non-agricultural activities as their main occupation

## Main occupation of the household head



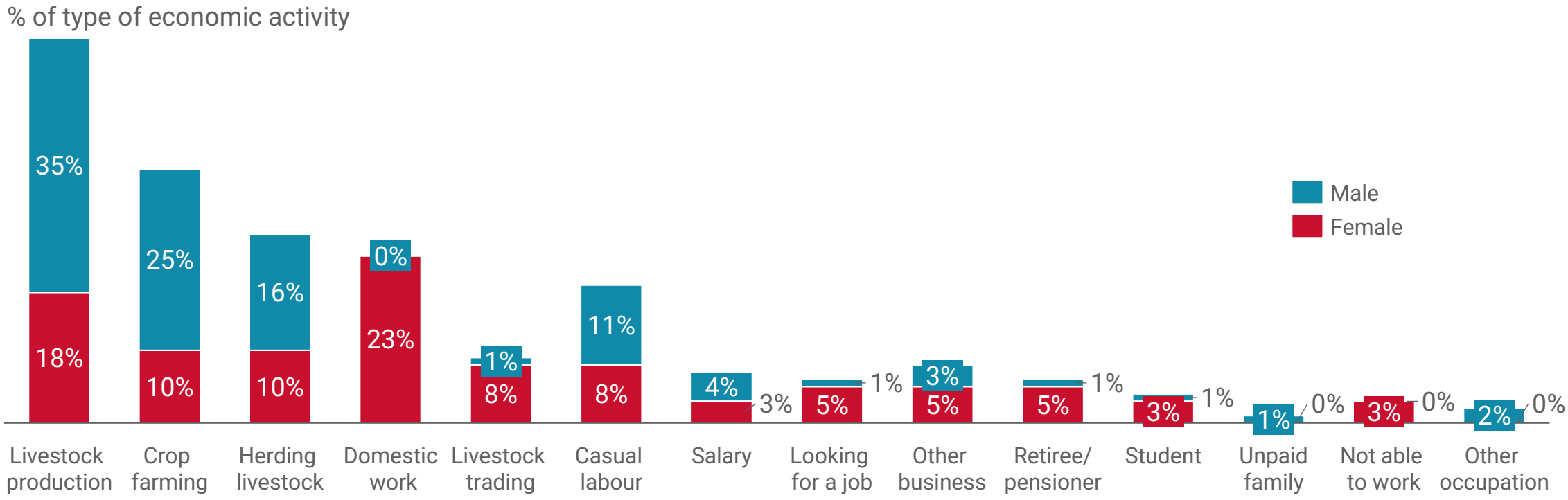

- The primary occupation of the household heads in Oromia was livestock production at 78%, followed by crops farming (10%), casual labor (1%), salaried employment (4%), and business (1%). In Somali, 25% of the household heads engaged in livestock-related activities, 29% in crop farming, and 22% in casual labor. Many households in both regions reported engaging in livestock-related activities besides the primary occupation of the household head, with 84% in Oromia and 34% in Somali.

*Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report, 2022; n = 182; Note: The study was carried out from pastoral households in Oromia, Somali and Afar regions of Ethiopia, Afar was excluded because of political unrest during data collection*

# Livestock activities are more likely to be taken up by men, while the females engage predominantly in domestic chores

- Male-headed households are more involved in livestock-related activities compared to female-headed households. However, a significant number of female-headed households engage in household/domestic work. While the proportion of male-headed households engaged in casual and salaried employment is higher than that of female-headed households, the difference is generally small

## Main occupation of the household head by gender



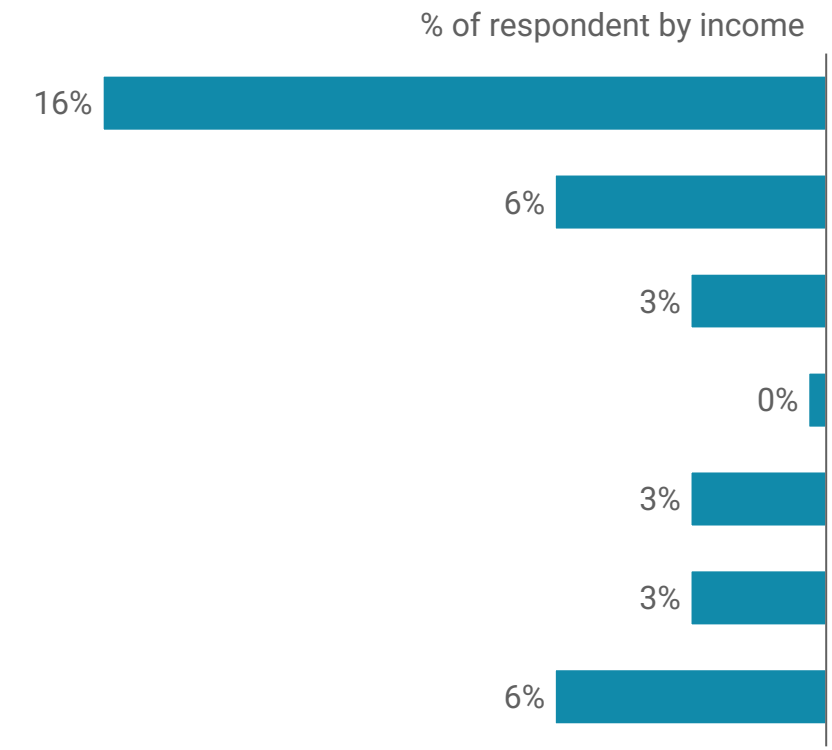



***Source***: *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182*

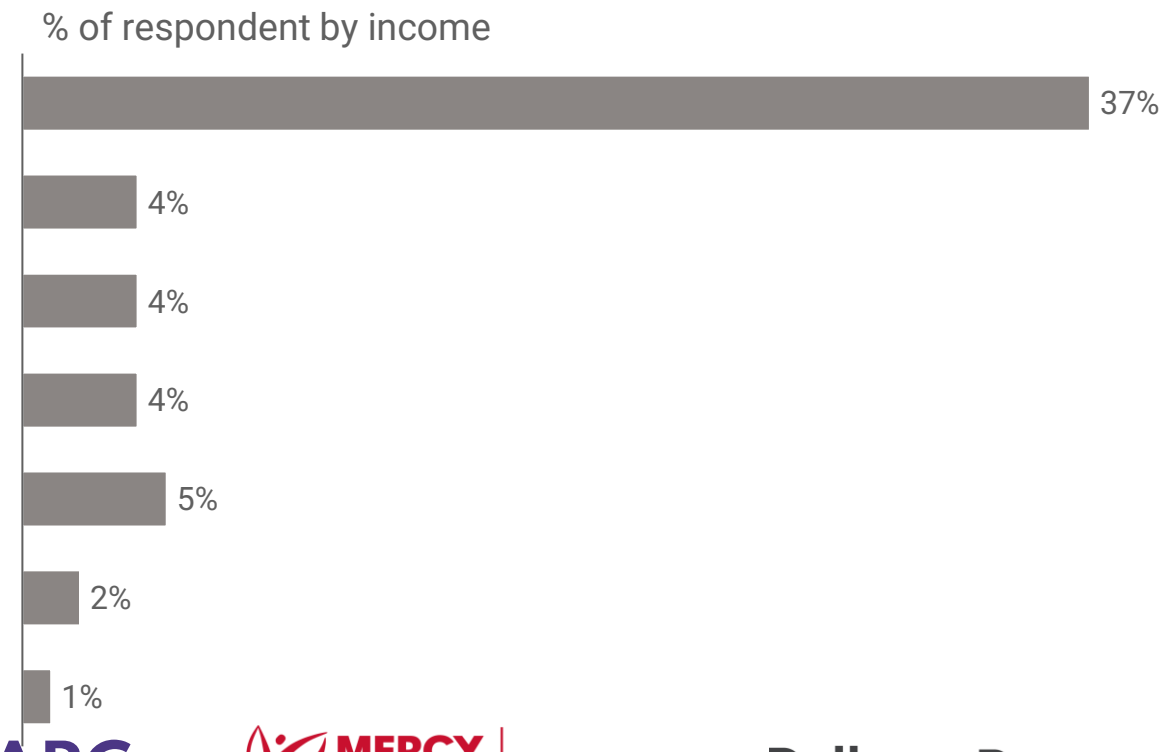
# Pastoral households generate income mainly through the sale of livestock and livestock products.

- The primary source of income in both Oromia and Somali is the sale of livestock, which is consistent with the main occupation of the household head
- A considerable share of the pastoralists get their income from businesses, particularly small businesses that help support the livestock value chains during times when there is low demand for their products
- Casual and salaried employment also contribute to the incomes of households: each of these sources provide income to 7% and 4% respectively of the households. These sources provide additional income to the households

## Income sources by region – Oromia




## Income sources by region – Somali




Selling livestock
Selling livestock products
Casual employment
Salaried job
Business
Selling crop products
Other

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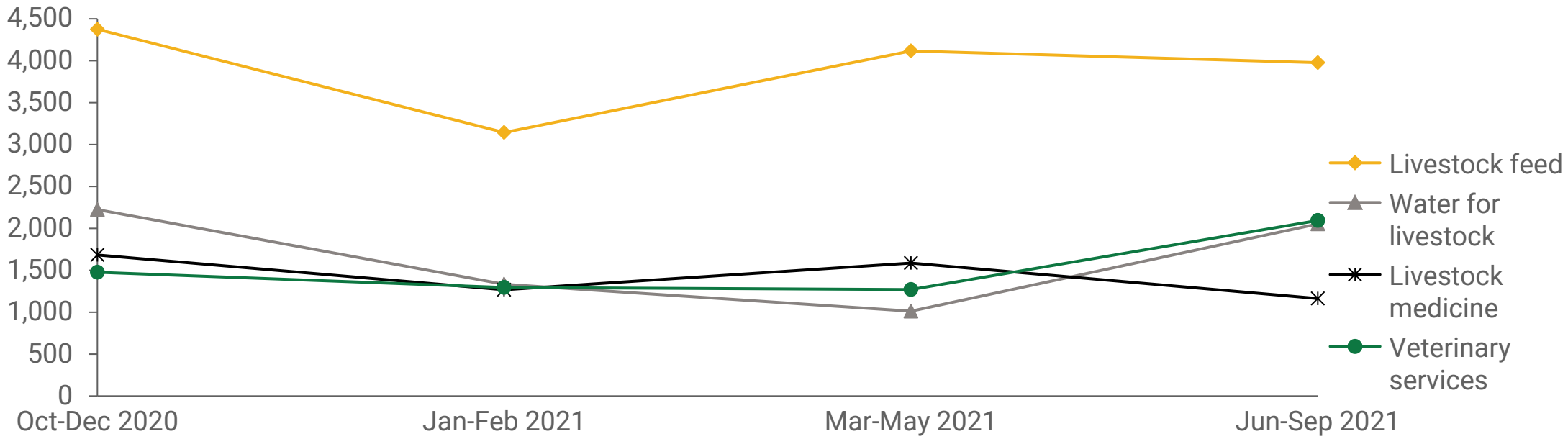
***Source***: *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182; Note: The study was carried out from pastoral households in Oromia, Somali and Afar regions of Ethiopia, Afar was excluded because of political unrest during data collection*

# Pastoralist households primarily allocate their funds towards purchasing feed for their livestock.

- As anticipated, expenditures on feed are more substantial during the dry season compared to the wet season. However, during the rainy seasons, a significant proportion of households still incur expenses on livestock feed. This suggests that forage availability is limited in both seasons.
- Additionally, a significant number of households also incur costs on livestock medicine, particularly during the January-February short rains season. Other significant types of expenses include providing water for livestock and accessing veterinary services. There is a variation in livestock-related expenditures across seasons, with the greatest financial burden experienced during the June-September long dry season.

## Variability in livestock expenditure across seasons and spatially in Ethiopia (Birr)

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***Source***: *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182; Note: The study was carried out from pastoral households in Oromia, Somali and Afar regions of Ethiopia, Afar was excluded because of political unrest during data collection*

# LIVESTOCK VALUE CHAINS

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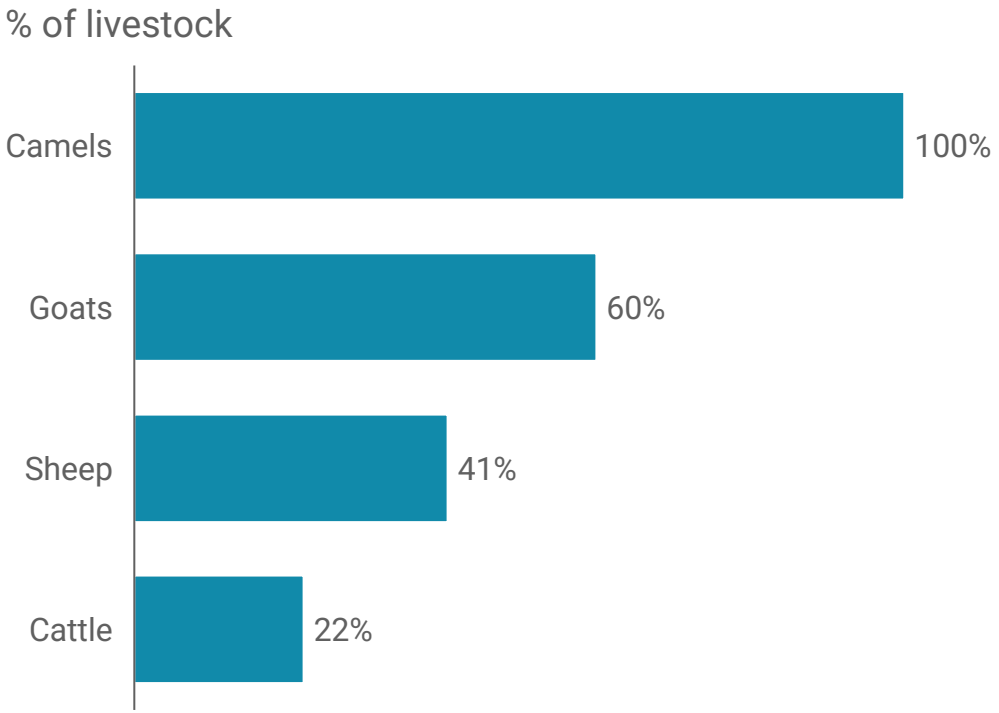
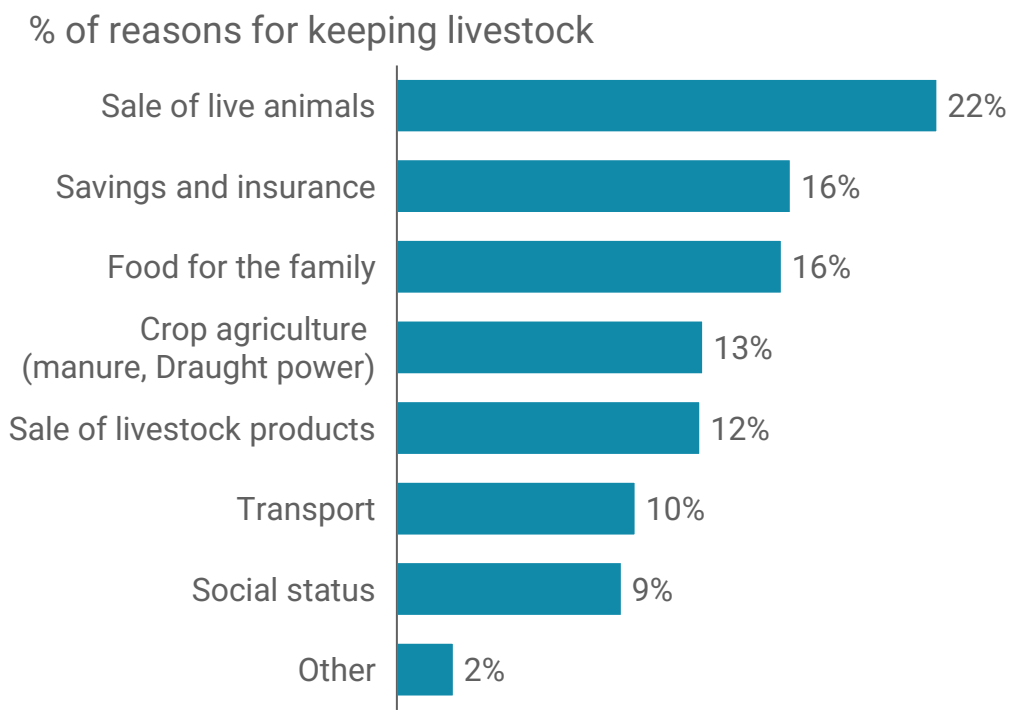
# The pastoral households contribute a considerable share of the country's livestock count; the livestock are kept for various reasons

- Pastoralists in Ethiopia keep livestock for various reasons, including as a source of food and income, for cultural and social reasons, and for use in traditional ceremonies and events. Livestock also serve as a form of savings and insurance against economic and environmental shocks, such as droughts or crop failures. Additionally, owning livestock can confer social status and enhance marriage prospects for young people.

## Proportion of national livestock kept by pastoral households[1]




## Reasons for keeping livestock[2]

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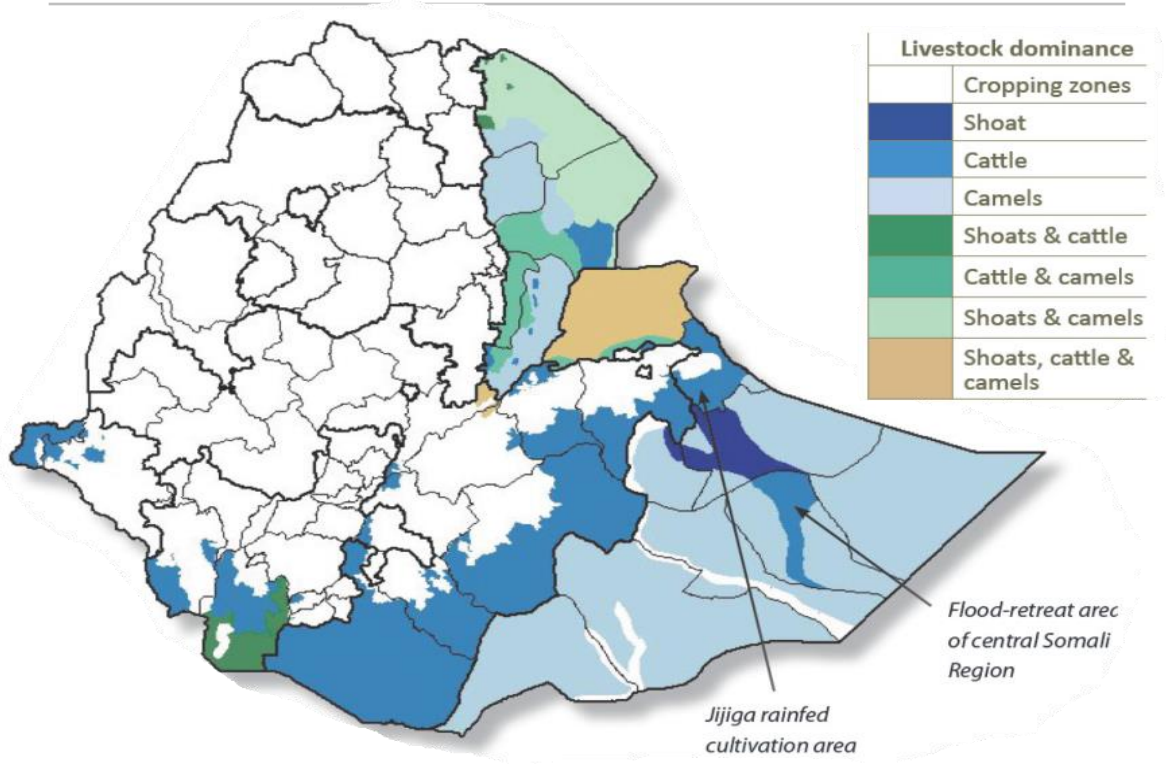
*Source*: [1]IGAD, Ethiopia IGAD Drought Resilience and Sustainability Initiative (IDDRSI) Progress Report, 2022; [2]World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019

# Goats and cattle are the most kept livestock by the pastoral households; camels are dominantly kept in the Somali region

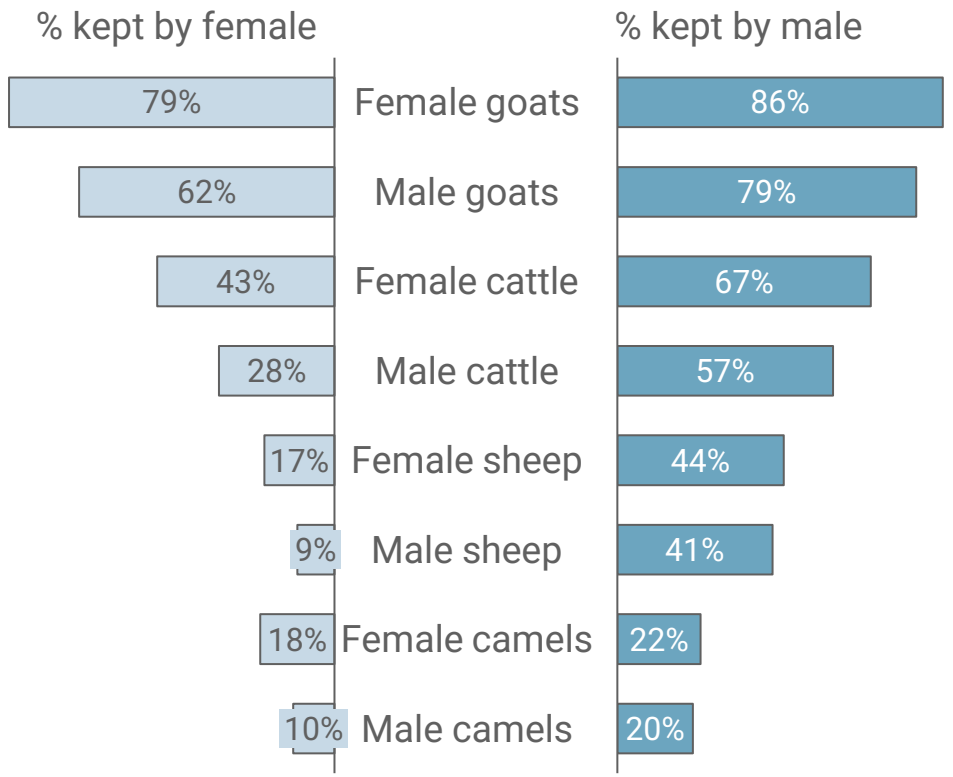
- Most pastoral households in Ethiopia keep goats and cattle, with male-headed households keeping livestock at a considerably higher proportion than female-headed households for all types of livestock. Male-headed households also keep a sizeable share of sheep and male camels, while female-headed households mainly keep female camels.

## Dominant livestock type in the ASAL regions[1]




*Adopted from Centre for Rural Development (SLE) Report 2017*

## Livestock kept by gender of the household head[2]

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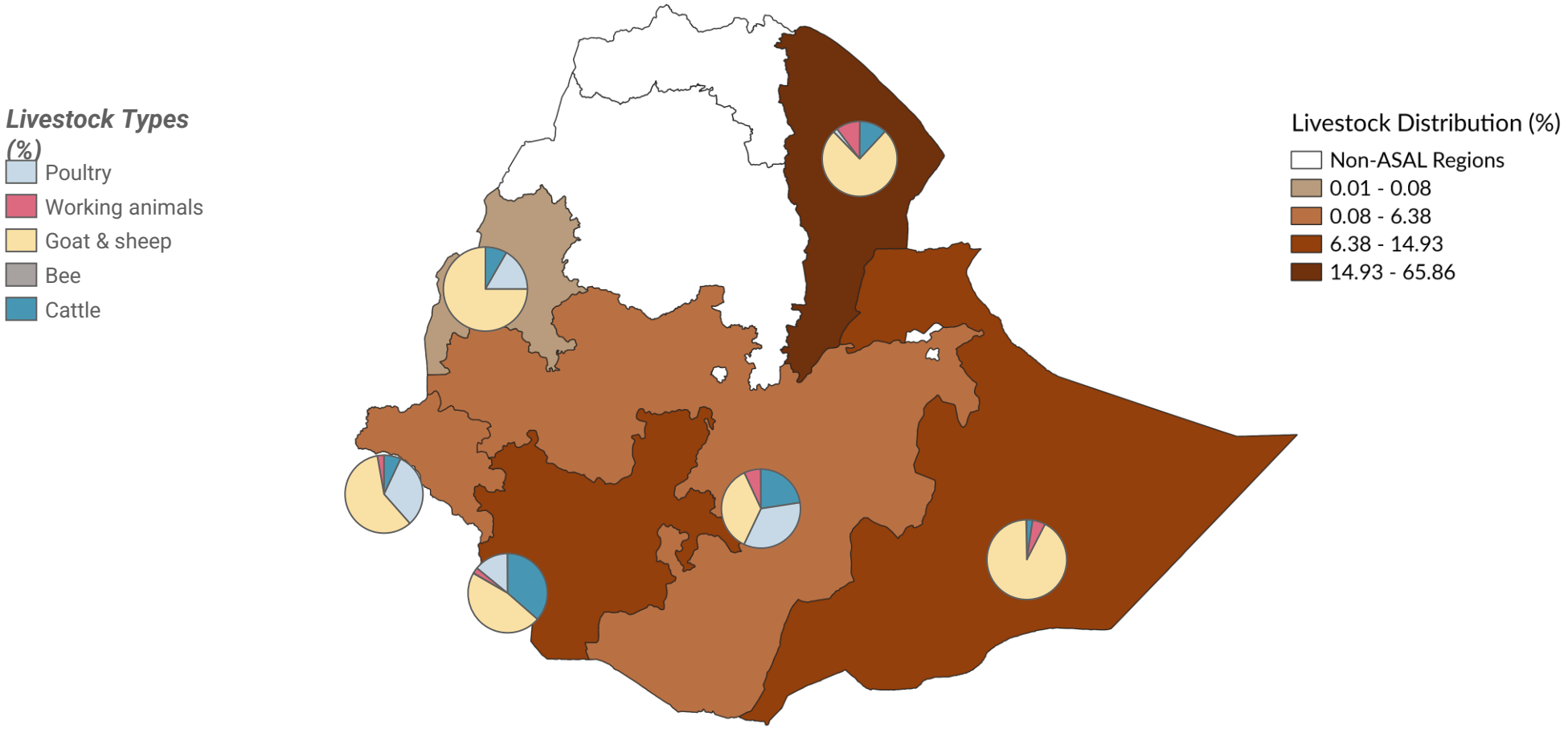
***Source***: [1]Centre for Rural Development (SLE - Berlin), Ethiopia's Arid and Semi-Arid Lowlands: Towards Inclusive and Sustainable Rural Transformation, 2017; [2]*ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182.*

# The most dominant livestock in the ASAL regions are goats and sheep, followed by poultry or cattle; Afar leads in livestock numbers

## Livestock Distribution in the ASAL Regions

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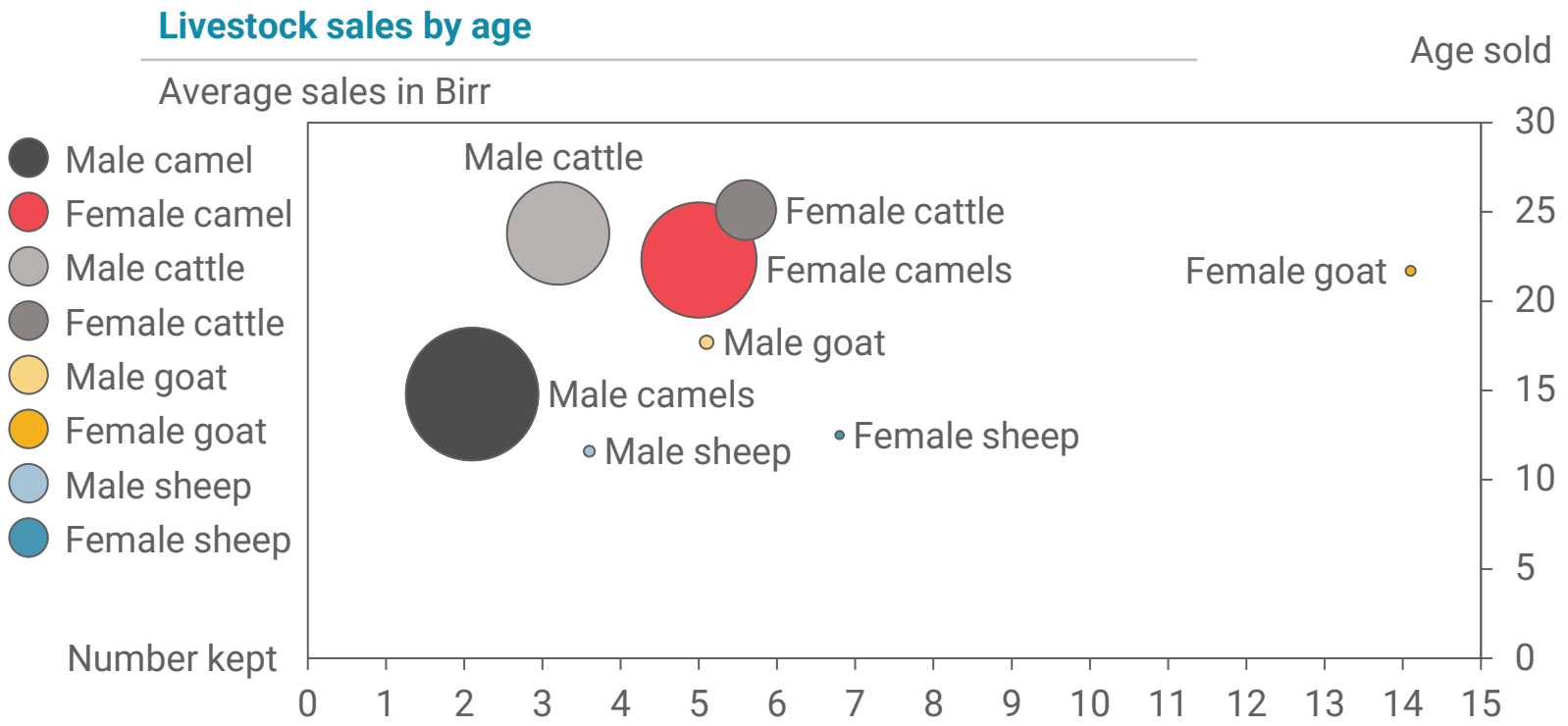
Note Working animals are animals that are used to work in the farm, and they include donkeys, camels and horses. Poultry includes chickens and chicks. Cattle include bulls, oxen ,steers, cows, heifers and calves. Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

# Pastoral households own at least two livestock on average; camels fetch the highest price followed by cattle whereas sheep fetch the least

- On average, households in the region own a specific number of livestock, including two male camels, five female camels, three male cattle, four female cattle, five male goats, 14 female goats, four male sheep, and seven female sheep.
- When it comes to selling the livestock, the average age at which they are sold varies depending on the type of animal. For instance, male camels are sold at 15 months, female camels at 22 months, male cattle at 24 months, female cattle at 25 months, male goats at 18 months, female goats at 22 months, and both male and female sheep at 12 months.




| Livestock type | Average price (Birr) |
|---|---|
| Male camels | 16,858 |
| Female camels | 14,667 |
| Male cattle | 13,060 |
| Female cattle | 7,742 |
| Male goat | 1,873 |
| Female goat | 1,394 |
| Male sheep | 1,560 |
| Female sheep | 1,194 |

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*Source*: *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182.*
*Note: The size of the bubble depicts the average price at which the livestock is sold, big size-higher price*

# ACCESS TO FINANCIAL SERVICES AMONG AGRO-PASTORALISTS AND PASTORALISTS

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# Formal and informal sources of finance are available to pastoralists

Case study

Somali region – Jijiga area

Afar region –Semera area

Addis Ababa

## Current financial products, gaps, and models in Ethiopia

List of financial products available in pastoral areas in Ethiopia

**Commercial banks model** (savings, safe boxes, loans provision, ATMs, interest free banking, and mobile banking through HelloCash )

**Micro-Finance Institutions model** (savings services, loan products, transfer, insurance, HelloCash services, and agent network)

**Co-operative/SACCO model** (Savings and loan financial products)

**Informal Associations/Groups/VSLAs/ Family, Friends and Sale of own livestock model** (savings and loan products)

**Insurance model** being considered but not yet implemented (Savings in terms of premium and reimbursement in case of loss of what is insured)

**Grants from various stakeholders' model** (Free financial support or Revolving Loan Fund).

- There are limited financial products available for pastoralists in Ethiopia, this is according to information gathered from focus group discussions with traders and herders.
- The products mainly include banking, microfinance institutions, informal banking, and mobile banking, which offer savings and credit facilities.
- There are gaps in other financial products like insurance, stock market, and credit cards. The conditions set by financial institutions are also unfavorable for pastoralists.
- FGDs conducted in pastoral areas of Ethiopia revealed that traders patronize banking and mobile banking (HelloCash) more than herders. MFIs have also penetrated rural pastoral areas.
- The most preferred financial product is informal banking through the formation of Village Savings and Lending Associations (VSLAs), which is widely used in several areas.
- However, pastoralists have not patronized these products as widely as traders. The information is also relevant to the RPLRP Districts of Ethiopia's Afar region.

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Source: IGAD Centre for Pastoral Areas and Livestock Development (ICPALD), Stock-Taking and Gap Analysis Study of Financial Products for Pastoral Areas and Linking Pastoralists to Financial Service Providers,2016 –Regional Pastoral Livelihoods Resilience Project (RPLRP)-Qualitative analysis; UKaid & CGIAR, 2021. A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries: Volume 1: Main report—Operational and technical feasibility assessment. ILRI Research Report 75. Nairobi, Kenya: ILRI.

# A few banks and MFIs have stepped up to provide digital payment services

| Service/Provider | ATM | PoS | Internet banking | Mobile banking | Mobile money (Name of platform) |
|---|---|---|---|---|---|
| **Commercial Banks** | | | | | |
| Abay Bank | A | A | A | A | A (Abay Bedje) |
| Abyssinia Bank | A | A | A | A | A (Gize Pay) |
| Addis International Bank | A | A | A | A | NA |
| Awash Bank | A | A | A | A | A (M-Wallet) |
| Berhan International Bank | A | A | A | A | A (Berhan Mobile) |
| Buna International Bank | A | A | A | A | A (Wallet Money) |
| Commercial Bank of Ethiopia | A | A | A | A | A (CBE-Birr) |
| Dashen Bank | A | A | A | A | A (Amole) |
| Debub Global Bank | A | NA | NA | NA | NA |
| Enat Bank | A | A | A | A | A (Enat Wallet) |
| Lion International Bank | A | NA | A | A | A (HelloCash) |
| Nib International Bank | A | A | A | A | NA |
| Oromia International Bank | A | NA | A | A | A (Oro cash) |
| Cooperative Bank of Oromia | A | A | A | A | A (Coopay) |
| United Bank | A | A | A | A | A (Hiber Wallet) |
| Wegagen Bank | A | A | A | A | A (HelloCash) |
| Zemen Bank | A | A | A | A | NA |
| **Microfinance Institutions** | | | | | |
| Addis Credit and Savings Institution | NA | NA | NA | NA | A (M-Birr) |
| Amhara Credit and Savings Institution | NA | NA | NA | NA | A (M-Birr) |
| Dedebit Credit and Savings Institution | NA | NA | NA | NA | A (M-Birr) |
| OMO Microfinance | NA | NA | NA | NA | A (M-Birr) |
| Oromia Credit and Savings | NA | NA | NA | NA | A (M-Birr) |
| Somali Microfinance | NA | NA | NA | NA | A (HelloCash) |
| Peace Microfinance | NA | NA | NA | NA | A (M-Birr) |

SPARC MERCY CORPS AGRIFIN Dalberg Research

Source: GCD Policy Paper, Identifying Binding Constraints on Digital Payment Services in Ethiopia: An Application of a Decision Tree framework, 2021.
Notes: A- Available; NA- Not Available, GCD – Centre for Global Development

# Strategies are being designed to promote financial inclusion and increase the income of low-income pastoral households in Ethiopia

In an effort to increase access to financial services in pastoralist areas of Ethiopia, the Pastoralist Areas Resilience Improvement and Market Expansion (PRIME) project has implemented several innovative financial products. These include Islamic financial products, Index-Based Livestock Insurance (IBLI), and mobile banking. Through these initiatives, PRIME has successfully increased financial inclusion and provided a safety net for vulnerable populations in these areas.

## Innovative financial products

1. **Islamic financial products:** Financial institutions in PRIME areas do not offer Sharia-compliant financial products despite strong demand. PRIME partnered with institutions to introduce these products and has had success, such as with a marketing campaign that mobilized 4.4 million ETB in savings and loans.
2. **Index-based livestock insurance:** IBLI is an innovative insurance product designed to protect pastoralists from livestock loss during prolonged drought. PRIME partnered with Oromiya Insurance Company to implement a pilot program, which increased policies sold and resulted in the first-ever payout of 570,000 ETB to 510 policyholders.
3. **Mobile money:** PRIME provided a grant to Somali MFI and Dutch mobile money company BelCash to pilot an agent-based mobile money service in the Somali region of Ethiopia. The service has gained government approval and is expected to improve financial access for 50% of mobile phone users and increase the income of over 3,000 agents by 25%.
4. **Agent banking:** PRIME had been working to expand access to financial services in Ethiopia through the use of agent banking, which involves setting up small, local branches of banks in underserved areas. This can help make financial services more accessible to low-income households who may not have easy access to traditional bank branches.
5. **Microfinance loans:** PRIME developed microfinance loans that are specifically designed to meet the needs of low-income households in Ethiopia. These small loans are often used to start or grow a small business and can help increase income and economic opportunities for low-income households.

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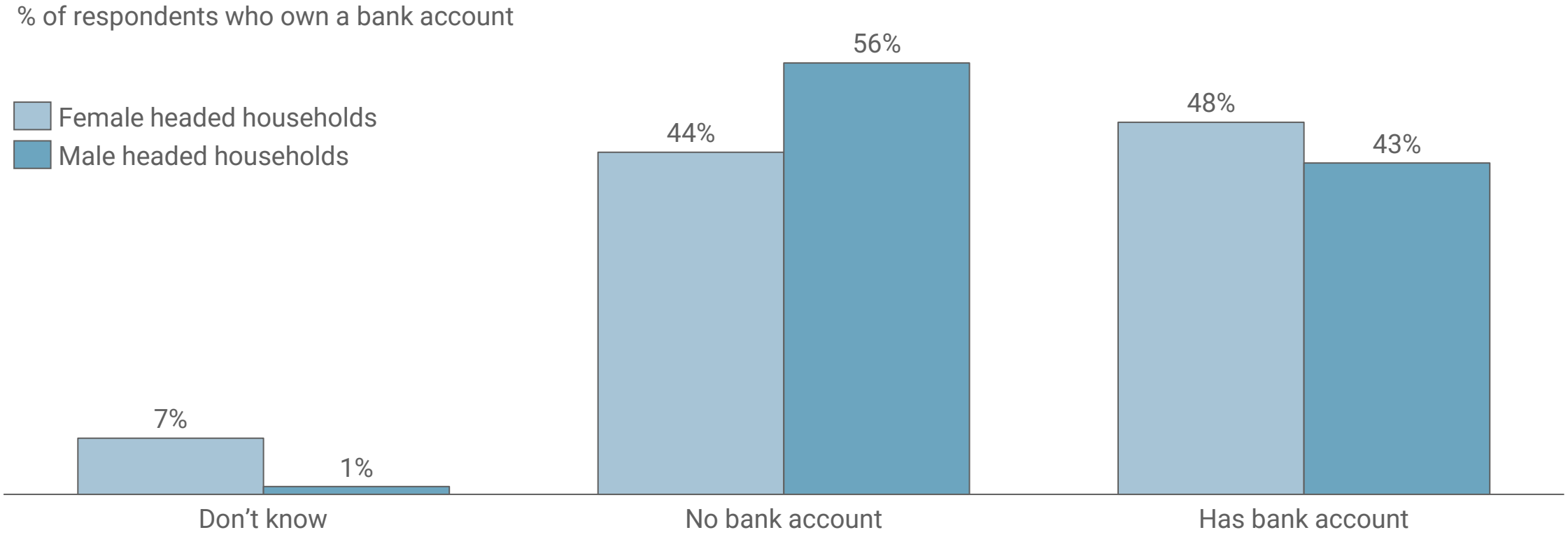
Source: USAID, Mercy Corps- Pastoralist Areas Resilience Improvement and Market Expansion (PRIME), Financial services;
Note: PRIME is aimed at enhancing the resilience and quality of life of pastoralist communities residing in the dry lands of Ethiopia's Afar, Oromiya, and Somali regional states .

# Pastoral households are still underserved on banking; while female led households tend to own a bank account than their male counterparts

## Bank account ownership by gender of the pastoral household heads



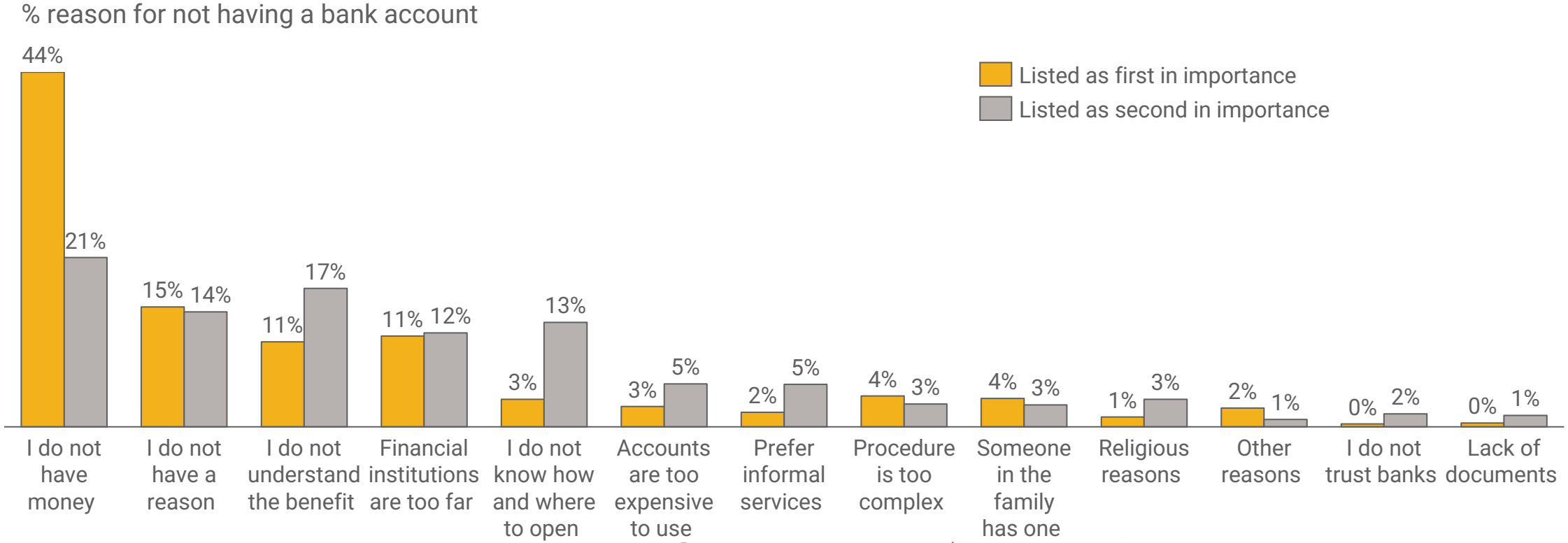

- In general, 45% of households own a bank account, with no much difference between male and female-headed households, although the percentage is slightly higher for the latter.

*Source*: *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report.* Notes: n = 182

# Pastoralists don't own a bank account for various reasons, with low-income levels and lack of awareness being the predominant factors

- The primary reason for not having a financial account among the 64 percent of individuals who reported having none in the 2018/19 Ethiopian Socioeconomic Survey (ESS) is low income, with 43.8 percent listing it as the main reason. Distance to financial institutions and not understanding the benefit were also cited as relevant reasons. Lack of trust and documentation were not significant constraints. However, 15 percent of respondents did not provide any reason for not having an account.

## Reasons for not having a bank account

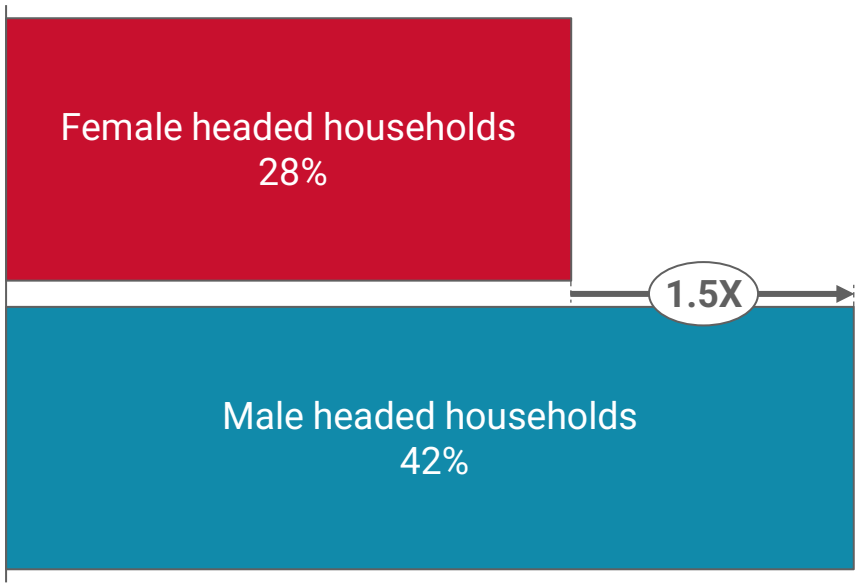



***Source***: *Ethiopia Socioeconomic Survey (ESS) 2018/2019, CSA 2021 report*

# There are about 1.5 times as many male headed households that have cash savings compared to their female counterparts

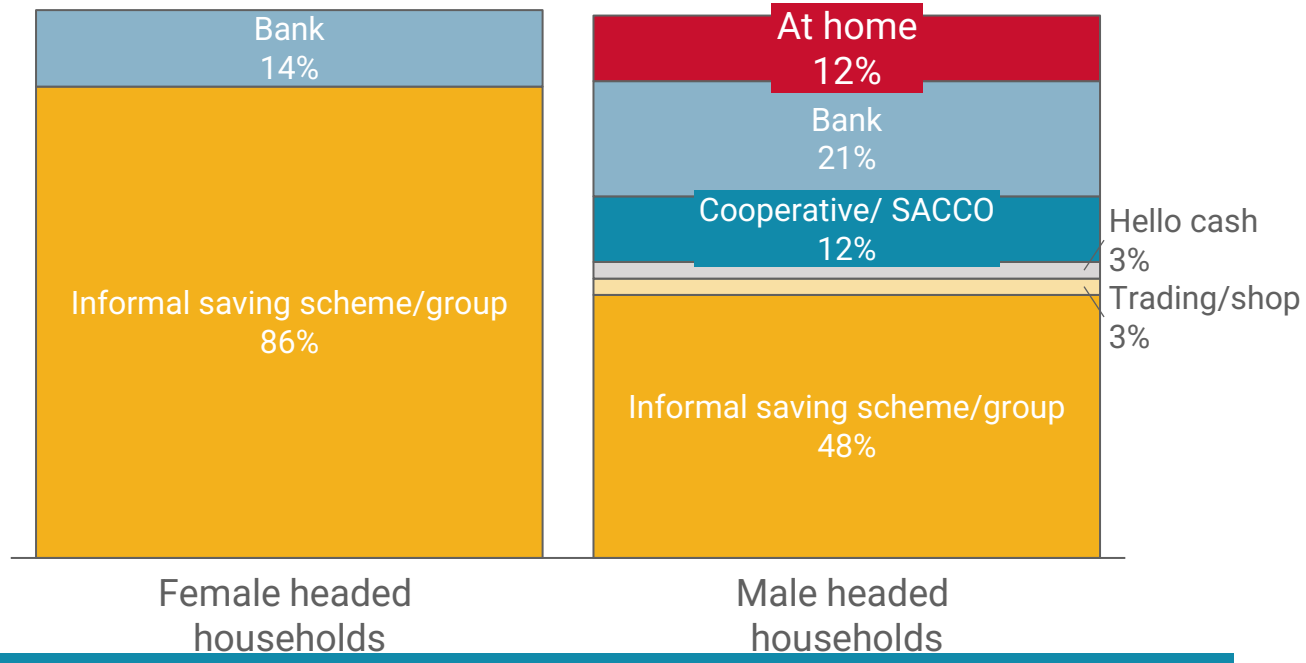
## Cash savings by gender of household head

% of households with cash savings




## Channels that pastoralists use to save by gender

% of pastoralists by channel used




- In total, 35% of households have cash savings. Male-headed households (42%) are more likely to have cash savings than female-headed households (28%)
- The main channel for saving cash is informal savings schemes or groups, according to most respondents. Female-headed households tend to save more through these informal schemes or groups than male-headed households. However, male-headed households generally have more savings options than female-headed households
- The households that reported having cash savings had an average savings amount of 3,404 Birr, with a median savings amount of 1,000 Birr.

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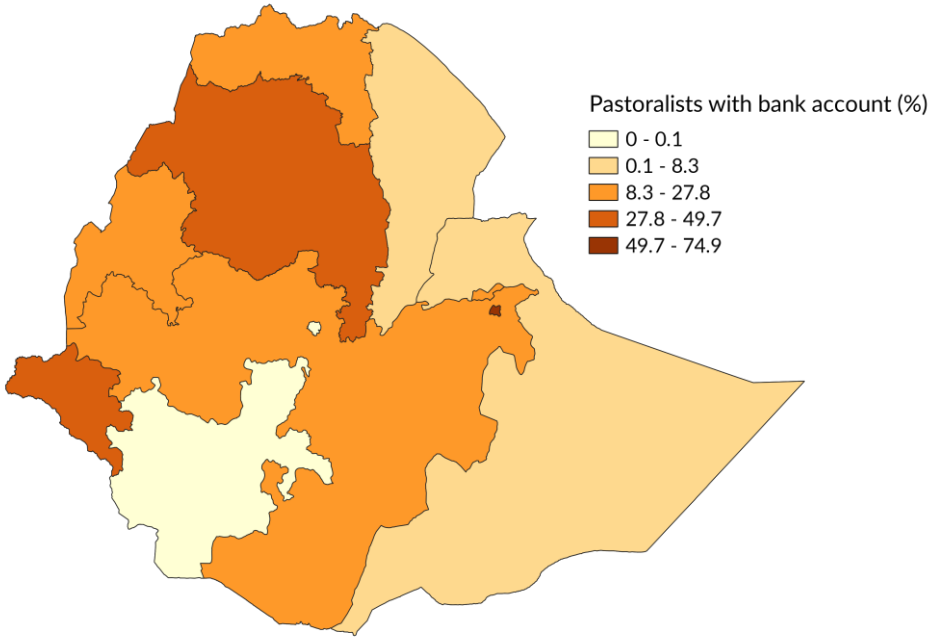
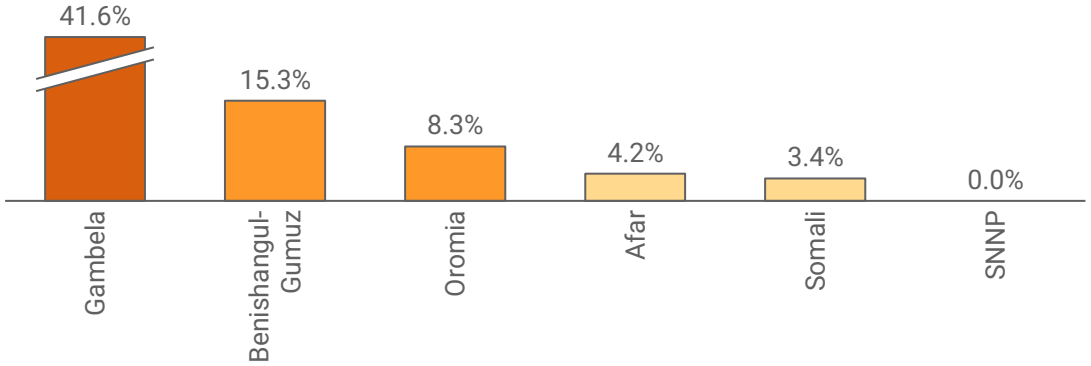
***Source***: *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182*

# The Non-ASAL regions have higher account ownership rates than the ASAL regions; public and ATM banking are used in higher account regions

## Having an account at a formal institution among the pastoral holders

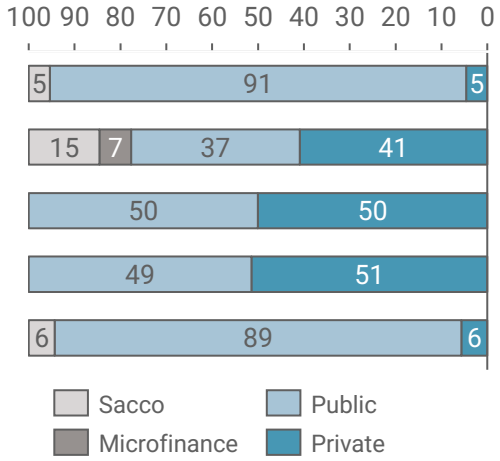
Proportion of pastoralists and agro pastoralists with a formal bank account

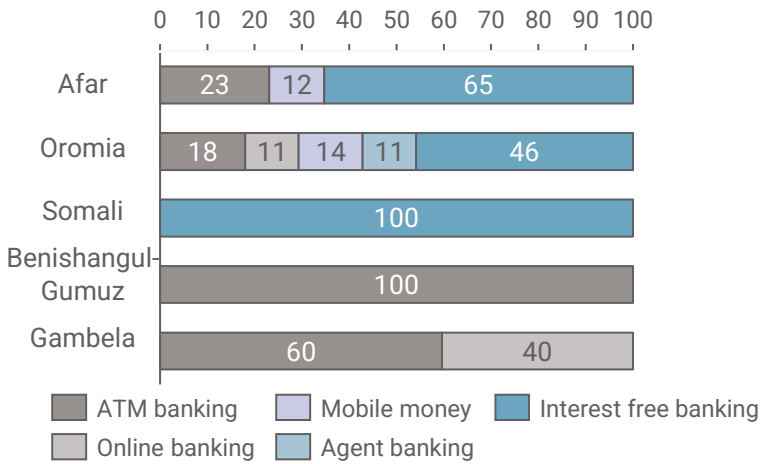



Pastoralists in the ASAL regions have lower formal account rates.as compared to those in Non-ASAL like Harari. Gambela and Benishangul-Gumuz regions that have high account rates in the ASAL have high ATM banking rates, whereas those with lower rates prefer interest free banking like Somali and Afar

## Share of Pastoralists with Formal Account Types and using Services Offered (%)

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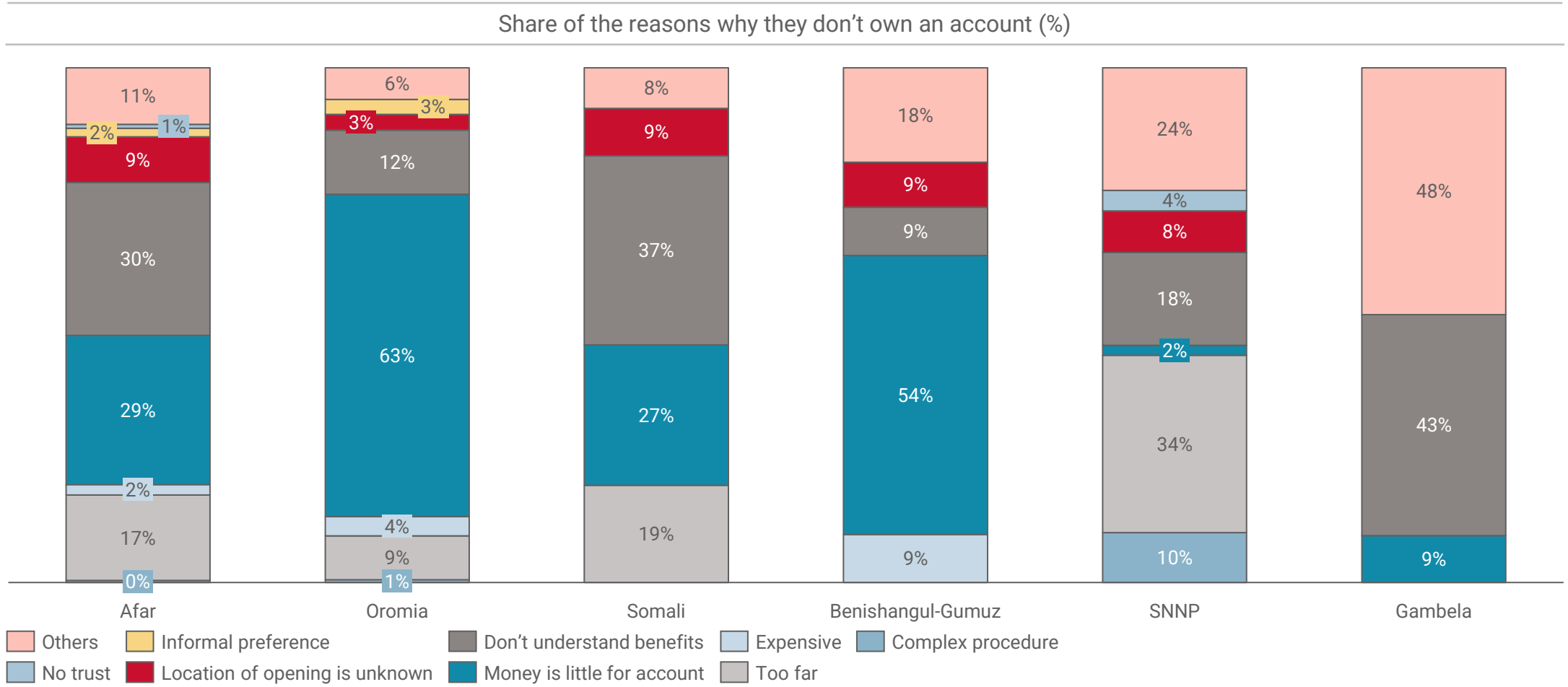
Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

# Financial illiteracy about the benefits and requirements of formal accounts, as well as saving limits, hinders pastoral households from opening and owning accounts

## Reasons why pastoral households don't own an account

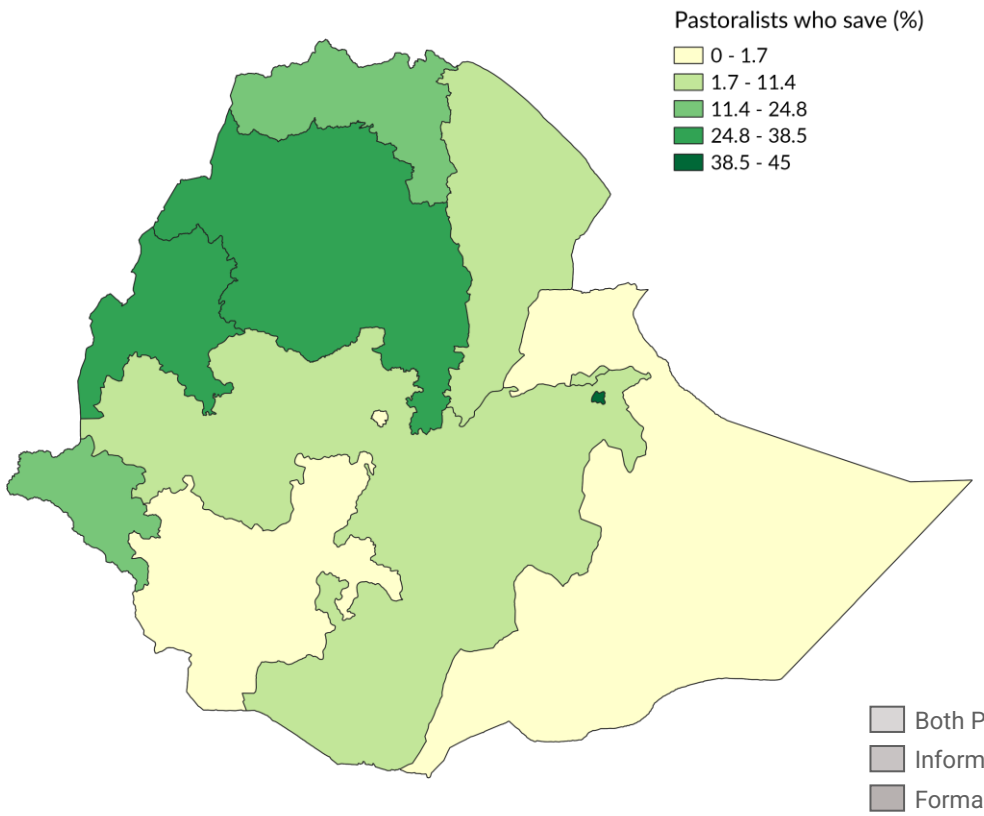



Note: *Others include religious reasons, no reason at all, Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

# The ability to have a formal account and save is affected by the holder's saving preference; most regions prefer informal saving except Gambela

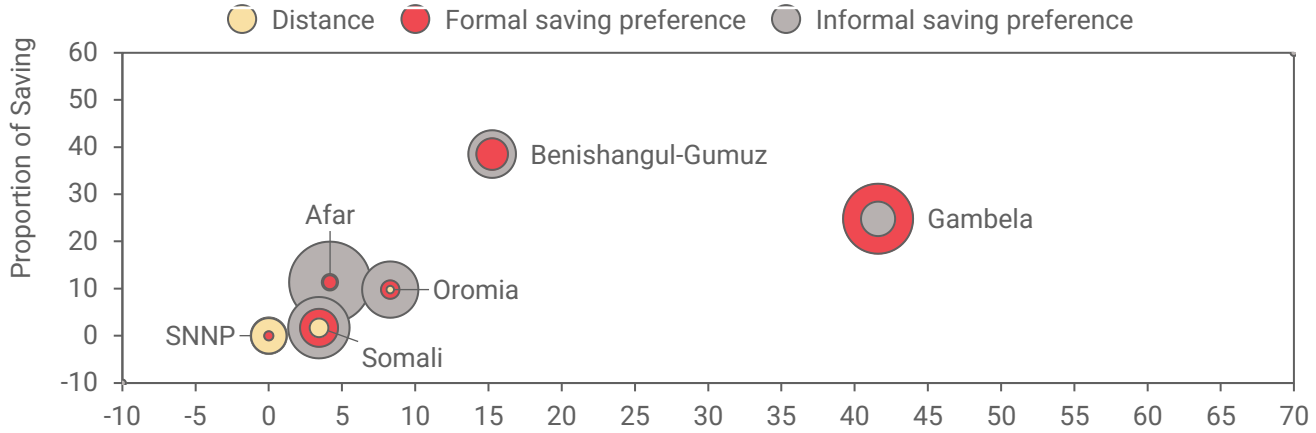
## Saving nature among the pastoral holders

Proportion of Pastoralists and agro pastoralists who save

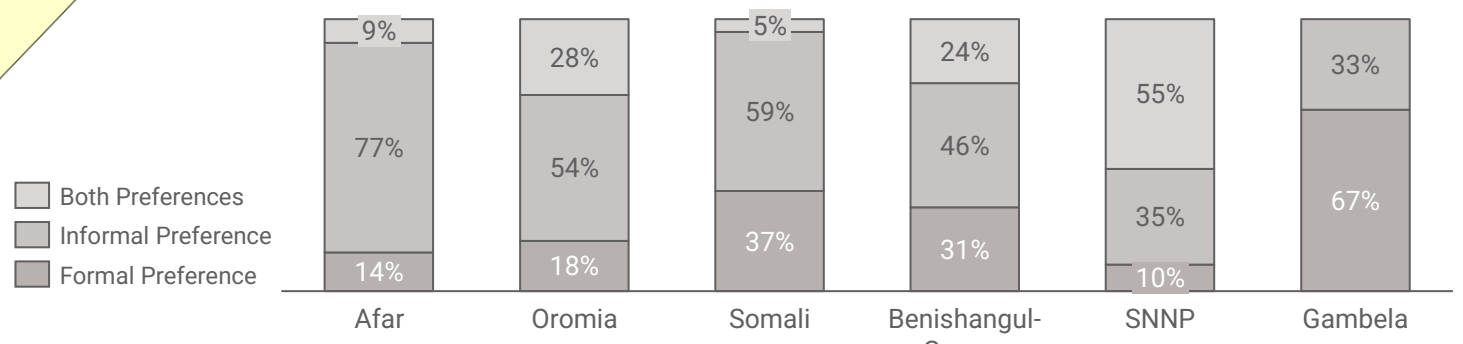



## Proportion having an account and saving obstacles relationship

Proportion of pastoralists and agro pastoralists who save by obstacle (distance)



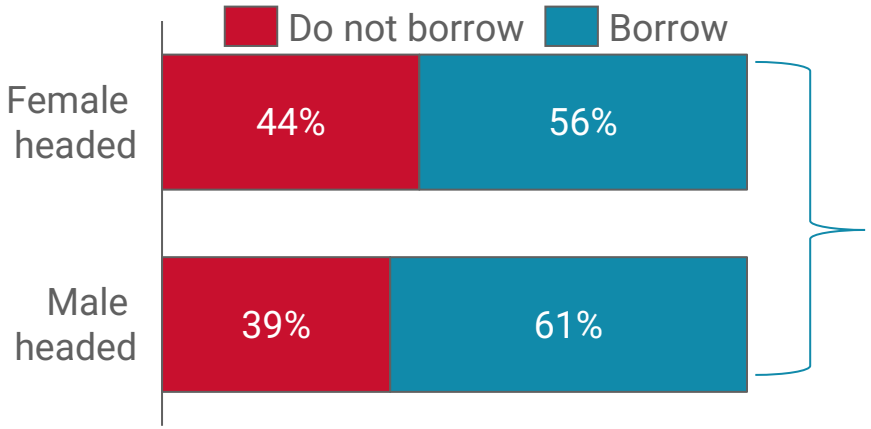

***Saving Preferences per Region (%)***



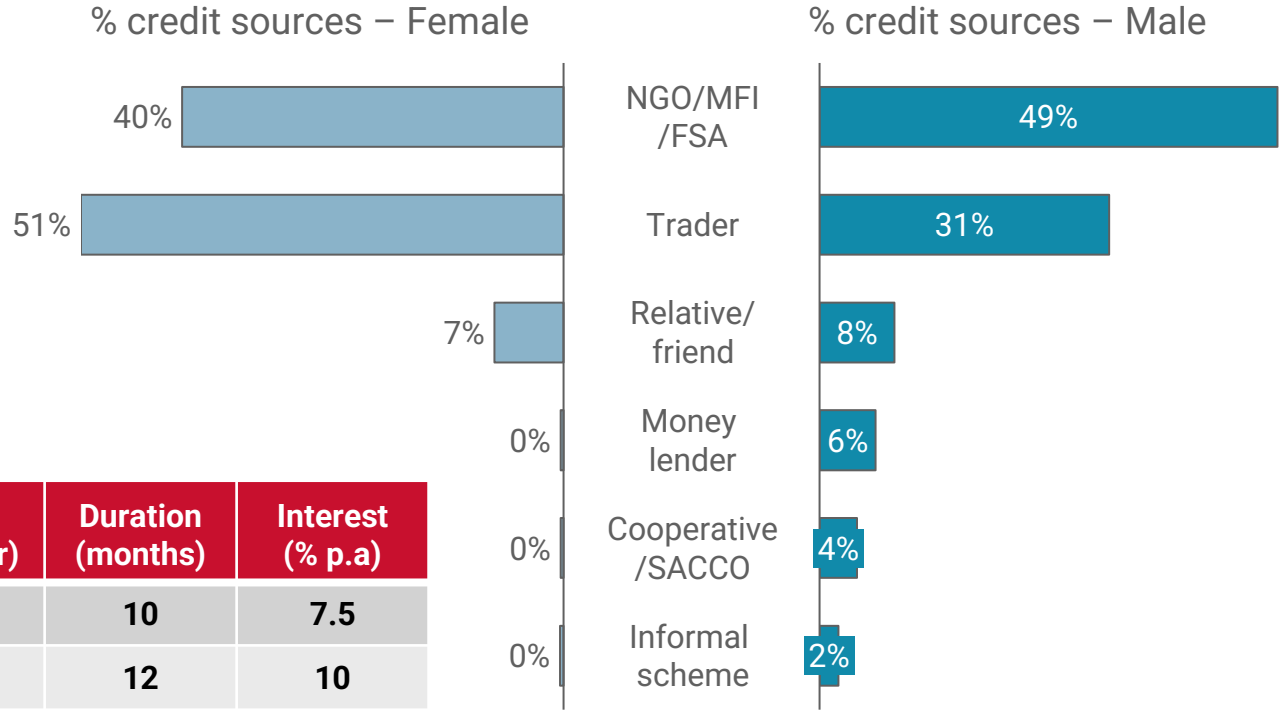

Source; Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

# More than half of the households borrow money; MFIs or saving associations are their main sources of credit alongside traders

## Access to credit by pastoralist households




## Sources of credit by pastoralist head of households




| Credit | # times HH borrowed | Amount borrowed (Birr) | Amount received (Birr) | Duration (months) | Interest (% p.a) |
|---|---|---|---|---|---|
| Average | **2.9** | **17,920** | **17,077** | **10** | **7.5** |
| Median | 2.0 | **11,000** | **10,350** | **12** | **10** |

- The main sources of credit were microfinance institutions or savings associations for male-headed households, while traders were the main source of credit for female-headed households.
- On average, households borrow money 2.9 times per year, with a median amount borrowed of 11,000 Birr per year. The average amount borrowed (17,077 Birr) is similar to the average amount requested by pastoralists (17,920 Birr). The average loan term is 10 months, and the average interest rate is 7.5%.

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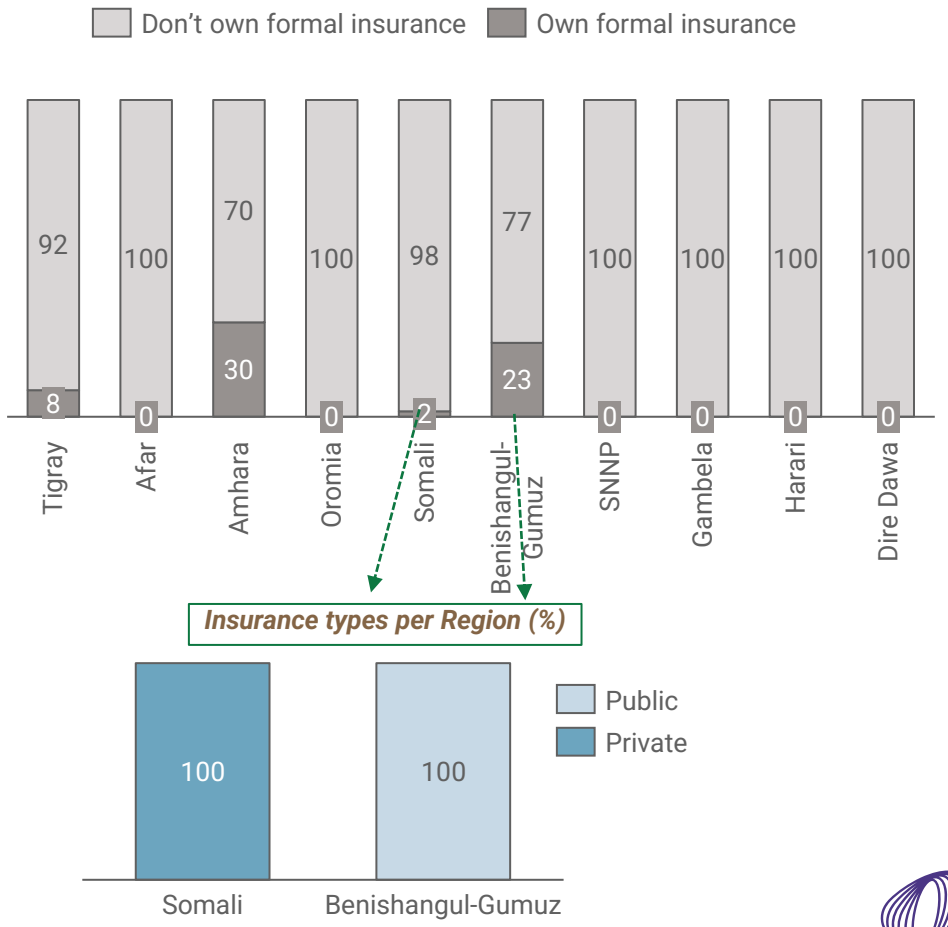
Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182

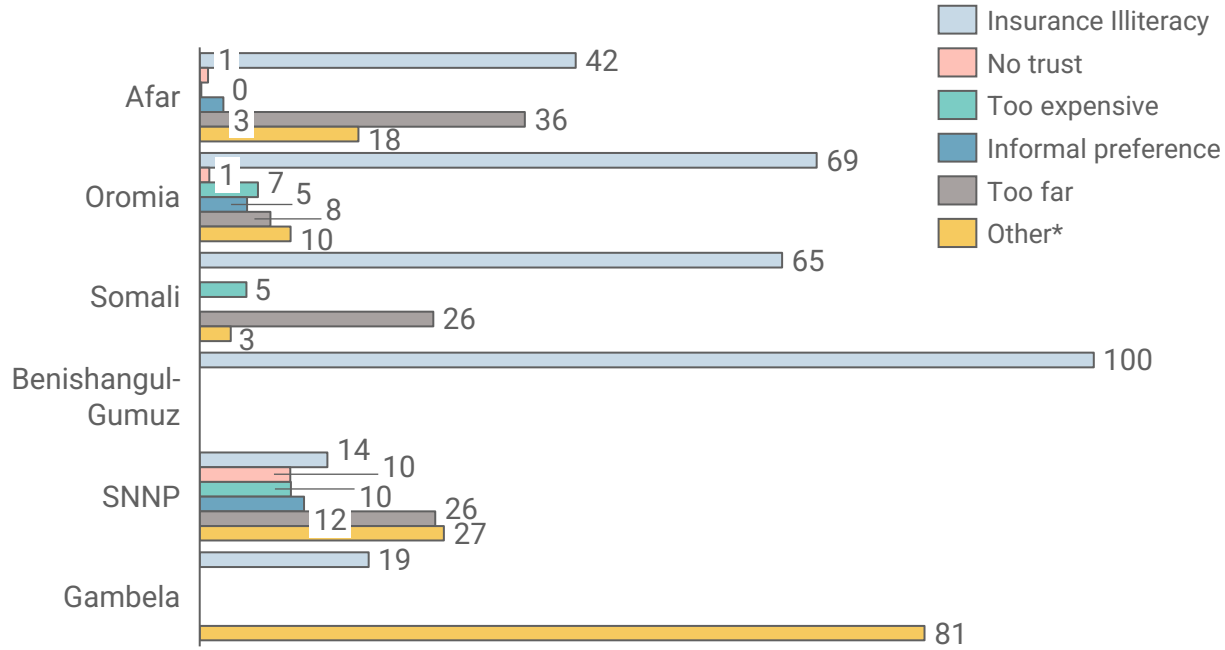
# Insurance uptake is still low across the ASAL regions, few in Somali and Benishangul-Gumuz; insurance illiteracy is a common barrier

## Owning Formal Insurance among Pastorals

% of Pastoral holders owning formal insurance




## Reasons Why Holders don't own formal insurance(%)




Insurance Illiteracy in most regions like Benishangul-Gumuz and distance barriers in SNNP, Afar and Somali are the common barriers affecting insurance access for pastorals. This is in reflection with the longest time taken in such regions to reach the nearest financial institutions, hence there is need for policy measures to be put in place.

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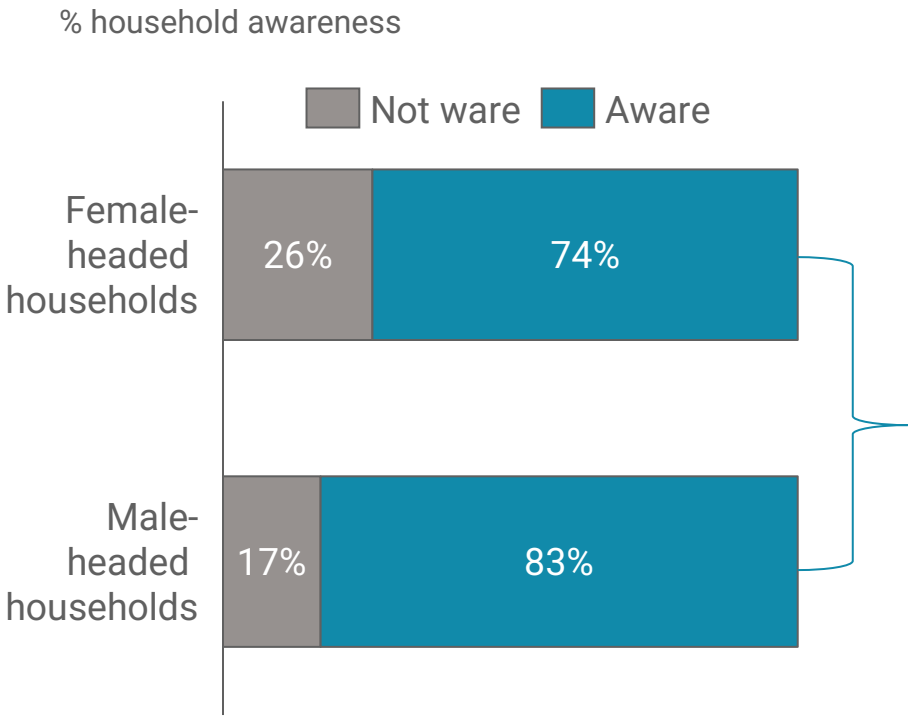
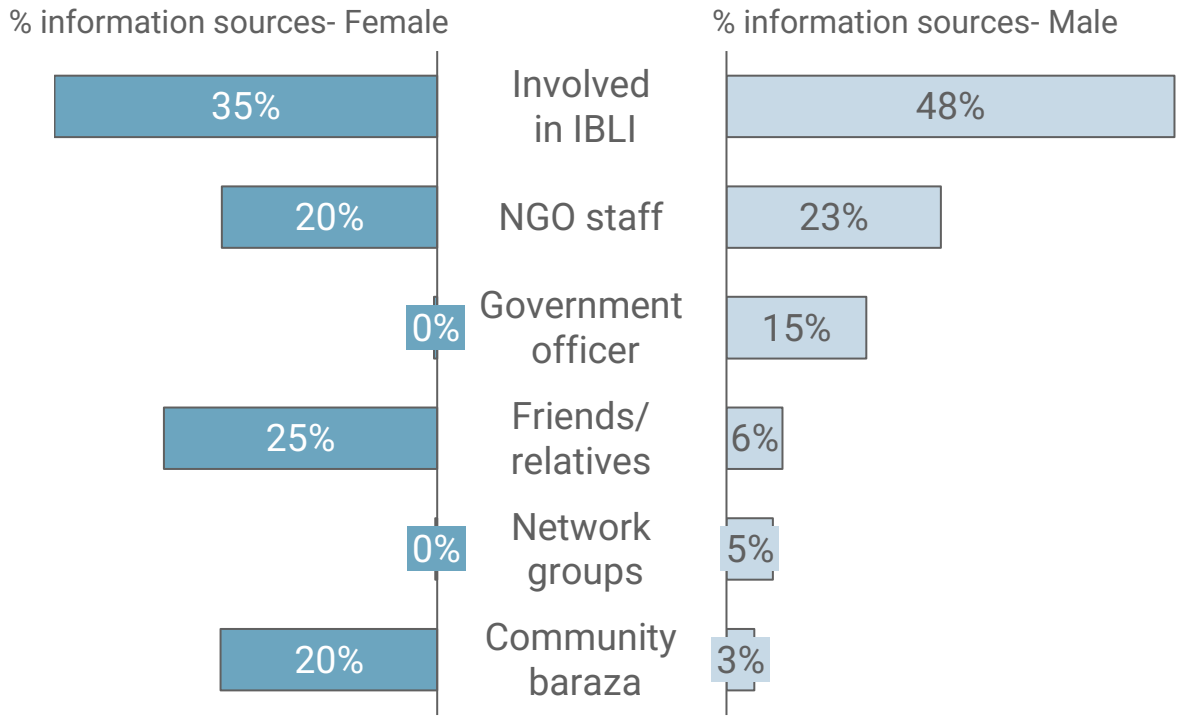
Note: *Other includes religious reasons, no reasons and other reasons not mentioned. ASAL regions were included in the evaluation.
Source; Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

# Over 75% of households are aware of livestock insurance; their sources include social learning, NGOs, and involvement in IBLI study

## Household livestock insurance awareness




## Sources of livestock insurance information by gender



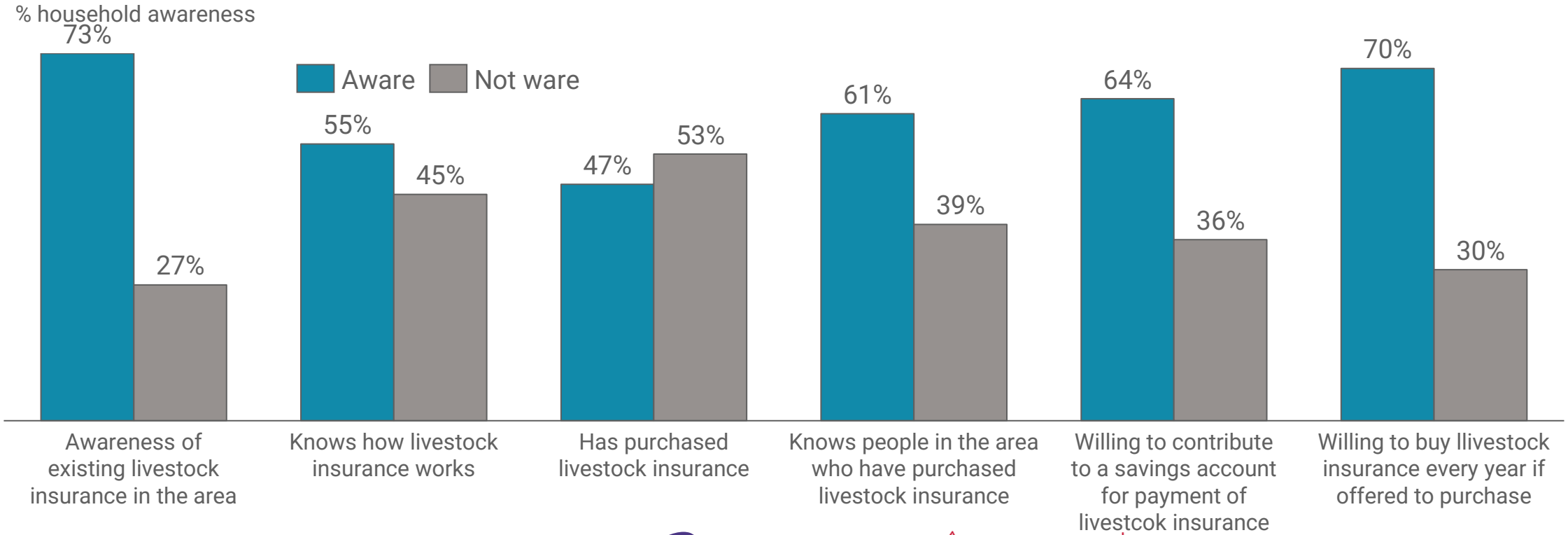

- The IBLI project is the main source of information on livestock insurance for pastoral households. Female-headed households rely on social learning from friends, relatives, and neighbors and community barazas.
- Other sources include community barazas and NGO interactions. Male-headed households also use NGO and government staff and involvement in IBLI introduction for information.

Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182
Note; The DRIVE project was based on CATI which means all respondents had a phone hence the proportions cannot be used to measure penetration

# The households have a high exposure to livestock insurance given the awareness and willingness to save for or purchase insurance

- The average amount the households are willing to pay annually for livestock insurance in Ethiopia is 277 Birr for cattle, 351 Birr for camels, and 46 Birr for shoats. About 64% of households are willing to contribute to a savings account to pay for insurance, and 70% of those willing to contribute would buy insurance every year.
- Moreover, the households also have other insurance products, i.e., 63% of households have public health insurance, while 19%, 14%, and 16% use private health insurance, funeral insurance, and motor vehicle insurance, respectively.

## Household characteristics on livestock insurance




Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182
Note; The DRIVE project was based on CATI which means all respondents had a phone hence the proportions cannot be used to measure penetration

# ACCESS TO INFORMATION SERVICES AMONG PASTORALISTS AND AGRO-PASTORALISTS

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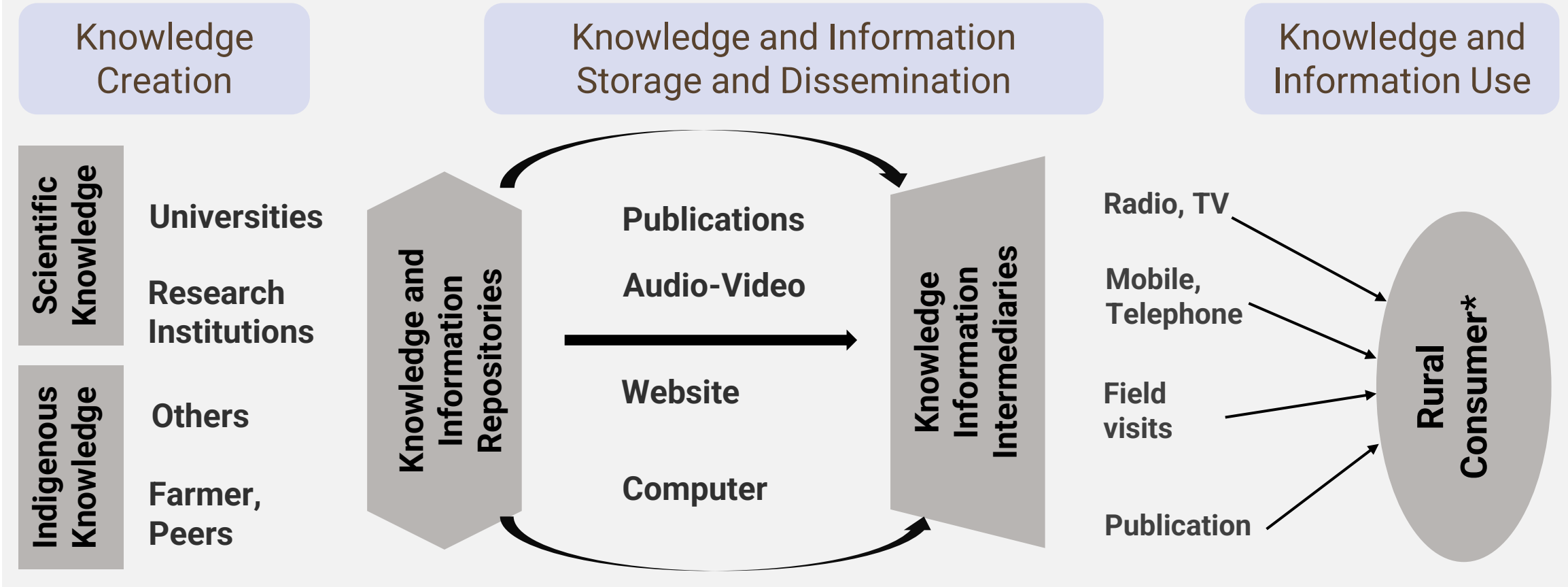
# In Ethiopia, pastoralists and agro-pastoralists have unique knowledge and information dissemination patterns related to DIS and DFS

- Education and knowledge are vital in agriculture since they enable farmers (pastoralists and agropastoralists) to acquire and use information effectively, leading to the adoption of technology and modern inputs. This knowledge can be shared with rural farmers through different channels, including traditional and modern forms of ICT, facilitating knowledge transfer and decision-making.

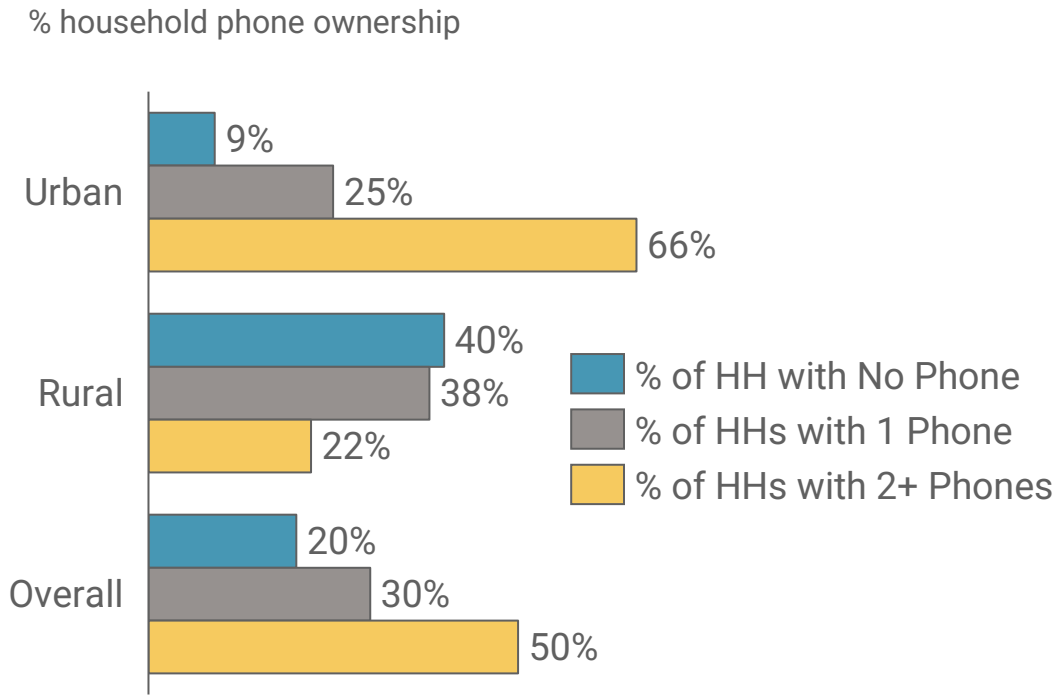



Source; Mulutega and Akalu, Review on Potential of Mobile Phone Usage in Agricultural Information Dissemination in Ethiopia, 2017
Note: Consumer* – refers to pastoralists and agropastoralists in this context

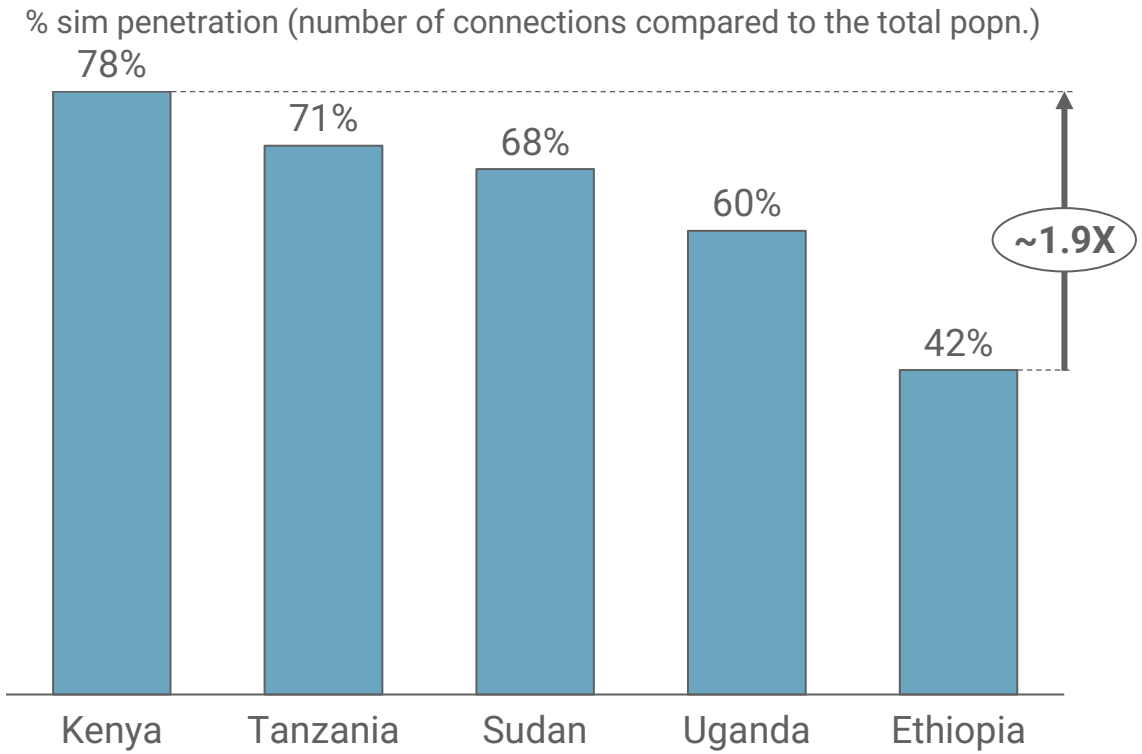
# Compared to other emerging markets, mobile phone ownership in Ethiopia is relatively low, especially in rural areas

- Ethiopia has a lower mobile phone ownership, particularly in rural areas, compared to other emerging markets. GSMA data shows that Ethiopia's mobile penetration rate is 42%, while Kenya, Sudan, Uganda, and Tanzania have higher rates. In rural areas, 40% of households report not having a mobile phone, indicating that mobile distribution is not a quick or complete solution for expanding inclusive insurance in Ethiopia.

## Household phone ownership[1]




## Comparison of mobile penetration[2]

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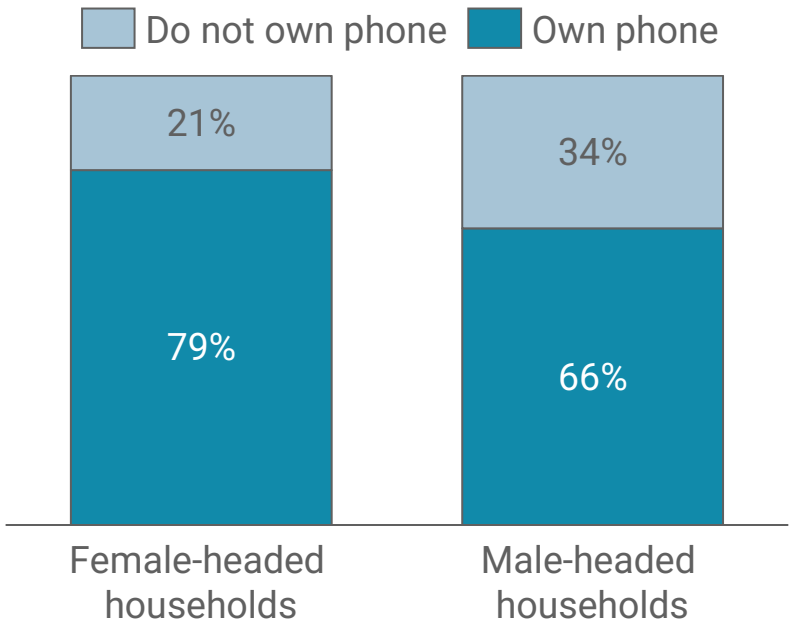
Source: [1]World Bank Group, What people want: Investigating inclusive insurance demand in Ethiopia, 2018; [2]GSMA Intelligence, Country data dashboards. https://www.gsmaintelligence.com/ Data retrieved 17 October 2017

# Pastoral households have at least one household member owning a Cellphone; less than 10% of the phones owned have mobile money

## Household phone ownership

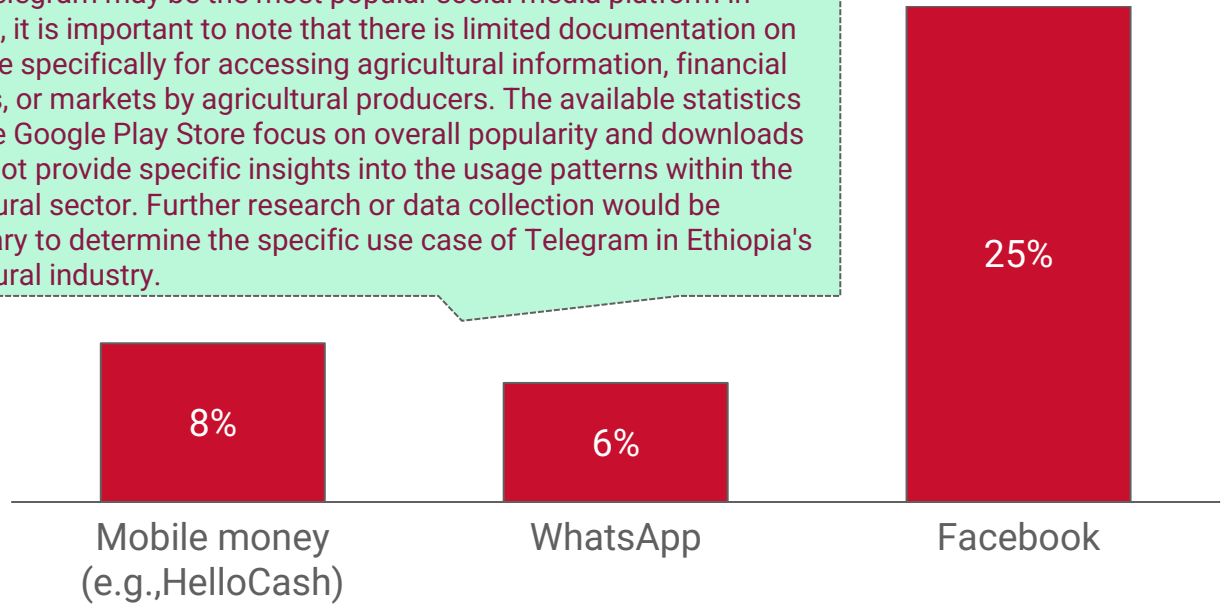
% household phone ownership




## Feature of household phones

% features of household phones

While Telegram may be the most popular social media platform in Ethiopia, it is important to note that there is limited documentation on its usage specifically for accessing agricultural information, financial services, or markets by agricultural producers. The available statistics from the Google Play Store focus on overall popularity and downloads but do not provide specific insights into the usage patterns within the agricultural sector. Further research or data collection would be necessary to determine the specific use case of Telegram in Ethiopia's agricultural industry.




- On average, phone owners in Ethiopia spend 109 Birr per week (with a median of 50 Birr), mainly on airtime (67%). A smaller portion of the expenses goes towards both airtime and internet bundles (14%) or internet only (8%). The majority (65%) of phone owners do not face connectivity issues, according to the data.
- Female-headed households have lower access to phones with WhatsApp and Facebook compared to male-headed households. Only 27% of female-headed households have phones with WhatsApp compared to 50% of male-headed households. Likewise, only 23% of female-headed households have access to Facebook, while 41% of male-headed households have access.

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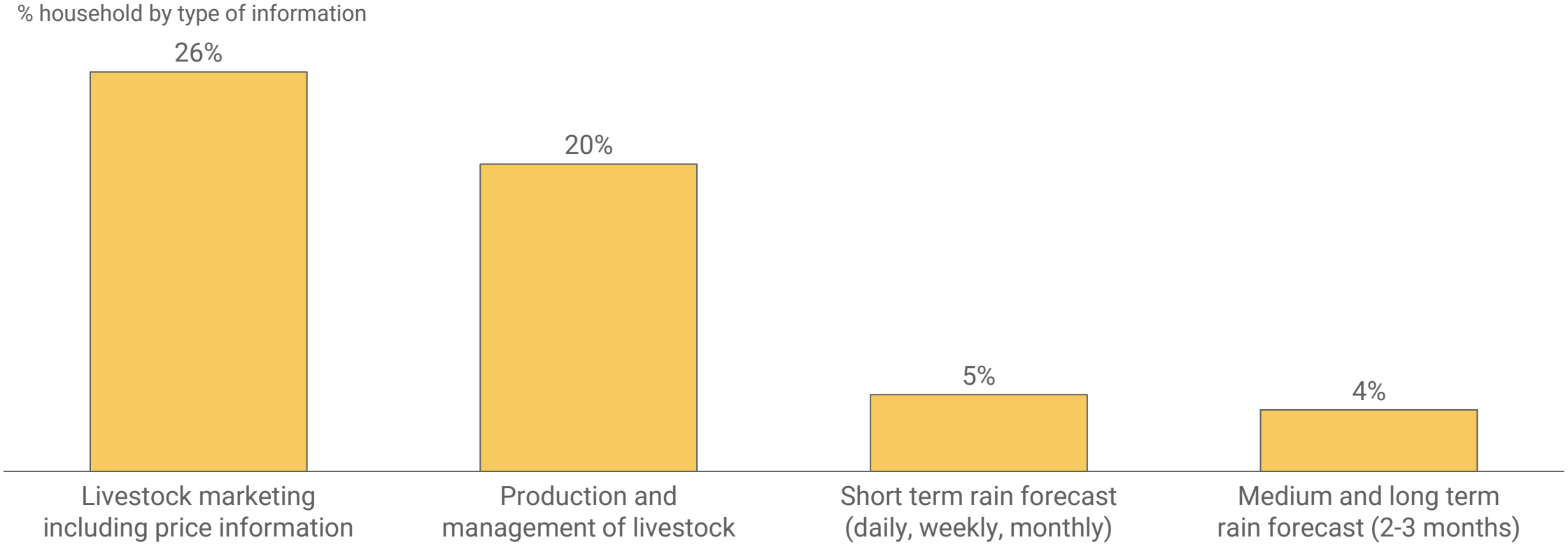
Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182
Note; The DRIVE project was based on CATI which means all respondents had a phone hence the proportions cannot be used to measure penetration

# Pastoral households rely on access to information to make informed decisions regarding market, production, and weather conditions

## Household access to information




One-fifth of the households have access to information about livestock production and management. However, access to weather-related information is low; only 5% of the households have access to short- term weather forecast, and the proportion receiving medium-term and long-term forecasts is only 4%

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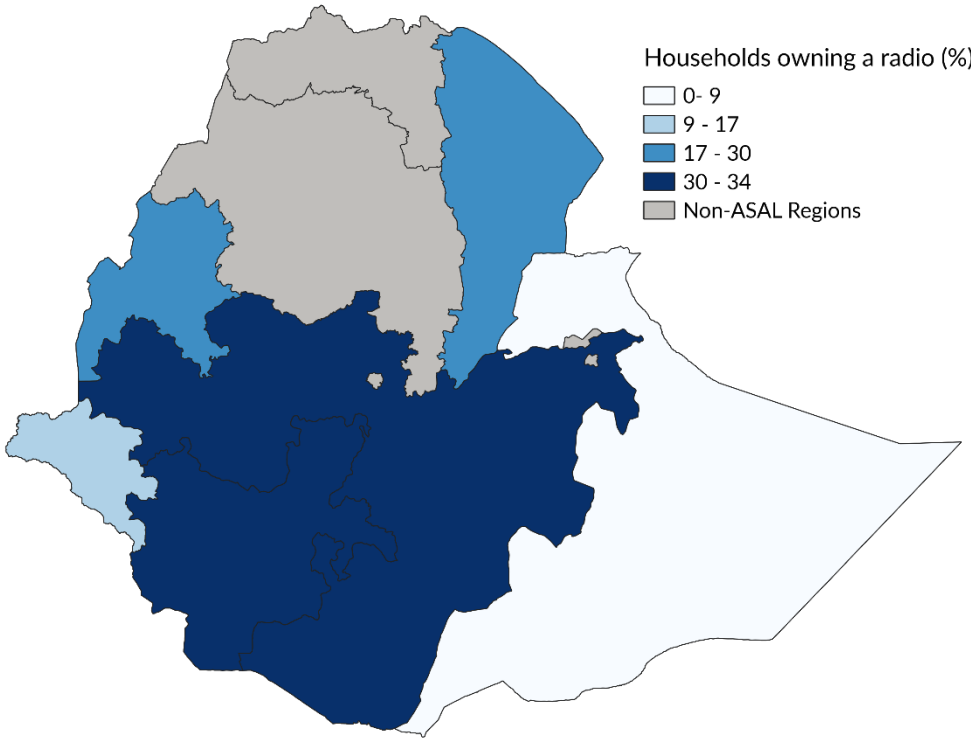
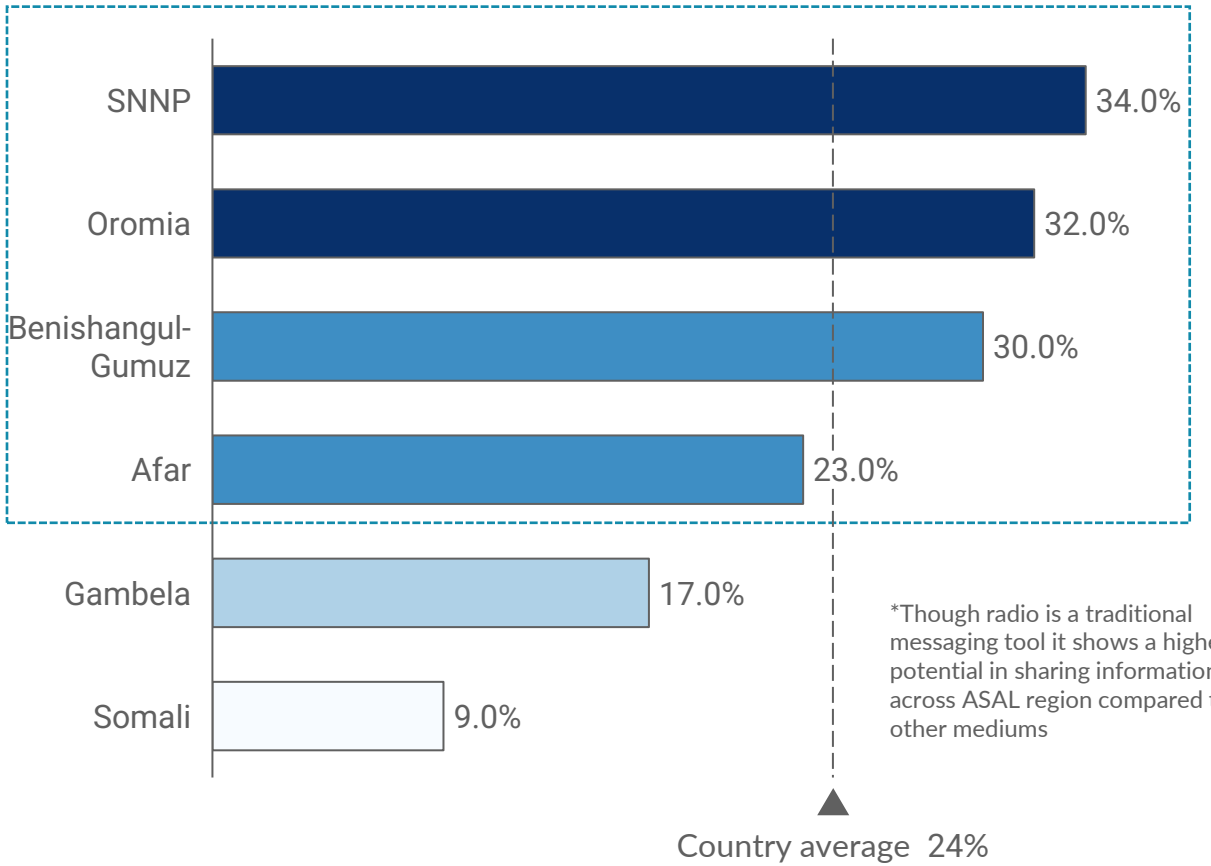
Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report; n = 182

# Radio is a preferred tool for accessing information across the ASAL compared to TV and Computer

## Percentage Distribution of Conventional Households by Ownership of Selected Household Assets

Proportion of households by ownership of a radio




*Though radio is a traditional messaging tool it shows a higher potential in sharing information across ASAL region compared to other mediums

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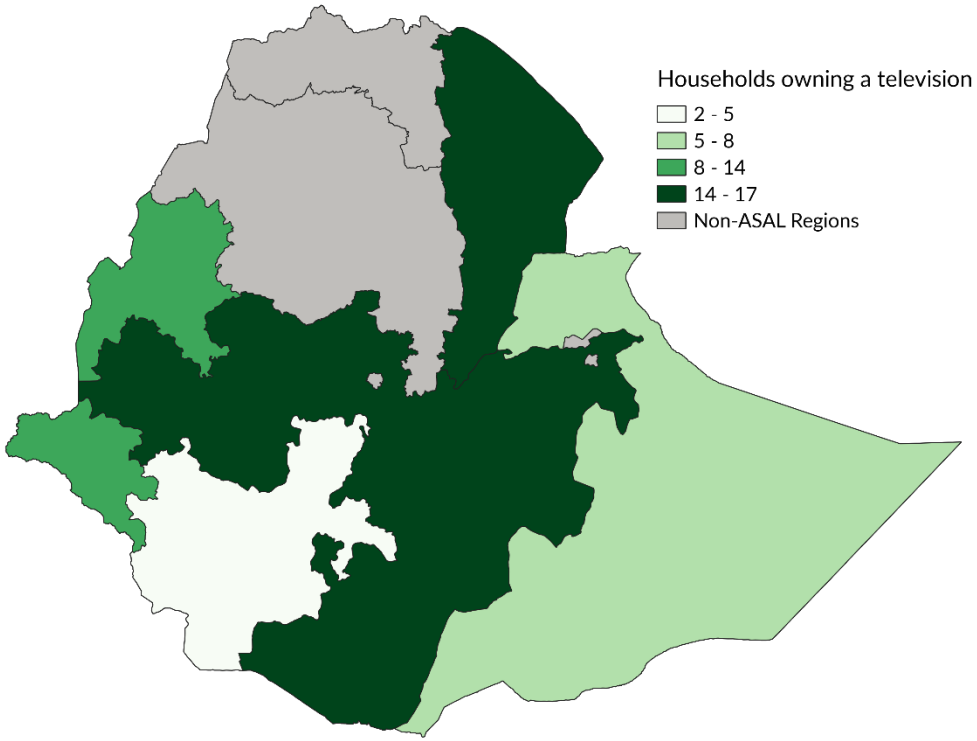
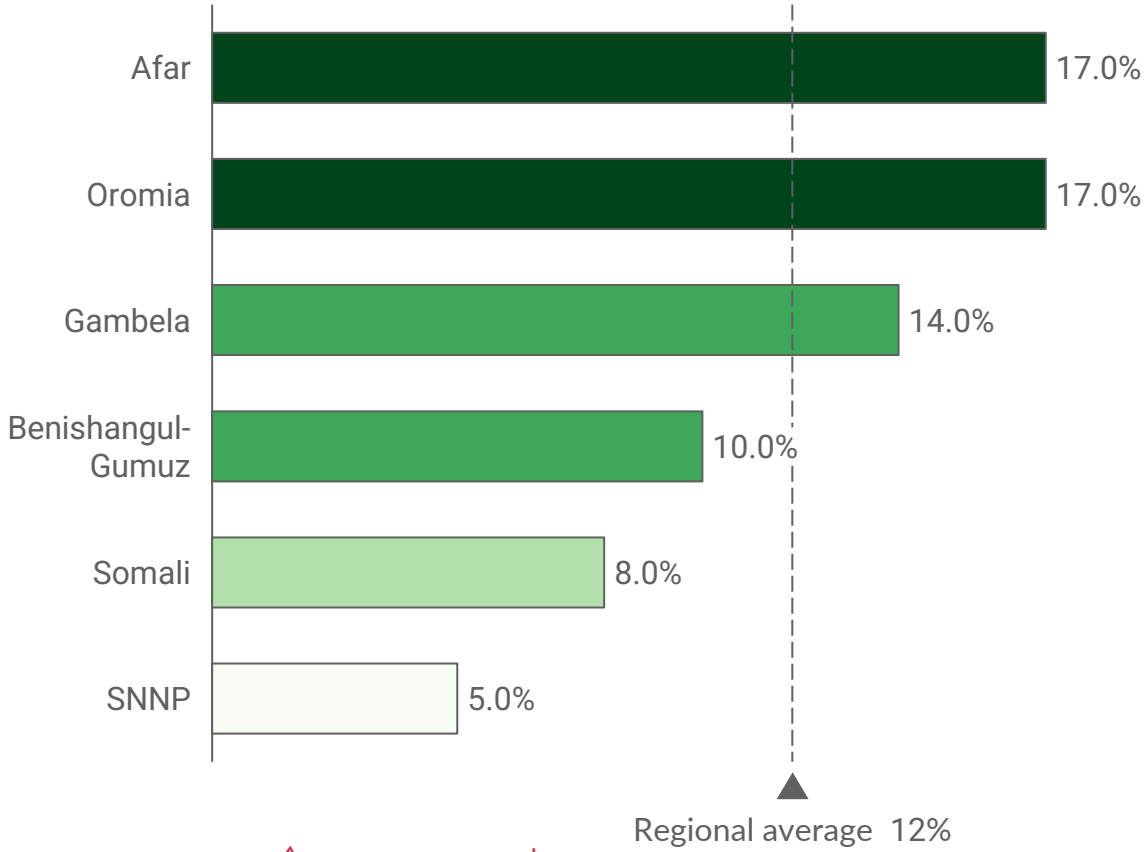
Source; DHS Ethiopia 2019 and LOCAN Analysis
Notes; 6 regions of the ASAL are reported
Reporting on SNNP, Gambela, Oromia and Benishangul-Gumuz is based on data from the whole region and not only parts that are in ASAL

# SNNP region has the least TV access although better radio access is observed within the region

## Percentage Distribution of Conventional Households by Ownership of Selected Household Assets

Proportion of households by ownership of a functional TV



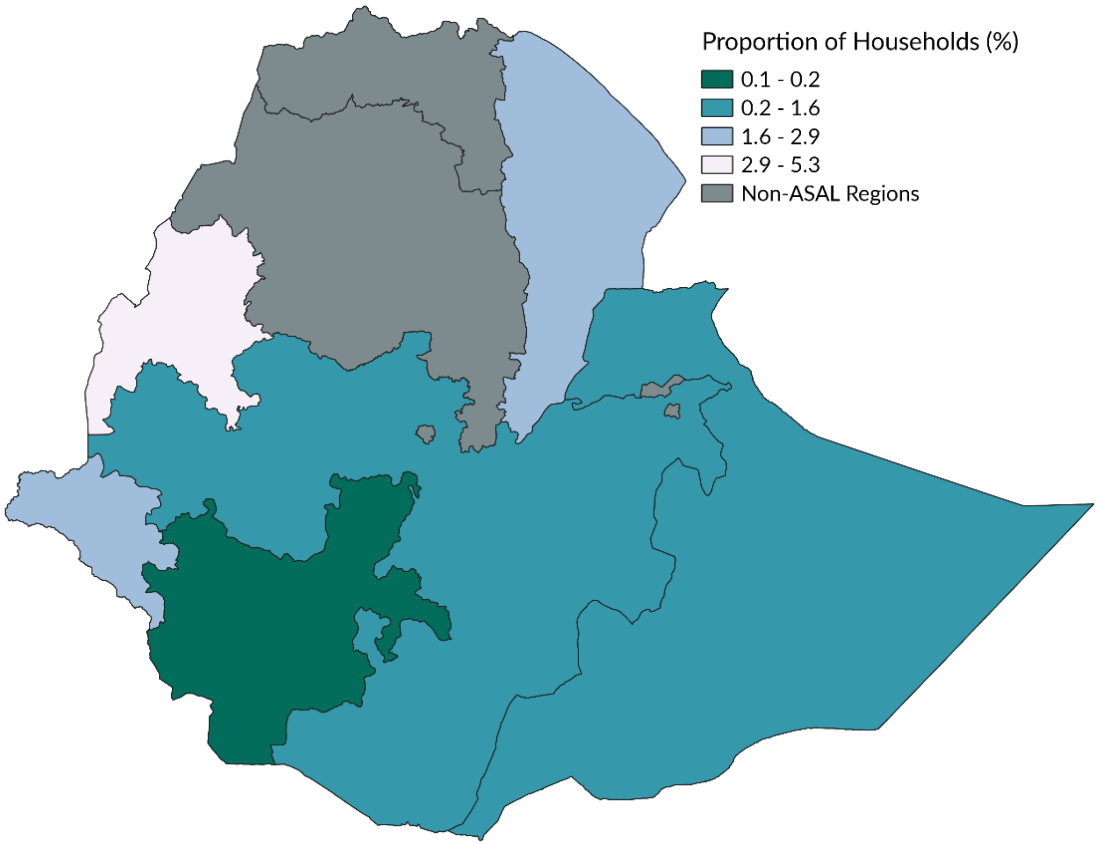




Source; DHS Ethiopia 2019 and LOCAN Analysis
Notes; 6 regions of the ASAL are reported
Reporting on SNNP, Gambela, Oromia and Benishangul-Gumuz is based on data from the whole region and not only parts that are in ASAL

# In regions where agro-pastoralism is predominant in the ASAL region, desktop computers, laptops, and tablets are relatively low.

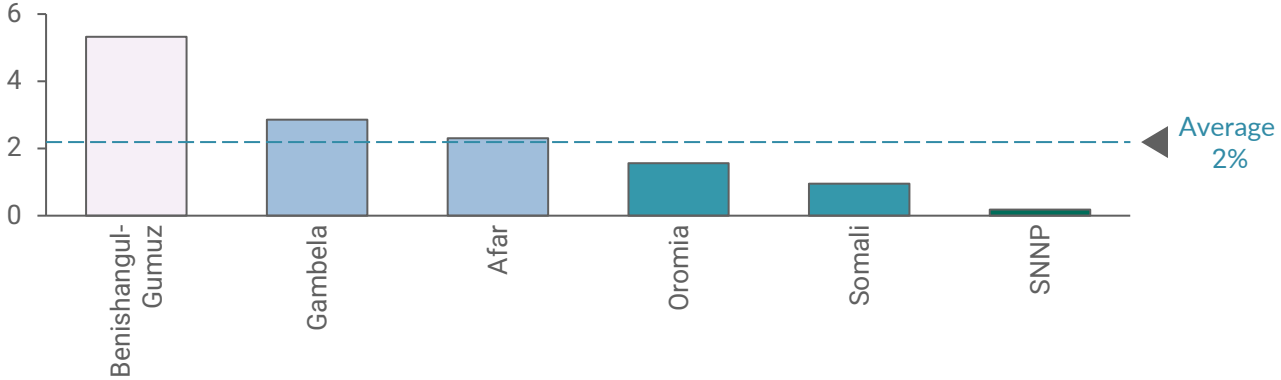
## Ownership of desktop computer/laptop/tablet

Proportion of households by use of computer/laptop/tablet



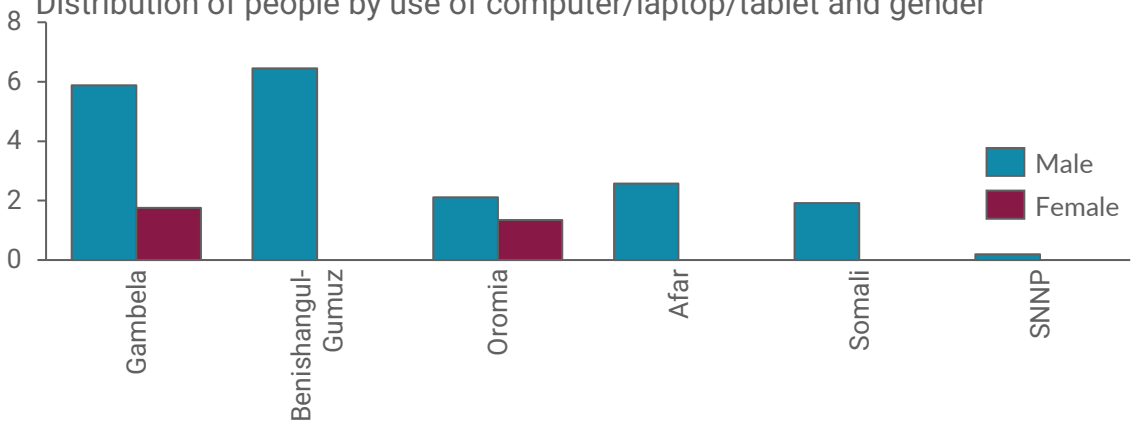

## Ownership of desktop computer/laptop/tablet

Proportion of households by use of computer/laptop/tablet




## Ownership of desktop computer/laptop/tablet

Distribution of people by use of computer/laptop/tablet and gender

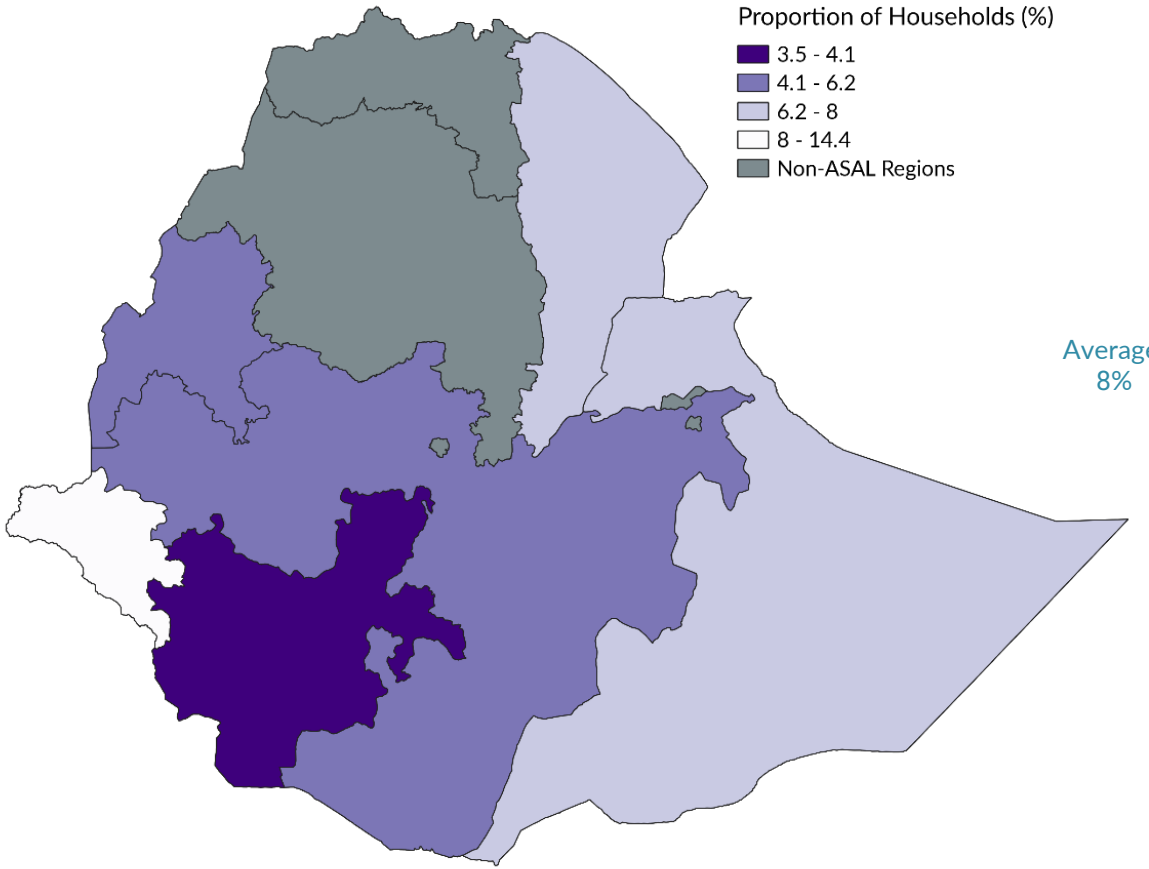



Source; DHS Ethiopia 2019 and LOCAN Analysis
Notes; 6 regions of the ASAL are reported
Reporting on SNNP, Gambela, Oromia and Benishangul-Gumuz is based on data from the whole region and not only parts that are in ASAL

# Half or more of the people in the ASAL region have limited access to internet, SNNP has least access due to its low mobile and computer access

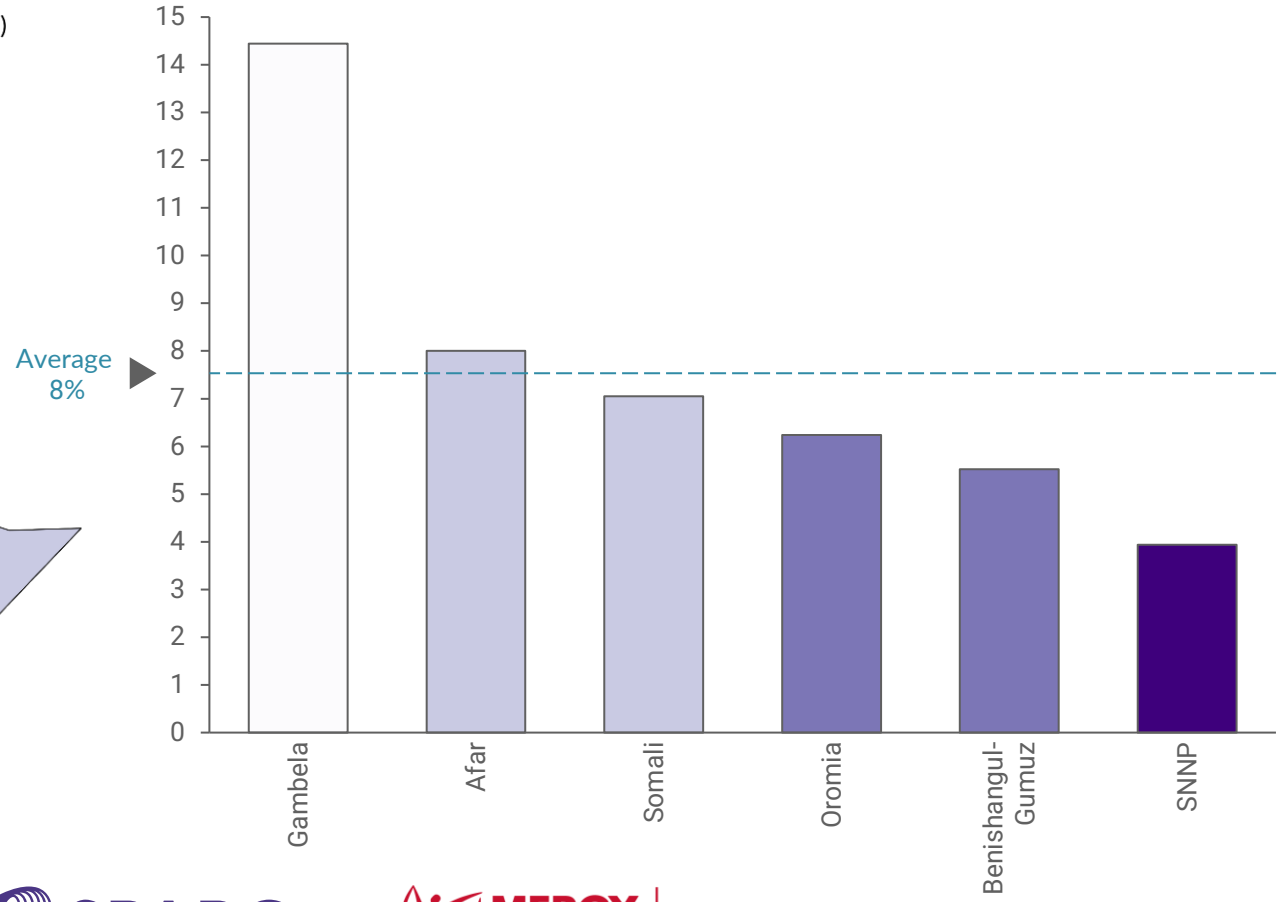
## Use of internet

Proportion of households with access to internet




## Households by use of internet across regions

Proportion of Households with access to internet

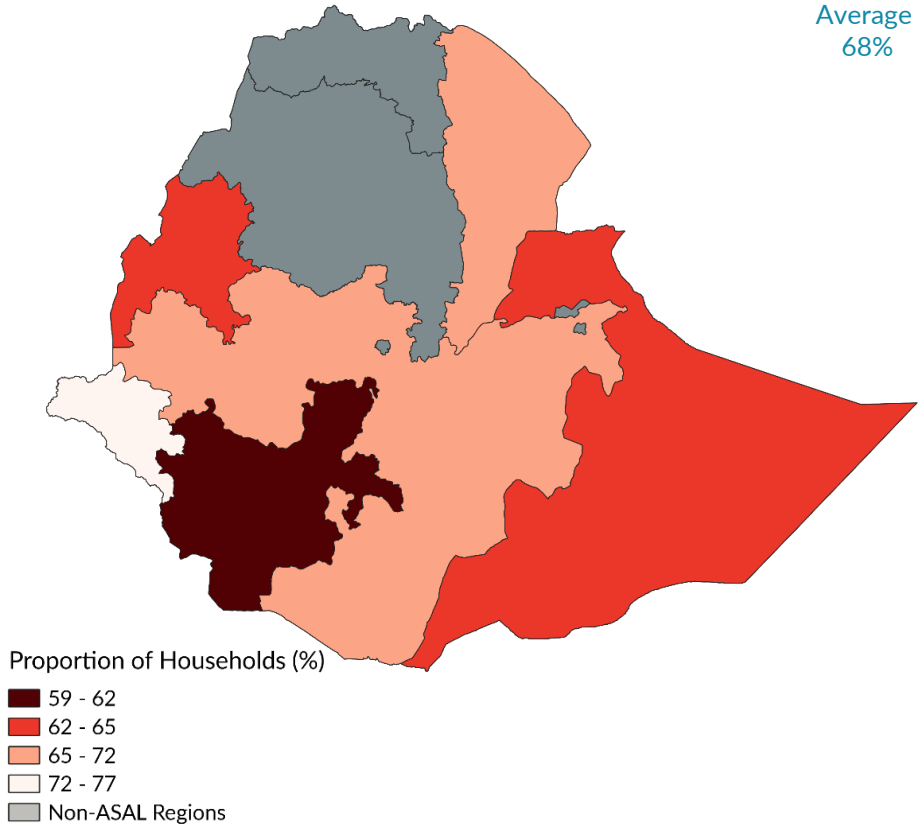



Source; DHS Ethiopia 2015 and LOCAN Analysis
Notes; 6 regions of the ASAL are reported
Reporting on SNNP, Gambela, Oromia and Benishangul-Gumuz is based on data from the whole region and not only parts that are in ASAL

# Cellphone is owned by more than half of the ASAL population, an ideal digital media; Gambela's high internet may be due to its high cell phone access

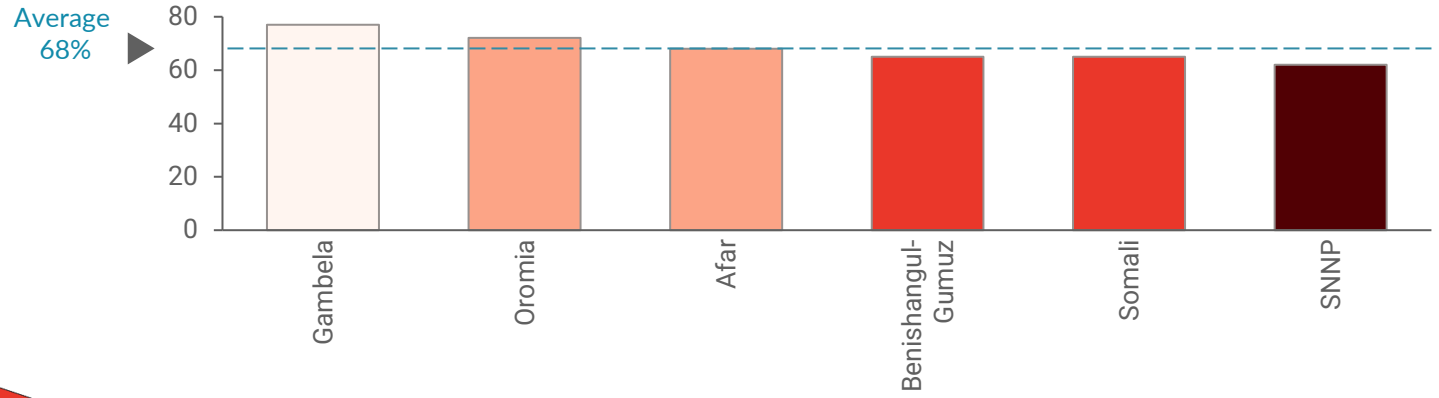
## Ownership of cell phones

Proportion of households owning cellphones

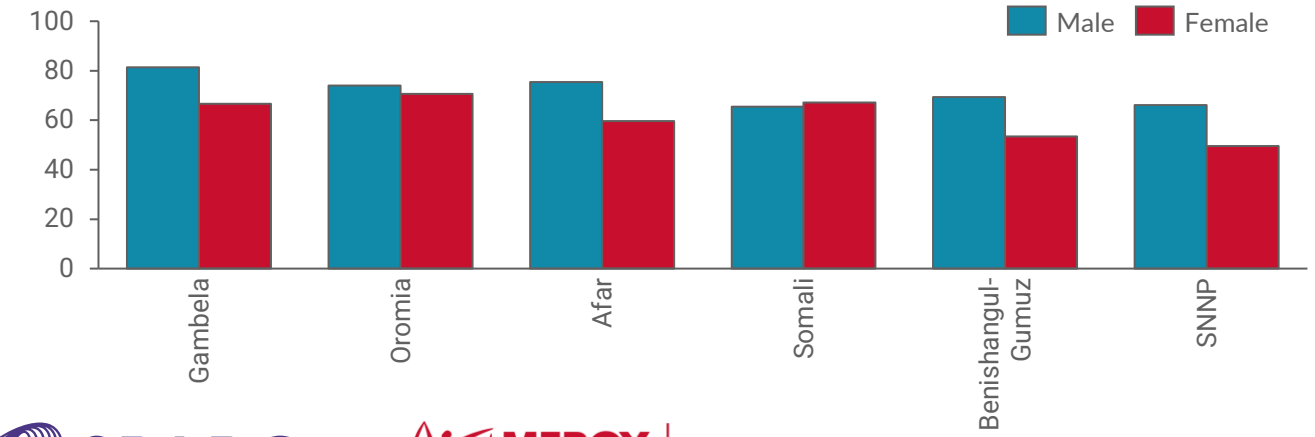



## Ownership of cell phones across regions

Proportion of population owning cell phones across regions




## Ownership of cell phones across regions by gender

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Source; DHS Ethiopia 2019 and LOCAN Analysis
Notes: 6 regions of the ASAL are reported.
The cell phone ownership is based on the analysis of households in the ASAL and reporting on SNNP, Gambela, Oromia and Benishangul-Gumuz is based on data from the whole region and not only parts that are in ASAL

# Information needs by pastoralists span from weather related to government policies; they use both digital and non-digital ways to access this information

Pastoralism system relies on opportunistic management of rangelands and herd mobility, allowing for the use of varying natural resources. Core rural services include research, education, training, financing, insurance, market promotion, and technical support.

## Information needs by pastoralists and agropastoralists

- **Weather and climate information:** This includes timely and accurate information on weather patterns, rainfall, temperature, and other climate-related data to help farmers plan their agricultural activities.
- **Livestock management:** Information on livestock health, feeding, breeding, and market prices is crucial for pastoralists and agropastoralists who rely on livestock for their livelihoods.
- **Crop management:** Farmers need information on crop varieties, planting techniques, pest control, and soil fertility management to improve their crop yields.
- **Market information:** Accurate and timely information on market prices for crops and livestock is essential for farmers to make informed decisions on when and where to sell their produce.
- **Financial information:** Farmers need information on available credit and loan facilities, interest rates, and repayment terms to make informed financial decisions
- **Policy and regulatory information**, such as changes in land tenure, trade regulations, and other legal matters affecting pastoral and agropastoral livelihoods..
- **General information on technology and innovation**, including information on new products, techniques, and services that can help pastoralists and agropastoralists increase their productivity and profitability.

## Available platforms for dissemination

- **Mobile phones:** Mobile phones are the most widely used platform for accessing information. However, due to low mobile phone ownership in rural areas, this platform may not be accessible to all.
- **Radio:** Radio is a popular source of information in rural areas, and it has the potential to reach a large number of people. However, it is limited by the availability of electricity and radio coverage
- **Television:** Television is not widely used due to the high cost of equipment and limited access to electricity.
- **Print media:** Print media such as newspapers and magazines are not widely used by pastoralists and agropastoralists due to low literacy levels.
- **Community meetings:** Community meetings are a good platform for disseminating information, but they are limited by the availability of resources and the capacity of local organizations
- **Extension workers** provide training to farmers and pastoralists on various topics, but their impact is limited by factors such as inadequate resources, training, and numbers

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Source: Daniel Temesgen Gelan, Inputs and services delivery constraints in pastoralist and agro-pastoralist systems of Ethiopia, 2018
Notes: Qualitative study done in Somali, Afar, Oromia, and SNNPR regions of Ethiopia. **Farmers – pastoralists and agropastoralists

# FACTORS HINDERING THE USAGE AND ACCESS OF DIS/DFS AMONG PASTORALISTS AND AGRO-PASTORALISTS

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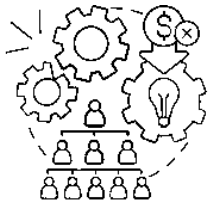
# Pastoral households face various factors that hinder the adoption and utilization of DIS/DFS; these include infrastructural and capacity

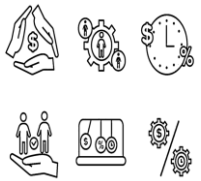
**Low digital literacy levels and technical skills:** Many pastoralists and agro-pastoralists lack basic digital literacy and technical skills, which hinder their ability to use and fully utilize digital financial services.



**Limited access to digital infrastructure:** Many agro-pastoralists and pastoralists in Ethiopia live in remote areas with poor mobile phone network coverage and limited access to the internet. This limits their ability to access DIS/DFS services, which are mostly delivered through mobile phones and the internet

**Limited trust in financial institutions**: Many agro-pastoralists and pastoralists in Ethiopia have limited trust in formal financial institutions, which may discourage them from using DIS/DFS services offered by these institutions.

**Limited interoperability between different DIS/DFS platforms:** The lack of interoperability between different DIS/DFS platforms limits the ability of agro-pastoralists and pastoralists to use different services offered by different providers. This can be a significant barrier to the adoption of DIS/DFS services.



**Limited availability of DIS/DFS services:** The availability of DIS/DFS services is limited in many areas in Ethiopia, especially in rural areas. This makes it difficult for agro-pastoralists and pastoralists to access these services when they need them.

**High costs of digital financial services:** The costs associated with digital financial services, including transaction fees and the cost of digital devices, can be a barrier for pastoralists and agro-pastoralists with limited financial resources.

**Limited awareness and knowledge of DIS/DFS services:** Many agro-pastoralists and pastoralists in Ethiopia are not aware of the existence of DIS/DFS services or do not understand their benefits. This lack of awareness and knowledge limits their uptake of these services.

**Low literacy levels:** Many agro-pastoralists and pastoralists in Ethiopia have low literacy levels, which make it difficult for them to understand and use DIS/DFS services. This is particularly true for those who do not speak the dominant language in the country.

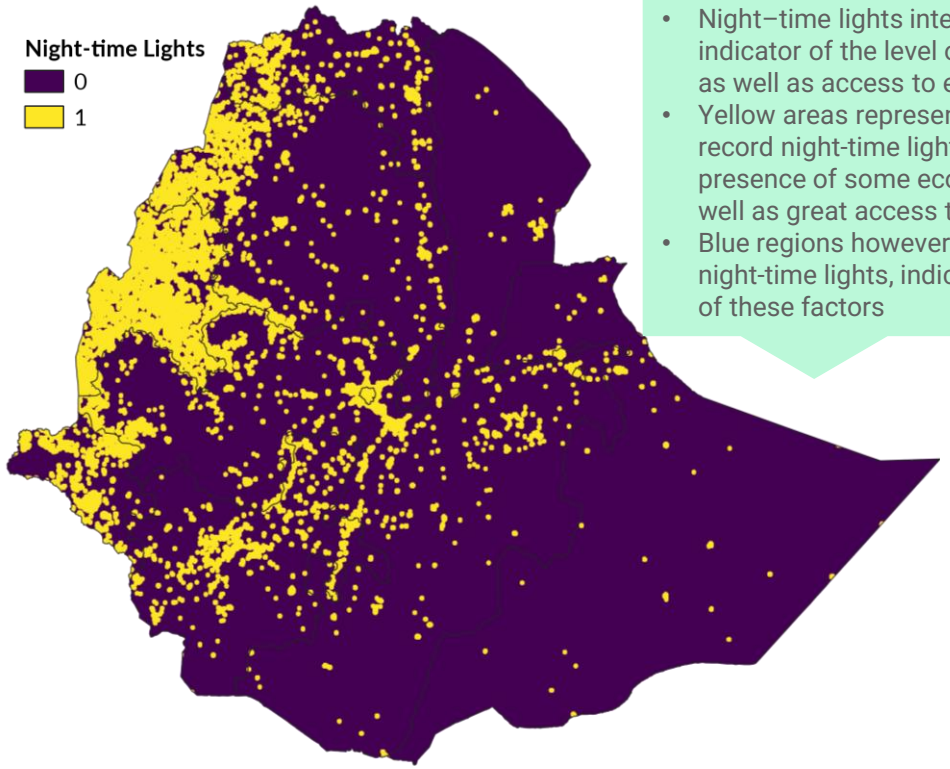
Source; Center for Global Development (GDC), Identifying Binding Constraints on Digital Payment Services in Ethiopia: An Application of a Decision Tree Framework, 2021; International Food Policy Research Institute (IFPRI), Annual Report, 2019; United Nations Capital Development Fund (UNCDF), Regulating the Use of Digital Financial Service Agents in Developing Countries,2015; Parlasca, A vital technology: Review of the literature on mobile phone use among pastoralists, 2021.

# Parts of eastern Ethiopia lack electricity access with most regions falling below the national average this contributes to low adoption rates of DFS/DIS



## Access to Electricity (Night-time Lights)

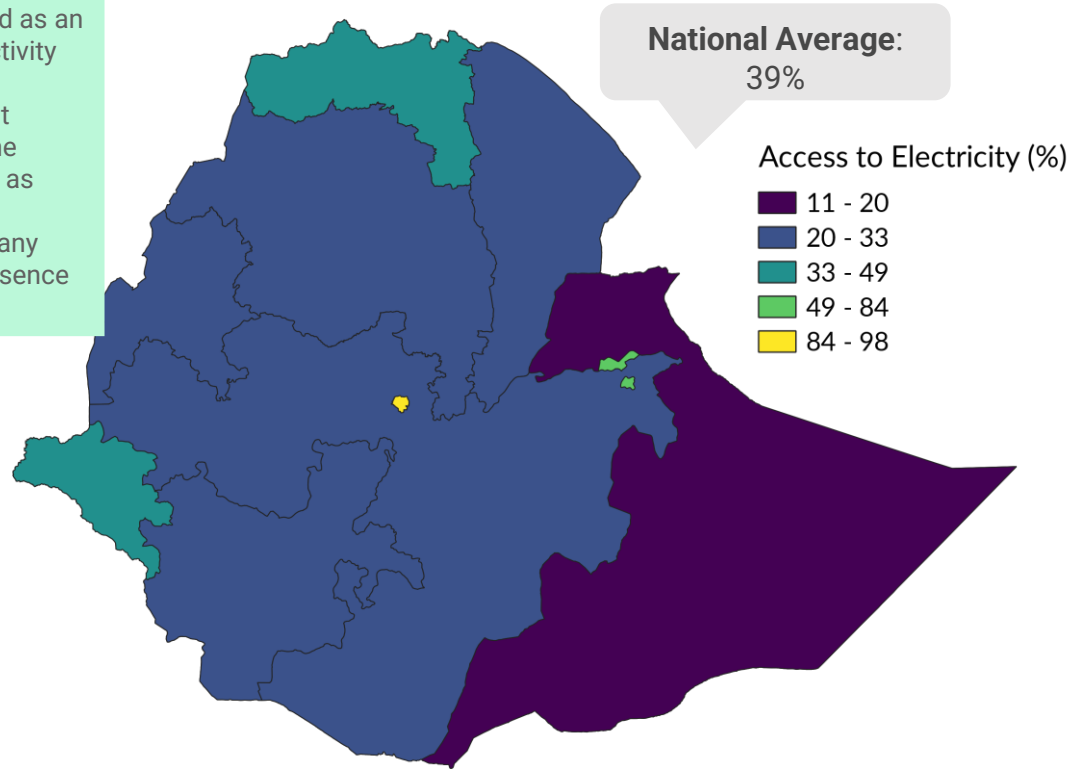
Proportion of population with access to electricity




- Night–time lights intensities are used as an indicator of the level of economic activity as well as access to electricity.
- Yellow areas represent locations that record night-time lights, indicating the presence of some economic activity as well as great access to electricity.
- Blue regions however do not record any night-time lights, indicative of the absence of these factors

## Access to Electricity

Proportion of households with access to electricity




Solar and wind energy (20GWh and 848GWh respectively) contributes to 6% of the national power production in Ethiopia[1]. Given that solar and wind have a higher potential to increase off-grid power coverage, especially in south-eastern Ethiopia's arid and remote Somali region, there is potential in advancing digital information sharing in regions where solar interventions are being championed.

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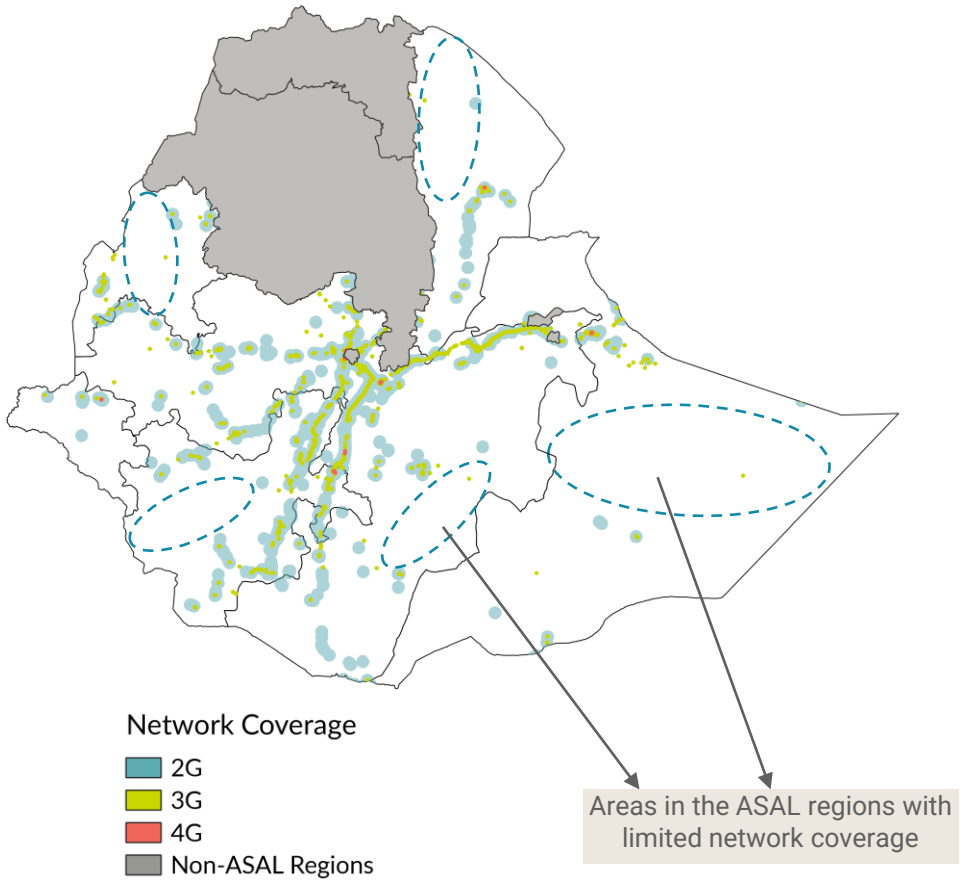
Source: Demographic and Health Survey, 2019 and National Atmospheric and Space Administration, 2021; [1]UNSD — Energy Statistics, 2020; Solar cooperatives give refugees and locals in Ethiopia clean energy and livelihoods | UNHCR

# The limited network coverage in most parts of the ASAL regions like Somali & SNNP limits pastoralists from accessing digital information

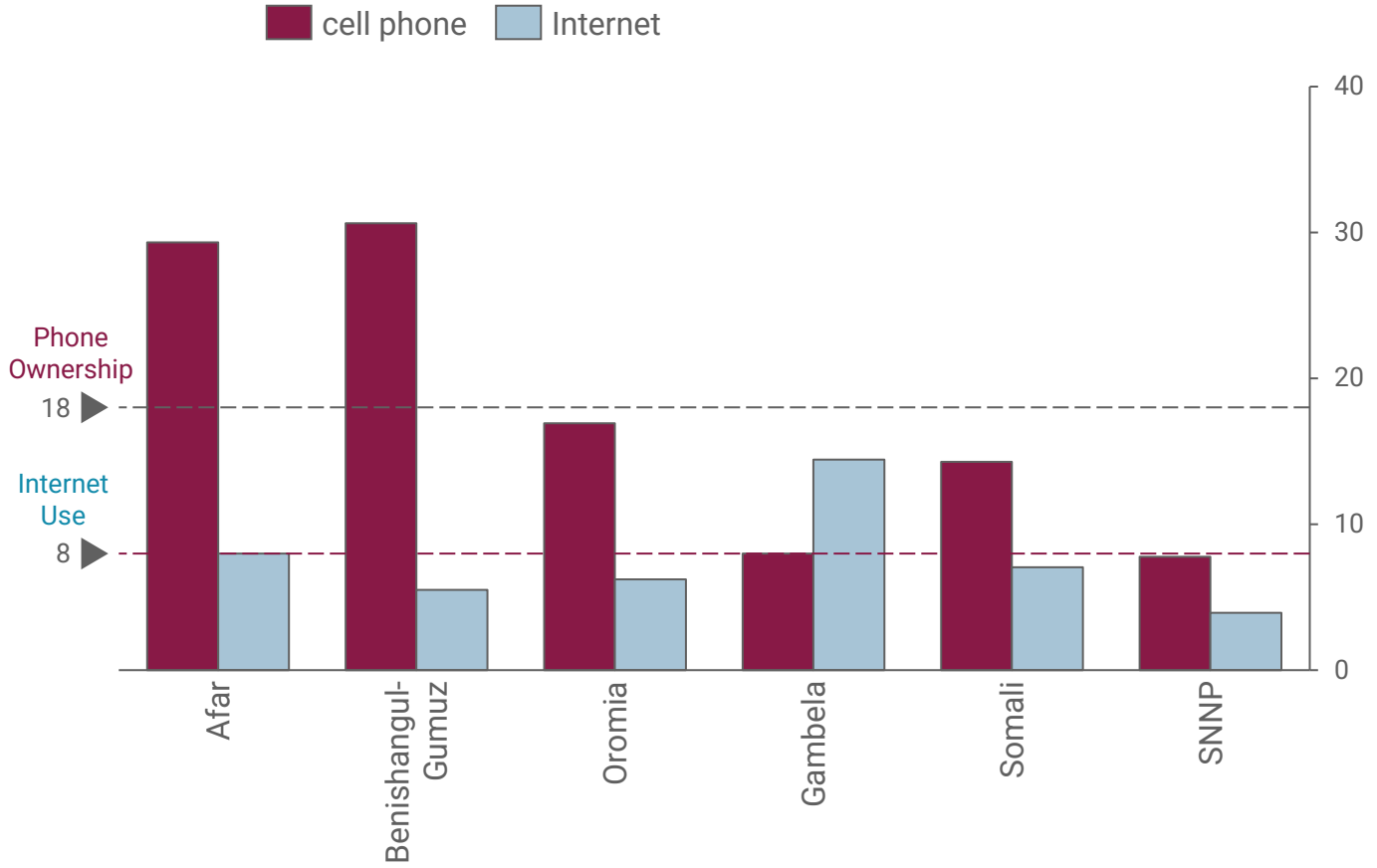
## Network coverage

Coverage by type network




## Digital penetration in Pastoralist households

Proportion of internet use and mobile ownership among livestock keeping households




Source: GSMA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019, DHS 2015 and Locan Analysis

# Presence of formal financiers in pastoral areas does not translate to their utilization; uptake of informal financial services still score high

Case study

Somali region – Jijiga area

Afar region –Semera area

Addis Ababa

## Types of financial products offered to pastoralists

Supply side

Banks, MFIs, informal banking, and mobile banking are all found in the pastoralists' areas in Ethiopia

There were no stock market, treasury or debt instruments, wealth management, credit and debit cards financial products, and ATMs financial products in the pastoralist regions in Ethiopia

Insurance firms were present within the pastoralist areas, but few of the pastoralists were aware about the insurance services.

Presence of tailored finance products like Sharia compliant products is wanted in pastoral regions especially Muslim dominated regions

## Gaps in types of financial products

Demand side

Banking and mobile banking financial products such as Hello Cash were utilized by the traders and to a small extent by the herders. The favoured type of financial product was informal banking which is done through Rotating Savings and Credit Associations (ROSCAS), Accumulating Savings and Credit Associations (ASCAS), and Chama

Developments in mobile-phone services, which is now used for cash transfers, has enabled pastoralists to receive money from relatives or contacts in the cities.

There are financial product gaps in form of insurance, stock market, treasury and wealth management

In addition to commercial banks, there are several other institutions providing financial support to pastoralists in Ethiopia, including microfinance institutions (MFIs), savings and credit cooperatives (SACCOs), non-governmental organizations (NGOs), rural finance institutions (RFIs), and agricultural cooperatives. These institutions play a crucial role in providing financial services to pastoralists, particularly in remote and underserved areas where formal financial institutions may not have a presence. They also provide customized financial products and services that are tailored to the specific needs of pastoralists.

SPARC MERCY CORPS AGRIFIN Dalberg Research

Source: IGAD Centre for Pastoral Areas and Livestock Development (ICPALD), Stock-Taking and Gap Analysis Study of Financial Products for Pastoral Areas and Linking Pastoralists to Financial Service Providers,2016 –Regional Pastoral Livelihoods Resilience Project (RPLRP)-Qualitative analysis; US$ 85 million IFAD loan to scale up pastoral community development in Ethiopia

# Challenges that hinder pastoralists from getting financial support range from poor infrastructure to socio-cultural practices and believes

Case study

Somali region – Jijiga area

Afar region –Semera area

Addis Ababa

## Challenges that hinder pastoralists from getting financial support in Ethiopia

### Supply side

- Poor infrastructure, insecurity and network problems; This makes it difficult for financial institutions to access pastoralists with the needed services
- Loan defaulting by pastoralists; impacts of drought lead to mass deaths of livestock rendering pastoralists to be unable repay their loans.
- Knowledge gap- Cultural practices and low literacy levels among pastoral community making finance products penetration hard. Most of the products are also not Sharia compliant whereas there is need to tailor to such services. This hampers sufficient service delivery to agro-pastoralist and pastoralists communities
- Financial institutions do not get government incentives that can enable them to provide pastoralists with better terms
- Unreliable information makes it difficult for financial institutions to determine the pastoralists that can get credit

### Demand side

- Collateral: Pastoralist communities have limited securities. Communal ownership of land by the pastoralists makes it difficult for them secure loans from financial institutions due to lack of collateral. Cattle are not registered as movable property (Chattels) that can be used to secure credit.
- Lack of trust by pastoralists to financial institutions as they fear being exploited
- Financial illiteracy among most pastoralists prevents them from keeping simple financial records that can help them make better financial decisions
- Pastoralists lack appropriate knowledge to enable them increase their produce as well as lack market information on when to sell; this leads to low profit margins that cannot comfortably repay their loans
- Cultural practices: Most pastoralists have a cultural attachment to their livestock; they do not want to dispose them in order to repay loans given to them; Most pastoralists keep livestock for prestige as opposed to commercializing.
- Pastoralists prefer informal financial service providers

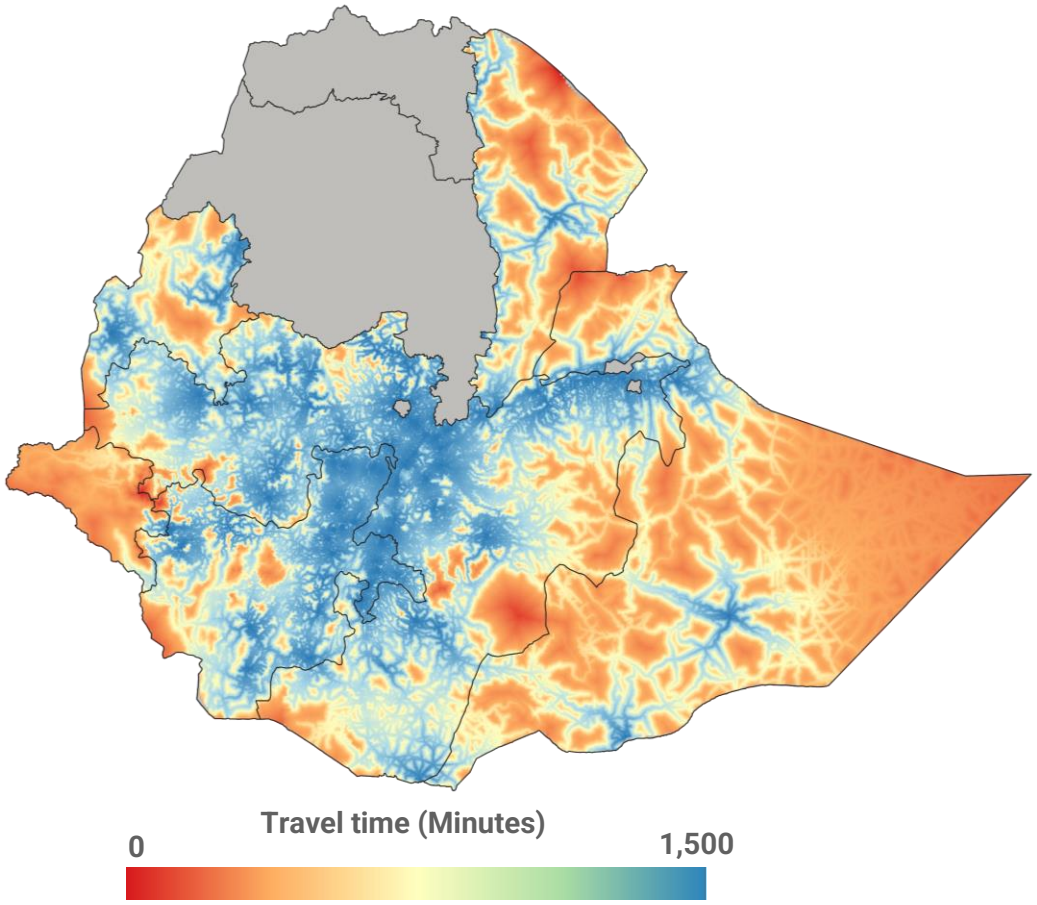
SPARC MERCY CORPS AGRIFIN Dalberg Research

Source: IGAD Centre for Pastoral Areas and Livestock Development (ICPALD), Stock-Taking and Gap Analysis Study of Financial Products for Pastoral Areas and Linking Pastoralists to Financial Service Providers,2016 –Regional Pastoral Livelihoods Resilience Project (RPLRP)-Qualitative analysis

# Poor infrastructure across the ASAL region leads to longer travel time to financial institutions hindering pastoralists from enjoying financial benefits

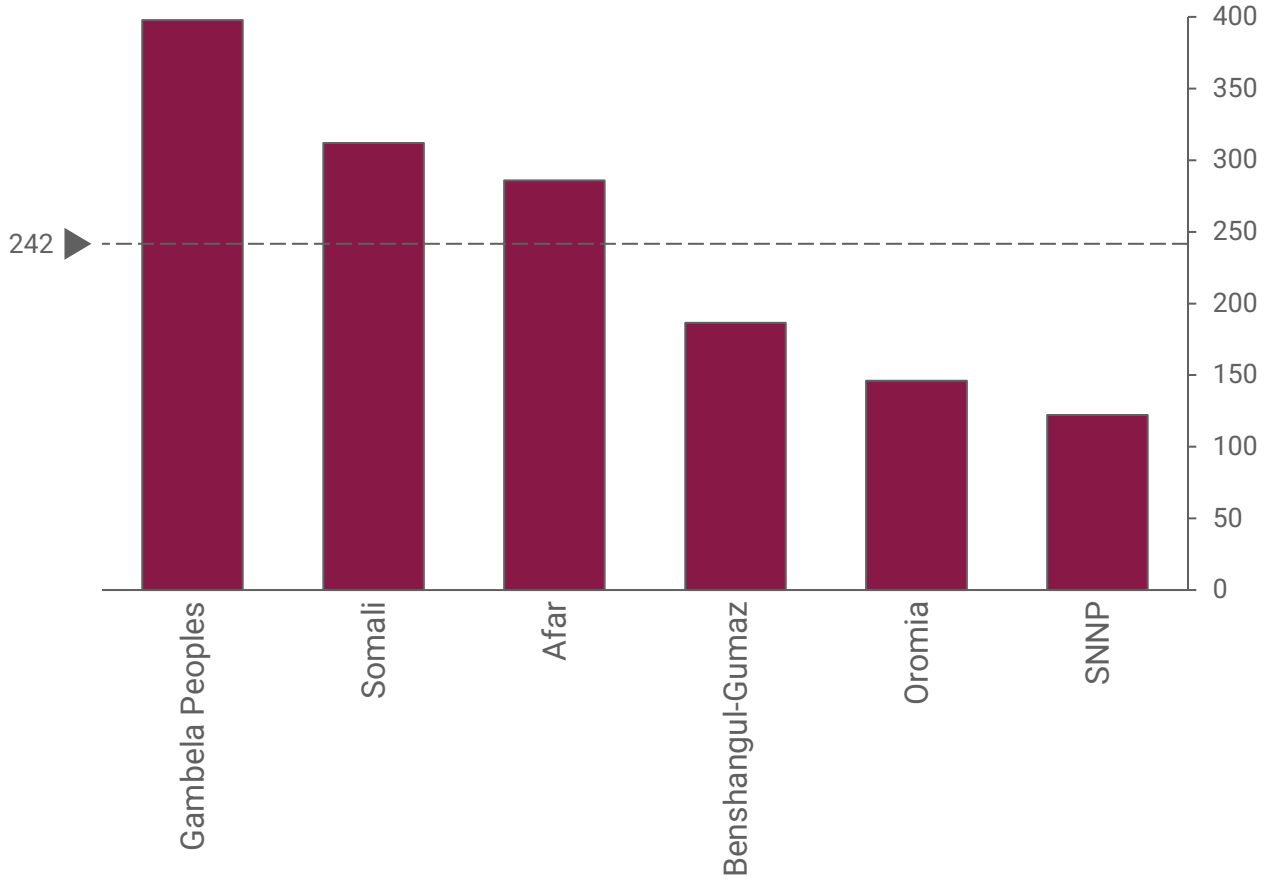
## Travel time to financial institutions

Time in minutes




## Average travel time to financial institutions in regions rearing livestock

Average travel time in minutes

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Source: Open Street Map, Malaria Atlas Project and LOCAN Analysis

# OPPORTUNITIES OF INCREASING PASTORALISTS AND AGRO-PASTORALISTS INCOME THROUGH DIGITAL FINANCIAL AND INFORMATION SERVICES

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Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises

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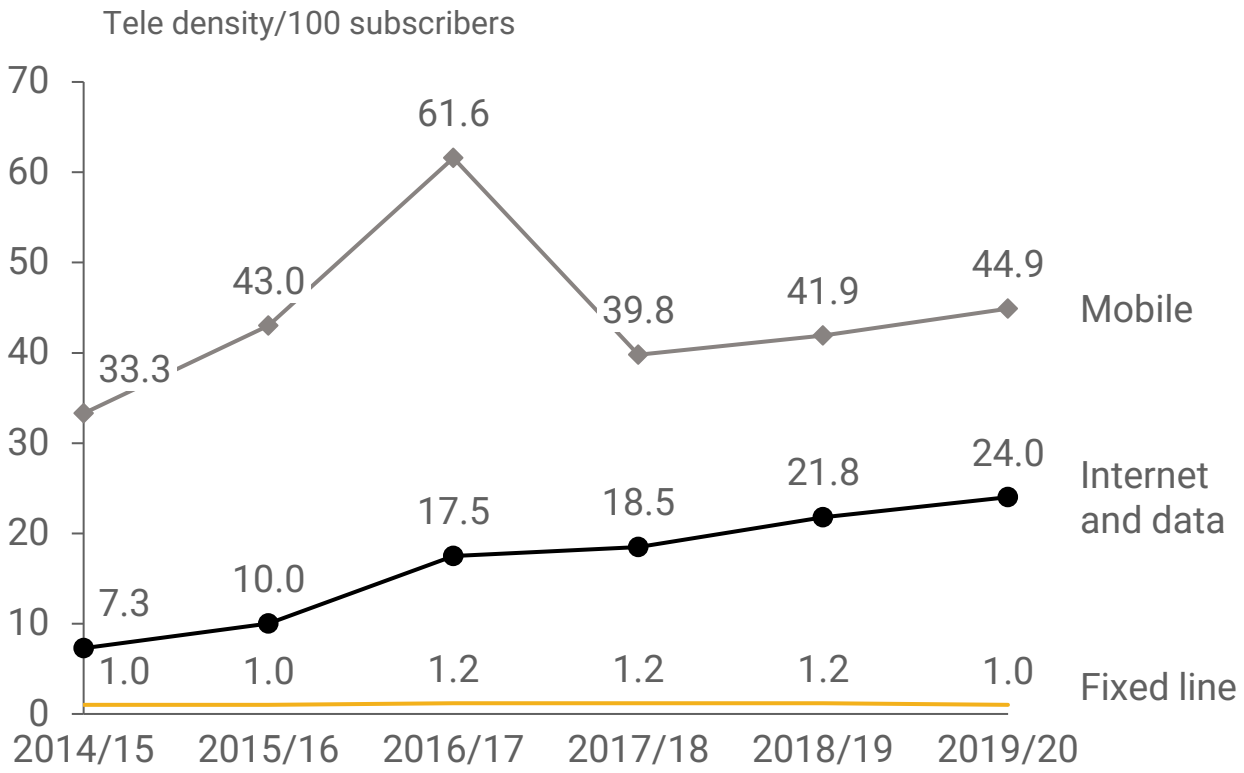
Dalberg Research

# Increasing telecom density in Ethiopia can be used by pastoral households to access digital information services (DIS) for agricultural practices

- Developing digital skills is crucial for individuals to thrive in the modern economy. In Ethiopia, digital literacy among pastoralists and agropastoralists is currently low. The country ranks 112 out of 138 economies in terms of digital skills, which could be problematic given that over two-thirds of the population is under the age of 29. Utilizing this young workforce in agriculture with the help of digital technologies could greatly benefit the national economy.

## Telecom density Ethiopia



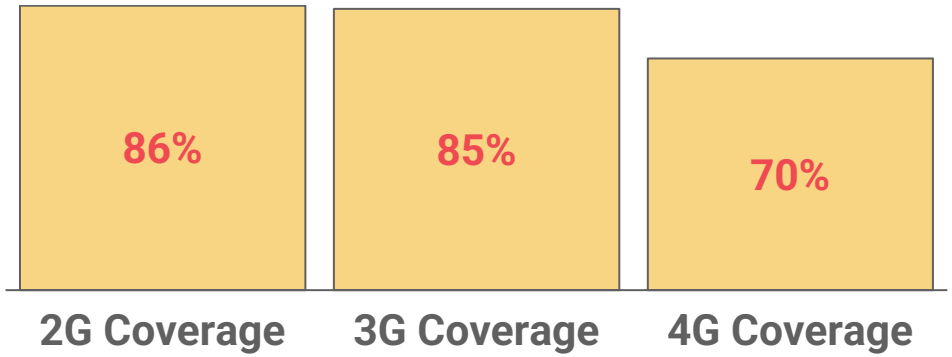

**45.3%**

Have a mobile subscription

**19%**

Use internet regularly

## Mobile Network Coverage

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Source; CIAT, Digital Agriculture Profile: Ethiopia, 2022

# The ongoing transformation of Ethio Telecom has the potential to significantly change the digital landscape in Ethiopia

## Ethio Telecom Transformation Process

1. **Creation of a separate and independent regulatory body:**
   - Mandated to license new entrants, regulate competition and manage tariffs
2. **Asset evaluation:**
   - Ethio Telecom is underwent an asset valuation process that would lead to divestment of up to 49%
3. **Split of Ethio Telecom into separate companies for infrastructure and service provision**
   - Ethio Telecom would split into two units to spur completion
   - There were indications that the restructuring would lead to the introduction of new financial service offerings
4. **Spectrum of sale:**
   - Shares of between 30-40% were to be sold to both domestic and foreign investors

Source: Mercy Corps, Digitally enabled services for agriculture in Ethiopia, Ecosystem Study Report, 2019.

# Although challenges exist, there are opportunities for stakeholders to grow digital services within the dynamic ecosystem in Ethiopia

## Constraints

### Enabling Environment

- ❖ Limited digital capacity in key agricultural networks (cooperatives, extension)
- ❖ High fragmentation and low coordination
- ❖ Physical and network infrastructure has improved but remains a barrier to digital service s uptake

### Pastoralists and Agropastoral Needs

- ❖ Low access to digitally-enabled services, and low availability of pastoral-tailored financial products
- ❖ Barriers to using digital services in Ethiopia include low literacy and awareness levels, lack of trust, and the need for services to cater to various languages and contexts.

### Solutions

- ❖ DFS relatively limited beyond G2C transactions
- ❖ Non-financial services have grown well – primarily information services, with no market access and supply chain services at scale
- ❖ Last-mile delivery channels are critical to unlock

## Opportunities and Success Factors

- ✓ Digital services could help overcome physical barriers to reach Ethiopia's dispersed population
- ✓ Longer-term engagement of government stakeholders is required for success
- ✓ Focus and coordination is required

- ✓ Tech applications need to be relatively basic given current technical capability
- ✓ Delivery channels and tech service providers for pastoralists should be trusted entities with high rural reach, such as co-operative unions.

- ✓ Solving for last-mile delivery channels' reach and capacity is critical
- ✓ Better tailoring/bundling for SHFs is required
- ✓ Critical to avoid duplication of effort especially given high cost of local tailoring

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Source: Mercy Corps, Digitally enabled services for agriculture in Ethiopia, Ecosystem Study Report, 2019

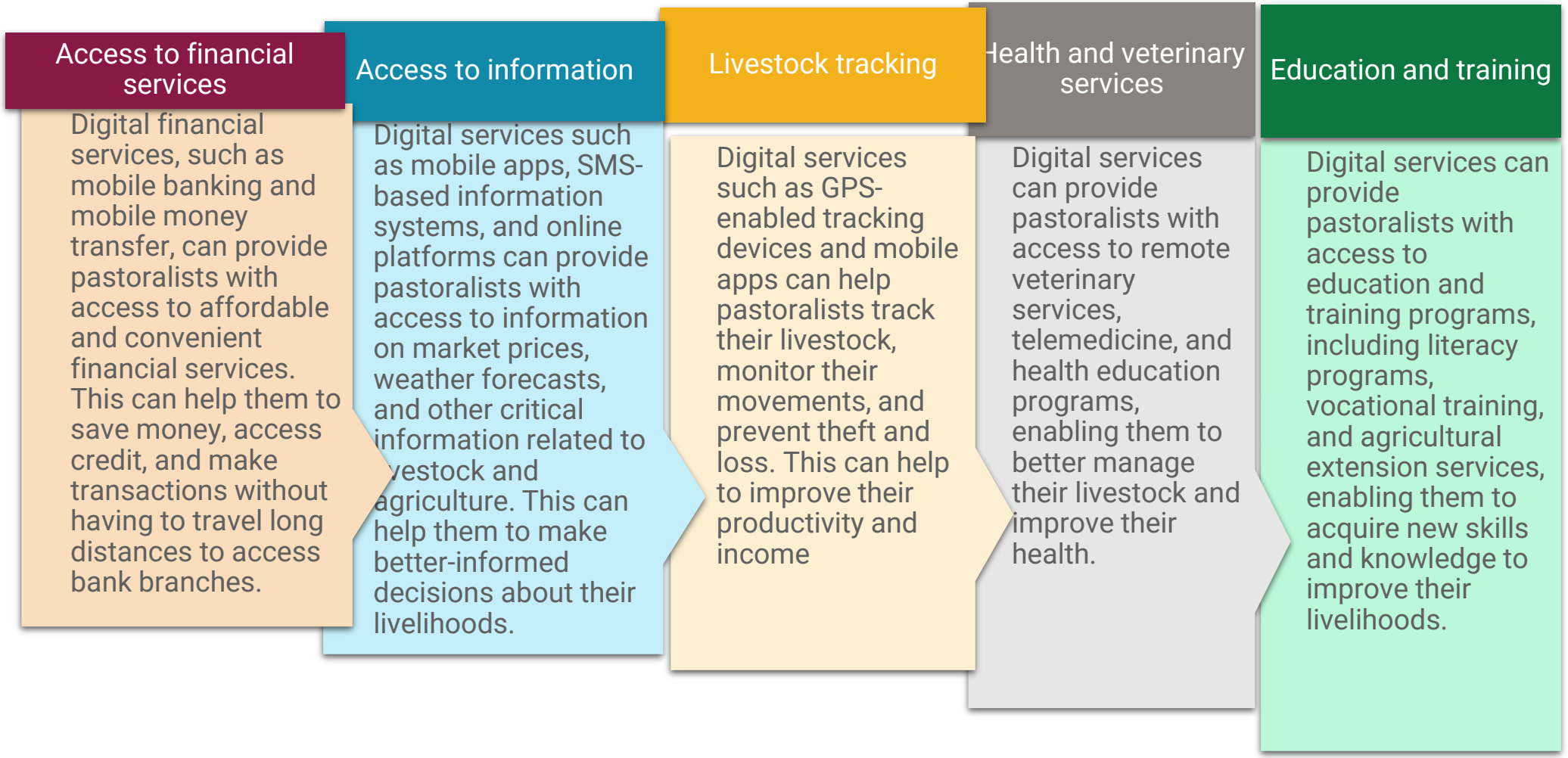
# A few success stories can be told on the implementation of Ethiopia's digital strategy 2025 as an enabling environment for DFS and DIS

Milestones towards the Implementation of Ethiopia Digital Strategy 2025

| Participating Companies | Elevator pitch | 2022 Results | Progress 1 2 3 4 5 |
|---|---|---|---|
| Hello Tractor | Has HT app that allows farmers to rent tractors and use them as and when needed and connects tractor owners with farmers that need the tractors, helping to make tractors more profitable. | 50 tractors fitted with HT App | |
| M-pesa Africa/ Safaricom | DigiFarm Farm provides one-stop shop financial services to unbanked individuals, offering quality farm inputs and access to credit providers, resellers, and insurers. | Specialty coffee pilot and agricultural extension pilot discussed | |
| CGIAR | CGIAR science, known for its role in the Green Revolution, now focuses on sustainable and climate-resistant agriculture to benefit the impoverished. | Beta National Agricultural Data Hub | |
| Precision Development | CGIAR science supported the Green Revolution and today it can help find solutions to achieve a sustainable and climate-resistance agriculture to benefit the poorest. | Increase in digital advisory services to 40,000 dairy farmers | |
| Digital Green | PxD provides accessible advice to small scale farmers via low-cost mobile information systems, aiming to improve their lives through actionable knowledge. | 120 self-help group leaders (women farmers) use digital financial book | |
| Amazon Web Services | DG helps risk-averse small farmers embrace innovations through relatable videos of neighboring farmers successfully adopting new technologies. | Cloud Policy executive training programme requested for 2023 | |
| Africa 118 for Google | Africa 118 implements Google training programs in Ethiopia, supporting digital education for financial inclusion and digital marketing for SMEs in Africa. | New programme | |
| Simprints | Simprints provides biometrics for the world's poorest, allowing over 1 billion people without reliable IDs to access digital identities, financial services, and public resources. | New programme | |

Source: Accelerating Innovations: Digital Ethiopia 2025 - PDF (cam.ac.uk)

# As much as ICT uptake among pastoralists is low, there are several ways that digital services can improve the lives of pastoralists in Ethiopia

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Sources: GSMA | Digital solutions for pastoralists during COVID-19 | Mobile for Development; Frontiers | Animal Health Service Delivery in Crop-Livestock and Pastoral Systems in Ethiopia (frontiersin.org); Ethiopia Pastoralist Areas Resilience Improvement and Market Expansion (PRIME) Project: Settle In! Two Vignettes To Simmer Over 'Round The Fire (prime-ethiopia.org)

# CONSTRAINTS TO PASTORALISTS AND AGRO-PASTORALISTS INCREASED PRODUCTIVITY

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# Environmental as well as policy factors hinder greater productivity among pastoralists

### Inadequate extension services

Extension services, which provide information and technical support to farmers, are often inadequate in rural areas, particularly for agro-pastoralists and pastoralists. This can limit their ability to adopt new technologies and practices that could increase productivity.

### Limited access to technology

Agro-pastoralists and pastoralists in Ethiopia often lack access to appropriate agricultural technologies, such as improved seeds, irrigation systems, and livestock health services. This limits their ability to improve their productivity and cope with climate risks..

### Low levels of education and skills

Agro-pastoralists and pastoralists in Ethiopia often have limited access to education and training opportunities. This limits their ability to adopt new technologies and practices, manage their resources sustainably, and engage effectively with markets..

### Limited soc cal inclusion

Agro-pastoralists and pastoralists in Ethiopia often face marginalization and discrimination due to their ethnicity, gender, and socio-economic status. This limits their ability to access resources, services, and markets, and hinders their participation in decision-making processes.

### Conflicts and insecurity

Agro-pastoralists and pastoralists in Ethiopia often face conflicts over resources, including land, water, and grazing areas. These conflicts can lead to displacement, loss of assets, and reduced productivity.

### Limited access to markets and finance

Many agro-pastoralists and pastoralists in Ethiopia are located in remote areas with poor infrastructure, which can make it difficult to access markets and obtain finance. This can limit their ability to sell their products and invest in their businesses..

### Limited access to land and water resources

Agro-pastoralists and pastoralists often have limited access to land and water resources, which can limit their ability to expand their herds or crops. This is often due to government policies that prioritize large-scale commercial agriculture and the privatization of land.

### Climate variability and environmental degradation

Climate change and environmental degradation, including deforestation, land degradation, and soil erosion, pose significant challenges for agro-pastoralists and pastoralists in Ethiopia. These factors can reduce agricultural productivity and threaten livelihoods..

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Source; Ethiopia Agriculture Transformation Agency; Ethiopia - Vulnerability | Climate Change Knowledge Portal (worldbank.org); IGAD, Ethiopia IGAD Drought Resilience and Sustainability Initiative (IDDRSI) Progress Report, 2022; FAO, Pastoralism in Africa's drylands. Rome, 2018; Tiruneh S and Tegene F., Impacts of Climate Change on Livestock Production and productivity and Different Adaptation Strategies in Ethiopia, 2018.

# Inadequate financing in the livestock sector limits targeted vaccination; pastoralists self-diagnose leading to frequent disease outbreaks

**Inadequate public and private financing**, the sector is not attractive to investors. This is attributed to low precipitation associated with climate change and variation in availability of fodder; this is a challenge to sustainable livestock production.

Weak policies and **unsupportive legislation** to support an enabling environment for pastoralism and livestock production to thrive.

The **high number of players** in the livestock value chain from production to markets lead to minimal returns on investment hence depress the earnings from pastoralists. In most cases the livestock value chain players do not employ coordinated approach in resolving pastoral challenges leading to duplication of efforts or no target on some challenges

Frequent livestock disease outbreaks and **limited access to health services delivery (underdeveloped extension services)** are major constraints to the development of livestock production.

Animal health service delivery is hampered because of **widespread self-diagnosis and medication.** This is in addition to a lot of counterfeit drugs in the market. This leads to frequent outbreaks of livestock diseases.

The **high cost of targeted vaccination** due to the vastness in the northern region and low funding makes it difficult for delivery of efficient animal health services.

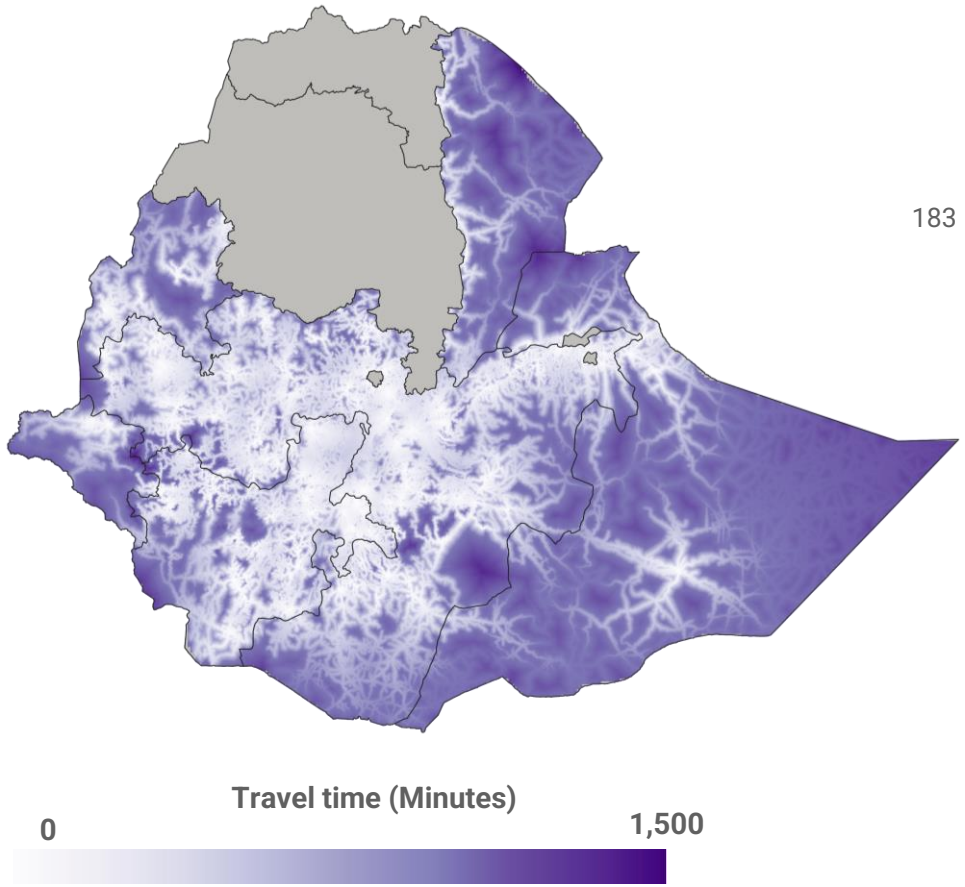
SPARC MERCY CORPS AGRIFIN Dalberg Research

Source; Frontiers | Animal Health Service Delivery in Crop-Livestock and Pastoral Systems in Ethiopia (frontiersin.org); Increasing the adoption of animal vaccines to address livestock losses and boost control of neglected zoonotic diseases (who.int); Animal Health and Production in Africa - PDF Free Download (zdoc.pub)

# Longer travel times to markets in ASAL regions may limit productivity among pastoralists and agro- pastoralists

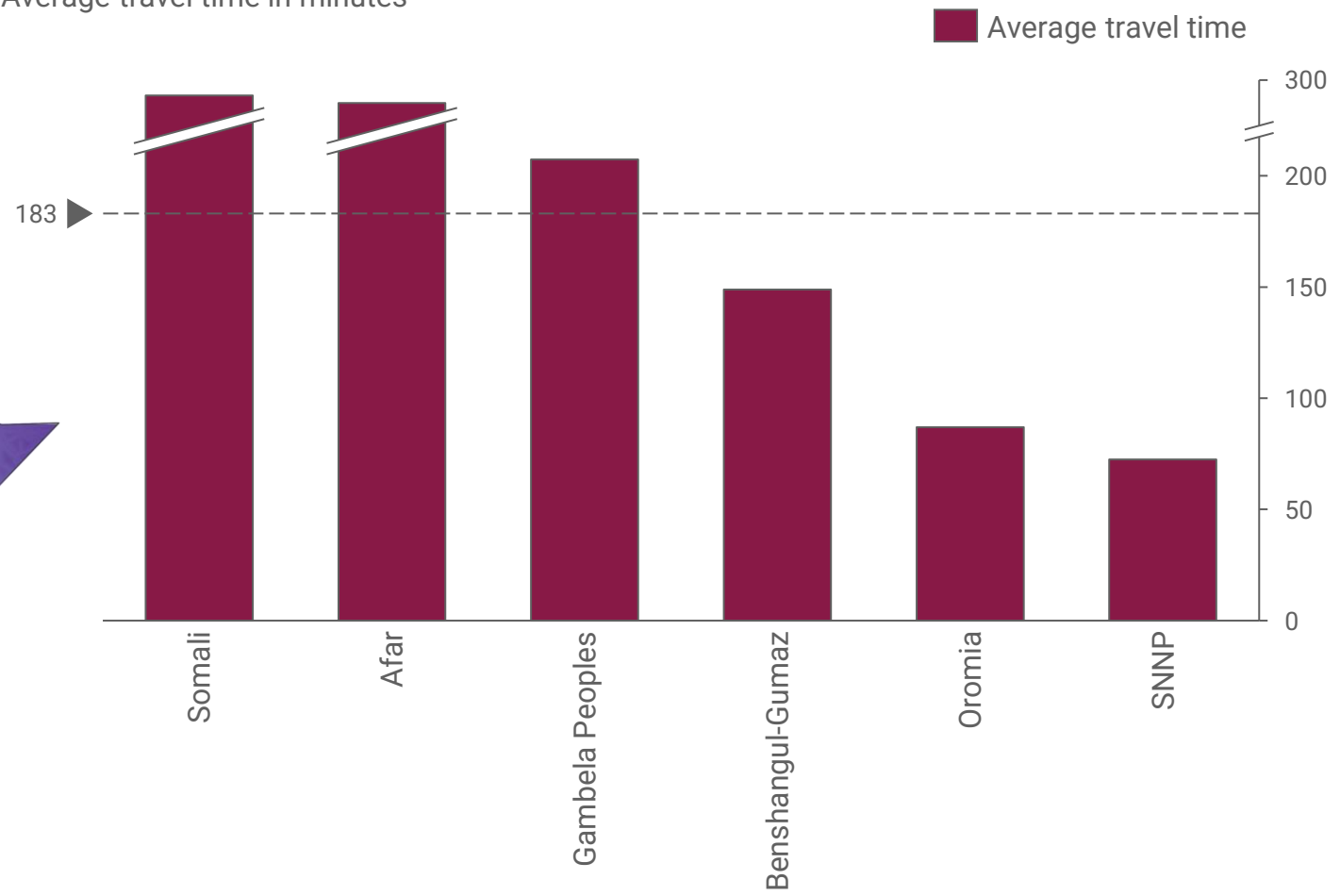
## Travel time to markets in ASAL Regions

Time in minutes




## Average travel time to markets in regions dominantly rearing livestock

Average travel time in minutes

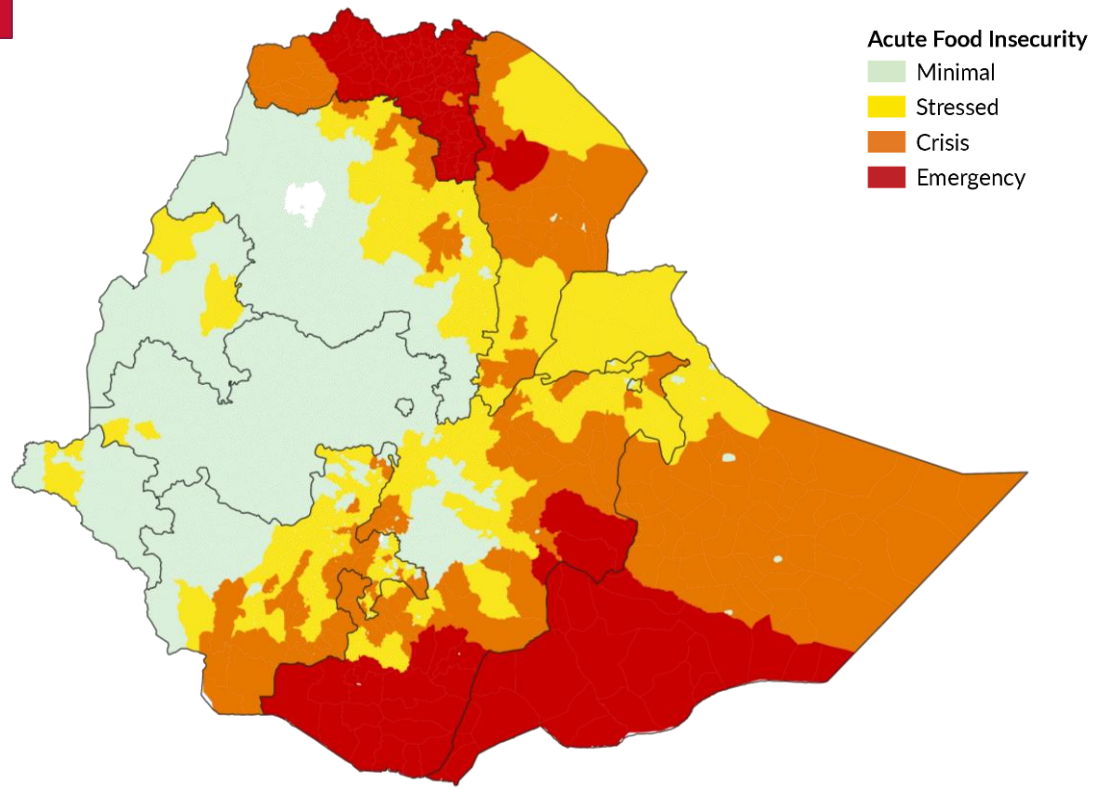



Source: Malaria Atlas Project, 2019 and LOCAN Analysis

# Dry conditions in Southern and Southeast Ethiopia contribute to poor livestock conditions and low conception rates leading to food insecurity

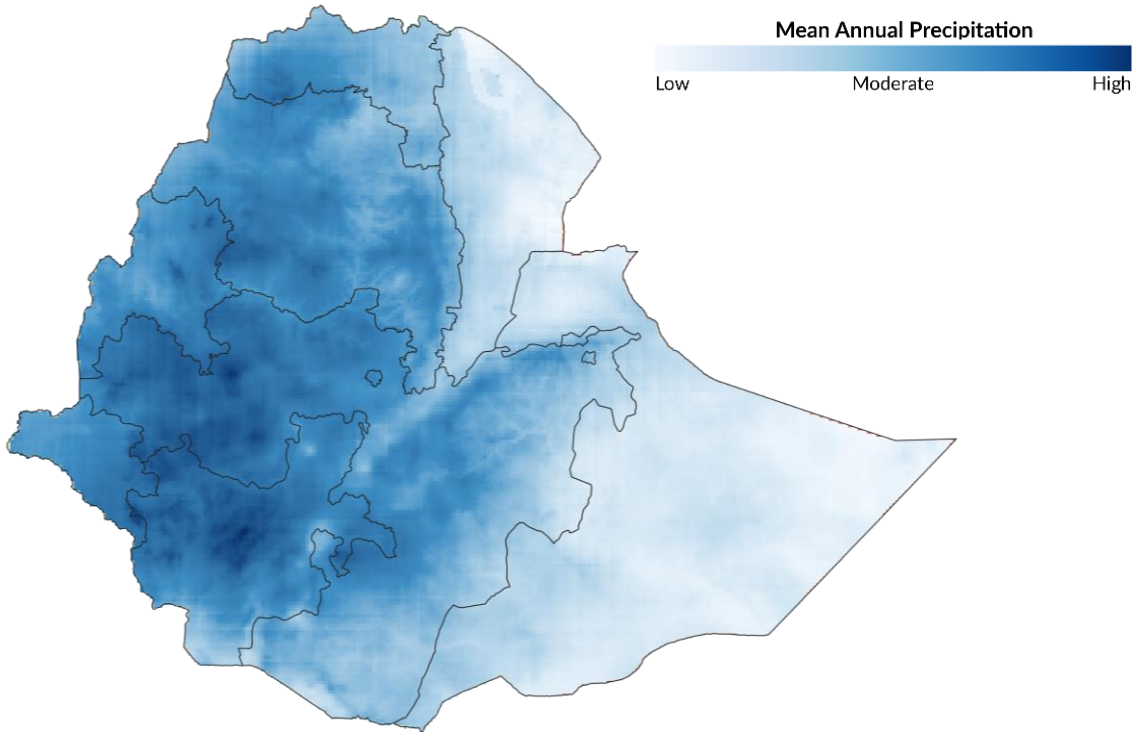
## Current/ Projected acute food insecurity

Ethiopia Food Security Classification (October 2022 – May 2023)




## Mean annual precipitation in Ethiopia

Long-tern mean annual precipitation in millimeters (mm)




The food security data was derived using satellite data measuring precipitation anomalies, vegetation anomalies (Normalized Vegetation Index - NDVI) and expert opinion based on knowledge of market and trade functioning systems. The camels and cattle in southern and southeast pastoral Ethiopia such as **Afder, Dawa, and Liban zones of the Somali region and Borena Zone of Oromia** are affected by dry conditions leading to poor livestock conditions and low conception rates.[1]

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Source; Ministry of East African Community (EAC), The ASALS and Regional Development. Feed the Future, The accelerated value chain development program national conference report 2018, The Famine Early Warning Systems Network (FEWS NET) and Integrated Food Security Phase Classification (IPC)
Notes:1.The Fewsnet programme

# SHOCKS FACING PASTORALISTS AND AGRO-PASTORALISTS AND THEIR COPING MECHANISMS

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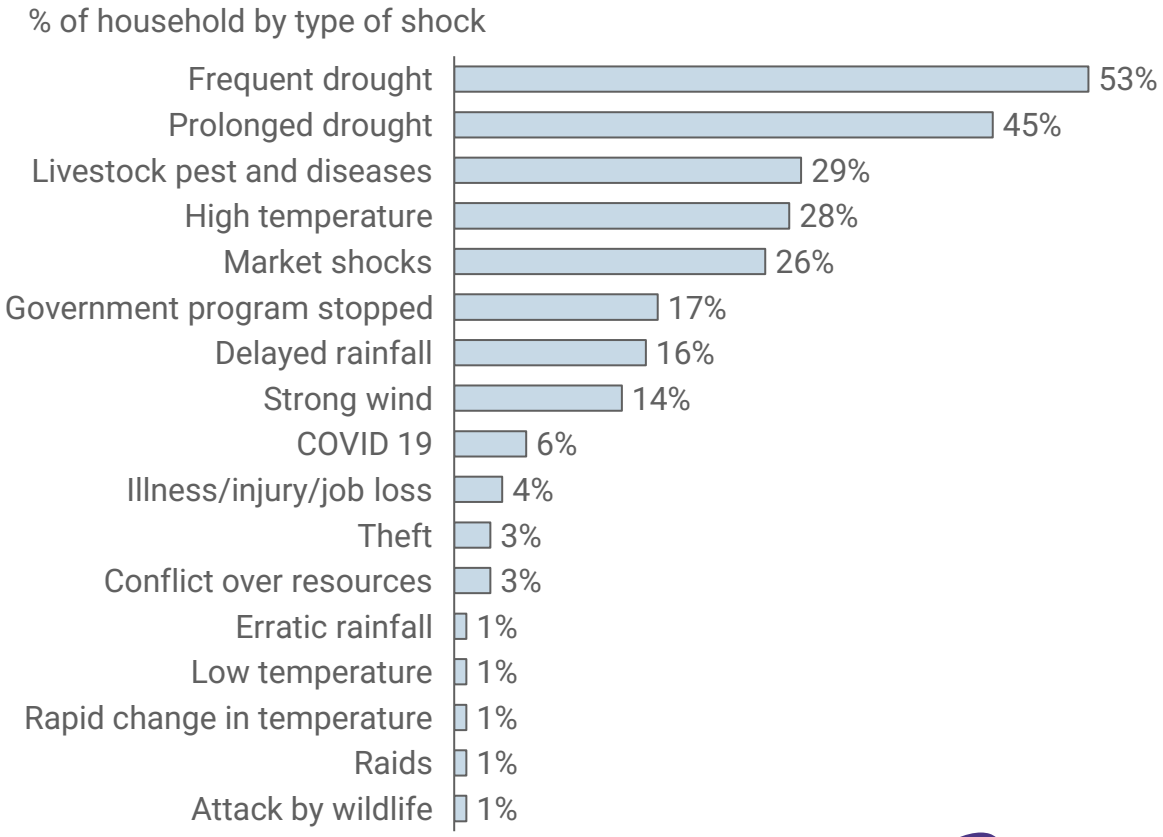
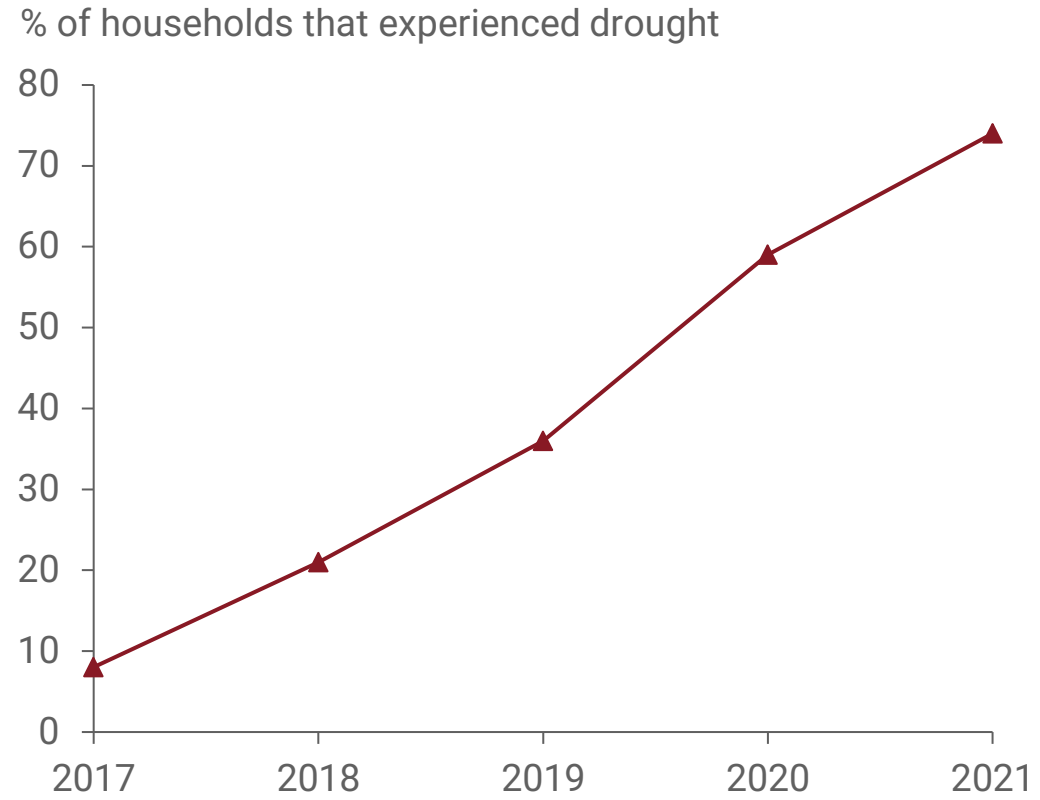
# Households experience a myriad of shocks that threaten their livelihoods; the occurrence of shocks has increased tremendously over the years

- Drought is a growing threat to the livelihoods of pastoralists in Ethiopia, and the occurrence of shocks has increased. The government and development partners have implemented various interventions to support these communities, but addressing the root causes of vulnerability requires a comprehensive approach that promotes sustainable natural resource management and builds resilience.

## Types of shocks experienced by pastoralists



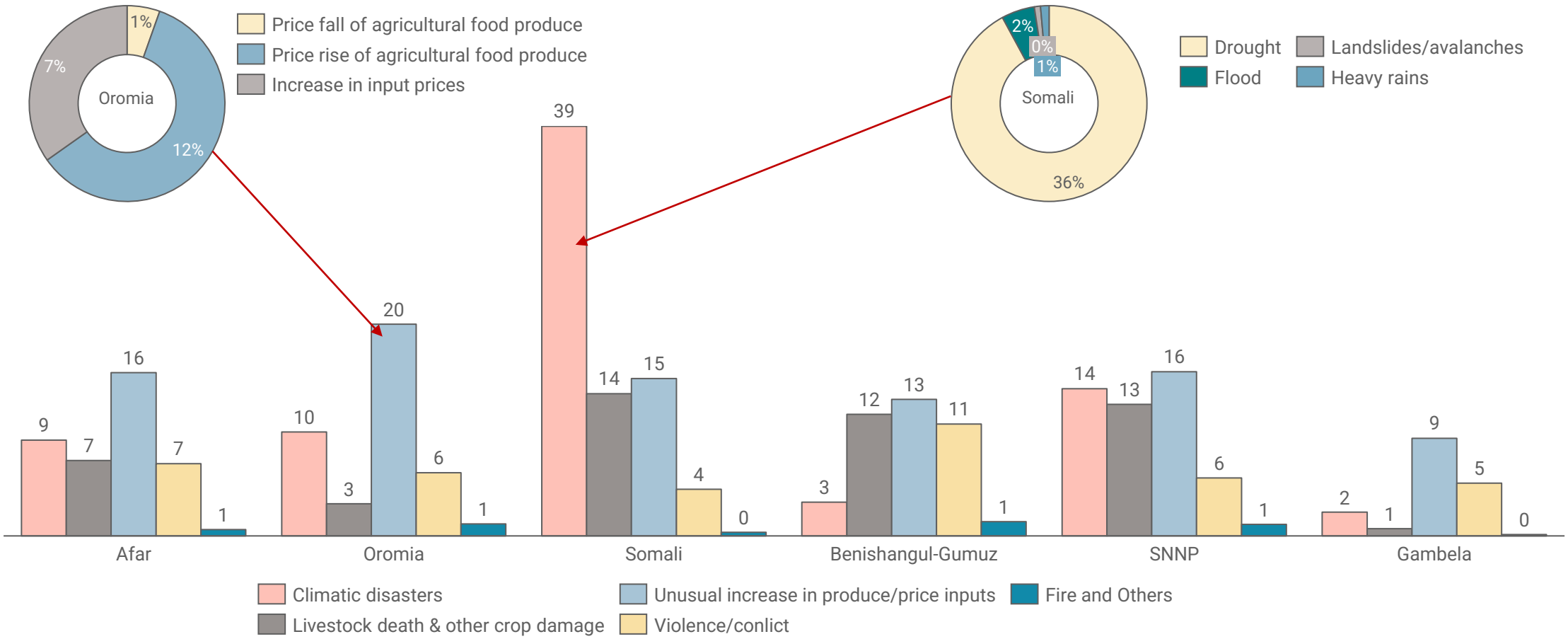

## Trends in occurrence of shocks in Ethiopia




Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report, n=182; Resilience at USAID 2016 Progress Report

# Unusual increase in price of produce items and inputs are common in ASAL regions; Somali faces extreme climatic shocks of drought than the rest

*Share of shocks experienced across the regions (%)*

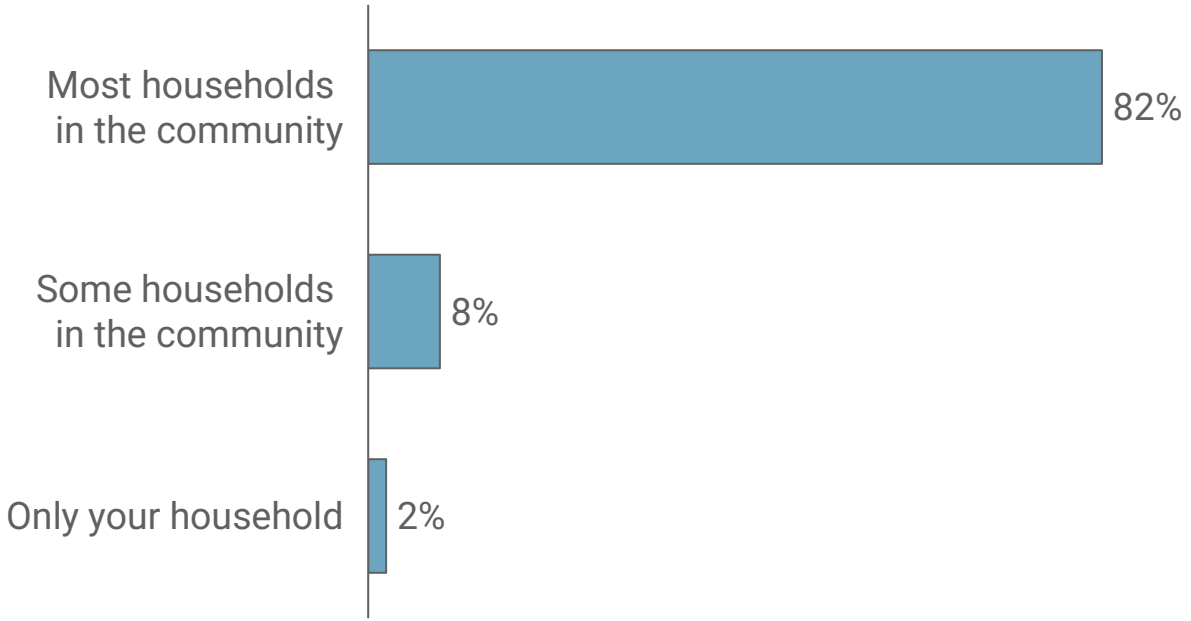



Notes: Non-ASAL regions were excluded due to low presence of pastoral households. Climatic disasters include drought, flood, landslide/avalanches and heavy rains. Unusual increase in both price rise and price fall of agricultural produce food items and violence/conflict includes theft/robbery violence, involuntary loss of house/land, government displacement and local unrest.
Source: Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 and LOCAN Analysis

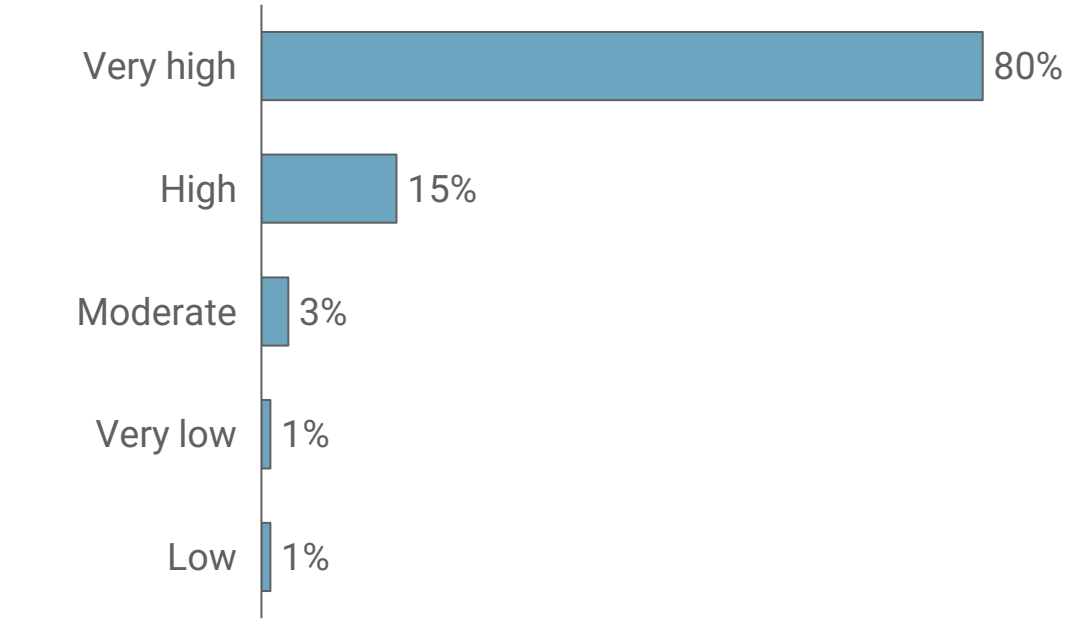
# The shocks are covariate in nature and thus affect many people; with a cumulative severity rating of 95% being high or very high

- The impacts of such shocks can be severe, as they can affect the entire community or population, leading to widespread economic and social disruptions. In the case of the pastoral communities in Ethiopia, the shocks are reported to be severe, with 95% of respondents rating the severity of the impacts as high or very high. This highlights the vulnerability of these communities to external shocks and the urgent need for interventions to build resilience and mitigate the impacts of shocks.

## Impact of shock




## Severity of the impact of the shocks on households

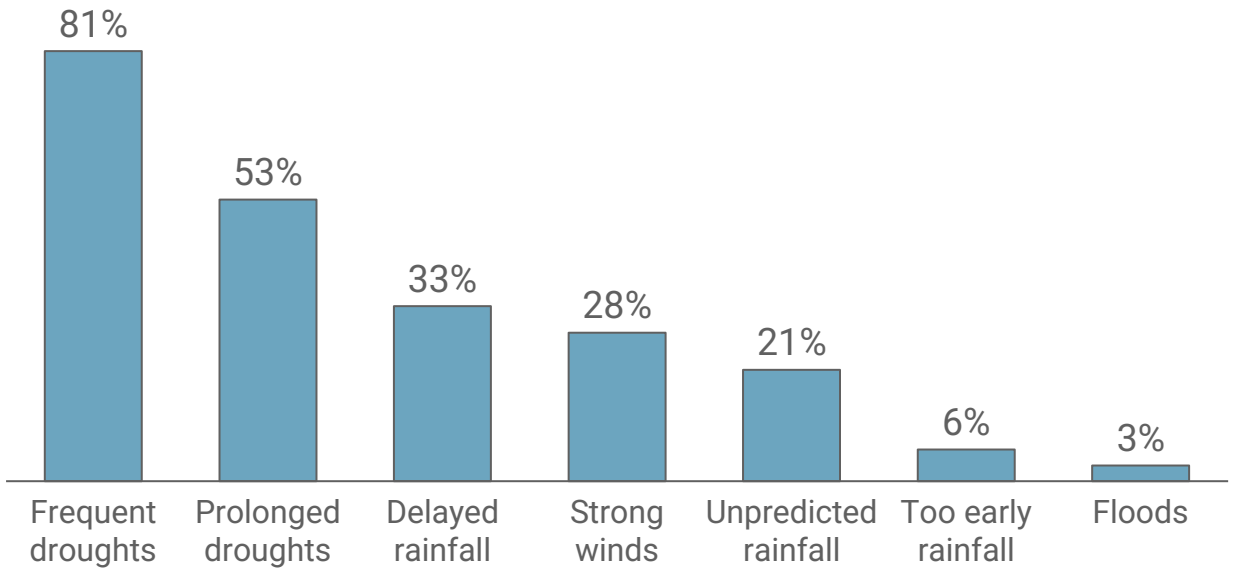



Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report, 2022, n=182; Climate Risk and Resilience in Ethiopia: A Rural Household Perspective, 2019

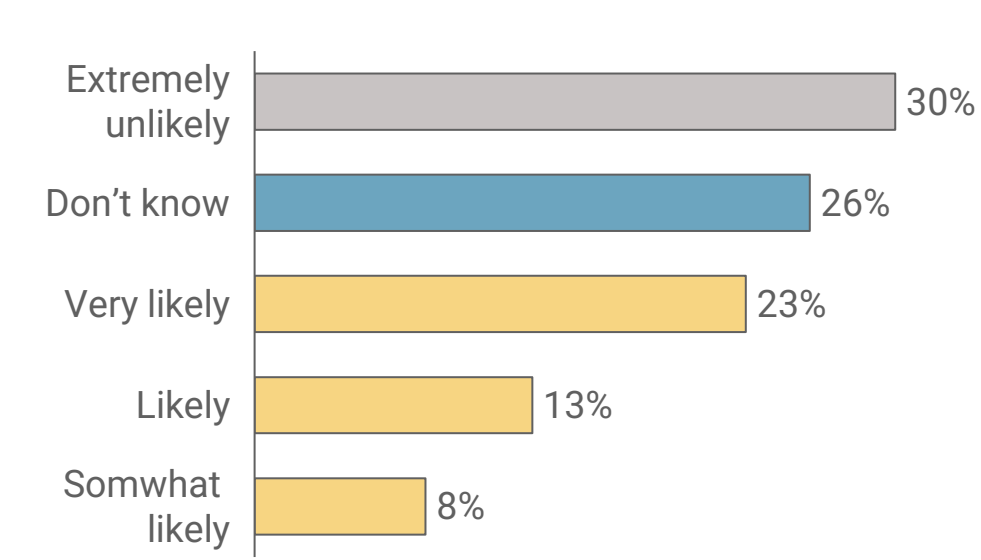
# The households also cite climate specific shocks; drought has been a menace to the households with a high likelihood of recurring in future

- The vast majority (92%) of households observed climate or weather-related changes, with droughts being the most reported change. Specifically, 81% and 53% reported frequent and prolonged droughts, respectively. Additionally, 21% reported unpredictable rainfall, 33% reported delayed rainfall, and 33% reported experiencing strong winds.
- These observations align with shocks experienced by pastoralists and agro-pastoralists, indicating a significant impact of climate change on livelihoods in Ethiopia.
- The likelihood of climate change occurring in Ethiopia is mixed based on the survey results, with 23% perceiving it as very likely and 30% perceiving it as extremely unlikely. However, observed climate and weather changes and their impact on livelihoods emphasize the importance of addressing this issue for the region's sustainability.

## Type of climatic shock



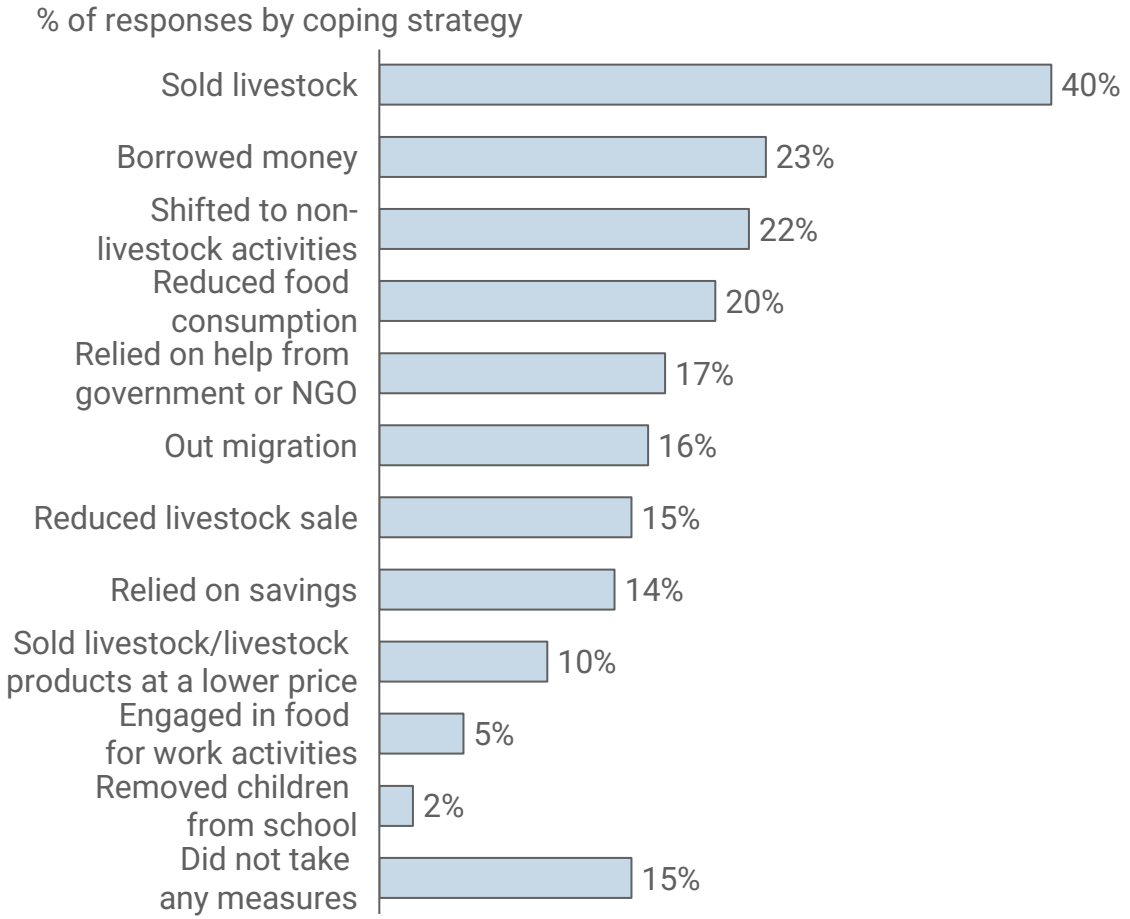

## Likelihood of climate change happening in future




Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report, n=182; Resilience at USAID 2016 Progress Report; Climate Risk and Resilience in Ethiopia: A Rural Household Perspective, 2019

# The pastoral households pursue a myriad of activities to cope with the vagaries of shocks experienced; ~15% do not implement any measures

## Coping strategies used by households against shocks




- ~15% of households didn't take any action to cope with shocks: This could be due to limited access to resources, knowledge, or access to coping strategies. It is important to provide support and resources to these households to build their resilience in the face of shocks.
- Common coping strategies include selling livestock (at lower prices), informal borrowing, and diversifying into non-livestock activities: Selling livestock is often the first coping strategy for many households, but it can result in a lower income due to oversupply during a crisis. Informal borrowing is a common coping strategy, but it can also lead to indebtedness if not managed properly. Diversification into non-livestock activities provides households with alternative sources of income and can help reduce their reliance on livestock.
- Households also scale back food consumption, rely on aid from government and NGOs (not a sustainable long-term solution), migrate to areas with better resources, and use savings to manage shocks and emergencies.
- Adopting a combination of appropriate coping strategies can help households build resilience, and governments and NGOs can provide resources, training, and support to support households in coping with shocks..

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Source: ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report, n=182; Resilience at USAID 2016 Progress Report

# In a nutshell, pastoral households experience varied shocks and have devised various methods to cope and adapt with the salient shocks

## Shocks experienced

- **Droughts:** Drought is a common and recurrent shock in Ethiopia that has severe impacts on the livelihoods of pastoralists and agro-pastoralists. Prolonged droughts lead to water scarcity, crop failure, and death of livestock.
- **Floods:** Floods are also a common shock in Ethiopia, particularly in the lowland areas. They result in the loss of crops and property, displacement of people, and increased risk of waterborne diseases.
- **Conflicts:** Inter-communal conflicts and border disputes are prevalent in pastoral areas, which lead to the loss of life, displacement, and destruction of property. These conflicts often arise from competition over resources such as grazing land and water sources.
- **Livestock diseases:** Livestock diseases such as Foot and Mouth Disease, Contagious Bovine Pleuropneumonia, and Peste des Petits Ruminants are prevalent in pastoral areas and have significant impacts on livestock production and the livelihoods of pastoralists
- **Market fluctuations:** Market shocks, such as fluctuations in prices of livestock and other commodities, have significant impacts on the livelihoods of pastoralists and agro-pastoralists. These shocks affect the income of households, making it difficult for them to purchase food and other necessities.

## Coping and Adaptation Strategies

- To cope with drought, households often **sell their livestock, rely on informal borrowing, diversify into non-livestock activities, reduce food consumption, and rely on government and NGO aid.** Adaptation strategies include the **construction of water harvesting structures and the promotion of drought-tolerant crop varieties.**
- Households often cope with floods **by moving their households and livestock to higher ground, borrowing informally, and reducing food consumption**. Adaptation strategies include the **construction of flood barriers and the promotion of flood-resistant crop varieties.**
- Households cope with conflict by **moving to safer areas, relying on informal borrowing, reducing food consumption, and receiving aid from the government and NGOs**. Adaptation strategies include **promoting conflict resolution mechanisms and building resilience to conflicts.**
- Households often cope with livestock disease outbreaks by **selling their animals at a lower price or seeking veterinary assistance**. Adaptation strategies include **promoting animal vaccination, improving animal health services, and diversifying into non-livestock activities.**
- To cope with market shocks, households often **reduce their food consumption, rely on informal borrowing, and diversify into non-livestock activities.** Adaptation strategies include **promoting market information systems and developing value chains.**

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Source: Feed the Future Ethiopia, Zone of Influence End-line Assessment Report, 2019; World Bank, Sub-Sahara Africa Macro Poverty Outlook: Country by country Analysis and Projections for the Developing world, 2021; Climate Risk and Resilience in Ethiopia: A Rural Household Perspective, 2019

# PASTORALISTS AND AGRO-PASTORALISTS GAP ANALYSIS

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# The literature research and data analysis surfaces the following gaps

| Theme | Reviewed literature | Identified Gaps |
|---|---|---|
| Producer profiles | • World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019<br>• WorldPop 2017<br>• IGAD, Ethiopia IGAD Drought Resilience and Sustainability Initiative (IDDRSI) Progress Report, 2022: Communiqué of the 8th IDDRSI Platform General Assembly – IGAD<br>• Pastoralism in Africa's drylands (fao.org)<br>• Impacts of climate change on Livestock production and productivity and different adaptation strategies in Ethiopia \| Semantic Scholar<br>• Central Statistical Agency (CSA) and World Bank, LSMS-Integrated Survey on Agriculture, Ethiopia Socioeconomic Survey (ESS) report, 2021.<br>• Resilience at USAID 2016 Progress Report<br>• *FAO, Livestock production systems spotlight cattle sectors in Ethiopia, 2018* (fao.org)<br>• *Abduletif, A.A., Benefits and challenges of pastoralism system in Ethiopia, 2019:* studia_mundi_vol_6_no_3_5.pdf (szie.hu)<br>• Africa Sustainable Livestock (ASL) 2050. Livestock and livelihoods spotlight - Ethiopia (fao.org)<br>• Ethiopia_-14-th-IDDRSI-PSC_-Report.pdf (igad.int)<br>• Ethiopia - Livelihood Zones (fews.net)<br>• *ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report, 2022:* PastoralSurveyReport.pdf (cgiar.org)<br>• Feed the Future Ethiopia: Zone of Influence End-line Assessment Report 2018 \| Feed the Future<br>• Centre for Rural Development (SLE - Berlin): Ethiopia's Arid and Semi-Arid Lowlands: Towards Inclusive and Sustainable Rural Transformation \| Semantic Scholar<br>• UNICEF Ethiopia - Education for Pastoralist Children(unicef.org) | Most of the literature and datasets available do not uniquely identify agro-pastoralists as a key segment across all themes hence proper classification is required during data collection and analysis. |

SPARC MERCY CORPS AGRIFIN Dalberg Research

# The literature research and data analysis surfaces the following gaps cont.'

| Theme | Reviewed literature | Identified Gaps |
|---|---|---|
| Digital/ Non digital financial access | IGAD, Stock-Taking and Gap Analysis Study of Financial Products for Pastoral Areas and Linking Pastoralists to Financial Service Providers,2016 https://icpald.org/wp-content/uploads/2021/02/Stock-Taking-and-Gap-Analysis-Study-of-Financial-Products-for-Pastoral-Areas.pdf<br>International Livestock Research Institute (ILRI) ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report: PastoralSurveyReport.pdf (cgiar.org)<br>A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries: Volume 1: Main report—Operational and technical feasibility assessment. ILRI Research Report 75. Nairobi, Kenya: ILRI. https://cgspace.cgiar.org/handle/10568/114255<br>World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019 | National pastoralists population with mobile money accounts, bank accounts, those who save/ borrow and how much, channels used to save and borrow by gender, age, income, education |
| Digital/ Non digital Information access | World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019<br>GSMA<br>DHS 2015<br>International Livestock Research Institute (ILRI) ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report: PastoralSurveyReport.pdf (cgiar.org)<br>Index Based Livestock Insurance Ethiopia \| Index-Based Livestock Insurance (ilri.org) | National pastoralists population that access information by type and channels used, preferred information and effective channels, challenges experienced in accessing the information; by age, gender, education and income |
| Factors hindering the usage and access of DIS/DFS among agro-pastoralists and pastoralists | Center for Global Development (GDC), 2021: Identifying Binding Constraints on Digital Payment Services in Ethiopia: An Application of a Decision Tree Framework \| Center For Global Development \| Ideas to Action (cgdev.org)<br>A vital technology: Review of the literature on mobile phone use among pastoralists - Parlasca - 2021 - Journal of International Development - Wiley Online Library<br>Stock-Taking-and-Gap-Analysis-Study-of-Financial-Products-for-Pastoral-Areas.pdf (icpald.org)<br>Demographic and Health Survey, 2019 and National Atmospheric and Space Administration, 2021<br>Open Street Map, Malaria Atlas Project and LOCAN Analysis | Literature has not fully covered cultural, gender, and language barriers in factors hindering the usage and access of DIS/DFS among agro-pastoralists and pastoralists in Ethiopia. More research is needed to better understand the impact of these gaps on the adoption and usage of DIS/DFS services in these communities. |

# The literature research and data analysis surfaces the following gaps cont.'

| Theme | Reviewed literature | Identified Gaps |
|---|---|---|
| Opportunities to increase producer income through digital access | DHS Ethiopia 2019<br>GSMA \| Digital solutions for pastoralists during COVID-19 \| Mobile for Development<br>Frontiers \| Animal Health Service Delivery in Crop-Livestock and Pastoral Systems in Ethiopia (frontiersin.org)<br>Ethiopia Pastoralist Areas Resilience Improvement and Market Expansion (PRIME) Project: Settle In! Two Vignettes To Simmer Over 'Round The Fire (prime-ethiopia.org) | National pastoralists population with access to phones/ smart phones, with mobile money/ bank, levels accounts, digital literacy by age, gender, education and income |
| Constraints to farmers increased productivity | Ethiopia Agriculture Transformation Agency<br>Ethiopia - Vulnerability \| Climate Change Knowledge Portal (worldbank.org)<br>IDDRSI Platform General Assembly – IGAD; Pastoralism in Africa's drylands (fao.org)<br>Tiruneh S and Tegene F, 2018., (PDF) Impacts of climate change on Livestock production and productivity and different adaptation strategies in Ethiopia (researchgate.net)<br>Frontiers \| Animal Health Service Delivery in Crop-Livestock and Pastoral Systems in Ethiopia (frontiersin.org); Increasing the adoption of animal vaccines to address livestock losses and boost control of neglected zoonotic diseases (who.int); Animal Health and Production in Africa - PDF Free Download (zdoc.pub)<br>Ministry of East African Community (EAC), The ASALs and Regional Development. Feed the Future, The accelerated value chain development program national conference report 2018, The Famine Early Warning Systems Network (FEWS NET) and Integrated Food Security Phase Classification (IPC)<br>Malaria Atlas Project, 2019 https://malariaatlas.org/ | National pastoralists constraints to increased productivity by age, gender, education and income |
| Threats and coping strategies against shocks experienced by producers | International Livestock Research Institute (ILRI) ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report: PastoralSurveyReport.pdf (cgiar.org)<br>Resilience at USAID 2016 Progress Report<br>World Bank and CSA, Ethiopia Socioeconomic Survey Wave 4 data, 2018/2019<br>Feed the Future Ethiopia: Zone of Influence End-line Assessment Report 2018 \| Feed the Future<br>World Bank, Sub-Sahara Africa Macro Poverty Outlook: Country by country Analysis and Projections for the Developing world, 2021: Macro Poverty Outlook for Sub-Saharan Africa (worldbank.org)<br>Climate Risk and Resilience in Ethiopia: A Rural Household Perspective, 2019: Climate resilience pathways of rural households: Evidence from Ethiopia (fao.org) | Regional specific shocks to pastoral livelihoods and coping strategies by age, gender, education and income |

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# ANNEX 2

SPARC
Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises

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# Example digital solutions and actors that can stimulate and support agricultural transformation in Ethiopia

| Products, Services, advisories | Description/Application | Partners responsible |
|---|---|---|
| **National Livestock Market Information System (NLMIS)** | The NLMIS collects and disseminates reliable and timely livestock market information to producers, traders, processors, and consumers to promote greater participation in local and regional livestock markets. It allows data collection from primary, secondary, and terminal livestock markets to be entered into the system, using digital tools such as SMS to the NLMIS server in Addis Ababa, through enabled cell phones and a data coding system. Pastoralists, livestock traders, and other interested stakeholders can request price and volume information for specific markets using SMS through a market information portal (http://www.lmiset.gov.et) , including historical time series data for policy development and research. The information generated from the system can also be used as an early warning indicator to analyze trends in food security, particularly in pastoral regions. | • Alliance of Bioversity International and CIAT, • Ministry of Trade and Industry<br>• Ministry of Agriculture<br>• Regional trade and market bureaus |
| **National Livestock Market Information System (ET LMIS)** | A system that utilizes SMS, email, radio, and a website to provide prices for livestock across Ethiopia. The service is targeted at herders and traders looking to either acquire more livestock or sell their own. The ET LMIS project also examines trends in grain marketing in order to predict potential food shortages. | • Global Livestock Collaborative Research Support Program<br>• Texas A&M University<br>• Mercy Corps, • USAID |
| **A livestock information system road map for Ethiopia (Ministry of Agriculture)** | A costed architectural roadmap for a livestock information system for Ethiopia to support better use of data for ecision-making in the Ministry of Agriculture. It incorporates an interoperable national livestock information and analytic system that will define critical data needs, recommendations for improved methods of data collection, and standards and guidelines to enable interoperability of data systems. It will assist the provision of training to increase capacity to support a culture of data use and ownership within the ministry. The system enhances availability, quality, accessibility, and use of data for evidence-based policy formulation, review, planning, service delivery, and monitoring in the livestock sector. https://hdl.handle.net/10568/116819 . | • Livestock Improvement Corporation of New Zealand<br>• Alliance of Bioversity International and CIAT<br>• Ministry of Agriculture<br>• Bill and Melinda Gates Foundation |
| **Ministry of Agriculture digital systems, tools, and advisory services** | The Ministry of Agriculture has been working to align its sector policy with the endorsed national digital strategy frameworks that recognize digital agriculture as one of the national digital economy pathways. The ministry has some active and ongoing digital solutions that promote digitalization of agriculture. Notable examples include: the Agricultural Management Information System; Animal Disease Notification Information System; Digital Agriculture Registry Platform; Disease Outbreak and Vaccination Reporting System; Irrigation Mapping Database; Livestock Market Information System; Livestock Sector Information System Roadmap; Livestock Traceability System; Ministry of Agriculture e-learning platform; Ministry of Agriculture SMS gateway (6423); National Soil Information System; Public Work Mapping Database; Seed Certification Information System; Small Scale Irrigation-Knowledge Management System; Sustainable Land Management Project Knowledge Management Information System; and Wheat Rust Surveillance Information System. Furthermore, the ministry, in collaboration with partners, has been promoting Digital Agricultural Extension and Advisory Services and has established a joint forum, which brings together actors with a shared vision to collaborate in the digitalization of extension and advisory services. | • Ministry of Agriculture<br>• Agricultural Transformation Agency<br>• Various partners |

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Source: CIAT, Digital agriculture profile: Ethiopia, 2022, Internet search
*** this list is inexhaustive

# Example of organizations that deal with pastoralist in Ethiopia

| Name | Mandate | Services Offered | Digital Tools/Platforms | Value Chains Involved |
|---|---|---|---|---|
| The Pastoral and Environmental Network in the Horn of Africa (PENHA) | Non-profit organization | Provides training and support to pastoralists and agro-pastoralists in digital tools and practices to improve productivity and market access | Mobile phones, online platforms | Livestock, honey, sesame, sorghum, maize, wheat, teff |
| International Livestock Research Institute (ILRI) | Research organization | Develops and implements digital solutions to support pastoralists and agro-pastoralists with livestock management and market information | Mobile phones, online platforms | Livestock, dairy |
| International Centre for Agricultural Research in the Dry Areas (ICARDA) | Research organization | Develops and implements digital solutions to support pastoralists and agro-pastoralists with livestock management and market information | Mobile phones, online platforms | Livestock, sesame, honey, sorghum, maize, wheat, teff |
| CARE International in Ethiopia | Non-profit organization | Works with pastoralists and agro-pastoralists to increase their access to finance and digital tools for livestock productivity and market access | Mobile phones, online platforms | Livestock, dairy |
| IGAD Center for Pastoral Areas and Livestock Development (ICPALD) | Intergovernmental organization | Promotes digital innovation for pastoralists and agro-pastoralists to enhance their productivity, resilience, and market access | Mobile phones, online platforms | Livestock |
| Vétérinaires Sans Frontières Germany (VSFG) | Non-profit organization | Works to improve animal health and production in pastoralist communities. Provides services such as animal health services and capacity building for livestock keepers | Mobile applications, web-based platforms | Livestock value chains, including cattle, sheep, and goats |
| Welthungerhilfe Ethiopia | Non-profit organization | Provides training and support to pastoralists and agro-pastoralists in digital tools and practices to improve productivity and market access | Mobile phones, online platforms | Livestock, sesame, honey, sorghum, maize, wheat, teff |
| USAID Ethiopia | Government agency | Works with pastoralists and agro-pastoralists to increase their access to finance and digital tools for livestock productivity and market access | Mobile phones, online platforms | Livestock |
| Oxfam in Ethiopia | Non-profit organization | Works with pastoralists and agro-pastoralists to increase their access to finance and digital tools for livestock productivity and market access | Mobile phones, online platforms | Livestock, dairy |

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The list of organizations has been obtained through searching in the internet and looking at their websites
*** this list is inexhaustive

# Example of organizations that deal with pastoralists in Ethiopia cont'…

| Name | Mandate | Services Offered | Digital Tools/Platforms | Value Chains Involved |
|---|---|---|---|---|
| **Mercy Corps Ethiopia** | Non-profit organization | Through Resilience in Pastoral Areas (RiPA), is a four-year project funded by USAID, aims to strengthen the resilience of pastoralist communities in Ethiopia through various interventions, including market access, natural resource management, and community-based services. The project will work closely with local partners to ensure sustainability and impact, particularly in the face of climate change and other shocks. | Mobile phones, online platforms | Livestock, sesame, honey, sorghum, maize, wheat, teff |
| **TechnoServe Ethiopia** | Non-profit organization | Provides training and support to pastoralists and agropastoralists in digital tools and practices to improve productivity and market access | Mobile phones, online platforms | Livestock, sesame, honey, sorghum, maize, wheat, teff |
| **World Vision Ethiopia** | Non-profit organization | Provides training and support to pastoralists and agropastoralists in digital tools and practices to improve productivity and market access | Mobile phones, online platforms | Livestock, sesame, honey, sorghum, maize, wheat, teff |
| **SOS Sahel Ethiopia** | Non-profit organization | Provides training and support to pastoralists and agro-pastoralists in digital tools and practices to improve livestock productivity and market access | Mobile phones, online platforms | Livestock, dairy |
| **SNV Netherlands Development Organization** | Non-profit organization | Provides training and support to agropastoralists in digital tools and practices to improve crop and livestock productivity and market access | Mobile phones, online platforms | Livestock, dairy, cereals, vegetables, fruits |
| **Concern Worldwide** | Non-profit organization | Provides training and support to pastoralists and agropastoralists in digital tools and practices to improve crop and livestock productivity and market access | Mobile phones, online platforms | Livestock, dairy, coffee, cereals |
| **Heifer International** | Non-profit organization | Works with pastoralists and agropastoralists to improve livestock productivity and market access through digital tools and practices | Mobile phones, online platforms | Small ruminant, dairy, honey, vegetable |
| **Farm Africa** | Non-profit organization | Provides training and support to pastoralists and agropastoralists in digital tools and practices to improve livestock productivity and market access | Mobile phones, online platforms, SMS | Livestock, dairy, crops |

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The list of organizations has been obtained through searching in the internet and looking at their websites
*** this list is inexhaustive