

PROMOTING CLIMATE RESILIENT AGRICULTURE IN ZIMBABWE

INDEX INSURANCE PROJECT RESULTS DISSEMINATION WORKSHOP
APRIL 8, 2024

FUNDED BY



InsuResilience
GlobalPartnership



Creating Markets, Creating Opportunities



AGENDA

9:00 – 9:15am	Opening remarks
9:15 – 10:10am:	About IFC, Country Context, and IFC's Climate Strategy for Agriculture and Opportunities for the Financial & Agri Sectors
10:10 – 10:20am	Regulatory Environment for Index Insurance
10:20 – 10:50am	Potential Role of Agricultural Value Chain Actors in Promoting Climate Insurance
10:50 – 11:00am	Coffee Break
11:00am – 11:30am	Supply Side/Insurance Industry Assessment Findings
11:30am – 12:10pm:	Practical Insights from Product & Data Feasibility Assessment and Pilot
12:10 – 12:50pm	Future Growth Opportunities: Index Insurance Demand Modelling Results
12:50 – 1:15pm:	Open discussion/Q&A and Next Steps
1:15 – 1:30pm	Closing Remarks
1.30pm	Group photo and lunch



About IFC

Sharon Onyango, Project Lead (IFC)

IFC is the private arm of the World Bank

IBRD

International
Bank for
Reconstruction
and Development

Loans and technical
assistance (TA) for
middle income
countries

IDA

International
Development
Association

Grants,
concessional loans,
and TA for low
income countries

IFC

International
Finance
Corporation

**Solutions for private
sector development:
mainly investments
and TA (advisory
services)**

MIGA

Multilateral
Investment
Guarantee
Agency

Non-commercial
risk guarantees to
facilitate investment

ICSID

International
Centre for
Settlement of
Investment
Disputes

Mediation and
arbitration of
investment disputes

In financial year 2023 alone, IFC committed USD 43.7 billion in investment; 68% of this was directed towards low income and fragile & conflict-affected economies.

IFC provides a **unique combination** of expertise, financing and development support to private sector partners



IFC offers Advisory Services solutions to support the sustainable growth of the financial and real sectors

IFC Financial Institutions Group (FIG) Advisory Services

Expertise across several areas



Selected Key Outcomes and Impacts:

- ✓ Build stable and resilient financial institutions
- ✓ Grow access to finance (e.g., DFS)
- ✓ Act on climate agenda
- ✓ Promote food security
- ✓ Advance sustainable and affordable housing

Current size of FIG advisory services in Africa is about 89.4 million USD.

Besides FIG, the two other key industry departments are:

1. Manufacturing, Agribusiness, and Services (MAS)
2. Infrastructure

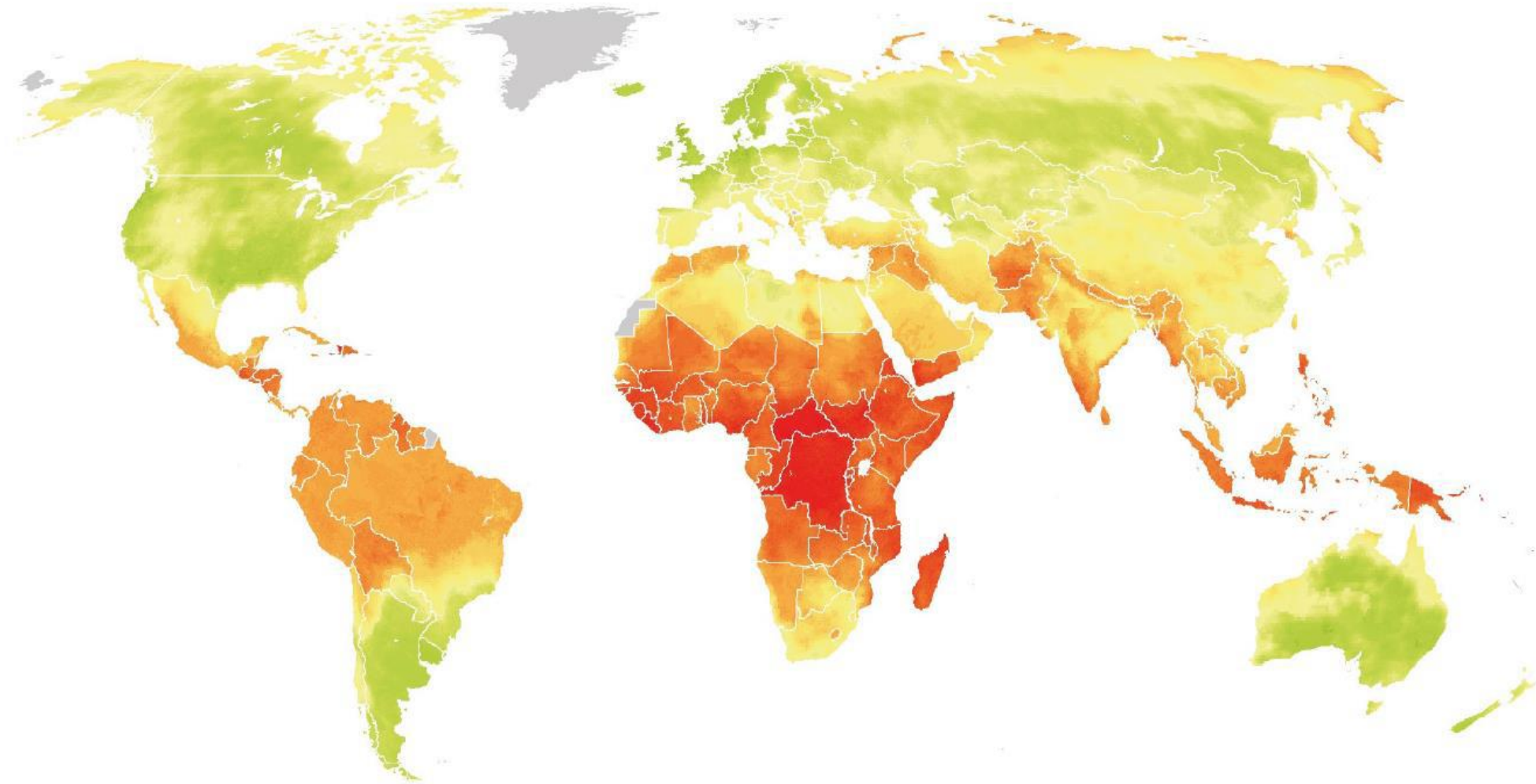


Climate Risk and Agriculture Sectoral Context in Zimbabwe

Master Mushonga, Agri Value Chain
Specialist (IFC)

The Contribution of Agriculture to the Zimbabwe Economy

- Zimbabwe faces **chronic macroeconomic instability** and now aims to reverse the period of stagnation and decline and transform into an upper-middle-income country by 2030.
- Zimbabwe has long been regarded as an **agro-based economy** with agriculture playing a central role in backward and forward linkages with many sectors.
- **NDS1 underpins its inclusive economic growth on the good performance of the agriculture sector** to contribute over 20% of GDP by 2025 and improve Zimbabwe's livelihoods of ~1,534,396 smallholder farming households.
- In the 2024 National Budget, agriculture was estimated to contribute **11.6% to GDP** whilst mining and manufacturing were projected to contribute 13.7% and 10.6%, respectively.
- About **70% of the population derives their livelihood from agriculture**, and one-third of the formal labour force is found in this sector.
- However, **the negative effects of climate change have reduced agricultural productivity and increased the vulnerability** of many people in Zimbabwe and globally
 - For example, El Niño events in the 2015/2016, 2019/2020 and 2021/22 seasons caused severe droughts that left approximately 5.5 million in Zimbabwe food insecure and pushed them into poverty



© Verisk Maplecroft 2016

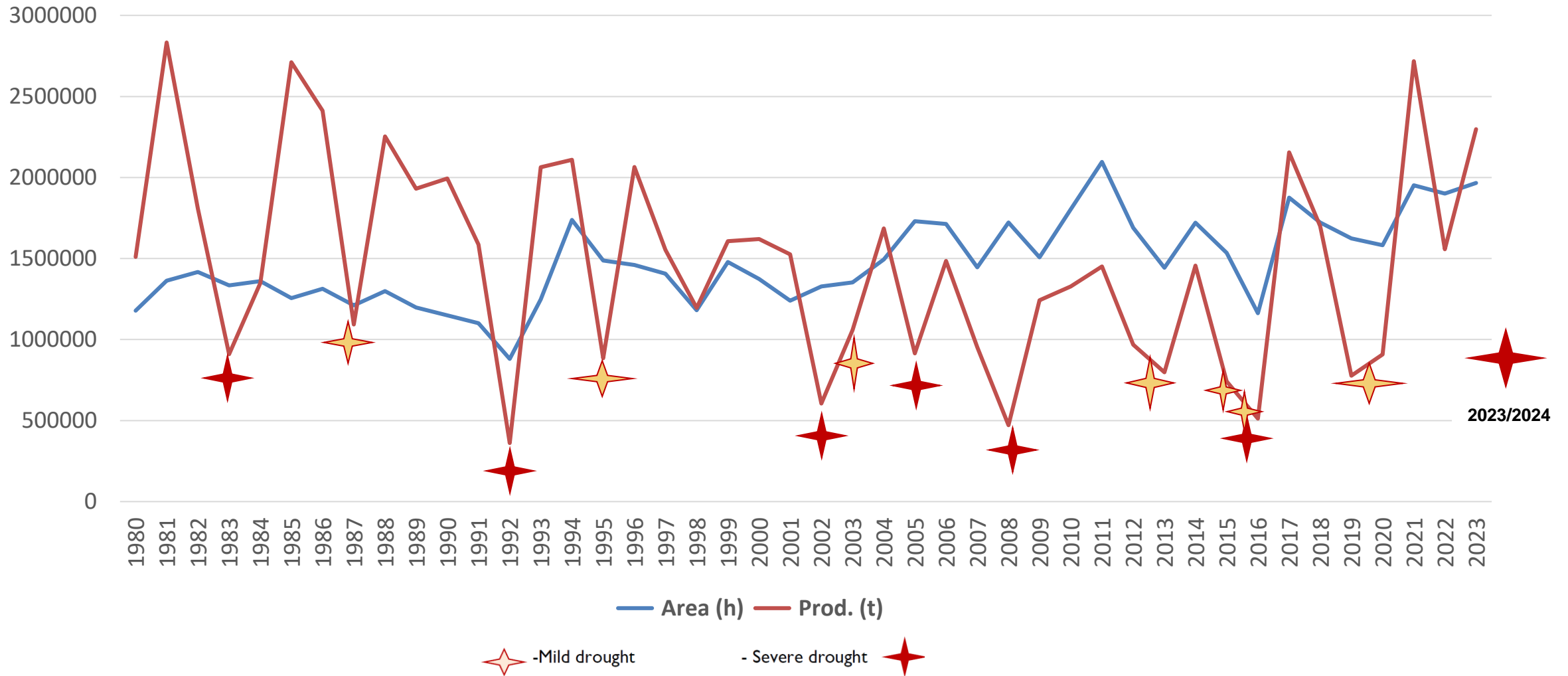


Source: Global climate change and vulnerability index

The Effect of Climate Change on Zimbabwe's agriculture

- The greatest challenge the agricultural sector in Zimbabwe faces is **low productivity**, mainly due to climate-induced risks such as recurring and severe droughts, cyclones and floods, strong winds, and pests and diseases, in addition to lack of access to finance, high input costs and excessive power cuts on irrigation agriculture.
- The agricultural sector is vulnerable to the increased prevalence and severity of droughts and extreme weather conditions, which exacerbate low productivity:
 - Over the past two decades, the amount of rainfall Zimbabwe receives has gradually deviated from the multi-decadal mean.
 - The following recorded drought seasons were associated with declines in crop production: 1982/83, 1986/87, 1992/93, 1995/96, 2002/03, 2004/05, 2007/08, 2011/12, 2012/13, 2015/16, 2019/20, 2021/22 and 2023/2024
 - On **3 April 2024**, President Emmerson Mnangagwa declared the **2023/2024 summer cropping season a national disaster** following the El Nino-induced drought. 80% of the country had received poor rains.
 - Similar announcements were made by Zambia in late February and Malawi in March, as drought induced by the El Nino global weather pattern triggered a humanitarian crisis in Southern Africa.
 - **2.7 million people were expected to be food insecure** from April 2023 until the end of March 2024 in Zimbabwe. The country needs more than \$2 billion in aid to feed millions facing hunger.

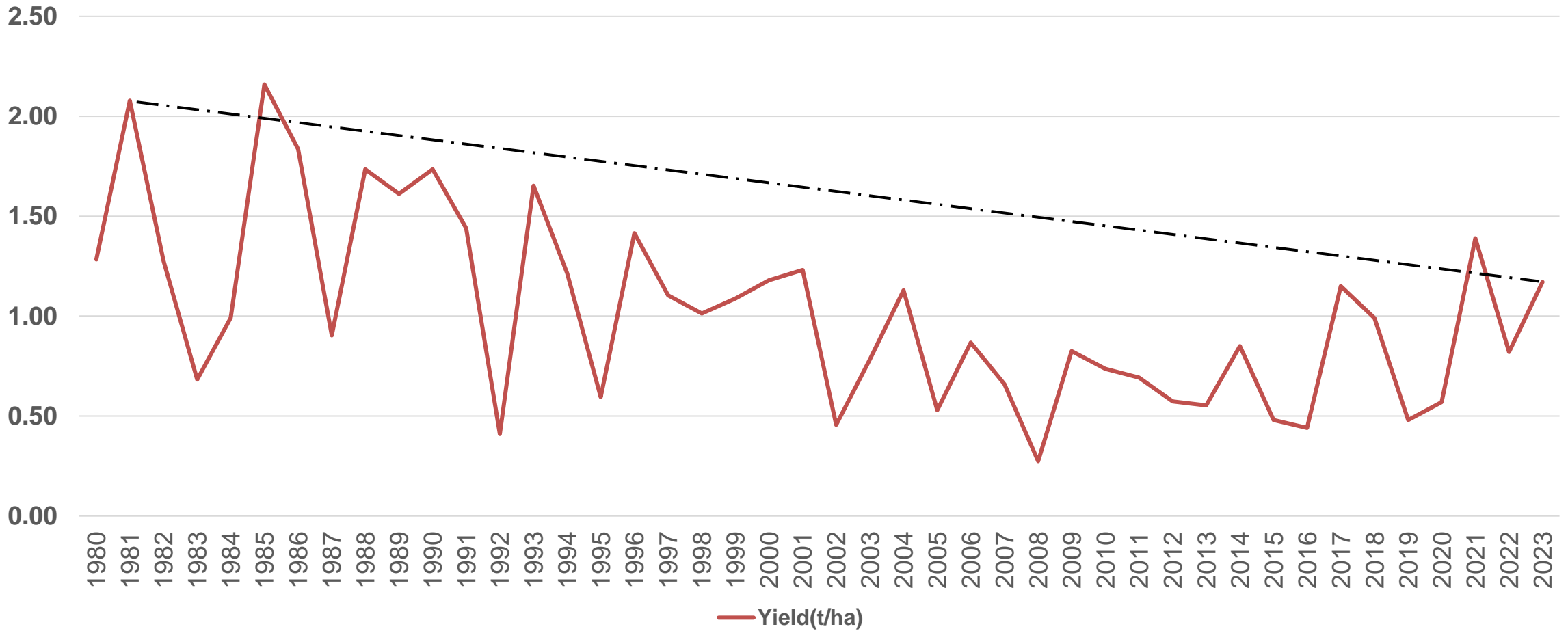
Maize production in tonnes, 1980-2023



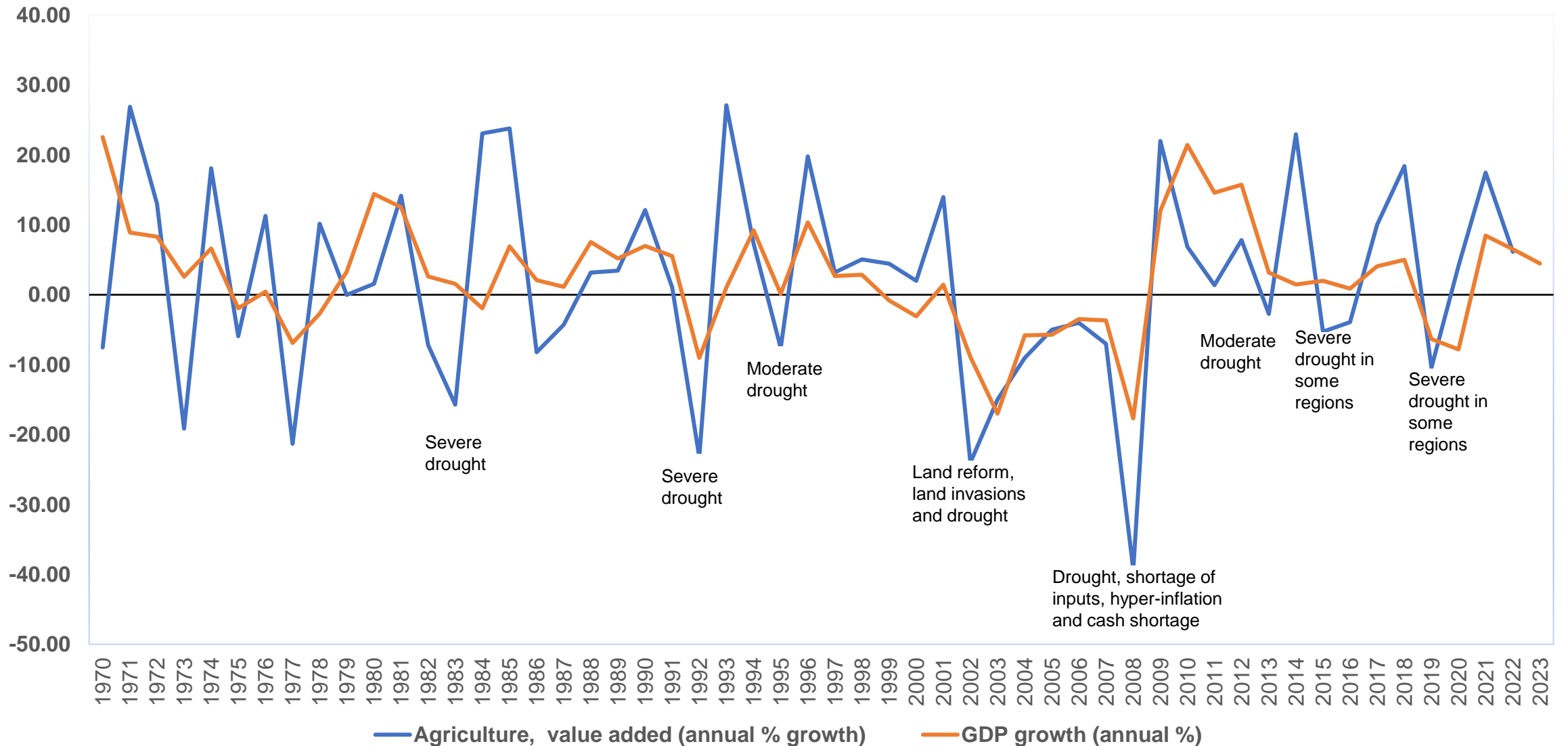
Source: Updated from USAID SERA 2016 Report

➤ Maize yield has been declining from 2.08t/ha to 1.17 t/ha from 1981 to 2023 respectively.

Maize Yield (t/ha), 1980 - 2023



Relationship Between Agriculture Value Added Growth and Overall GDP Growth in Zimbabwe, 1970 - 2023





IFC's Climate Strategy for Agriculture and Opportunities for the Financial Sector

Nana Asamoah-Manu, Climate Finance
Specialist (IFC)

Bernard Ochieng, Climate Finance
Specialist (IFC)

Chuks Okoli, Climate Finance
Specialist (IFC)



Climate Insurance and IFC-IPEC Collaboration in Zimbabwe

Sharon Onyango, Project Lead (IFC)

IFC promotes the development of sustainable inclusive insurance markets that help reduce food security gaps and expand MSME financing and resilience in Africa. **Strong focus on climate risk products, e.g. index insurance.**

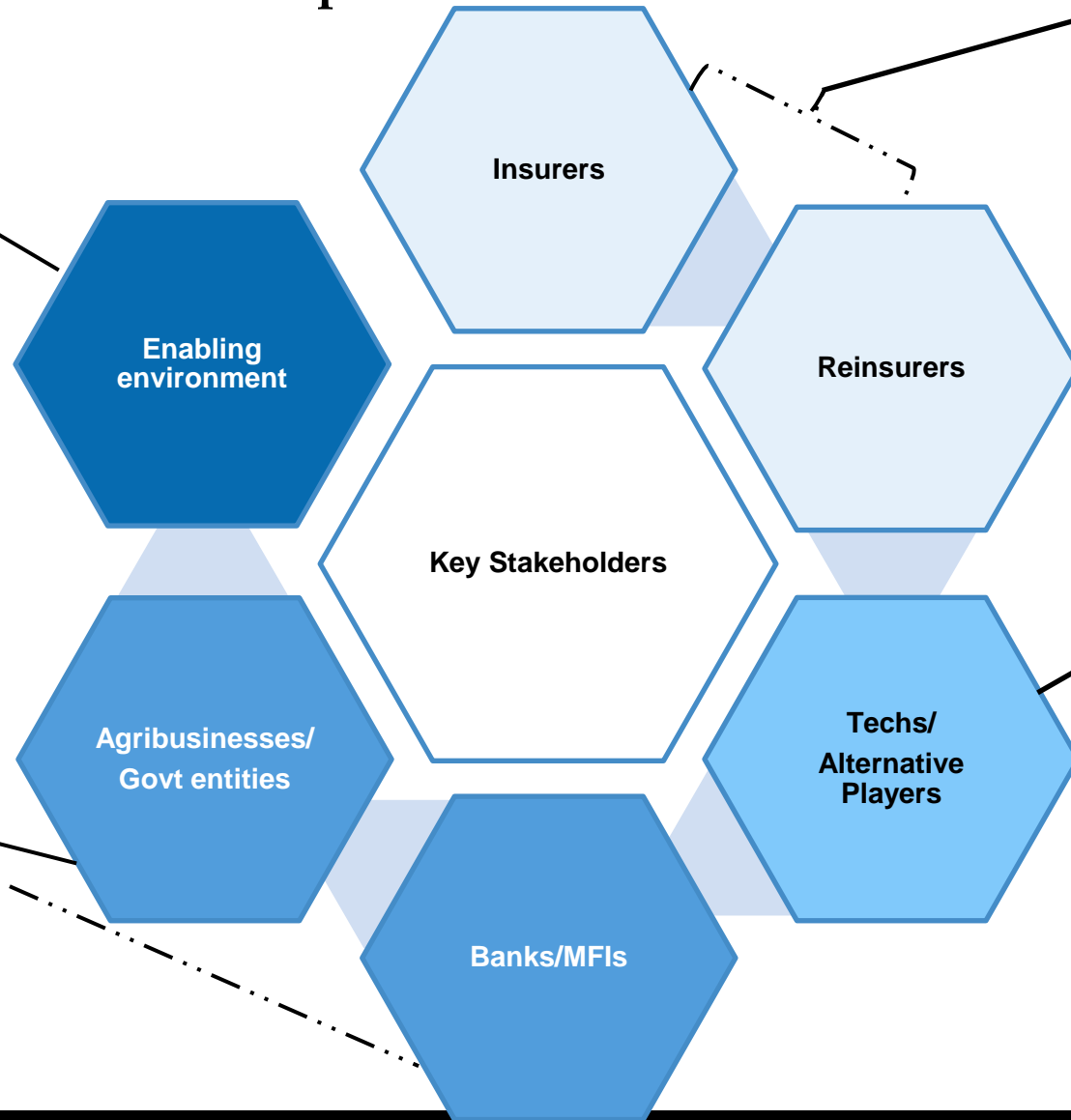
These are typically markets where the following conditions exist:

Affordability	Products available at price points that are affordable for target clients. Technical & commercial pricing are sound and sustainable.
Relevance	Products address needs of target clients and speak to the key development objective (i.e., can be embedded in finance and other products that can reduce food security and SME financing gaps).
Sizable customer base	Products address needs of smallholder farmers (SHFs) and SMEs across several value chains to increase the chances of generating large premium volumes for insurance sector (leading to risk diversified, sustainable insurance portfolios).
Efficient distribution channels	Ease of reaching SHFs and SMEs across several value chains
Supporting enabling regulatory environment	which provides legal certainty for (re)insurers and insurance beneficiaries as well as consumer protection mechanisms
Presence of insurers/reinsurers with adequate capacity	to develop, improve, and underwrite relevant and affordable products

IFC provides advisory services to, or collaborates with, a wide range of stakeholders to facilitate inclusive insurance development.

Supervises the market and develops sound and conducive policies that grow the market for inclusive insurance

Required to underwrite products, develop new or improved products, develop new business



Provide insights/data that facilitate solution development, and embed insurance in their operations as a risk management solution.

Develop innovative solutions to help (re)insurers effectively reach and serve smallholder farmers and SMEs

Provide financing and other services that boost smallholder/SME productivity.

IFC Value Proposition to Inclusive Insurance Market Stakeholders

ANALYTICS



- **Firm-level or market diagnostics, and product feasibility assessments.**
- **Options analyses** to help clients identify and prioritize insurance solutions.
- **Risk mapping** to inform decision making on lending to (or coverage of) different value chains and regions (e.g. for portfolio risk optimization)
- **Tools to evaluate** the quality and suitability of insurance products (when products designed by a 3rd party).

OPERATIONAL & TECHNICAL ADVISORY



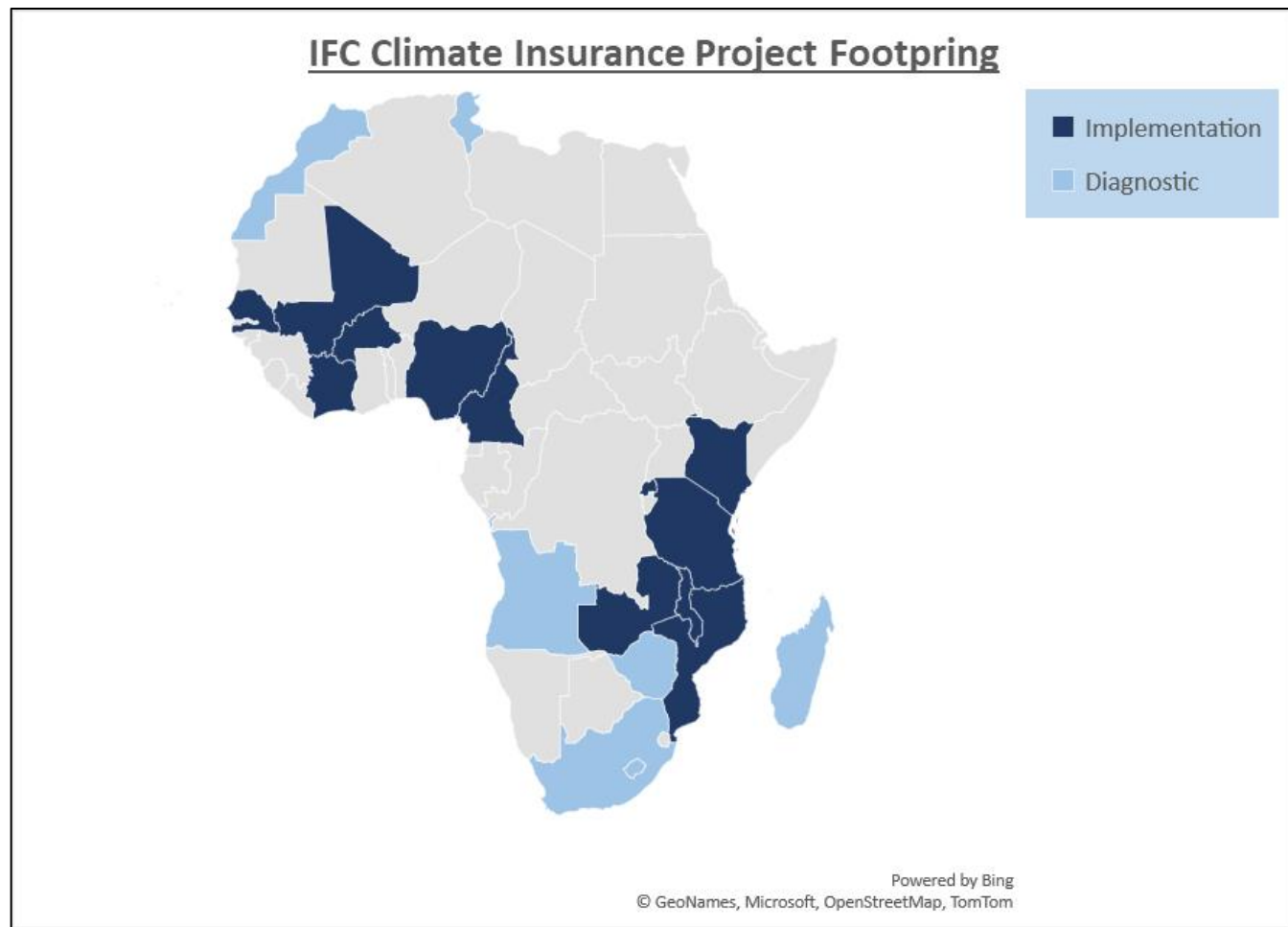
- **Linking financial institutions and agribusinesses to (re)insurers** that could offer appropriate insurance solutions.
- Support in the **development of appropriate risk transfer/insurance solutions.**
- Support in development of a **go-to-market strategy** for new products.
- For insurers, **linkage to distribution and reinsurance partners** where required.
- **Facilitating regulatory engagement** for review and approval of new solutions.

CAPACITY BUILDING & KNOWLEDGE EXCHANGE



- **Inclusive insurance training** e.g., to improve understanding of key features in the design, pricing, and evaluation of index insurance products.
- Platforms to facilitate **best practice and experience exchange** e.g., the Index Insurance Forum, index insurance handbook, etc.
- Connecting practitioners from different markets for **direct knowledge exchange** on topics of interest.
- Support in **raising inclusive insurance awareness.**

IFC has implemented climate/index insurance projects across different sub-regions of Africa.



14+ years' experience in developing inclusive insurance markets across several African countries including:

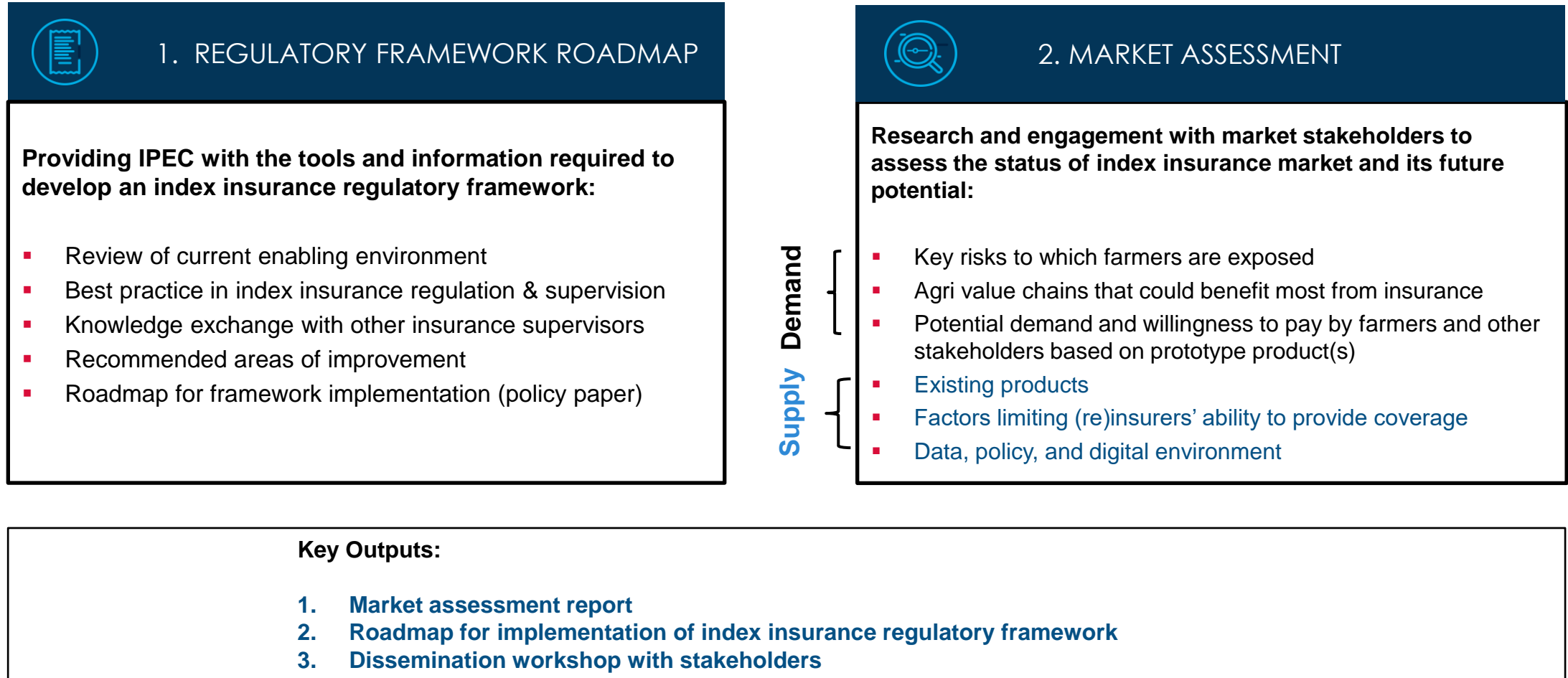
- Cameroon
- Cote d'Ivoire
- Kenya
- Malawi
- Morocco
- Mozambique
- Nigeria
- Rwanda
- Senegal
- South Africa
- Tanzania
- Tunisia
- Zambia, and
- Zimbabwe.


Projects have facilitated the issuance of over 6 million insurance policies and generation of over 60 million USD in premium to date.

Overall Objective: IFC to collaborate with IPEC in improving the enabling environment for agricultural index insurance in Zimbabwe. Ultimately, supporting:

- Improved access to insurance solutions that would strengthen resilience of smallholder farmers to climatic and other risks.
- Responsible provision of index insurance

Two main components:





Overview of the regulatory environment for index insurance in Zimbabwe

Peter Wrede, Inclusive Insurance
Regulatory Specialist/Actuary (IFC)

The twin objectives of regulation: **provide legal certainty and ensure fair, safe and stable insurance markets**

- **Some countries' regulation pose serious challenges to index insurance:**

“Insurance” is defined as the indemnification of an actual damage, which conflicts with the very nature of index insurance;

With ‘traditional’ insurance, insurers have to verify that the policyholder has an insurable interest.

The insured or policyholder has to submit formal notice of claim to the insurer prior to any indemnification

- **Furthermore, the regulations put in place to ensure a fair, safe and stable insurance market may not work equally well for index insurance.**

Need to protect interests of first-time buyers: For example, sharing policy conditions in the usual way (the so called “small-print”) may not be sufficient **for buyers** with limited (financial/insurance) literacy to properly understand what sort of insurance they’re getting in to.

Outcome 4 of Zimbabwe’s **Treating Customers Fairly** framework forbids insurers to advise a prospective customer to sign up for a product which does not give him/her value for money, but it does not detail how value for money should be assessed in index insurance.

Need to manage potential reputational risk: Insurers who mispriced or under-reserved index insurance could find themselves unable to honor their liabilities in extreme claims scenarios, and their default would affect the entire industry’s reputation, depressing insurance business for years. Customers who are very dissatisfied with index insurance because they misunderstood what they bought can amplify their anger at the insurance industry (and supervisor) via mass media

Some common elements of index insurance regulations in various jurisdictions

(How) Is index insurance defined?

A definition of index insurance provides legal certainty, determining what is and what is not allowed to be marketed as index insurance, thereby establishing the difference between insurance and derivative products

Are there requirements and a definition of Insurable Interest?

Insurance regulation often requires that policyholders demonstrate an insurable interest in the covered event, to distinguish insurance from gambling, prevent over-insurance and reduce moral hazard and the risk of fraud. This insured interest can usually be evidenced at claims stage, but that is not the case in index insurance where payment is not conditional on proof of damage.

Is there a definition of Basis Risk?

Basis risk is the most salient difference between II and indemnity insurance, and a frequent source of customer discontent.

Does the regulation contain criteria for permissible indices?

Does the regulation specify details about calculation agent?

Learning from others: Overview of relevant Index Insurance regulation details in different jurisdictions

Element	Uganda	Ghana	Kenya	CIMA	Philippines	Puerto Rico
Index Insurance is regulated as part of microinsurance	<u>no</u>	<u>no</u>	<u>no</u>	<u>yes</u>	<u>yes</u>	<u>yes</u>
Regulation defines and requires insurable interest	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>yes</u>
Regulation defines and discusses basis risk	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>no</u>	<u>no</u>	<u>no</u>
Each product required to be approved by supervisor	<u>yes</u>	<u>yes</u>	<u>yes</u>	<u>yes</u>	<u>no</u>	<u>yes</u>
Specification of perils to be insured by index insurance	<u>no</u>	<u>no</u>	<u>no</u>	<u>yes</u>	<u>yes</u>	<u>no</u>
Specifications for permissible indices	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>yes</u>	<u>yes</u>	<u>no</u>
Cancellation after inception prohibited	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>no</u>	<u>no</u>	<u>no</u>
Provisions for pilot testing	<u>no</u>	<u>no</u>	<u>no</u>	<u>no</u>	<u>no</u>	<u>no</u>
Specifications about calculation agent	<u>no</u>	<u>no</u>	<u>yes</u>	<u>yes</u>	<u>yes</u>	<u>yes</u>
Backup triggering mechanism required	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>no</u>
Specific Index Insurance communication requirements	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>no</u>	<u>no</u>	<u>yes</u>
Other consumer protection measures	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>no</u>	<u>no</u>	<u>no</u>

Learning from others: Knowledge Exchange

A study tour to Kenya and Uganda in early 2023 allowed IPEC to discuss regulatory approaches to index insurance with local regulators.

While **Kenya** has been an African pioneer in index insurance, the corresponding regulation (drafted in 2015) took a while to be passed; that did not hinder the development of index insurance, guided by a policy paper from the regulator

Uganda's success story in index insurance started later than in Kenya, with greater engagement from the public sector at an earlier stage (launch of Government-orchestrated index insurance scheme in 2016, regulation of index insurance passed in 2020).

Topics of discussion included:

- The motivations to regulate index insurance
- Possible conflicts between existing insurance regulation and index insurance
- The process of drafting index insurance regulation
- Supervision
- Experience so far

Key Takeaways:

1. **So far, the number of jurisdictions who have properly regulated index insurance is limited, and where regulation is in place, it tends to be recent and offer limited lessons yet.**
2. **A wait-and-see (or test-and-learn) approach can help the regulator familiarize themselves with the product. Can also help identify other potential applications of index insurance beyond agriculture.**
3. **To contain risks in the meantime, a policy paper paving the way to eventual full regulation may be a good first step.**
 - Provide guidance on regulation, definition of index insurance while also opening dialogue on the direction of future regulation.
 - IFC helped IPEC to draft a Policy Advisory Paper on Agriculture Index Insurance, following the Kenyan example.



Potential Role of Agriculture Value Chain Actors in Promoting Climate Insurance

Master Mushonga, Agri Value Chain
Specialist (IFC)

Regional experience from the adoption of agriculture insurance

- Although weather-related factors are common across the region, in Zimbabwe this has resulted in reduced farmer investment in agriculture due to climate risk.
 - However, other countries in the region managed to de-risk agriculture investment through the adoption of agriculture insurance especially agriculture index insurance among SHFs
-
- **According to the 2023 National Budget Statement (2022: 79),** “The country’s maize yields are generally below 1.5 tons per hectare, lower than neighbouring countries like Zambia, Malawi and South Africa at 2.5 tons, 2 tons and 5 tons per hectare, respectively.”
 - The reason among others is the adaptation of agriculture index insurance in Zambia and Malawi to de-risk agriculture investment thereby attracting more interest and capital in farming.

Index insurance can help farmers become more resilient by giving them a tool to manage their risk, protect their investments, maintain their livelihood and invest more in agriculture despite experiencing a bad season.

- The Zambian government has taken a positive attitude towards agricultural index insurance by incorporating it into its Farmer Input Support Program (FISP) where SHFs pay ZMW 400 contribution, of which ZMW 100 is mandatory insurance premium.
- The starting point in demand-side assessment for agriculture index insurance is a comprehensive study of how organized and commercially oriented each crop value chain is, then followed by a prioritization exercise to identify top value chains.

The objective of AVCs assessment and the approach

- The agricultural value chain (AVC) assessment aims to **guide areas of intervention by identifying priority crop value chains which might have a high demand for agriculture index insurance and also involve the active participation of SHFs and women.**
- The assessment of AVCs was primarily based on the review of various secondary sources and consultations with some key and active agriculture value chain actors (AVCAs) including the Ministry of Agriculture (MoA).
- **The selection of the AVCs, among other aspects, was based on:**
 1. Vulnerability of the crop to weather-related risks and other key risks,
 2. Contribution to food security and nutrition,
 3. The involvement of SHFs and women in its production,
 4. Potential to reduce the national import bill,
 5. Generation of foreign currency from exports,
 6. Backward and forward linkages with other sectors of the economy for more employment creation and poverty reduction,
 7. Potential for improved production to fulfil unmet local and foreign demand.
 8. How organized is the AVC through active participation of AVCAs (such as input suppliers, agro-dealers, financiers, extension service providers and farmers organizations, aggregators, processors and distributors).

Longlist of AVCs identified for further selection

- A total of 24 crop value chains were identified for consideration under the agriculture index insurance in Zimbabwe based on the criteria discussed above.

24 Agriculture Value Chains					
Sorghum	Maize	Groundnuts	Finger millet	Pearl millet	Sesame
Cowpeas	Paprika	Sweet potato	Round nut	Sunflower	Michigan pea bean
Soya bean	Chilli	Cotton	Tomatoes	Sugar cane	Sugar bean
Wheat	Irish potatoes	Banana	Rice	Coffee	Tea

- These crops are mainly grown in agroecological regions I to IV.

The prioritization matrix for selecting top-priority AVCs

- 24 crop value chains were then subjected to the prioritization matrices defined below.
- The prioritization matrices were shared for input with MoA and the outcome of the shortlist was also agreed upon.

Prioritization parameters	Rationale for the parameter and calculation methodology	Maximum score weight
No. of SHFs involved	There are 1.3 million farming households in Zimbabwe. The more SHFs involved in the crop, the more farmers are exposed to climate risk and hence the higher the score	15
Active women participation	Inclusive sustainable development is possible with equal socio-economic participation of women. The more women participating the higher the score	10
No. of average HA under production in 2021/22	The larger the crop hectareage, the more important that crop is to farmers' livelihoods and the economy, and the higher the exposure to weather-related risk	10
Average production volumes in 2021/22	The higher the production volume, the higher the investment by farmers and the more important the crop is to farmers' livelihoods and income	10
Annual national requirement	With the high national demand for the crop, the higher the important of the crop is to achieving food security and reducing imports	15
Level of AVC organization	The strength of the crop value chain determines how easy it might be to provide index insurance. AVCs are categorized as: loose value chains; moderate value chains; and tight value chains or market-driven value chains	10
Availability of support schemes as distribution channels of insurance	The availability of support programmes for each crop to farmers determines the possible entry points for index insurance provision. Examples of these schemes are NGO and development partners' farming programmes, government-sponsored schemes, and private-sector financing arrangements	10
Level of exposure to climate risk	Assess how the crop be can easily affected by weather-related elements such as water stress, drought, excessive rainfall, dry spells, hailstorms, strong winds, flooding, cyclones, pests and diseases	20
Total possible score		100

Top 5 priority crops selected for index insurance in Zimbabwe

Crop value chain	Parameters for Prioritization (<i>Weight</i>)								Value chain score (points out of 100)
	No. of smallholder farmers involved (15)	Active women involvement (#, %, or level) (10)	No. of HA under production in 2021/22 (10)	Average production volumes in 2021/22 (10)	Annual national demand (15)	Level of value-chain organization (10)	Support schemes which could be leveraged for index insurance (10)	Exposure to climate risk (20)	
Maize	90% of 1.3m farming households, or ~ 1.17m SHFs (13)	Majority are smallholders and women (8)	903,669 Ha in 2021/22 (10)	Estimated at 1,557,914 MT, average yield of 0.82t/ha (8)	2,267,599 MT cereal requirement (12)	High (7)	Yes - Pfumvudza, NGOs, private sector, financiers, CBZ Agro-Yield (8)	High (16)	82
Cotton	338,504 growers are in the contractors' database. (12)	Active women participation (8)	223,283 HA in 2021/22 (8)	116,521 MT, average yield of 0.52t/ha (6)	US\$85,7m exports in 2021. (13)	High (8)	Pfumvudza, Presidential inputs scheme, Cottco (10)	Moderate (12)	77
Sunflower	90% produced by SHFs, i.e. ~ 1.17m SHFs (13)	Active women participation (8)	31,502 ha in 2021/222 season (4)	11,117 MT, yield of 0.35 t/ha. Imports of 65,000MT p.a. (4)	65,000 MT imports per year (14)	Moderate (5)	Yes - Pfumvudza, NGOs (9)	Moderate (14)	71
Soya beans	65%commercial farmers, 35% by SHFs, ~ 50,000 SHFs(6)	Male-dominated (4)	51,488 HA in 2021/22 (6)	82,028 MT, yield of 1.59t/ha, (6)	240,000 MT per year. (14)	High (10)	Yes – Pfumvudza, NGOs, financiers, private sector (9)	High (15)	70
Groundnuts	1.5 million SHFs(14)	Predominately women crop (9)	294,918 ha in 2021/22 season (7)	98,765 MT in 2021/22 season (6)	120,000 - 130,000 MT per year (10)	Low (3)	Pfumvudza, NGOs and private sector contractors (6)	High (14)	69

The critical role of AVCAs as the distribution channel of index insurance

- AVCAs/Aggregators have a critical role in **educating**, **promoting** and **distributing** index insurance to SHFs.
- AVCAs are the most trusted distribution channels by the farming community.
- The demand-side assessment aimed to appreciate:
 - Crops that AVCAs are mostly interested in,
 - Target farming areas,
 - Services they provide,
 - The profile and number of farmers they engage,
 - Key risks that farmers and themselves are exposed to,
 - Their perception of agriculture insurance and how it can be favourable to the farming community,
 - AVCAs' appetite to protect their agriculture investment and interest in bundling and distributing insurance to farmers.

The approach to demand-side market assessment

- The study was anchored on key stakeholder consultations (comprising one-on-one interviews and FGDs) using a semi-structured interview guide.
- Key stakeholders identified as potential entry points or distribution channels of index insurance products include MFIs and microfinance fund managers, commercial banks, agribusinesses, farmer cooperatives, NGOs and fintech.
- 63 key informants (senior management and decision-makers) from 30 organizations were interviewed out of 58 invited organizations, representing a 52% response rate.

AVCAs	No. of organizations invited	No. of organizations interviewed	No. of key informants interviewed
MFIs and Microfinance Funds	14	7	12
Commercial Banks	11	7	21
Aggregators/Agribusinesses	15	7	12
Seed Companies	8	2	5
NGOs	9	6	11
Fintech	1	1	2
Total	58	30	63

Key findings from AVCAs

	MFIs	Commercial Banks	Agribusinesses & Aggregators	Seed Companies	NGOs	Fintech
Profile of target farmers	Smallholder farmers	Medium and larger commercial farmers	Smallholders, medium and large farmers	Smallholders, medium and large farmers	Communal smallholder farmers	Smallholder farmers
Average SHFs reached by the AVCA	~ 2,000	Not available	1,000 to 400,000	> 1,000,000 households	20,000 to 80,000	> 1,000,000 households
Women participation	>60%	Not available	≥40%	Not available	≥60%	Not available
Average HA per farmer	1 to 5 HA	>30 HA	2 to 100 HA	>0.1 HA	0.2 to 2 HA	1 to 5 HA
Target crops	Food security and commercial crops (maize, groundnuts and horticulture crops)	Food security and high-value crops (maize, soya bean, wheat, tobacco, cotton, sugar cane, banana, macadamia nuts)	High-value crops (e.g. soya bean, wheat, tobacco, cotton, sugar cane, banana, macadamia nuts)	All crops and varieties	Low to medium-value food security crops (grain, oilseed, horticulture crops, e.g. maize, sorghum, groundnuts, garden)	Food security crops (maize)
Products & services provided	Micro-credit, microinsurance	Credit facilities – offshore lines of credit, lease finance, working capital	Credit inputs, agronomic services, access to markets, logistics	Seed production and distribution and agronomic services	Livelihoods and resilience building - AVC development and market linkages financial literacy and disaster risk mgt	Payment services, microinsurance, information dissemination
% of Agriculture portfolio to total portfolio	5% to 25%	26.01%	~ 100%	100%	>33%	Not available
The approach of reaching out to smallholder farmers	Individual farmers, group lending	Via Agribusinesses, Aggregators, Merchants,	Out-grower schemes, contract farming	Agro-dealers, government programmes (Pfumvudza and Presidential inputs scheme)	Individual farmers	Individual farmers with mobile phones

Key findings from AVCAs cont...

	MFIs	Commercial Banks	Agribusinesses & Aggregators	Seed Companies	NGOs	Fintech
Key risks faced	Weather risks, biological risks, market risks, policy and political risks	Weather risks, biological risks, market risks, policy and political risks	Weather risks, biological risks, market risks, policy and political risks	Weather risks, biological risks, market risks, policy and political risks	Weather risks, biological risks, market risks, policy and political risks	Weather risks, biological risks, market risks, policy and political risks
key risks affecting farmers	Weather risks, biological risks, market risks, labour and health risks, policy and political risks	Weather risks, biological risks, market risks, policy and political risks	Weather risks, biological risks, market risks, policy and political risks	Weather risks, biological risks, market risks, labour and health risks, policy and political risks	Weather risks, biological risks, market risks, labour and health risks, policy and political risks	Weather risks, biological risks, market risks, labour and health risks, policy and political risks
Insurance perception	Insurers not willing to compensate the insured risk	Good for risk and revenue diversification	Farmers have low insurance knowledge to have the appetite for it	Good	Good as a disaster risk management to build resilience	Good for inclusive finance
Demand for agriculture insurance	Yes	Yes	Yes	Yes	Yes	Yes
Interest in distributing or bundling insurance with existing services	Yes, bundling with loans provided pricing is fair	Yes, can be mandatory for borrowing agribusinesses and aggregators engaging SHFs in contract farming arrangements.	Yes, Contract and out-grower schemes, and advocating for smart subsidies on government support schemes	Yes, to cover moisture stress at germination	Yes/No, advocating the funding development partners to subsidize index insurance.	Yes, based on past pilot WII projects
The value proposition of insurance	Weather risk transfer and pay-outs	Weather risk transfer to a third party	De-risk smallholder farming	High demand for climate-proof seeds	Livelihoods protection and resilience building	Services and revenue diversification
Reasons for no interest in distributing insurance	Not applicable	Not applicable	Government should insure its Pfumvudza programme	High premiums can make seeds uncompetitive	Depends on funding development partners' interest	Not applicable

Summary of Key Findings from the demand-side assessment

AVCAs are mainly interested in grain, oilseed, horticulture and high-value commercial crops.

Natural regions 1 to 3 are the most preferred areas by MFIs, commercial banks, agribusinesses/aggregators, and fintech.

Seed companies and NGOs are cross-cutting in all 5 natural regions by tailor-making their products and interventions to the region's climate condition needs.

In terms of services provision – commercial banks mainly provide credit facilities and microinsurance.

Agribusinesses and seed companies provide credit inputs, agronomic services and a guaranteed market.

NGOs and fintechs provide resilience-building programmes, insurance and payments distribution channels.

MFIs, NGOs and fintech are reaching out to SHFs.

Commercial banks mainly target commercial farmers with access to water bodies and irrigation infrastructure.

Whilst agribusinesses are working with both commercial farmers and SHFs via out-grower schemes.

Key risks identified by AVCAs

➤ Key risks identified as affecting AVCAs working with SHFs in their order of magnitude are:

1. Weather-related risks (especially drought, prolonged dry spells, uneven rainfall, high temperatures, short rain seasons, hail, wind, cyclones, and floods),

2. Biological risks (outbreak of pests and diseases, and loss of draught power)

3. Market risks (side marketing, local currency volatility, market supply and demand, exchange rate risk, high lending rates, and delayed payments from markets)

4. Policy and political risks (everchanging regulatory environment; investment climate uncertainty, high foreign currency retention; disruption of markets; and low political tolerance making some farming communities inaccessible especially toward elections) and

5. Labour and health risks (Lack of labour force as farming is no longer regarded as a profitable venture)

AVCAs' willingness to distribute index insurance and the expected role of Gvt

- AVCAs acknowledged the importance of agriculture insurance to protect themselves and SHFs, especially from weather and biological risks, and they are willing to bundle their service with agriculture insurance but with some reservations such as:
 1. **High insurance premiums,**
 2. **Lack of smart subsidies on agriculture insurance** to lower initial operational costs and attract interest
 3. **Insurers not willing to compensate the insured risk, and**
 4. **Low appreciation of the importance of insurance among SHFs** which requires huge investment in educational campaigns.

- Collectively, stakeholders recommend that the government should consider implementing smart subsidies for agriculture insurance to SHFs as part of its national disaster risk financing strategy.

- As a strategy for “Increasing Access to Affordable Agriculture Financing” the NDS1 on Pg: 69 committed to promoting weather-based index insurance mechanisms for smallholder farmers;

A review of findings from past WII pilot projects in Zimbabwe

- There were some first movers on the offering of WII in Zimbabwe – Zimnat, Econet and Old Mutual.
- The review of current and past WII pilot projects seems to point to the following:

Weaknesses in product design

Inappropriate targeting (farmer type)

Some selected target crops were of little commercial value to attract commercial players

Lack of partnerships for sustainability

Unavailability of appropriate weather data to make better-informed decisions

Lack of scale required to sustain the product.



COFFEE BREAK



Findings of the supply side assessment of the index insurance market

Noah Nyamasvisva, Agri Insurance
Specialist (IFC)

Findings Of The Zimbabwe Agricultural Insurance Market Assessment

Overview

Overview Of The Agriculture Insurance and Index Market Assessment Engagement

Key Players

Current Players in Agriculture and Index Insurance and Interested Participants In Index Insurance In the Long Term.

Products

Types Of Products Currently Available For Indemnity and Index and Farming Sectors served (Large scale and Small Holder Farmers)

Business Volume & Performance

Size of Agriculture Insurance Market – Premium Volumes 2022

Delivery Channels

Main Channels Used To Deliver Agriculture Insurance (Indemnity)

Cost of Agric Insurance

The Costs For Delivering Agriculture Insurance to the Large Scale and Small Holder Farming Sectors

Digitization

The State Of Digitization In Agriculture Insurance, Tools Used and Players Involved

Current State Of Index Insurance

Current Players, Products, Market Size of Index Insurance Market and Challenges

Constraints to index insurance development

Assessment Of The Constraints To The Development Of Index Insurance In The Country

Government Role

Possible Government Role to Support the Development Of Index Insurance In Zimbabwe, Insurance Sector Views

Conclusion

Opportunities and Prospects for Agriculture Index Insurance, Going Ahead

Overview of the Agriculture Insurance and Index Market Assessment

MAIN OBJECTIVE:

To Provide key stakeholders (including IPEC, insurance sector, government, development organizations and the agriculture sector with current information on the state of agriculture and index insurance market in the country.

KEY MARKET DATA COLLECTED:

Market landscape information on:

1. Players
2. Products
3. Market size
4. Delivery channels
5. Costs of agriculture insurance provision
6. State of digitalization
7. Constraints
8. Challenges and opportunities for index insurance, and
9. Insurance sector views on possible government role in promotion and development of sustainable agriculture index insurance business in the country, going forward.

Overview of the Agriculture Insurance and Index Market Assessment (cont.)

	METHODOLOGY AND APPROACH USED	
Desk Research	Insurance Sector Market Survey	Key Stakeholder Interviews
<p>Review of reports and publications by government ministries of Finance and Economic Development; Lands, Agriculture, Fisheries, Water, Climate and Rural Development;</p> <p>IPEC market reports and reports by international development agencies and non-governmental organizations, as well as</p> <p>Research papers by scholars relating to agriculture insurance and related areas.</p>	<p>An insurance industry survey was conducted through circulation of survey questionnaires, specifically designed to capture key data and information on agriculture insurance from brokers, insurers and re insurers.</p> <p>The data and information obtained was then aggregated to a market level data base from which market trends, indicators and other analytics and observations were made.</p> <p>IPEC played a major role in coordinating the survey process. 17/19 Insurers; 18/28 Brokers and 8/10 Reinsures participated in the survey.</p> <p>Thanks and Acknowledgements to all participants.</p>	<p>A total of 10 interviews/meetings were conducted virtually by IFC project team with identified organizations which are active in the Zimbabwe agriculture/index space to obtain additional information. These included local insurance companies, an index product developer, an international development agency and a non-government development organization.</p> <p>Thanks and Acknowledgements to all Organizations/Stakeholders who were consulted and interviewed for their valuable inputs.</p>

Key Players Identified: Indemnity Agric Insurance

INDUSTRY SUB SECTOR	BROKERS	INSURERS	REINSURERS
Active in Agric	13 out of 18	13 out of 17	8 out of 8
Over 5 Years' Experience in Agric Ins Business	9 out of 13	8 out of 13	7
Serve Large Scale Sector	13	13	8
Serve Small Holder Farming Sector	10	10	8

Index Insurance

INDUSTRY SUB SECTOR	BROKERS	INSURERS	REINSURERS
Active in Index Insurance	None	2 out of 13	1 out of 8
Over 5 Years' Experience	-	1	1
Serve Large Scale Sector	None	None	None
Serve Small Holder Farming Sector	None	2	1

Products Available by Farming Sector

Sector	Type of Agriculture Insurance	Players	Products Available
Large Scale Farmers	Crop Insurance	13	<ul style="list-style-type: none"> • Named Peril Crop ins (Tobacco) • Multi Peril Crop Ins (Maize, Soya bean, Wheat)
	Livestock Insurance	12	<ul style="list-style-type: none"> • Livestock Accident and Mortality Ins (cover for Death & specified diseases, Beef & Dairy Cattle)
Small Holder Farmers	Crop Insurance	10	<ul style="list-style-type: none"> • Named Peril Crop (Tobacco) • Multi Peril (Maize, Soybean, Wheat)
	Livestock Insurance	9	<ul style="list-style-type: none"> • Livestock Accident and Mortality (cover for specified diseases)
	Crop Index Insurance	2	<ul style="list-style-type: none"> • Area Yield Index (Maize, Sorghum, Millet) • Weather Index (Maize and small grains)
	Livestock Index Insurance	None	<ul style="list-style-type: none"> • None

Size of the Agriculture Insurance Market: USD Business Volumes

Table 6: Short-term insurers' USD GPW 2022 Market Share by line of business

Line of Business	GPW (US\$ million)	Market Share
Motor	42.50	30%
Fire	30.39	21%
Assets All Risk	16.31	11%
Hail	8.51	6%
Marine	5.81	4%
P-Accident	5.74	4%
Bonds/Guarantee	5.51	4%
Misc Accident	5.41	4%
Engineering	5.02	3%
Farming	5.01	3%
Aviation	4.03	3%
Liability	4.01	3%
Business Combined	1.65	1%
Money All Risk	1.07	1%
Other	2.88	2%
Total	143.85	100%

*Other includes Bankers Blanket Policy, Contractors All Risk and Health

- Table 6 adopted from IPEC 4TH Quarter 2022 Market Report. Covers business that was written in USD ONLY and does not include business written in Zim RTGS\$.
- Farming/Agric includes All Non-Tobacco crop insurance, livestock insurance and other agri product types e.g. Farm Buildings, Agri Equipment.
- Non-Tobacco crop & livestock premium market share is Less than 3%
- Tobacco Hail Crop Insurance makes up 6% of total insurance market premium.
- Total Market Premium Volume constitutes the combined USD and Zim\$ Market Premiums Components (shown on next slide).

Size of the Agriculture Insurance Market: ZW\$ Business Volumes Converted to USD Currency and Combined with USD Direct Business

Table 4: Short-Term Insurers' GPW by Line of Business

Class of Business	Gross Premium Written (ZW\$ Million)		
	31-Dec-22 Inflation Adjusted	31-Dec-22 Nominal	31-Dec-21
	Fire	6 180	21 246
Motor	12 554	43 161	8 888
Engineering	2 353	8 089	1 482
Marine	775	2 664	440
Aviation	466	1 603	259
P-Accident	1 280	4 401	955
P-Liability	758	2 606	430
Miscellaneous Accident	1 186	4 078	620
Bonds/Guarantee	1 286	4 422	1 020
Hail	1 564	5 377	756
Farming	1 035	3 557	290
Other	776	2 666	300
Total	30 212	103 869	19 191

*Other comprises of casualty, directors' liability, health, hire purchase.

TOTAL AGRICULTURE MARKET PREMIUM USD : 2022

Agri Line	Direct USD Premium	ZW\$ Bus Prem in USD	Combined Total USD	Market share
Tobacco Hail	8 510 000	7 860 000	16 370 000	5.54%
Other Agric	5 010 000	5 200 000	10 210 000	3.45%
Total	13 520 000	13 060 000	26 580 000	8.99%
Industry Total	143 850 000	151 790 000	295 640 000	

- ZW\$ Bus Premium converted at ZW\$ 684.3 : 1 US\$ (RBZ official rate on 31/12/2022)
- Tobacco Hail Ins largest agric business line, (61.6% of total agric premium and 5.54% of total industry premium),
- All other Agric ins lines (Non-tobacco crop, livestock, farm Infrastructure/equipment etc) have combined total US\$ 10,2 Million. This is 3.45% total industry premium.
- Total Agriculture Business Volume/Market Size was US\$ 26,58 Million ; 8.99% of Industry.
- Total Index Market Premium(2021/22) was US\$ 210 000, (0.8%) of Agric Market. Indicates huge potential market for index to cover SHF non tobacco crops.

Results for Named Peril crops – Soya, Maize, Cotton insurance

YEAR	AVERAGE PREMIUM US\$	AVERAGE CLAIMS US\$	LOSS RATIO
2018	188 951	352 566	187
2019	502 980	310 236	62
2020	326 922	146 180	45
2021	1 257 468	544 100	43
2022	417 056	113 000	27
5 Yr. Average	538 675	293 216	54

Delivery Channels

Agriculture Insurance Delivery Channels - Indemnity agriculture insurance

Channel	Tobacco Insurance	Non Tobacco Crop Insurance	Livestock Insurance
Brokers	8 From 13	8 From 13	7 From 12
Direct(IOAN)	10 From 13	7 From 13	7 From 12
Banks(Inc MFIS)	4 From 13	6 From 13	4 From 12
Contract Growers Org	5 From 13	4 From 13	2 From 12
Producer ASS	2 From 13	3 From 13	3 From 12

For Tobacco Ins:

1. Direct/ Insurers Own Agent Network is the most used (10 / 13) ,
2. Brokers (8/13),
3. Contract Growers/Merchants (5/13),
4. Banks (4/13)
5. Producers Association (2/13)

Non-Tobacco Crops Ins:

1. Brokers (8/13)
2. Direct/ IOAN (7/13)
3. Banks (6/13)
4. Contract Growers (4/13)
5. Producer Ass (3/13)

Livestock Insurance

1. Brokers & IOAN (Both 7/12)
2. Banks (4/12)
3. Producers Ass (3/12)
4. Contract Growers org (2/12).

Costs of Agric Insurance Provision by sector and line of ins

Sector and Line of Insurance	Expense Item for Deploying Insurance products	Market Ave Costs %
Crop Insurance: Large Scale Sector	1. Marketing and Acquisition (brokers/ agents commissions)	15.88% of Premium
	2. Insurer's own administration costs excluding in-field loss adjustment costs	5.71% of Premium
	3. Loss adjusting costs	5.25% of Premium
	4. Insurance Premium Taxes(if any)	4.40% of Premium
	5. Total Original Gross Premium Rate	7.51
Crop Insurance: Small Holder Farming Sector	1. Marketing and Acquisition (brokers/ agents commissions)	13.44% of Premium
	2. Insurer's own administration costs excluding in-field loss adjustment costs	4.25% of Premium
	3. Loss adjusting costs	5.38% of Premium
	4. Insurance Premium Taxes(if any)	4.25% of Premium
	5. Total Original Gross Premium Rate	7.80
Livestock Ins : Large Scale	1. Marketing and Acquisition (brokers/ agents commissions)	16.50% of Premium
	2. Insurer's own administration costs excluding in-field loss adjustment costs	6.10% of Premium
	3. Loss adjusting costs	4.40% of Premium
	4. Insurance Premium Taxes(if any)	4.25% of Premium
	5. Total Original Gross Premium Rate	5.29
Livestock Ins : Small Holder Farming Sector	1. Marketing and Acquisition (brokers/agents commissions)	8.88% of Premium
	2. Insurer's own administration costs excluding in-field loss adjustment costs	2.50% of Premium
	3. Loss adjusting costs	3.00% of Premium
	4. Insurance Premium Taxes(if any)	2.00% of Premium
	5. Total Original Gross Premium Rate	8.24

Total market average deployment costs:

- Large scale crop Ins: 31.25 % Large scale livestock : 31.25%
- SHFs crop ins : 27.32%
- SHFs livestock ins : 16.4%

Business Acquisition is the largest deployment cost component for both Crop & Livestock (50% - 54%) of Total deployment Costs

Admin Costs are the 2nd largest (15% - 18% crop ins, & 15% - 20% livestock)

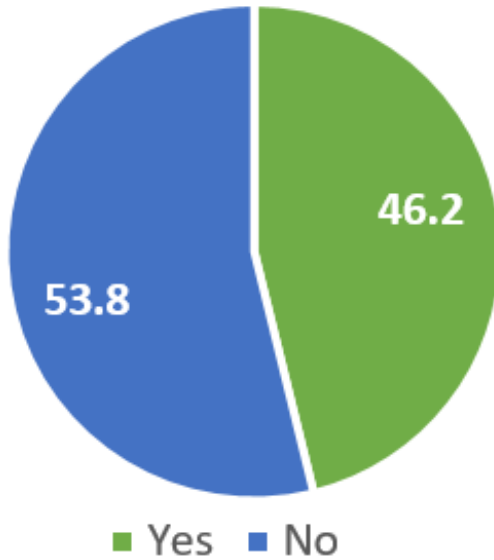
Loss Adjustments is 3rd (17% - 19% crop ins, 14% - 18% livestock)

Prem Tax is 4th (14% -15% crop ins, 12% of Total Deployment Costs for livestock)

Deployment Costs for SHF livestock Ins deployment is significantly lower than large scale at 8.24% vs 5.29%. This may indicate poor performance for SHF livestock business.

Digitalization

Utilization of Digital Solutions in Agriculture Insurance



6 out of 13 use the tools which is 46.2%, 7 do not use digital tools

Brokers

Reasons for not digitizing

- Absence of effective digital tools in the market.
- Size of agriculture insurance portfolio too small for digitizing.
- Not aware of applicable tools
- Reliance on old system
- Other players did not give their reasons

Insurers

Reasons for not digitizing

- High costs of acquiring the information and tools
- Do not write agriculture insurance
- Too early to digitize (new player in agriculture insurance)
- Need capital for this investment
- Several players did not give their reasons.

Digitalization: Application of Digital Tools in indemnity agric insurance

# of PLAYERS	TYPE OF DIGITAL TOOLS UTILISED
2 of 6	Mobile apps for processing insurance applications/claims reporting
2 of 6	Mobile enabled payments e.g. premiums/Claims etc.
2 of 6	Internet based or credit/debit card payments
2 of 6	Digital enabled pricing software
4 of 6	Mobile phone geolocation to identify insured fields etc.
1 of 6	Other solutions

The most common tools used for indemnity

1. **Mobile phone geo-location** of fields (4 from 6 Players from use this tool)
2. 2nd most used
 - **Mobile apps** for processing insurance applications/ claim reporting (2 from 6)
 - **Mobile enabled payments** for premiums/claims (2 from 6)
 - **Internet based or credit/debit payments** (2 from 6)
 - **Digital enabled pricing software** (2 out 6)
3. Other Solutions (crop monitoring software)

Adoption/ use of appropriate Digital Tools can lower insurance admin costs(processing) and product delivery costs(bus acquisition etc)

Index Insurance Market Assessment Summary

Summary information on current index market

Products	Players			Gross Premium USD \$	
	Brokers	Insurers	Reinsurers	2021/22	2022/23
Weather Index	-	1	1	90 000	20 000
Area yield	-	1	-	120 000	-
Total	-	2	1	210 000	20 000

❖ WII:

- ❖ one new program was planned to be launched 2022/23 for cotton and tobacco (est premium Us\$ 1,1 Million, No details on outcome)
- ❖ WII shown here has been running since 2016 and involves International Dev Agency (WFP and its Partners), is part of their Integrated Climate Risk Management program for resilience against food insecurity and ending global hunger.
- ❖ Area Yield: The Program was Government initiated, and piloted 2021/2022 for grains (maize, sorghum, millet in 2 Districts - Mwenezi & Rushinga). Discontinued in 2022/23.

Reasons for Not Writing Index Insurance

BROKERS

- Need to develop expertise in this line first and training.
- Requirement for a big pool of both brokers and insurers involvement in this line.
- Poor results experienced in a program in which the player was involved in.

INSURERS

- Poor results from index programs the player was involved in.
- Not yet ready to write this line
- Lack of reinsurance support and would participant in a government supported program.
- Require technological tools for monitoring weather.
- Several players did not give their reason.

REINSURERS

- Stopped due to bad results.
- Limited expertise to underwrite the line.
- Limited retrocession capacity and expertise
- Some players did not give their reasons

Insurers index development constraint analysis

Key Requirements/ Enablers For Index	Resources / Facilities/Services	No Constraint	Moderate Constraint	Major Constraint
1. Technical/ Operational	•Access to data (weather / meteorological)	5	5	7
	•Access to agriculture production data (yields)	2	6	9
	•Access to agric weather damage data.	4	5	8
	•Access to technical services and information from local experts/ agronomist , veterinary scientists etc.	5	7	5
	•Access to external (regional and international) technical services for product development (actuaries/risk modelling experts etc.)	7	5	5
	•Delivery channel availability and network facilities for selling/marketing insurance policies, premium collection, claims settlement	6	6	5
2. Financial: Availability of capital resources to:	•Support index insurance provision (acquisition & administration costs etc.)	-	6	11
	•Fund startup costs of index insurance line –training, research , product developments costs etc.	-	8	9
	•Meet other financial/ capital requirements	-	5	12
3. Regulatory requirements	• Licensing requirements, approval protocols etc. for starting index insurance line	11	5	1
4. Government requirements	• Controls etc. for operating in rural farming areas	11	5	1

The Unavailability of Financial resources to fund index bus line is the most significant problem for Insurers:

- **11/17** players face major constraints in funding index acquisition & admin expenses,
- **9/17** face major constraints in raising capital for index start up costs to cover training & product develop costs etc. and
- **12 /17** face major constraints related to other financial/capital requirements.

The Unavailability of Technical/Operational Facilities, is 2nd ranked.

- Access to agric production is major constraint to 9 insurers, weather damage data access (major constraint for 8).
- Access to weather data is major constraint to 7 and access to technical services from local and external experts such as agronomists/Vets, actuaries/, risk modelling experts, product developers etc is either a major constraint or moderate constraint for 10 of the players.
- Delivery Channel Availability is either major or moderate constraint to 12 Players.

Regulatory Requirements and Government requirements do not pose significant constraints to Players:

- Not constraint 11/17 Players
- Moderate constraint 5/17
- Major constraint 1/17

Government Role

Insurer's views on the possible forms of government support for index insurance development

PLAYERS	FORM OF GOVERNMENT SUPPORT / INTERVENTION
12 of 17	Agricultural Insurance Legislation e.g. Compulsory insurance for some crops/livestock programs
16 of 17	Subsidies on e.g. research/product development costs e.tc
15 of 17	Tax exemptions premium research & product development costs e.tc
11 of 17	Involvement of government technical staff for loss assessment, other services etc.

Insurers Ranking Order of Possible Govt Support:

1. Subsidies' R&D, product dev cost etc. (16 from 17 players)
2. Tax Exemptions on premiums & product dev costs(15 players)
3. Agric Ins Legislation e.g. compulsory ins for some crops/livestock (12 Players)
4. Govt technical staff support (e.g. Loss Assessment etc., (11 players)

Conclusion

Opportunities & Prospects

- 1. The Index market size (0.8% of US\$26.5 million agric ins market) indicates a huge untapped market available for this line.**
- 2. Majority of respondents across all three sub-sectors of the insurance industry are supportive of the development of index insurance in the local market.**
- 3. Index insurance is seen as an appropriate type of insurance for protecting the small holder farming sector against catastrophic weather risks.**
- 4. All players suggest government involvement/support in index insurance as a critical enabler for the development of this business line and market, going forward.**
- 5. A “market pool or consortium approach” is suggested for promoting index insurance in the country.** This approach would provide interested players easier access to the index market and allow for coordination in lobbying for support from different key stakeholders(Government, Regulator, other Service Providers).
- 6. The insurance sector should consider creating a central agriculture information data bank for those interested to enter or grow agriculture insurance.**
- 7. A third of the market players in the insurers segment indicated strong interest to get involved in index insurance, going forward and these include the Insurance Council of Zimbabwe (ICZ).**



Practical Insights from Product/Data Feasibility Assessment and Pilot

Agrotosh Mookerjee, Index Insurance
Specialist/Actuary (IFC)

Sibongile Siwela, Director of
Microinsurance (IPEC)

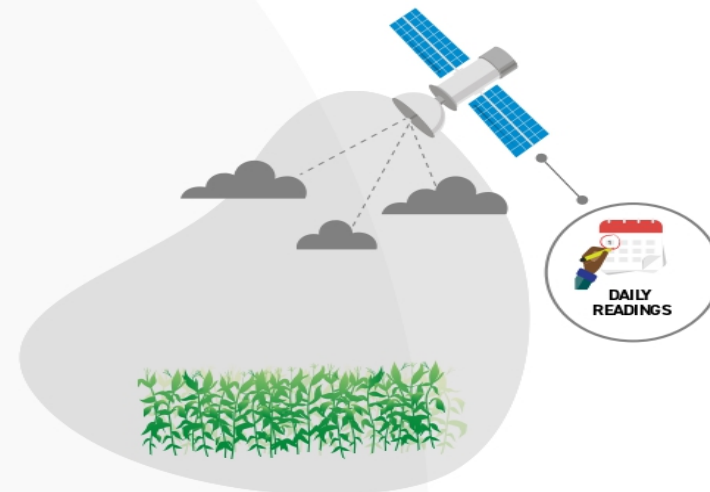
Cuthbert Masukume, General Manager
& Principal Officer (AFC Insurance
Company)

What is Weather Index Insurance?

Drought



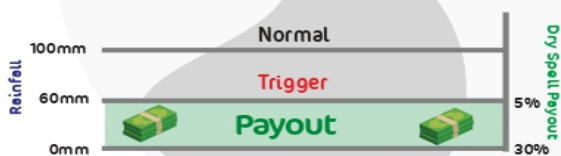
Floods



1. Weather Index Insurance (WII) pays out on the basis of defined bad weather events (e.g. dry spells, droughts, excessive rainfall) only;

2. Rainfall conditions are monitored through weather stations/ rain gauges and also through satellite technology;

3. Satellite technology monitors clouds and the features of these clouds and are able to estimate rainfall through this daily monitoring of clouds and comparing the information to historical information for over 35 years;

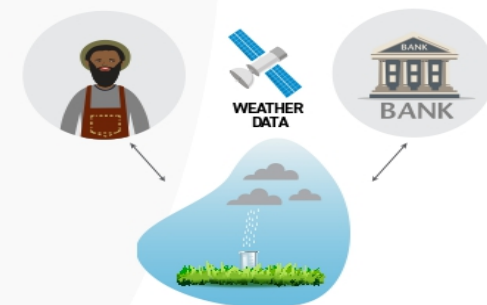


4. WII payouts are automatically triggered if rainfall is significantly below or above normal rainfall, as specified by trigger levels (or benchmark levels). Payouts are triggered automatically based on the actual rainfall conditions.

5. WII does not need farmers to report losses or crop-cutting experiments to determine the average yield in an area;

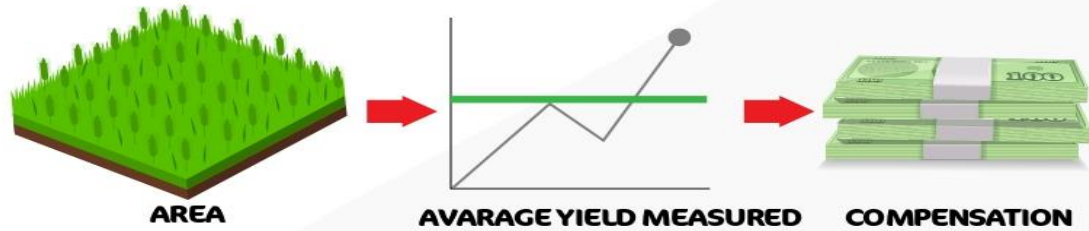


6. WII claims can be paid even in the early part of the season or during the season, as soon as the bad weather condition has occurred. These early payouts can enable replanting of the crop in case of bad weather early on in the season.



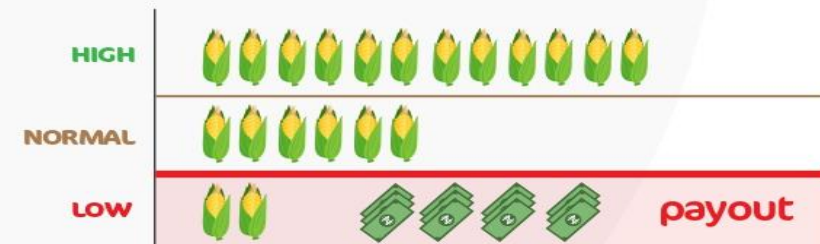
7. Weather data can be shared with all stakeholders including farmers and banks.

What Is Yield Index Insurance?



1. Yield Index Insurance (YII) is an index insurance product whereby farmers are compensated on the basis of the average yield measured in an area using a specific method;

2. The yield is measured using crop-cutting experiments, whereby yield is sampled in a Local Government Area (LGA), with a minimum of 25 sampling per LGA;



3. YII is based on sampling of the yield for specific fields and so it is not compensating individual farmers for his/her losses in his/her own field. So, there could be a difference between the yield harvested by a farmer and the insurance pay-out;

4. The payouts are made only if the average yield in the area (through the crop-cutting experiments) is significantly below the normal yield, as specified by a yield trigger level.

Relevance of different categories of crop-insurance

PRODUCT TYPE	WHEN IS IT POTENTIALLY FEASIBLE?	WHEN IS IT NOT RECOMMENDED?
1. Weather Index insurance for Crops	<ul style="list-style-type: none"> a. Rainfall/weather dependent farming; b. Small-scale farming; c. Good accuracy of underlying weather data 	<ul style="list-style-type: none"> a. Heavily irrigated farming (WII less relevant); b. Accuracy of weather data is not proven; c. Expectation of indemnity loss assessment
2. Yield Index Insurance for Crops;	<ul style="list-style-type: none"> a. Adequate historical granular yield data; b. Yield data is representative of farmers' yield; c. Yield data is available speedily for claims 	<ul style="list-style-type: none"> a. Inadequate historical yield data available; b. Yield data cannot be collected; c. Poor correlation between yield index and farmers' losses d. Concentration risk due to low granularity
3. Indemnity Insurance for Crops	<ul style="list-style-type: none"> a. Good quality historical yield and loss data is available; b. Loss adjustors or claims management is viable; c. Cost of claims assessment can be absorbed into premium rates; d. Underwriting is possible e.g. of emergence of seedling, farming practices. 	<ul style="list-style-type: none"> a. Typically for smallholder farmers- very difficult to apply without presence of good claims management; b. If historical yield/loss data is not available. c. If farming practices cannot be monitored reliably.

Underwriting Check-List for Weather Index Insurance (WII)

1. Is the agriculture activity rainfall dependent (fully/partially)?
 2. Is the agriculture activity exposed to weather risks (directly/indirectly)?
 3. Is the underlying weather data suitable for the region and risk?
 4. What should be the start of the insurance coverage?
 5. Which types of weather risks are relevant?
 6. What are the GPS coordinates/location of reference points?
 7. What estimates can be made of historical losses/ risk events?
 8. How will the product be distributed to farmers?
 9. How will the premium be paid and collected by the insurer?
 10. How will claims be paid by the insurer and reach the farmer?
-

Data Requirements for WII

ESSENTIAL DATA		
WHAT	WHY	SOURCE
1. Location (GPS coordinates of reference points)	To extract appropriate weather data	From Aggregators/field visits/Google searches/Administrative maps and references
2. Historical weather data for 20+ years for the targeted locations	For pricing based on historical simulated payouts	From satellite sources and weather stations
3 Information of losses experienced and causes from farmers or aggregators	To know which perils to insure and correlation between historical payouts and actual losses	From aggregators, farmers, meteorological department, online research
4 Description of weather risks, which causes damage to the crop	To know how to define weather risks	From aggregators, farmers, agronomists, online research
GOOD TO HAVE DATA		
1. Historical Yield data	To correlate to simulated payouts	From Ministry of Agriculture, aggregators, farmer focus groups, online research
2. Planting practices	To decide on insurance start date	From aggregators, farmers, agronomist
3. Extent of rainfall dependency and irrigation	To check suitability of type of product	From aggregators
4. Cost of production, loan amount, expected yield and price	To decide on sum insured values	From aggregators, farmers, agronomist
5. Crop water requirements by phase of crop cycle	Input for product design	From agronomist, MoA, online research

Underwriting checklist for Area Yield Index Insurance (AYII)

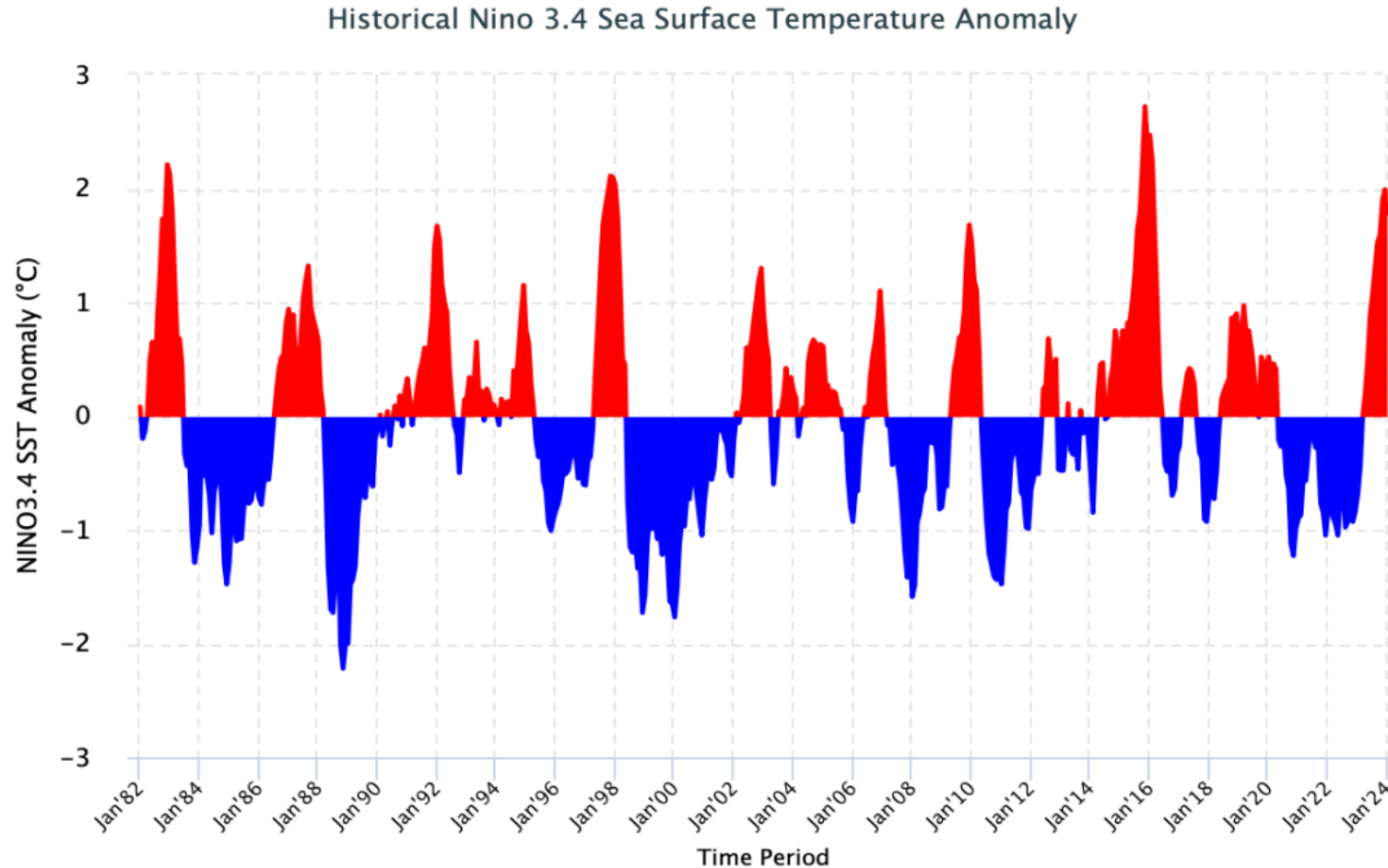
1. Is the underlying yield data suitable for this client?
 2. How many years of historical yield data is available (should be at least 5 years)
 3. Is the granularity of the yield data suitable for claims settlement?
 4. What is the additional concentration risk involved, especially if data is not very granular?
 5. What is the exposure to unknown/unprecedented risks e.g. locusts, army worms?
 6. How applicable are the trigger levels from perspective of basis risk?
 7. Which statistical distributions to use for YII pricing?
 8. How much use to make of population data or yield data from other sources?
 9. How quickly will the yield data be available for claims settlement?
 10. How should the Sum Insured value be defined e.g. expected yield or % of cost of production, loan amount etc.
-

Data Requirements for AYII

ESSENTIAL DATA		
WHAT	WHY	SOURCE
1. Historical Yield data for 5+ years, at a granular level, representative of target farmers	Product design and pricing	From MoA, aggregators
2. Methodology for collecting yield data and ease of accessing yield data	For claims settlement process	From MoA, aggregators
3. Benchmark Yield	For product design	From MoA, aggregators, agronomist
4. Historical losses experienced by farmers and reasons for losses	For comparing to yield index	From farmers, agronomist
GOOD TO HAVE DATA		
1. Cost of production, loan amount, expected yield and price	Decide on sum insured values	From aggregators, farmers, agronomist
2. Current farming and risk management practices	To understand extent to which yield index is viable	From agronomist, aggregators
3. Extent of rainfall dependency and irrigation	Suitability of type of product	From aggregators

Historical El Nino and La Nina occurrences

El Niño and La Niña



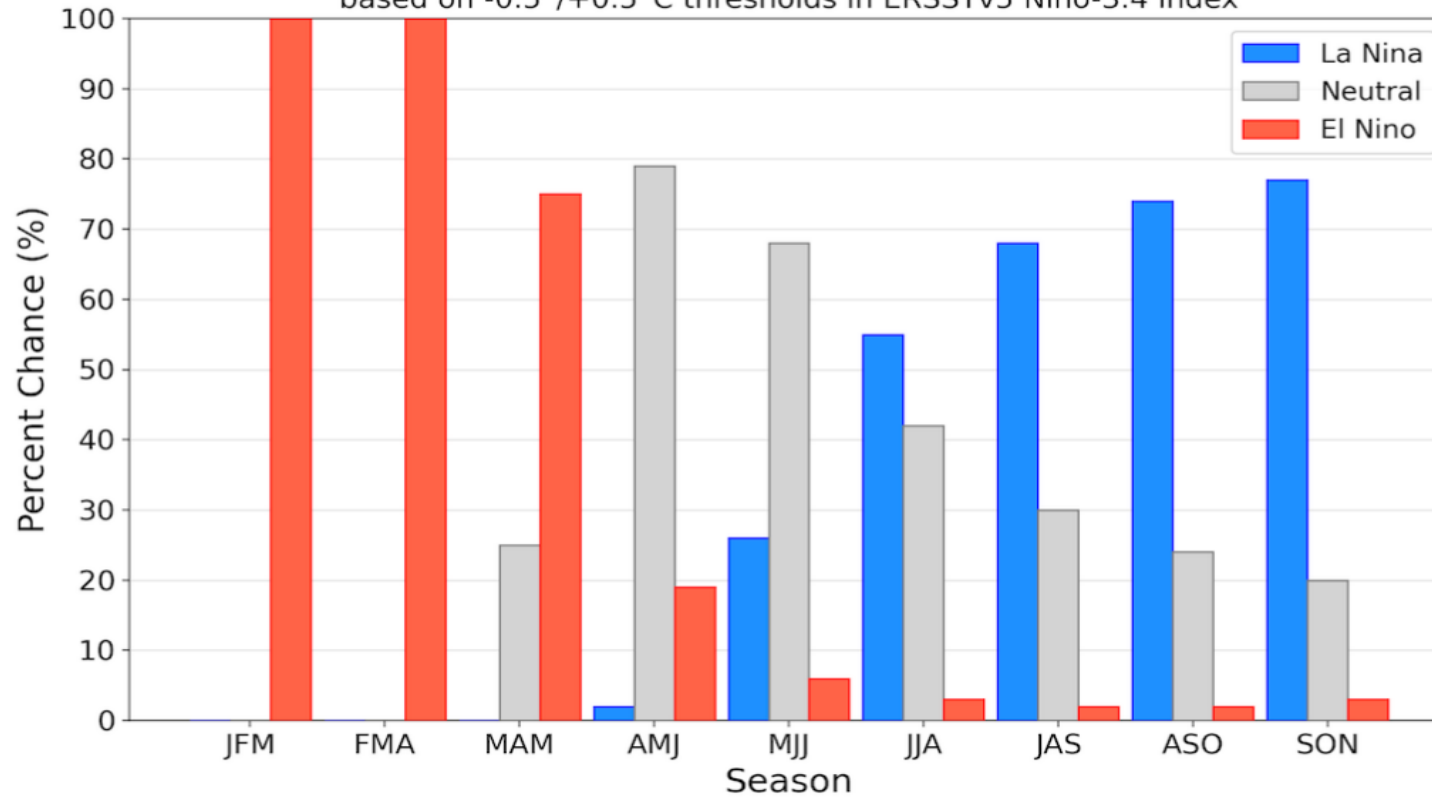
Source: IRI

ENSO forecast for 2024 (as of Feb 2024)

ENSO forecast for 2024

Official NOAA CPC ENSO Probabilities (issued Feb. 2024)

based on $-0.5^{\circ}/+0.5^{\circ}\text{C}$ thresholds in ERSSTv5 Niño-3.4 index



Source: NOAA-CPC

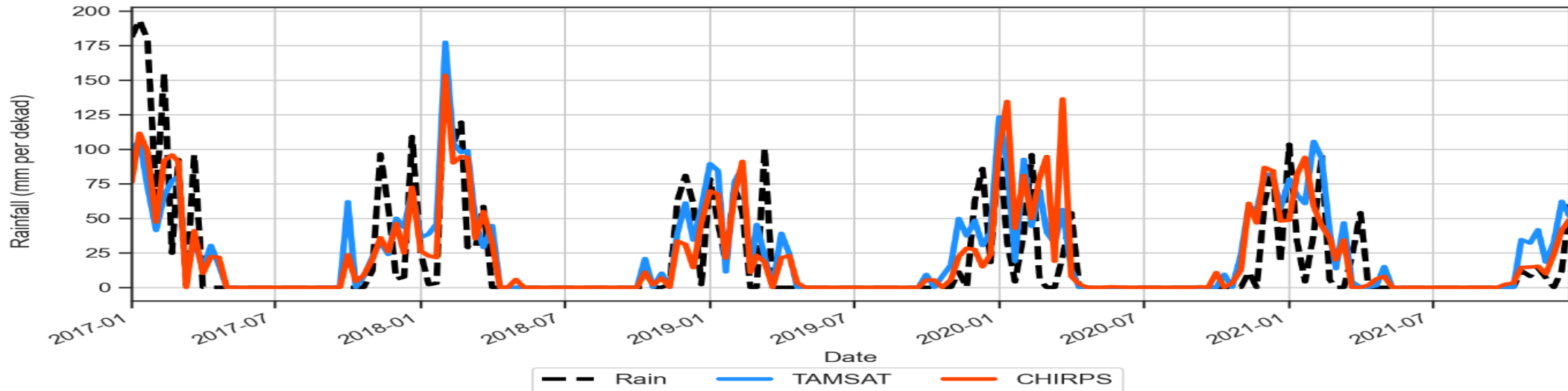
Satellite data sources tested for Zimbabwe

Product name	Source	Inputs*	Start/end dates	Spatial resolution	Timestep	Latency
TAMSAT (v3.1)	University of Reading (UK) URL	TIR, gauge	Jan 1983 to present	0.0375°	daily	2 days
CHIRPS/ CHIRPS-prelim (v2.0)	FEWS-Net (USA) URL	TIR, gauge	Jan 1981-present	0.05°	daily	6 weeks (CHIRPS), < 7 days (CHIRPS-prelim)

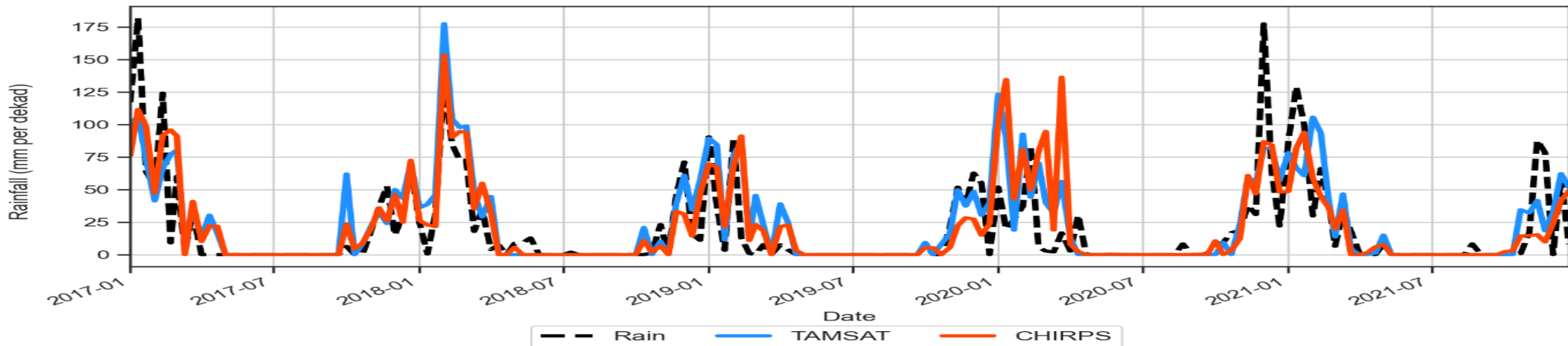
Statistic	Description	Equation	Perfect score	Why is this useful?
correlation coefficient (r)	How well did the satellite estimates correspond to the observed values?	$r = \frac{\sum (S - \bar{S})(O - \bar{O})}{\sqrt{\sum (S - \bar{S})^2} \sqrt{\sum (O - \bar{O})^2}}$	1 (range: -1 to 1)	Shows level of agreement, easily understood.
bias (also known as additive bias or mean error)	What is the average satellite estimate error?	$bias = \frac{1}{N} \sum_{i=1}^N (S_i - O_i)$	0 (range: -∞ to ∞)	Identifies systematic biases in estimates.

Correlation between weather station and satellite datasets

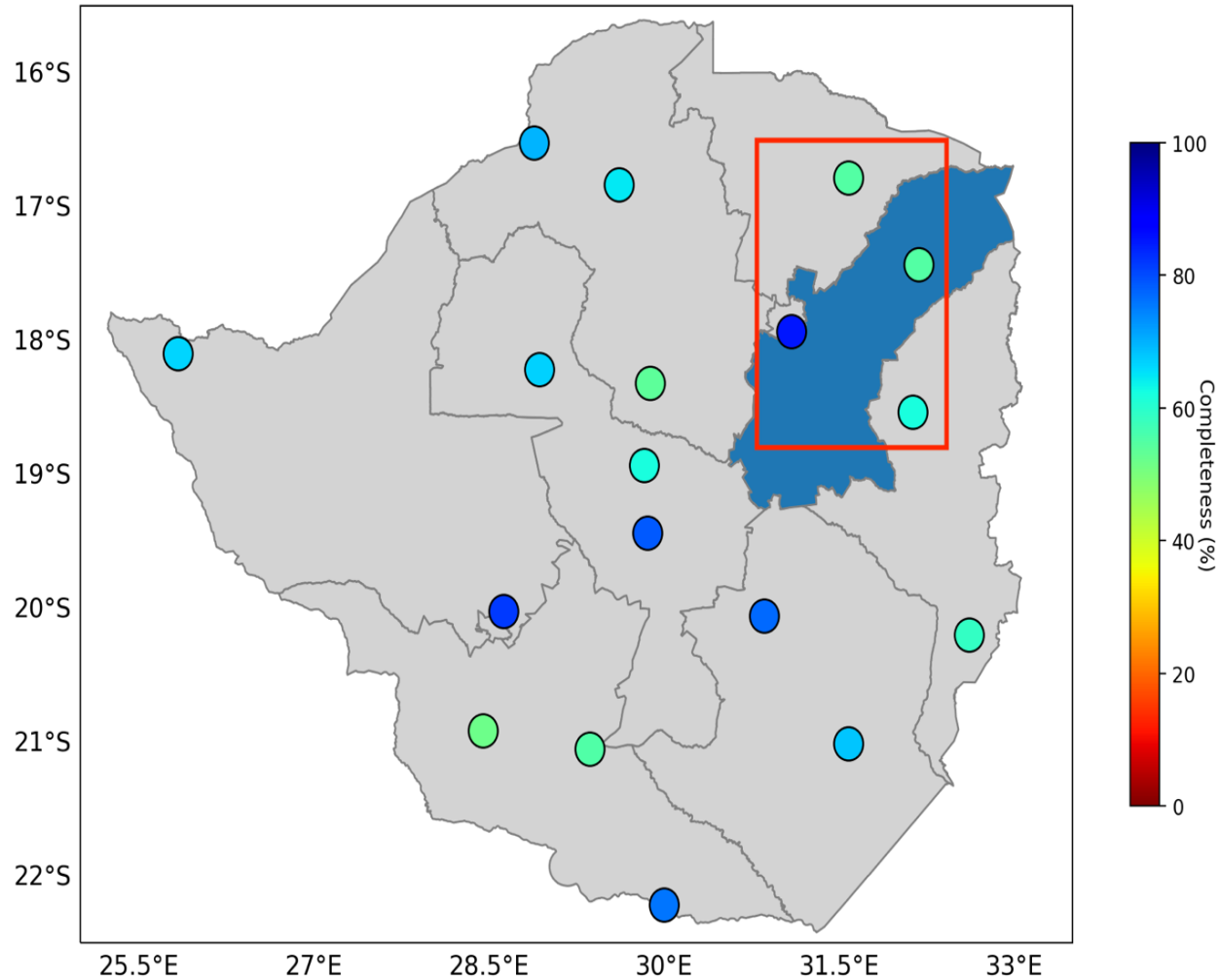
Arcturus



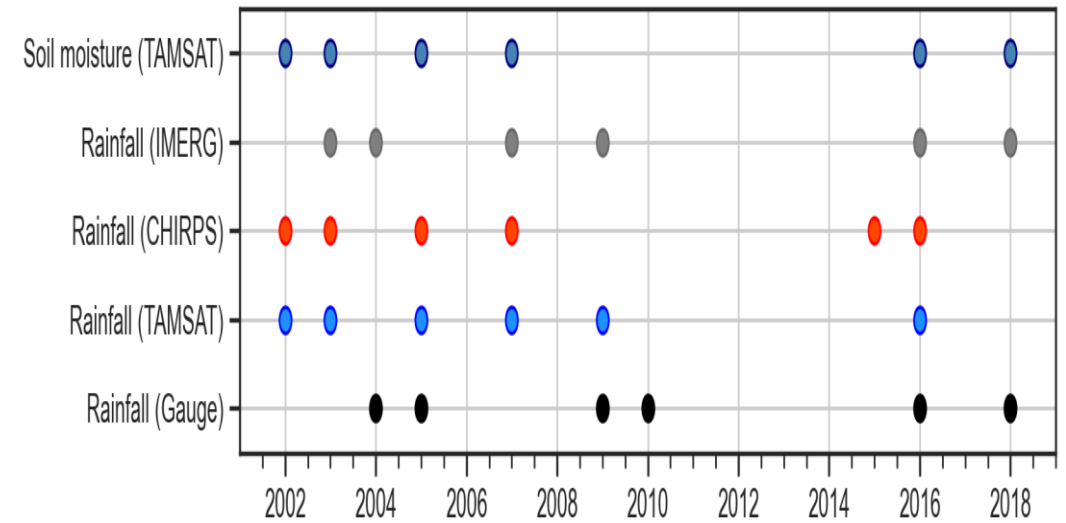
Kutsaga



Available weather stations from online archives for assessing skill of satellite data



Identifying 'bad years' through alignment of multiple datasets



HYBRID INDEX INSURANCE PRODUCT DEVELOPED FOR 23-24 SEASON IN GOROMONZI:

General structure

FEATURE	DESCRIPTION
Type of index	Weather index insurance-WII (based on daily satellite data), plus Area yield index insurance-AYII (based on crop cutting experiments-CCEs)
Crop/risk insured	Maize produced in Pfumvudza farming system for AYII; Generic severe early and late dry spells for WII
Satellite data	Daily TAMSAT v3.1
Locations insured	21 wards in Goromonzi (N, S, W, E GPS coordinates collected for each ward)
WII cover duration	15 th November 2023 to 15 th March 2024 (4 months)
Max payout	Early dry spell: 20%; Late dry spell: 20%; Yield Index insurance: 60% Total Payout = Early dry spell payout + Late dry spell payout + Yield index payout (max of 100%)
Minimum payout	5% of Sum Insured. If payout is less than 5%, then there is NO payout made. If payout is 5% and more, then the full triggered payout is made
Gross Premium	10% of Sum Insured
Partial payouts	Partial payouts are possible depending on severity of dry spell and yield drop
Fall back methodology	Other sources of satellite data for WII; Other sources of yield data for YII

HYBRID INDEX INSURANCE PRODUCT DEVELOPED FOR 23-24 SEASON IN GOROMONZI-Weather Indices

FEATURE	DESCRIPTION
Early dry spell	<p>From 15th November 2023 to 31st December 2023 (both days inclusive), if the cumulative rainfall over any consecutive 20 days is below AA mm, then there is a payout, ranging from 0% of Sum Insured to a maximum of 20% of the Sum Insured. The payout increases automatically at a uniform rate of XX% for every mm below the trigger level, from 0% to 20% of the Sum Insured when rainfall falls below the trigger level for the same time period.</p> <ul style="list-style-type: none"> • The payout is equal to the following: $\text{MIN}\{\text{MAX}\{[\text{MAX}[(\text{AA mm} - \text{Actual rainfall over 20 consecutive days}), 0] \times \text{XX}\% \times 100\}, 0\%], 20\%\}$ • In the case of multiple payout events, the highest payout event will be considered for payout. For 20-day blocks in the given time period, ONLY the worst of these blocks will be considered for the index. • Trigger levels (AA mm) vary by ward (e.g. 20 mm- 30 mm) depending on the historical rainfall data. • Rate of payout (XX%)= Max Payout/ Trigger and so varies by ward (e.g. 0.67%- 1.00%) depending on trigger levels
Late dry spell	<p>From 1st January 2024 to 15th March 2024 (both days inclusive), if the cumulative rainfall over consecutive 30 days is below BB mm, then there is a payout, ranging from 0% of Sum Insured to a maximum of 20% of the Sum Insured. The payout increases automatically at a uniform rate of YY% for every mm below the trigger level, from 0% to 20% of the Sum Insured when rainfall falls below the trigger level for the same time period.</p> <ul style="list-style-type: none"> • The payout is equal to the following: $\text{MIN}\{\text{MAX}\{[\text{MAX}[(\text{BB mm} - \text{Actual rainfall over 30 consecutive days}), 0] \times \text{YY}\% \times 100\}, 0\%], 20\%\}$ • In the case of multiple payout events, the highest payout event will be considered for payout. For 30-day blocks in the given time period, ONLY the worst of these blocks will be considered for the index. • Trigger levels (BB mm) vary by ward (e.g. 40 mm- 60 mm) depending on the historical rainfall data. • Rate of payout (YY%)= Max Payout/Trigger and so varies by ward (e.g. 0.33%-0.50%) depending on trigger levels

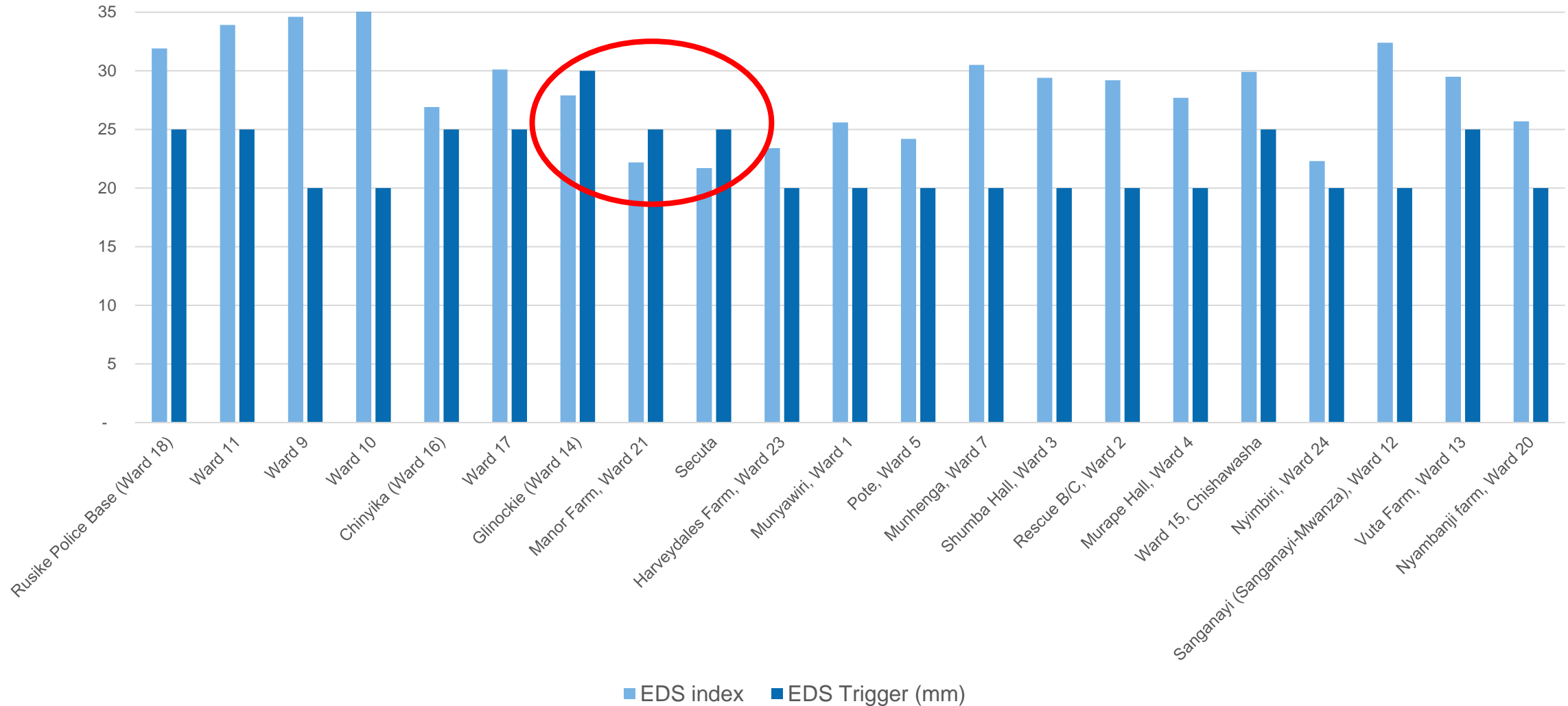
HYBRID INDEX INSURANCE PRODUCT DEVELOPED FOR 23-24 SEASON IN GOROMONZI-

Yield Index structure

FEATURE	DESCRIPTION
Normal yield (Kg/Ha) or APH	Varies between 4,000 to 12,000 for farmers using Pfumvudza practices. APH collected via focus group discussions with farmers in 21 wards in Goromonzi
Trigger level	60% of normal yield. Hence Trigger yield (Kg/Ha) varies between 2,400-7,200 (Kg/Ha) varying by ward, based on APH levels per ward
Exit level	10% of normal yield. Hence Exit yield (Kg/Ha) varies between 400-1,200 (Kg/Ha) varying by ward, based on APH levels per ward
Max Payout	60% of Sum Insured
Rate of payout	$\text{Max} / (\text{Trigger} - \text{Exit}) = 60\% / (60\% - 10\%) = 1.20\%$
YII payout formula	$\text{MIN}\{[(\text{MAX}\{[\text{GY} - \text{AY}], 0\}) \times \text{R}], \text{M}\}$ <p>Where GY is the trigger (60%); AY is the actual yield (as % of normal yield); R is the rate of payout (1.2); M is the maximum payout (60% of Sum Insured)</p>

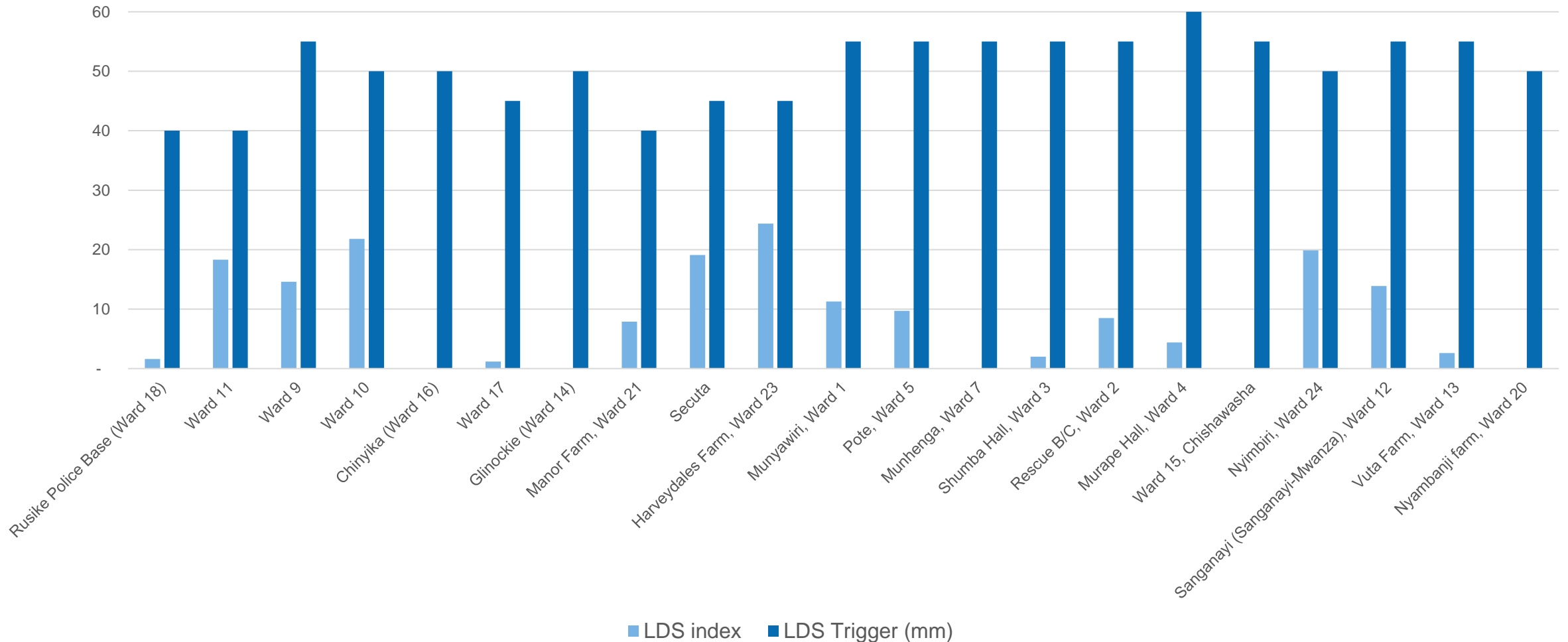
Monitoring of early dry spell indices (mild dry spell 21 Nov-10 Dec 2023): Hypothetical Payouts

Early dry spell index vs Trigger levels for all insured wards



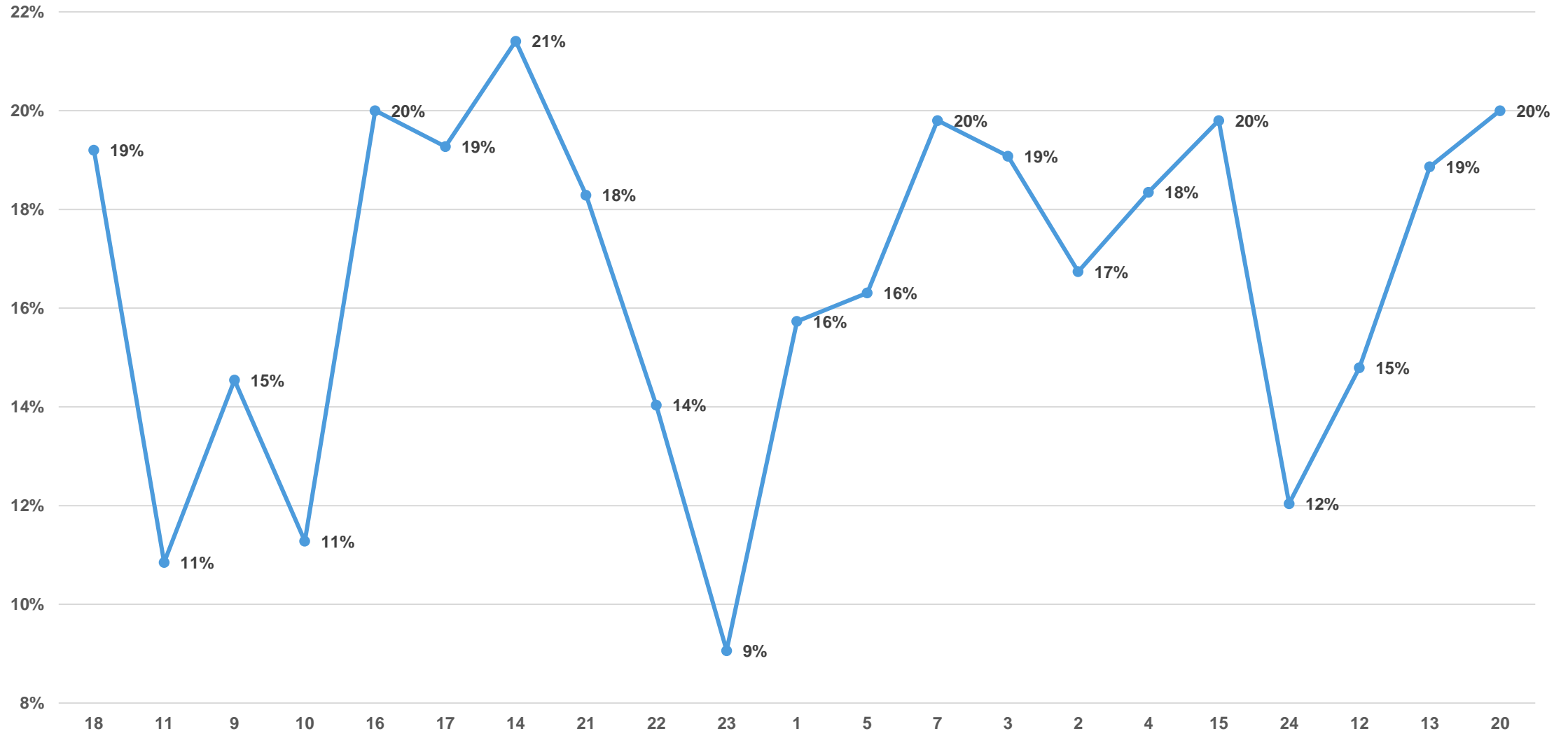
Monitoring of late dry spell indices (very severe dry spell 27 Jan-25 Feb 2024): Hypothetical Payouts

Late dry spell index vs Trigger levels for all insured wards



Hypothetical WII triggered payouts per ward

WII Payouts per ward



Summary of Hybrid-Index insurance product

Combination of weather index and yield index insurance

Use of satellite data (and assessment of skill of satellite) for weather index

Including early and late dry spell coverage (scope to include excessive rainfall coverage for next season, given current ENSO forecast)

Validating yield data from multiple sources- MoA, FGDs with farmers

Revising yield data for Pfumvudza farming practices (significant difference to official yield data from MoA)

Stochastic pricing of yield index component

Use of limits to payouts to enable relatively lenient trigger levels

Regular monitoring process required for speedy settlement of weather index payouts

Close to maximum payouts triggered for late dry spell index (for dry spell from end of January to most of February)

Consider scope for pure weather index insurance for next season to avoid complexities of implementing CCEs and to ensure speedy payouts.

**PRACTICAL INSIGHTS FROM THE
FARMERS' BASKET:**

**REVIEW OF THE PROTOTYPE
PRODUCT DEVELOPED FOR PILOT
TESTING IN GOROMONZI**



*Presented by: Sibongile Siwela
Director of Insurance - IPEC*

ORIGIN OF THE FARMERS' BASKET



The desire to increase the resilience of vulnerable members of society against climate-related exposures resulted in an innovative product called the “*Farmers’ Basket*”.



This followed an application by the Commission to the A2ii-sponsored 3rd Innovation Lab Project in 2021.



The project has been a collaborative effort of different stakeholders including IPEC, Farmer representative organisations, the Government of Zimbabwe through the Ministries of Agriculture and Finance, the Insurance Council of Zimbabwe (ICZ), and the International Finance Corporation (IFC).

PRODUCT FEATURES



The Farmers' Basket was priced with the assistance of the IFC. The product aims to protect farmers on account of yield shortfall and poor germination. It is a hybrid index insurance consisting of the following covers:

- i. Germination Cover - Weather Index Insurance based on Satellite-based data, estimating rainfall indices (covering early and late dry spells).
- ii. Area Yield Index insurance based on Crop-Cutting Experiments (CCE) to be carried out for randomised samples of insured farmers.

EARLY LESSONS FROM THE PILOT



There was a need for a timeous approach in implementing the project. The team was running behind the timelines stipulated in the Gantt chart for the 2023/2024 farming season.



At a premium rate of 10%, farmers found it unaffordable and there was a need to arrange for premium financing support in time.



Need for better communication, coordination, and engagements between the farmers, insurers, and consultants hired to operationalize the product. A more hands-on approach in the fields was required for all stakeholders during and after the pilot project.

EARLY LESSONS FROM THE PILOT (CONTINUED)

Implementation of index insurance products without appropriate regulations in place. A policy paper has been prepared by IPEC and we now await the relevant regulations.



Lack of appropriate technology to assist with enrolment, communication with the farmers, and claims lodging and settlement.



Inefficient use of alternative distribution channels in communicating with the farmers, and use of aggregators over and above the traditional agents.



Insufficient financial literacy campaigns. Difficulty in understanding the product on the part of the farmers.



**A synopsis of the premium collection challenges encountered in
the rollout of the Goromonzi Hybrid Index Insurance Pilot**





Presentation Outline

- Background
- Premium collection challenges
- Interventions
- Conclusion

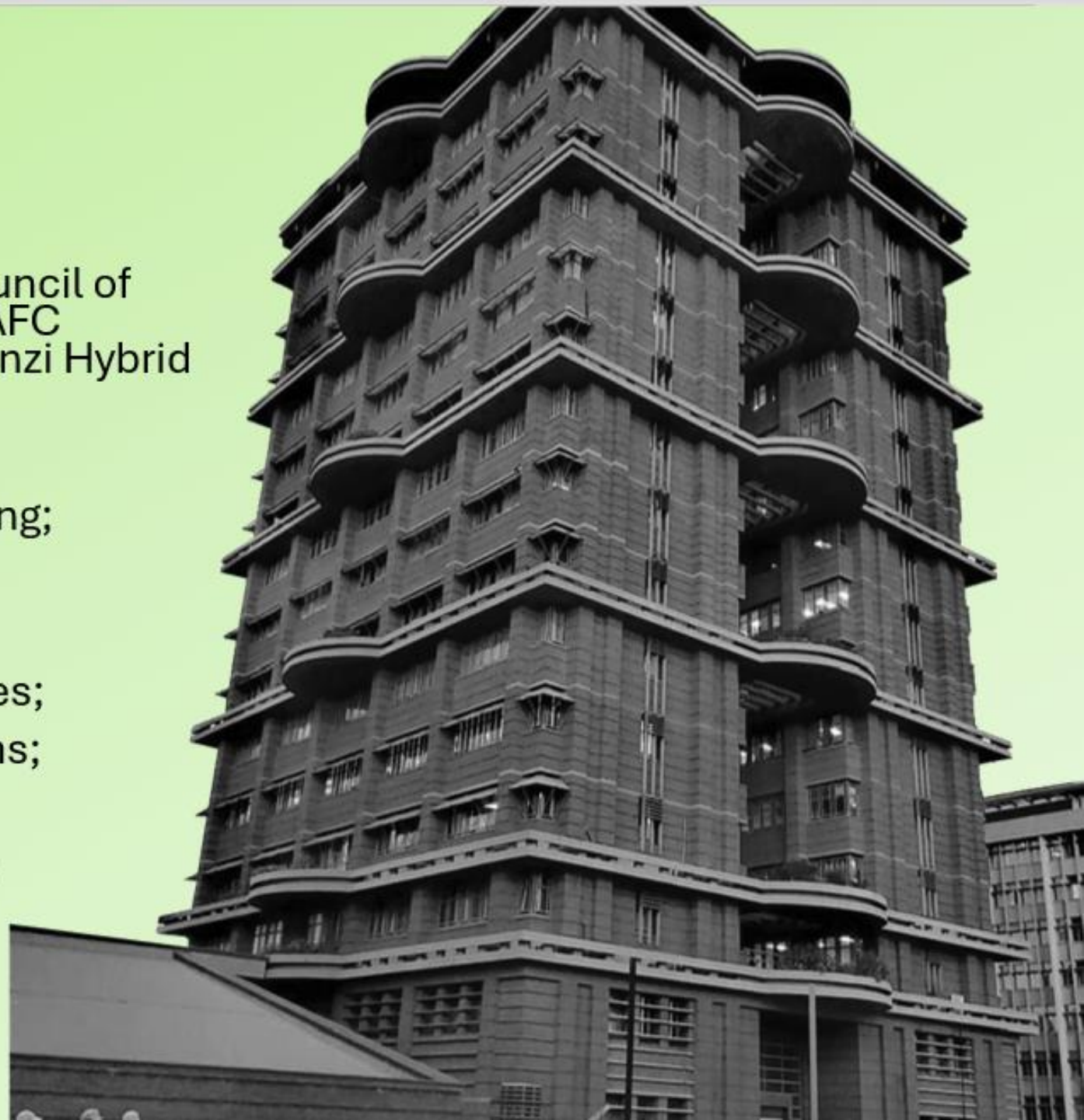


Background

On the 14th of November, the Insurance Council of Zimbabwe Agro Insurance Pool appointed AFC Insurance to lead the rollout of the Goromonzi Hybrid Index Insurance Pilot.

AFC Insurance was tasked to do the following;

- a) Coordination of field officers;
- b) Farmer identification and onboarding;
- c) Collection of field-level GPS coordinates;
- d) Mobilisation and collection of premiums;
- e) Auditing Crop Cut experiments
- f) Providing periodic stakeholder reports;
- g) Administering the claim payout.



Premium Collection Challenges

Reluctance to pay premium;

-Most farmers preferred that premiums should have been paid by the Government or Donor organizations.

Limited access to traditional banking facilities;

Impracticality of paying premiums through the banks because of premium quantum and distance to banks. *The cost to travel to the closest financial institution is almost 30% of the premium.*

Lack of trust;

There was heavy resistance to paying premiums through mobile payment platforms, farmers wanted to be sure that the scheme was genuine.

- Challenges with premium collection through corporatives and farmers' unions;
- Lack of flexible payment plans and payment options e.g. instalments, USSD platform, mobile application.
- Accessibility of some remote wards;
 - Furthest point is approximately 100 from the district center
- Insurance awareness and clarity of product/cover across the value chain (farmers and extension staff)

Interventions

1. Engagement of field officers;

- Agriculture extension officers proved to be effective foot soldiers as they are spread across all 25 wards of the district.
- They also work with their communities on a day-to-day basis and have been able to build the trust of the communities they work in.
- To motivate the extension officers, we introduced regular workshops where we disseminated program information and gathered feedback.

Goromonzi Hybrid Index Insurance
Pilot Product :2023/2024 Season



How does the crop insurance package work?

- Crop insurance is a safety net for farmers. It is meant to help farmers financially recover if their crops are damaged or fail due to weather-related hazards such as droughts or floods.

Available Crop insurance packages

- Area Yield Index Insurance
- Weather Index Insurance .

What does it cover?

- Early season dry season
- Late season dry spells and multiple production risks that can lead to a significant reduction in yield .

Who is covered?

- All eligible farmers in the Goromonzi district, who were registered by the AGRITEX extension and willing to pay a premium towards their maize or soyabean crop.
- Farmers can be insured on a stand-alone voluntary basis.
- Dry spells and multiple production risks that can lead to a significant reduction in yield .

What is the cost?

-A farmer has to contribute at least USD15, to get cover of USD300 for the crop grown in the 2023/2024 summer season.

How to pay premiums?

Premiums will be paid through the AGRITEX Officer or directly to AFC Insurance using the below banking detail.

Name of Bank: AFC Commercial Bank

Account Name: ZIM AGRO Pool
Account Number: 100012946858

Providing value-adding insurance and financial risk transfer solutions to our customers and to create value for all our stakeholders.



Head Office: 24-26 N. Midlands Ave. P.O. Box 508, Harare
Telephone: 02420772105/4 or 09477 301 202, WhatsApp: 0712837031
Email to: orders@triglobalinsurances.co.zw

Interventions

2. Use of everyday acceptable tools

- Physical printed information pamphlets;
- Information dissemination via WhatsApp groups;
- Use of Bulk SMS platform;
- Creation of physical premium collection points and farmer mobilization;



Interventions

3. Information dissemination/ explaining the cover and addressing farmer questions.



Interventions

4. Premium finance.

- Securing partners to pay premiums on behalf of farmers at the start of the insurance period;
- Financing partners would in turn recover their outlay from farmers as and when the farmers make premium payments;



Conclusion

What would we have done differently?

- Early engagement of target market (field officers, farmers, Reinsurers, Technical Partners)
- Aggressive farmer education using all available channels (field days, printed material, video and audio)
- Availing and educating the target market on Mobile applications and USSD platforms at their disposal
- Outsourcing some of the activities to aggregators
- Securing premium finance
- Arranging premium subsidy
- Capacitation of field staff
- Early engagement of farmer bodies



Index Insurance Demand Modeling Results

Huybert Groenendaal, Risk/Demand
Modelling Specialist (EpiX Analytics
LLC)

Contents

- 1 Survey methodology
- 2 Results: SHFs characteristics
- 3 Results: Main survey findings
- 4 Results: Market size estimation
- 5 Conclusions

Quantitative survey of small holder farmers (SHFs)

Survey of farmers

- **1,686 surveys collected** (global sample of farmers)
- **~340 surveys per crop**
- Two sampling criteria:
 - Crop type
 - Geographic distribution (based on # ha/district, up to 3 districts/province)
- Farm size between 1 and 100 hectares

Cotton

N = 326

Groundnut

n = 344

Maize

N = 356

Soyabean

N = 322

Sunflower

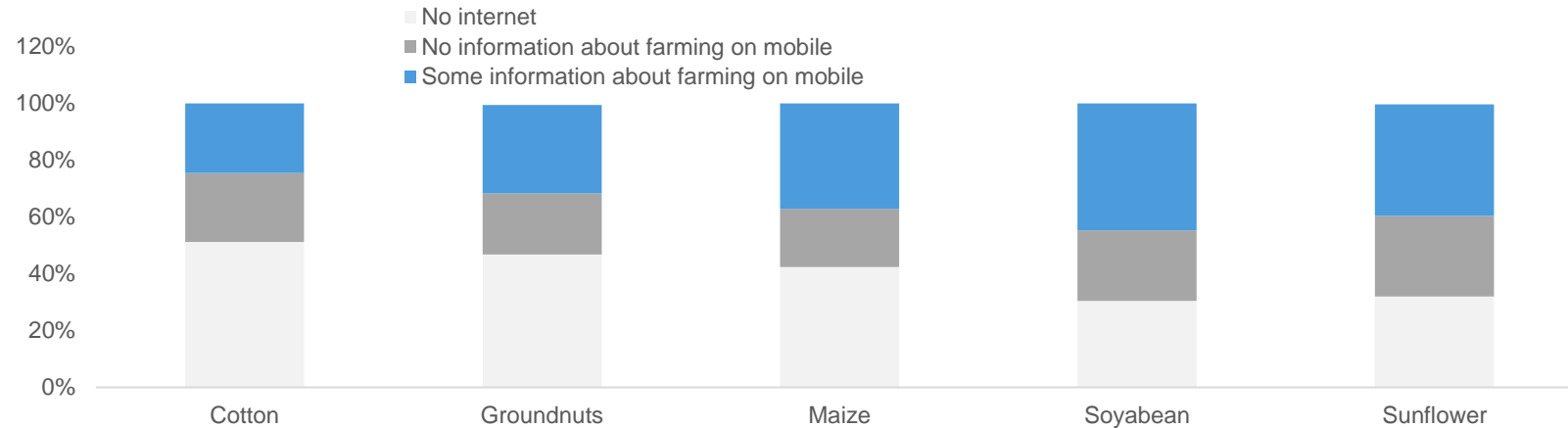
N = 338

Summary of SHFs characteristics

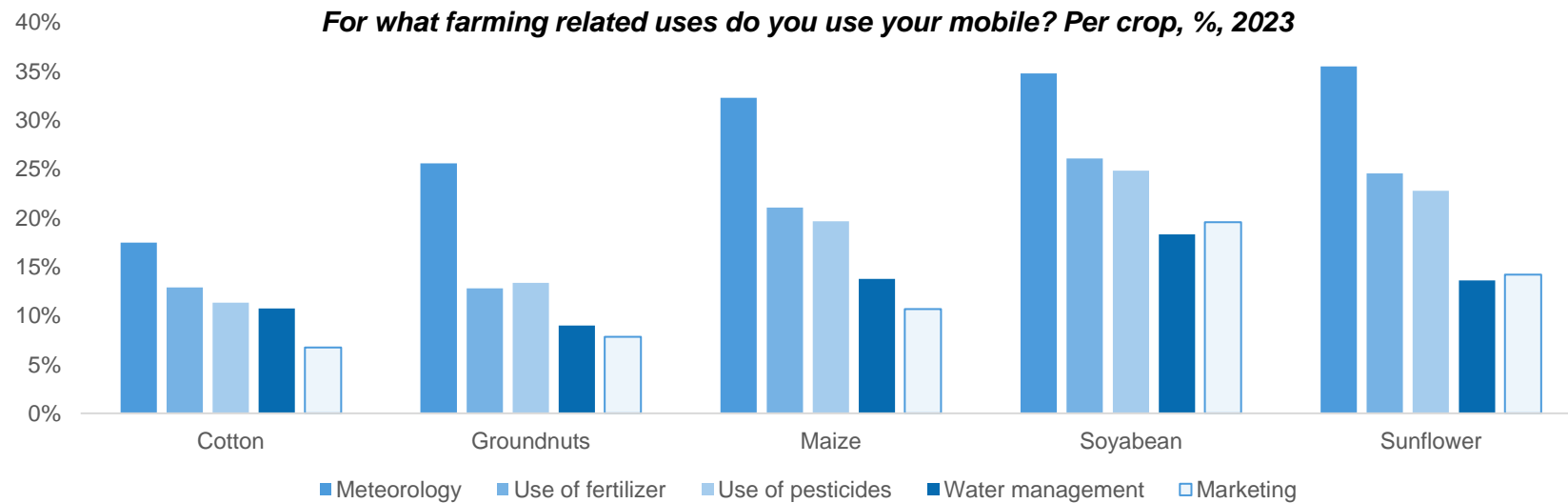
Age and gender	<ul style="list-style-type: none"> ▪ About half of farmland is owned by farmers aged 50 and more, and farmland ownership and tenure is about 50-50 female and male owned (but higher with groundnuts)
Education level	<ul style="list-style-type: none"> ▪ Most of the surveyed farmers have attended primary school, or more, and only 3-6% don't have any formal education ▪ However, professional training beyond "O" school is not common amongst the SHF's
Ownership of land	<ul style="list-style-type: none"> ▪ Most farmers (82-94%) own their land, either as A1 farms, small scale commercial farms, or on communal land (about half of farmers who own land farm on communal lands) ▪ Between 17 - 32% of surveyed farmers have a certificate / agreement of contract farming
Digital access	<ul style="list-style-type: none"> ▪ About 75% of the total SHFs are equipped with either a smartphone, a computer, or a tablet. ▪ A bit over half of SHFs use the Internet and about a quarter of farmers use their mobile phone for farming related information
Access to financial accounts	<ul style="list-style-type: none"> ▪ The percentage of financially included farmers varies the five crops but is around 50%. ▪ Most farmers have access to a financial account through their mobile service provider, and around 75% of farmer have access to mobile money.
Crops grown on farm & yields/ha	<ul style="list-style-type: none"> ▪ Most SHFs grow maize, and about 2/3 of surveyed farmers grow groundnuts. Soyabeans, cotton and sunflower are grown on fewer farms. Very few farms grow 1 crop only. ▪ Yields in survey are in line with those in national survey, although a bit higher
Interactions & memberships	<ul style="list-style-type: none"> ▪ Almost all SHFs have interactions with AGRITEX. GMA reaches ~50% of SHFs, while COTCO reaches almost 100% of cotton farmers. ▪ Most SHFs don't have membership to any of the national farmer unions

A quarter of surveyed farmers use mobile applications for farming related purposes, mostly related to meteorology. Usage is not related to age

Do you use your mobile for farming related information? Per crop, %, 2023



For what farming related uses do you use your mobile? Per crop, %, 2023

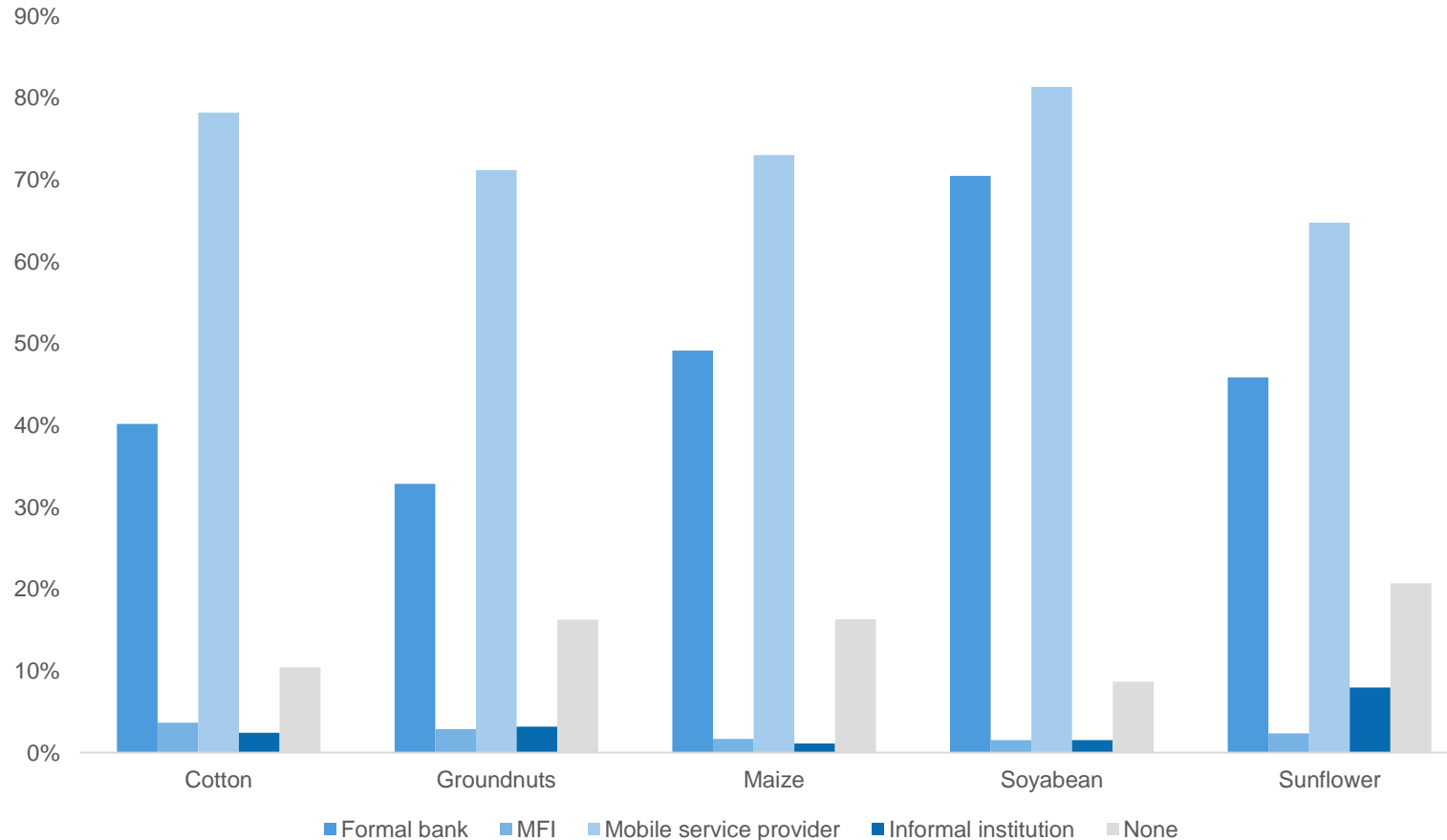


- Age and gender
- Education level
- Ownership of land
- Digital access**
- Access to financial accounts
- Crops grown & yield
- Membership & interaction

A bit less than 50% of SHFs have a formal bank account (soyabean farmers ~70%), and >75% of SHFs have an account with a mobile service provider. 10-20% have no account at all.

- Age and gender
- Education level
- Ownership of land
- Digital access
- Access to financial accounts**
- Crops grown & yield
- Membership & interaction

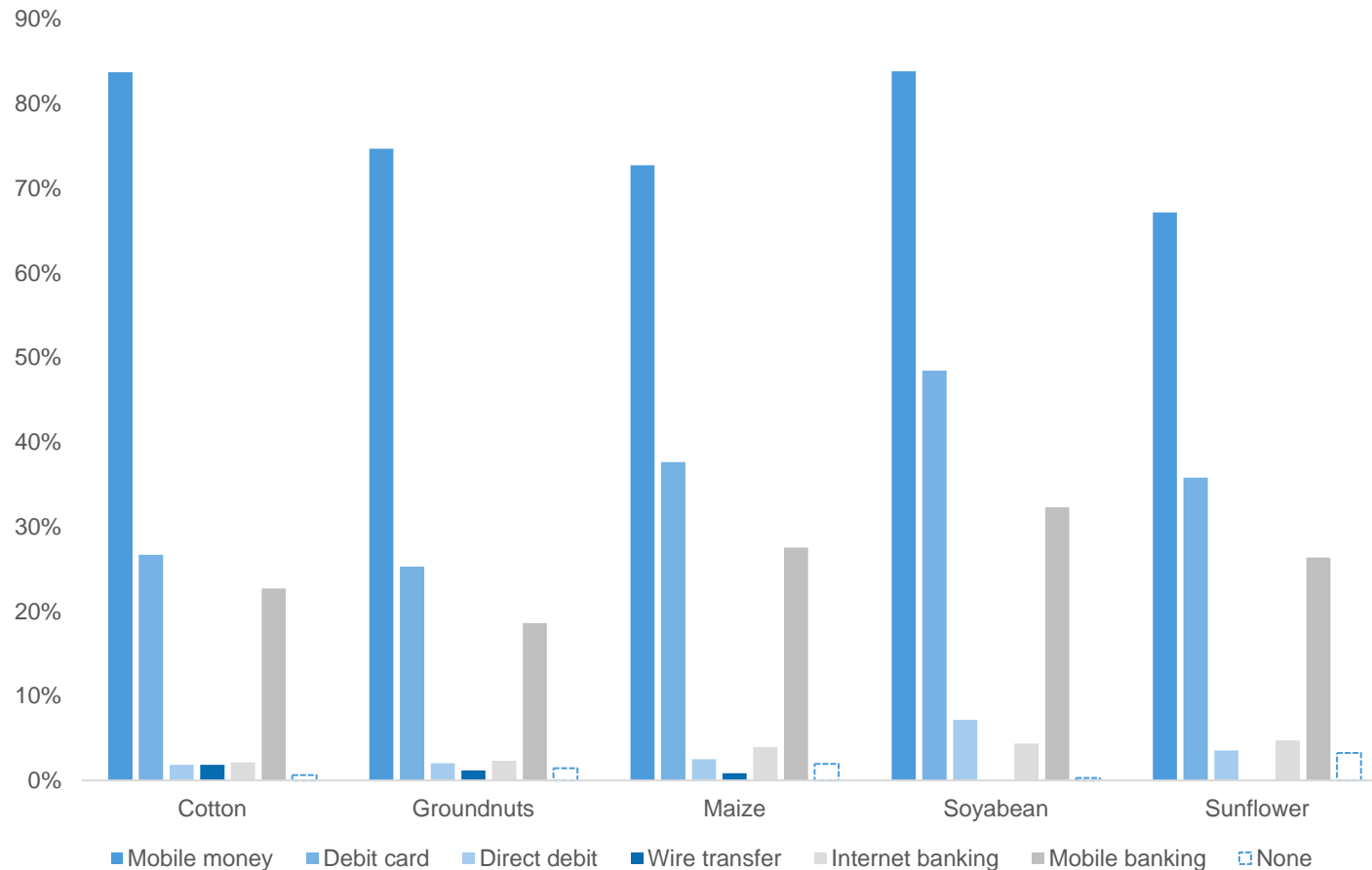
Access to banking - surveyed farmers per crop, %, 2023



- Most SHFs have access account with mobile service provider
- A bit less than 50% have formal bank account
- Only 10-20% of SHFs have no account at all

Over 75% of SHFs have access to mobile money, and only 1-2% of SHFs have no access to any form of digital payment

Digital channel payment methods of surveyed farmers per crop, %, 2023



- Most SHFs have access to mobile money
- Only around 20-25% of SHFs have access to mobile banking
- Only **very few** SHFs have no access to digital payments

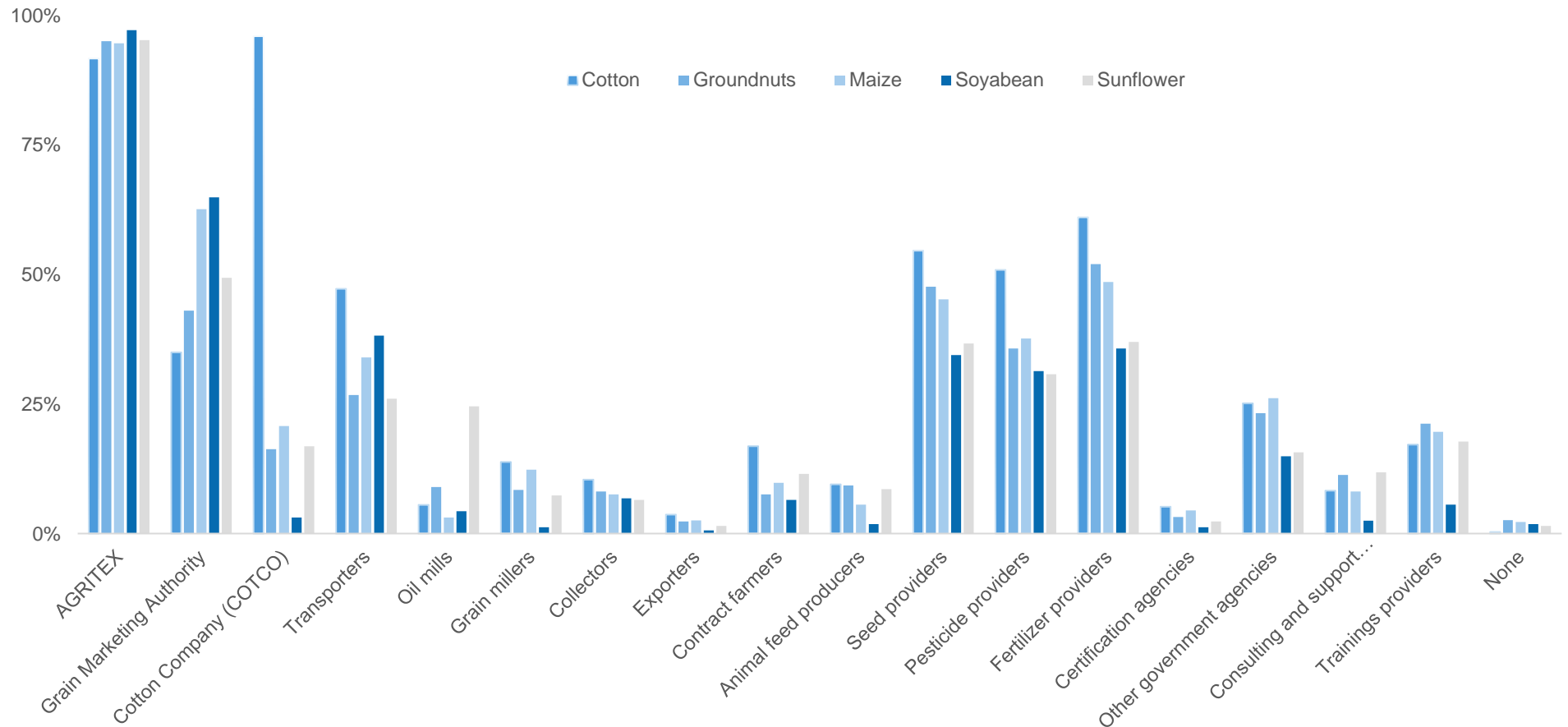
- Age and gender
- Education level
- Ownership of land
- Digital access
- Access to financial accounts**
- Crops grown & yield
- Membership & interaction

Most SHFs grow maize, and ~2/3 of surveyed farmers grow groundnuts. Soyabeans, cotton and sunflower are grown on fewer farms. Average number of crops grown per farm is 3 - 4.4. Only very few farms grow 1 crop only.

	Cotton	Groundnuts	Maize	Soyabean	Sunflower		
Age and gender	Maize	95%	95%	-	98%	96%	▶ Most SHFs grow maize
	Sorghum	39%	30%	27%	2%	36%	
Education level	Finger millet	18%	23%	12%	2%	17%	
	Pearl millet	7%	4%	4%	0%	8%	
	Groundnuts	71%	-	65%	28%	70%	▶ Groundnuts often grown on SHFS
Ownership of land	Soyabeans	8%	6%	13%	-	10%	▶ Soyabeans is more specialized crop
	Sweet Potato	1%	8%	5%	2%	6%	
Digital access	Round nuts	28%	40%	31%	3%	27%	
	Sugar Beans	6%	10%	12%	20%	12%	
	African Peas	18%	25%	15%	1%	21%	
	Tobacco	5%	10%	12%	22%	12%	
Access to financial accounts	Cotton	-	14%	21%	3%	16%	▶ Cotton is more specialized crop
	Tomatoes	1%	4%	4%	2%	4%	
	Sunflower	24%	21%	21%	7%	-	▶ Sunflower is more specialized crop
Crops grown & yield	Peppers	0%	1%	1%	1%	1%	
	Watermelons	2%	3%	3%	1%	4%	
	Cassava	0%	0%	1%	0%	0%	
	Onions	0%	2%	3%	2%	4%	
	Sesame	2%	2%	2%	0%	0%	
	Other	0%	1%	2%	1%	2%	
Membership & interaction	None	0%	0%	0%	0%	0%	

Almost all SHFs interact with AGRITEX. GMA reaches ~50% of SHFs, while COTCO reaches almost 100% of cotton farmers. Input providers do reach a bit less than 50% of SHF's.

Regular direct interactions of surveyed SHFs, per crop, %, 2023



- Age and gender
- Education level
- Ownership of land
- Digital access
- Access to financial accounts
- Crops grown & yield
- Membership & interaction**

Summary of main survey findings

Economic model	The average margins are positive for all five crops but 15-38% of SHFs have negative margins
Risks analysis	Drought represents the main risk for the five crops , which has also contributed to an increase in other risks such as diseases and pests
Loss analysis	The level of losses linked to climate risks are high , whether in proportion of farmers affected or in the extent of losses as a % of production (e.g., for 22/23, about 10% of SHFs reported losses greater than 80%)
Past purchase of insurance products	The low rate of past subscription to agricultural insurance products is mainly due to a lack of knowledge about insurance at the level of farmers and a perception of opacity and complexity of products and procedures
Interest in the new agri-insurance product	Most SHFs (~90%) interviewed from the five crops are interested in the agri-insurance product presented during the survey (yield-type index insurance)
Farmers' needs and expectations	SHFs would prefer to cover the value of (most of) their crop against drought and pest/disease . They prefer to pay with cash or mobile payment at once around harvest.

Average revenues, expenses, and margins suggest low to moderate profitability of the five crops.

Farmers often do not include all costs in margin%. *Large variation between SHFs and provinces (Appendix).*

Economic model

Risk analysis

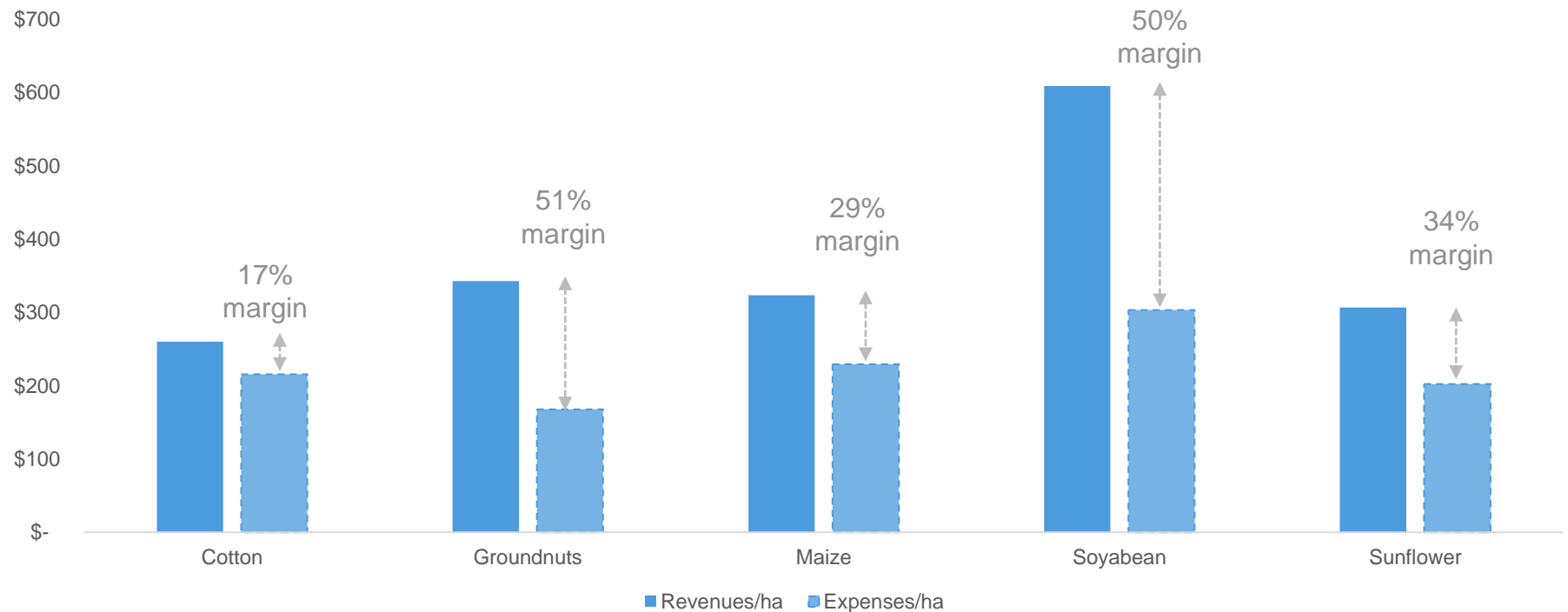
Loss analysis

Past purchase of insurance products

Interest in the new agri-insurance product

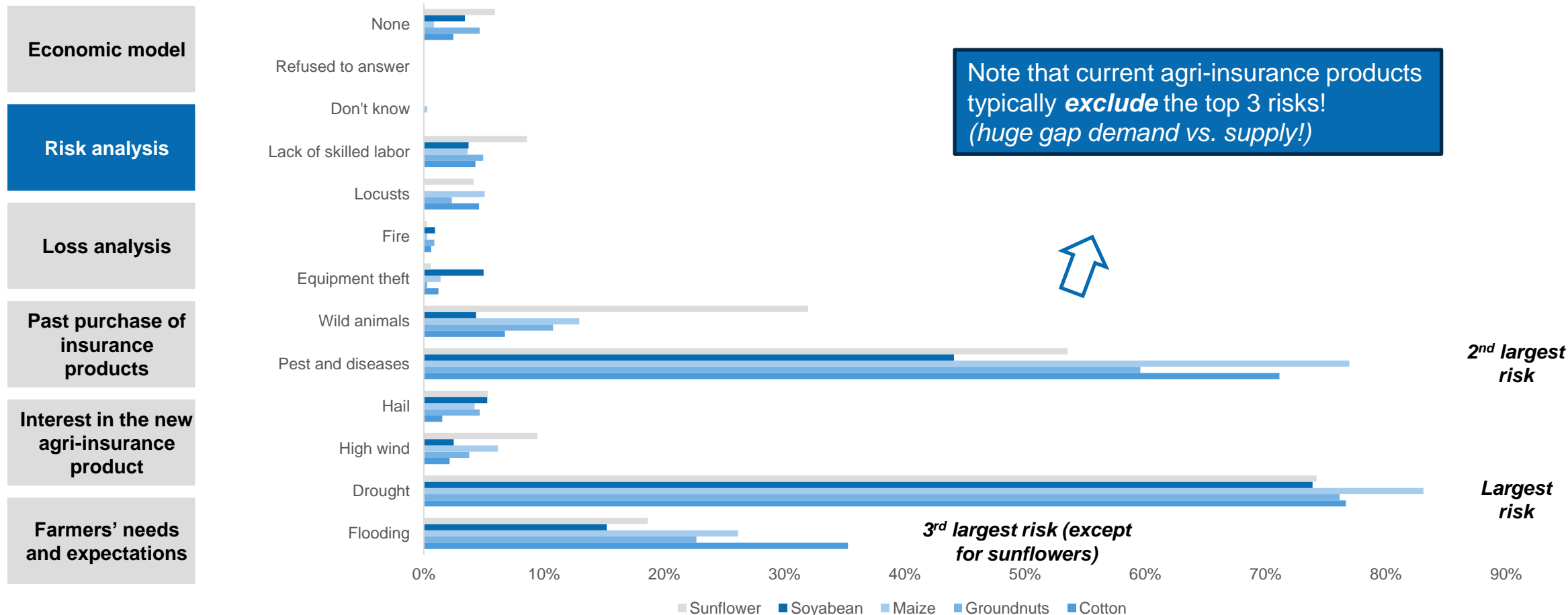
Farmers' needs and expectations

Average annual income/ha and expenses/ha (labor & input costs) of farmers by crop
USD/ha, '22/'23 Margin %



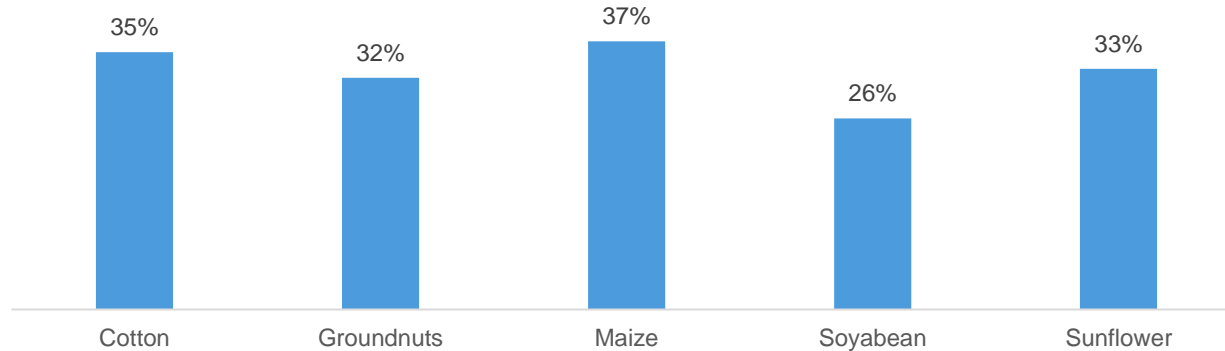
Drought and pest/disease represents the main two risk perceived by farmers for the 5 sectors. SHF's also indicate that they would you like these two risks to be covered by a new agri-insurance

Risks that farmers declared affected productions over the last 10 years

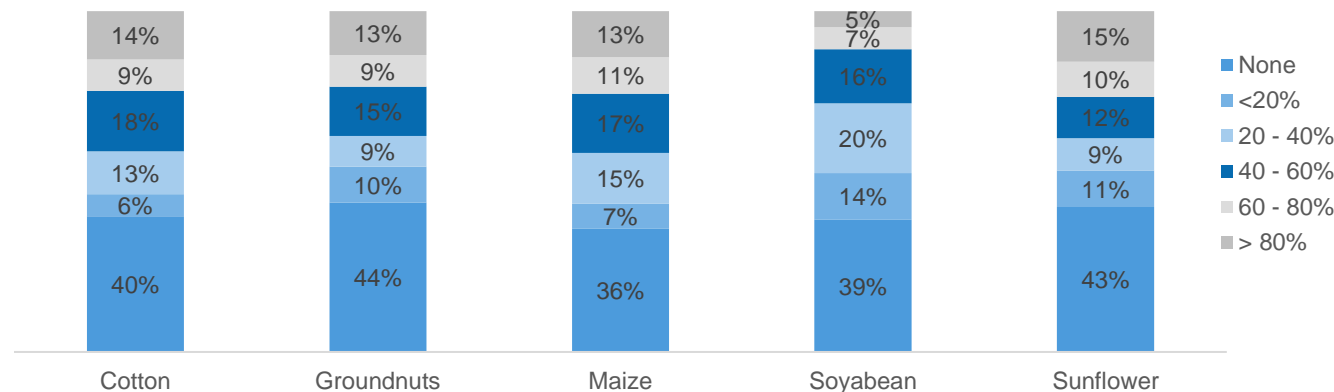


Average self-reported losses linked to climate risks per crop is similar, but there is very large variability between SHFs

Average self-reported losses (22/23), per value chain, % of production



Self-reported loss levels (22/23), per value chain, % of production



- Average of 26-37% losses, depending on crop
- Of all SHFs:
 - 36% - 44% reported no losses at all
 - 5 – 14% reported losses > 80%

Economic model

Risk analysis

Loss analysis

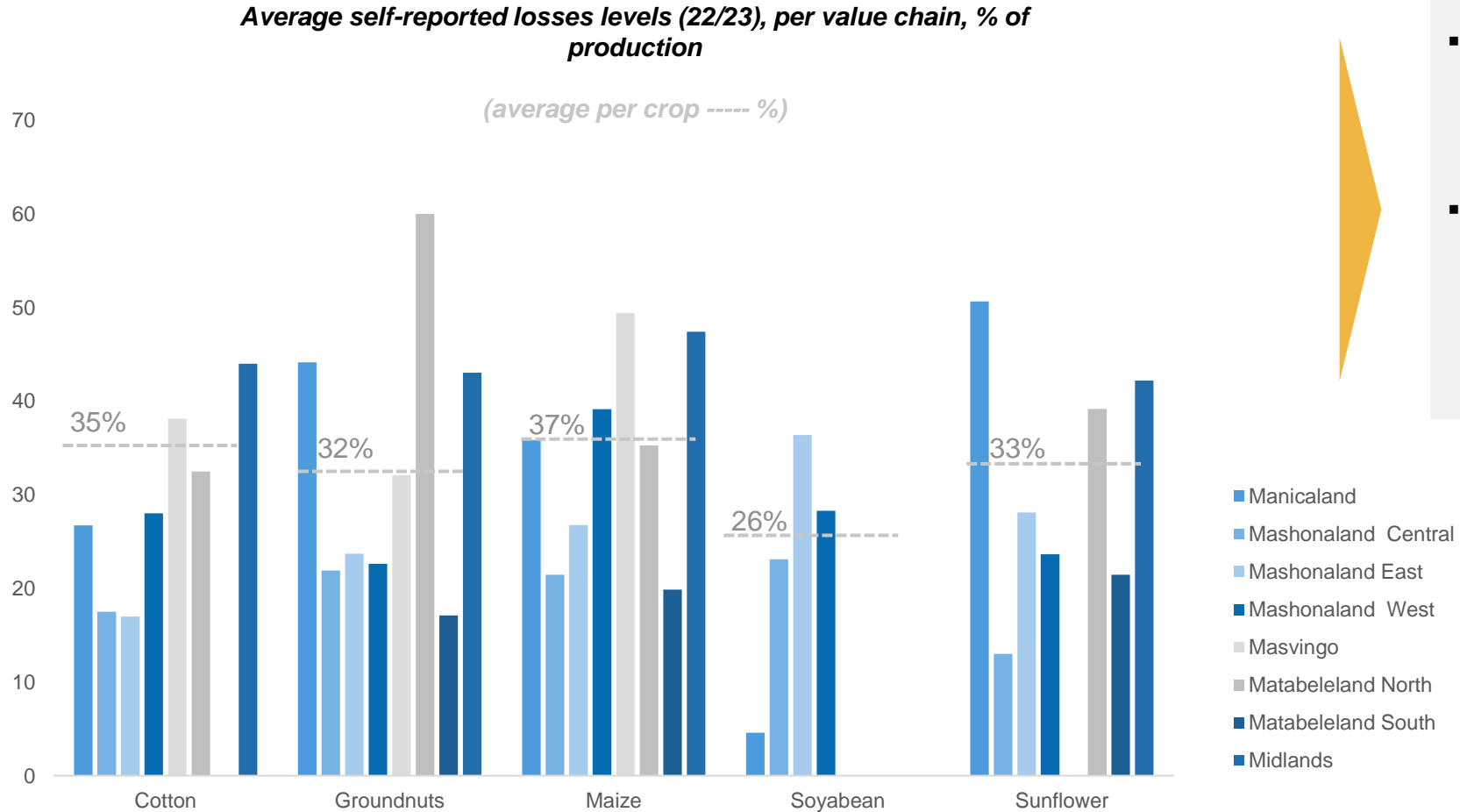
Past purchase of insurance products

Interest in the new agri-insurance product

Farmers' needs and expectations

Self-reported losses per crop linked to climate risks vary widely between provinces

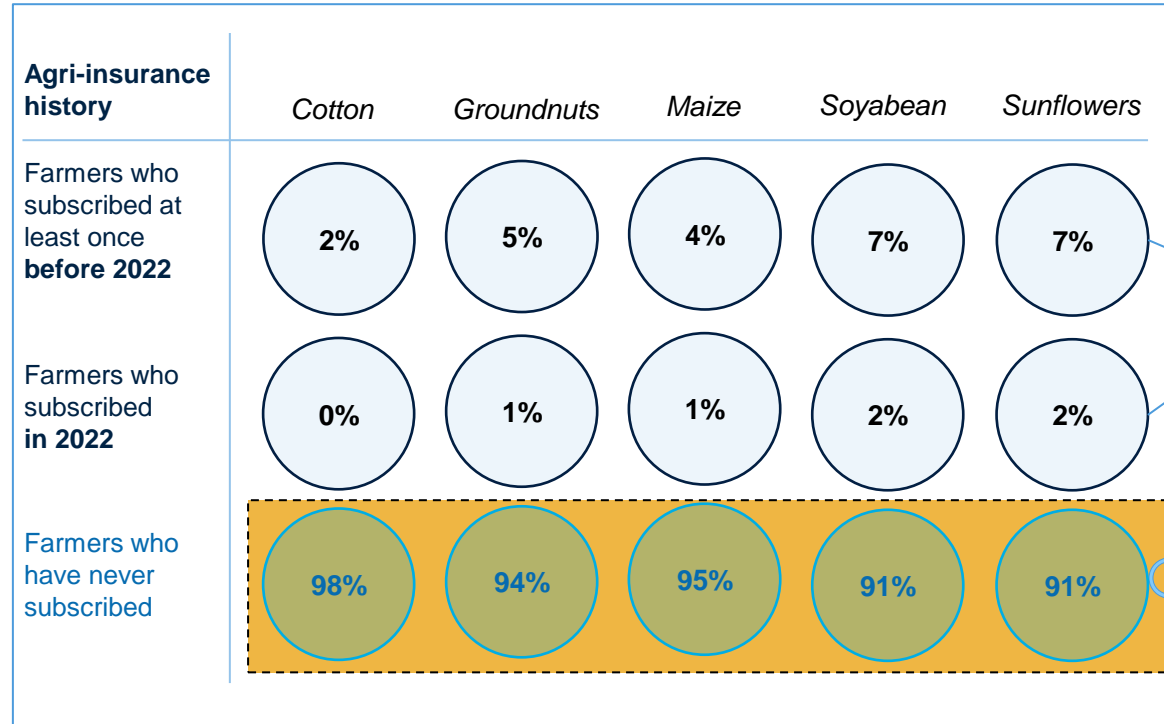
- Economic model
- Risk analysis
- Loss analysis**
- Past purchase of insurance products
- Interest in the new agri-insurance product
- Farmers' needs and expectations



- SHFs in Midlands tend to have higher average losses
- Loss estimates based on sometimes only few SHFs, so need to be taken cautiously

The low rate of subscription to agricultural insurance is mainly due to SHFs not knowing how insurance works, and a perception of opacity and complexity

Farmers subscribed to agricultural insurance products by value chain, %



See next slides for more info

Top two reason for non-subscription to agricultural insurance products:

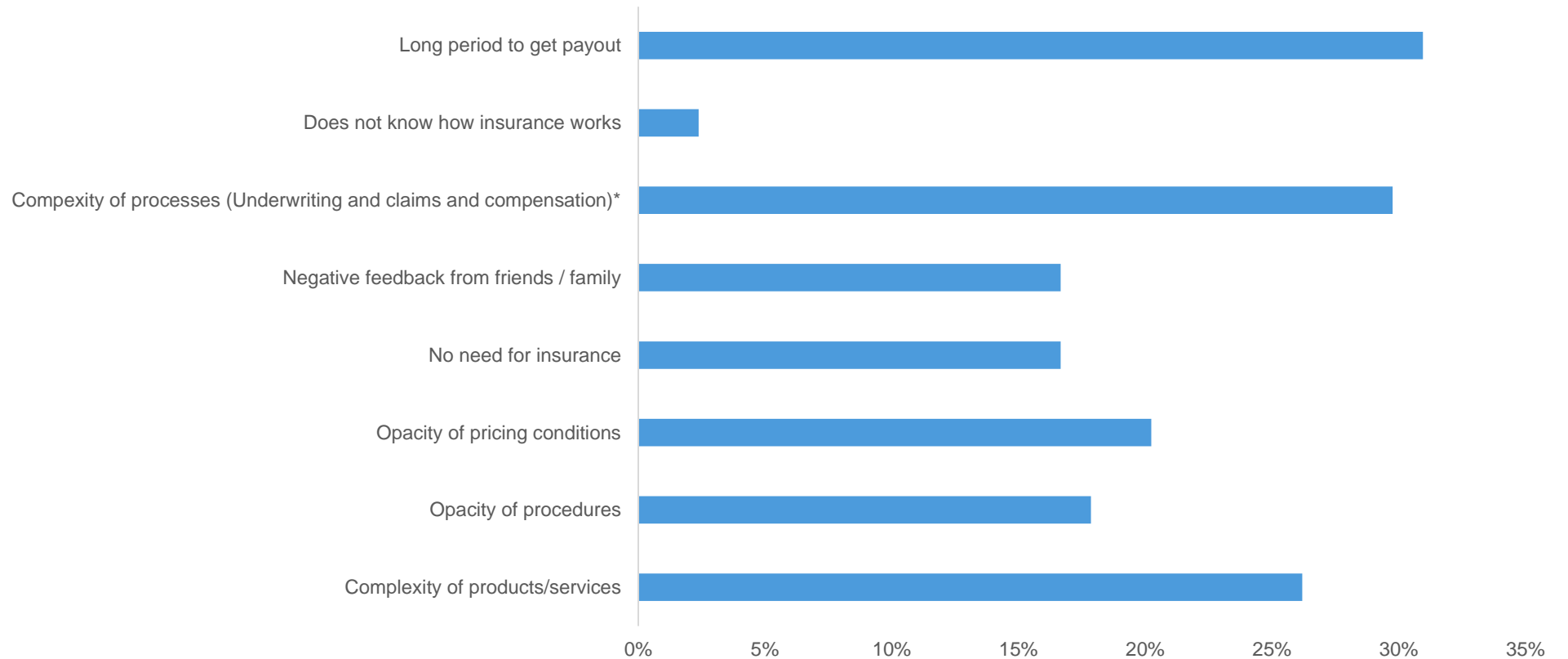
- Don't know how insurance works >> **53-69% of SHFs**
- Complexity and/or opacity >> **28-32% of SHFs**

- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products**
- Interest in the new agri-insurance product
- Farmers' needs and expectations

SHFs who subscribed before 2022 and did not renew, did so for a variety of reasons.

Farmers who subscribed at least once before 2022 and did not renew in 2022 had the following reasons for not renewing, %

- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products**
- Interest in the new agri-insurance product
- Farmers' needs and expectations

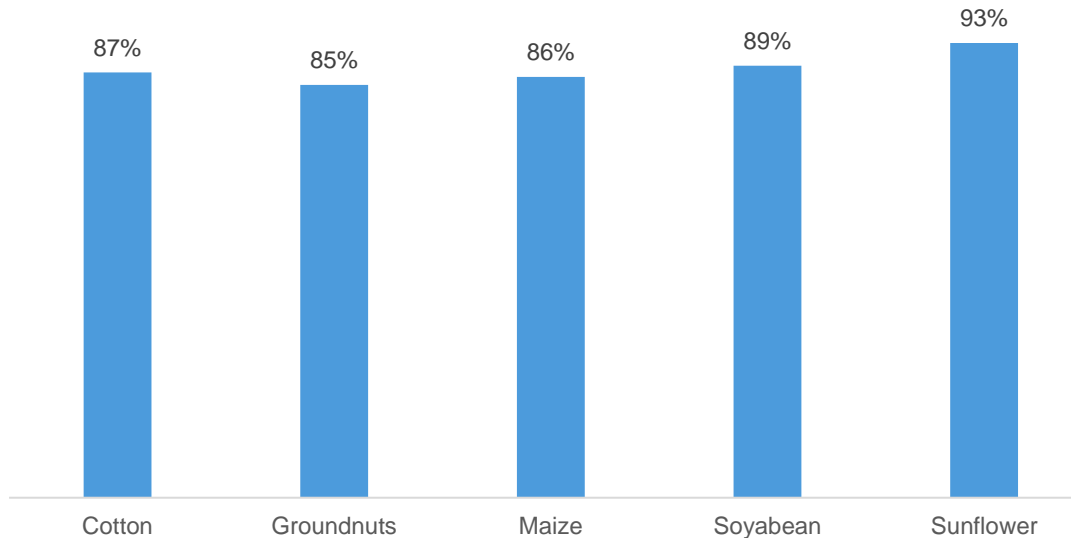


Most SHFs surveyed are interested in the (yield-index) agri-insurance product presented during the survey

Brief product description presented during survey:

We are asking about your thoughts on an insurance product that provide payouts to you in growing seasons during which the average yield of your crop in your district is considerably below its normal yield. Such lower yields could be caused by natural risks, such as drought, dry spells, flooding, pests and disease outbreaks, excessive rainfall etc. The payouts from this insurance product would be automatic based on the average yield of your crop recorded during a growing season in your district, and they are NOT based on the actual losses experienced by you in your field. Therefore, you cannot report losses and the insurance company does not need to verify actual losses on the ground. The insurance product would not cover all your losses, and the maximum benefit payable by this insurance product is 70% of the total value covered.

Farmers interested in agri-insurance product by value chain, 2023

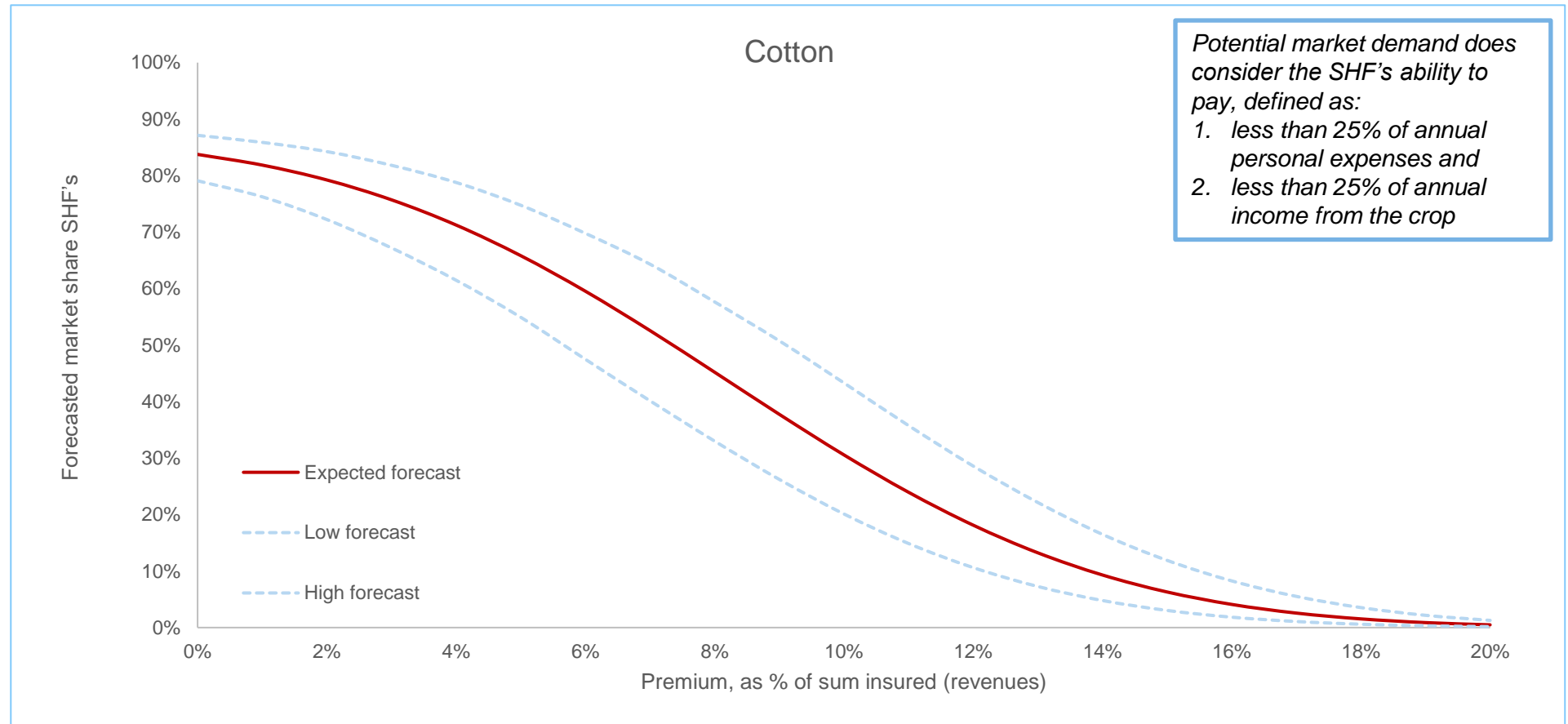


- **Very high** level of overall interest
- SHFs with sunflowers have a significantly **higher** interest (although, all are crops are high)
- Top **three reasons** for no interest:
 1. Don't trust insurance company
 2. Complexity
 3. Don't understand the product

- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product**
- Farmers' needs and expectations

Based on farmer's willingness to pay for the agri-insurance product, forecasted potential demand (market share %) decreases from ~85% with a free product, to ~0% with a 20% premium product

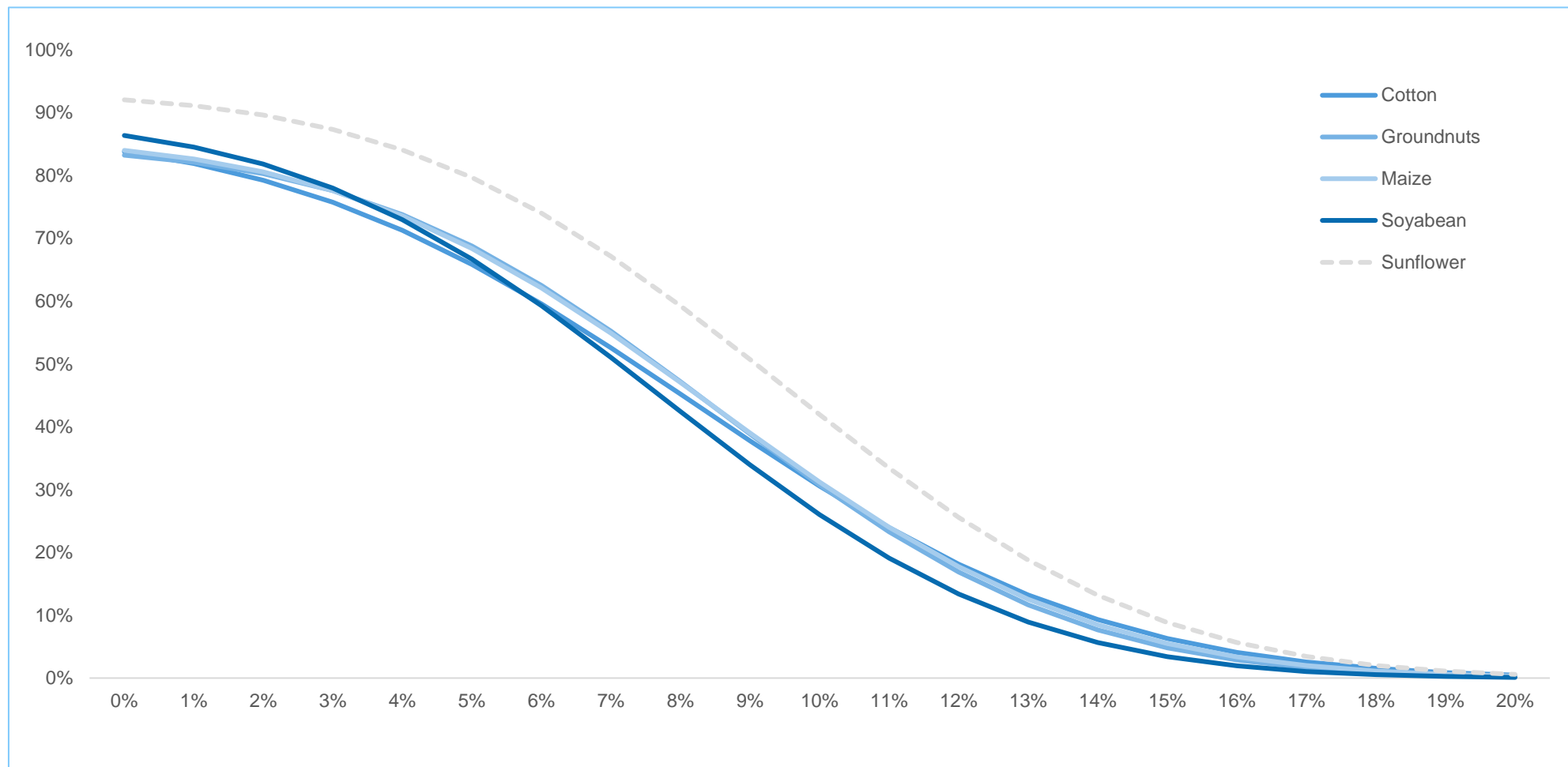
Forecasted % of cotton farmers interested in agri-insurance product and willing to buy product



- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product**
- Farmers' needs and expectations

Similar potential market share potentials for all five crops

Forecasted % of SHFs interested in agri-insurance product and willing to buy product (five crops)



Economic model

Risk analysis

Loss analysis

Past purchase of insurance products

Interest in the new agri-insurance product

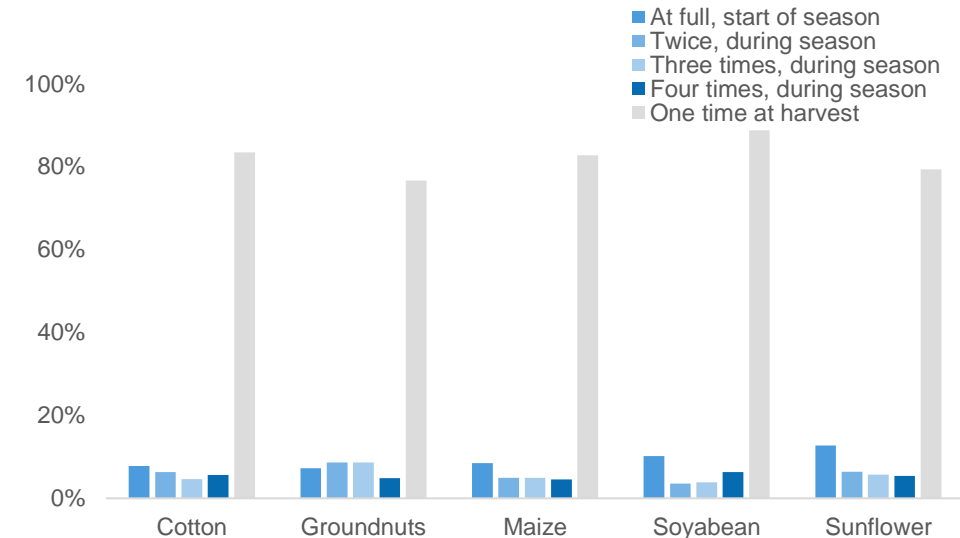
Farmers' needs and expectations

Cash is by far the preferred payment method, followed by mobile payment. Not surprisingly, SHFs prefer to pay once, at harvest

Top four payment methods preferences of farmers who were interested in the new agri-insurance product, per VC, %, 2023

Payment methods	Cotton	Ground-nuts	Maize	Soya-bean	Sun-flowers
	1	1	1	1	1
Cash	73%	76%	67%	67%	67%
	2	2	2	2	2
Mobile payment	28%	39%	36%	40%	38%
Bank transfer (mobile)	21%	16%	22%	17%	25%
Bank transfer (on site)	13%	13%	20%	26%	18%

Top four payment frequency preferences of farmers who were interested in the new agri-insurance product, per VC, %, 2023



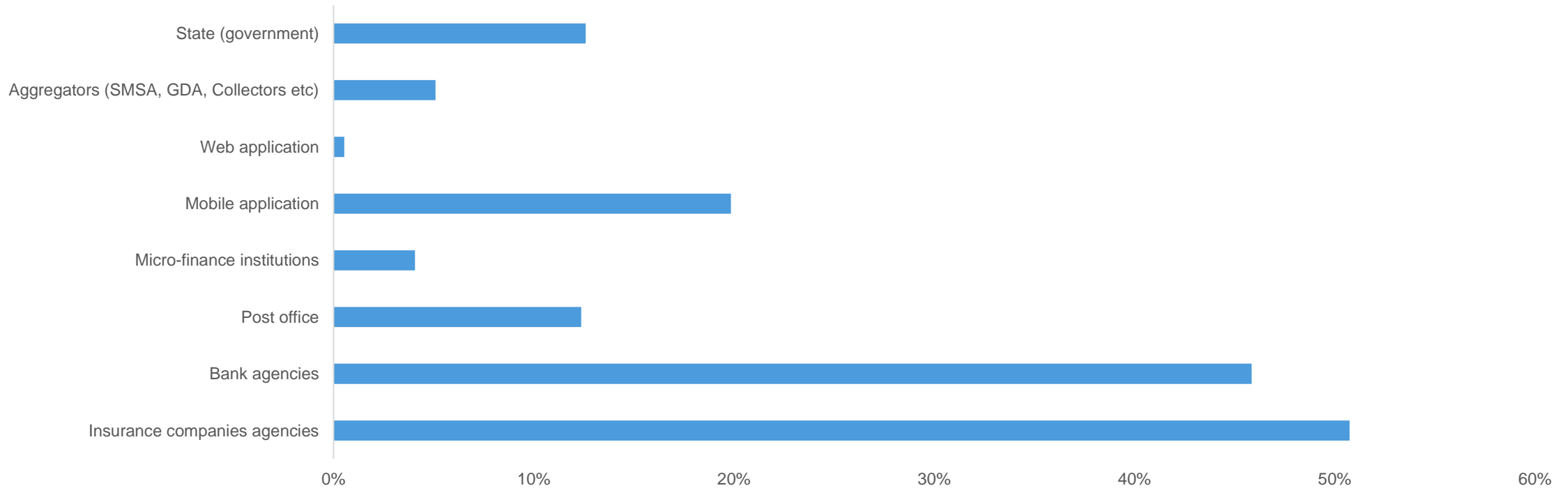
Premium payment for the upcoming season could take place in a single installment when the farmers have sold the produce of the *previous* season and so have relatively higher liquidity and affordability could be relatively high at this point. The **product sales should have a deadline sufficiently before any emerging information** on potential losses are known, **so that the insurers can avoid adverse-selection**

In an experiment in Kenya,¹ **premium pre-financing** (which allows farmers to pay at harvest) has been proven to increase farmers' insurance uptake by close to **67%**, with a stronger impact amongst poorer farmers. Other results from the same study indicate that enabling farmers to commit to pay the premium just **one month later** increases demand by **21 percentage points**

¹ Time vs. State in Insurance: Experimental Evidence from Contract Farming in Kenya (ca. 2018).

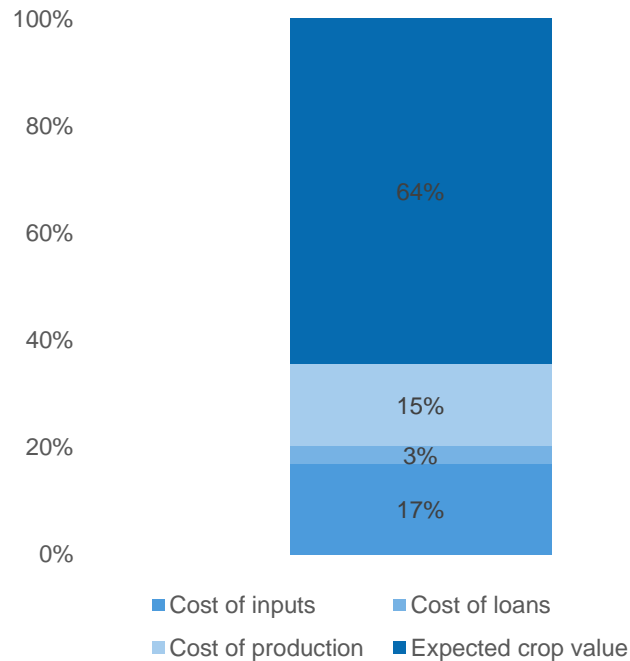
About half of SHFs are inclined towards having a direct relationship with insurance companies for product distribution, with bank agencies being a close 2nd.

Are following options good distribution channels for this product?
(as % of SHFs that are interested in buying agri-insurance product)

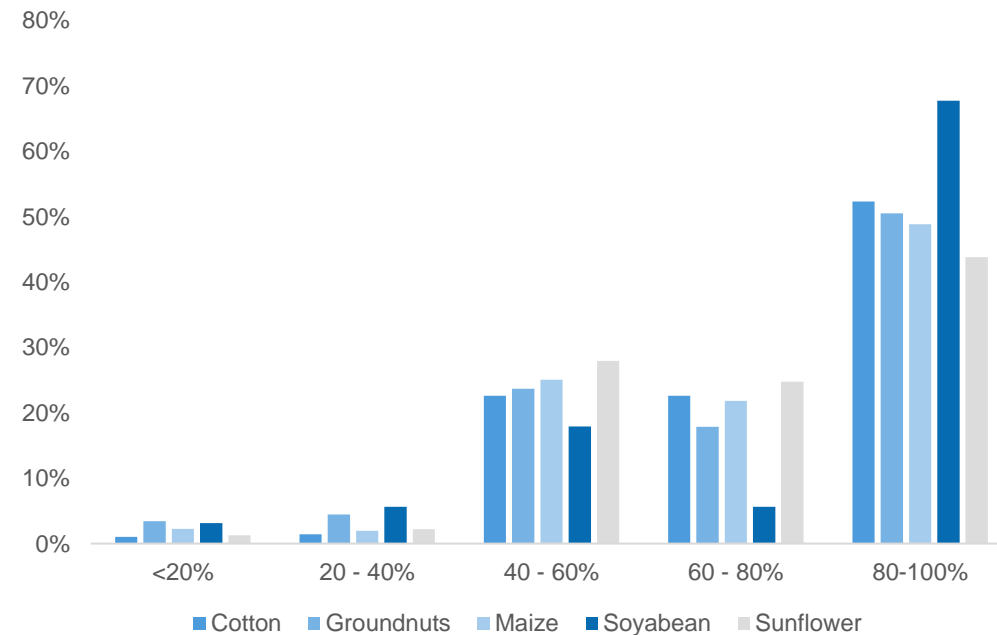


SHFs prefer the sum insured¹ to be calculated mainly based on the expected value of their crop. Farmers prefer to insure most of their total production from the crop (on average ~80%).

**Sum insured basis:
SHFs preference**



**Percentage of the total production of the
crop to be covered via insurance product:
SHFs preference**

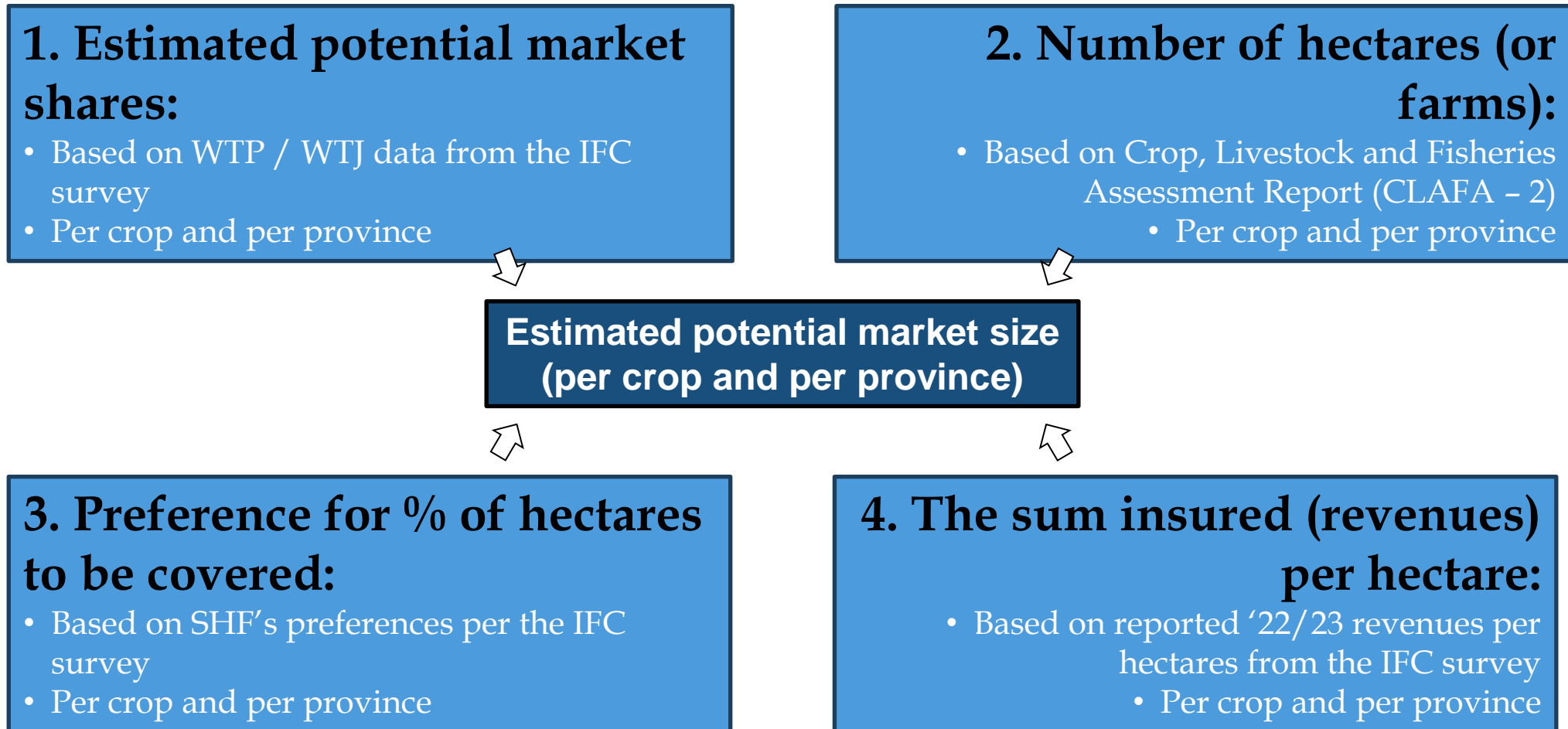


¹ The sum insured is the maximum amount of money that an insurance company can pay in the event of a covered loss.

Contents

- 1 Survey methodology
- 2 Results: SHFs characteristics
- 3 Results: Main survey findings
- 4 Results: Market size estimation**
- 5 Conclusions

Potential market size calculations based on four main inputs



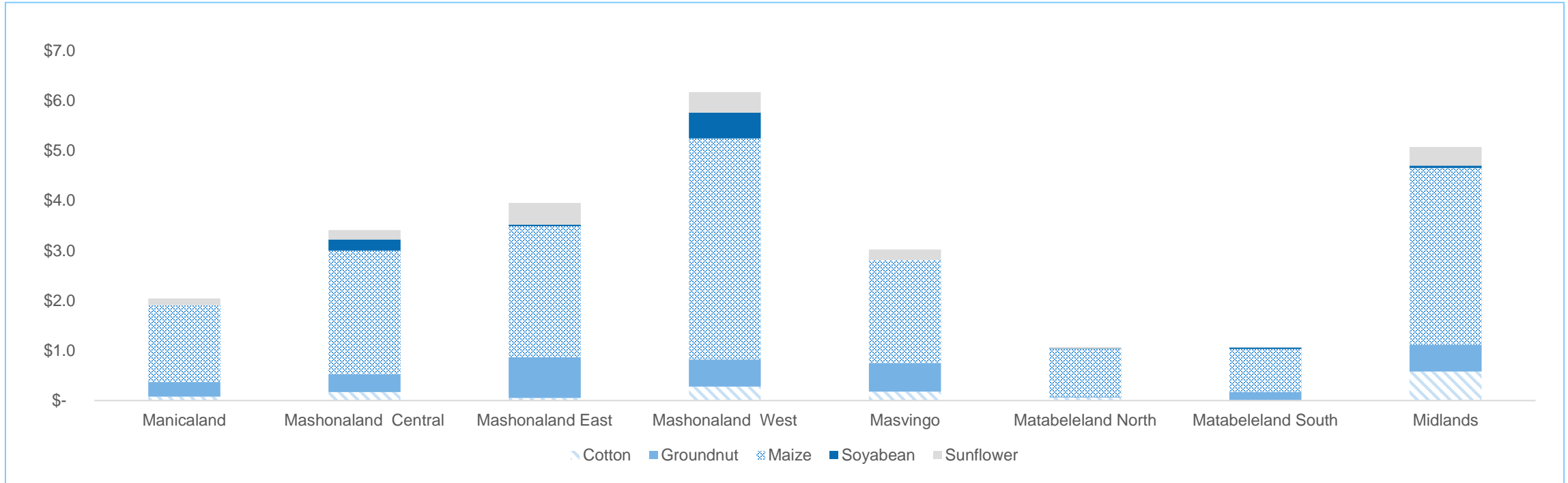
Considerable potential demand and market size (US\$ 26M) based on SHFs interest for index insurance products. Given high # of hectares, maize represents the largest potential market. Results of 8% premium product

Zimbabwe	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total
# Hectares (2023)	178,864	335,840	1,966,177	55,944	146,821	2,683,646
Share (%)	37%	35%	36%	38%	35%	37%
<i>90% confidence interval</i>	<i>26% - 46%</i>	<i>25% - 44%</i>	<i>26% - 45%</i>	<i>27% - 48%</i>	<i>25% - 44%</i>	<i>30% - 44%</i>
# Hectares covered	65,633	120,818	724,172	20,218	70,360	1,001,202
Estimated SHFs' covered	45,971	134,827	402,752	7,155	66,217	
Average sum-insured US\$/HA	\$ 332	\$ 438	\$ 404	\$ 639	\$ 411	
Total premiums potential (US\$)	\$1.4M	\$3.3M	\$18.5M	\$0.9M	\$1.8M	\$26M
<i>90% confidence interval</i>	<i>US\$M 1 - 1.8</i>	<i>US\$M 2.5 - 4.1</i>	<i>US\$M 13.6 - 23</i>	<i>US\$ 0.6 - 1.1</i>	<i>US\$M 1.4 - 2.1</i>	<i>US\$M 21 - 31</i>

Total opportunity of up to
~US\$ 26 million
 (90% CI: 21 – 31 million)
 (Market share 30 – 44%; ~1M acres)

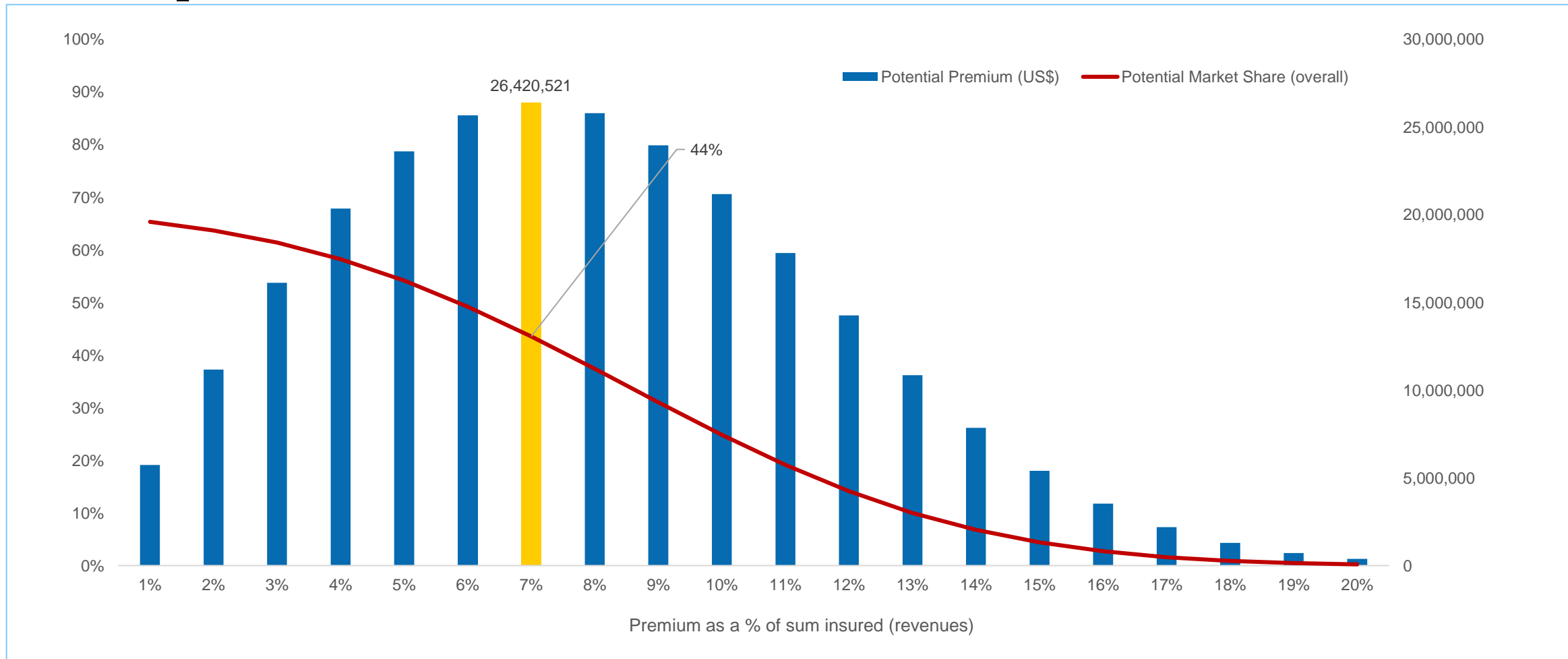
Majority of premiums from Mashonaland West and Midlands. Results of 8% premium product

Estimated potential premium amounts per VC and province (in US\$M)



Given similar potential market shares (details in Appendix), the total potential market size is largely driven by the number of hectares per province and per crop

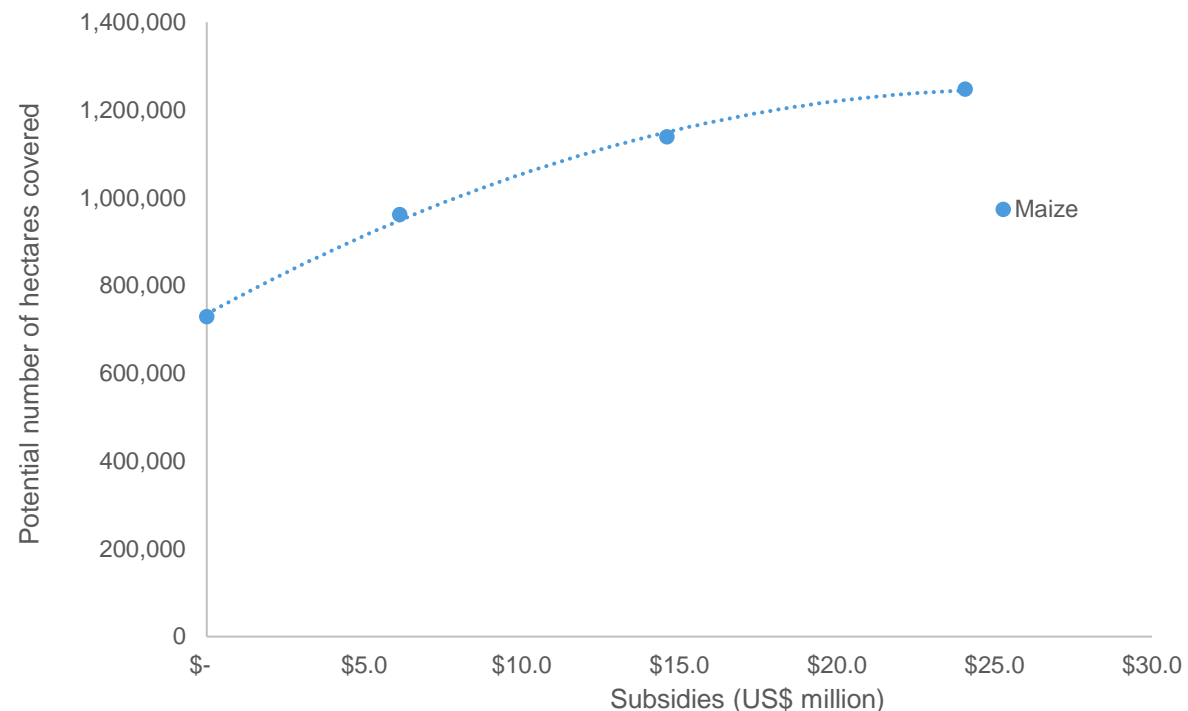
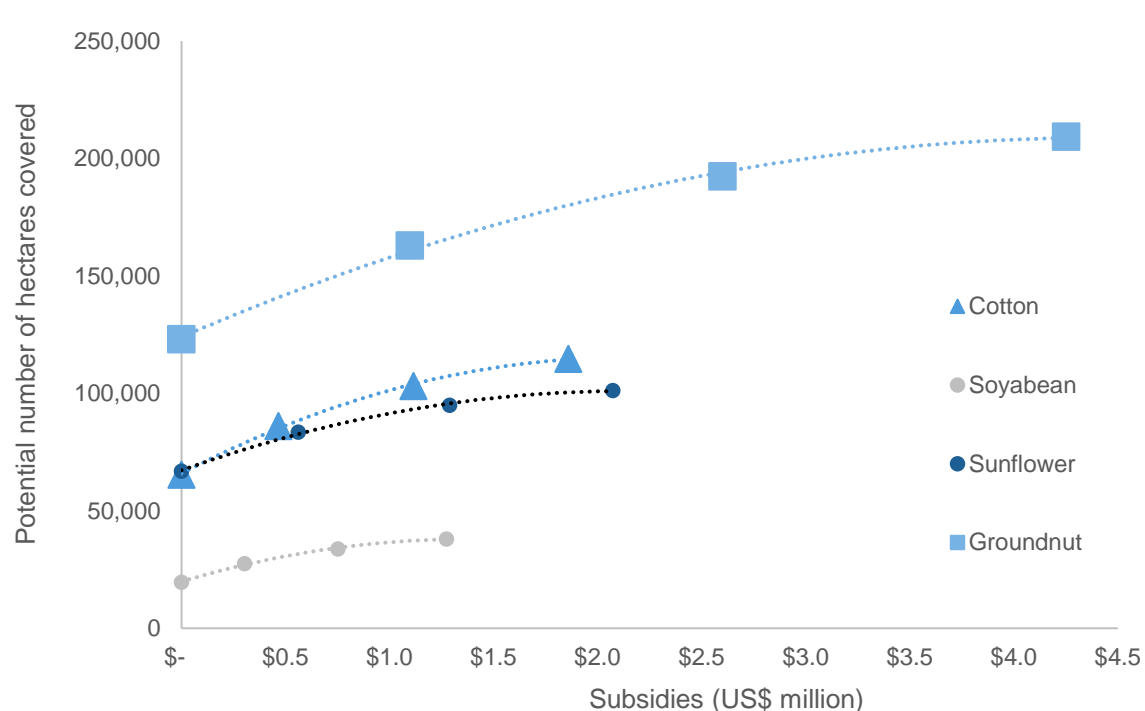
A pricing of around 7% of *revenues* (sum insured) is expected to result in maximum total premium revenues.¹ Even for higher pricing, still good revenue potential



¹ I.e., income, not profits.

Subsidies will help increase affordability and potential market share, but it comes at a cost.

Subsidy levels shown are 0%, 25%, 50% and 75% (from left to right) for an 8% priced product



Subsidy level	Price to SHF	Potential hectares covered					Potential subsidies needed (in US\$)				
		Cotton	Groundnut	Maize	Soyabean	Sunflower	Cotton	Groundnut	Maize	Soyabean	Sunflower
0%	8%	65,400	123,000	728,800	19,700	66,900	\$ -	\$ -	\$ -	\$ -	\$ -
25%	6%	86,200	163,000	961,500	27,600	83,600	\$ 0.5	\$ 1.1	\$ 6.1	\$ 0.3	\$ 0.6
50%	4%	103,100	192,400	1,138,700	33,900	95,000	\$ 1.1	\$ 2.6	\$ 14.6	\$ 0.8	\$ 1.3
75%	2%	114,700	209,300	1,247,200	38,000	101,200	\$ 1.9	\$ 4.3	\$ 24.1	\$ 1.3	\$ 2.1

While farmers have indicated a willingness to pay, can they afford the premiums that they are willing to pay?

- A comparison of the WTP with farmers' 22/23 margins (WTP as % of margin) shows that affordability may be challenging
- While low margins may be an issue for affordability, they also illustrate the great need, thus farmers' high willingness to pay
- Subsidies, pre-financing, or premium payment in installments likely critical for affordability / liquidity

Affordability of farmers WTP	% of farmers				
	Cotton	Ground-nut	Maize	Soya-bean	Sun-flower
'Affordable' (WTP are 0 – 30% of farmers' margin)	41%	65%	32%	40%	44%
'Difficult to afford' (WTP are 30+% of farmers' margin)	28%	17%	36%	47%	30%
Negative margins (farmers' margin is negative)	31%	18%	32%	14%	26%

Concluding remarks

- **Past/current losses:**
 - SHFs have seen considerable losses due to drought and pest & disease risks

- **Very few SHFs have had agri-insurance before:**
 - Key reasons: Ignorance, complexity of products/process, and long period until payout
 - Indemnity type insurance products typically exclude drought and pest & disease risks
 - SHFs would be interested in agri-insurance that covers these two risks (& flood risk).

- **High interest:**
 - *High* potential demand and willingness to pay across the five crops
 - For 8% priced product, total potential market size for the five crops up to \$25M (\$21 – \$31M)

- **Marketing and distribution are key to achieve market potential:**
 - Marketing/distribution possible through insurance agencies, banks, or fintech/mobile
 - Gov't (e.g., AGRITEX, GMA, COTCO) could play marketing/distribution roles, and possibly bundle insurance with govt input support programs such as Pfumvudza
 - Important to use payment or distribution option that reduces the need to pay all premiums upfront by farmer

Acknowledgements

- **Special thanks to the Research Method International team** which was contracted by IFC to conduct the farmer survey which provided the data on which the above modeling is based:
 1. Shepherd Mwanawashe
 2. Dr. Godfrey Chagwiza
 3. Judith Buzuzi
 4. Courage Mpofu



**Open Discussion and
Q&A**



Annex



**Annex 1: Regulatory
environment for index
insurance**

The very different nature of index insurance calls for regulatory consideration

- **In important aspects, index insurance is so different from conventional insurance that it may not be clear to everyone that a product is in fact insurance – and not a derivative.**

To insurers, that implies the risk that (dissatisfied) policyholders initiate lawsuits claiming that they were sold a derivative by a party not authorized to sell derivatives to the general public, and hence that the product is void.

- **Regulatory approval of pilot projects is not a reliable solution.**

Supervisors can encourage insurers wanting to pilot index insurance not to worry, but such ad-hoc reassurances to individual insurers do not address the worries of the wider insurance market, who may not consider engaging in index insurance in the perceived absence of a level playing field that mitigates the legal risk.

- **The very different nature of index insurance also aggravates the reputational risk.**

Insurers who mispriced or under-reserved index insurance could find themselves unable to honor their liabilities in extreme claims scenarios, and their default would affect the entire industry's reputation, depressing insurance business for years. Customers who are very dissatisfied with index insurance because they misunderstood what they bought can amplify their anger at the insurance industry (and supervisor) via mass media.



**Annex 2: Findings of
the supply side
assessment of the index
insurance market**

Appendix**Tobacco Named Peril (Hail) results 2018 to 2022**

YEAR	AVERAGE PREMIUM US\$	AVERAGE CLAIMS US\$	LOSS RATIO (%)
2018	3 870 648	3 491 906	90
2019	2 213 801	1 893 419	86
2020	1 787 384	1 888 042	106
2021	1 402 320	839 497	60
2022	1 626 940	5 213 875	320
5 Yr. Average	2 180 219	2 665 348	122

Appendix

Reinsurers index development constraint analysis

Facility / Service	Resources	No Constraint	Moderate Constraint	Major Constraint
1. Technical /Operational	• Access to data (weather / meteorological)	1 Player	1 player	6 players
	• Access to agriculture production data (yields)	-	3 players	5
	• Access to agric weather damage data.	-	3	5
	• Access to technical services and information from local experts/ agronomist , veterinary scientists etc.	1	3	4
2. Financial: Availability of capital resources to:	• Access to external (regional and international) technical services for product development (actuaries/risk modelling experts etc.)	2	-	6
	• Delivery channel availability and network facilities for selling/marketing insurance policies, premium collection, claims settlement	1	4	3
	• Support index reinsurance provision (acquisition & administration costs etc.)	1	4	3
3. Regulatory requirements	• to fund startup costs of index insurance line –training, research , product developments costs etc.	1	3	4
	• Other financial/ capital requirements	2	4	2
4. Government	• Regulatory requirements –licensing requirements , approval protocols etc. for starting index insurance line	4	4	-
	• Government requirements, controls etc. for operating in rural farming areas	3	5	-

Technical/Operational Constraints rank the most significant for reinsurers: 6 /8 of players face major constrains in access to Met weather data and External technical services actuaries/risk modelling experts). 5 players severely constrained in access agric production data & 4 in access to local technical services from Agronomists/Vets etc.

Financial Resources Availability is 2nd Constraint category: 4 players have major constraints related to capital to start up index line – research, training ,product dev costs etc, and 3 face major constraints related to capital for index reinsurance acquisition and admin costs.

Insurance Regulation is 3rd, considered moderate constraint by 4 players & Not constraint by another 4)

Government Requirements is ranked t moderate constraint by 5 players and not constraint by 3)

Appendix

Government Role

Reinsurer’s views on the possible forms of government support for index insurance development

PLAYERS	FORM OF GOVERNMENT SUPPORT / INTERVENTION	Reinsurers Rankings Order of Possible Govt Support
6 from 8	Agricultural Insurance Legislation e.g. Compulsory insurance for some crops/livestock programs	<ol style="list-style-type: none"> 1. Subsidies on R&D , product dev costs (8 All players) 2. Tax Exemptions on premiums, R&D costs (8 All players) 3. Agric Ins Legislation: compulsory ins for some crop/livestock programs (6 of 8 players) 4. Involvement of Govt Technical Staff in some services e.g. Loss Assessments etc. (5 of 8 players)
8 from 8	Subsidies on e.g. research/product development costs e.tc	
8 from 8	Tax exemptions premium research & product development costs e.tc	
5 from 8	Involvement of government technical staff for loss assessment	



**Annex 3: Index
Insurance Demand
Modeling Results**

Material & Methods for elicitation, and statistical analysis of WTJ and WTP

- Usage of the Contingent Valuation Method (CVM), a widely used participatory method
- WTP elicitation format:
 - Dichotomous choice, followed up with an open-ended WTP question
 - First dichotomous choice a randomly assigned bid of either 4%, 6%, 8%, 10%, 12% and 14% of the sum insured (i.e. annual income from crop)
 - Second dichotomous choice 1% lower or higher (depending on answer on first question)
- The analyze the WTJ and WTP question, a two-step Heckman model was used:
 - First, a probit model¹ to determine farmers' decision to participate (WTJ)
 - Second, an OLS model² for the farmers with a positive WTP
- Five Heckman models constructed, one for each crop
- Within OLS model, WTP did **not** need any Box-Cox transforming for normality of error-terms

¹ A probit model is a type of regression where the dependent variable can take only two values, for example married or not married. The word comes from probability + unit.

² Ordinary Least Squares regression (OLS) is a technique for estimating coefficients of linear regression equations which describe the relationship between one or more independent quantitative variables and a dependent variable (simple or multiple linear regression).

³ A Box-Cox transformation is a transformation of non-normal dependent variables into a normal shape.

Material & Methods for estimation of market share and size

- A Monte Carlo model was constructed to estimate: (1) market share for any given price premium; (2) total premium amounts; and (3) effect of subsidies on market share and premium amounts. The model uses the following key inputs:
 - Results from the Heckman model
 - Number of hectares per value chain and per province
 - Average sum insured per farm (per value chain and region)

- The Monte Carlo model was run for 10,000 iterations. Probability distributions used were based on Heckman model

- Monte Carlo results reflect the parameter uncertainty (epistemic uncertainty) from the farmer survey. In other words, given that ~330 farmers/value chain were surveyed, there is uncertainty about the population statistics

Survey conducted with a sample of 1,686 SHFs, representative of the target population of ~1,3M SHFs

Quote of farmers vs. **actual** # of SHFs surveyed - by district & crop

Province	District	Cotton		Groundnuts		Maize		Soyabean		Sunflower		
Manicaland	Chipinge	30		9		17		5	+2	28		244
	Makoni	3	+1	49	+1	31	+6	0		72		
Mashonaland Central	Mazowe	11		17		24	+3	140	+4	8		304
	Mount Darwin	37	+3	33		17	+2	0		17	+2	
Mashonaland East	Murehwa	1		25		21	+1	18	+1	48		198
	Mutoko	9		39	+1	13	+1	0		24	+1	
Mashonaland West	Hurungwe	14	+1	13	+1	27	+1	3		8		292
	Makonde	13		3		15		115		0		
	Zvimba	1		3		18	+1	41	+1	18	+1	
Masvingo	Chiredzi	38		25	+4	12		0		0		164
	Gutu	4		29	+2	16		0		0		
	Zaka	3		22		15	+2	0		0		
Matabeleland North	Binga	3		3	+1	11	+1	0		4		42
	Lupane	1		5	+1	13	+1	0		2		
Matabeleland South	Bulilima	0		10	+5	7	+2	0		57	+8	136
	Insiza	0		13	+6	22	+4	0		27	+5	
Midlands	Gokwe North	42		20	+1	41	+10	0	-6	16		306
	Gokwe South	116	+1	26	+1	36	+1	0		9	+1	
Total		326		344		356		322		338		1686



- Estimated number of farmers was based on # of hectares per district.
- Up to 3 districts per province selected.
- Within district, wards were visited, and farmers selected by local officials.
- The discrepancies observed for soyabean farmers was because no soyabean farmers were found in Gokwe North.

SHFs have average age of ~50yr. In survey, half of farms are women-owned, and similarly women represent 50% of workforce

Age and gender

Education level

Ownership of land

Digital access

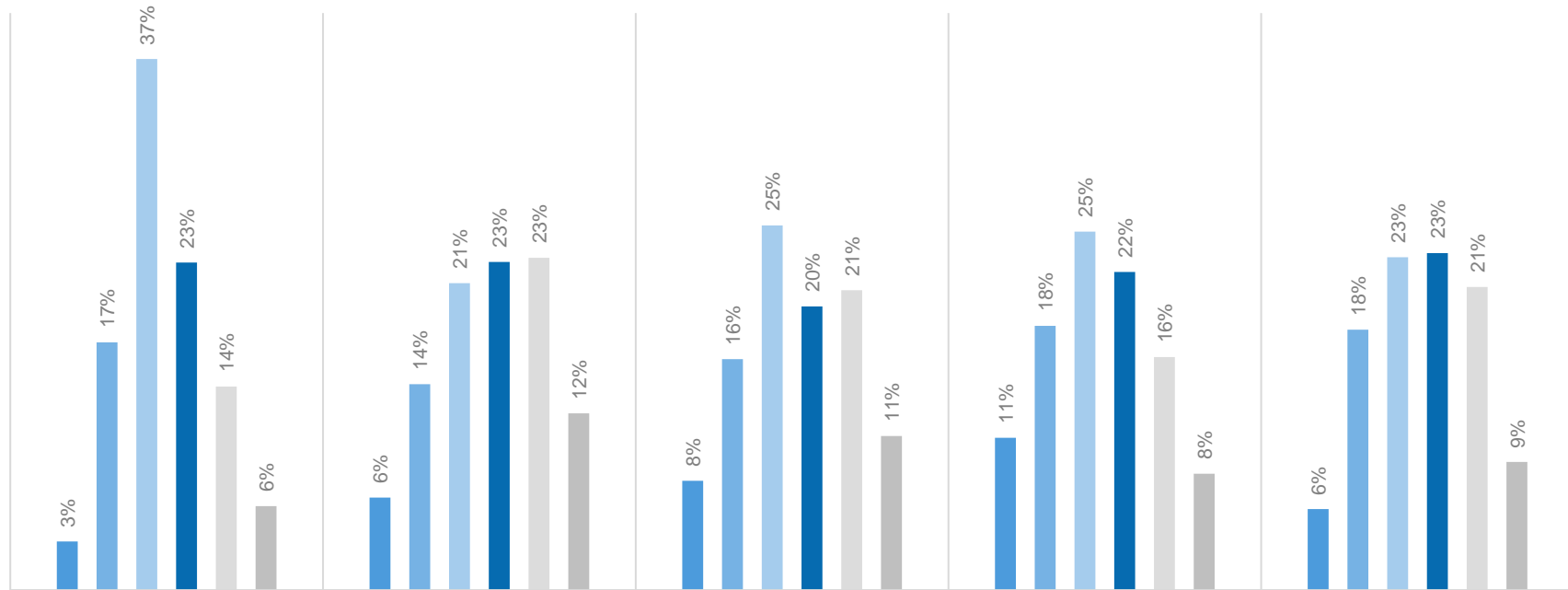
Access to financial accounts

Crops grown & yield

Membership & interaction

AGE DISTRIBUTION FARMERS

0 30 30 40 40 50 50 60 60 70 70 100



	Cotton	Groundnuts	Maize	Soyabean	Sunflower
% Female owners	44%	68%	47%	40%	54%
% Female workers	54%	55%	51%	45%	50%

Most of the surveyed SHFs have attended primary school, or more, and only 3-6% never attended formal schools. However, professional training beyond “O” level school is not common amongst the smallholder farmers

Age and gender

Education level

Ownership of land

Digital access

Access to financial accounts

Crops grown & yield

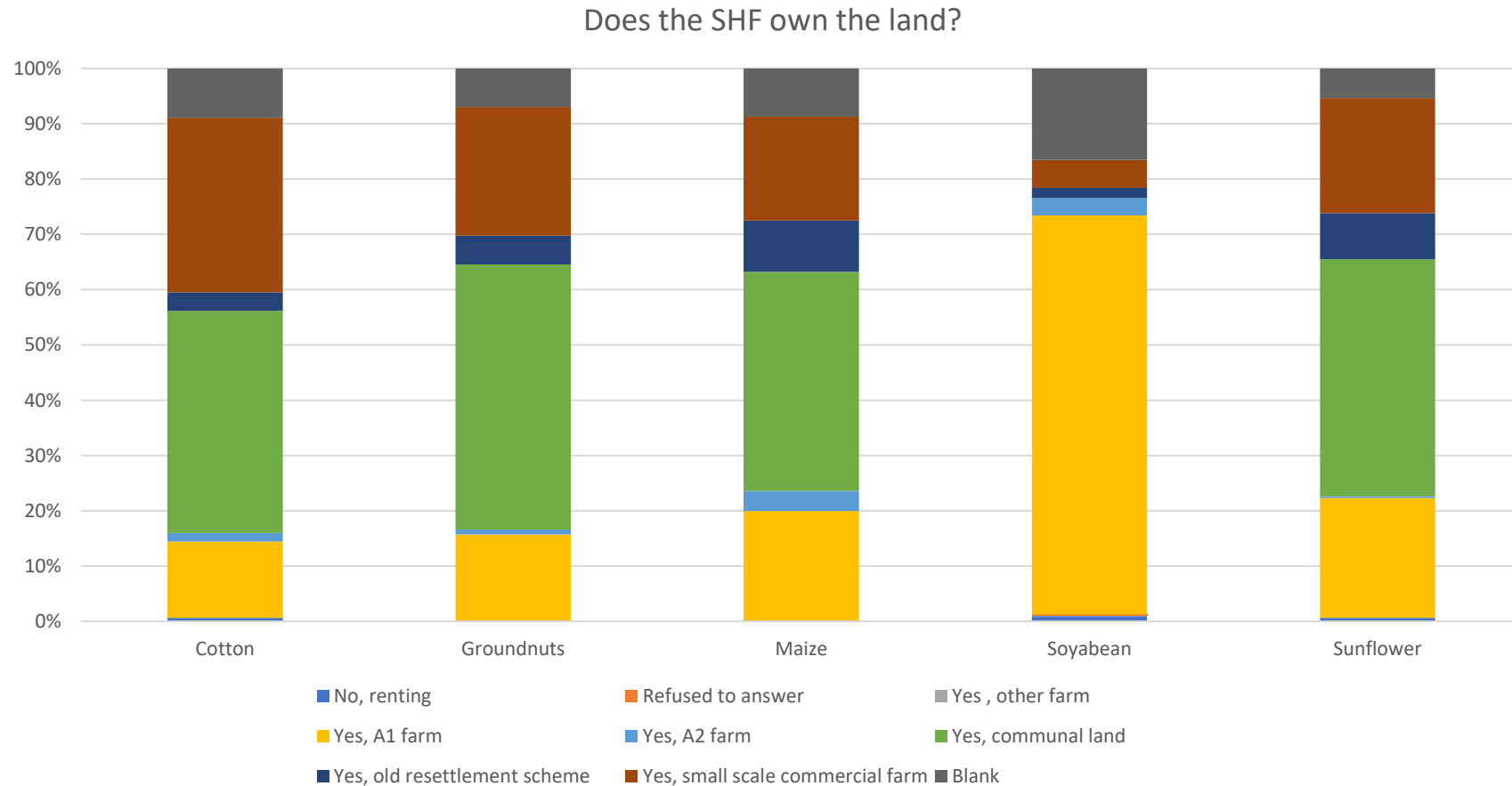
Membership & interaction

Education level of surveyed SHF per crop, %, 2023

	No formal education	ECE/ECD & Primary	ZIC	“O” level	“A” level	Diploma / higher diploma	University
Cotton	6%	30%	16%	45%	1%	2%	0%
Groundnuts	3%	33%	19%	42%	1%	1%	0%
Maize	3%	33%	18%	39%	1%	4%	1%
Soyabean	3%	29%	14%	43%	3%	4%	1%
Sunflower	3%	31%	14%	45%	1%	3%	0%

Over 90% of SHFs own their land, with almost half owning communal land. Soyabean are an exception, with over 2/3 being A1-farmers.

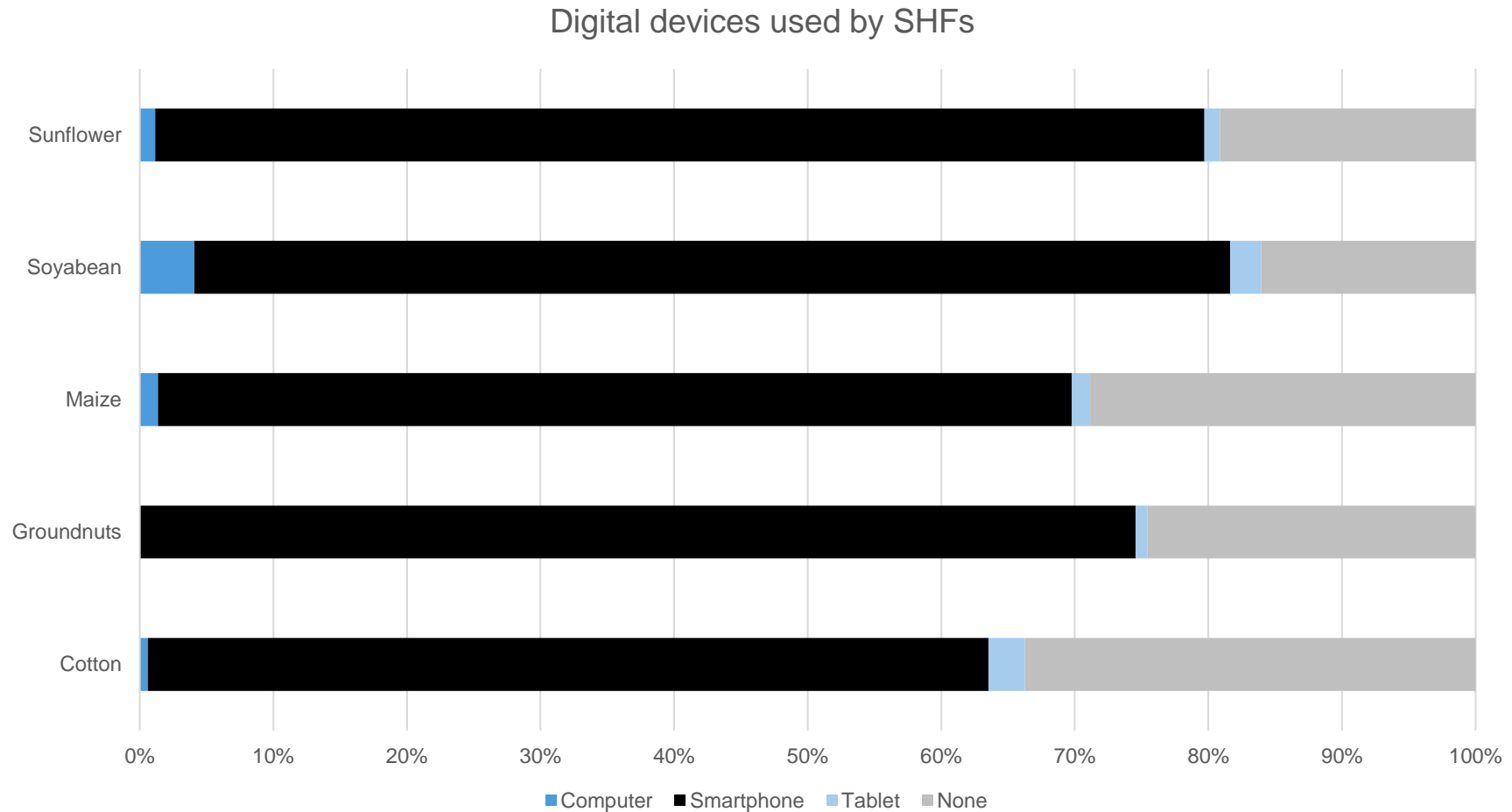
Distribution of surveyed farmers by ownership of their land, %, 2023



Between 17-32% of farmers have a certificate / agreement of agricultural contract farming (highest for cotton farmers).

Most SHFs in the study have access to a smartphone. Still around a quarter of SHFs does *not* have access to a smartphone, computer, or tablet.

- Age and gender
- Education level
- Ownership of land
- Digital access**
- Access to financial accounts
- Crops grown & yield
- Membership & interaction



A bit over half of the total surveyed farmers have access to the Internet

Age and gender

Education level

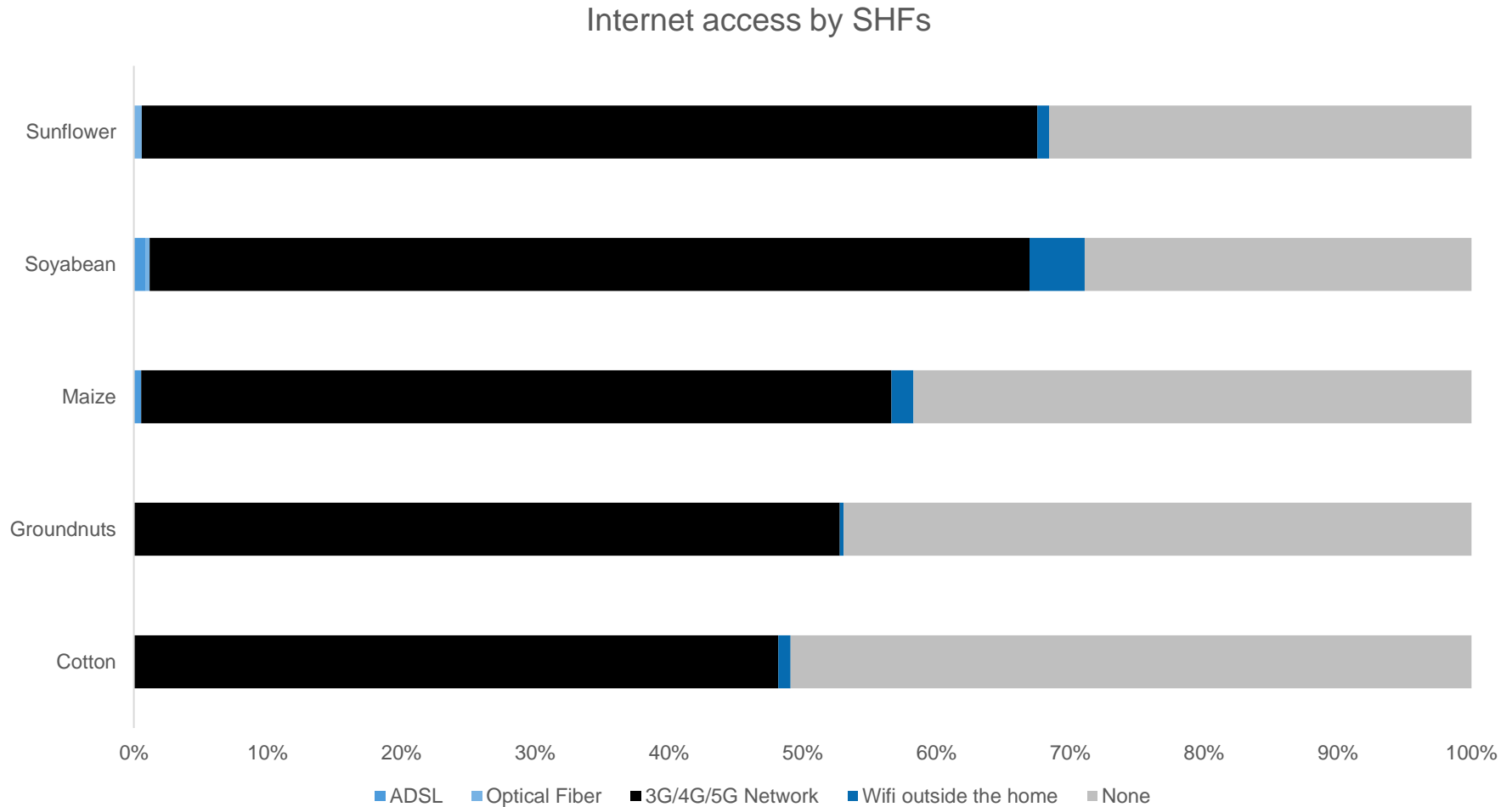
Ownership of land

Digital access

Access to financial accounts

Crops grown & yield

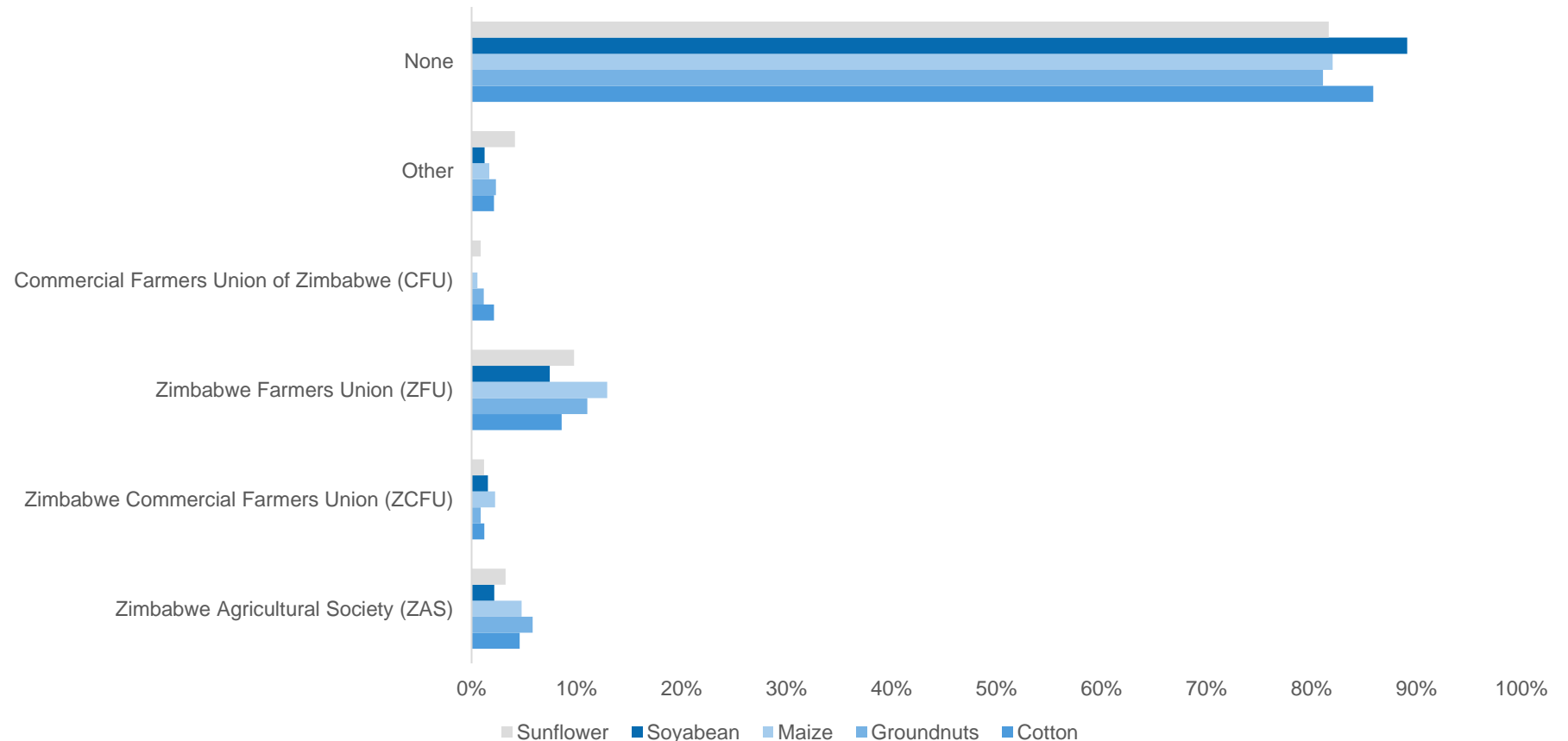
Membership & interaction



Most SHFs don't have a membership with any of the national farmer organizations. For SHFs with the five crops, the ZFU has highest memberships

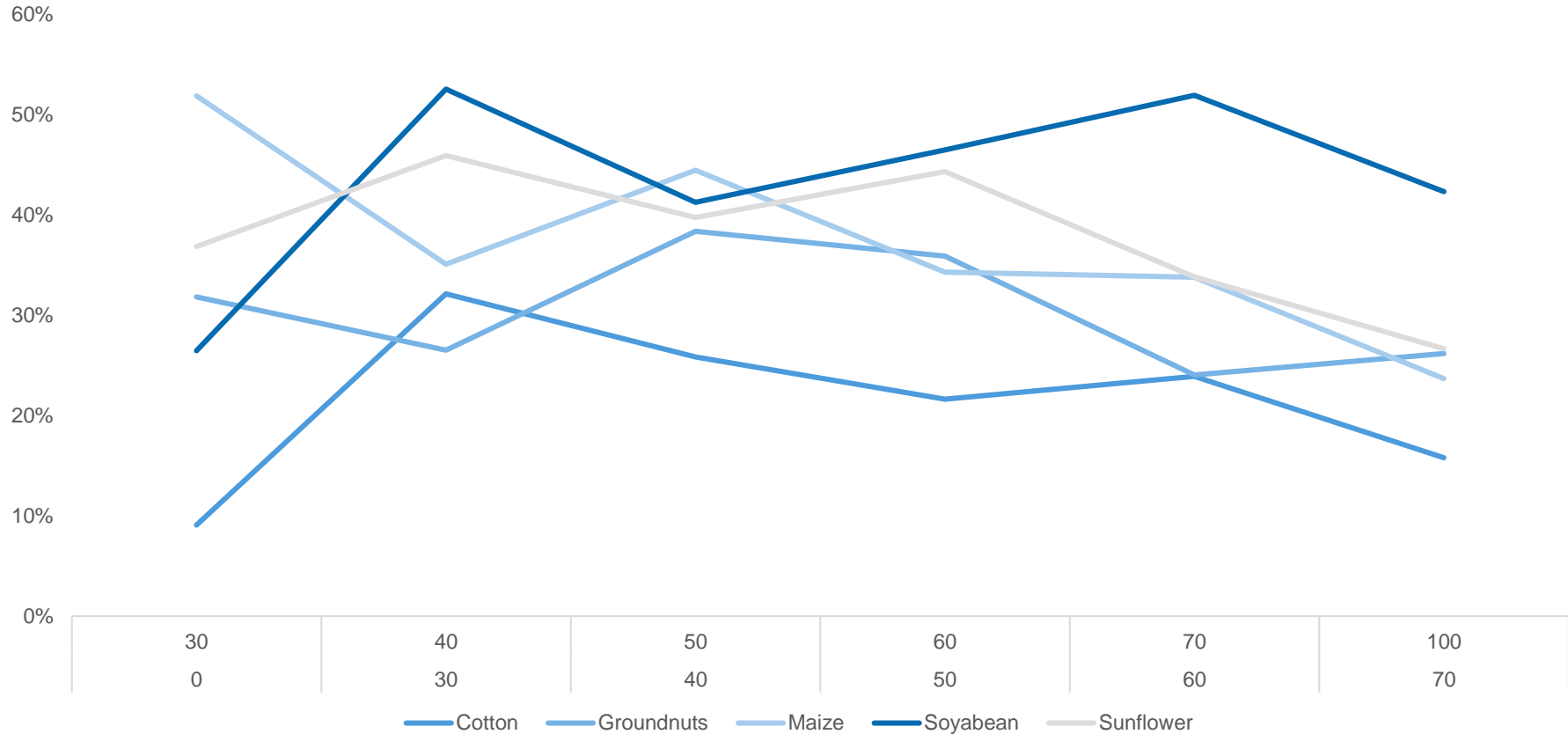
- Age and gender
- Education level
- Ownership of land
- Digital access
- Access to financial accounts
- Crops grown on farms
- Membership & interaction**

Membership with national farmer organizations, per crop, %, 2023



Age is not a key variable for the % of SHF that use a mobile for farming information

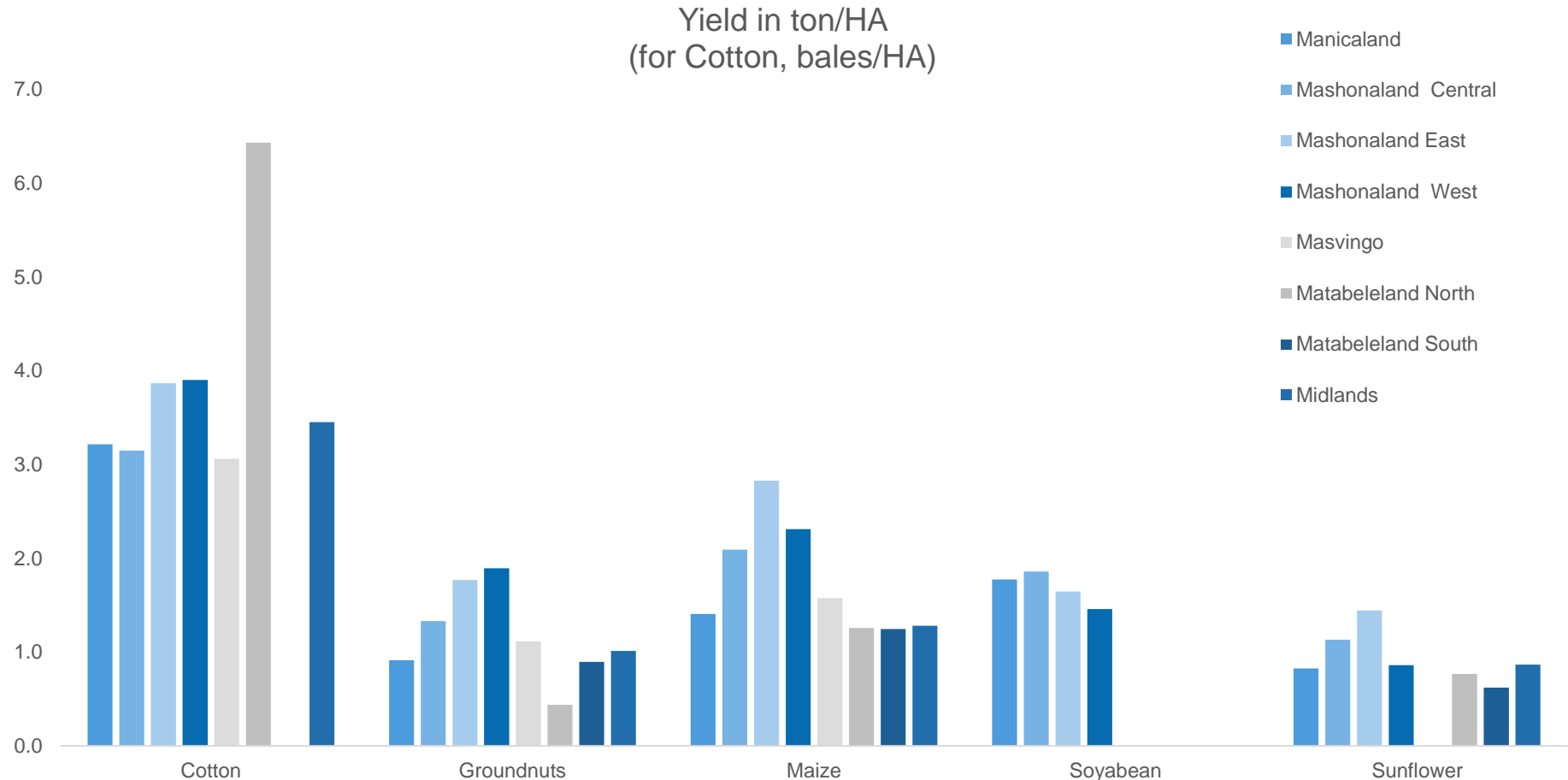
% of all SHF that use a mobile for farming information per age interval, per crop, %, 2023



- Age and gender
- Education level
- Ownership of land
- Digital access**
- Access to financial accounts
- Crops grown & yield
- Membership & interaction

Reported yields vary per province, and were generally higher than those reported in '22/'23 Zimbabwe Crop, Livestock and Fisheries Assessment Report (CLAFA-2) from the MLAFWRD

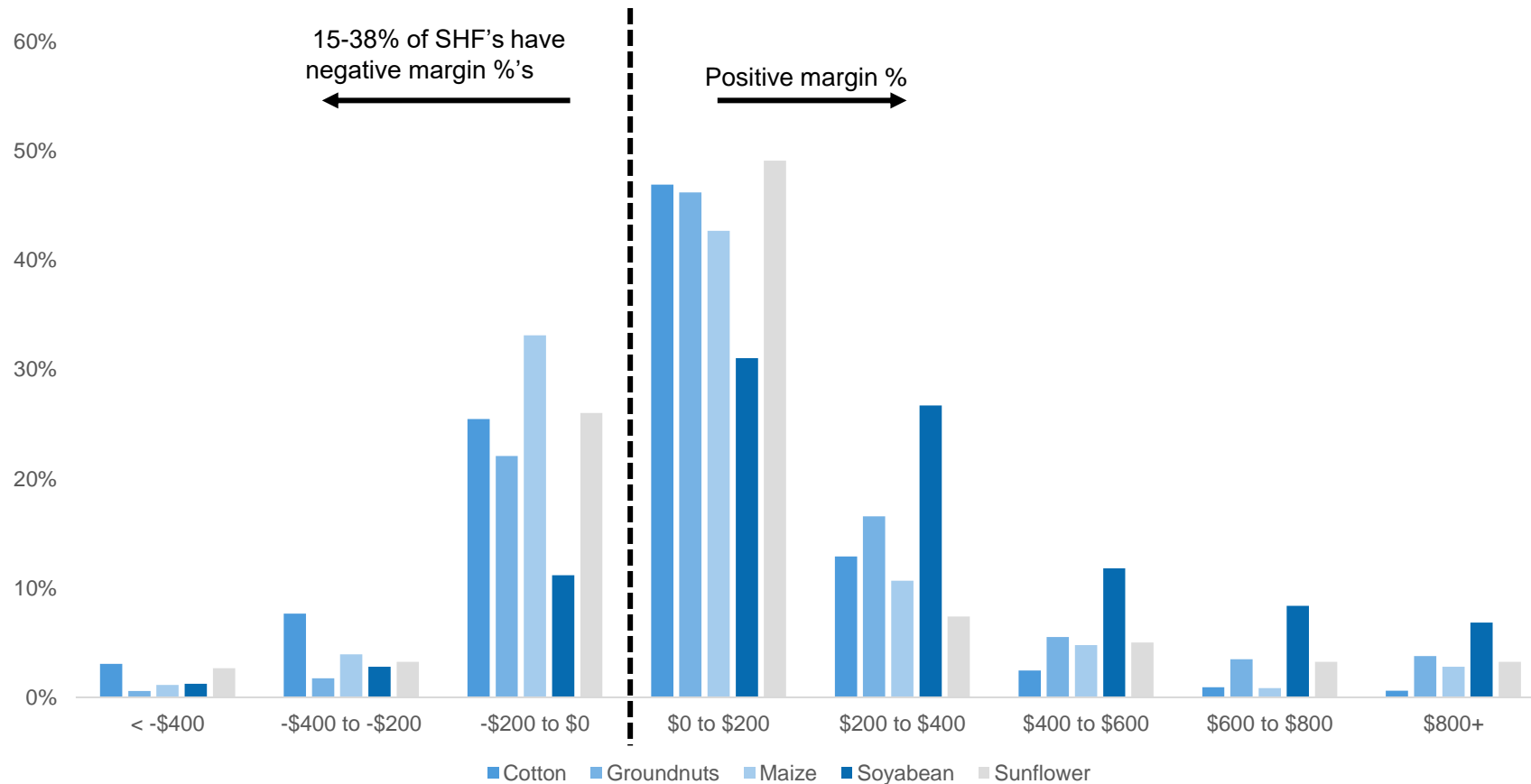
- Age and gender
- Education level
- Ownership of land
- Digital access
- Access to financial accounts
- Crops grown & yield**
- Membership & interaction



Large variation exists between farmers in the 2023 margin %'s for the five crops. Depending on the crop, 15-38% of SHFs reported gross margin losses

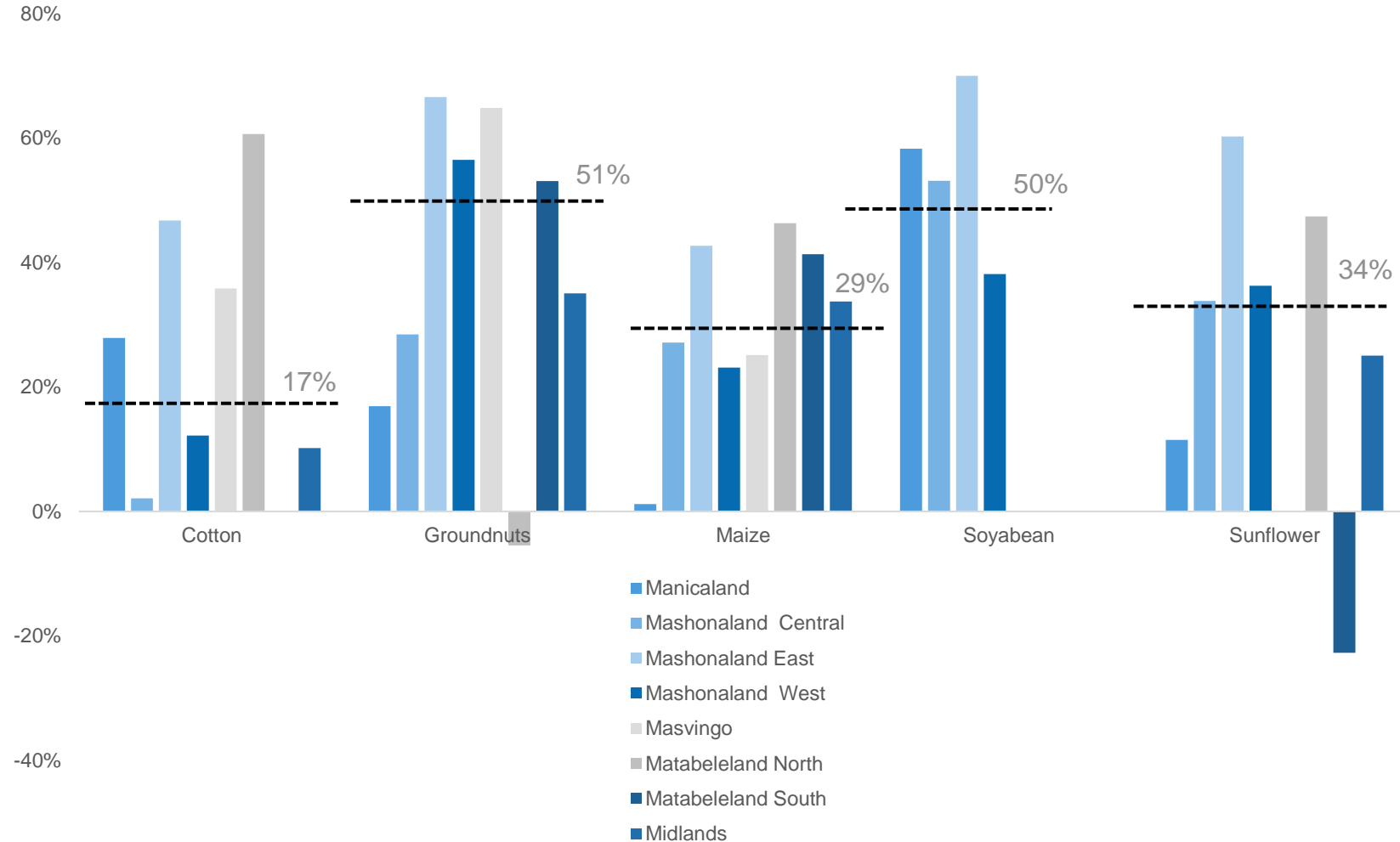
- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product
- Farmers' needs and expectations

Variation of gross margin %'s of SHFs by crop, '22/'23



Large variation between regions in the '22/'23 margins for the five crops

Average gross margin %'s of farmers by crop and region, '22/'23

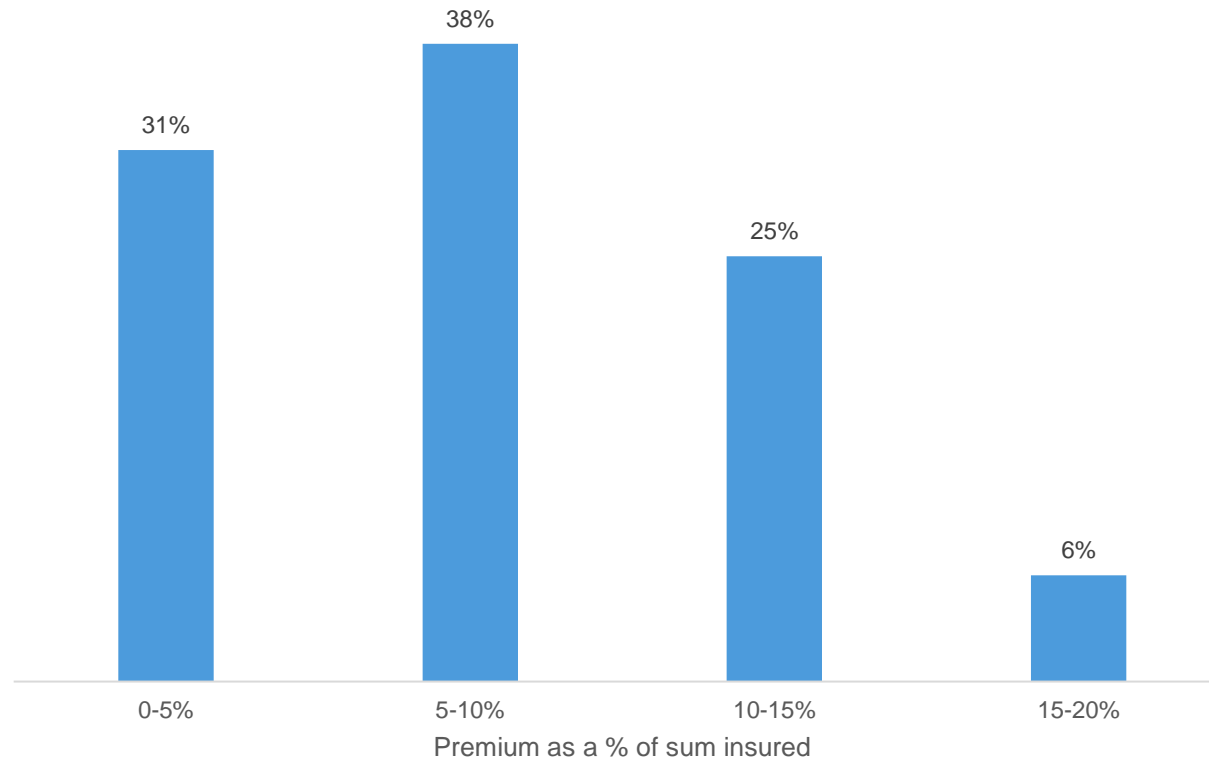


- Economic model**
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product
- Farmers' needs and expectations

SHFs who subscribed in 2022 paid on average a bit less than 10% of sum insured

Price (as % of sum insured) of SHF's (n = 18) who subscribed to an agro-insurance product in 2022

- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products**
- Interest in the new agri-insurance product
- Farmers' needs and expectations

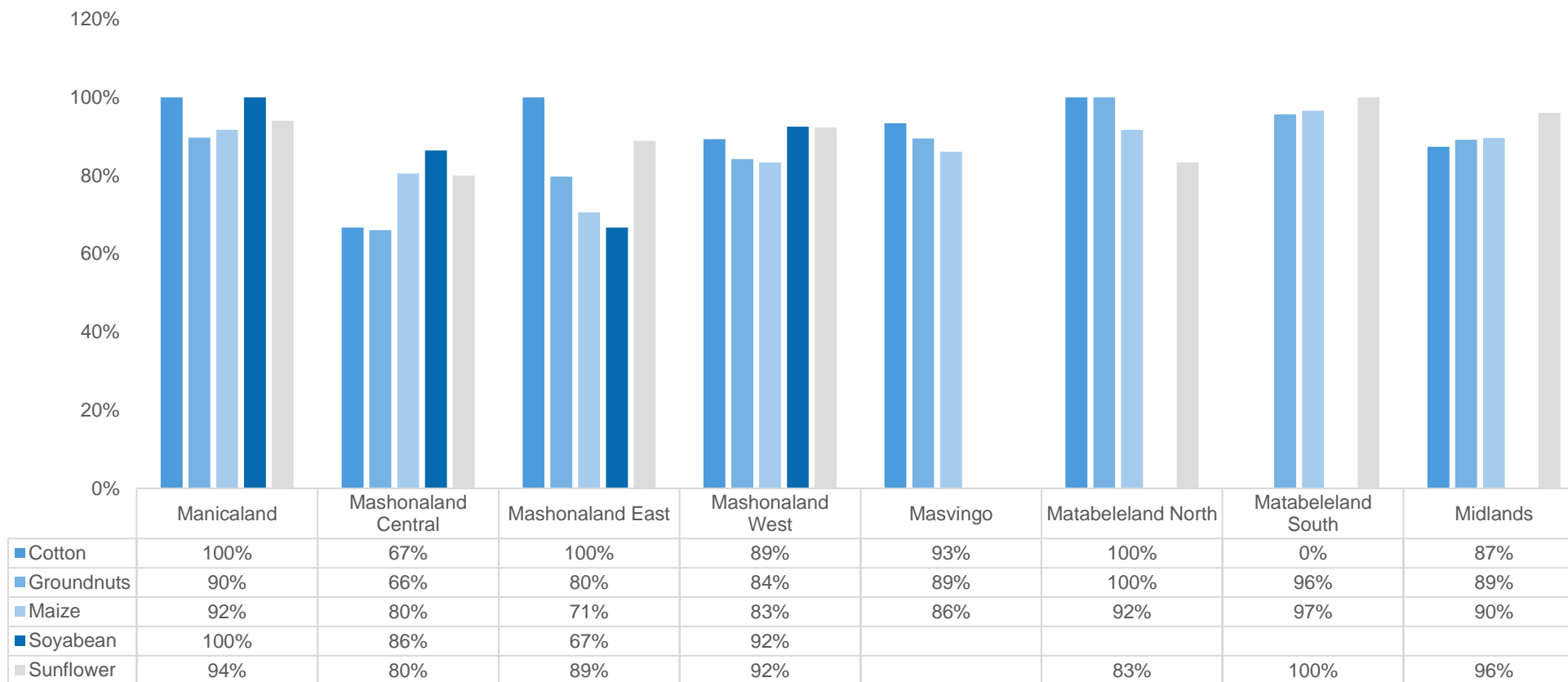


- Majority of bought products in 2022 were to cover Tobacco crop for hail and fire.
- Within the survey, only 18 SHFs had coverage, thus difficult to generalize to overall population of SHFs

Most SHFs surveyed are interested in the agri-insurance product presented during the survey

Farmers interested in agri-insurance product by value chain, and region, 2023

- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product
- Farmers' needs and expectations



Are there sub-groups of SHFs that are more (or less) interested than others?

Which sub-groups of SHFs are statically significantly more or less interested in agri-insurance?¹

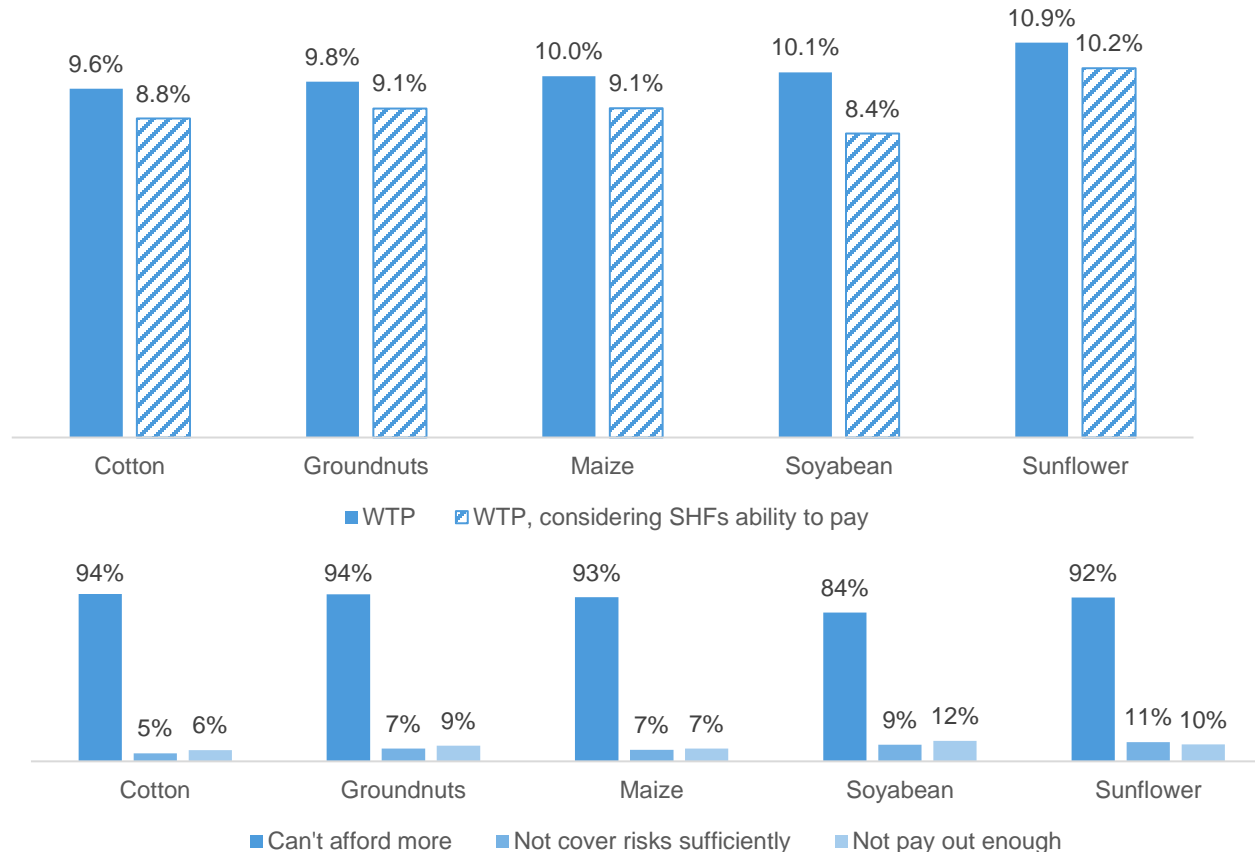
- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product**
- Farmers' needs and expectations

Characteristic	Cotton	Ground-nuts	Maize	Soya-bean	Sun-flowers
Higher yield	More				
More use of digital devices	More				
More access to internet		More			
Older farmer			Less		
More female employees			More		
Mashonaland East			Less	Less	Less

¹ Over 25 co-variate ('characteristics of farmers') tested for statistical significance.

On average, SHFs surveyed are willing to pay 9-10% premiums for the (yield-index) agri-insurance product presented during the survey

Farmers average willingness to pay (WTP as a % of sum-insured) for agri-insurance product by value chain, 2023



SHF's ability to pay defined as:
 (1) less than 25% of annual personal expenses and (2) less than 25% of annual income from the crop

- Average WTP **high** as a % of sum insured (i.e., 2022 revenues)
- Main reason for not willing to pay more is that SHFs can't afford more

Economic model

Risk analysis

Loss analysis

Past purchase of insurance products

Interest in the new agri-insurance product

Farmers' needs and expectations

Why the actual willingness to join and pay, market share and market size could be higher or lower than the forecasted potential

- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product**
- Farmers' needs and expectations

Actuals could be lower	Actuals could be higher
<ol style="list-style-type: none"> 1. Marketing: Potential market share assumes that all SHFs who may be interested, will know about the product 2. Distribution: Potential market share assumes that distribution to all SHFs is feasible 3. Affordability: While the forecasts consider affordability, SHFs may not be able to afford the premiums 	<ol style="list-style-type: none"> 1. Increase in knowledge: Currently, most SHFs have low level of knowledge of agri-insurance. With increasing knowledge, interest may increase 2. Actual payouts : Once SHFs see other farmers getting payouts, their interest level may increase 3. Increasing risks: With increasing climate risk, SHFs willingness to pay may increase

Are there sub-groups of SHFs that are wiling to pay more (or less) than others?

- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product**
- Farmers' needs and expectations

Characteristic	Cotton	Ground-nuts	Maize	Soya-bean	Sun-flowers
Selling more of crop (%)	Less				Less
Greater losses (%)	More				
More total income of crop (USD)	Less	Less	Less		
More total expenses of crop (USD)				More	
Older farmer (age)		Less			
Higher level of education			More		
More yield (tons/ha)				Less	
More hectares cultivated				Less	Less
Mashonaland East				Less	

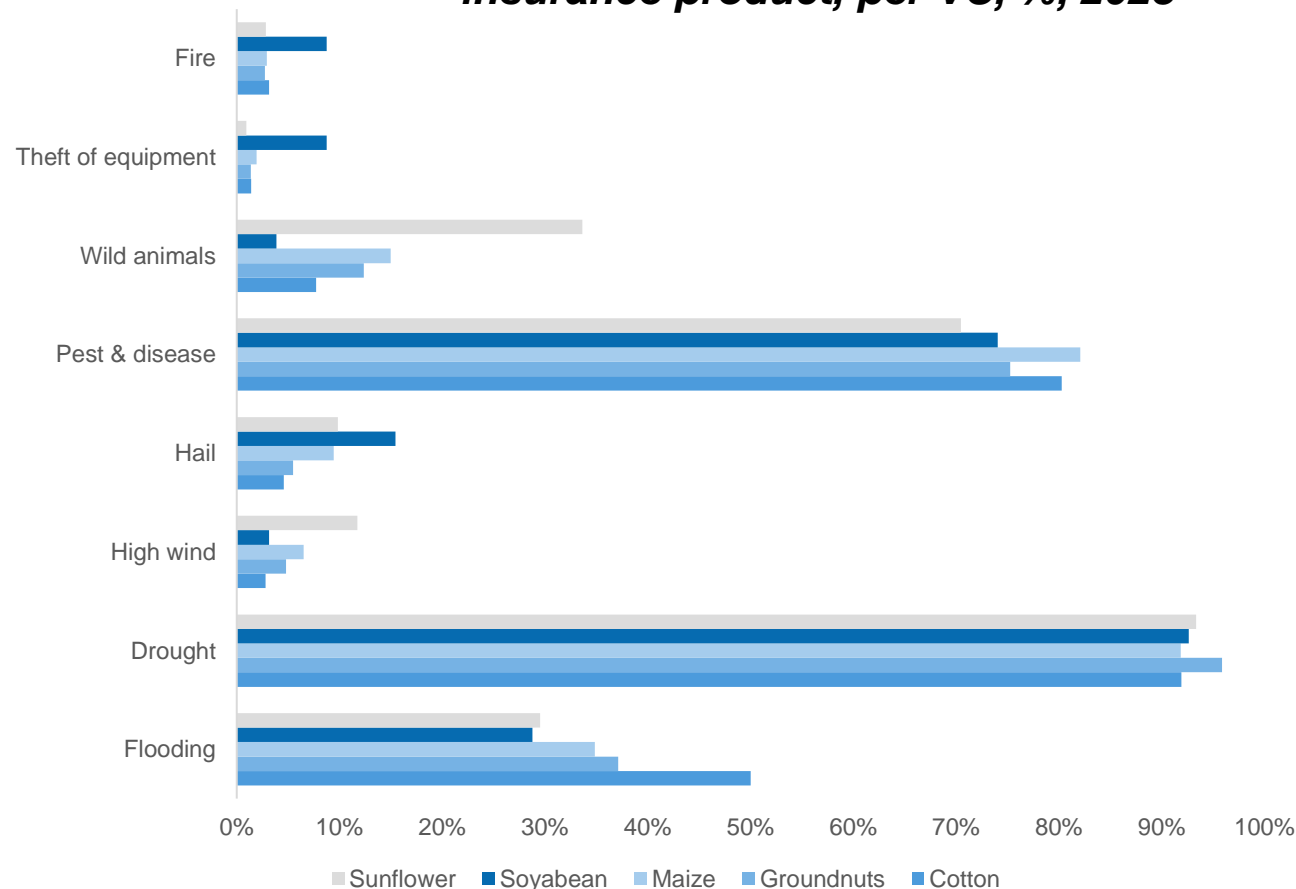
¹ Over 25 co-variate ('characteristics of farmers') tested for statistical significance.

² In model of farmers from all three value chains together.

Drought and pest & disease are the two main risks that SHFs would like a new agri-insurance product to cover, for all five crops

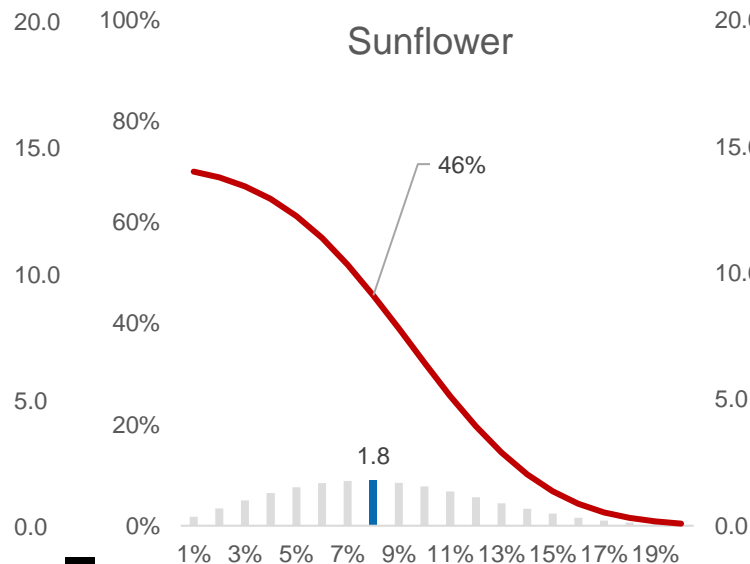
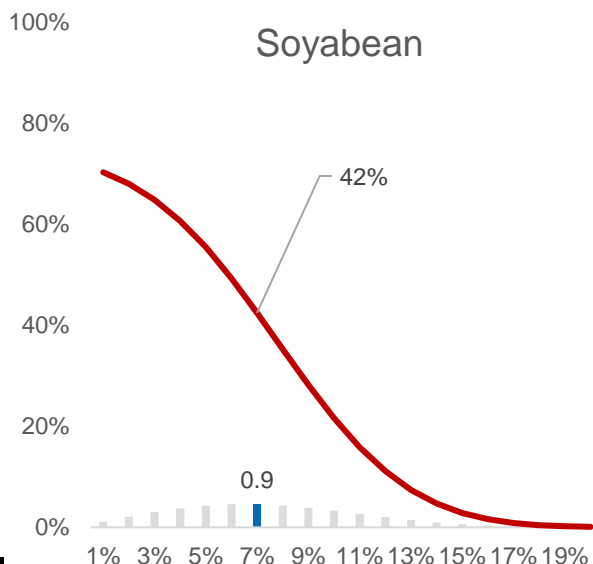
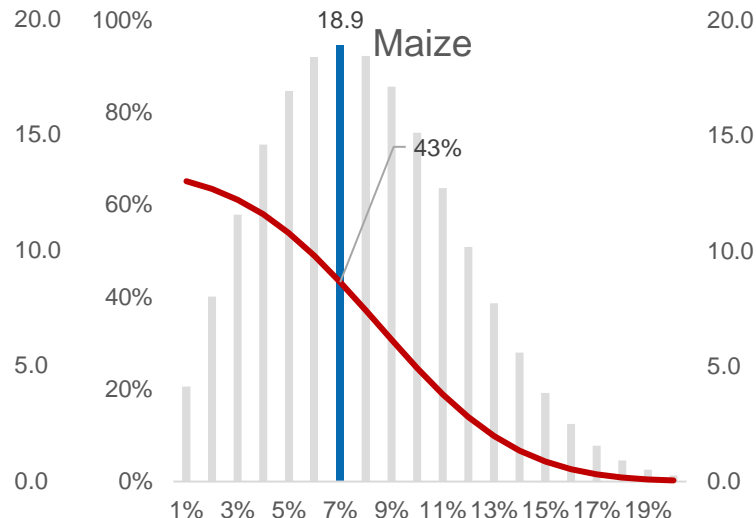
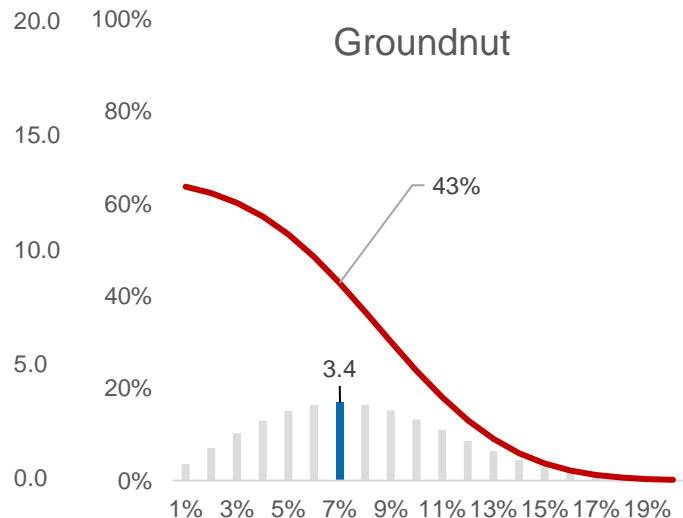
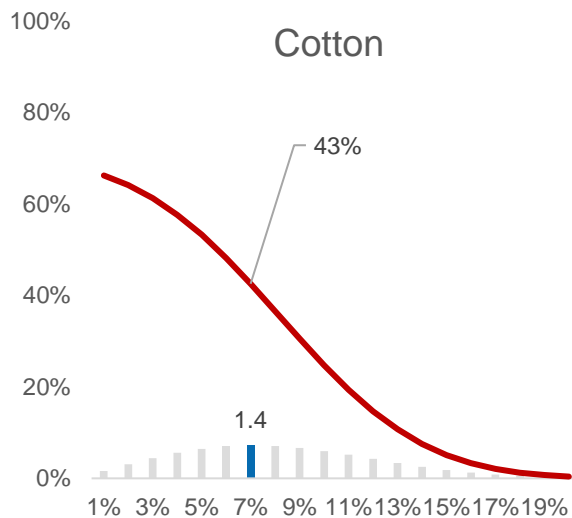
Which risk would you like to be covered by a new agri-insurance product, per VC, %, 2023

- Economic model
- Risk analysis
- Loss analysis
- Past purchase of insurance products
- Interest in the new agri-insurance product
- Farmers' needs and expectations**



- SHF's prefer **drought** to be covers (top risk), closely followed by **pest & disease**
- **Flooding** also frequently mentioned as a top risk

A pricing of around 7% of revenues is expected to result in maximum total premium revenues



It will be key to select a payment option that reduces the need to pay all premiums upfront by farmer. Subsidies, pre-financing, or payments in installments (or their combination) could help

Payment option	Characteristics
Payment by farmers	<ul style="list-style-type: none"> ▪ Payable upfront or from proceeds of previous season or integrated with other services (e.g., farming inputs) ▪ General difficulty to pay at start of the season due to liquidity challenge ▪ Easier to collect if pre-finances by government or private sector aggregator
Premium subsidy by government	<ul style="list-style-type: none"> ▪ Can vary by type of farmer and farming practices ▪ Can be the difference between the actuarial premium and a fixed premium ▪ Can have a plan for phasing out
Premium subsidy by private sector aggregators	<ul style="list-style-type: none"> ▪ Justifiable if products also address business risks of aggregators ▪ Can be paid for certain categories of farmers (e.g., more loyal farmers)
Premium pre-financing by the government	<ul style="list-style-type: none"> ▪ Can be payable if integrated within a government program (e.g., input-subsidy scheme of Ministry of Agriculture in Zambia)
Premium pre-financing by private sector aggregators	<ul style="list-style-type: none"> ▪ Can be payable if there is a credit exposure for the aggregator (e.g., in contract farming systems) ▪ Exposed to risk of default and side-selling
Tax waiver on premium	<ul style="list-style-type: none"> ▪ Particularly justifiable if linked to government schemes ▪ Can have a similar effect as a premium subsidy

Considerable potential demand and market size (US\$ 21.5M) based on SHFs interest for index insurance products. Given high # of hectares, maize represents the largest potential market. Results of 6% premium product

Zimbabwe	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total
# Hectares (2023)	178,864	335,840	1,966,177	55,944	146,821	2,683,646
Share (%)	42%	40%	41%	43%	40%	43%
<i>90% confidence interval</i>	32% - 50%	31% - 48%	32% - 49%	33% - 52%	31% - 48%	37% - 49%
# Hectares covered	74,840	138,521	843,061	23,511	76,739	1,156,673
Estimated SHFs' covered	52,420	154,220	468,182	8,325	72,214	
Average sum-insured US\$/HA	\$ 74	\$ 440	\$ 406	\$ 639	\$ 412	
Total premiums (US\$ M)	\$ 0.3	\$ 2.8	\$ 16.2	\$ 0.8	\$ 1.5	\$ 21.5
<i>90% confidence interval</i>	<i>US\$ 0.9 - 1.5</i>	<i>US\$ 2.3 - 3.4</i>	<i>US\$ 12.9 - 19</i>	<i>US\$ 0.6 - 0.9</i>	<i>US\$ 1.2 - 1.7</i>	<i>US\$ 19.1 - 25.4</i>

Annual premium potential up to \$21.5M for all five crops total, with 70% coming from maize.

Given similar potential market shares %'s's, the total potential market size is largely driven by the number of hectares per crop

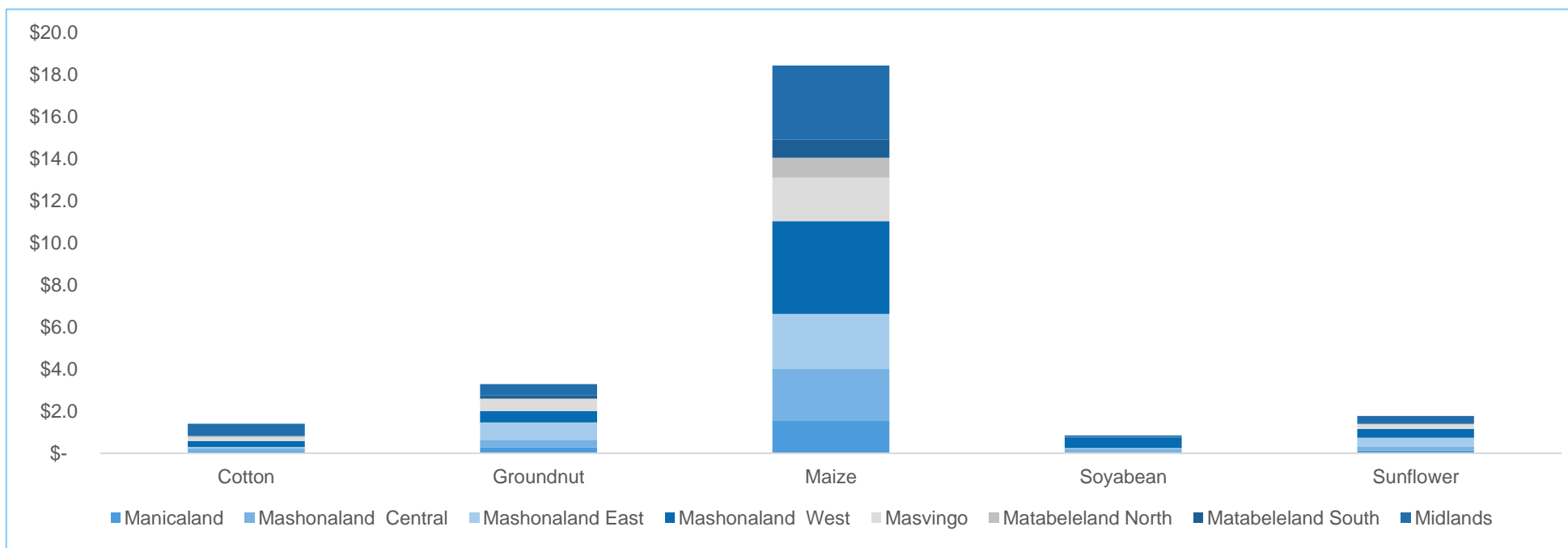
Subsidies will help increase affordability and potential market share, but it comes at a cost.

Subsidy levels shown are 0%, 25%, 50% and 75% for an 8% priced product

Subsidy-level of revenue-based product		Cotton	Groundnut	Maize	Soyabean	Sunflower
0%	Premium to farmers (%)	8.0%	8.0%	8.0%	8.0%	8.0%
	Potential market share (%)	37%	37%	37%	35%	46%
	# Hectares covered	65,400	123,000	728,800	19,700	66,900
	Premiums paid by SHF's (US\$ million)	\$ 1.4	\$ 3.3	\$ 18.4	\$ 0.9	\$ 1.8
	Subsidies needed (US\$ million)	\$ -	\$ -	\$ -	\$ -	\$ -
	Premiums to insurers (1,000's)	\$ 1.4	\$ 3.3	\$ 18.4	\$ 0.9	\$ 1.8
	Premium to farmers (%)	6.0%	6.0%	6.0%	6.0%	6.0%
	Potential market share (%)	48%	49%	49%	49%	57%
	# Hectares covered	86,200	163,000	961,500	27,600	83,600
	Premiums paid by SHF's (US\$ million)	\$ 1.4	\$ 3.3	\$ 18.4	\$ 0.9	\$ 1.7
Subsidies needed (US\$ million)	\$ 0.5	\$ 1.1	\$ 6.1	\$ 0.3	\$ 0.6	
Premiums to insurers (1,000's)	\$ 1.9	\$ 4.4	\$ 24.5	\$ 1.2	\$ 2.3	
50%	Premium to farmers (%)	4.0%	4.0%	4.0%	4.0%	4.0%
	Potential market share (%)	58%	57%	58%	61%	65%
	# Hectares covered	103,100	192,400	1,138,700	33,900	95,000
	Premiums paid by SHF's (US\$ million)	\$ 1.1	\$ 2.6	\$ 14.6	\$ 0.8	\$ 1.3
	Subsidies needed (US\$ million)	\$ 1.1	\$ 2.6	\$ 14.6	\$ 0.8	\$ 1.3
	Premiums to insurers (1,000's)	\$ 2.2	\$ 5.2	\$ 29.2	\$ 1.5	\$ 2.6
	Premium to farmers (%)	2.0%	2.0%	2.0%	2.0%	2.0%
	Potential market share (%)	64%	62%	63%	68%	69%
	# Hectares covered	114,700	209,300	1,247,200	38,000	101,200
	Premiums paid by SHF's (US\$ million)	\$ 0.6	\$ 1.4	\$ 8.0	\$ 0.4	\$ 0.7
Subsidies needed (US\$ million)	\$ 1.9	\$ 4.3	\$ 24.1	\$ 1.3	\$ 2.1	
Premiums to insurers (1,000's)	\$ 2.5	\$ 5.7	\$ 32.1	\$ 1.7	\$ 2.8	

Majority of premium revenues of \$18.5M from maize. Potential revenues from other crops lower, at 0.9 – 3.3M. Results of 8% premium product

Estimated potential premium amounts per VC and province (in US\$M)



About 70% of potential market size is coming from Maize.

Given similar potential market shares, this is largely driven by the number of hectares per province and per crop

Potential demand and market size for 8% premium product per crop & province

Manicaland	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total
Total hectares (2023)	10,839	47,721	290,961	476	25,182	375,179
Share (%)	37%	38%	37%	11%	47%	38%
<i>90% confidence interval</i>	27% - 47%	29% - 48%	27% - 46%	2% - 31%	37% - 55%	30% - 45%
Hectares covered	4,057	18,314	107,403	52	11,811	141,638
Estimated SHFs' covered	3,062	24,637	60,972	3	15,342	
Average sum-insured US\$/HA	\$ 233	\$ 200	\$ 179	\$ 834	\$ 142	
Total premiums (US\$ M)	\$ 0.1	\$ 0.3	\$ 1.5	\$ -	\$ 0.1	\$ 2.0
<i>90% confidence interval</i>	US\$ 0.1 - 0.1	US\$ 0.2 - 0.4	US\$ 1.1 - 1.9	US\$ 0 - 0	US\$ 0.1 - 0.2	US\$ 1.6 - 2.5

Mashonaland Central	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total
Total hectares (2023)	26,123	44,684	213,990	12,802	18,297	315,896
Share (%)	36%	35%	32%	33%	45%	34%
<i>90% confidence interval</i>	26% - 45%	26% - 44%	24% - 40%	23% - 43%	36% - 53%	28% - 39%
Hectares covered	9,335	15,603	68,819	4,220	8,305	106,282
Estimated SHFs' covered	5,623	12,977	44,843	1,803	6,557	
Average sum-insured US\$/HA	\$ 224	\$ 288	\$ 449	\$ 660	\$ 282	
Total premiums (US\$ M)	\$ 0.2	\$ 0.4	\$ 2.5	\$ 0.2	\$ 0.2	\$ 3.4
<i>90% confidence interval</i>	US\$ 0.1 - 0.2	US\$ 0.3 - 0.5	US\$ 1.8 - 3.1	US\$ 0.2 - 0.3	US\$ 0.2 - 0.2	US\$ 2.7 - 4.1

Mashonaland East	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total
Total hectares (2023)	4,539	54,973	226,502	1,896	19,797	307,707
Share (%)	40%	36%	30%	14%	41%	32%
<i>90% confidence interval</i>	29% - 51%	26% - 44%	20% - 40%	5% - 28%	28% - 53%	24% - 40%
Hectares covered	1,826	19,583	68,851	263	8,050	98,573
Estimated SHFs' covered	821	21,286	28,924	160	7,387	
Average sum-insured US\$/HA	\$ 370	\$ 522	\$ 475	\$ 1,553	\$ 661	
Total premiums (US\$ M)	\$ 0.1	\$ 0.8	\$ 2.6	\$ 0.0	\$ 0.4	\$ 4.0
<i>90% confidence interval</i>	US\$ 0 - 0.1	US\$ 0.6 - 1	US\$ 1.7 - 3.5	US\$ 0 - 0.1	US\$ 0.3 - 0.6	US\$ 3 - 4.8

Mashonaland West	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total
Total hectares (2023)	25,588	29,150	299,061	37,636	21,897	413,332
Share (%)	42%	38%	42%	39%	58%	42%
<i>90% confidence interval</i>	30% - 53%	29% - 48%	31% - 52%	27% - 50%	46% - 68%	34% - 50%
Hectares covered	10,640	11,217	124,638	14,545	12,646	173,686
Estimated SHFs' covered	7,229	13,545	49,241	4,978	9,529	
Average sum-insured US\$/HA	\$ 333	\$ 597	\$ 444	\$ 450	\$ 405	
Total premiums (US\$ M)	\$ 0.3	\$ 0.5	\$ 4.4	\$ 0.5	\$ 0.4	\$ 6.2
<i>90% confidence interval</i>	US\$ 0.2 - 0.4	US\$ 0.4 - 0.7	US\$ 3.3 - 5.6	US\$ 0.4 - 0.7	US\$ 0.3 - 0.5	US\$ 5 - 7.3

Potential demand and market size for 8% premium product per crop & province

Masvingo	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total	
Total hectares (2023)	24,266	53,966	219,926	9	17,327	315,494	
Share (%)	36%	40%	39%	36%	47%	40%	
	<i>90% confidence interval</i>	<i>26% - 46%</i>	<i>30% - 50%</i>	<i>29% - 49%</i>	<i>26% - 47%</i>	<i>37% - 55%</i>	<i>32% - 47%</i>
Hectares covered	8,801	21,535	86,319	3	8,122	124,780	
Estimated SHFs' covered	6,093	22,796	56,328	1	7,945		
Average sum-insured US\$/HA	\$ 257	\$ 332	\$ 298	\$ 875	\$ 323		
Total premiums (US\$ M)	\$ 0.2	\$ 0.6	\$ 2.1	\$ -	\$ 0.2	\$ 3.0	
	<i>90% confidence interval</i>	<i>US\$ 0.1 - 0.2</i>	<i>US\$ 0.4 - 0.7</i>	<i>US\$ 1.5 - 2.6</i>	<i>US\$ 0 - 0</i>	<i>US\$ 0.2 - 0.3</i>	<i>US\$ 2.5 - 3.6</i>

Matabeleland North	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total	
Total hectares (2023)	5,723	9,726	146,023	220	3,345	165,037	
Share (%)	32%	33%	41%	36%	37%	40%	
	<i>90% confidence interval</i>	<i>23% - 41%</i>	<i>24% - 38%</i>	<i>30% - 49%</i>	<i>26% - 47%</i>	<i>29% - 43%</i>	<i>30% - 47%</i>
Hectares covered	1,843	3,195	60,013	80	1,223	66,355	
Estimated SHFs' covered	1,437	7,574	41,967	15	1,274		
Average sum-insured US\$/HA	\$ 413	\$ 89	\$ 198	\$ 875	\$ 339		
Total premiums (US\$ M)	\$ 0.1	\$ 0.0	\$ 1.0	\$ 0.0	\$ 0.0	\$ 1.1	
	<i>90% confidence interval</i>	<i>US\$ 0 - 0.1</i>	<i>US\$ 0 - 0</i>	<i>US\$ 0.7 - 1.1</i>	<i>US\$ 0 - 0</i>	<i>US\$ 0 - 0</i>	<i>US\$ 0.8 - 1.3</i>

Matabeleland South	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total	
Total hectares (2023)	1,577	15,451	110,816	1,024	1,459	130,327	
Share (%)	37%	30%	44%	36%	41%	42%	
	<i>90% confidence interval</i>	<i>26% - 46%</i>	<i>23% - 38%</i>	<i>32% - 54%</i>	<i>26% - 47%</i>	<i>32% - 48%</i>	<i>32% - 51%</i>
Hectares covered	577	4,686	49,150	372	594	55,379	
Estimated SHFs' covered	381	7,179	28,493	69	988		
Average sum-insured US\$/HA	\$ 298	\$ 419	\$ 219	\$ 875	\$ 194		
Total premiums (US\$ M)	\$ 0.0	\$ 0.2	\$ 0.9	\$ 0.0	\$ 0.0	\$ 1.1	
	<i>90% confidence interval</i>	<i>US\$ 0 - 0</i>	<i>US\$ 0.1 - 0.2</i>	<i>US\$ 0.6 - 1.1</i>	<i>US\$ 0 - 0</i>	<i>US\$ 0 - 0</i>	<i>US\$ 0.8 - 1.3</i>

Midlands	Cotton	Groundnut	Maize	Soyabean	Sunflower	Total	
Total hectares (2023)	80,209	80,169	458,898	1,881	39,517	660,674	
Share (%)	36%	33%	35%	36%	50%	35%	
	<i>90% confidence interval</i>	<i>26% - 45%</i>	<i>25% - 42%</i>	<i>25% - 43%</i>	<i>26% - 47%</i>	<i>39% - 58%</i>	<i>29% - 42%</i>
Hectares covered	28,554	26,684	158,978	683	19,611	234,510	
Estimated SHFs' covered	21,326	24,834	91,984	126	17,196		
Average sum-insured US\$/HA	\$ 254	\$ 251	\$ 277	\$ 875	\$ 238		
Total premiums (US\$ M)	\$ 0.6	\$ 0.5	\$ 3.5	\$ 0.1	\$ 0.4	\$ 5.1	
	<i>90% confidence interval</i>	<i>US\$ 0.4 - 0.7</i>	<i>US\$ 0.4 - 0.7</i>	<i>US\$ 2.6 - 4.4</i>	<i>US\$ 0 - 0.1</i>	<i>US\$ 0.3 - 0.4</i>	<i>US\$ 4.1 - 6</i>