

Understanding the Demand for Financial, Agricultural, and Digital Solutions from Smallholder Households:

Insights from the Financial Diaries and Household Survey in Mozambique



JUNE 2017

MOZAMBIQUE

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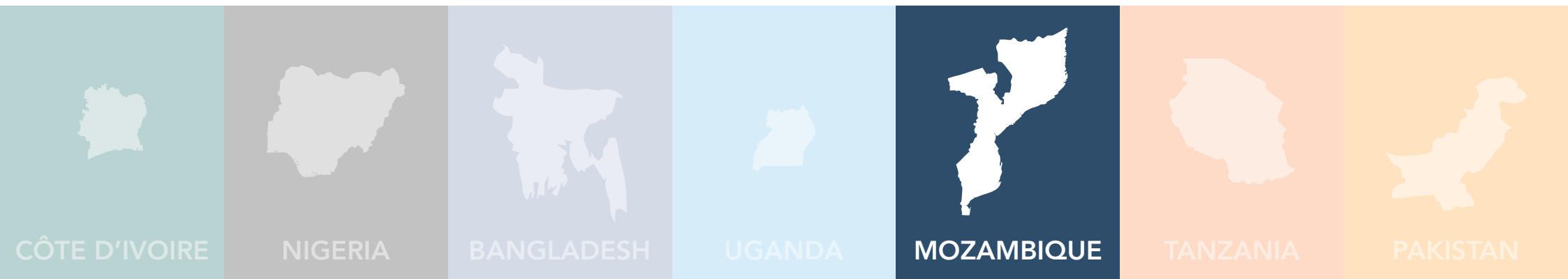
BACKGROUND

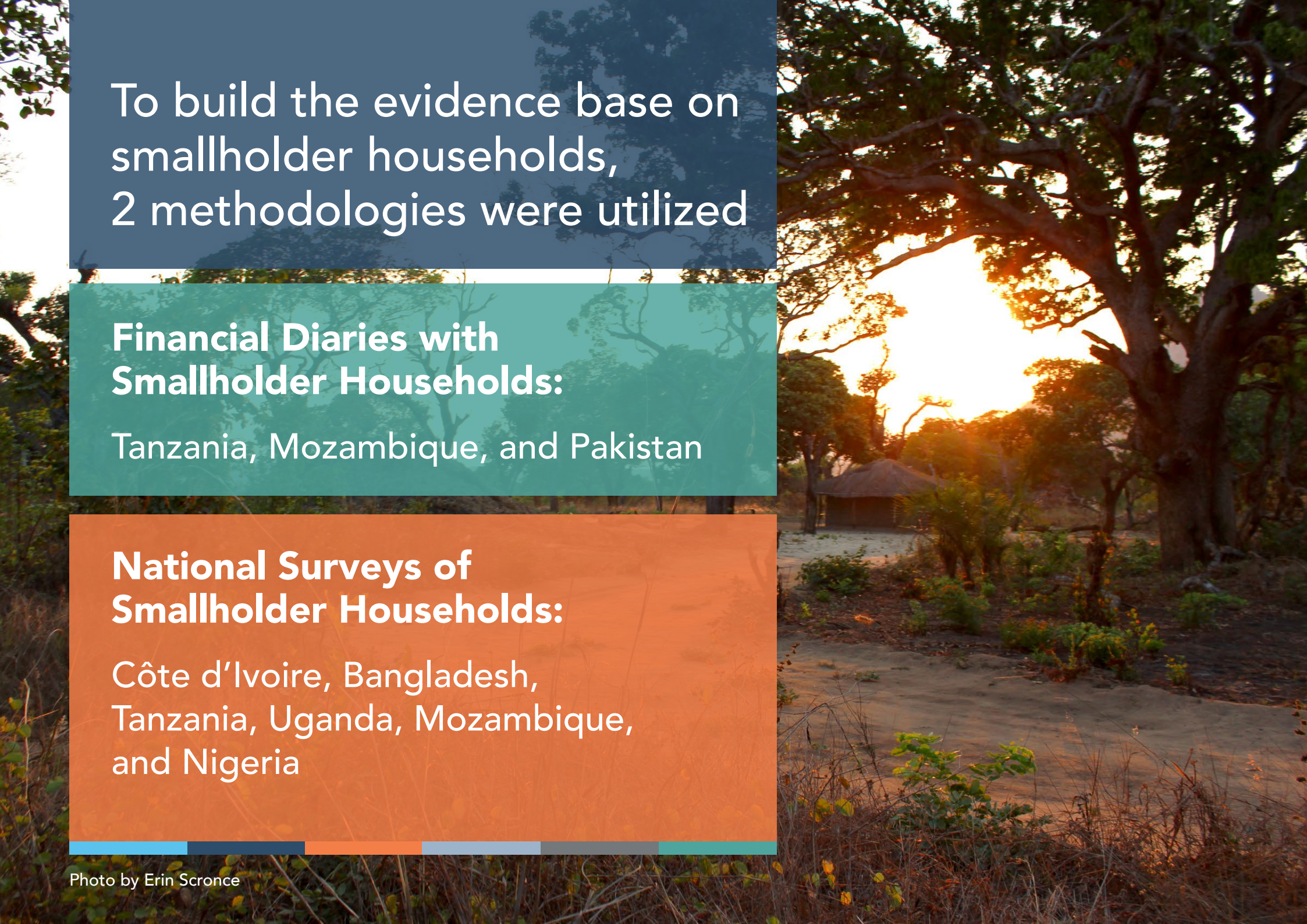
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Financial innovation for smallholder families

This deck is part of a series which explores the research that CGAP and partners have conducted to explore the financial needs and behaviors of smallholder households.

Research was conducted as a basis for guiding financial solution providers, mobile network operators, donors and governments to design, improve, and scale solutions that address the needs of smallholder families.





To build the evidence base on
smallholder households,
2 methodologies were utilized

**Financial Diaries with
Smallholder Households:**

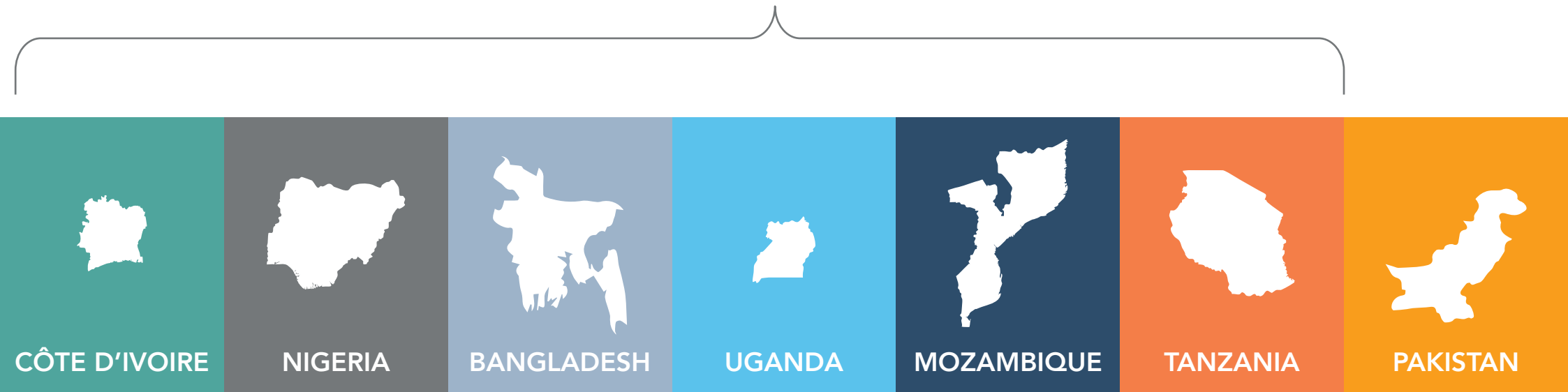
Mozambique, Tanzania, and Pakistan

**National Surveys of
Smallholder Households:**

Mozambique, Uganda, Tanzania,
Côte d'Ivoire, Nigeria, and
Bangladesh

Data sources

Six countries have data from
National Surveys of Smallholder Households



Mozambique, Tanzania, and Pakistan utilize
an additional data source: Financial Diaries



Photo by Erin Scronce

Agriculture is the foundation of the economy in Mozambique. It contributes **40%** of the GDP and **75%** of the population is involved in agricultural activities.

Smallholder farmers in Mozambique rely not only on income from agricultural activities but also other off-farm activities such as casual labor on other farms, trading, and remittances from relatives.

Smallholders in Mozambique have very few tools to manage their irregular and volatile household cash flows, and thus have difficulty in planning and expanding their livelihood activities.

In 2015, CGAP and FSD Moçambique, in coordination with the Instituto Nacional de Estatística Moçambique, conducted a nationally representative household survey to explore the financial needs and behaviors of smallholder farmers as a basis for guiding financial institutions, mobile network operators, donors, and government partners to design, improve and scale solutions that address the needs of farmers.



In 2014-2015, CGAP also conducted financial diaries with smallholder households.

This presentation highlights the key insights from both the survey and financial diaries.

National Survey of Smallholder Households

Sample Design

The smallholder household survey in Mozambique is a nationally representative survey with a target sample size of 3,000 smallholder households.

Sampling Frame

The sampling frame for the smallholder household survey was the 2009–2010 Census of Agriculture and Livestock (Censo Agro-Pecuário, CAP II) conducted by the Instituto Nacional de Estatística Moçambique and based on the 2007 Census of Population and Housing (2007 RGPH).

Questionnaire Implementation

To capture the complexity of smallholder households, the questionnaire consisted of three parts, with certain questions asked of all relevant individuals in the household, not just one household member.

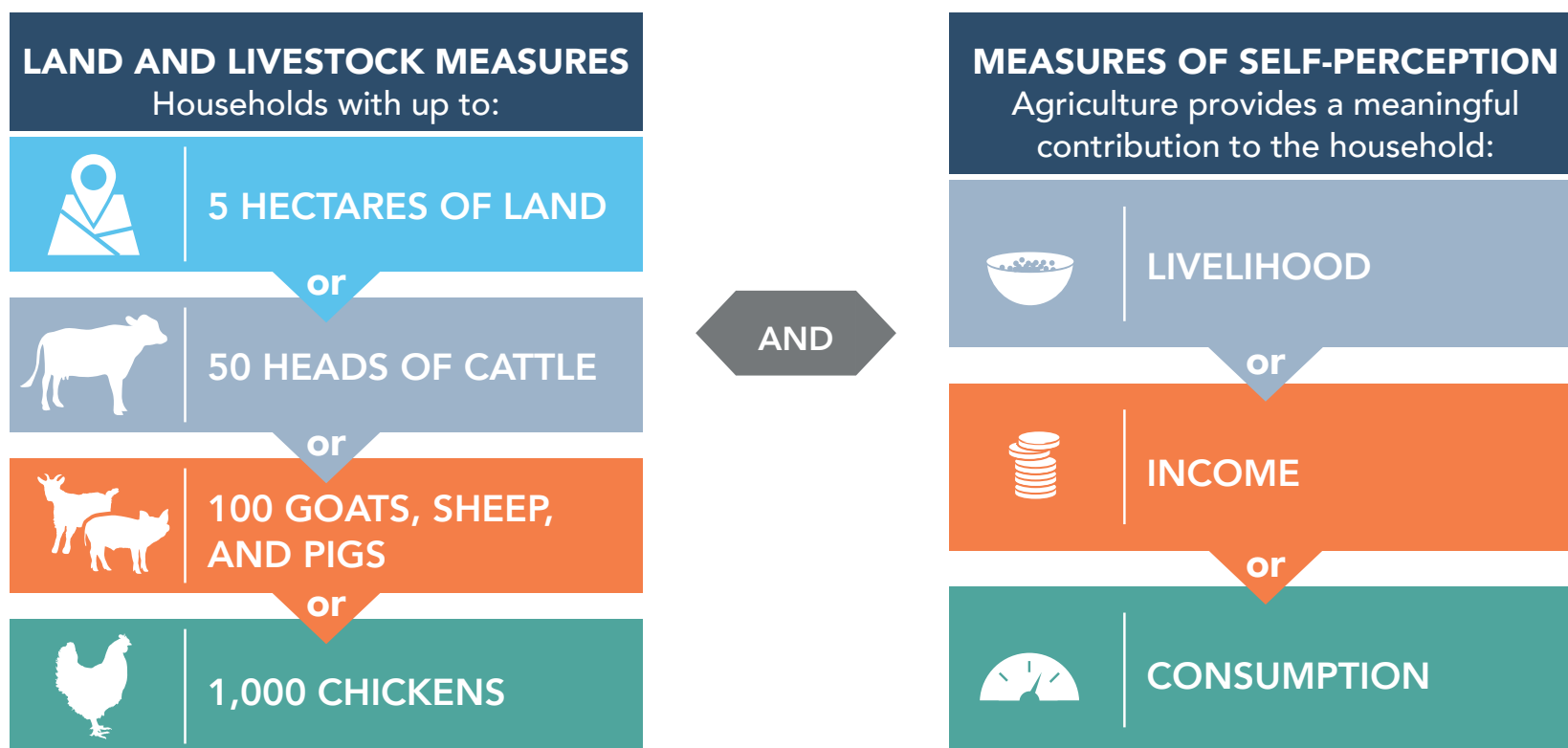
Data Collection

The questionnaire was translated into five languages—Portuguese, Changana, Macua, Ndau, and Sena—and then pretested and validated in all five languages to ensure that the integrity and appropriateness of the questions in line with social and cultural customs. Data collection took place from 23 July to 7 September 2015, using computer-assisted data collection tools that regularly yielded data for analysis and quality control to provide timely feedback to field staff. The survey was implemented by Ipsos Mozambique, InterMedia's local field partner.

National Survey of Smallholder Households

Identification of relevant smallholder households to sample

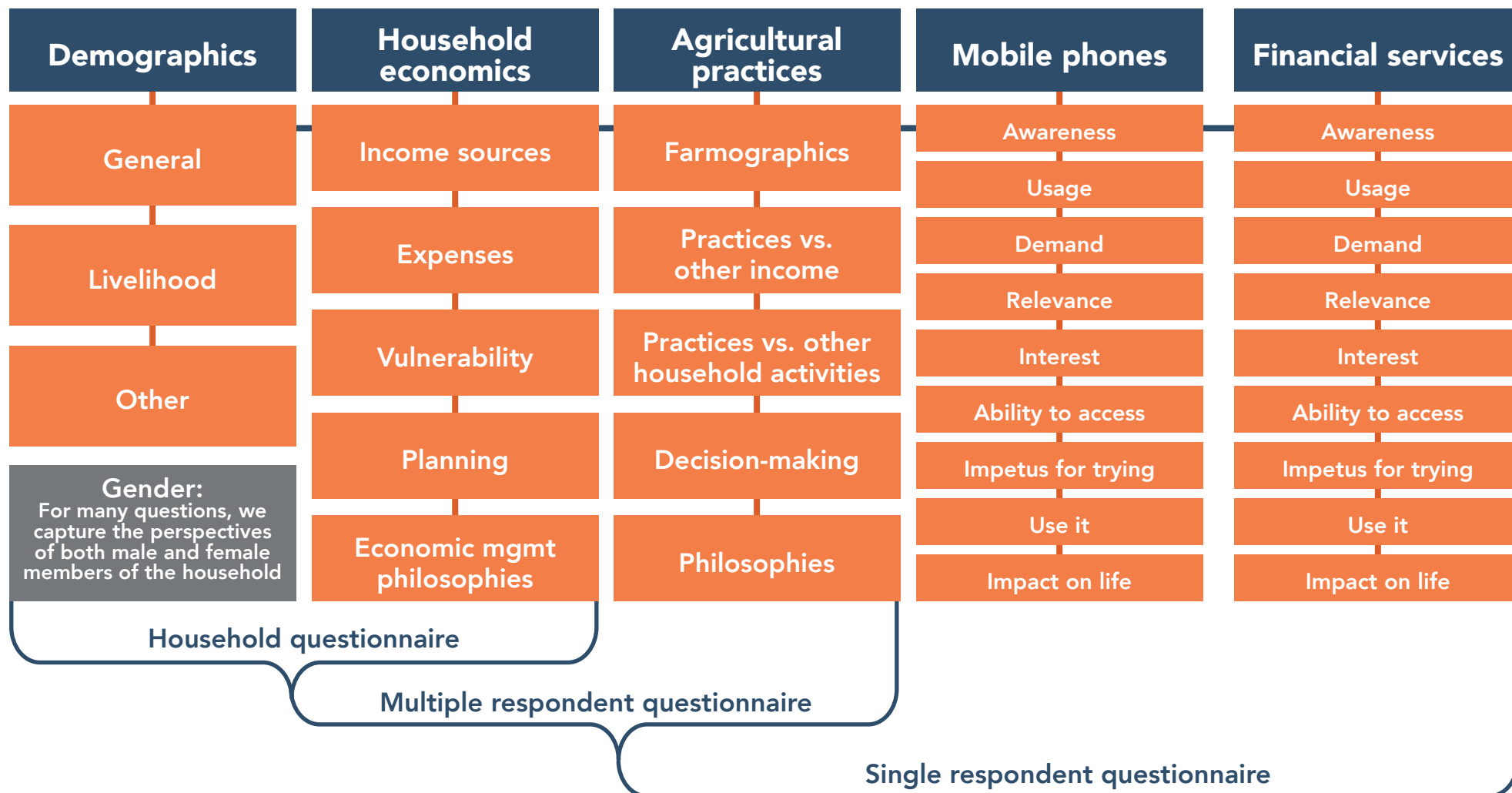
Listing criteria for the national surveys of smallholder households



CGAP conducted national surveys of smallholder households in Mozambique, Uganda, Tanzania, Côte d'Ivoire, Nigeria, and Bangladesh. Care was taken to use an approach in the listing exercise that would encompass the wide variety of smallholder families across all 6 countries.

National Survey of Smallholder Households

Three questionnaires to capture household information and perspectives



Financial diaries with smallholder families

Methodology

The Diaries methodology combines in-depth quantitative and qualitative research. Research teams met participating families about every two weeks to collect granular data on their cash flows in and out of the household, financial tools, assets, major life events, and attitudes toward agriculture and financial services.

Sample Design

The Financial Diaries, conducted between June 2014 and June 2015, captured the financial and in-kind transactions of about 270 total households in impoverished northern Mozambique, the fertile farmlands of western Tanzania, and the Punjab province, the breadbasket of Pakistan.

Financial diaries with smallholder families

Sample locations and key characteristics



MOZAMBIQUE

Sample households:
93

Monthly p.c. net income:
\$5.50

Major crops and livestock:
Cassava, beans, peanuts,
poultry



TANZANIA

Sample households:
86

Monthly p.c. net income:
\$10

Major crops and livestock:
Maize, potatoes, rice,
beans, poultry



PAKISTAN

Sample households:
94

Monthly p.c. net income:
\$25.99

Major crops and livestock:
Wheat, rice, cotton,
buffalo, goats

Financial diaries with smallholder families

Three initial questionnaires inform ongoing biweekly questionnaire

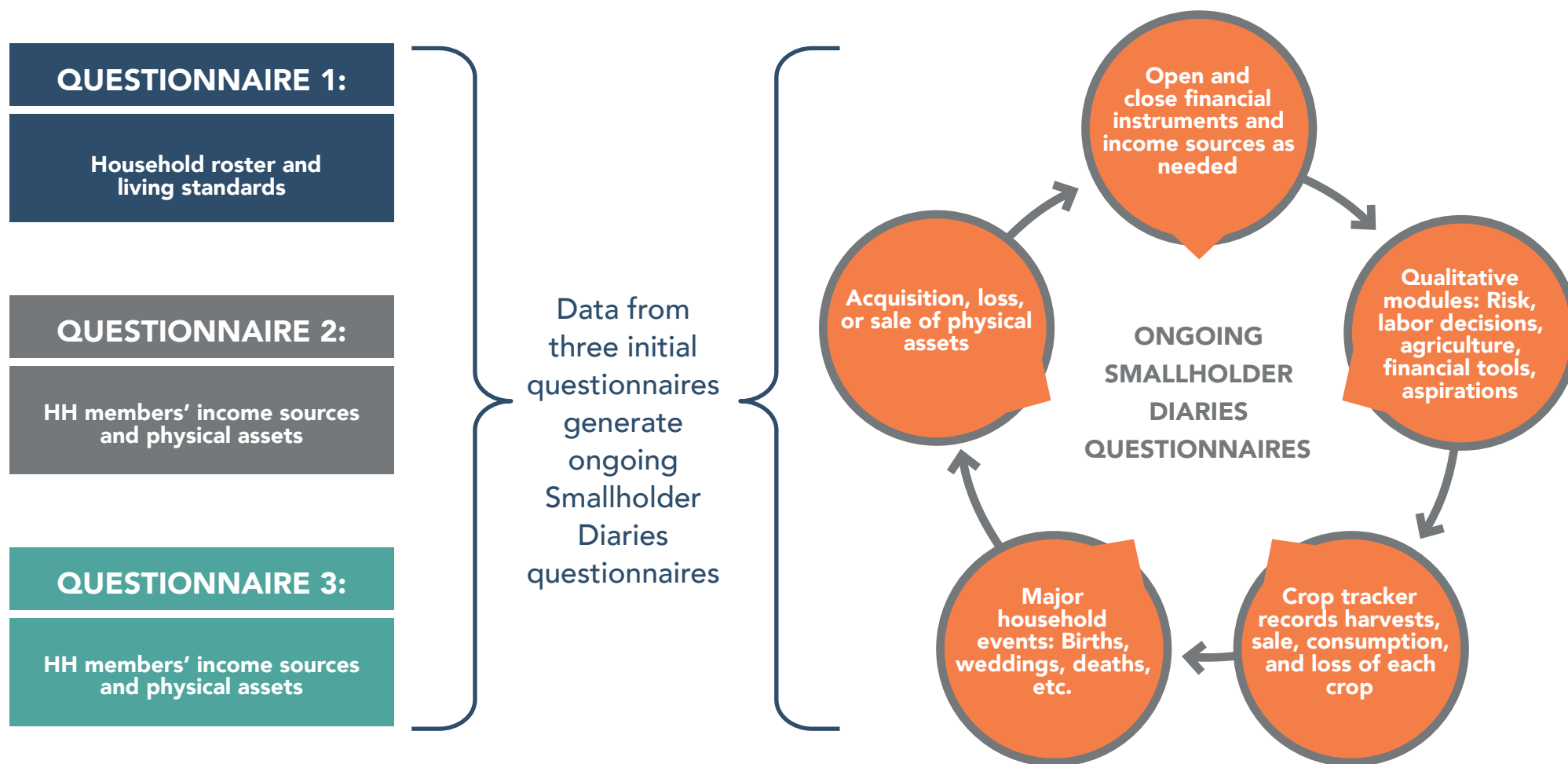




Photo by Erin Scronce

WHY IT MATTERS

14

Smallholder families are important to Mozambique.

Smallholders in Mozambique represent a significant portion of the population. Efforts to increase financial inclusion must target the various profiles of smallholder households.



Moreover, in the current economic situation, more than ever, Mozambique needs smallholders to increase production, reduce reliance on imported food, and boost exports.



Smallholder agriculture is important to Mozambique.

Agriculture in Mozambique represents:

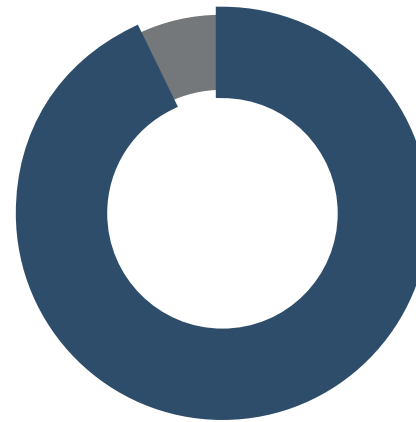
75%
Population



25%
GDP



20%
Export revenues



Agricultural production from the smallholder sector represents

93%

of total agricultural production in Mozambique



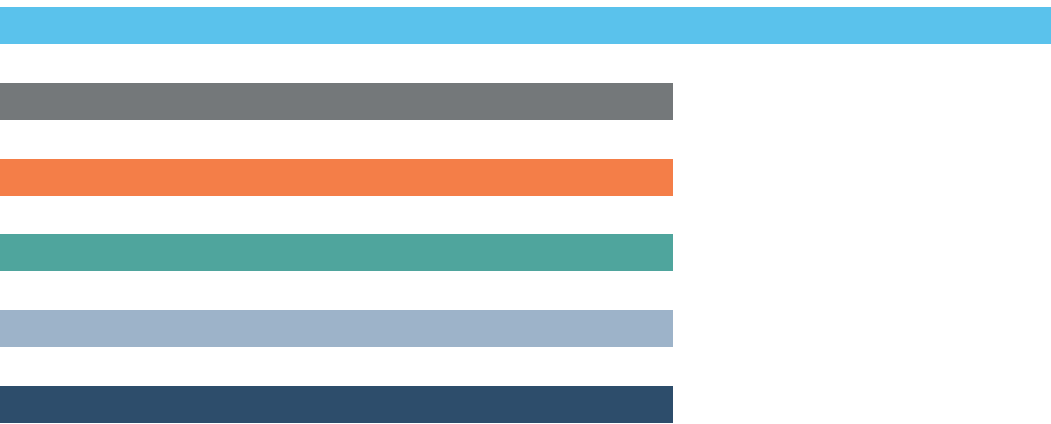
Photo by Erin Scronce

INSIGHTS

17

What does the data tell us about advancing financial inclusion among smallholder households?

6 insights



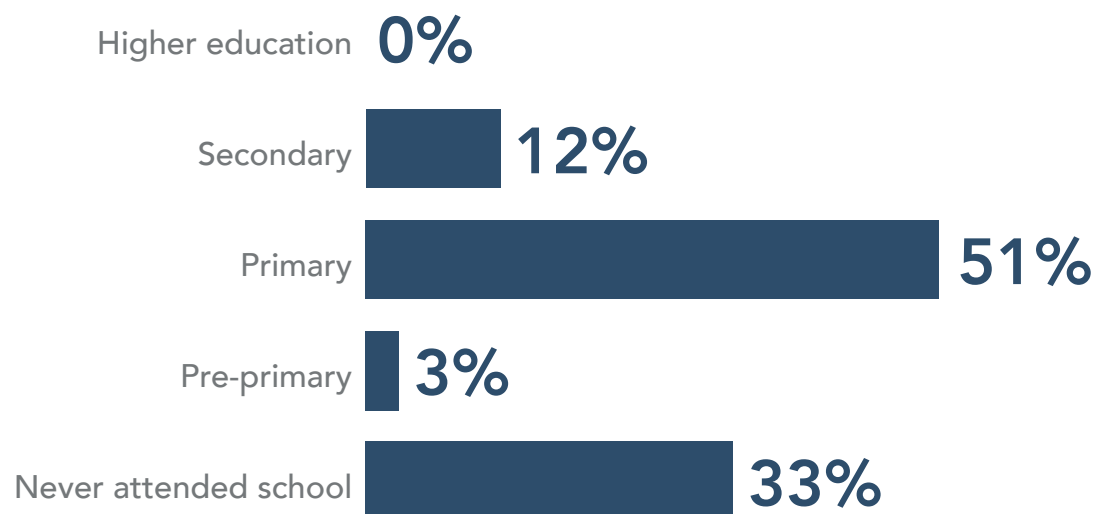
1

Demographics

Most smallholders in Mozambique have limited education and are over 40.

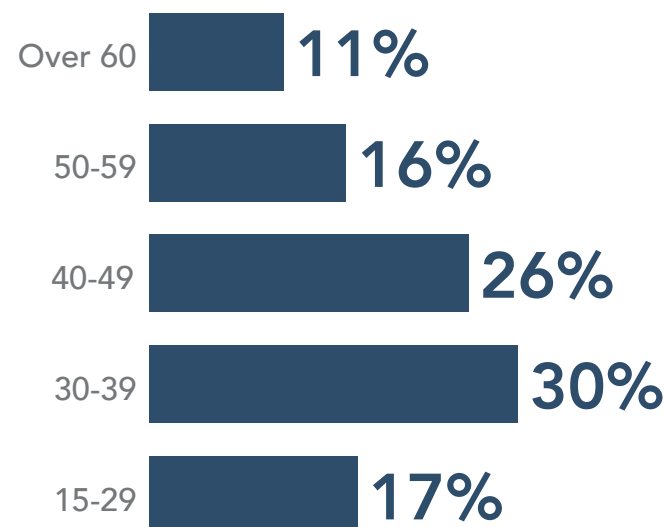
Highest education attained by head of household

Sample: Smallholder households, n=2,574.



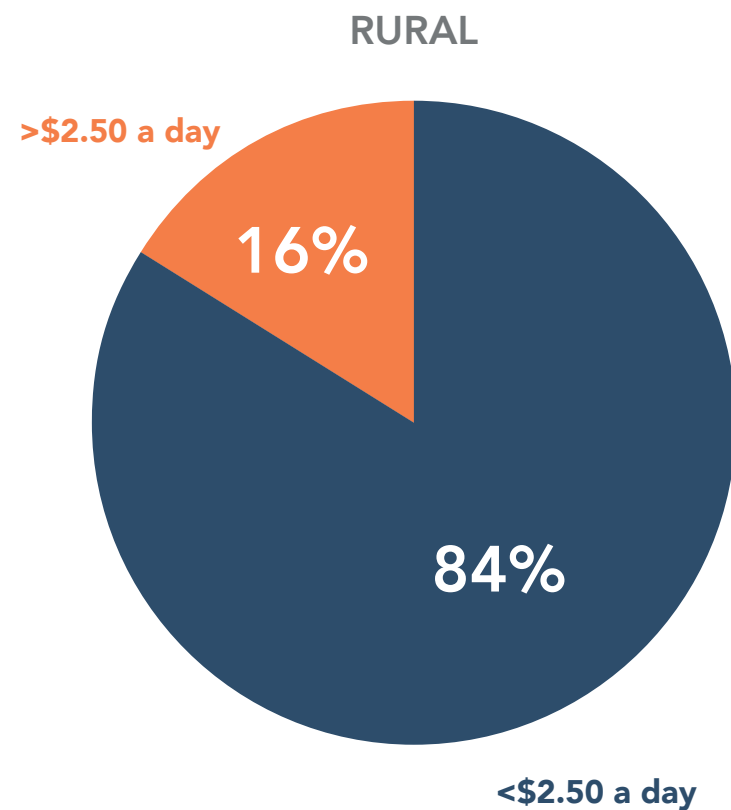
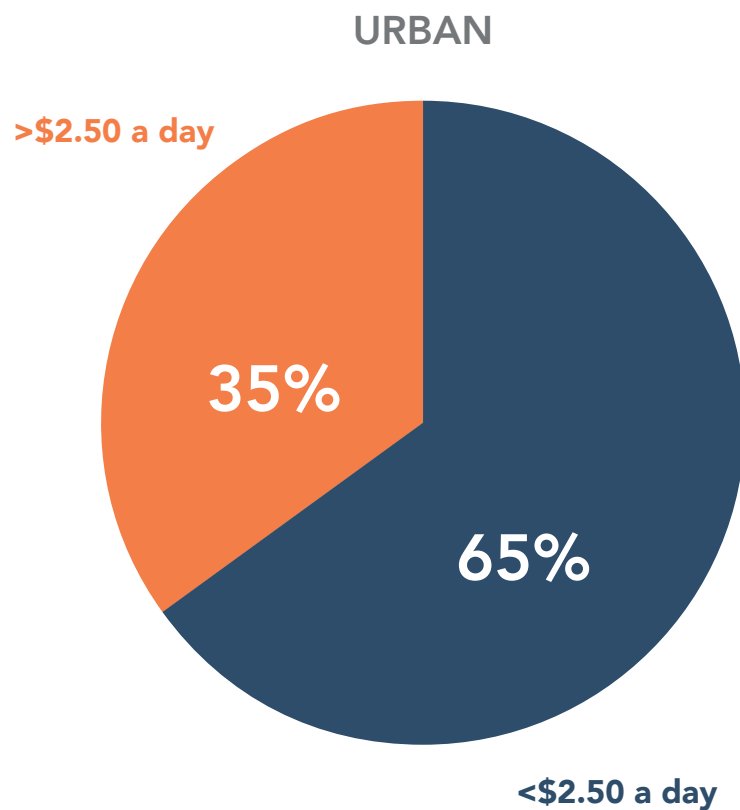
Age of head of household

Sample: Smallholder households, n=2,574.



More than half of smallholders are over 40, in a country where life expectancy is only 54.1 years.

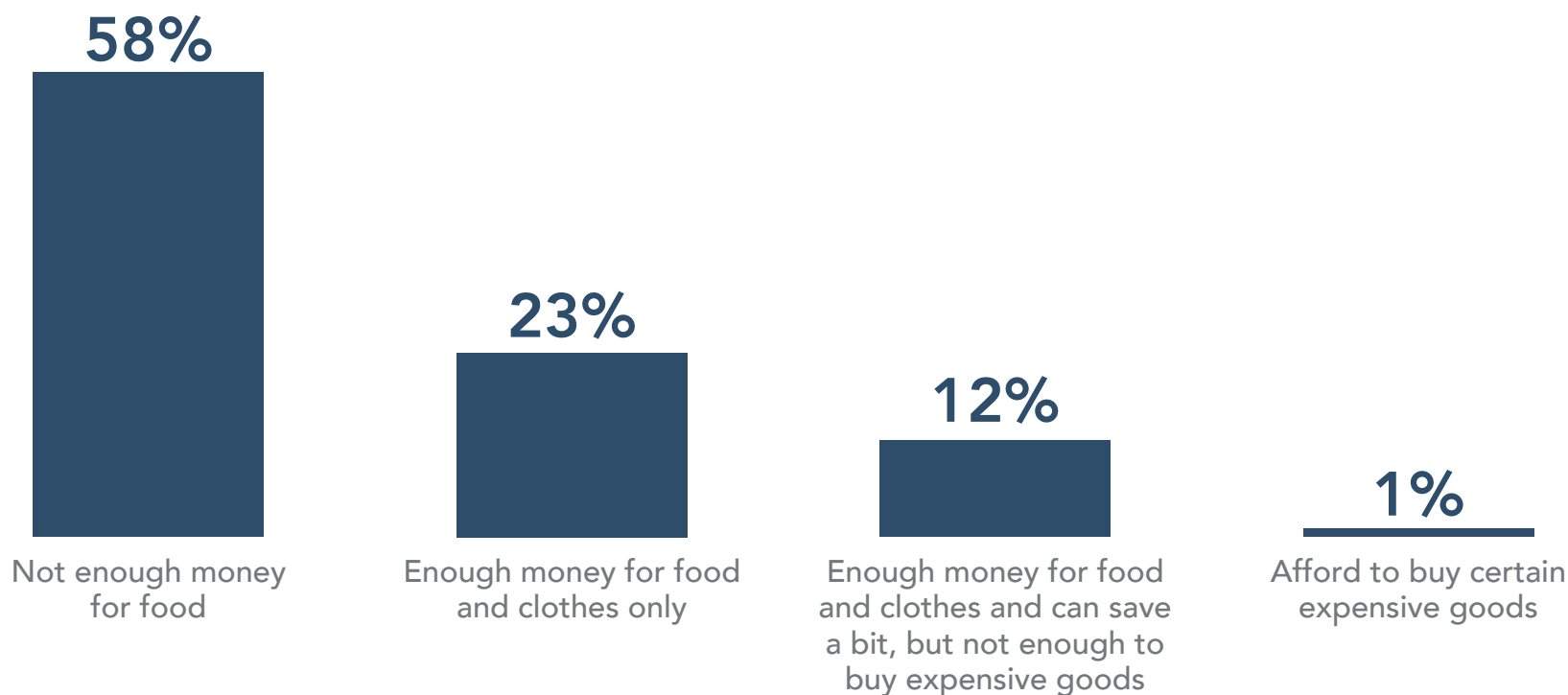
Levels of poverty are high, especially in rural areas.



More than half of smallholder households report inadequate income.

How adequate is your current income?

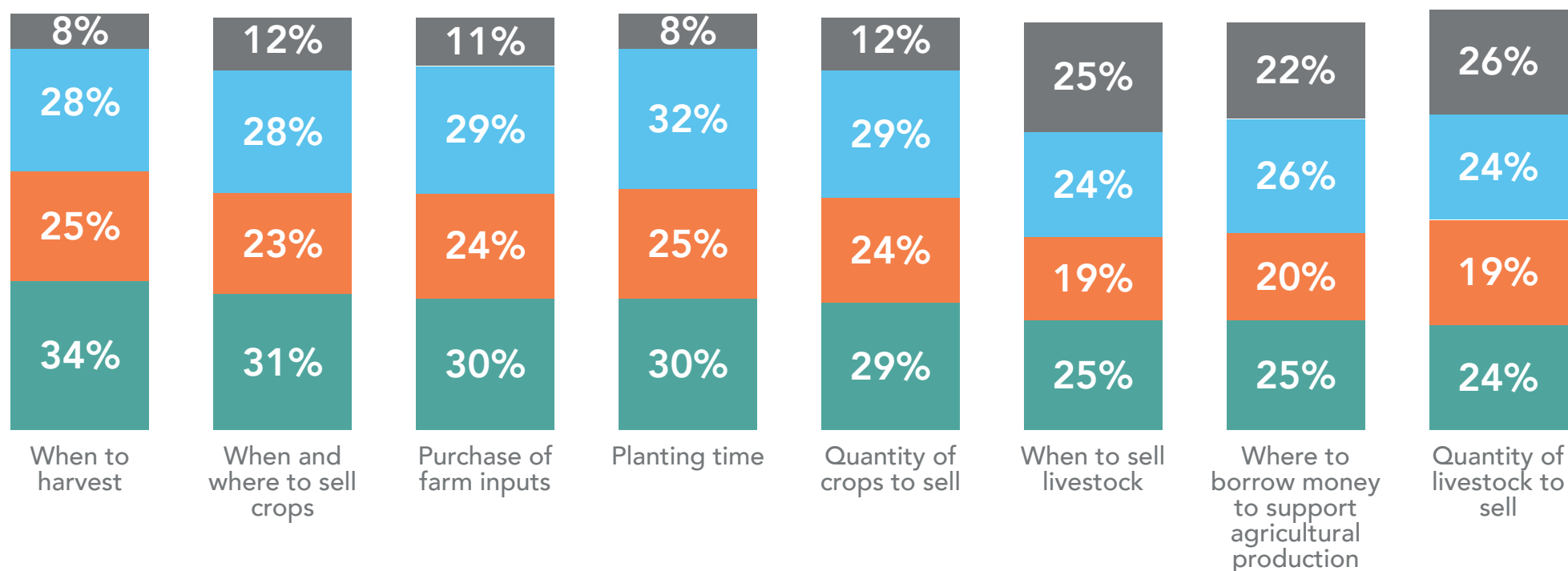
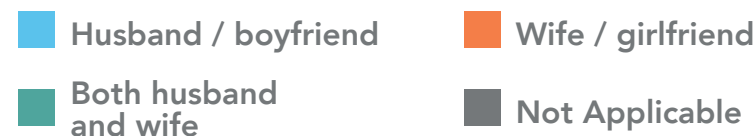
Sample: Smallholder households, n=2,574.



Women are influential in decision-making.

Who decides?

Sample: Smallholder households, n=2,574.



Among smallholder families in Mozambique, 25% of the heads of household are female. And even in households headed by men, women have an important voice.

There are various profiles of smallholder households in Mozambique, and some clear opportunities.

16%

of smallholders are in periurban areas and therefore easily accessible and linked to markets

7%

of the smallholder sector in Mozambique represents nearly

800,000

potential customers

3%

are categorized in segments that indicate openness and ability to benefit from formal financial services, with a further 4% close behind

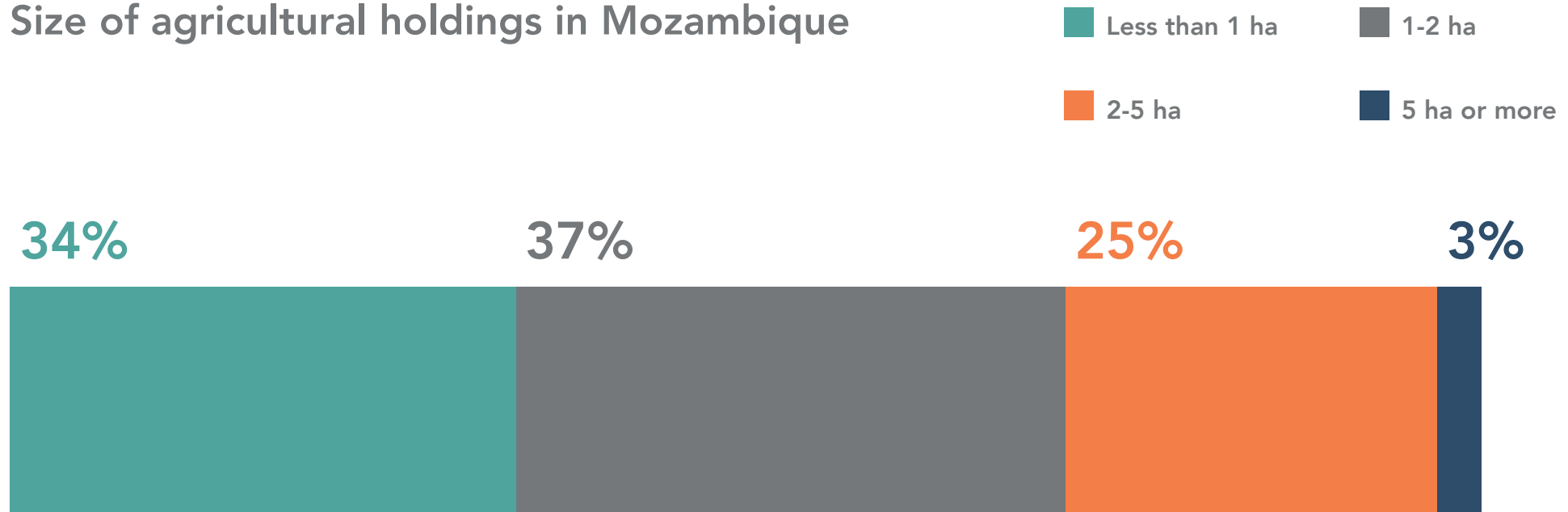


2

Agriculture

Over 70% of landholdings are 2 ha or less.

Size of agricultural holdings in Mozambique

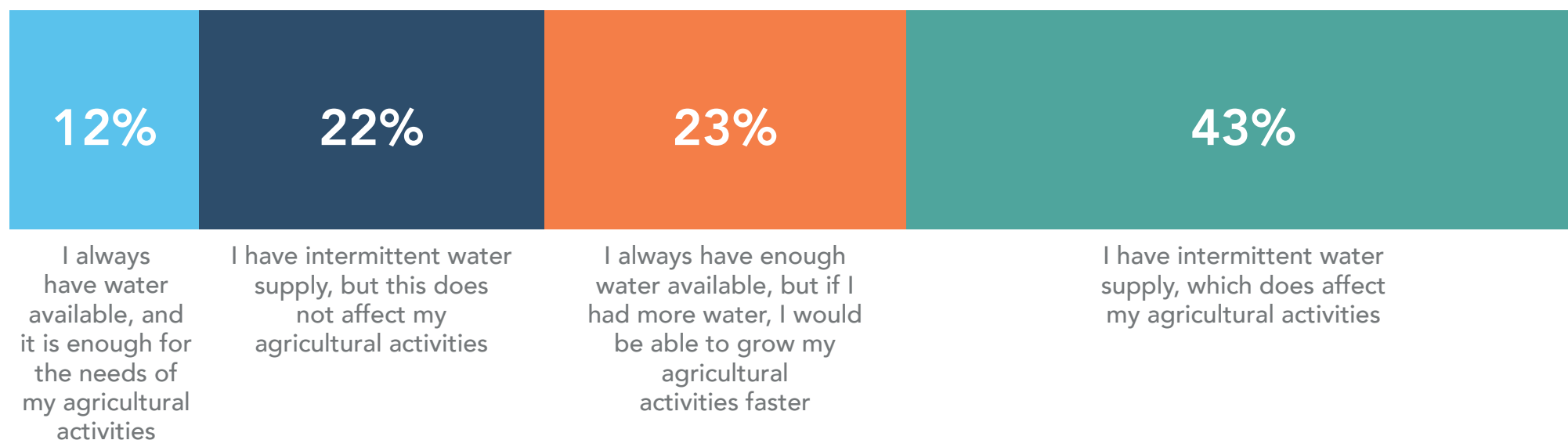


Working with these very small plots, most smallholders produce primarily for consumption, with little available for sale or for trading.

Access to water is a challenge.

Which of the following best describes your water situation?

Sample: Smallholder farmers who participate in household's agricultural activities, n=3,979.

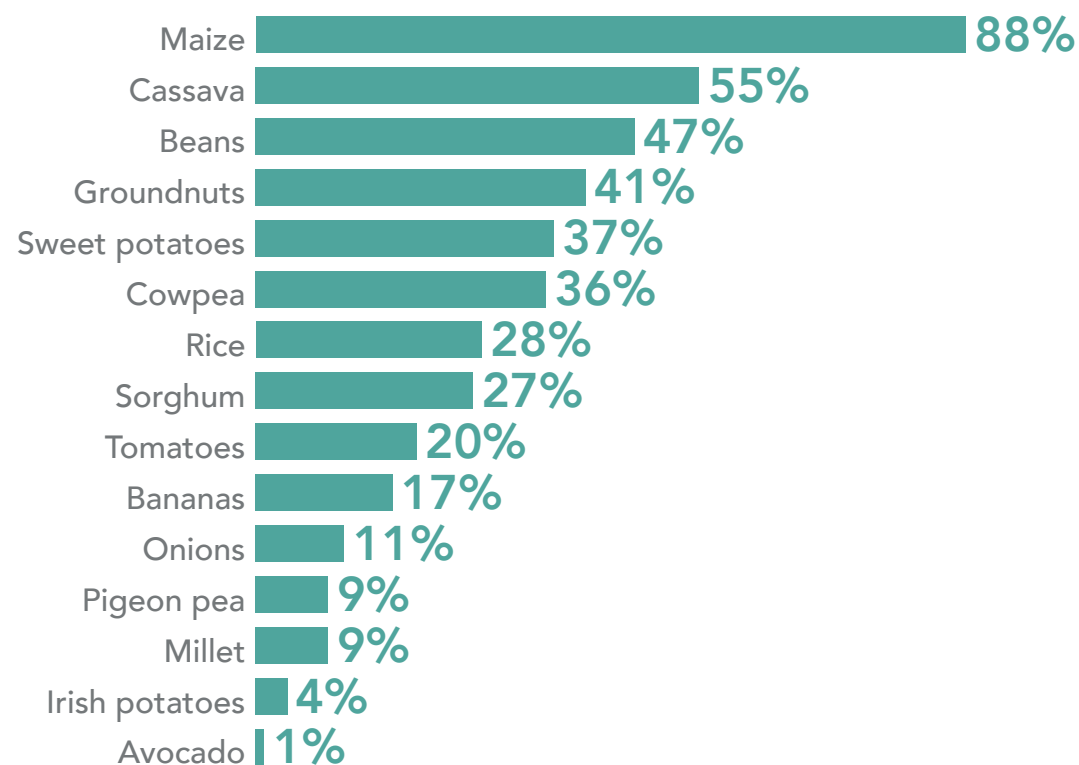


Growing largely staple crops, with little integration in value chains.

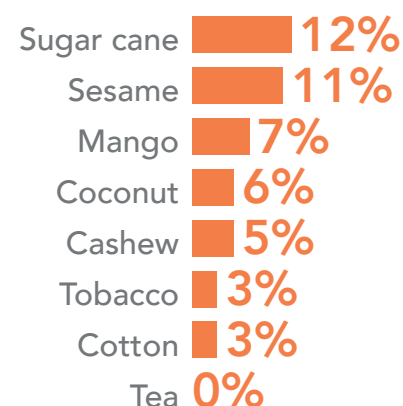
Which of the following crops do you grow?

Sample: Smallholder farmers who participate in agricultural activities, n=3,979.

FOOD AND STAPLES CROPS



CASH CROPS

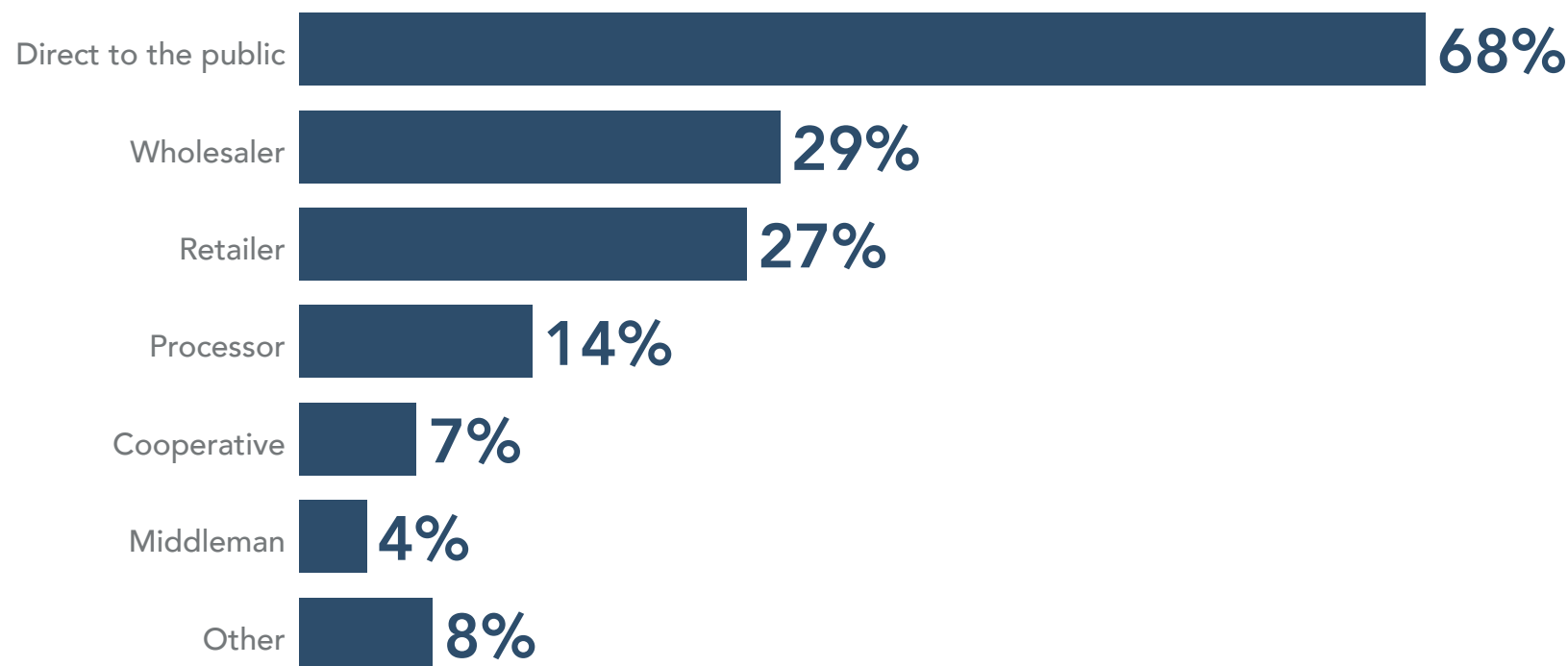


Food and staples are grown mainly for own consumption, but some are also sold or traded.

Selling crops and livestock as a source of income...

Who do you sell your crops / livestock to?

Sample: Smallholder farmers who grow and sell crops, n=2,718. Multiple responses allowed.

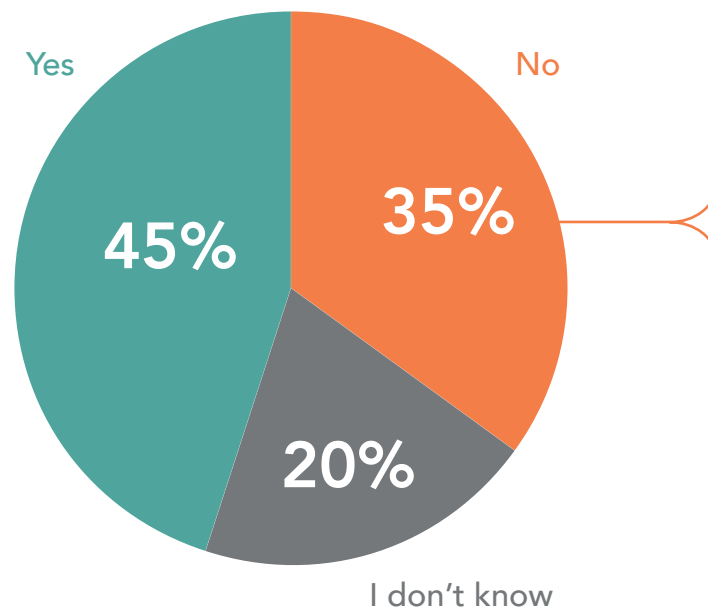


Only 5% of smallholder farmers in Mozambique have a contract to sell any of their crops or livestock. Better infrastructure and market linkages could improve income levels.

...but many think that they might not get the right price.

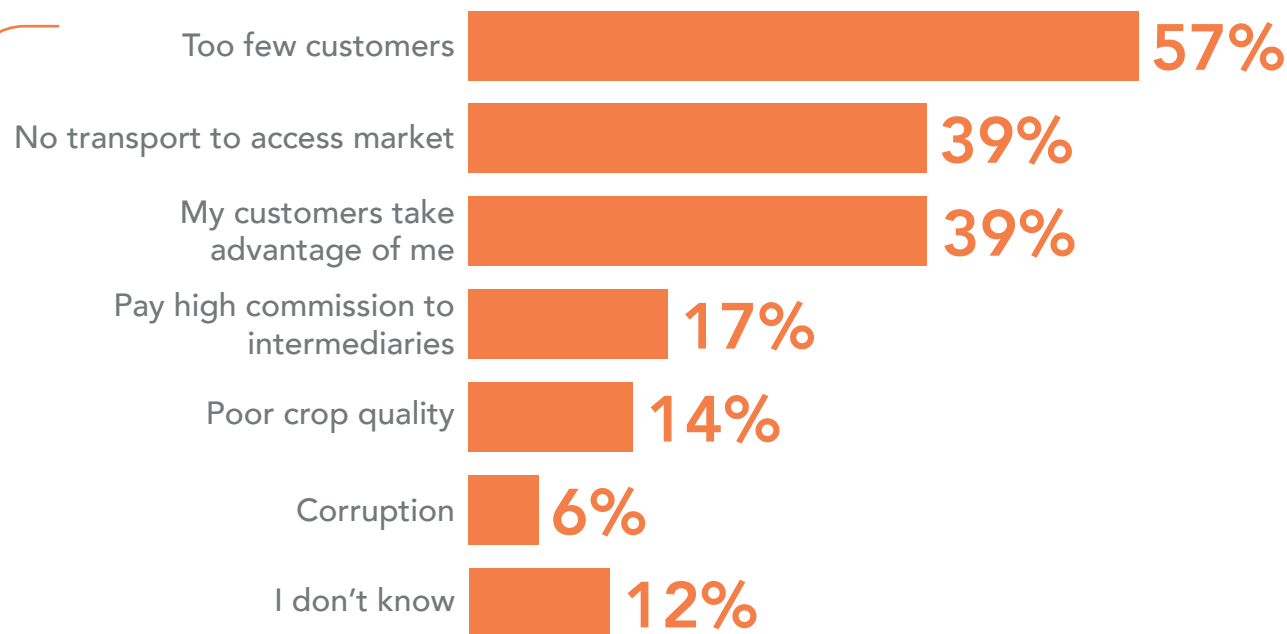
When you sell your crops and livestock, do you get the current market price?

Sample: Smallholder farmers who grow and sell crops, n=2,718.



Why do you not get the current market price?

Sample: Smallholder farmers who do not get current market price for crops and livestock sold, n=973. Multiple responses allowed.

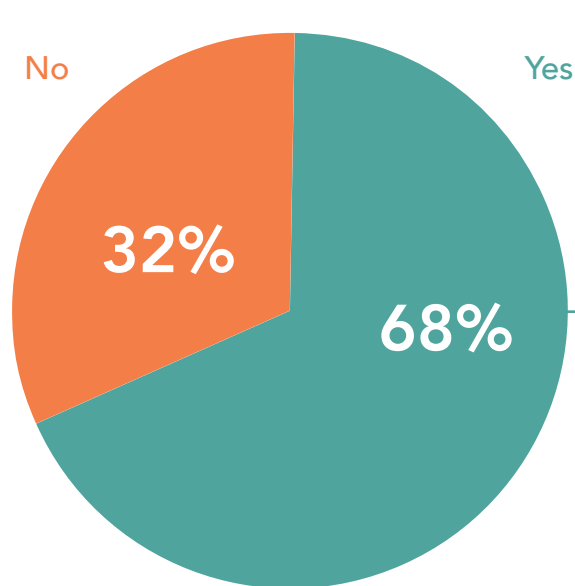


Smallholders in loose value chains have little bargaining power. Organized in well-managed groups, the situation could be very different.

Why store crops after harvest?

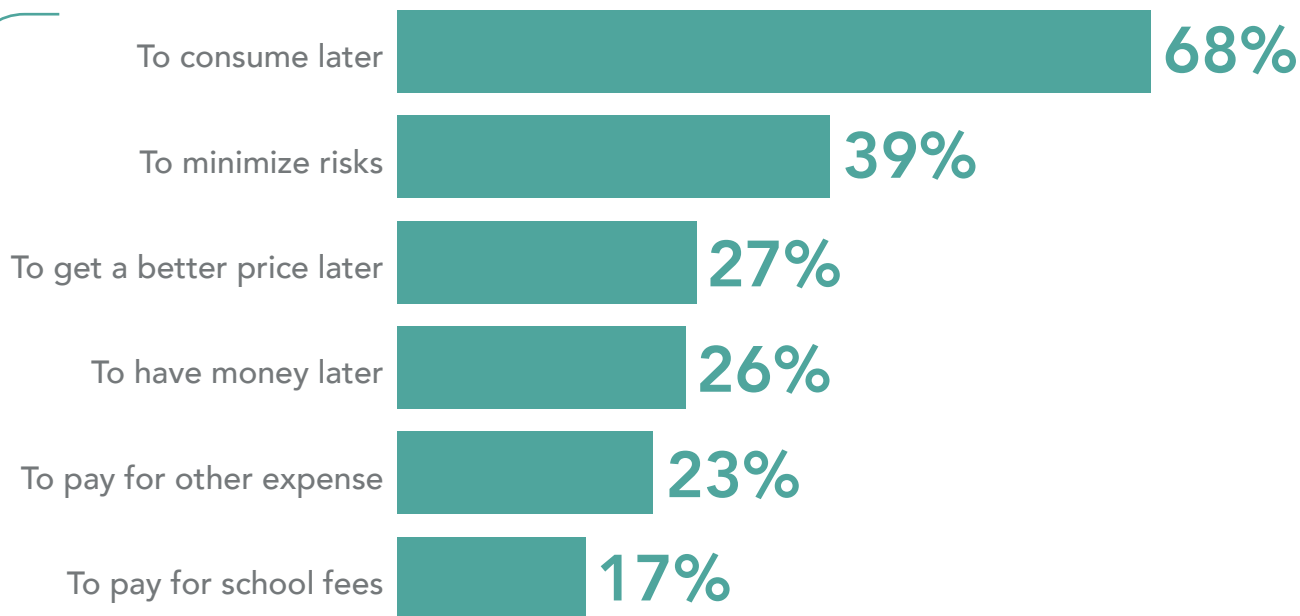
Do you currently store any of your crops after the harvest?

Sample: Smallholder farmers who participate in household's agricultural activities, n=1,753.



Why do you store crops after the harvest?

Sample: Smallholder farmers who currently store any crops after harvest, n=1,115. Multiple responses allowed.



There are a mixture of motivations: for insurance, to maximize income, saving for the future. Of those who don't, most (60%) said that they had nothing left to store, while 22% said that there was no facility nearby.



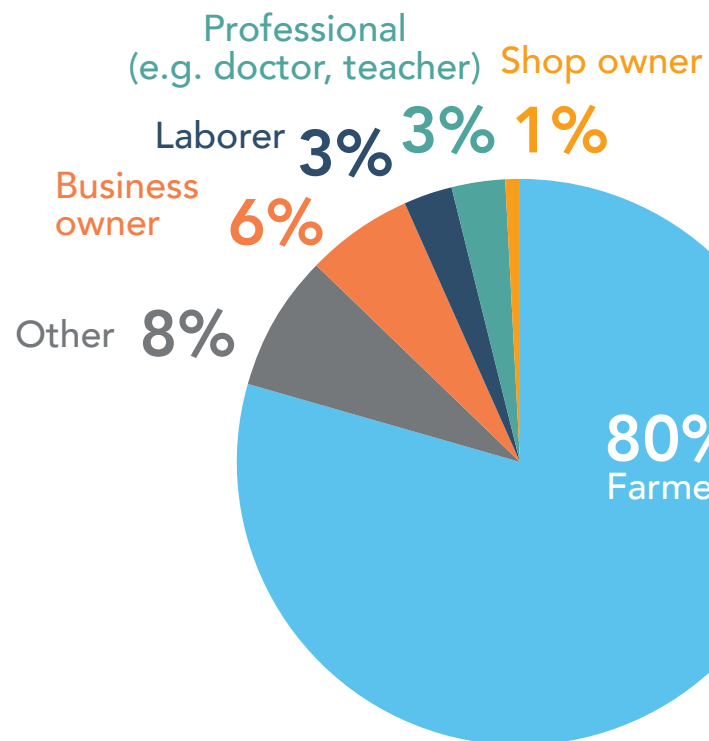
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**Income and
expenses**

Smallholders see agriculture as driving household income...

What is your primary job?

Sample: Smallholder farmers, n=4,456.



Do you generate income from any of the following sources?

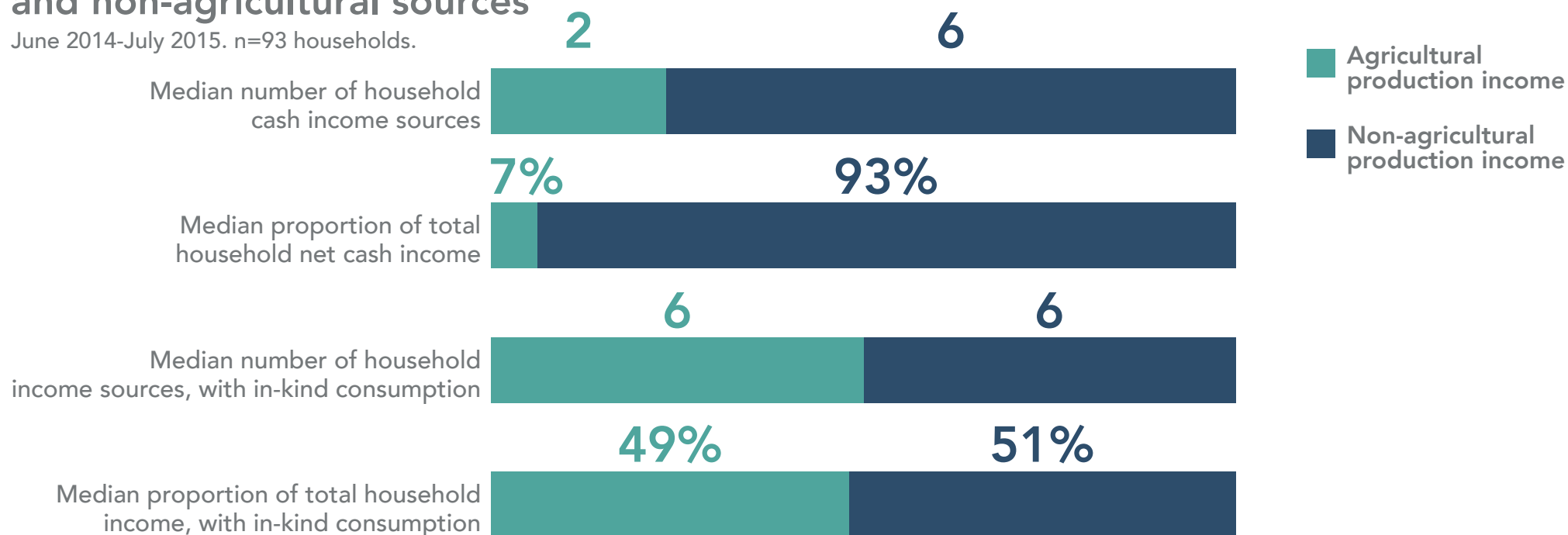
Sample: Smallholder farmers, n=4,456. Multiple responses allowed.



...but agriculture may not be the main source of cash income.

Mozambique Smallholder Diaries: Household income from agricultural and non-agricultural sources

June 2014-July 2015. n=93 households.

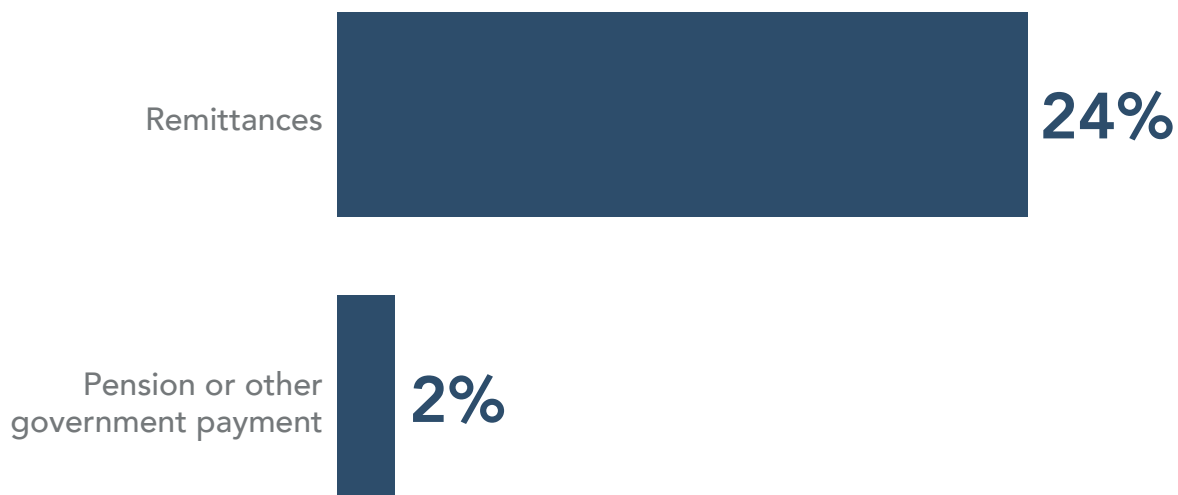


After a year of fortnightly data collection with the Smallholder Diaries sample in Mozambique, the median proportion of household income (i.e. revenue less expenses) from agricultural production was very low. Most families in the sample were non-commercial households, neither earning income nor incurring expenses related to agriculture. Their agricultural output played a key role in household consumption.

A quarter of smallholder farmers receive remittances.

Do you receive income from these sources?

Sample: Smallholder farmers, n=4,456 Multiple responses allowed.

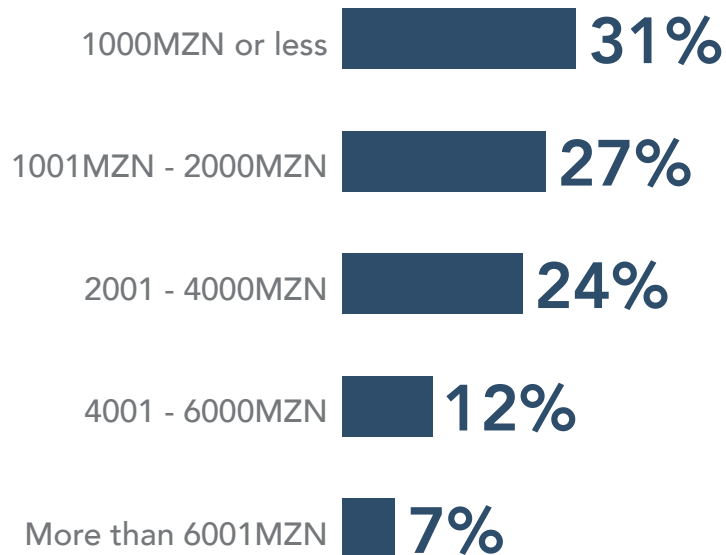


The relatively large percentage of smallholder farmers who receive remittances could provide an in-road for digital financial services.

Household income needs vary.

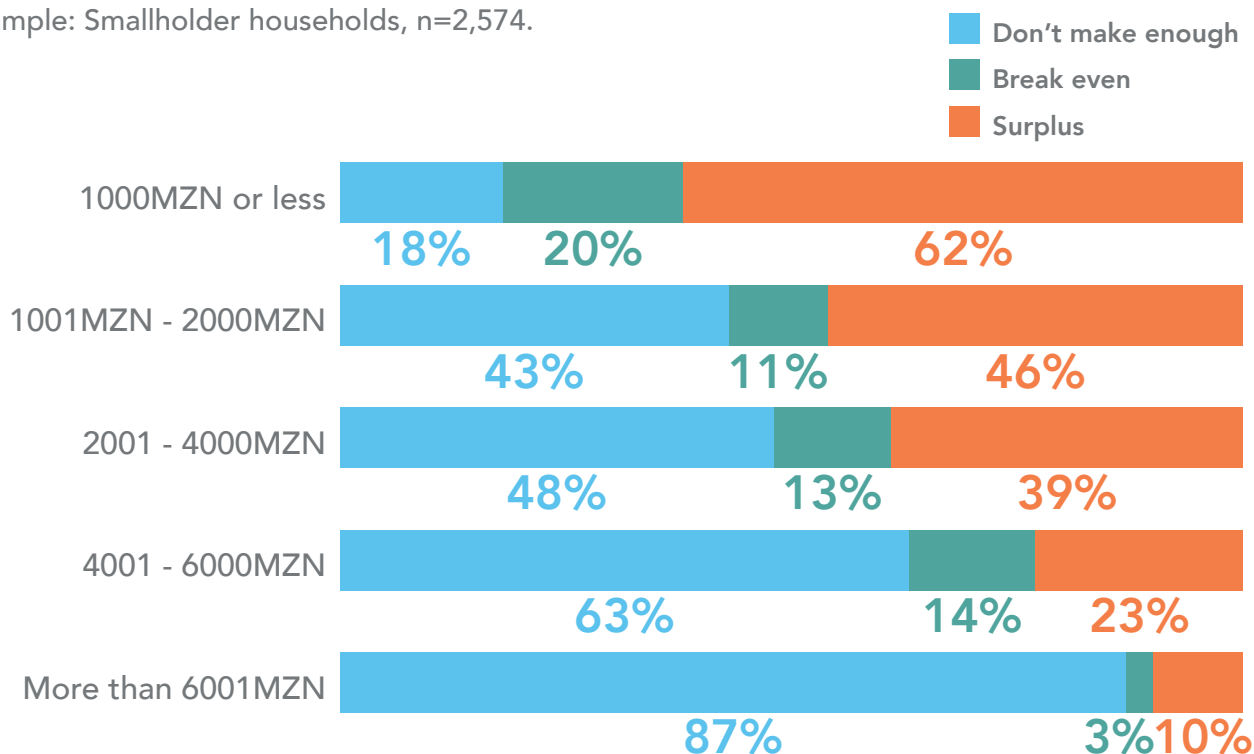
What is the minimum amount your household needs to survive per month (for personal expenses)?

Sample: Smallholder households who gave a minimum amount for households' survival n=1,829.



What is the minimum amount your household needs to survive per month (for personal expenses) by household's average monthly income across all sources of money that your household receives?

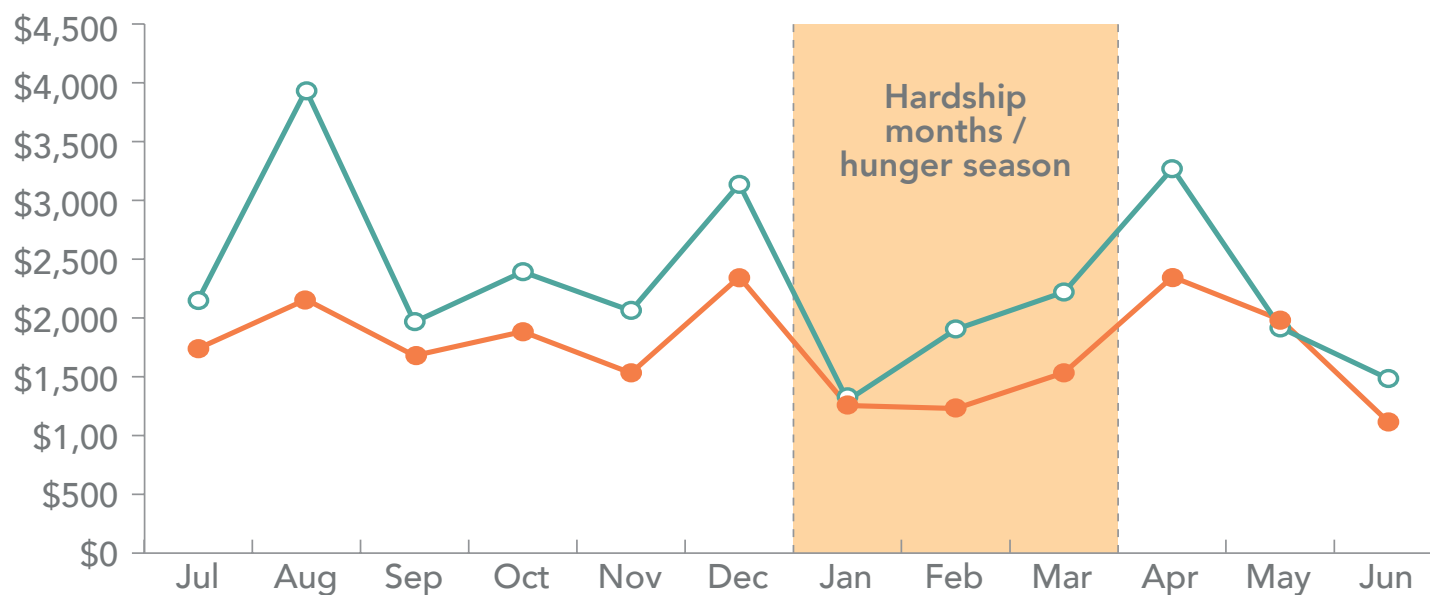
Sample: Smallholder households, n=2,574.



Irregular incomes don't always cover regular expenses.

Mozambique Smallholder Diaries: Net income and household expenditures all sample level

July 2014–June 2015 (US\$).



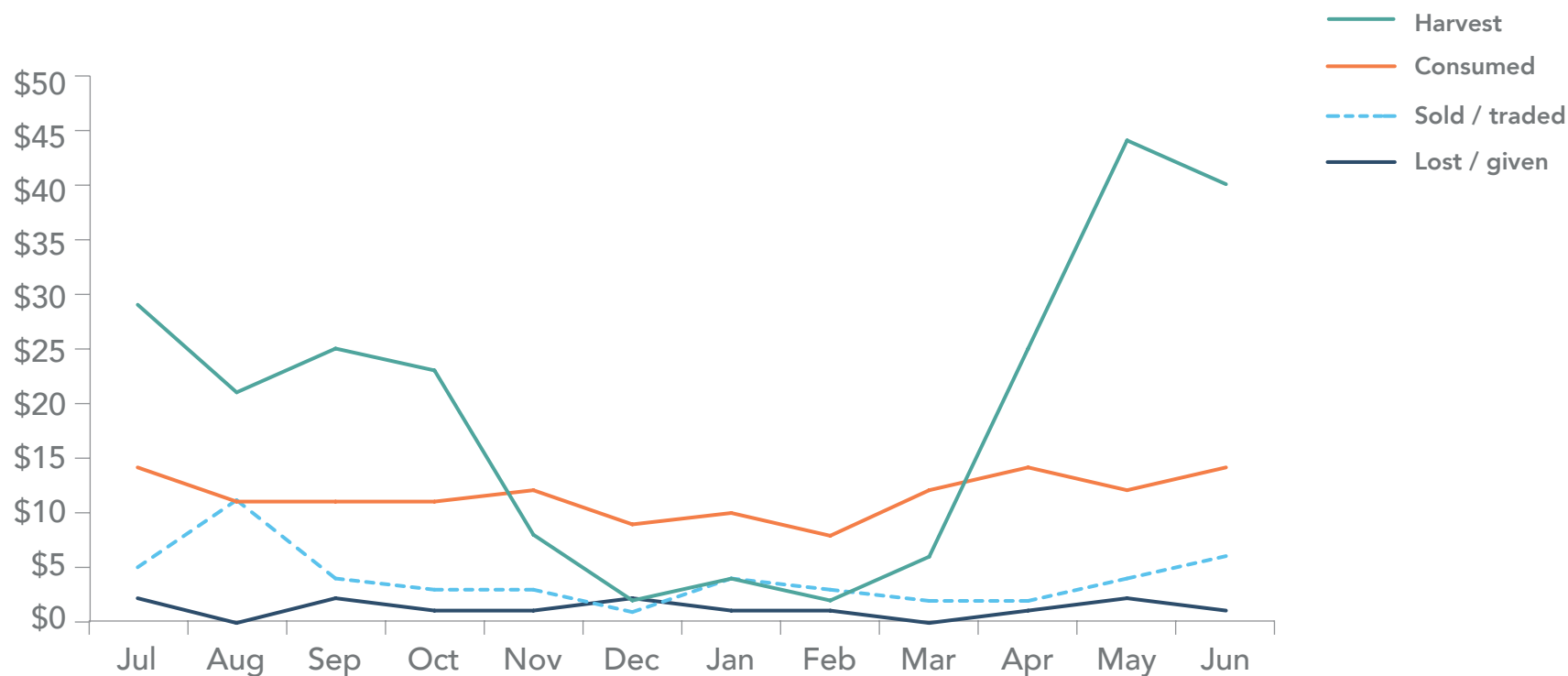
The green income line refers to net income. For agricultural production, and small businesses in particular, income refers to revenue less related expenditures. The red expenses line refers to operational expenses of the household separate from income or financial transactions (e.g., spending on groceries, clothes, education, transportation).

On average, smallholders had 2 harvests per year that provided peaks of income, but expenditures were relatively smooth. Insufficient income is a challenge, and so is this mismatch in the timing of income and expenses.

Most income is in-kind, and peaks at harvest time.

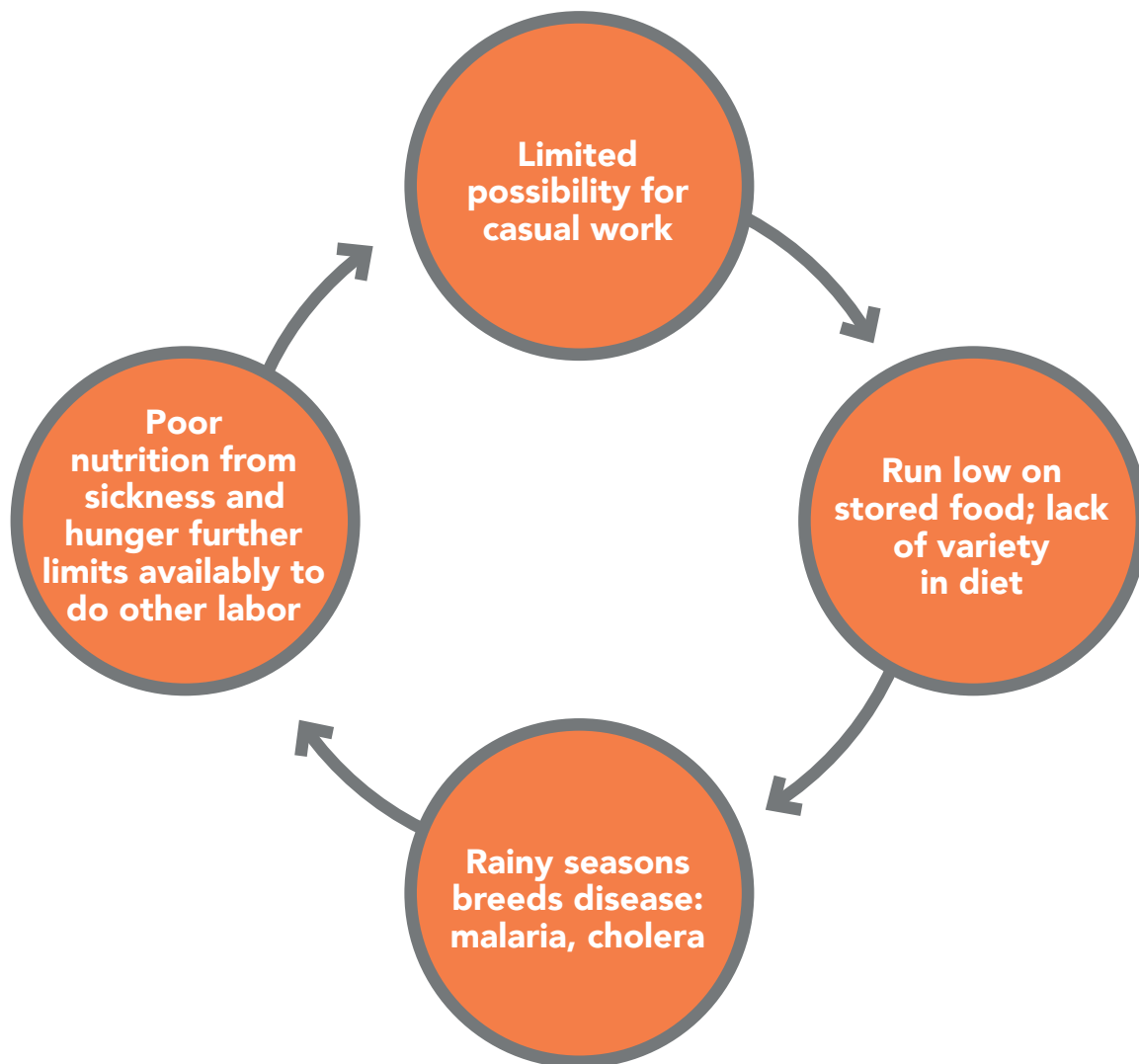
Mozambique Smallholder Diaries: Monthly average value of crops (self-reported)

July 2014–June 2015 (US\$).



Participants in the Smallholder Diaries were asked to put a value on the crops they harvested, consumed, sold or traded, and lost for each month of the year. Most of their agricultural income was in-kind.

The hungry season

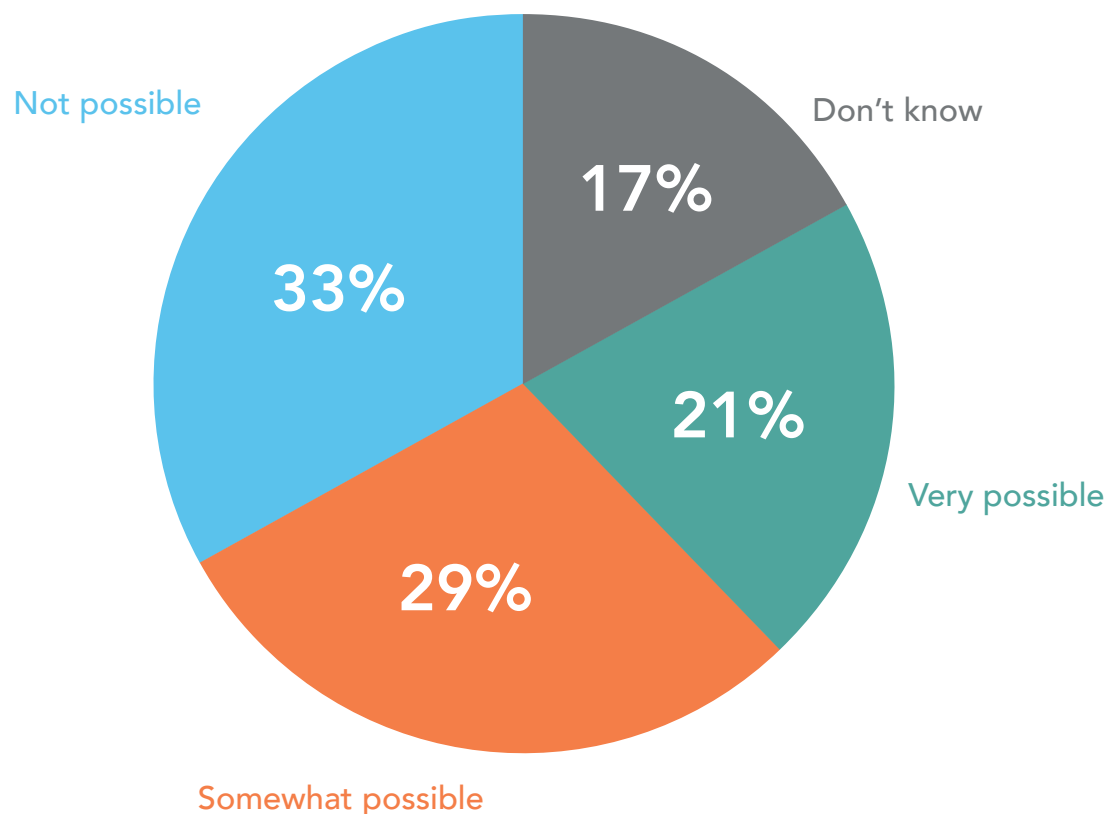


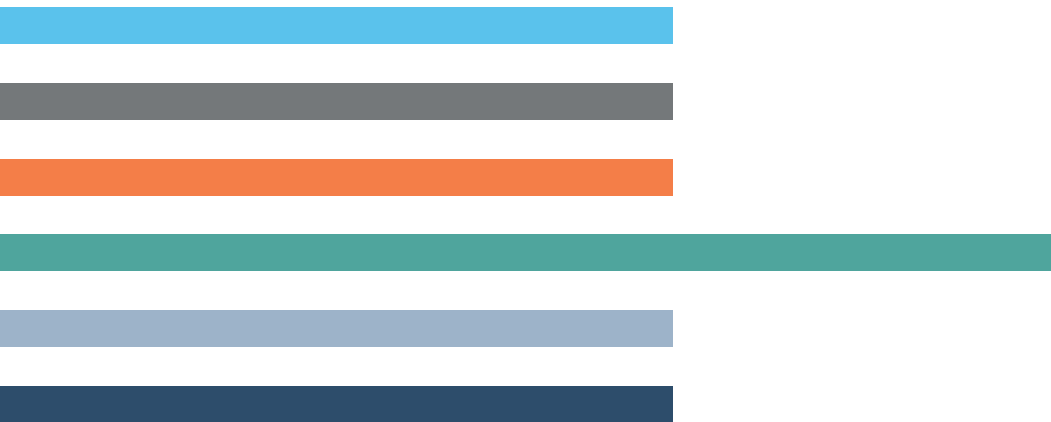
The problem with the 'hungry season' was less the lack of food, and more the lack of variety in the diet, leading to lack of resistance to disease in the season when illness is rife. Reduced income from casual work results in lack of access to medical treatment.

Coping with emergencies is a struggle.

Imagine that you have an emergency and you need to pay 1,000 meticaais. How possible is it that you could come up with 1,000 meticaais within the next month?

Sample: Smallholder farmers, n=2,209.





4

Financial tools

Cash management strategies

So what financial instruments are potentially available to smallholders to manage?

- Income – casual labor, sale of crops or assets, loans from friends or neighbors
- Stored food crops as a form of savings
- Informal savings: mainly with family and friends, but also through savings groups
- Formal savings

Financial tools available are limited and advancing financial inclusion implies a gradual journey from informal to formal and savings, not credit, is the priority. Key drivers for the use of formal services tend to come from outside – i.e. the smallholder is required to have an account to receive payments.

Smallholder families are using very few financial tools...

Mozambique Smallholder Diaries: Use levels and other data for common financial devices

n=93 households.

Top 5 Savings Instruments	%
Savings in the house	87%
Lending to family and friends	41%
Credit given	18%
ROSCA	12%
ASCA	9%

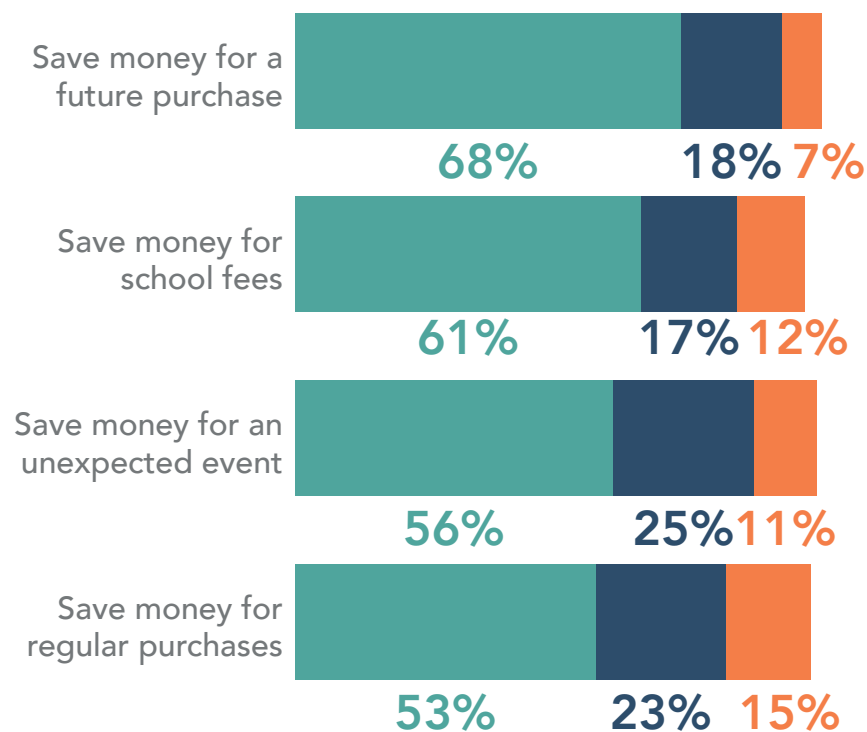
Top 5 Credit Instruments	%
Borrowing from family and friends	59%
Credit at a store	22%
Borrowing from an informal group	5%
Pawn	5%
Act as Money Guard	5%

In line with results from the National Survey of smallholder households, the sample of smallholder families in the Financial Diaries used very few financial tools. Saving was more prominent than credit, though this meant largely saving at home. Only a fraction of the sample was engaged in informal savings and credit groups, and all participants in ASCAs were women.

...but the desire to save is strong.

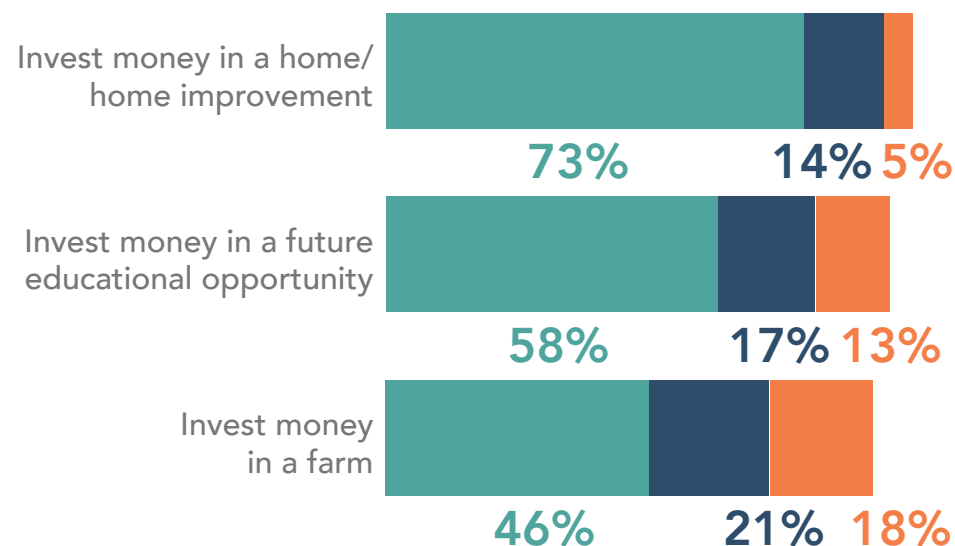
How important is it for your household to save for each of the following?

Sample: Smallholder farmers, n=2,209.



How important is it for your household to invest in each of the following?

Sample: Smallholder farmers, n=2,209.

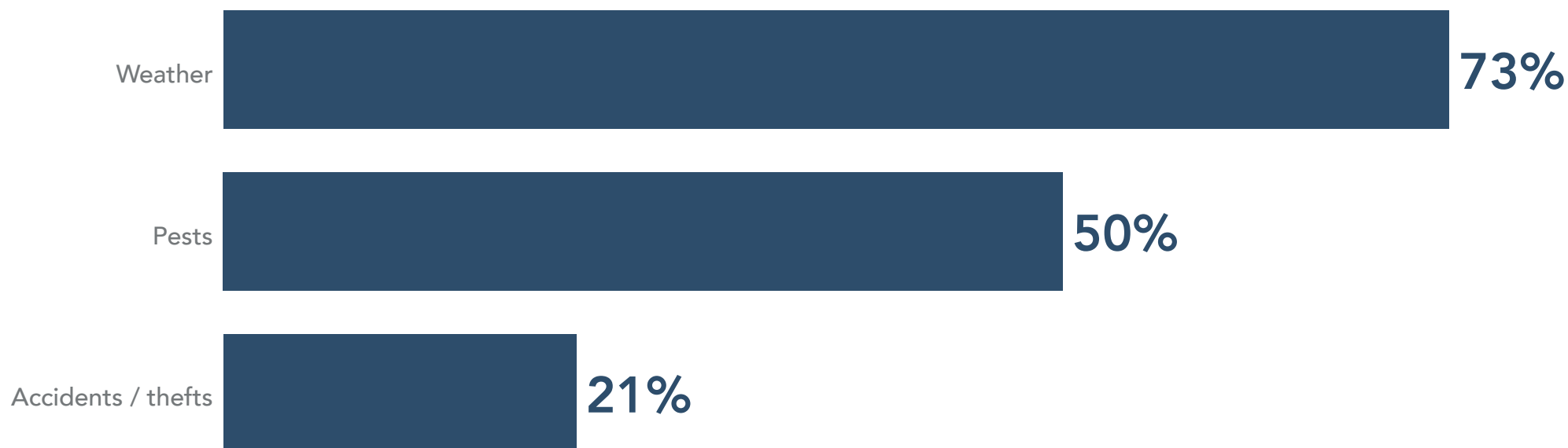


Very Important Somewhat important Not important

Weather shocks and pests drive crop loss.

Have your agricultural activities been seriously affected by any of the following events in the past three years?

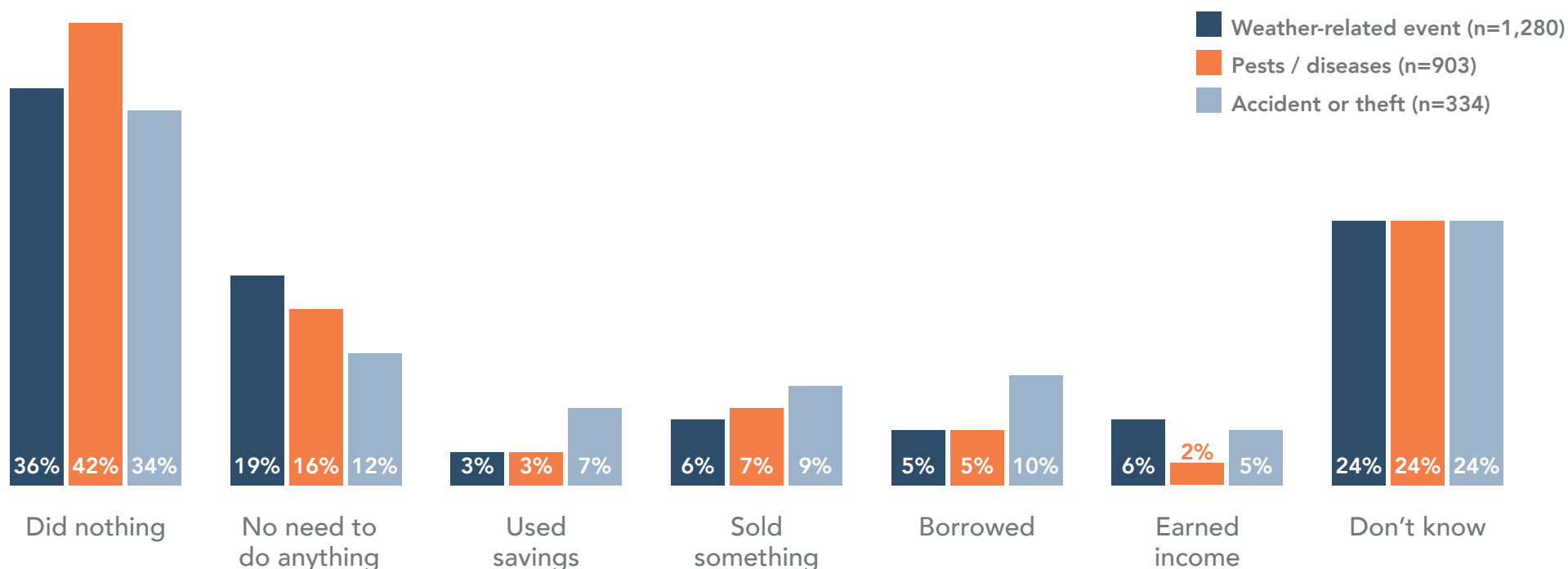
Sample: Smallholder farmers who participate in household's agricultural activities, n=1,753.



When facing a shock, smallholders often have no specific coping mechanism.

How did you mainly cope when this happened?

Sample: Smallholder farmers who say their agricultural activities been seriously affected by each category, n=2,209.

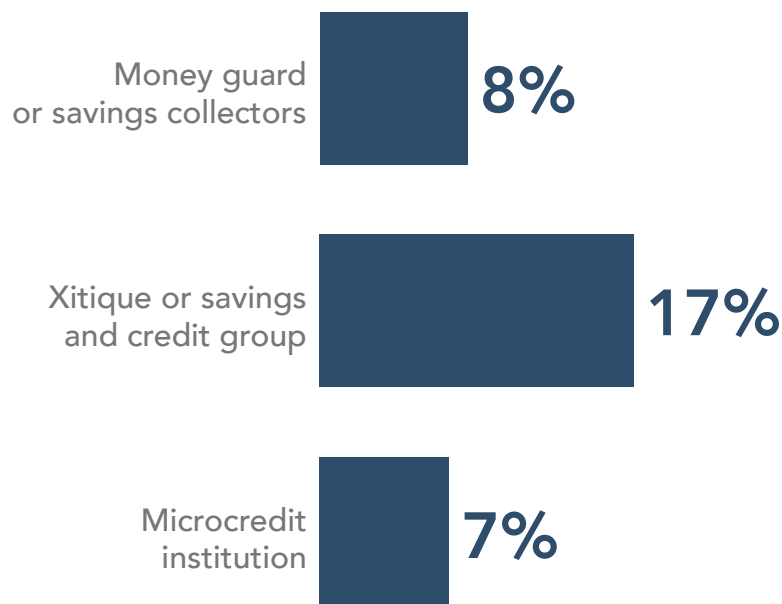


Many smallholder households have no specific response to these shocks. This signals a lack of tools with which to cope and/or that the household did not find the shock severe enough to respond.

Few smallholders use non-bank financial institutions or informal savings tools.

Have you used the following?

Sample: Smallholder farmers, n=2,209.



Use of NBFIs and informal financial services is very limited. But experience shows that, presented with a mechanism for saving, such as an ASCA, people do save.

Accumulating Credit and Savings Associations (ASCAs): A proven positive boost to savings

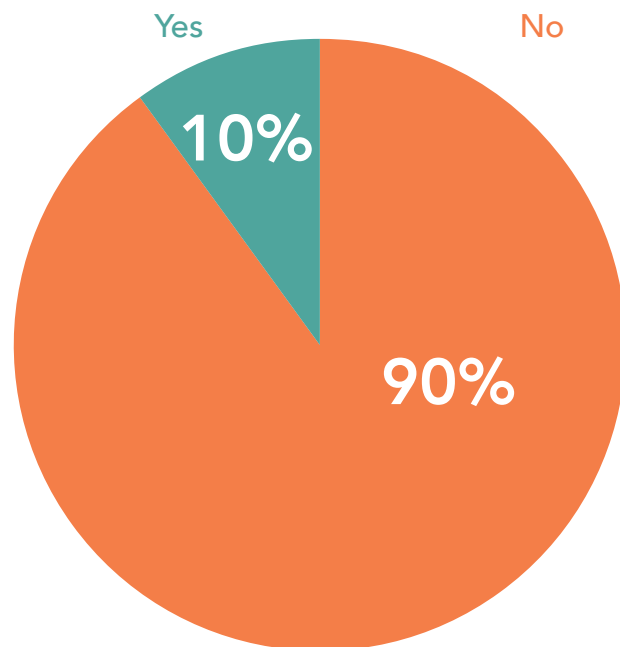
A study of the impact of ASCAs in neighboring Malawi indicated that, compared with a control group, membership in an ASCA resulted in significantly improved outcomes. These include:

- Higher level of savings
- Better nutrition, measured by the number of meals consumed
- Increased income from non-agricultural business activities
- Increased house size
- Increased use of fertilizer

Few smallholders have a bank account...

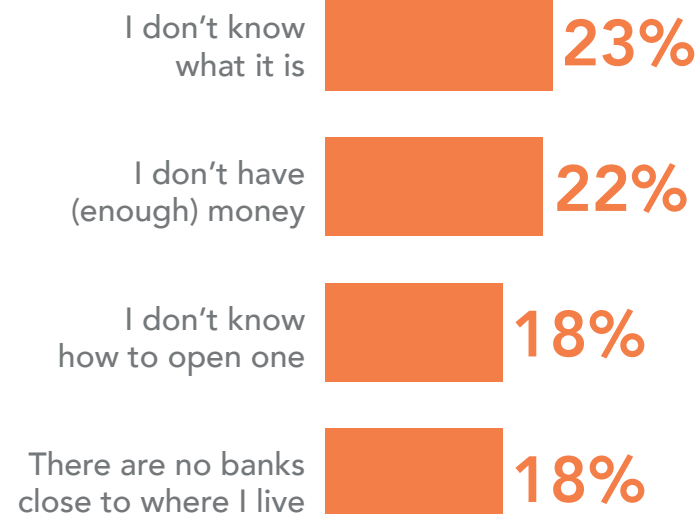
Do you personally have a bank account that is registered in your name?

Sample: Smallholder farmers, n=2,209.



What is the main reason you do not have a bank account?

Sample: Smallholder farmers who don't have a bank account, n=1,941.

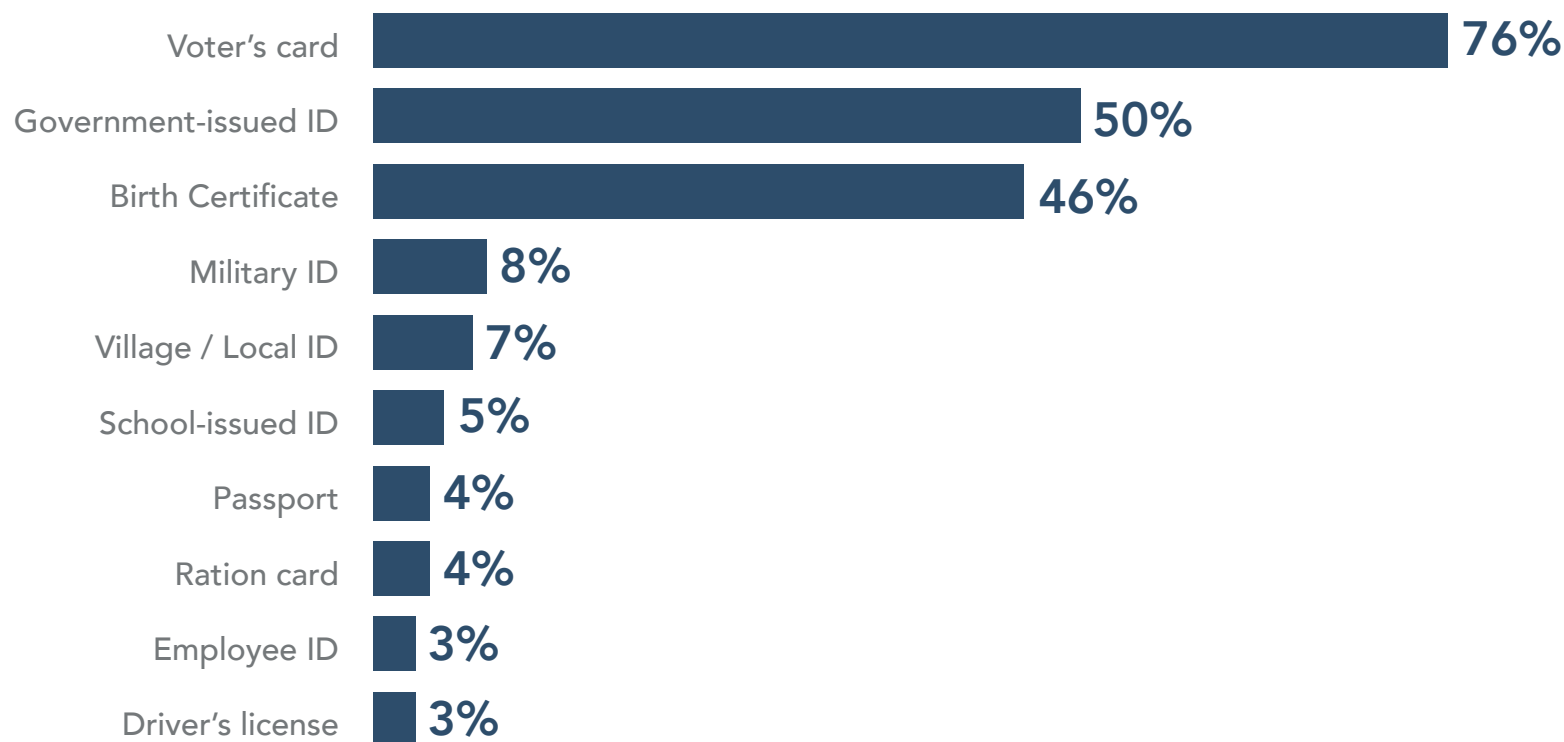


Banks, working alone, can only make a limited contribution to financial inclusion.

...and bank accounts can be challenging to open.

Do you have any of the following types of an official identification?

Sample: Smallholder farmers, n=4,456. Multiple responses allowed.



To open a bank account, you need ID. Banks prefer an official identity card. They can accept a voter's card, but often don't. They also want proof of residence, but an address in rural areas is rare.

50



5

**Digital financial
services**

Three key challenges in Mozambique

Lack of awareness and capability

The National Survey showed the low penetration and lack of awareness of digital financial tools. Even in urban areas, digital services have been slow to take off. Successful take-up will require high quality and sustained financial education.

Agent Network

A sine qua non is the development of a network of sound, profitable, liquid agents. Frequently an afterthought, the absence of a well-functioning agent network has been one of the key factors in stymieing the growth of digital financial services.

Interoperability

The largest mobile money operator has limited coverage in rural areas; the mobile phone operator with the best rural coverage is only just launching its mobile money product.

Promising for financial inclusion, but a long way to go.

Lack of access to a mobile phone

46%

have one or more
mobile phone

49%

say they don't have
the money to buy a
mobile phone

56%

have ever used
a mobile phone

Lack of experience with mobile money

95%

recognize the importance
of a mobile phone for
communication

12%

recognize the
importance of mobile
phones for financial
transactions

2%

were paid for their
crops via mobile money

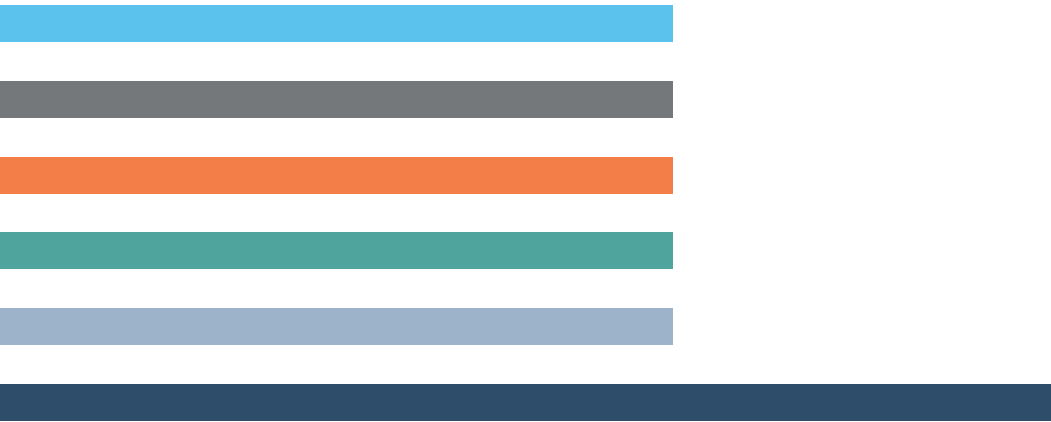
A changing landscape in Mozambique?

- The initial inventory of assets in the Smallholder Diaries, identified that almost half of the 93 families had mobile phones, but over the year of data collection, some 20 purchases of a mobile phone were recorded. This represents a substantial increase in access.
- Many initiatives in Mozambique promote technical assistance for farmers via mobile phones, and some outgrowers even supply their farmers with phones.
- M-Pesa is increasing its promotional activities in rural areas, and Movitel has launched its mobile money service. Pressure will increase for interoperability.
- Apps are being developed to help ASCAs manage their savings. And some groups are using DFS to link to banks.

High potential solutions

- Mobile wallet to store value
- Applications to assist the management of ASCA funds
- Payment solution for crops sold to commodity traders and outgrowers
- Solutions to receive remittances and pensions, and their adoption by providers
- And over the medium term, weather insurance and credit

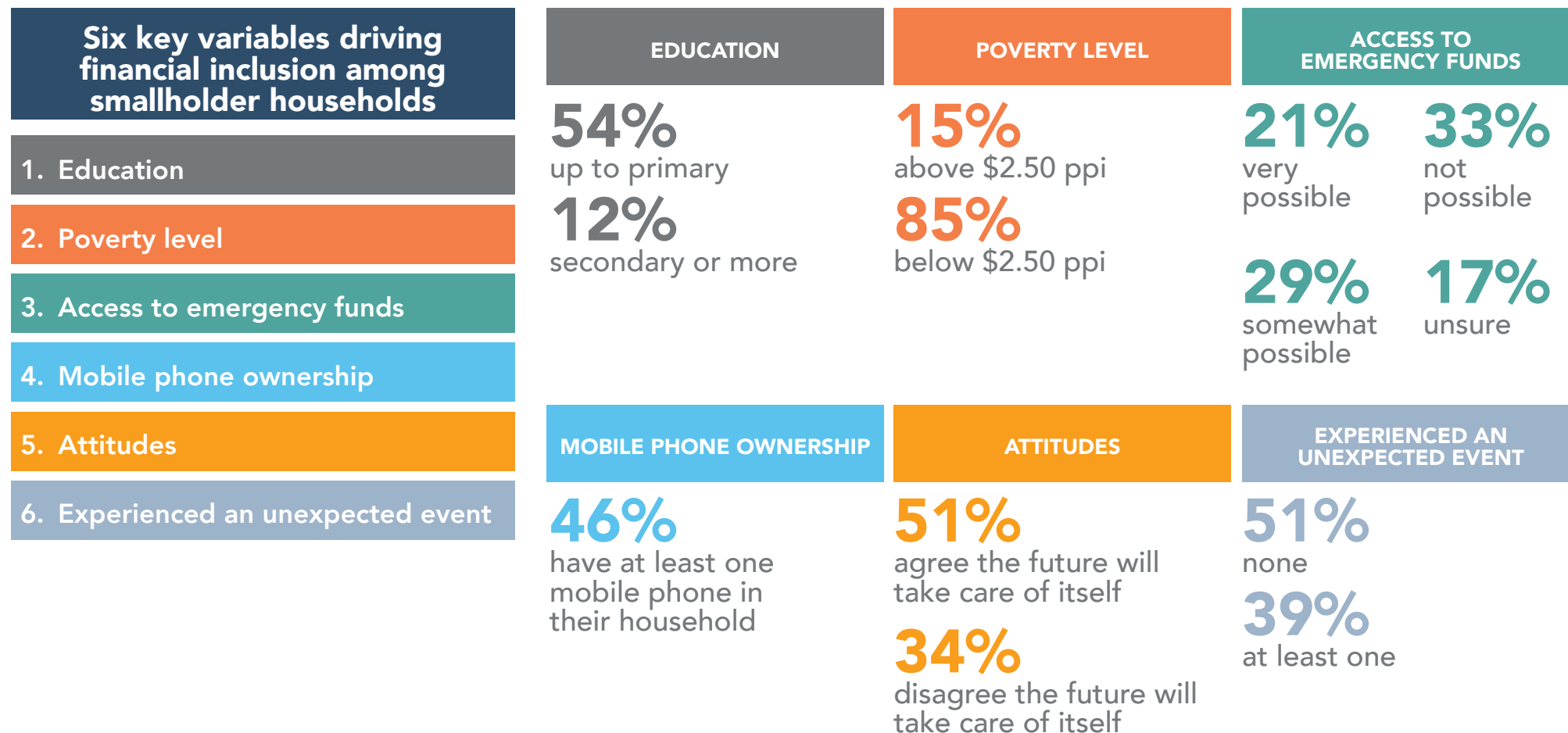
DFS, whether provided by a mobile money operator or a bank, will not be a silver bullet.



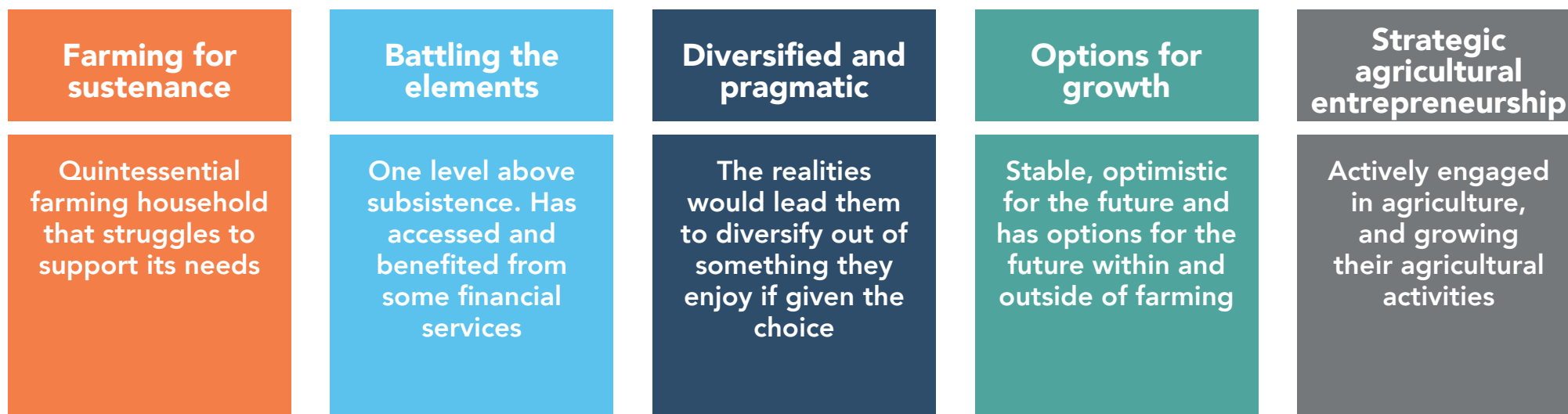
6

Segmentation

Smallholder households are not homogeneous.



Five segments of smallholder households in Mozambique



Degree of integration into the value chain



Five segments of smallholder households in Mozambique

Five segments of smallholder households in Mozambique:
Subsistence farming households are the largest profile

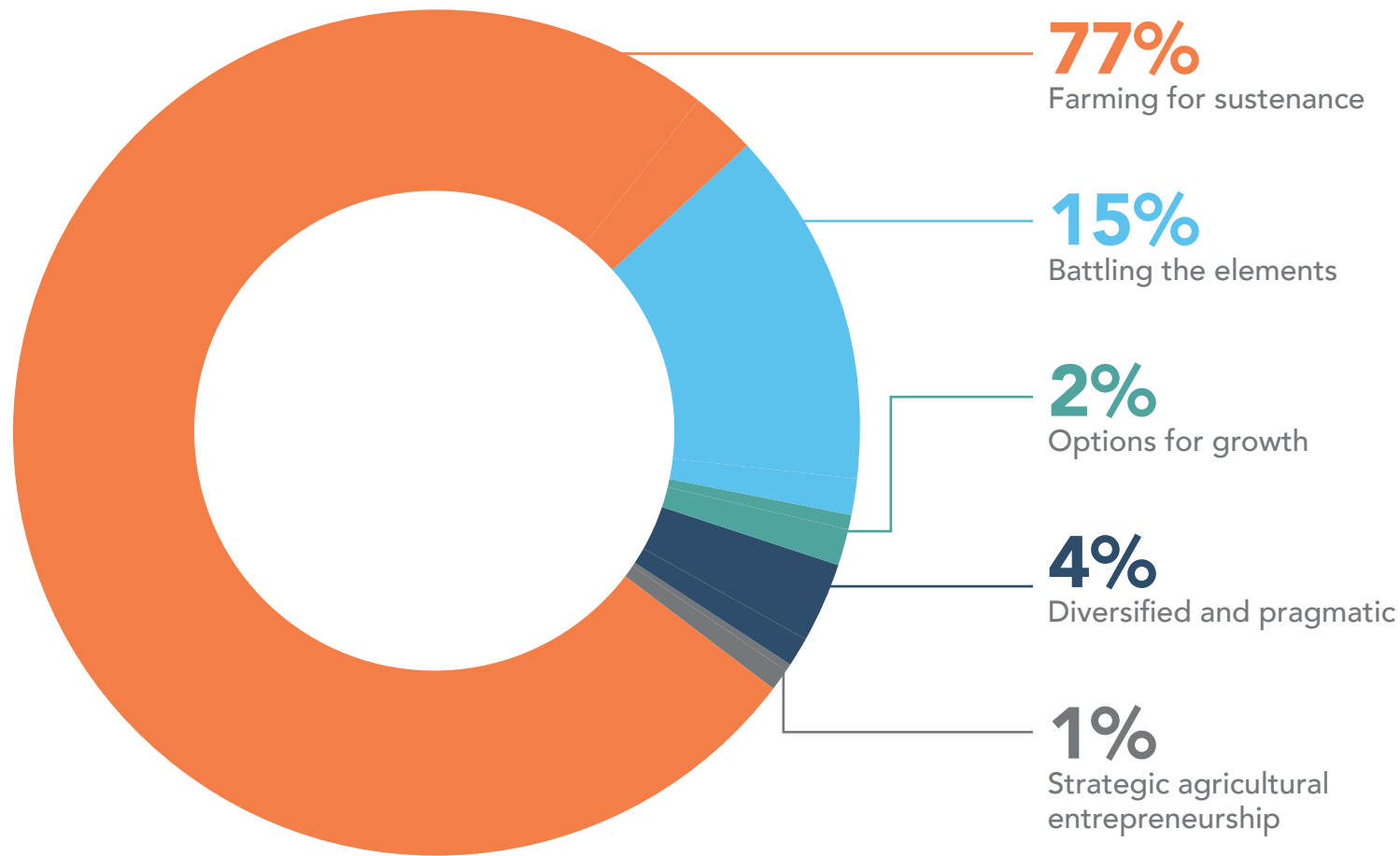
SEGMENT	Farming for sustenance	Battling the elements	Diversified and pragmatic	Options for growth	Strategic agricultural entrepreneurship
PROPORTION IN MARKET	77%	15%	4%	2%	1%
PROFILE	Key interventions likely to be non-financial until income increases	Already accessing some financial services; promote community-based organizations: ASCAS and Farmers Associations	Good level of education, high mobile phone ownership, markedly better-off than first 2 groups	Best-educated of all the groups, wealthiest and owning a mobile phone – a key target group	Also well-educated, relatively wealthy and most committed to farming

Implications for financial inclusion by segment in Mozambique

Which services are most appropriate for each segment?

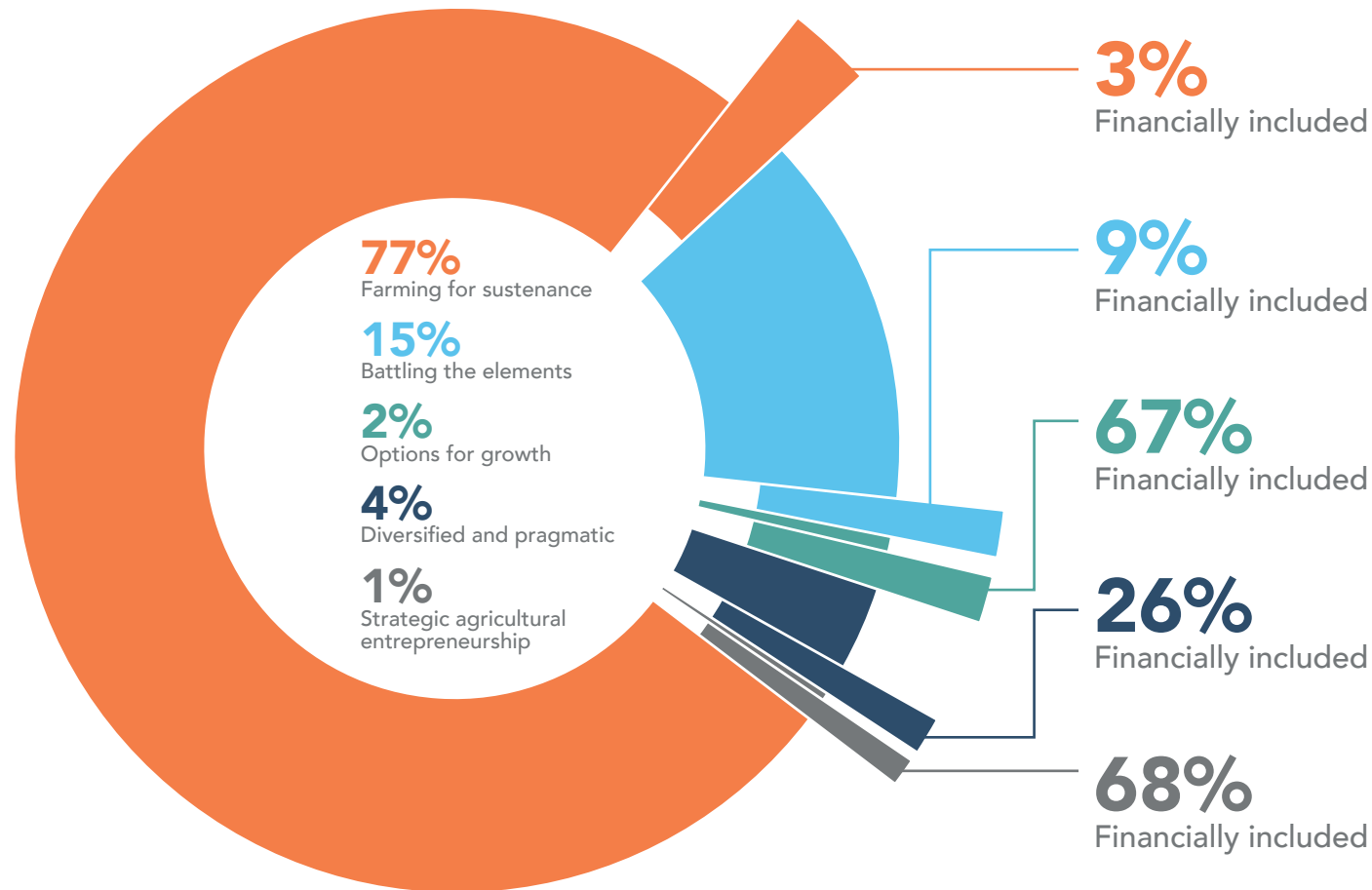
SEGMENT	Farming for sustenance	Battling the elements	Diversified and pragmatic	Options for growth	Strategic agricultural entrepreneurship
KEY FINANCIAL TOOLS	<ul style="list-style-type: none"> • Graduation and other approaches to build livelihoods and resilience • Savings products for shocks and consumption smoothing • Informal savings and lending groups 	<ul style="list-style-type: none"> • Need for risk mitigation strategies, including improved seeds and extension services • Financial products for family needs: Health, education, energy, etc. 	<ul style="list-style-type: none"> • Savings, layaway, and credit products for inputs • Aggregation services • Financial products bundled with information and extension services 	<ul style="list-style-type: none"> • Formalized connections value chains to increase access to financial services • Post-harvest storage and financing solutions 	<ul style="list-style-type: none"> • Digitize engagement with value chains to build credit and facilitate access to formal FSPs • Credit for investments in assets to increase productivity

Five segments of smallholder households in Mozambique



Five segments of smallholder households in Mozambique

Percentage of segments financially included



The scope for increasing financial inclusion is greatest in the lower segments. The higher-income, less vulnerable segments are smaller, but offer wider opportunities for a range of financial solutions.



IMPLICATIONS

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Advancing financial inclusion: Key players

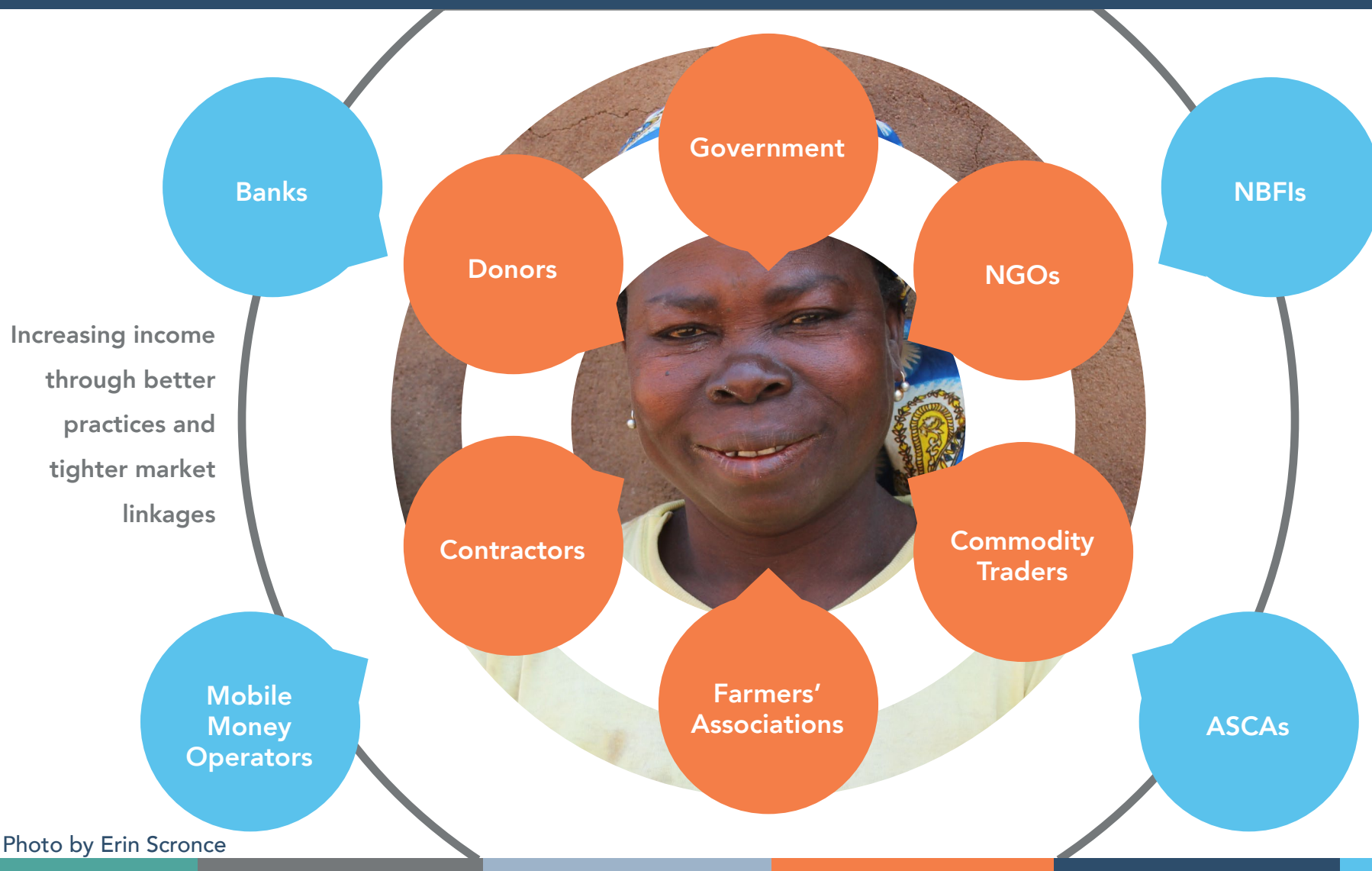


Photo by Erin Scronce

Advancing financial inclusion: Key players



Advancing financial inclusion will require collaboration between many players and in all kinds of combinations. No one player can make significant advances on their own. Mobile technology and DFS will be a key enabling factor in these interventions.

- Promotion of ASCAs and Farmers' associations by Donors/NGOs
- Link ASCAs to banks/NBFIs via mobile money
- Farmers' Associations enable better negotiation with contractors and commodity traders.
- Payment to farmers via DFS

No one stakeholder can effect the necessary changes: Strategic alliances are required

- Improve productivity to create more surplus to sell, through market linkages/outgrower schemes.
- Improve farmer information – multiple channels, including via mobile phones.
- Reduce post-harvest losses to create more surplus to sell: Explore warehouse receipt systems and treated storage bags.
- Increase options to save, through promotion of ASCAs.
- Introduce mobile money, initially through the ASCA group.
- Use mobile phones to store value.
- Expand financial services through mobile money and agent banking, but investing in the ecosystem.

AND

- Don't forget women as a target market
 - 25% of heads of household
 - Most active members of ASCAs
 - Consulted on important decisions
 - But lower levels of literacy can impede access to financial services

No one stakeholder can effect the necessary changes: Strategic alliances are required

- Government provides the enabling environment and infrastructure. It can also play a role in developing the DFS ecosystem by, for example, paying government workers in rural areas via DFS.
- Outgrowers and commodity traders can work more closely with NGOs, FPS, Farmers' Associations and insurance companies.
- NGOs can strengthen Farmers' Associations and promote ASCAs.
- Development organizations can support the introduction of warehouse receipts, better crop storage technologies and services which provide technical and market information to farmers.
- Mobile money operators can work with outgrowers and commodity traders for payment systems, with insurance companies in the development of new products, with ASCAs in the development of appropriate apps.
- Banks and mobile money operators can support the development of agent networks.

Focus on noncommercial smallholder households

Improve agronomic practices and agricultural risk management

(e.g. water catchment, drought-tolerant crop varieties)

The role of the outgrowers and commodity traders is key in improving the lot of the smallholder. They can:

- Encourage the formation of community-based organizations – ASCAs and farmers' associations.
- Provide technical training and inputs.
- Encourage diversification into more profitable crops.
- Either sign contracts with a guaranteed fair market price or at least recognize the long-term advantage to themselves of paying a fair price.
- Encourage the use of digital financial services by paying farmers via their mobile phone.
- Encourage farmers and intermediaries to use certified warehouses which issue warehouse receipts.

Focus on noncommercial smallholder households

Improve crop storage

- Secure agricultural output in a more resilient form of storage (e.g., reinforced or treated plastic bags, small metal grain silos) could be an improvement for non-commercial smallholders.
- Warehouse receipt schemes, currently being piloted in Mozambique, are also a promising addition to the portfolio, though with geographical limitations.

A range of financial tools and service providers could support the uptake of improved storage methods, including targeted layaway products from retailers and commitment savings plans and, possibly, tailored credit products from FSPs.

Focus on noncommercial smallholder households

Promote and support community-based organizations

ASCAS

are undoubtedly the single most effective way of providing informal financial services to rural populations. Recent research identified 25 organizations promoting ASCAs in Mozambique and at least 300,000 members, but the numbers may well be much higher. ASCAs can also be an important way of introducing digital financial services, through initiatives to digital the process and link ASCAs to formal financial institutions.

FARMERS' ASSOCIATIONS

vary in quality, when they are well-organized, they are important engines for linking farmers to the market. They can and in many cases do play an important role in dealing with commodity trading companies, and other offtakers, and they can facilitate technical training, access to credit and financial literacy.

UNAC

the National Smallholder Union says they had 2200 member associations in 2010.



RESOURCES

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Resources

National Surveys and Segmentations of Smallholder Households:

Bangladesh:

[Paper](#) | [User Guide](#) | [Data](#)

Nigeria:

[Paper](#) | [User Guide](#) | [Data](#)

Uganda:

[Paper](#) | [User Guide](#) | [Data](#)

Tanzania:

[Paper](#) | [User Guide](#) | [Data](#)

Mozambique:

Paper: [Pt](#) [En](#) | User Guide: [Pt](#) [En](#) | [Data](#)

Côte d'Ivoire:

Paper: [Fr](#) [En](#) | User Guide: [Fr](#) [En](#) | [Data](#)

Financial Diaries with Smallholder Households

[Executive summary](#)

[Full paper](#)

[User Guide](#)

[Video](#)

[Data](#)

Tanzania: [Data](#)

Mozambique: [Data](#)

Pakistan: [Data](#)

[Designing Digital Financial Services for Smallholder Families: Lessons from Zimbabwe, Senegal, Rwanda, and Cambodia](#)

[Segmentation of Smallholder Households:](#)

[Meeting the Range of Financial Needs in Agricultural Families](#)

[Serving Smallholder Farmers: Recent Developments in Digital Finance](#)

[Digitizing Value Chain Finance for Smallholder Farmers](#)

[Smallholder Households: Understanding Demand, Driving Innovation](#)

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