Behavior change and impact evidence for Covid-19 information

Mid-point Insights Report - Ishamba, Mediae, Penda Health

Busara

MERCY CORPS | AGRIFIN ACCELERATE

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Introduction

The overall objective of this engagement is to understand the types of information farmers need in relation to Covid, effective communication modalities, and the impact on farmer behavior

To gain an understanding of this, this research has two goals:

Goal 1
To understand and segment farmers to help for better design of communication solutions

Goal 2
To conduct an impact evaluation of the effectiveness of the designed solutions

Focus of this report

Expected to be complete in October 2020

In this report

This report contains summary findings from the administrative data analysis and a baseline quantitative survey conducted on behalf of Mercy Corps Agrifin Accelerate. Through these activities, we sought to understand farmers for the purpose of informing ongoing communication campaigns so that they can be adapted. We examined what information farmers sought prior to or just after the Covid communication campaigns started so that we can understand what support services they need around Covid specifically. From this, we can make an initial judgement about how and whether current communications campaign should be modified.

The quantitative survey will also be used as a baseline for the impact evaluation of communication solutions. We will explore how things change between the baseline and endline. The impact evaluation will be completed in October 2020.

This study uses administrative data and quantitative surveys to generate evidence

The study starts with a deep dive into partners' **administrative data** and evidence from **secondary sources** such as research papers and case studies from different organizations. Parallel to this, we conducted a **baseline quantitative survey** to build upon our understanding of farmers. Insights from the administrative data and quantitative survey provide an understanding of how farmers are currently behaving, their revealed and stated needs and wants. These insights can be used to inform existing communication solutions. The baseline quantitative survey is also the basis of impact evaluation to be completed in October.

Administrative data
We received data containing Covid-related inbound messages from Ishamba farmers. It also included questions that were routed to Penda Health.

We explored the data to identify common themes among the messages. Then, we quantified the themes to understand the prevalence of each theme. The themes provide insights into the types of information farmers need to know.

Baseline quantitative survey
Ishamba conducted 250 phone surveys among their farmer base. The sample was stratified by county, however there may be bias in the sample selection such as deviating from a random sample selection process. As a result, the sample may not be a perfect representation of Ishamba farmers. Although we cannot generalize the results with statistical precision, we can use the insights to make informed decisions about how to modify current communication campaigns.
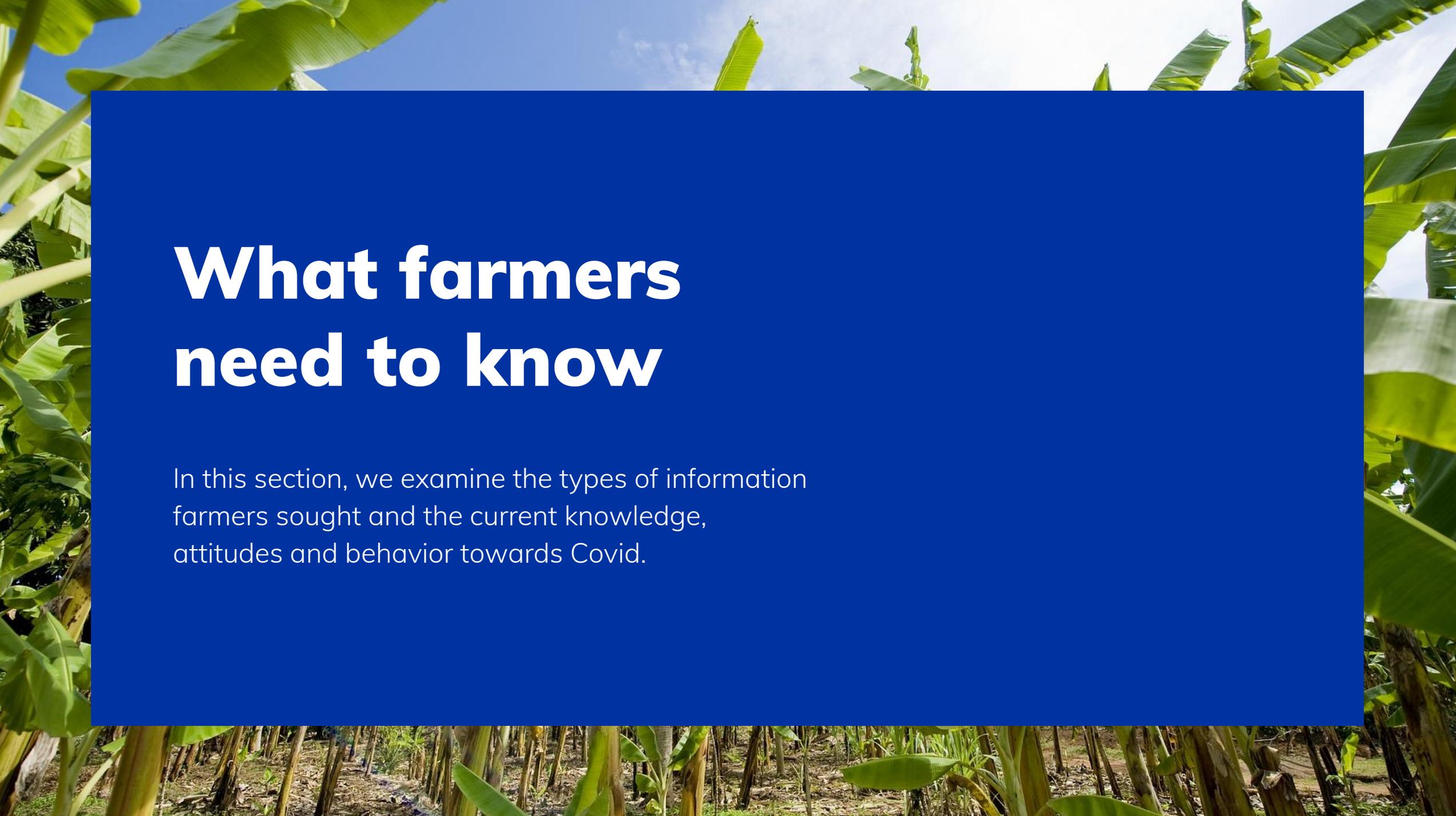
What farmers need to know

In this section, we examine the types of information farmers sought and the current knowledge, attitudes and behavior towards Covid.

We used a thematic approach to analyze the administrative data

Approach: Prior to coming up with the themes, we proofread a randomly selected subset of the administrative data shared with us. This was to help in generating high level insights and patterns of what farmers are asking or talking about in the messages. Then we defined themes based on these findings.

| Theme	Definition	Sample messages
Status of Covid in Kenya	Focuses on general questions around Covid.	What is coronavirus? Has coronavirus reached in our county? How many cases are there?
Transmission & prevention	Questions and discussions around prevention and how the virus is transmitted.	Please stay home and wash your hands. How do I avoid contracting the virus?
Treatment	Questions asking if there is a cure/vaccine for Coronavirus. Sometimes it is paired with some myths such as drinking tea being a cure for the virus.	What is the cure for Coronavirus?Has the Corona vaccine been found?
Misinformation & misconceptions	Misinformed statements/questions around Coronavirus.	Whether livestock/poultry can transmit/contract the virus? Herbal cures. Corona is not real.
Impact on livelihood	Farmers questions and mentions of being adversely affected by the virus.	Can someone loan me some credit(airtime)? Where can we find new markets for our produce? Which crops should I plant to be able to sell?
Fear	People who are afraid of contracting the virus and are warning others about it and encouraging prayer.	Let us pray a lot due to the Corona pandemic. I fear Corona.
Mental health	Mental fatigue or helplessness that some may face due to the pandemic.	As a farmer I have been stressed due to Covid.

The status of Covid in Kenya is the primary concern among Penda Health inbound messages

Themes in Penda Health SMS June-July 2020

| Category	Percentage
Outbound SMS	1%
Impact on livelihood	1%
Mental health	1%
Treatment	10%
Transmission/Prevention	33%
Status of Covid in Kenya	55%
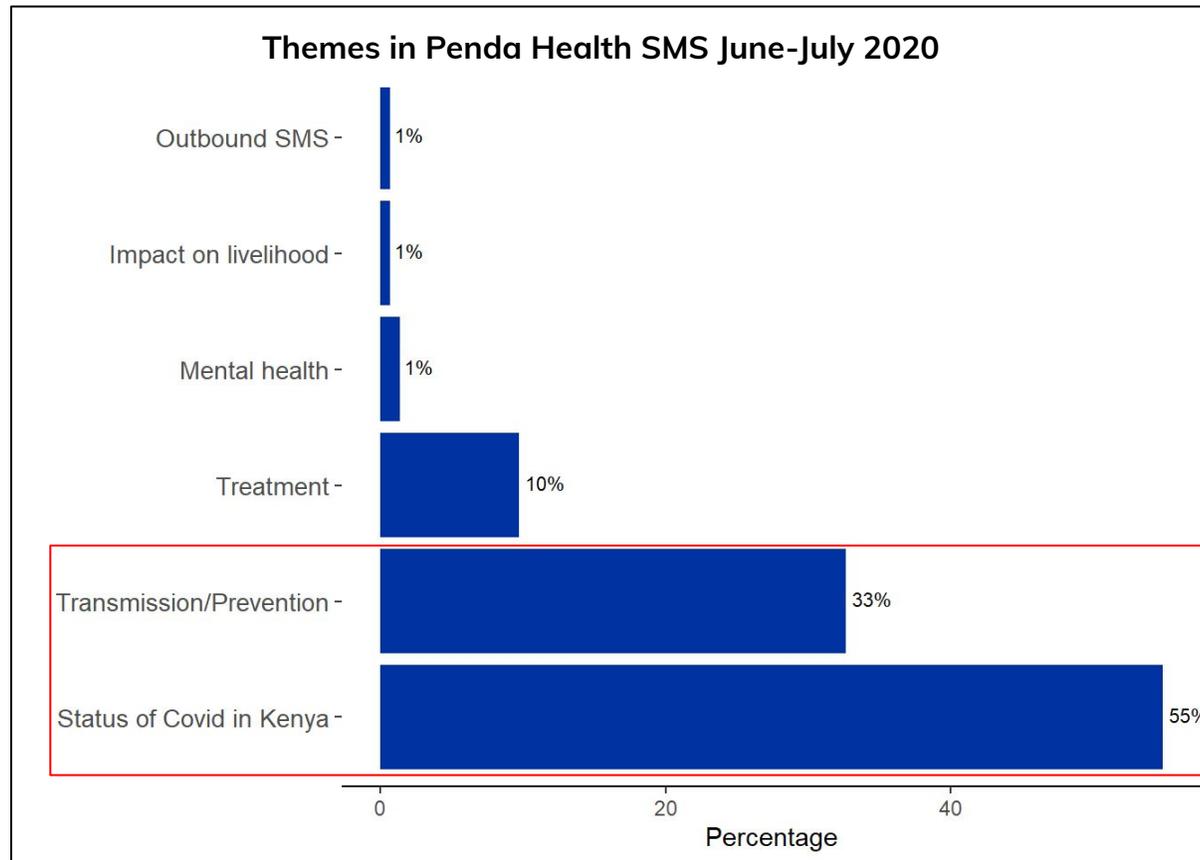
Data source: Ishamba Administrative Data

- General questions about the status of Covid in Kenya make up the majority (55%). Common questions include:
  - Is Covid real?
  - Where did Covid come from?
  - Is there Covid in my county?

- Questions about transmission and prevention (33%) include:
  - How do you protect yourself?
  - Caring for sick people

Ishamba inbound inquiries are about the status of Covid in Kenya and impact on livelihood

Themes in iShamba SMS April-July 2020

Data source: Ishamba Administrative Data

- Farmers have questions about the status of Covid in Kenya (32%) and impact on livelihood (37%). Questions include:
  - "Is Covid real?"
  - "Is there Covid in Narok?"
  - "We request for soft loans."

Sampled farmers main concern is contracting the disease

What concerns you the most about Covid?

| Concern	Percentage
Not being able get inputs for my farm	1%
I'm not concerned about Covid	1%
Don't know	1%
Not being able send my children to school	2%
Not having enough food for the household	5%
Not being able to sell my crops	6%
Other	6%
Not having enough work/wage	6%
A member of my family contracting the disease	8%
Contracting the disease myself	65%

Percentage
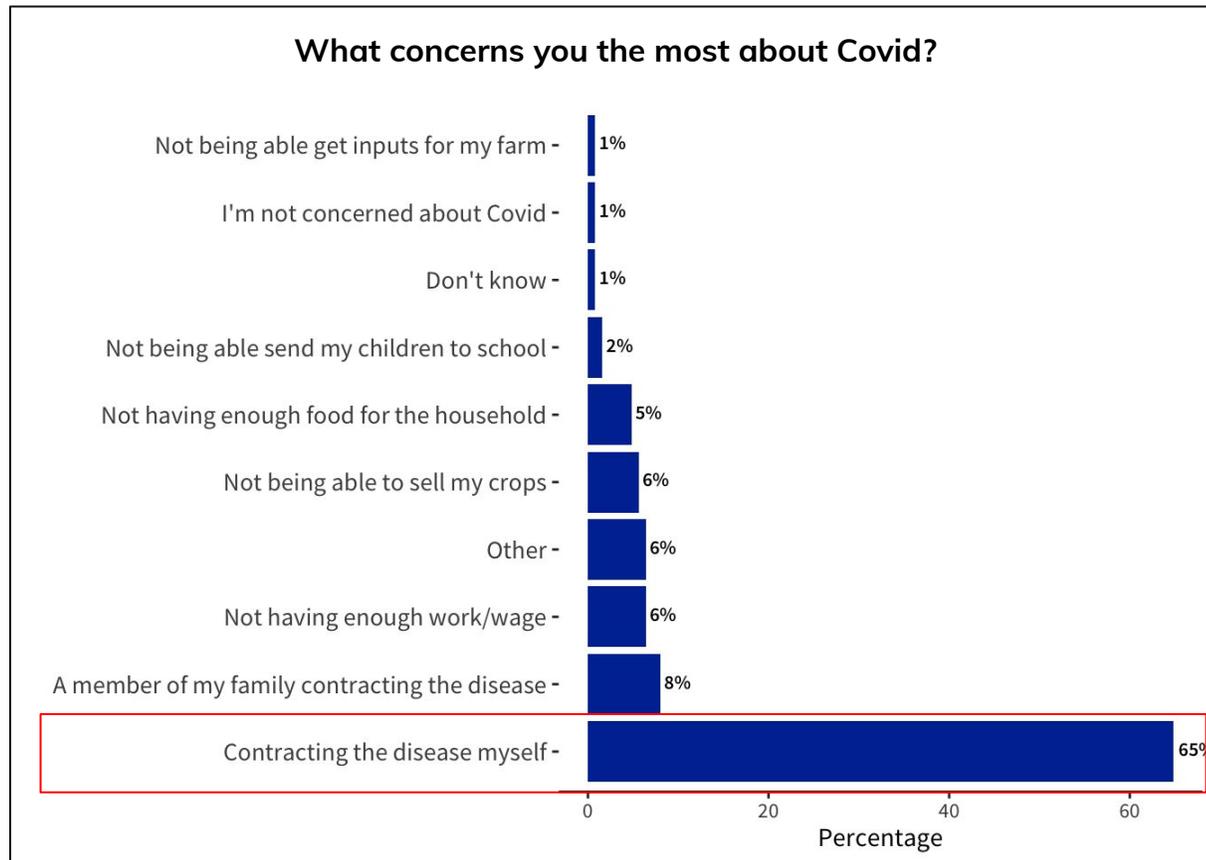
Data source: Ishamba Quantitative Survey

- Although the immediate concerns are around health, secondary literature indicate that vulnerable groups including small-scale farmers will face challenges accessing markets to sell their products or buy essential inputs.

- A way to support farmers could be identifying collection centers close to producers where they can deliver their produce without the need to go to markets.[1]

[1]FAO Covid 19 Pandemic-Impact on Food and Agriculture

Sampled farmers want to know about pest management, seed selection, market closures, and crop prices

What agriculture related information do you need to know next month?

Category	Percentage
Labor availability	0%
Does not require any information	1%
Post-Harvest Management	2%
Irrigation	2%
Harvesting	2%
Preparation of fertilizers/pesticides at home	2%
Government Schemes & Relief programmer	3%
Weed Management	4%
No preference	5%
Input availability and prices	5%
Nursery Management	7%
Soil Preparation	14%
Fertilizer Application	16%
Other	16%
Sowing/Transplanting	17%
Weather	20%
Crop prices/market demand	21%
Market/ agro-dealer closure	22%
Seed Selection	24%
Pest and Disease Management	44%

Percentage

Data source: Ishamba Quantitative Survey

- Surveyed farmers were able to select multiple topics of information that they needed in the next month:
  - □ The two most popular topics, pest and disease management (44%) and seed selection (24%) are not Covid-specific.

  - □ Market closures (22%) and crop prices (21%) may have pertinent information related to Covid.

Farmer segments

In this section, we present farmer segments based on Covid knowledge, attitudes, and behaviors. Segmentation is useful as it allows Ishamba to tailor campaigns to suit different information needs.

While Ishamba may not be able to target segments perfectly due to limitations around identifying farmers, they *can* imperfectly target farmers by developing variations of messages that are relevant to these segments.

# Surveyed farmers were segmented by the KAB Score

We developed a score to understand the level of knowledge, attitude, and behavior (KAB) among surveyed farmers. A subsequent grouping was done to rank low, medium, and high scores. Understanding these various levels of knowledge, attitude, and behaviors will allow Ishamba to tailor their communications to suit the needs of their farmers.

**The KAB score is made up of three key areas[1]**

- **Knowledge-** This represents the understanding of Covid. An aggregate knowledge score was created by grading objective questions on Covid symptoms, prevention, transmission and social distancing guidance. Questions were created based on Covid messaging from partners such as Ideo.
  - □ Example question: "Can livestock transmit Covid"
- **Attitude** - This refers to a farmers feeling towards Covid. An attitude score was created by grading subjective responses to attitudes surrounding Covid prevention and response. Positive attitudes towards using preventative measures were graded favorably.
  - □ Example question: "What do you think: should people in your country not shake other people's hands because of Covid right now?"
- **Behaviors** - Behavior refers to ways in which a farmer demonstrate their knowledge and attitude through their actions. A behavior score was created by grading behaviors, as they align with Covid prevention methods such as using mobile money, avoiding mass transportation and wearing a mask.
  - □ Example question: "Are you wearing a mask during normal daily activities?"

[1]See the Appendix for more details on how we constructed the KAB score

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Overall Knowledge, Attitudes and Behaviors Score
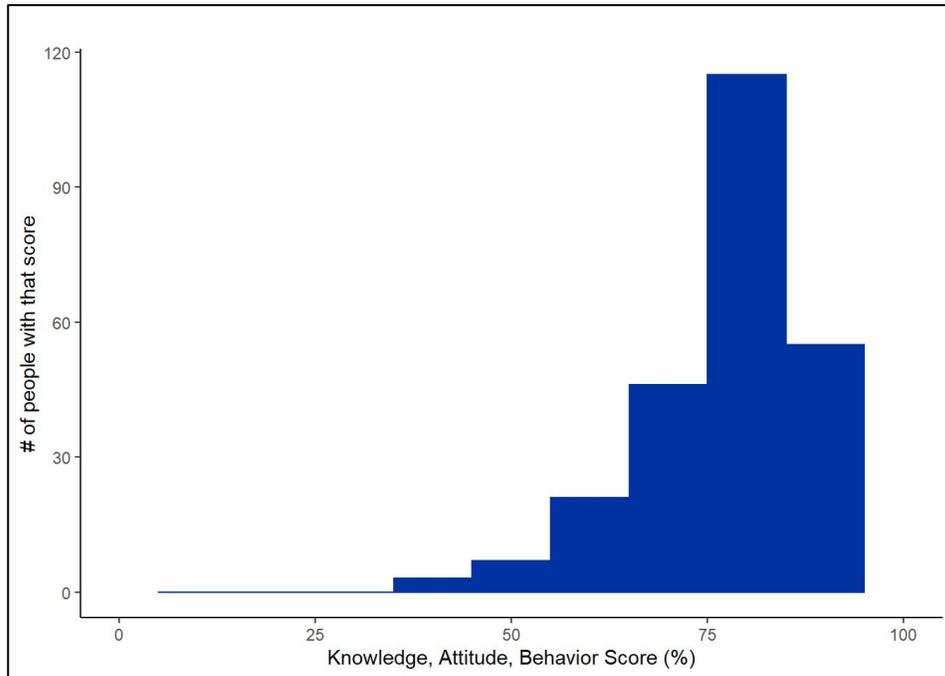
Data source: Ishamba Quantitative Survey
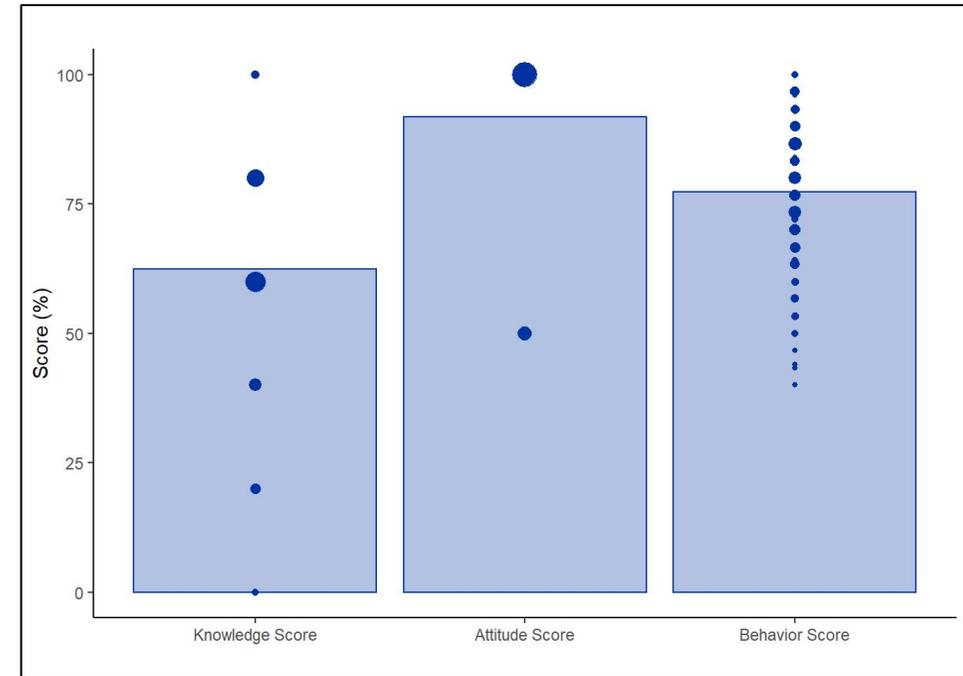
- The average score is 77.2%
- Lowest score was 36.7% , the highest was 97.8% and the median was 78.9%

Surveyed farmers were segmented based on their KAB scores

After segmenting the farmers by their KAB scores, we used data mining to identify predictors of knowledge, attitudes and behaviors. Interestingly, knowledge presentes little to no correlation with attitudes and behaviors.

Low KAB	Medium KAB	High KAB
KAB range: 0-70.67% Proportion of surveyed farmers: 31%	KAB range: 74.45%-82.22% Proportion of surveyed farmers: 29%	KAB range: greater than 82.22% Proportion of surveyed farmers: 40%
Unique features: Thinks crop prices will be higher this season. Trust neighbors and friends to discuss agricultural activities.	**Unique features:** They don't seem to be strongly characterized by any specific attribute. No secondary source of income.	**Unique features:** They understand and practice the sanitary rules related to Covid.
Gaps: Poor understanding of the risk of shaking hands. Inconsistent mask wearing. Poor handwashing practices.	**Gaps:** Incomplete understanding of sanitary and social distancing norms associated with Covid.	**Strengths:** Good understanding of preventive measures and risk. Demonstrate positive behaviors.
Recommendation: Corrective messaging	**Recommendation:** Persuasive messaging	**Recommendation:** Confirmation messaging

Low KAB scores are strongly associated with incorrect beliefs regarding sanitary and social distancing norms, especially about shaking and washing hands

Low KAB

Using data mining we discovered the main traits of this group:

- **To keep shaking hands is a very serious issue** for this group. This group also has poor hand washing behaviors, and inconsistent mask wearing behaviors.

- They **believe** that this season's prices will be **higher than last year** so they plan on selling their crops at a higher price.

- They **trust** their **neighbors and friends** to discuss agricultural activities.

The recommended action for this group is to provide **corrective messages** to address beliefs regarding sanitary and social distance norms, in particular about shaking hands during this period.

Neutrality is the main trait for the Medium KAB segment

Medium KAB

The KAB drivers for this group are not particularly strong or clear. They do not seem to be strongly influenced or characterized by any specific attribute. This makes it difficult to identify the gaps and/or strengths in knowledge, attitude, or behavior. There are some potential reasons for their neutrality. They may not be completely convinced about the severity of Covid or the preventive behaviors to adopt.

Although the following traits did not appear very strong, it is reasonable to characterize this group with these:

- Not having a **secondary** source of income.

- **Incomplete understanding** of sanitary and social distancing norms associated with Covid.

The recommended action for this group is to use persuasive messaging to motivate farmers and promote positive choices.

High KAB scores can be reinforced by messages that validate their beliefs and positive behaviors

High KAB

As surveyed farmers in this segment don't present weaknesses in KAB scores, it is more useful to identify their strengths.

- They know about the **preventive measures**: maintaining social distancing from other workers and the importance of avoiding shaking other people's hands.

- They wash their **fresh food with clean water** after they are purchased from the market.

- They reported they **wear masks** consistently and **avoid taking mass transportation** to the market.

The recommended action for this group is to use confirmation messaging to validate their beliefs and encourage their positive behaviors.

KAB Segment Demographics

Education is not associated with Covid knowledge, attitudes, or behaviors

Education level by KAB Segments

Data source: Ishamba Quantitative Survey
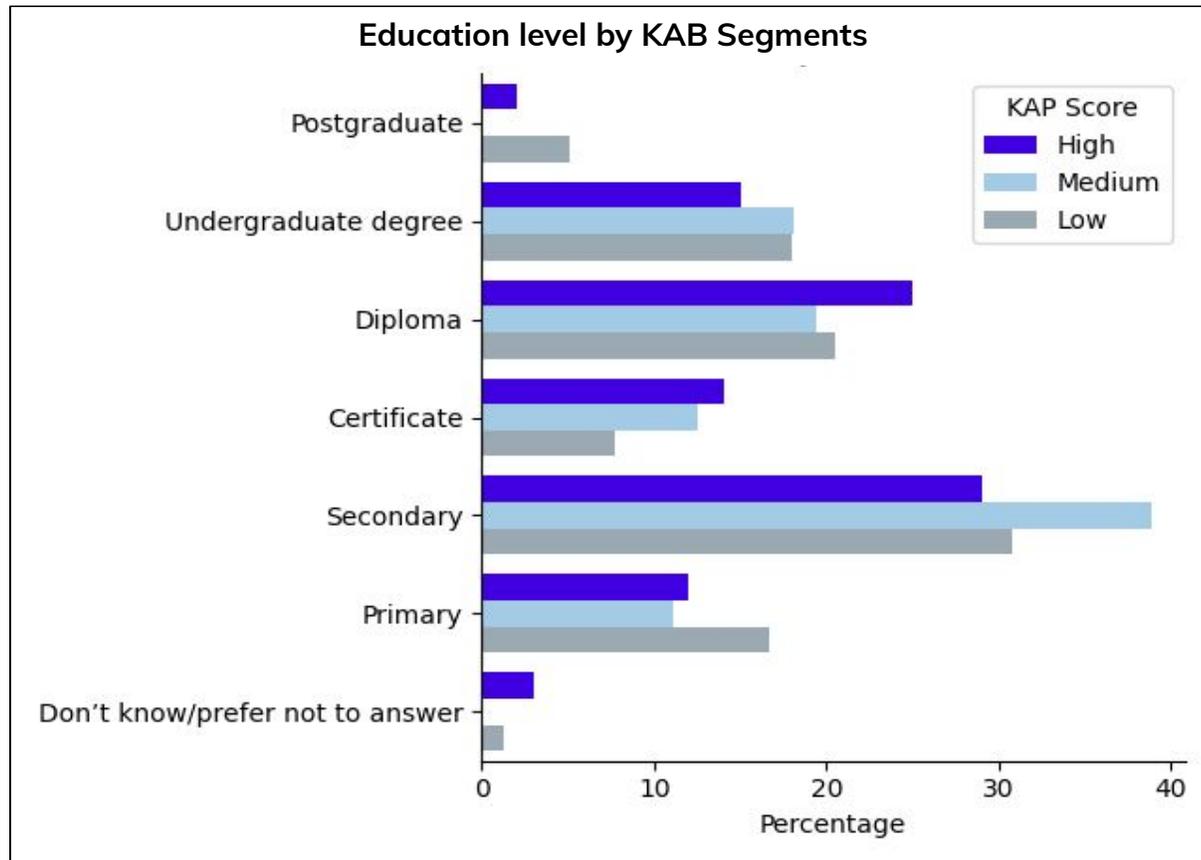
- ■ The **education level** for surveyed farmers within each KAB segment is similar to that of the survey sample as a whole. This confirms that there is **not a strong association** between these factors and farmers knowledge, attitudes and behaviors related to Covid.

Income is not associated with Covid knowledge, attitude or behaviors

Farming Income Level by KAB Segments

KAP Score
- High
- Medium
- Low
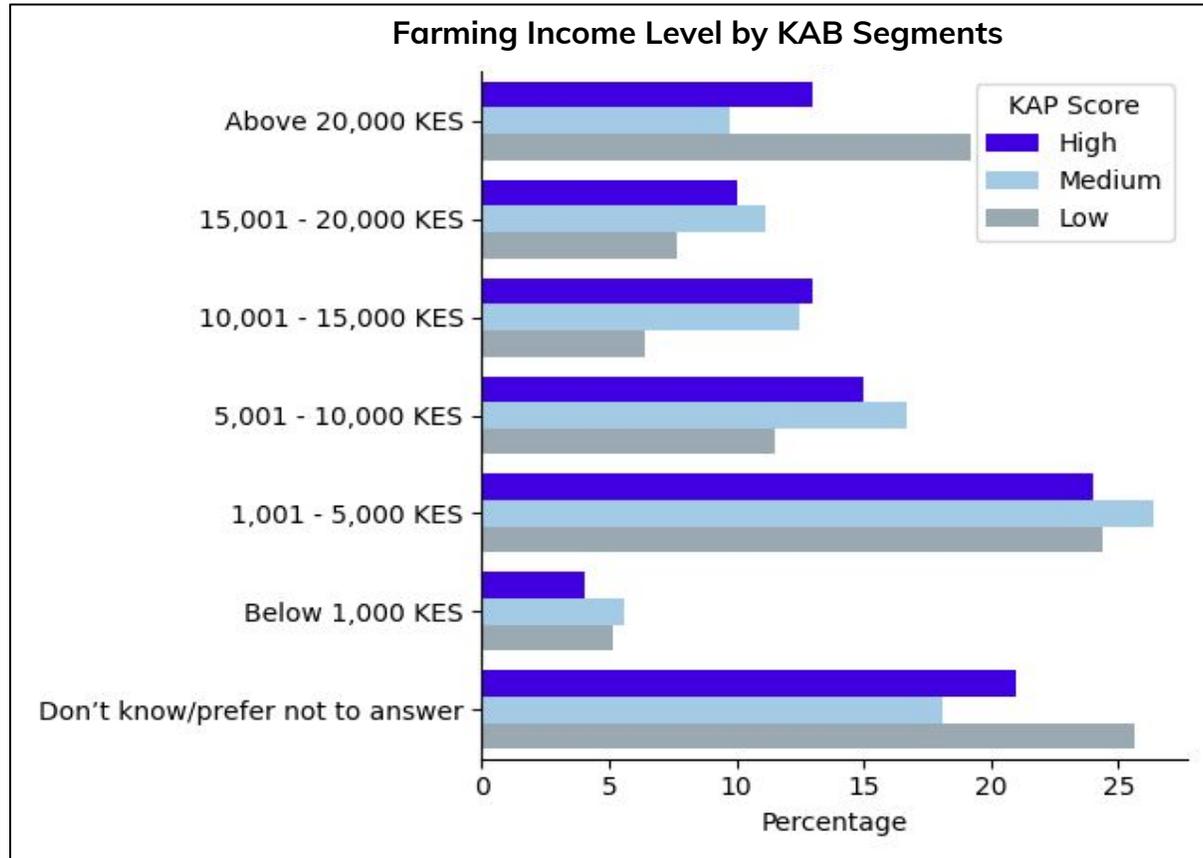
- Most surveyed farmers in the three segments earn 1,000-5,000 KES per month from farming.
- The income level within each segment is similar to that of the survey sample as a while. This reinforces that **income is not a strong predictor of KAB scores**.

Data source: Ishamba Quantitative Survey

Data source: Ishamba Quantitative Survey

Surveyed farmers want to know about pest and disease management across all KAB segments

What agriculture-related information do you need next month?
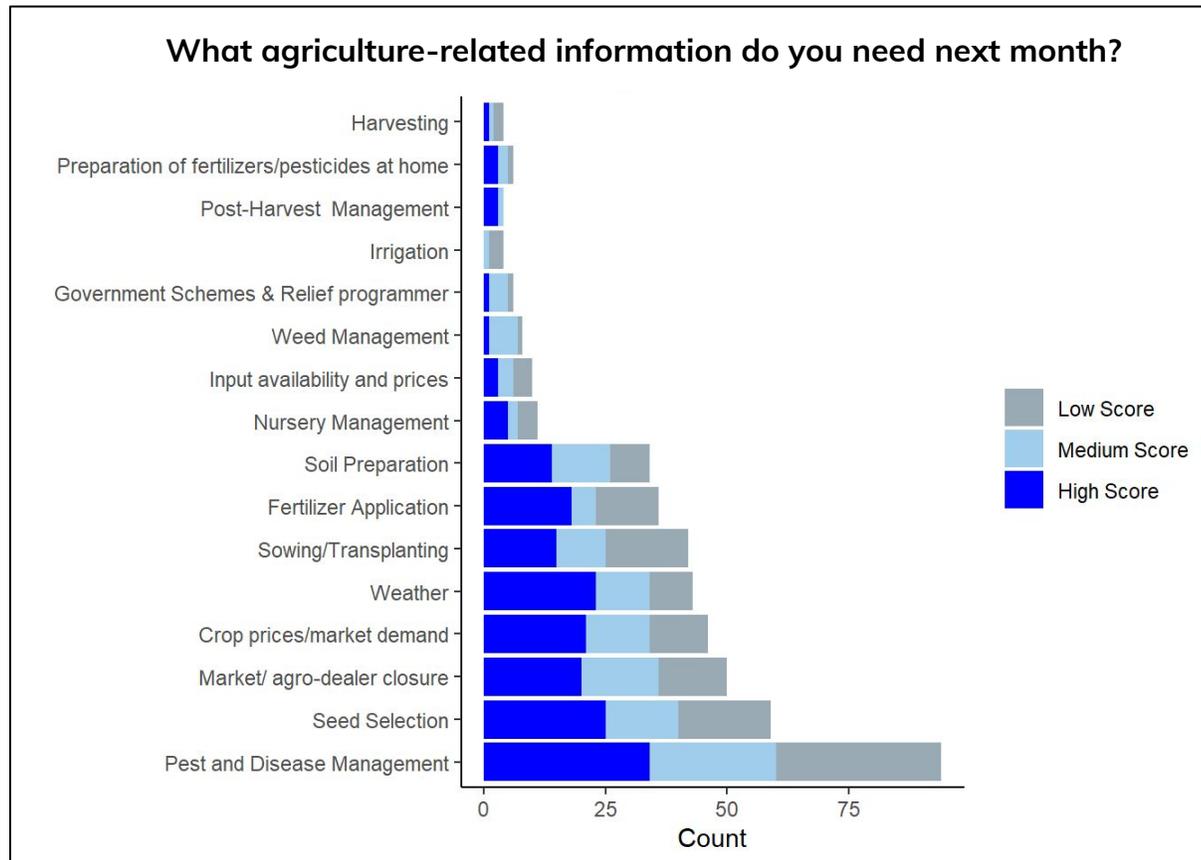
Data source: Ishamba Quantitative Survey

- Pest and Disease Management was the most requested topic across all three segments (94 times).

- Weather was requested predominantly by the High KAB group (23 times) compared to the medium (11) and low (9).

- Most other topics have an even share of high, medium and low farmer requests. Information demanded may not be tied to Covid knowledge, attitude or behaviors.
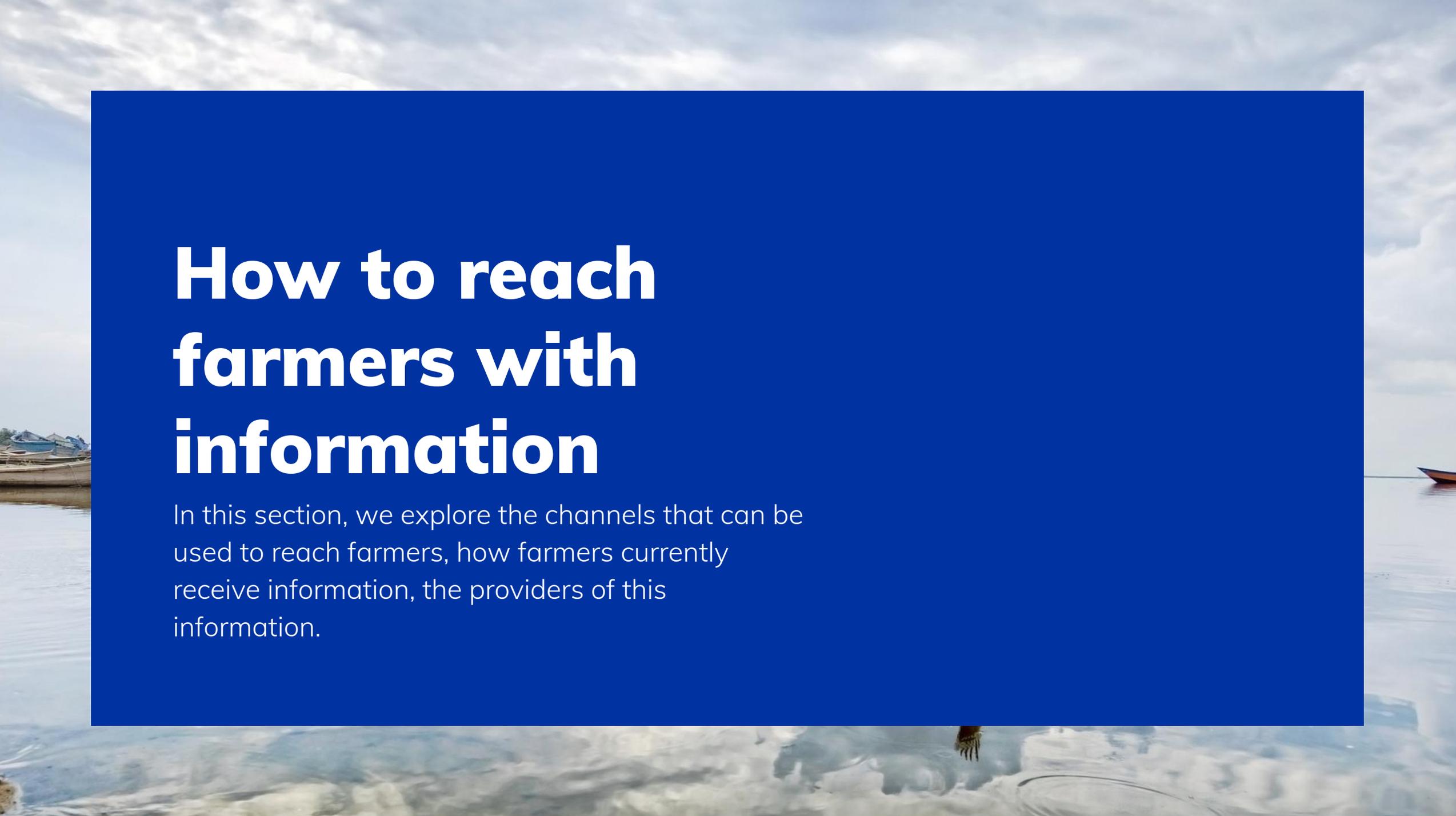
How to reach farmers with information

In this section, we explore the channels that can be used to reach farmers, how farmers currently receive information, the providers of this information.

TV is the dominant channel and reaches the most farmers

Reach per channel

Legend:
- Call/SMS Center Inbound Reponse
- Cooperative Training Face to Face and Posters
- Facebook Groups
- Radio
- SMS Outbound
- TV
- Whatsapp
- Whatsapp
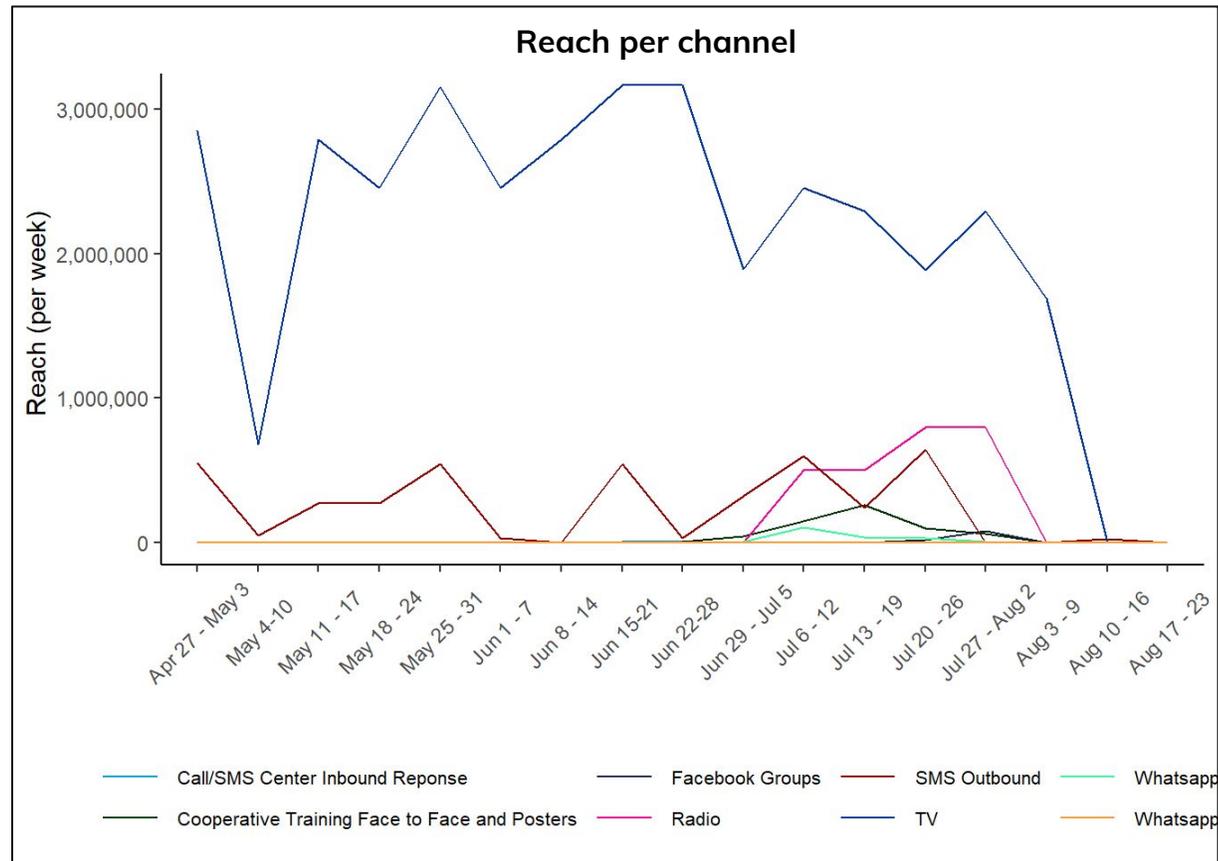
Data source: Mercy Corps Agrifin Cisco Program Dashboard

- TV has the highest reach per week. This is driven by the Shamba Shape Up broadcast.

- The highest reach for TV was around May 18-24 and June 15-21.

- There is variation in the reach for the SMS channel, however this might be a result of gaps in reporting on the dashboard.

Farmers from the Ishamba survey reported having different sources for Covid and farming information

Primary Source of Covid Information

- Friends/Family — 0%
- Don't know/prefer not to answer — 0%
- Whatsapp — 1%
- Other, please specify — 2%
- Facebook — 6%
- Radio — 21%
- SMS notifications — 22%
- TV — 48%

Percentage (0 to 50)

Primary Source of Farming Information

- Interactive Voice Response (IVR), for example 3-2-1 Airtel — 0%
- Peer-group — 1%
- Friends/Family — 1%
- Facebook — 2%
- Whatsapp — 3%
- Don't know/prefer not to answer — 3%
- Radio — 3%
- Other, please specify — 7%
- Extension Worker — 8%
- TV — 14%
- SMS notifications — 57%

Percentage (0 to 40)

Data source: Ishamba Quantitative Survey
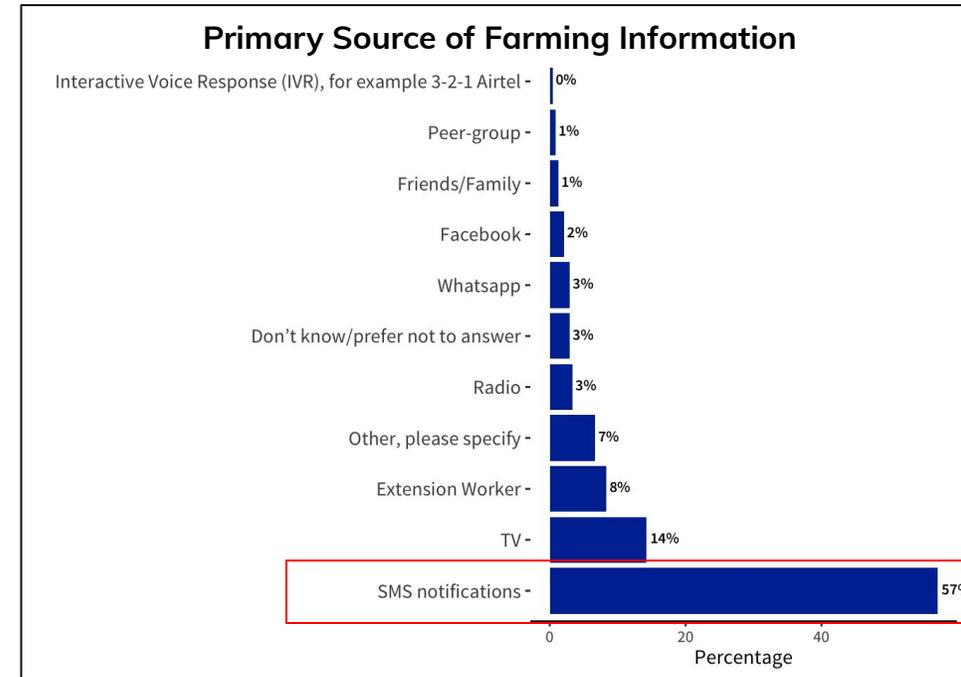
■ In follow up questions about how well they trust information from the sources, surveyed farmers reported high trust in the information.

TV is the preferred channel for Covid information

Primary Source of Covid Information

- Low Score
- Medium Score
- High Score
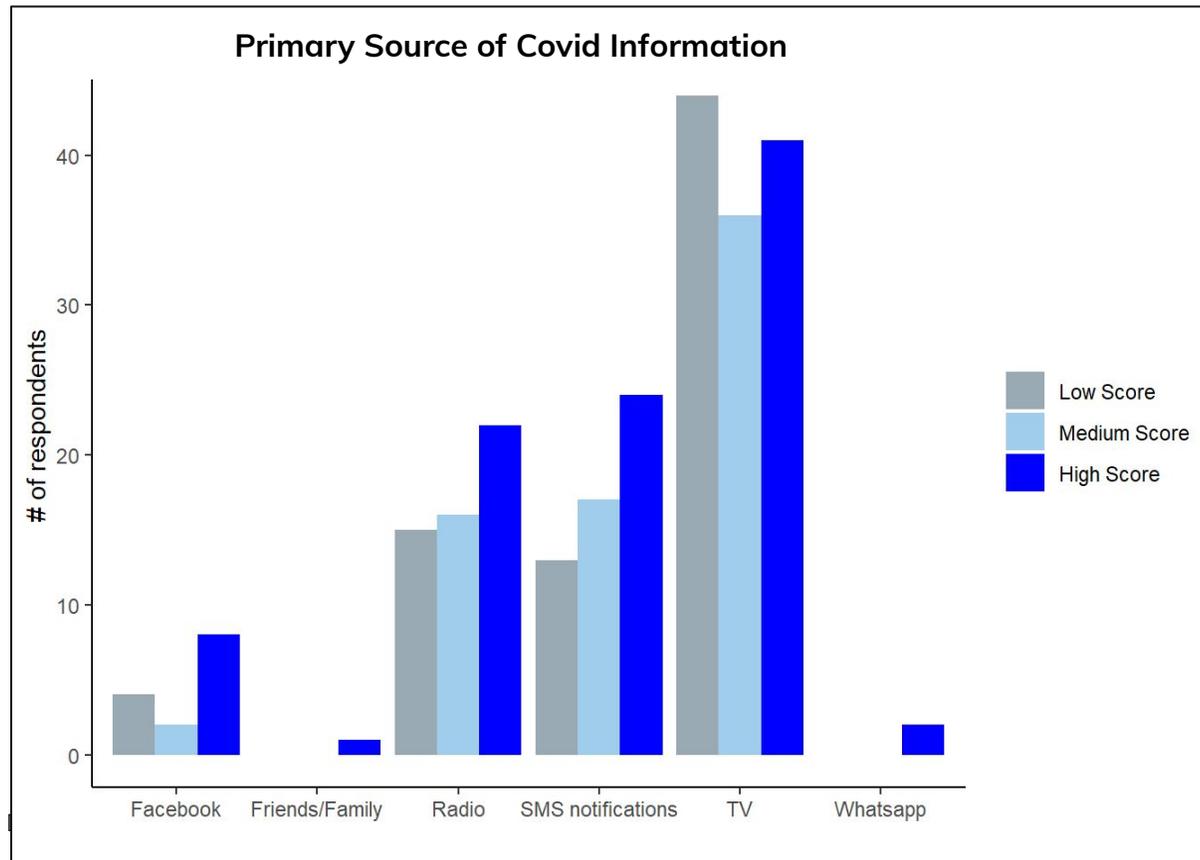
Data source: Ishamba Quantitative Survey

- TV is the primary channel for Covid information across the different KAB segments.

- The similarities in the source of Covid information is consistent with our modeling that **channel is not a good predictor** of knowledge, attitudes and behaviors related to Covid.

Ishamba farmers surveyed want information more frequently

How often would you like to receive information about these topics?
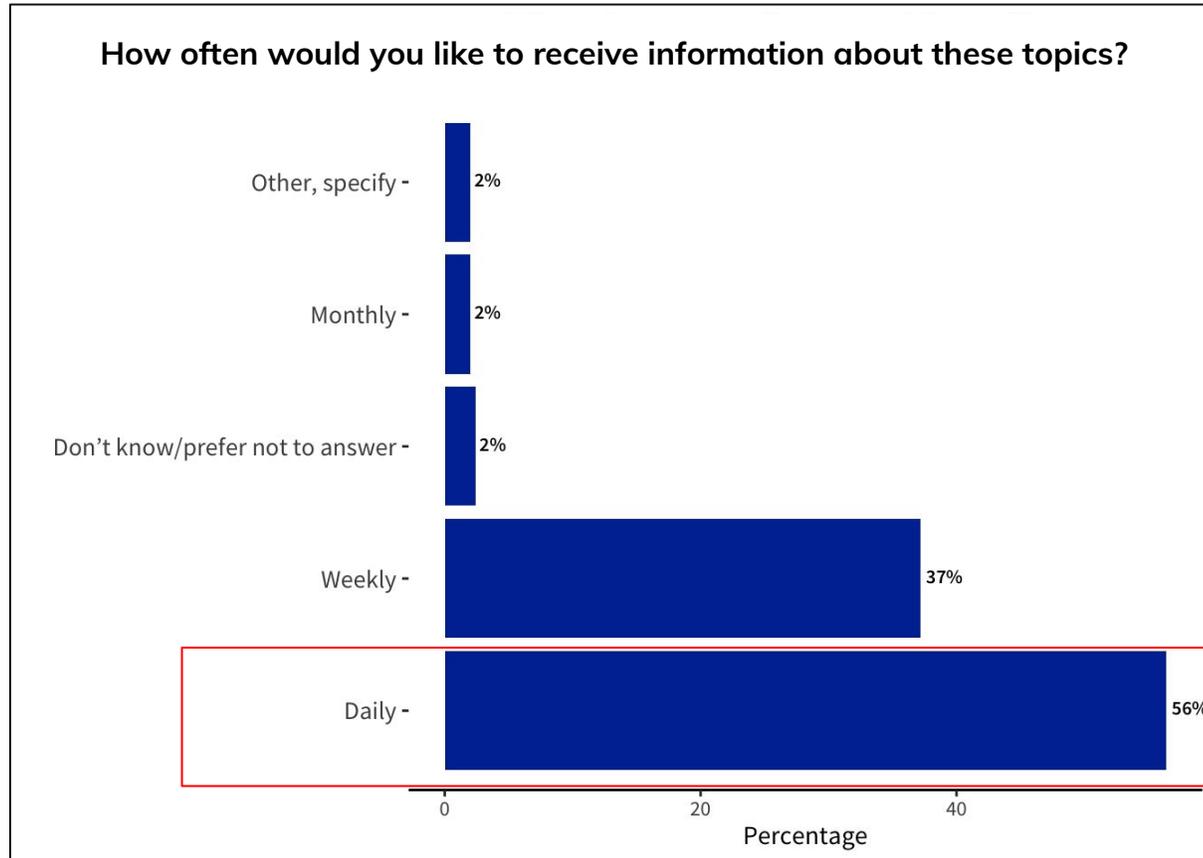
Data source: Ishamba Quantitative Survey

- Although surveyed farmers have different sources for Covid and farming information, they reported that they want to receive information about these topics daily.

- In follow up questions about how well they trust information from the sources, farmers reported high trust in the information.

# Survey farmers recognize Ishamba as their provider for farming information, not Covid information

Who is your provider for Covid information?

- Producers' Direct — 0%
- WeFarm — 1%
- Don't know — 5%
- DigiFarm — 5%
- iShamba (Shamba Shape-Up) — 7%
- Other — 14%
- Government — 49%

Percentage

Who is your provider for farming information?

- Don't know — 1%
- WeFarm — 4%
- Other — 12%
- Digifarm — 32%
- iShamba (Shamba Shape-Up) — 51%

Percentage
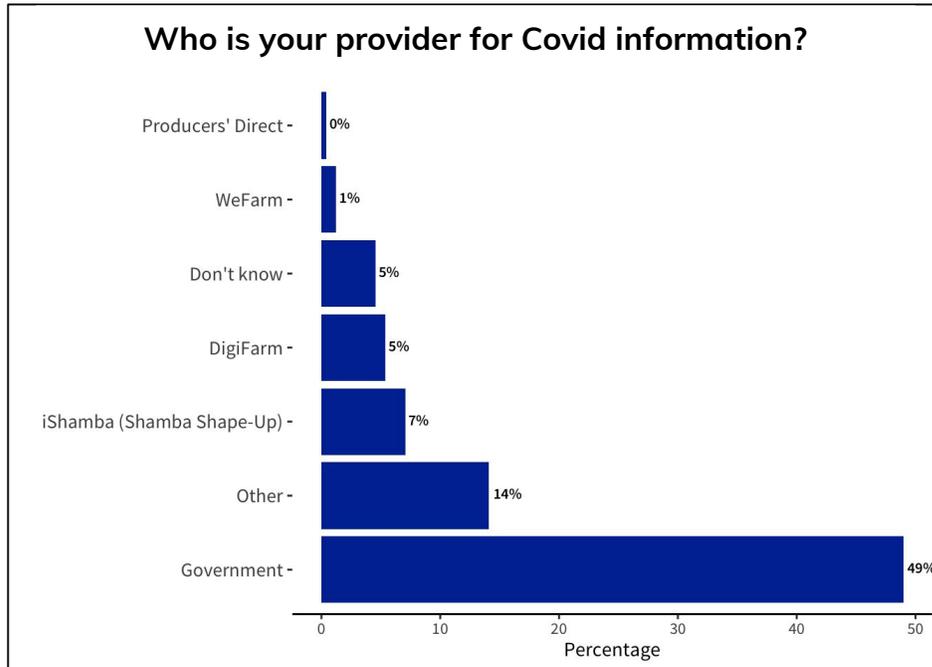
Data source: Ishamba Quantitative Survey

SMS is the preferred channel for farming information

Primary Source of Farming Information
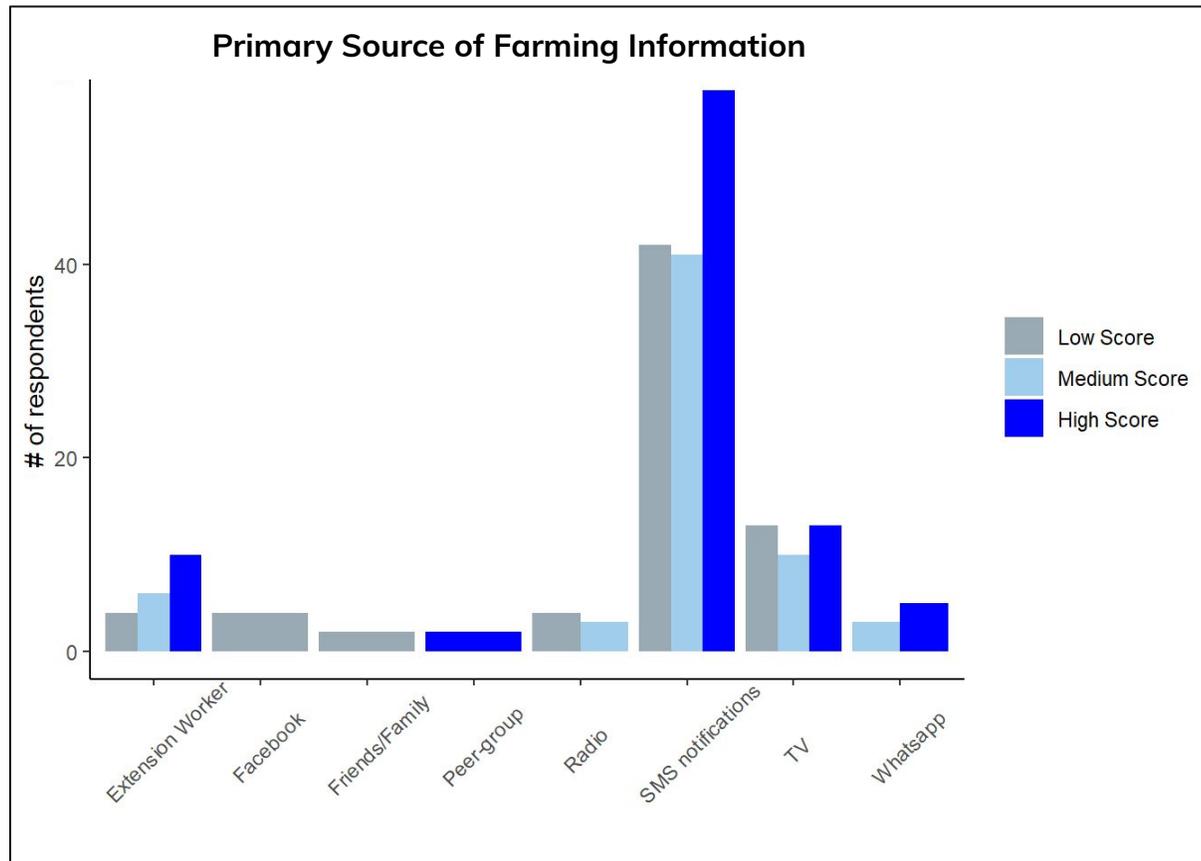
Data source: Ishamba Quantitative Survey

- SMS is by far the most popular channel for farming information across all three KAB groups.

- Similar to the findings for Covid channels, consistent preferences for farming channels across groups reinforces our finding that farming channels is **not a strong predictor** of KAB score.

There is high smartphone ownership and internet access

Type of Phone

Other, please specify - 0%

No cell phone - 0%

Non-internet capable phone - 32%

Smart phone - 68%

Percentage (x-axis: 0, 20, 40, 60)
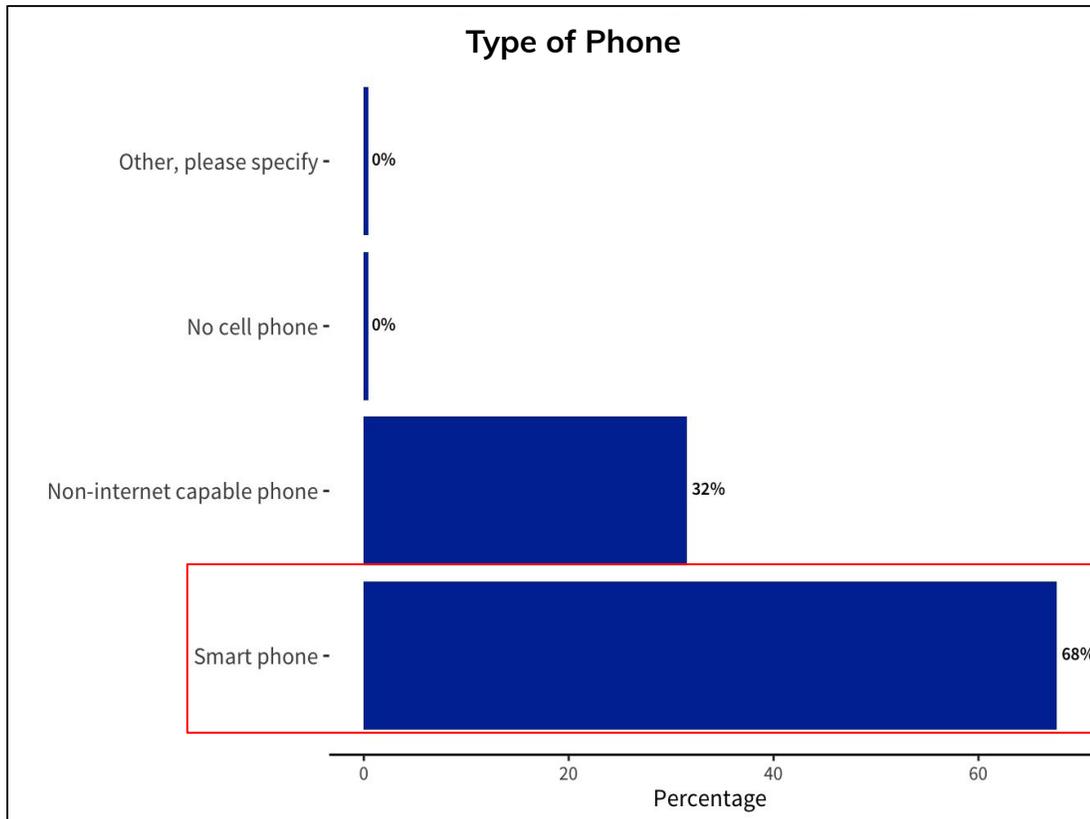
Data source: Ishamba Quantitative Survey

75%	24%
Access to internet Ishamba respondents	Access to internet[1] National

- 75% of survey respondents reported that they have access to the internet, which is much higher than the national average. This finding is surprising as you would expect low connectedness in rural areas.
- This might be due to a limitation of phone surveys and selection bias. In some cases, there are slight differences in the profiles of phone survey respondents when compared to in-person survey respondents.
- It will be useful to Ishamba to compare this finding to their general farmer database. Does this align with the types of farmers Ishamba works with?

[1]GSMA, Mobile Internet Connectivity, 2019

Appendix

Survey Sampling

This section provides additional information about survey sampling. This information was provided by Ishamba.

Some adjustments were made to accomodate any shortfall from the target numbers in the counties

- A number of counties had a low number of respondents especially from the arid and semi-arid lands (ASAL) and urban areas. Thus, the we could not meet the targets from these zones to fill the required 250 respondents. The deficits from such counties were covered up by re-assigning a slightly higher response rate in other counties.

- Some counties were re-assigned higher numbers of respondents compared to the target sample size to cater for low numbers in other counties. Majority of these are in high potential agricultural zones where iShamba has more customers

Survey respondents locations mapped out

Farmer Locations
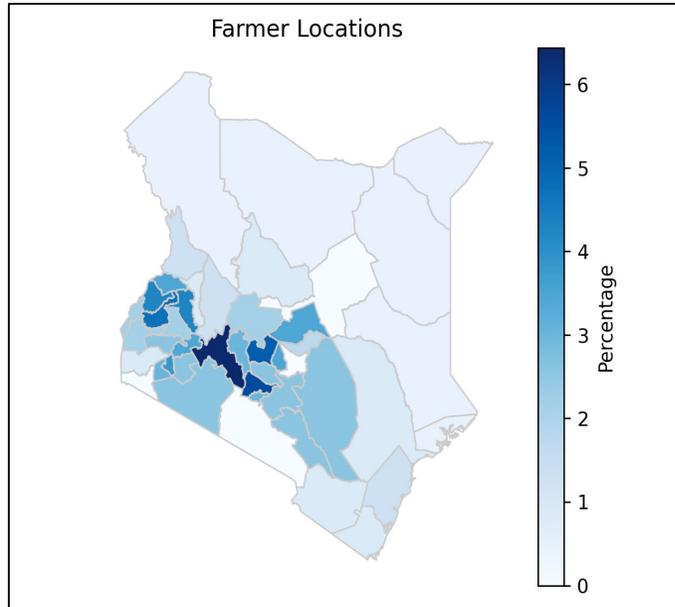
- Nakuru county, the darkest blue shade had the highest concentration of farmers sampled.
- The Northern part of Kenya had little representation as indicated by the lighter shade of blue.

Farmer Locations: Top 6 Counties
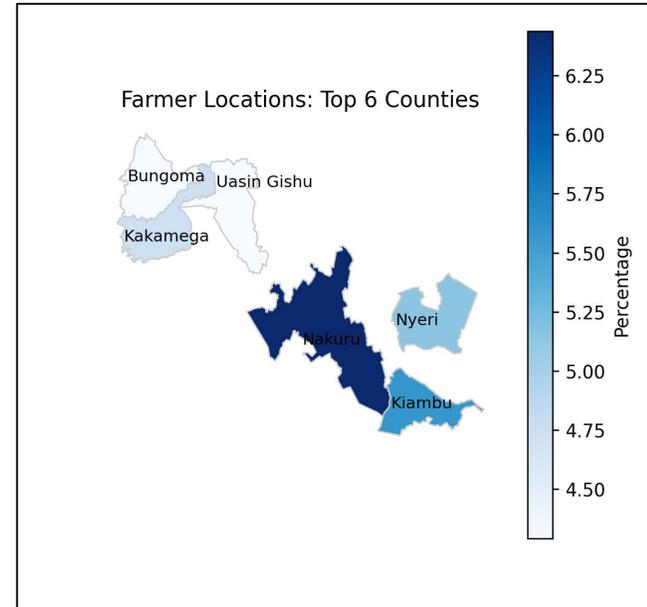
- Counties at central Kenya, that is, Nakuru, Nyeri, and Kiambu counties have the highest number of farmers sampled.
- This is followed by Western Kenya with farmers from Kakamega, Bungoma, and Uasin Gishu.

Survey respondents per county

County	Target Population per county	% of Population Per County	Target Sample Per County	Surveyed Sample per County
Baringo	666,763	1.4	4	3
Bomet	875,689	1.8	5	6
Bungoma	1,670,570	3.5	9	10
Busia	893,681	1.9	5	5
Elgeyo Marakwet	454,480	1.0	2	2
Embu	608,599	1.3	3	5
Garissa	841,353	1.8	4	1
Homa Bay	1,131,950	2.4	6	2
Isiolo	268,002	0.6	1	0
Kajiado	1,117,840	2.4	6	5
Kakamega	1,867,579	3.9	10	11
Kericho	901,777	1.9	5	8

Survey respondents per county

County	Target Population per county	% of Population Per County	Target Sample Per County	Surveyed Sample per County
Kiambu	2,417,735	5.1	13	13
Kilifi	1,453,787	3.1	8	3
Kirinyaga	610,411	1.3	3	8
Kisii	1,266,860	2.7	7	7
Kisumu	1,155,574	2.4	6	6
Kitui	1,136,187	2.4	6	6
Kwale	866,820	1.8	5	2
Laikipia	518,560	1.1	3	5
Lamu	143,920	0.3	1	1
Machakos	1,421,932	3.0	7	7
Kiambu	2,417,735	5.1	13	13
Kilifi	1,453,787	3.1	8	3

Survey respondents per county

County	Target Population per county	% of Population Per County	Target Sample Per County	Surveyed Sample per County
Kirinyaga	610,411	1.3	3	8
Kisii	1,266,860	2.7	7	7
Kisumu	1,155,574	2.4	6	6
Kitui	1,136,187	2.4	6	6
Kwale	866,820	1.8	5	2
Laikipia	518,560	1.1	3	5
Lamu	143,920	0.3	1	1
Machakos	1,421,932	3.0	7	7
Makueni	987,653	2.1	5	6
Mandera	867,457	1.8	5	1
Marsabit	459,785	1.0	2	1
Meru	1,545,714	3.2	8	9

Survey respondents per county

County	Target Population per county	% of Population Per County	Target Sample Per County	Surveyed Sample per County
Migori	1,116,436	2.3	6	7
Mombasa	1,208,333	2.5	6	2
Murang'a	1,056,640	2.2	6	7
Nairobi City	4,397,073	9.2	23	7
Nakuru	2,162,202	4.5	11	16
Nandi	885,711	1.9	5	5
Narok	1,157,873	2.4	6	7
Nyamira	605,576	1.3	3	3
Nyandarua	638,289	1.3	3	7
Nyeri	759,164	1.6	4	12
Samburu	310,327	0.7	2	2
Siaya	993,183	2.1	5	5

Survey respondents per county

County	Target Population per county	% of Population Per County	Target Sample Per County	Surveyed Sample per County
Taita/Taveta	340,671	0.7	2	2
Tana River	315,943	0.7	2	2
Tharaka-Nithi	393,177	0.8	2	4
Trans Nzoia	990,341	2.1	5	8
Turkana	926,976	1.9	5	1
Uasin Gishu	1,163,186	2.4	6	**11**
Vihiga	590,013	1.2	3	5
Wajir	781,263	1.6	4	1
West Pokot	621,241	1.3	3	3
Totals	**47,564,296**	**100**	**250**	**250**

Profile of Survey Respondents

In this section, we present the demographics of the overall survey respondents

Surveyed farmers are 36-45, with secondary school education

Age Distribution

Age Group	Percentage
Above 55 Years	18%
46 - 55 Years	22%
36 - 45 Years	32%
26 - 35 Years	24%
18 - 25 Years	4%

Education level

Education	Percentage
Postgraduate	2%
Undergraduate degree	17%
Diploma	22%
Certificate	12%
Secondary	32%
Primary	13%
Don't know/prefer not to answer	2%
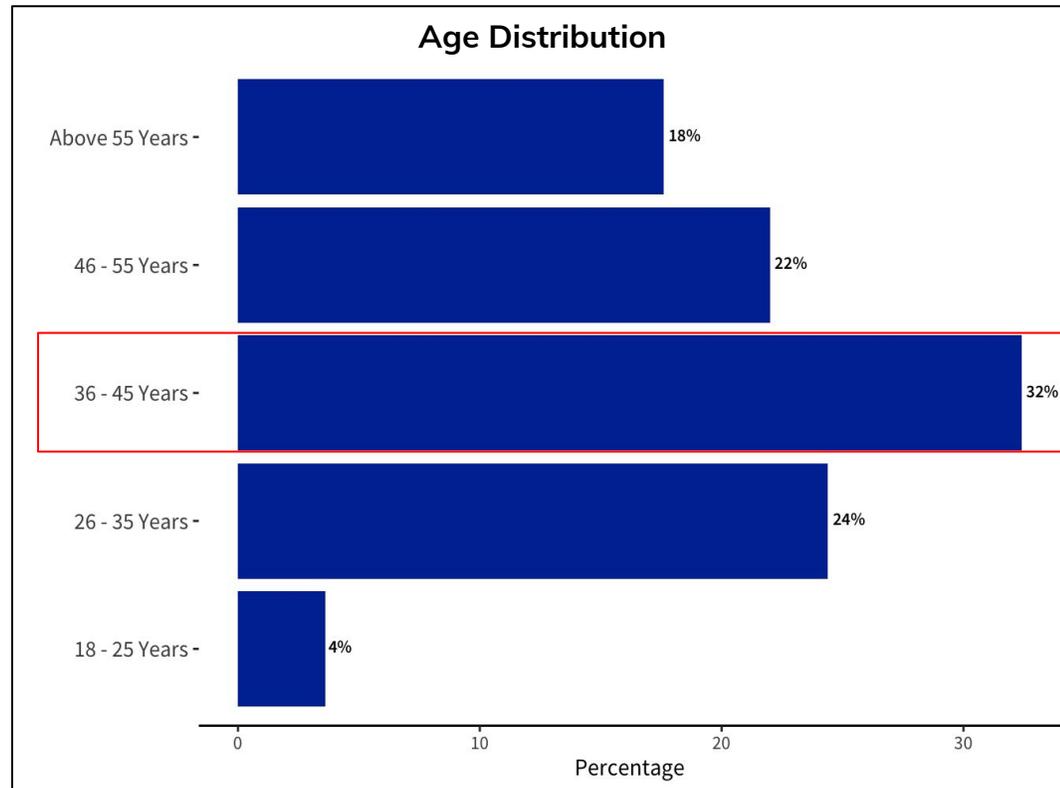
Data source: Ishamba Quantitative Survey
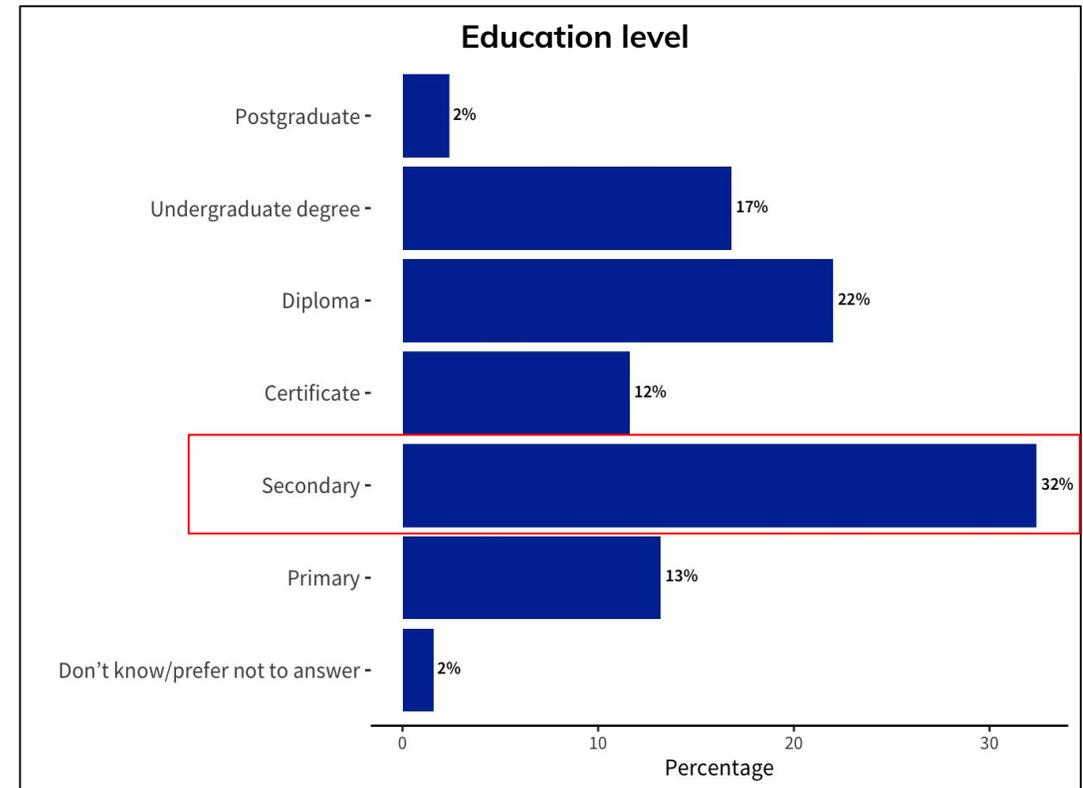
The main crop grown is maize and they are tending to their crops

Crop Type

Crop	Percentage
Wheat	0%
Rice	1%
Millet	1%
Mangos	1%
Cassava	1%
Beans	1%
Sorghum	2%
Avocados	2%
Off-season	2%
Coffee	2%
Green grams	2%
Bananas	2%
Sugarcane	3%
Tomatoes	4%
Tea	5%
Livestock	5%
Other	5%
Potatoes	6%
Vegetables	10%
Maize	45%

Data source: Ishamba Quantitative Survey

Maize farmers crop cycle

- 2% Selling
- 1% Off Season
- 12% Land prep
- 3% Planting
- 47% Crop on the farm
- 41% Harvesting
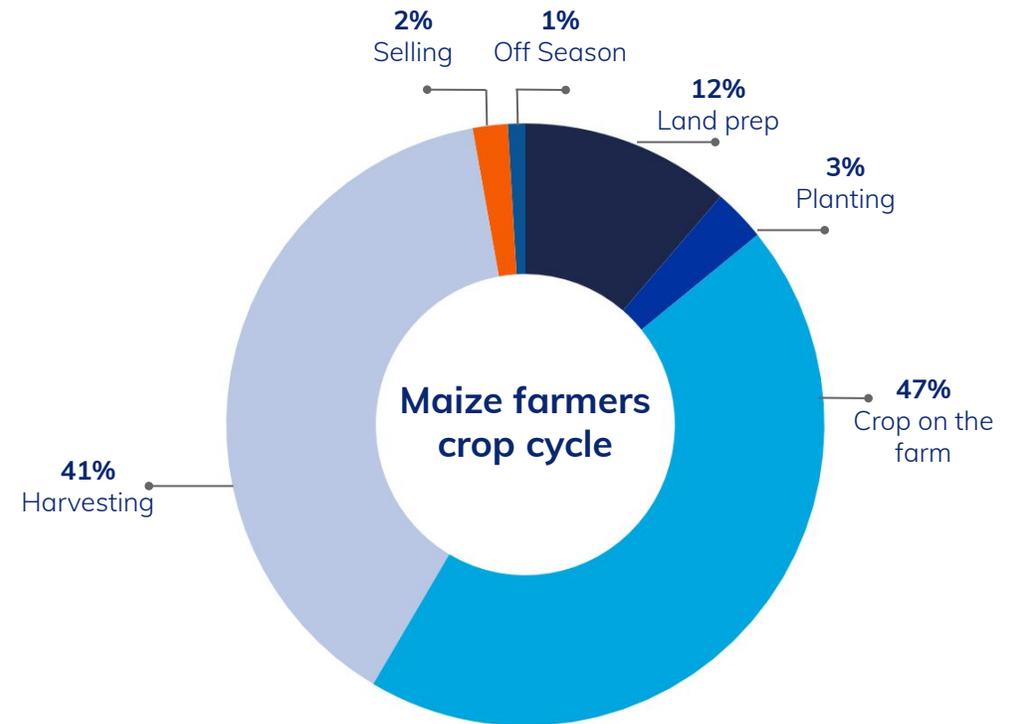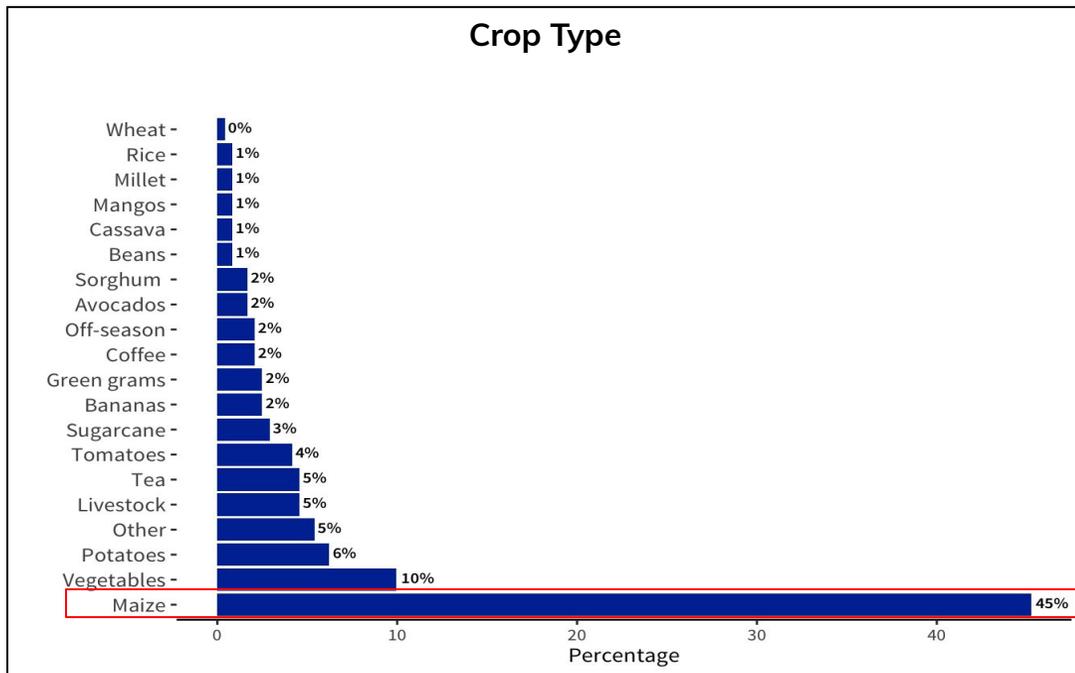
- 45% of Ishamba farmers grow maize. 10% grow vegetables like cabbages, kale, and green grams.
- Maize farmers are tending their crops on the farm (47%) and harvesting (41%)

They have supplementary income

iShamba: What is your monthly household income from farming, in KES?

| Income range	Percentage
Above 20,000 KES	18%
15,001 - 20,000 KES	12%
10,001 - 15,000 KES	14%
5,001 - 10,000 KES	18%
1,001 - 5,000 KES	32%
Below 1,000 KES	6%

iShamba: What is your Secondary source of income?

Source	Percentage
Remittances	1%
Manufacturing	1%
Information and communication	1%
Fishing or mining	1%
Don't know	2%
Financial activities or real estate	2%
Health	3%
Accomodation and food services	4%
Transportation and storage	6%
Government of Non-profit	8%
Casual labour/Side Hustle	9%
Construction or utilities	9%
Retail or Wholesale	15%
Other services	17%
Teachers	22%

Data source: Ishamba Quantitative Survey

- 32% of surveyed Ishamba farmers earn 1,001-5,000 KES per month from farming, with some earning substantially higher.
- They supplement their income through secondary income generating activities. 22% reported that they are also teachers. . Examples of other services (17%) reported: electrician, writer.

KAB Score Construction

This section provides details about the questions used to construct the knowledge, attitude and behavior score.

KAB score details

Area	Questions used to building the KAB score
Knowledge *Average score calculated for knowledge questions to create the 'knowledge score'.*	Do you need to maintain social distance from workers on your farm?
	What is the distance you should maintain from workers on your farm, measured in meters (that don't live at your house)?
	During Covid can you share tools with other farmers?
	How should fresh food (ex. fruits and vegetables) be cleaned after they are purchased from the market to prevent Covid transmission?
	Can livestock transmit Covid?
Attitude *Average score calculated for knowledge questions to create the 'attitude score'.*	What do you think: should people in your country not shake other people's hands because of Covid right now?
	Do you think the reaction of your country's government to the current Covid outbreak is appropriate, too extreme, or not sufficient?
Behavior *Average score calculated for knowledge questions to create the 'behavior score'.*	Have you been able to keep a distance of one meter from other people in the last 7 days?
	Are you wearing a mask during normal daily activities?
	Do you wear a mask while you farm?
	To what extent do you agree: "I avoid taking mass transportation to the market"
	To what extent do you agree: "I use mobile money at the market."
	To what extent do you agree: "I wash my hands more frequently than before Covid"
	The mean of the knowledge, attitude, and behavior components is taken to create a final KAB score.

Contact us for more information

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