



How gender impacts insurance perceptions

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Shell Foundation | 





**Executive
summary**



Research introduction

- Pula, in partnership with Shell Foundation and the UK Government, is exploring how gender plays a role in farmer agricultural insurance registration decisions in East and Southern Africa, as well as suggesting ways enterprises can help bridge these gender-gaps
- Pula used its internal farmer data (using Kenya, Malawi and Zambia data) to provide insights on factors that influence insurance registration decisions & suggest recommendations to bridge these gaps

3 methods were used to better understand the gender gaps in insurance registration:



Factors influencing gender gaps in insurance registration

- Will help us understand gender gaps when farmer is purchasing farm inputs and registering for insurance



Demographics of farmers registered for insurance

- Will assess demographics of farmers who register for insurance



Factors influencing gender gaps in yield

- Will assess gender gaps in yield as higher yields lead to more farm input purchases, leading to higher insurance uptake



Key findings

Factors influencing gender gaps in registration



- Fewer female farmers than male farmers have smartphones, which limits digital interventions that can be used to engage them
- Female farmers use and value agronomy education less than male farmers. This difference is significant especially amongst farmers in Kenya

Demographics of farmers registered for insurance



- More female than male farmers are comfortable purchasing more inputs because of insurance
- Registered female farmers tend to have smaller farms than registered male farmers
- Significantly more registered male farmers are in farmer associations than registered female farmers

Factors influencing gender gaps in yield



- Female farmers typically have lower yields than male farmers
- Female farmers tend to use more seed per acre than male farmers, but less fertilizer per acre and less crop protection chemicals



Key recommendations

Potential ways enterprises can bridge these gender gaps include:

Increasing insurance awareness

- Target more female farmers through farmer groups and work with leaders of these groups to increase influence in the regions and encourage insurance uptake
- Educate female farmers on value of insurance through campaigns

Educating farmers on farm inputs and practices

- Educate female farmers on value of insurance on inputs to encourage purchase of more inputs
- Design agronomy content and educational materials with female farmers in mind, recognizing the gender gaps in agronomic practices
- Educate female farmers on best seed and fertilizer to use per region and benefits of using crop protection chemicals to support them in driving higher yields

Bundling insurance with products female farmers are keen on / interested in

- Bundle insurance with farm inputs to encourage their purchase and increase insurance uptake
- Bundle insurance with loans to encourage and support purchase of more farm inputs



Introduction



Research introduction

Pula, in partnership with Shell Foundation and the UK Government, is exploring how gender plays a role in farmer agricultural insurance registration decisions in East and Southern Africa, as well as suggesting ways enterprises can help bridge these gender-gaps

Who is Pula?

Pula is an agricultural insurance and technology company that designs and delivers innovative agricultural insurance and digital products to help SHFs¹ endure climate risks, improve their farming practices, and bolster their incomes over time

This insurance is important in improving livelihoods of the farmers as it protects them from risks which may affect their yields and in turn affect their income

- To explore these gender-gaps, Pula used its internal data to provide insights on factors that influence insurance registration decisions and suggest recommendations to bridge these gaps
- Countries used to explore the gaps in this report are:
 - Kenya
 - Malawi
 - Zambia

Note: (1) SHFs - Smallholder farmers



Pula typically registers farmers at the point of purchase

Pula registers farmers for insurance using two main channels:

- **B2B2C channel**
 - We register farmers at the point of purchase of farm inputs at agro-dealer stores. These farmers are registered using their mobile phone numbers
- **B2B channel**
 - Organizations we work with in this channel often register farmers through micro finance groups

Some ways that our channels likely influence gender distribution of our user base:

- In many of our markets, male farmers are more likely to make financial decisions such as input purchase¹
- From internal data, more male farmers have mobile phones hence are able to register in the shop

To note: We will only look at the B2B2C channel as we only collect gender information via this channel and not via our B2B channel

In this report, we will better understand farmers registered using the B2B2C channel to explore ways we can address this gender gap

Note: (1) Financial/purchase decision-making data is based on anecdotal field evidence from Pula operations, and corroborated by World Bank Global Findex





How Pula's insurance model works

Pula packages its insurance with farm inputs farmers want and provides insurance to the farmers for free. Agents and agro-dealers help farmers register for insurance by telling them about the insurance benefits e.g. agronomy tips and payouts in the case of low yields due to climate risks



- Pula's insurance is packaged with farm inputs e.g. seed and fertilizer
- Stickers on the bag identify authentic insurance and seed and fertilizer



- Farmers are registered for insurance at the agro-dealer shop via mobile phones upon purchase of the farm inputs
- Agro-dealers scan the unique code on the sticker, enter farmer's details e.g. phone number, location, crop, etc.



- Through SMS and WhatsApp, insured farmers receive
- Information about their input replacements and payouts
 - Agronomy tips on the crops they are growing
 - Early warning alerts on weather risks/pests and diseases



Agronomy: How Pula engages farmers through agronomy tips

- In Pula's agronomy model, 3 agronomy tips are sent to ALL farmers over the season depending on the timing of their registration
 - These messages are in addition to insurance and marketing messages sent
 - Over 50,000 messages with agronomy tips are usually sent over the course of a season

How the contextual agronomy tips model works:



The contextual agronomy tips are designed to respond to specific needs in varying environments



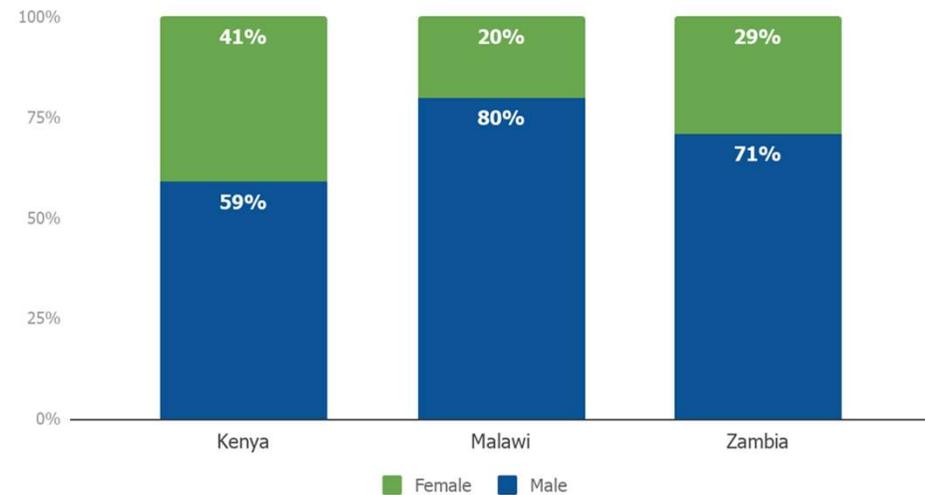
Across markets, Pula does not register as many female farmers as male farmers for insurance

- Country-by-country, there is a variance, but all countries had a majority of men as registered farmers
- To better understand how gender impacts insurance registration, we will assess the farmer behaviour of registered farmers in:
 - Kenya
 - Malawi
 - Zambia

Total registered farmers:

- Kenya - 447,873 farmers
- Malawi - 109,811 farmers
- Zambia - 439,538 farmers

Registered farmers by gender



Note: Data from Pula's internal data



Pula's used data from ~4,300 farmers surveyed to explore how gender affects insurance registration

For this report, we used internal Pula data from farmers surveyed in Kenya, Malawi and Zambia to explore ways gender plays a role in insurance registration decisions

Country	Female registered farmers surveyed	Male registered farmers surveyed	Total
<i>Kenya</i>	201 farmers	435 farmers	636 farmers
<i>Malawi</i>	350 farmers	877 farmers	1,227 farmers
<i>Zambia</i>	1,001 farmers	1,442 farmers	2,443 farmers
Total	1,552 farmers	2,754 farmers	4,306 farmers



3 methods were used to explore how gender affects registration & better understand these gender gaps

To better understand the gender gaps in insurance registration, we will assess the gaps using 3 methods:



Factors influencing gender gaps in insurance registration

- This will help us understand the gender gaps during the insurance registration process that happen when the farmer is registering for insurance when they are purchasing farm inputs



Demographics of farmers registered for insurance

- We will assess the demographics of farmers who register for insurance e.g. their farm size, to better understand which type of farmers tend to register for insurance



Factors influencing gender gaps in yield

- Will assess various factors that influence the gender gaps in yield e.g. seed usage per acre
- Farmers register for insurance when purchasing farm inputs that contribute to yield. Investing more in farm inputs leads to higher farm yields during harvest season - when farmers have low yields, they have less income to purchase farm inputs, thus leading to less insurance registration
- By better understanding the gender gaps in yield, we can use this to determine ways we can support farmers in driving higher yields, in turn encouraging higher insurance uptake

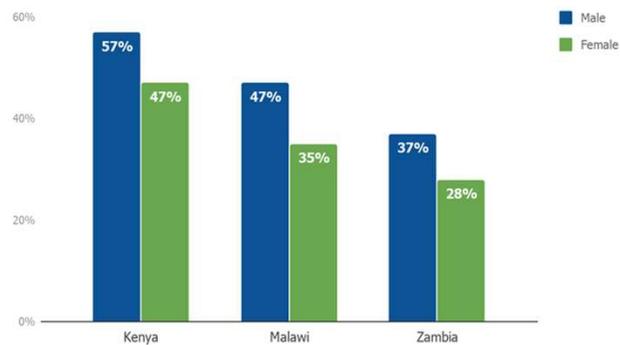


**Factors
influencing
gender gaps in
registration**

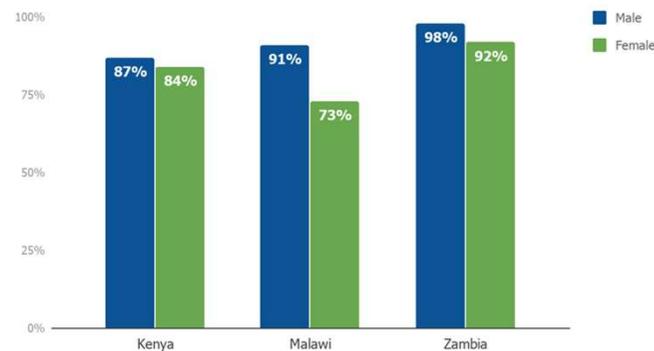


Technology: As farmers are not as tech savvy, it limits ways to engage them; especially the case for women

Registered farmers with smartphones



WhatsApp usage among registered smartphone users



Note: (1) Data from Pula's internal data; (2) Zambia data is from Pula's call centre survey data while Kenya and Malawi data is from Pula's crop cut experiments
Source: (1) United Nations, Africa Renewal, Africa is leapfrogging into digital agriculture,

Farmers generally have low tech savviness which limits the methods one can use to engage them e.g. using digital interventions to educate & register them for insurance

- In all countries, the farmers' usage of smartphones is below 60% showing that non-digital interventions may be required to reach the entire customer base

Female farmers are less likely to own smartphones than male farmers thus limiting ways to engage them

- Supports global trends in SSA where 14% less female than male farmers were likely to own a phone; 25% less females were likely to have internet access¹

Female farmers use WhatsApp less than male farmers

- While Zambia farmers have the lowest smartphone usage, Zambia female farmers use WhatsApp much more than female farmers in Kenya & Malawi



Even so, digital methods may work when used to engage female farmers with large farms

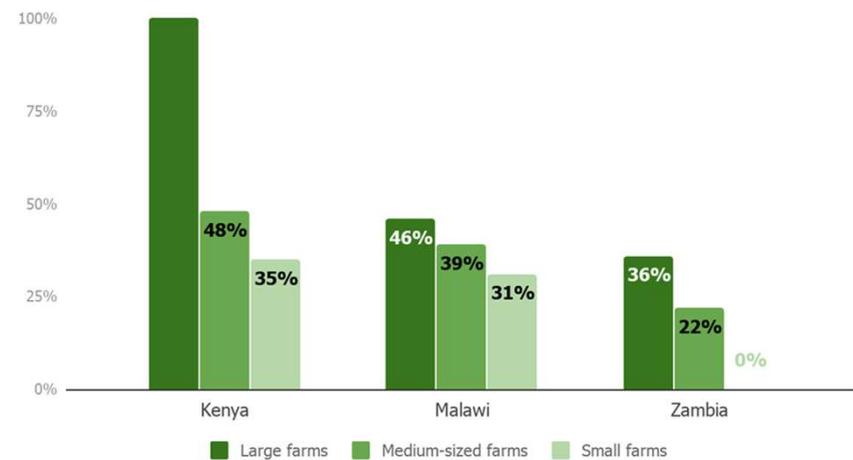
Female farmers with large farms are the most tech savvy and will likely have the highest success rate when digital methods are used to engage female farmers

- However, as this sample size was small, it is important to further assess these farmers before deploying digital methods to engage them

Using digital methods to engage female farmers of different farm sizes may work in Kenya, but will possibly have a low success rate in other countries regardless of the farm size

- Only 46% of female farmers with large farms in Malawi use smartphones
- All farm sizes in Zambia have smartphone usage of less than 37%

Registered female farmers with smartphones (by farm size)



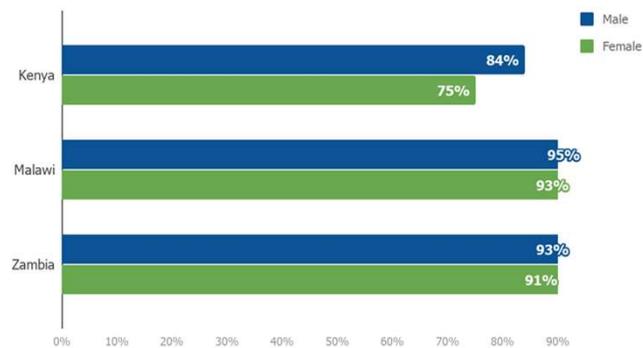
Sample size of registered female farmers with large farms was small and may explain why the percentages are high, especially in Kenya

Note: (1) Data from Pula's internal data - Zambia's data is from Pula's call centre survey data while Kenya and Malawi data is from Pula's crop cut experiments; (2) Large farms: >5 acres, medium-sized farms: >=2 acres and <=5 acres, small farms: <2 acres

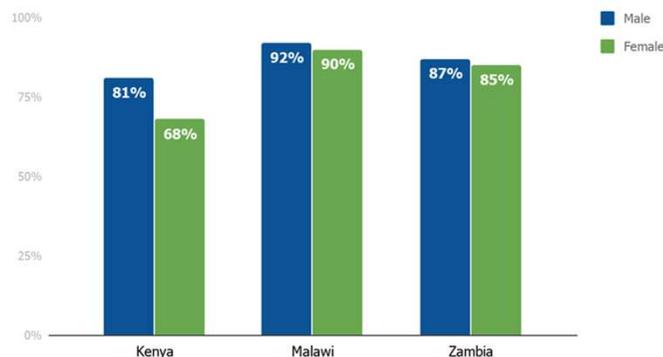


Agronomy: Female farmers have a lower usage of agronomy and value it less than male farmers

Registered farmers' use of agronomy



Registered farmers' value of agronomy



Note: Data from Pula's internal data

When farmers were asked if they value agronomy, more male than female farmers said they value it

- The perceived value of agronomy varies by country, likely influenced by perception vs. competing sources of information

Female farmers tend to use and value agronomy less than male farmers; this difference is most significant among farmers in Kenya

- May be driven by lower usage of phones or other factors limiting perceived value of SMS education

These trends signal that SMS agronomy may not serve female farmers as well as other methods

- There is an opportunity to provide better agronomy education through other channels (e.g. radio, printed materials, associations)



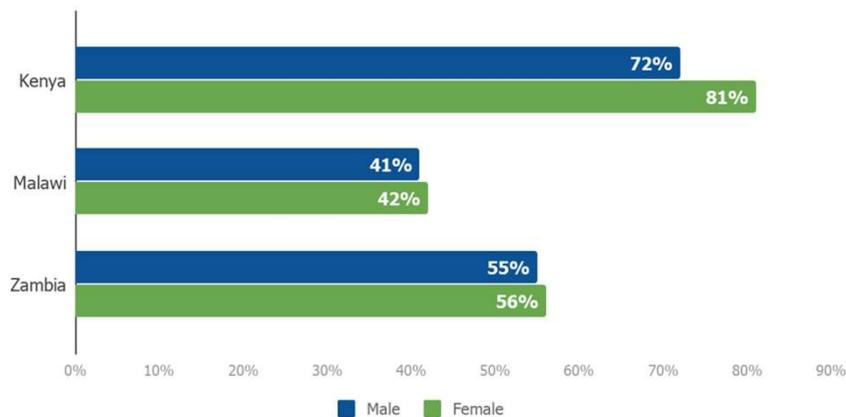
**Demographics of
farmers
registered for
insurance**



Purchasing inputs: Insurance gives female farmers more confidence to further invest in farming inputs

Using seed purchase as the sample, we assessed how comfortable farmers are purchasing more input as a result of registering for insurance

Comfortability of farmers buying more seed because of insurance



Note: Data from Pula's internal data

Registering for insurance has a direct influence on how much seed a farmer decides to purchase

- Many farmers said they are more comfortable purchasing more seed when they have registered for insurance

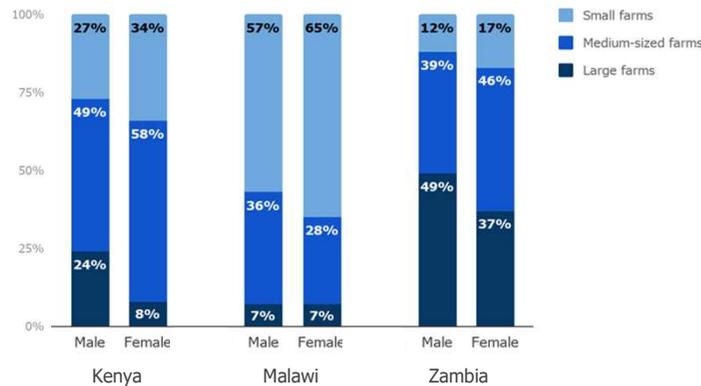
Insurance has a slightly stronger effect on female farmers' investments in their farms, compared to male farmers, particularly in Kenya

- In all countries, female farmers' comfortability was higher than male farmers'
- This was especially in Kenya where 81% of female farmers were more comfortable buying seed because of insurance compared to 72% of male farmers



Farm size: Registered female farmers typically have smaller farms than male farmers

Registered farmers by farm size

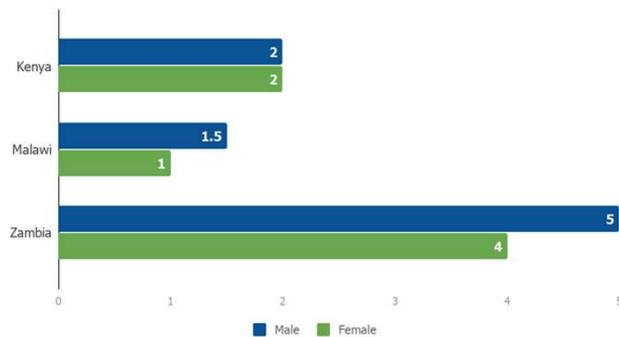


NB: Farm size chart represents percentage of a farm size among registered farmers by gender & country

Registered female farmers tend to have slightly smaller farms than male farmers

- While in Kenya, both genders had relatively similar farm sizes, in Malawi and Zambia, female farmers had smaller farms than male farmers

Registered farmers' median farm size in acres



Men have more large farms and fewer small farms across all markets

- Median farm size also corroborates this trend, with men having a larger median farm size in Malawi and Zambia (but equal in Kenya)

In Malawi, most female farmers have small farms

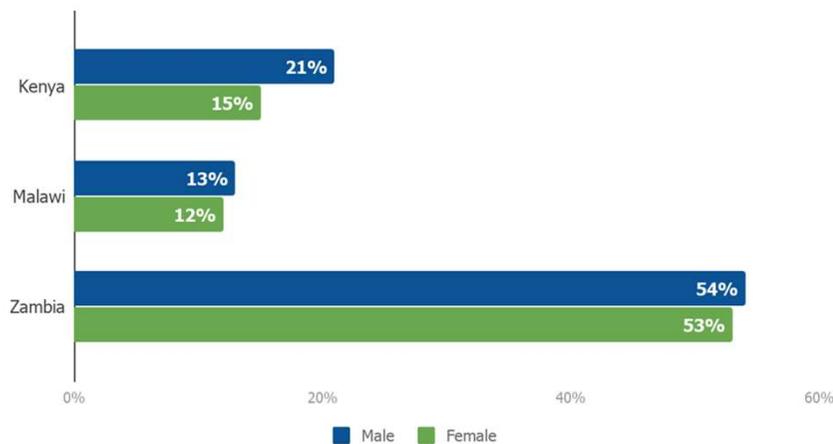
- Female farmers with small farms make up a relatively larger percentage of female farmers than similar males farmers

Note: (1) Data from Pula's internal data; (2) Large farms: >5 acres, medium-sized farms: >=2 acres and <=5 acres, small farms: <2 acres



Associations: Male farmers tend to be part of farmer associations more than female farmers

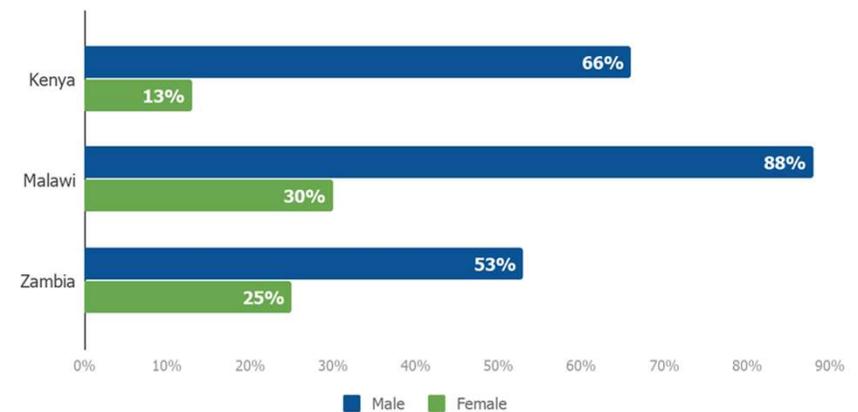
Registered farmers in farmer associations



While farmer associations are a good non-digital intervention to engage farmers, there are few female farmers in them limiting their success rate

- Male farmers tend to be part of these associations more than female farmers

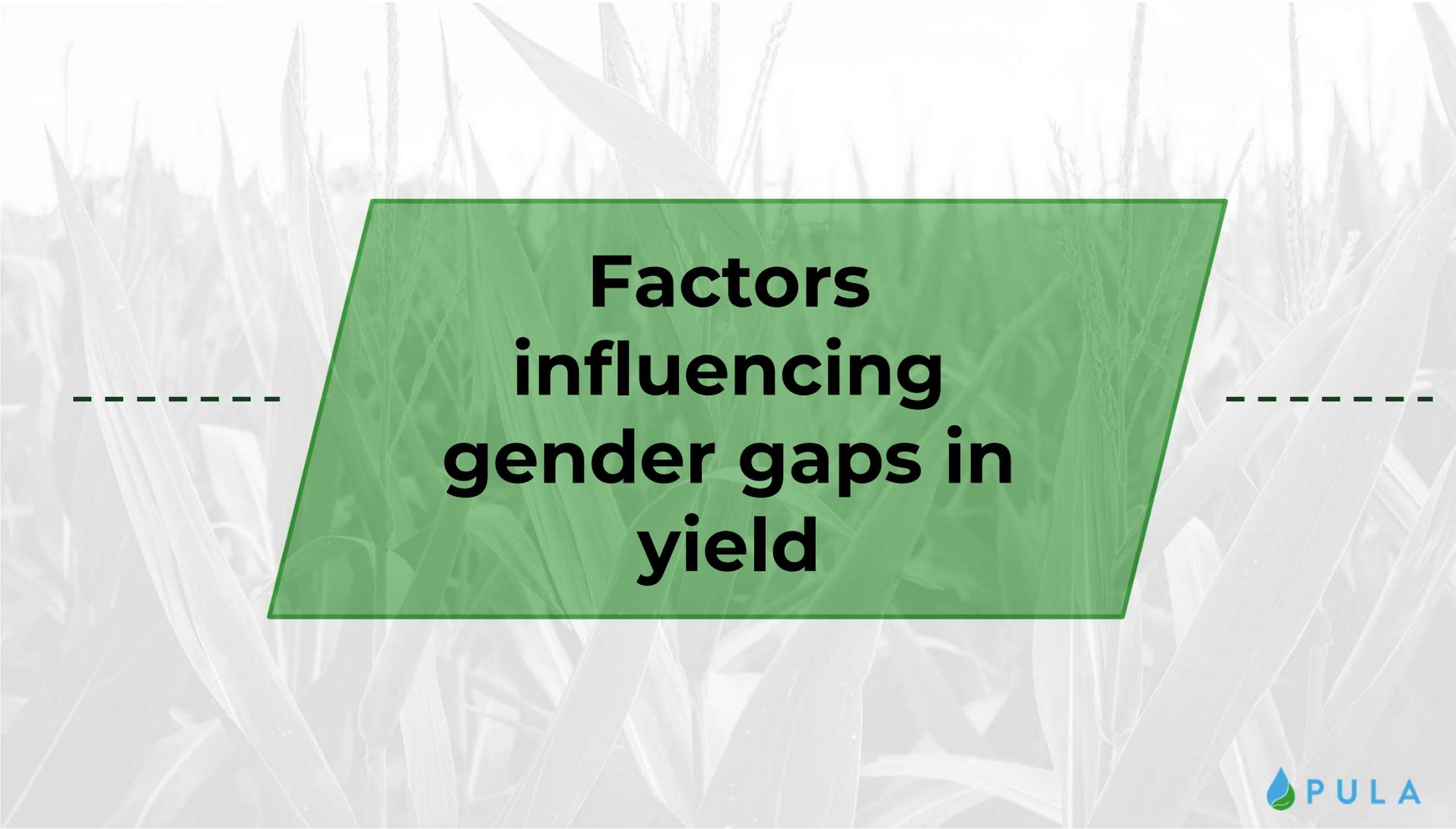
Leaders of associations as a percentage of registered farmers in associations



Additionally, as relatively few female leaders are registered farmers, this further limits the success rate of using the leaders to better engage farmers

- Significantly more male farmers than female farmers are leaders of the associations

Note: Data from Pula's internal data



**Factors
influencing
gender gaps in
yield**



Yield: Across all countries, female farmers tend to have lower measured yields

Female farmers tend to obtain lower farm yield

- Female farmers typically have lower average yield in MT/ha than male farmers
- Backs up global SSA² trends where female farmers have 13 - 25% less yields than males¹

Data collected by enumerators in the field from random sampling of farmers

- Enumerators sample ~25 farmers per agro-ecological zone and measure yield weight from randomized areas on the field to understand accurate yield estimate

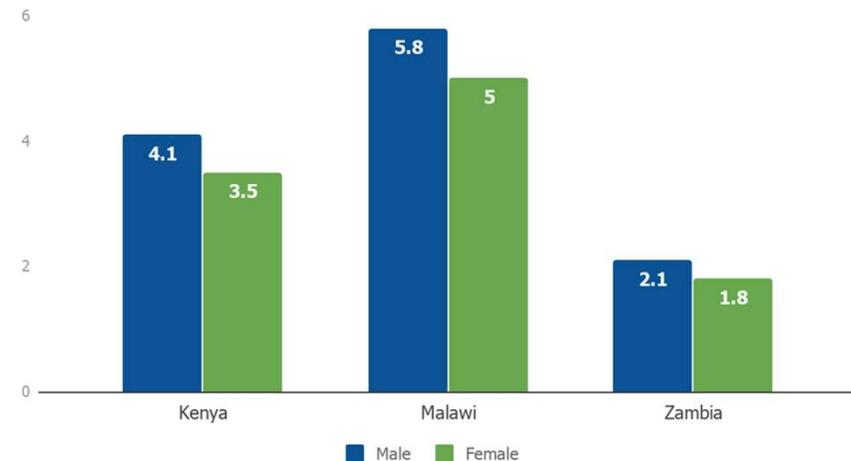
We have predominantly used maize as the proxy to assess the farmers' crop yield

- While wheat has also been considered in Kenya's yield, Malawi and Zambia have only considered the maize yield

Note: (1) Data from Pula's internal data; (2) SSA - Sub Saharan Africa

Source: (1) The World Bank, *Levelling The Field; Improving Opportunities for Women Farmers in Africa*, 2014

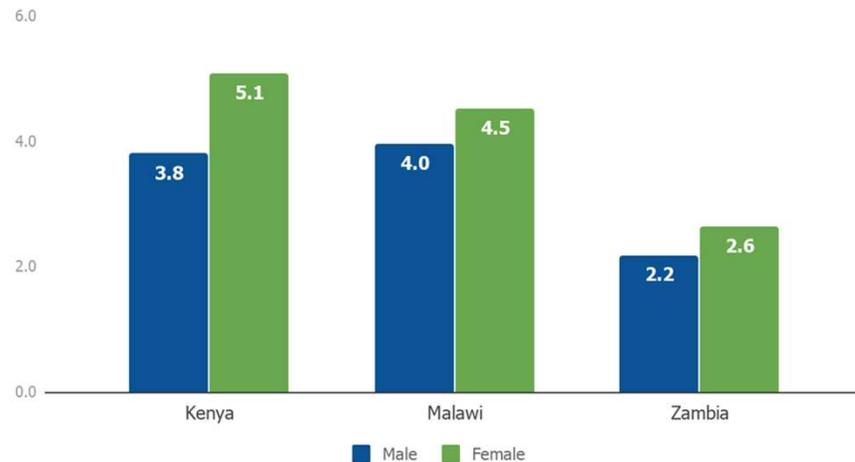
Registered farmers' median average yield in MT/ha





Purchasing inputs: **Female farmers spend more on seed than male farmers in Malawi and Zambia**

Registered farmers' average seed purchase per acre



Note: Data from Pula's internal data

Female farmers tend to buy more seed than male farmers, especially in Kenya

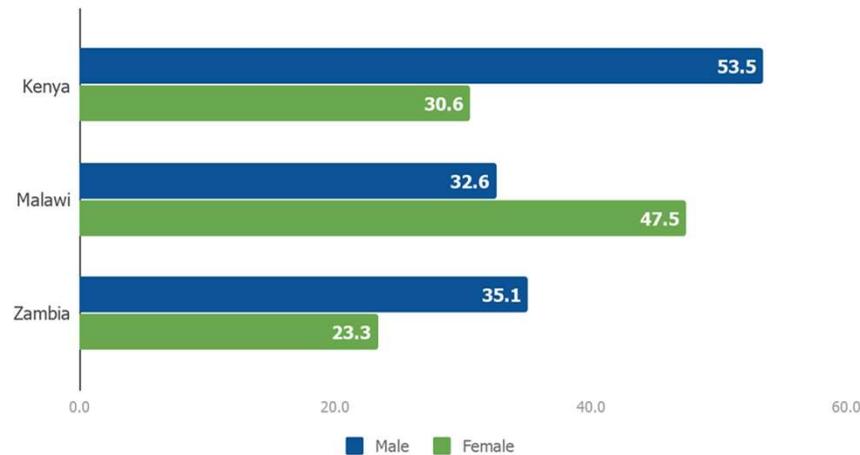
While women purchase higher volumes of seed per acre, they nevertheless face lower yields, indicating there may be other factors at play than just input quantity

- Potential gap in farming education if female farmers are purchasing higher seed volumes without seeing results
- Another hypothesis is that female farmers may plant more seed to diversify risk across more plants, as opposed to investing in fertilizers and crop protection which centralizes risk on fewer seeds
- Ultimately, further research is required to determine what drives this discrepancy



Purchasing inputs: Male farmers appear to use more fertilizer in Kenya and Malawi

Registered farmers' average fertilizer usage per acre



Male farmers in Kenya have the highest fertilizer usage among male farmers while among female farmers, female farmers in Malawi have the highest usage

- Validates how important it is to consider gender trends in a country when reaching farmers

Female farmers tend to use less fertilizer per acre than male farmers except in Malawi

- Female farmers use fertilizer on their farm less than male farmers in Kenya and Zambia

Farmers typically use planting fertilizer more than top dressing fertilizer

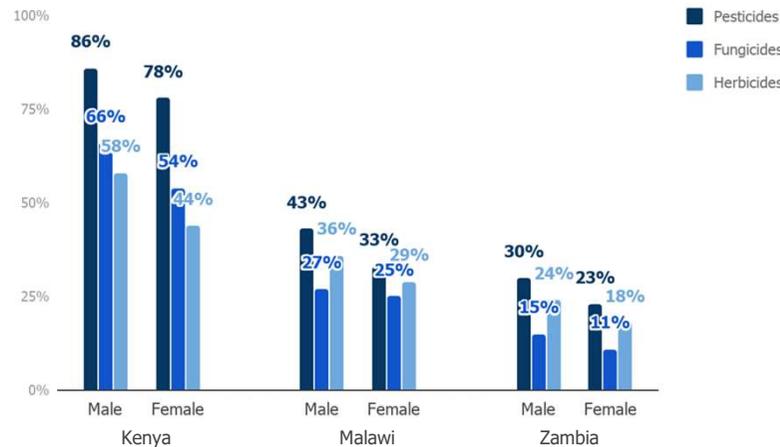
- Both female and male farmers had higher usage of planting fertilizer

Note: (1) Data from Pula's internal data; (2) Malawi data may require further research, as anecdotal reports do not confirm high fertilizer usage rates



Crop protection: Male and female farmers spend differently on crop protection chemicals

Registered farmers' crop protection usage



Female farmers tend to use less crop protection chemicals on their farms

- Female farmers use lower crop protection chemicals in the season than male farmers

Female farmers' lower usage of protection chemicals implies they may not understand their benefits; this is especially for fungicides and herbicides

- As female farmers have similar access to the chemicals as male farmers, this implies female farmers may need to be better educated on the chemicals to increase their awareness and usage

Female farmers in Kenya use crop protection chemicals significantly more than female farmers in Malawi and Zambia; female farmers in Zambia have the least usage of the chemicals

Note: Data from Pula's internal data



**How can
enterprises
bridge these
gender gaps?**



Ways enterprises can bridge these gender gaps

Based on the insights, we see there are various gender gaps between female and male farmers that limit the number of female farmers who register for insurance

We will look at potential ways enterprises can bridge these gender gaps in three sections:

Increasing insurance awareness

- Increasing insurance awareness, especially among female farmers, will allow enterprises to educate farmers on the value and benefits of insurance. This will in turn likely encourage higher insurance registrations

Educating farmers on farm inputs and practices

- Educating female farmers on farming practices and the benefits of farm inputs, as well as how to use them, will increase purchases of farm inputs which would increase insurance registrations
- Additionally, it would help the female farmers drive higher yields and have more income to purchase farm inputs, enabling them to register for insurance when purchasing the inputs

Bundling insurance with products female farmers are keen on / interested in



**Increasing
insurance
awareness**



Ways the insurance registration gender gap in the market can be bridged

1

Target more female farmers through group meetings to increase insurance awareness

- This will increase exposure among female farmers and will be an opportunity to educate them on the value and benefits of insurance, especially in Zambia where over 50% of registered female farmers surveyed were in farmer associations
- Enterprises can target groups & forums popular in the region and that have many female farmers

2

Work with leaders of associations and villages to increase influence in the region and encourage registration of insurance, especially among female farmers

- From farmers surveyed in Malawi and Zambia, between 24 - 30% of registered female farmers in associations were leaders. Enterprises can leverage this to work with leaders to encourage insurance registration as these leaders are more likely to be trusted in the community

3

Increase sensitization of insurance by having campaigns to educate female farmers on the value of insurance

- Enterprises should tailor communication used in the campaigns and forums to their audience to increase their influence e.g. What crops does the audience grow? How big is their farm? What farm inputs do they mostly purchase?, etc.



**Educate
farmers on
farm inputs
and practices**



Ways to bridge the yield and registration gender gap in the market

1

Female farmers should be educated on how insurance protects their investment, so they will invest more in important inputs like fertilizer, pesticide, herbicide, and fungicide

- Insurance can act as their safety net to encourage them to purchase less seed and invest in other inputs that can drive higher yield. This is especially since insurance gives them more confidence to invest in farming inputs
- Success rate for this may be highest in Kenya as over 80% of female farmers are more comfortable buying more inputs because of insurance

2

Increase agronomy engagement with female farmers to encourage agronomy practice e.g. by making the tips more personalized

- Over 65% of female farmers valued agronomy. Enterprises can leverage this by increasing agronomy engagement, in turn encouraging input purchase and insurance registration

3

Explore other channels for engaging female farmers since SMS agronomy may not be used as often and less than 48% farmers have smartphones; limits digital methods that can be used to reach them

- Radio, farmer associations, women's groups, and savings/lending circles may be a good starting point for providing educational resources



Enterprises can also further explore insurance uptake opportunities by farmers who use agronomy

4

Work with female farmers to educate them on the use and value of agronomy, as well as provide support to help them improve agronomy practices. Increased use of agronomy would in turn lead to increased purchase of farm inputs, leading to increased insurance uptake

- Over 75% of female farmers surveyed use agronomy. By enterprises working more with farmers to better educate them on the use and value of agronomy, they can in turn increase purchase of farm inputs, thus increase insurance uptake - this will be the case for farm inputs which are bundled with insurance
- Taking it a step further, enterprises can monitor and measure the impact agronomy has on yield, and use this to further educate farmers on benefits of agronomy e.g. through campaigns to increase sensitization of agronomy



Specific topics for education may help boost female farmers' yields

5

Educate female farmers on the best seed and fertilizer by region to drive better yields and amount to purchase per acre to drive better yield

- Female farmers are more comfortable purchasing more inputs with insurance and this can be leveraged to educate them on how much input should be purchased per acre for different crops

6

Educate female farmers on the value and benefits of crop protection chemicals to encourage usage

- While farmers use pesticides the most, it is suspected that many farmers, especially in Malawi and Zambia, do not understand the benefits of pesticides as less than 34% of female farmers used it
- Additionally, fungicides and herbicides are used least among the chemicals and more efforts need to be put into educating them on benefits of these chemicals. Using Malawi as the example, not using herbicides and fungicides can cause maize yield losses of 15 - 90%¹

7

When educating and engaging female farmers, both digital and non-digital interventions should be used depending on the region

- While country target should be considered in digital interventions, also country regions should be considered e.g. while ~50% of female farmers in Kenya are tech savvy, farmers in Kirinyaga are more tech savvy than other regions and digital interventions may be more successful there



**Bundle
insurance
with products**



Bundling insurance with products can also bridge this gender gap

1

Bundle insurance with crop protection chemicals, especially fungicides and herbicides, to encourage purchase of products

- Fungicides and herbicides have a low usage among female farmers, especially in Malawi and Zambia where usage is below 40%. Bundling with insurance may encourage purchase and usage especially after the farmers have been educated on the value and benefits of the chemicals

2

Encourage partnerships with more seed and fertilizer companies to increase insurance registrations

- As the female farmers will be educated on the best seed and fertilizer to drive yield by region, companies can also leverage this to tailor their marketing campaigns and efforts by region
- Targeting females would increase their access to productive resources; According to World Bank, if females had similar access to resources as males, their yields would increase by 20 - 30%¹

3

Bundle insurance with loans to encourage and support purchase of more farm inputs

- Female farmers' purchase of farm input purchase is highly influenced by their access to credit²
- As of date, Pula has reached over 1M farmers via loan & subsidy programs which has enabled farmers to purchase additional farm inputs

Source: (1) The World Bank, *Levelling The Field; Improving Opportunities for Women Farmers in Africa*, 2014; (2) Next Billion, *Women Feeding Africa: Innovative Business Solutions to Close the Gender Gap in Agricultural Productivity*, 2020





Next steps



Next steps for the sector (1/2)

While we have determined methods enterprises in the sector can increase insurance registration among female farmers, there are insight gaps the sector can further assess to further increase the methods' success rate when targeting the farmers:

- How many female farmers have access to farmer associations?
 - Why do we have few registered female farmers in associations in Kenya and Malawi?

- What groups are female farmers in?
 - Apart from farmer associations, what other groups are they in?
 - Which groups are most common? Where do they get information?
 - What kind of information is shared in these groups? Do female farmers value this information?

- What are female farmers' biggest expenses even outside farming?
 - Are there other products insurance can be bundled with to increase registrations?
 - How can enterprises encourage more female farmers to get insurance?

- Is the same person who buys inputs and registers for insurance the one who manages the farm?
 - Anecdotal findings suggests that in some cases, a male person may be the one buying input and registering for insurance, while a female person is the one managing the farm



Next steps for the sector (2/2)

- What percentage of large farmers have smartphones?
 - Out of these, what percentage use WhatsApp?

- What is the use and value of agronomy education in Kenya?
 - Why is there a significant gender gap in perceived value of agronomy SMS in Kenya? What are farmers in Kenya doing different that's making this gap more significant than in Zambia & Malawi?

- Why do female farmers have lower yields than male farmers yet they purchase more seed per acre than male farmers?
 - What factors are driving their lower yields despite higher seed purchase per acre?

- What is the fertilizer usage per acre among farmers in Malawi?
 - How does this differ among male and female farmers?

- Why are female farmers using less crop protection chemicals than male farmers?
 - Do they understand the value of the chemicals?
 - How much of the gap is driven by health and safety factors (e.g., effect of pesticides on fertility)?
 - Is shortage in finances a factor influencing less usage among female farmers?