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# **FOUNDATIONAL MARKET RESEARCH FOR DIGITAL ADVISORY SERVICES FOR SMALLHOLDER FARMERS**

FINAL REPORT  
DECEMBER 2023



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## Recap of project objectives.

- Sprout is developing a Dynamic Weather Advisory Service (DWAS) Minimum Viable Product (MVP) that is designed for Farmer Facing Organizations (FFOs) to offer their targeted farmers easy to understand weather information and weather driven crop related advisories.
- We supported the Mercy corps and Sprout team to conduct a qualitative foundational market study on weather, climate and crop related factors with smallholder farmers from Kenya.

### General Objective:

- To understand smallholder farmers' behaviours and needs in relation to weather and crop advisory services to generate insights that will provide key inputs for the design of the DWAS MVP.

### Specific objectives:

1. To understand the major issues that smallholder farmers face in relation to weather and crop advisory services and how they typically operate.
2. To understand the communication needs of farmers', including the channels used.
3. To develop farmer personas for insights on better targeted interventions.
4. To determine how the perspectives of smallholder farmers drive the design of weather and crop advisory services.





## Methodology: Farmer in depth interviews.

Our team recruited and screened participants from households within the study areas to identify the target audience as outlined below.

- Farmers within the network of the partnering farmer facing organizations (FFOs) including M-shamba and/or CoAmana: **Target 30 smallholder farmers (SHF)** who formed the **treatment group**.

These were purposively sampled from the list of farmers shared by the Mercy corps and Sprout team.

- Farmers who are *not* within the list of partnering FFO, formed the **control groups**: **Target 20 SHF**.

**Control group 1:** SHF who do not receive any weather or crop advisory information.

**Control group 2:** SHF who receive weather or crop advisory information from other sources/providers.

The table provides the sample distribution, as was recruited into the study:

Study area	Value chain	Treatment group	Control group 1	Control group 2	Totals
Nyandarua	Irish potatoes	4	1	2	7
	Dairy	2	1	0	3
Trans Nzoia	Dairy	6	4	0	10
	Maize	6	4	0	10
Taita Taveta	Green grams	6	0	4	10
Kajiado	Tomatoes	6	3	1	10
<b>Totals</b>		<b>30</b>	<b>13</b>	<b>7</b>	<b>50</b>

## Methodology: Recruitment strategy.



### *Smallholder Farmer Inclusion Criteria.*

#### *Treatment group farmer participants:*

- Age (diverse range).
- Type of phone (smartphone, feature phones or simple phones).
- Manager of a farm area less than 2 hectares within the proposed study areas.
- Been involved in farming for at least 2 years (3-4 growing seasons to ensure participant has sufficient farm context).
- Recipient of weather and/or crop advisory information (from M-shamba and/or CoAmana).
- Produce at least one of the value chain crops selected.
- Willing to participate in the study.

#### *Control group 1 farmer participants:*

- Age (diverse range).
- Type of phone (smartphone, feature phones or simple phones).
- Manager of a farm area less than 2 hectares within proposed study areas.
- Been involved in farming for at least 2 years (3-4 growing seasons to ensure participant has sufficient farm context).
- Not a recipient of weather and/or crop advisory information.
- Produce at least one of the value chain crops selected.
- Willing to participate in the study.

#### *Control group 2 farmer participants:*

- Age (diverse range).
- Type of phone (smartphone, feature phones or simple phones).
- Manager of a farm area less than 2 hectares within proposed study areas.
- Been involved in farming for at least 2 years (3-4 growing seasons to ensure participant has sufficient farm context).
- Recipient of weather and/or crop advisory information from other sources/providers.
- Produce at least one of the value chain crops selected.
- Willing to participate in the study.





# *Sources of agricultural information*

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# Access and receipt: Agricultural specialists were the most frequent source of agricultural information.





Agricultural information sources that participants identified were grouped into 5 categories and these categories were further ranked as follows:

<b>1</b> <b>Agricultural Specialists:</b> <ul style="list-style-type: none"><li>Ward agricultural officers were mentioned by majority of the farmers as their source of information. This was with exception of the maize farmers.</li><li>Agrovets and Veterinary doctors were also mentioned by participants.</li></ul>	<b>2</b> <b>Research and Learning Institutions:</b> <ul style="list-style-type: none"><li>KALRO and KCSAP (also referred to as climate smart) which is a government parastatal was the mentioned by most of the participants, who were mostly older females.</li><li>Farmer Training Centres and Egerton University were also mentioned.</li></ul>	<b>“</b> <b>Moderator:</b> ...did you seek advice, service or information on agriculture for the last one year? <b>Respondent:</b> Yes <b>Moderator:</b> What information? <b>Respondent:</b> For example, the other day my vegetables were full of insects, and I called the ward agricultural officer and asked him what medicine I can use for these vegetables, he explained. So, I always ask. <i>- Female Green grams Farmer IDI, Taita Taveta</i> <b>”</b>
<b>3</b> <b>Farmer Facing Organizations (FFOs):</b> <ul style="list-style-type: none"><li>M-shamba was the main source cited in this category. Majority of the participants were female below the age of 46.</li><li>Additional FFOs mentioned included; One Acre Fund, Weather LMP, iCow and Cooperatives.</li></ul>	<b>4</b> <b>Local Resource Persons:</b> <ul style="list-style-type: none"><li>Few participants over 40 years leverage locals such as village elders and neighbours for agricultural information.</li></ul>	<b>“</b> <b>Moderator:</b> Okay, where else do you get this information? <b>Respondent:</b> I get from KALRO. <i>- Female Potato Farmer IDI, Nyandarua</i> <b>”</b>
<b>5</b> <b>Others:</b> <p>Further, few participants indicated that they accessed agricultural information from print media as well as agriculture shows or exhibits.</p>		<b>“</b> <b>Moderator:</b> Ok, maybe if I ask you if you think of digital ways that provide information about agriculture, where do you learn most about agriculture? <b>Respondent:</b> I get from M-shamba. <i>- Female Dairy Farmer IDI, Trans Nzoia</i> <b>”</b>



# Access and receipt: In-person delivery was the most frequently mentioned agricultural information channel accessed among the smallholder farmers.

The channels of accessing agricultural information were grouped into 4 categories. We present them below in order of the most frequently channel used:

Rank	Delivery channel	Quotes
1 	<b>In person delivery:</b> Majority of the participants indicated that they received information orally through training received from agricultural specialists. This was mainly from women who were above 36 years old and that owned smart phones. This channel is often used during home visits and at meetings or seminars with peer farmers and are held at central locations.	<b>Moderator:</b> Okay, how about the agricultural officers? <b>Respondent:</b> They just visit us. Sometimes you can invite them, but usually, you have to go to them and talk to them, especially when there are issues like specific plant or cattle diseases. Then you call the officers to come and assess the situation. <b>- Male Potato Farmer IDI, Nyandarua</b>
2 	<b>Media:</b> The participants mostly accessed audio-visual, audio and print media respectively. Audiovisual and audio channels which were the most common included watching TV and listening to the radio respectively. Farmers listened to and/or watched programs that they perceive as educative such as 'shamba shape up'. Print media which included books and pamphlets was the least common.	<b>Moderator:</b> Did you try seeking advice on farming? <b>Respondent:</b> I have not received from anyone, maybe just watching the tv. <b>Moderator:</b> Which one do you get from the TV? <b>Respondent:</b> I watch from the shamba shape up program. <b>- Female Dairy Farmer IDI, Trans Nzoia</b>
3 	<b>Mobile phone devices:</b> SMSs were more frequently used by the participants as compared to phone calls. Majority of participants that leveraged on SMSs own feature phones. These text messages were received on a regular basis from FFOs and Research and/or Learning institutions such as M-shamba, Egerton University, KALRO. Phone calls on the other hand were self-initiated by farmers when they had questions for the agricultural officers.	<b>Moderator:</b> How do you receive the information (Agricultural)? <b>Respondent:</b> On phone as SMS. <b>- Male Tomato Farmer IDI, Kajiado</b> <b>Moderator:</b> How often do you seek information from agricultural officers? <b>Respondent:</b> I call them whenever there is a problem. <b>- Male Potato Farmer IDI, Nyandarua</b>
4 	<b>Internet:</b> This had the least number of farmers reporting that they read articles online, use search engines such as Google or download a mobile application.	<b>Moderator:</b> How does that KALRO message come? <b>Respondent:</b> There is an app, you download it, when you open it, it gives you everything. You can narrow your region where you are like Taita Taveta, sub county. <b>- Female Green grams Farmer IDI, Taita Taveta</b>

## Access and receipt: Participants mostly received agricultural information on a regular basis, however, with varied frequency.

### Regular receipt:

Most participants received information regularly but with varied frequency.



Received as **programmed** by the provider;

- SMS/phone – Weekly, seasonally.
- TV show – Weekly.

Received after **self-initiatives** of the participants;

- Veterinary doctor – Bimonthly.
- Cooperatives – Thrice a year.
- Agricultural officers – Weekly, monthly, seasonally.

“

**Moderator:** How often do you receive this farming news, from M-shamba and KALRO?

**Respondent:** Every time it was raining, we receive it. You usually get it in the evening, another in the morning, another tomorrow. That's it, after a week you usually get another.

- **Female Green grams Farmer IDI, Taita Taveta**

”

“

**Moderator:** How often have you sought such information from people at the shows?

**Respondent:** Whenever there is a show or when there are seminars and workshops, and also from companies like Brookside, I visit them.

- **Male Potato Farmer IDI, Nyandarua**

”

“

Mostly. When you came you found me on the internet. I have also downloaded some PDF documentation that I read to compare what they are doing, if it is Switzerland, I have a pdf on that. I go to various sites that give good information. They also provide the breeds that can be done here like the Ayrshire, Friesian and jersey.

- **Male Potato Farmer IDI, Nyandarua**

”



### As per providers' schedule:

A minority of the participants indicated that they aligned with the schedule provided by the source of information which were usually agriculture-based institutions. Such include.

- Agricultural shows.
- Community Training.



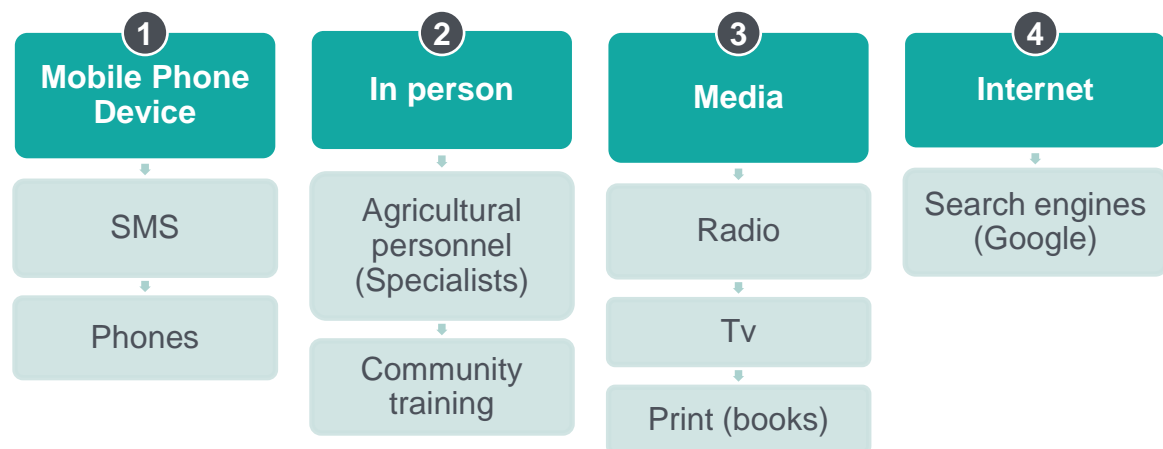
### On demand:

A minority also indicated that they actively sought for and received information on as they required it.

- Agricultural officers.
- Internet sources.

## Access and receipt: Participants prefer to receive agricultural information through SMS due to ease of access.

- Overall, the top three preferred channels mentioned include **SMS**, **Phone** and **agricultural personnel**. We rank the preferred delivery channel in the figure below.



- Participants across the various demographics (value chain, age, and gender) stated that they preferred to receive agricultural information through SMS. This was due to the channel's non-restrictive nature that allows for information to be passed on regardless of the device type, and the recipient does not incur extra costs such as purchase of data bundles for internet connectivity.
- Participants further expressed that they valued the in-person interaction with agricultural specialists who offer real-time assessment of farms and feedback.
- Radios were also preferred in the media category due to their availability and ease of use.

“

**Moderator:** Ok, what's your preferred channel to access information You told me that you are using the app, M-shamba you are receiving SMS.

**Respondent:** Those SMS because you know for the app one must have bundles, and sometimes I don't have bundles; but if you send a message, even those from KALRO do send a message. So at least the message reaches everyone, whether you have a smartphone or not, the message reaches everyone.

*- Female Green grams Farmer IDI, Taita Taveta*

”

“

I prefer the advisor because you can talk to them when they are present. You can ask them questions, but with digital methods, you can't ask questions.

*- Male Potato Farmer, Nyandarua*

”

“

I say radio, if possible, also TV, currently I am using radio because that is what is available, but TV is much better than radio because I will follow those steps, if there is assistance that I may get, I can find a TV that I can follow the program of agriculture.

*- Male Green grams Farmer IDI, Taita Taveta*

”



## Access and receipt: Participants trusted information sources that they found credible such as agricultural specialists, among others.



Participants associated the credibility of an information source with;

- How accurate and reliable of the information turns out to be.
- The level of knowledge that the source has of the subject matter.



### Trusted information sources:

The most trusted information source cited were the agricultural extension officers. Participants cited that they trusted this source because;

- Information received from the officers had worked on implementation.
- The testimony of other farmers' positive experiences.
- The information given was reliable.

Other specialized agricultural personnel that were trusted are; veterinary doctors, farmer group leaders, and cooperative officers.

Other trusted information sources include;

- Farmer facing organizations such as M-shamba.
- Research and learning institutions such as KALRO, Egerton University.
- Commercial companies in agriculture such as Brookside, Syngenta.



### Mistrusted information sources:

Information sources that were not trusted include;

- Individuals with limited knowledge were the least trusted by the participants who had not received helpful information or services.
- Radio was also cited as a source that was not trusted due to unreliable rain forecast.



**Moderator: Do you trust him?**

**Respondent:** Yes, he is a well-informed person, vet surgeon from the University of Nairobi. He is Dr. [Name]. We consult him about animal diseases and AI services.

*- Male Potato Farmer IDI, Nyandarua*



**Moderator: ...Do you trust the people from Egerton University and the agricultural officers?**

**Respondent:** Yes, because I have heard good things about them from others.

*- Male Potato Farmer IDI, Nyandarua*



I don't trust someone who has let me down, it happened to me, a vet came and treated the animal, and it became worse.

*- Female Dairy Farmer IDI, Trans Nzoia*





# *Weather and crop advisory information*

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## Weather and crop advisory information.

In this section we explore the participant's perception of:

Knowledge	Access and receipt	Usage	Benefits	Willingness to receive
<ul style="list-style-type: none"><li>• Knowledge of weather and crop advisory information.</li><li>• Sources of knowledge.</li><li>• Commonly cited reasons for lack of awareness of crop and weather advisory information.</li></ul>	<p>For participants that are aware of weather and/or crop advisory information;</p> <ul style="list-style-type: none"><li>• What are the information sources and the delivery channels used.</li><li>• What are the preferred channels.</li><li>• Who is a trusted source of advisory information and why.</li></ul>	<ul style="list-style-type: none"><li>• Proportion of participants that use weather and/or crop advisory information.</li><li>• Reasons for using weather and crop advisory information.</li><li>• Reasons for not using weather and crop advisory information.</li></ul>	<ul style="list-style-type: none"><li>• Perceived benefits of receiving and using weather and crop advisory information.</li></ul>	<ul style="list-style-type: none"><li>• Participant's willingness to receive weather and/or crop advisory information.</li><li>• Type of information of interest.</li></ul>



## Knowledge: Majority of farmers interviewed have heard about weather and crop advisory information from various sources such as seminars.

More than half of participants, more so female participants interviewed have heard about both weather and crop advisory information.

The sources of knowledge on weather and crop advisory information commonly cited include:

- Seminars.
- Agricultural shows.
- Agricultural organizations such as Kenya Plant Health Inspectorate Service (KEPHIS) and One Acre Fund.
- Government.
- Media and internet.

On the other hand, the minority of participants that haven't heard of weather and/or crop advisory information mainly cited the lack of awareness of where to get this information.

“

**Moderator:** How did you hear about weather advisory information?

**Respondent:** I have heard from the media.

*- Male Maize Farmer IDI, Trans Nzoia*

”

“

I got it from field days, KEPHIS has been having field days and also during agricultural shows, I got the information from there.

*- Male Dairy Farmer IDI, Trans Nzoia*

”

“

**Moderator:** Why don't you get these updates on weather?

**Respondent:** I don't know where to get them from.

*- Female Potato Farmer IDI, Nyandarua*

”

# Access and receipt: Research and learning institutions were among the most frequent sources of crop advisory information.



Participants indicated that they mostly received crop advisory information from KALRO (including KSCAP and FFBS – Farmer field business school), ward agricultural officers, and M-shamba. The information received included advice on when to plant and harvest, as well as best practices in cattle rearing. We rank the crop advisory categories below.

## Research and Learning Institutions:

- 1 KALRO was the most frequently mentioned source cited by older participants (over 41). They also received information from KCSAP, FFBS (both initiatives under KALRO) and Egerton university.

## Agricultural Specialists:

- 2 Ward agricultural officers were also cited as a frequent information source by farmers from 4 of the value chains; except for dairy farmers who mostly cited KALRO. Agrovets were also mentioned as a source by the participants.

## Farmer Facing Organizations (FFOs):

- 3 M-shamba was the main source cited in this category. Additional FFOs mentioned included; One Acre Fund, iCow, Cooperatives and Apollo Agriculture.

## Others:

- 4 Further, some participants indicated that they accessed crop advisory information from media (TV and radio), peer farmers, with one mention of Equity bank.

“

**Moderator:** Do you receive any agricultural advisory messages?

**Respondent:** There are times I get them from KALRO.

*- Female Maize Farmer IDI, Trans Nzoia*

”

“

**Moderator:** How did you know about crop advisory information about farming?

**Respondent:** From agricultural extension officers.

**Moderator:** What steps did they take?

**Respondent:** We were advised to form groups so that it becomes easy for agricultural officers to teach us.

*- Male Potato Farmer IDI, Nyandarua*

”

“

**Moderator:** ...Where else do you get information about agriculture, and advice about crops?

**Respondent:** From M-shamba.

*- Female Green grams Farmer IDI, Taita Taveta*

”

# Access and receipt: M-shamba, a farmer facing organization, was the most cited source of weather advisory information, among others.



Majority of the participants received weather advisory information from M-shamba, KALRO and village elders. The weather information received mainly included rainfall predictions. Weather advisory categories are ranked below.

## Farmer Facing Organizations (FFOs):

- 1 M-shamba was the main source cited in this category, with an additional mention of weather LMP.

## Research and Governmental Institutions:

- 2 KALRO (including KCSAP) was the most frequently mentioned source cited by participants. They also received information from the Kenya meteorological department.

## Local Resource Persons:

- 3 Village elders and personal observations were cited as a source of weather advisory information. Their methods include observing the winds, the sky and trees (e.g., shedding leaves) for rain prediction.

## Others:

- 4 Few participants indicated that they accessed weather advisory information other sources including; ward agricultural officers, GCP (general challenge program), media (TV and radio), whereas others did not remember the source.

“

**Moderator:** And what weather information are you currently using?

**Respondent:** There is information we get from M-shamba.  
- Male Tomato Farmer IDI, Kajiado

”

“

**Moderator:** How did you hear about weather advisory information?

**Respondent:** I got it through the messages, from KALRO.  
- Male Dairy Farmer IDI, Trans Nzoia

”

“

**Respondent:** You can observe the winds and predict the weather.

**Moderator:** So, you are a source of information?

**Respondent:** Yes

**Moderator:** Do you use your own source?

**Respondent:** Yes, and I don't miss because when you observe keenly, weather patterns recur.

- Male Potato Farmer IDI, Nyandarua

”



# Access and receipt: Most participants received advisory information through mobile phone devices and the media.

The dissemination channels categories and examples are presented below in order of the most frequently accessed channel by participants:

	Weather Advisory	Crop Advisory
Rank	Delivery channel/Quote	Delivery channel/Quote
1	<p><b>Mobile phone devices:</b> i) SMS ii) Phones.  <b>Moderator:</b> Do you receive any weather information?  <b>Respondent:</b> Yes, I receive it through the phone.  <b>Moderator:</b> Do they send as a message?  <b>Respondent:</b> Yes.  <b>- Male Dairy Farmer IDI, Trans Nzoia</b></p>	<p><b>Media:</b> i) Tv ii) Radio  <b>Moderator:</b> ... What agriculture/crop advisory information are you currently using?  <b>Respondent:</b> ...We see on TV shamba shape-up and smart farming.  <b>- Dairy Farmer IDI, Trans Nzoia</b></p>
2	<p><b>Media:</b> i) Radio ii) TV  <b>Moderator:</b> Where do you receive it from (weather advisory information)?  <b>Respondent:</b> From the radio mostly.  <b>- Male Green grams Farmer IDI, Taita taveta</b></p>	<p><b>In person delivery:</b> i) Seminars ii) Farm visits  <b>Moderator:</b> Other than the advisory information about farming you receive on tv, what other sources do you have access?  <b>Respondent:</b> There are those who come to educate us in groups.  <b>- Female Potato Farmer IDI, Nyandarua</b></p>
3	<p><b>In person delivery:</b> i) Community members e.g., neighbours ii) Trainings  <b>Moderator:</b> How do you receive this weather information from these elders?  <b>Respondent:</b> I listen to them and then you observe what they are telling you, they will tell you observe a certain tree, if you see a certain tree, the sun will be shining, or rain is coming.  <b>- Male Green grams Farmer IDI, Taita taveta</b></p>	<p><b>Mobile phone devices:</b> i) SMSs ii) Phone  <b>Moderator:</b> How does KALRO send crop advisory information?  <b>Respondent:</b> Through message.  <b>- Male Potato Farmer IDI, Nyandarua</b></p>
4	<p><b>Internet</b> i) Search engines e.g., Google ii) Mobile applications  <b>Moderator:</b> Do you receive any weather advisory information?  <b>Respondent:</b> I do it on my phone. When you press on the weather icon on my phone and enter the name of this place, it will tell you whether it is going to rain, how hot it is so I depend on my phone.  <b>- Male Potato Farmer IDI, Nyandarua</b></p>	<p><b>Internet :</b> Not indicated</p>

# Access and receipt: Most participants trusted farmer facing organizations for advisory information, among other sources (1/2).

We found that the participants trusted various sources of information whose reasons are outlined in the table below:

	Weather Advisory	Crop Advisory
Rank	Information source/Quote	Information source/Quote
1	<p><b>Farmer facing organizations:</b> M-shamba was mostly cited as a trusted source due to reliability of the information shared, with a mention of weather LMP.</p> <p><b>Moderator: ... Who do you trust in receiving this information?</b></p> <p><b>Respondent:</b> For now, let's say I believe those of M-shamba. To some extent they have correct information unlike others.</p> <p>- Male Tomato Farmer IDI, Kajiado</p>	<p><b>Farmer facing organizations:</b> Majority of the farmers were confident in M-shamba due to beneficial information that led to higher yields. iCow and iShamba which were also mentioned here.</p> <p><b>Moderator: Among the information you receive about farming, which one do you believe the most?</b></p> <p><b>Respondent:</b> It is M-shamba.</p> <p><b>Moderator: Why.</b></p> <p><b>Respondent:</b> M-shamba told us to plant beans, those who planted first got something.</p> <p>- Female Green grams Farmer IDI, Taita taveta</p>
2	<p><b>Agricultural specialists:</b> Ward extension officers were cited by many as a credible source this is because of their in-person presence and their link to the government.</p> <p><i>I can say that I don't believe anyone who doesn't have any evidence, for example, maybe if they are extension officers, if they are from the field, obviously, they are guided by the meteorological department, but this is about telling each other that it will rain and there is no evidence, I don't believe it.</i></p> <p>- Female Tomato Farmer IDI, Kajiado</p>	<p><b>Research Institutions:</b> Participants indicated that they trusted KALRO for information and found them reliable.</p> <p><b>Moderator: When you look at all these sources of farming advice, which one do you trust the most?</b></p> <p><b>Respondent:</b> Especially KCSAP was very reliable, although they haven't been coming lately since their contract ended. They used to teach us very well.</p> <p>- Male Potato Farmer IDI, Nyandarua</p>

# Access and receipt: Most participants trusted farmer facing organizations and for advisory information, among other sources (2/2).

We found that the participants trusted various sources of information whose reasons are outlined in the table below.

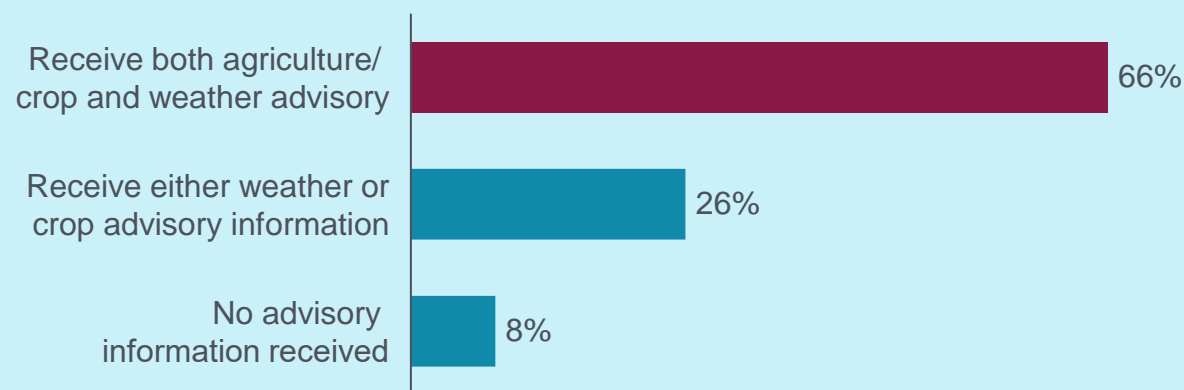
	Weather Advisory	Crop Advisory
Rank	Information source/Quote:	Information source/Quote:
3	<p><b>Research and learning institutions:</b> In this category, participants were confident in KALRO due to their trust in government institutions and mentioned a farmer training centre as well.</p> <p><i>Moderator: Okay, Who/what do you trust the most for weather information and why?</i></p> <p><b>Respondent:</b> Normally KALRO is a government-owned institution, I have a tendency of trusting what they are saying compared to other companies that I don't know.</p> <p><b>- Male Dairy Farmer IDI, Trans Nzoia</b></p>	<p><b>Others:</b> Minority of the participants trusted large scale farmers and seed providers.</p> <p><i>Moderator: Who don't you trust to share agricultural information?</i></p> <p><b>Respondent:</b> I trust the large-scale farmers.</p> <p><b>-Male Tomato Farmer IDI, Kajiado</b></p>
4	<p><b>Local resource persons:</b> Few participants depended on peer farmers and their self-observations of the weather as they found them reliable.</p> <p><i>Moderator: Oh, so you predict when there will be rain?</i></p> <p><b>Respondent:</b> Yes, I can predict the weather now. I can even wake up in the morning, look at the mountain, and know if it will rain or not.</p> <p><i>Moderator: And you trust your predictions?</i></p> <p><b>Respondent:</b> Absolutely, and they turn out to be accurate. You can just wake up and observe the weather, and you'll know if it will rain today or not.</p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p>	



# Access and receipt: Majority of participants receiving weather and crop advisory information preferred mobile phones as a channel.

## Receipt of advisory information

From the screener information, we found that over half of the participants received both weather and crop advisory information as shown below.



**Moderator:** How would you like to receive this information?

**Respondent:** Through the phone, calls or messages, the messages are better they remind me to read and understand.

- Female Dairy Farmer IDI, Trans Nzoia

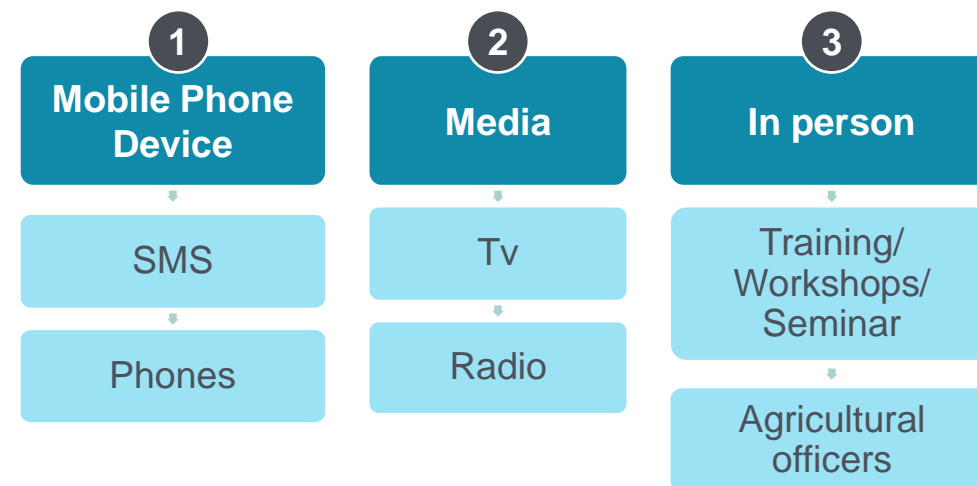
**Moderator:** How would you like to receive this information?

**Respondent:** Through listening, reading, observing, if it's the radio I'll listen, TV I'll observe what's happening, if it's a workshop I'll do practical, yes.

- Male Green grams Farmer IDI, Trans Nzoia

## Preferred information channels

- Participants preferred to receive both crop and weather advisory through their mobile devices, with a majority appreciating the convenience of SMSs.
- Many participants also valued advisory information received through the television as it is accompanied by visuals allowing for observation.
- Participants also appreciated demonstrations given during in person training, workshops, and field visits.



## Usage: Majority of farmers don't use weather and crop advisory information received due to lack of trust in the source. However, those that use found it beneficial.

- Out of the 46 participants that received both weather and crop advisory information, less than half of the participants (17 out of 46) use both of this information in their farming practices.
- Majority of participants, more so female participants, cited lack of trust in the source as the reason for not using both weather and crop advisory information. This is because they question the credibility of the information provided.
- On the other hand, participants that use both weather and crop advisory information received mainly use information on rain prediction, cloud cover, sunshine and drought resistant crops.
- These participants have found this information beneficial in planning what crops to grow and when to grow them as well as the appropriate farming methods/inputs to use.

“

I don't even read them (crop advisory information). Sometimes I read and see it is from conmen, who lie to people.

- Female Tomato Farmer IDI, Kajiado

”

“

**Moderator:** You don't use that information (weather advisory information)? Why would you say you don't use it?

**Respondent:** I sometimes find it to be untrue.

- Female Potato Farmer IDI, Nyandarua

”

“

Farming information, how to prepare compost manure, the kind of fertilizer to be used, the pesticides to be used during fall army worm infestation. When they say it will rain in a particular month, I start to prepare for planting.

- Male Potato Farmer IDI, Nyandarua

”

# Usage: Lack of interest, lack of localized information and illiteracy are examples of reasons cited for not using weather advisory information.

Reasons for not using weather advisory information cited by a few participants include:

	Reason for not using weather advisory information	Quote
1	Inability to interpret the information received and apply it to their farming practices.	<p><i>As for the change in weather conditions, I am not certain when summer starts, they just tell us, summer is here.</i></p> <p><b>- Female Green grams Farmer IDI, Taita Taveta</b></p> <p><b>Moderator: What weather or climate information are you currently using, if any?</b>  <b>Respondent: None. We are just doing guess work.</b></p> <p><b>- Female Maize Farmer IDI, Trans Nzoia</b></p>
2	Farmer illiteracy was cited as a reason for not using weather advisory information.	<p><b>Moderator: Is it because you don't read, I know you receive them from Narik, you just don't read them.</b>  <b>Respondent: Yeah.</b></p> <p><b>- Female Dairy Farmer IDI, Trans Nzoia</b></p>
3	Lack of interest in weather advisory information as this information is not perceived to be useful. Some also perceive that other sources such God's role in providing rain as sources they rely on.	<p><i>When I receive that, I keep quiet like that because it doesn't bother me.</i></p> <p><b>- Male Maize Farmer IDI, Trans Nzoia</b></p> <p><i>Right now, I'm just waiting for God's will.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p>
4	Lack of localized information on weather from some sources such as radio and TV.	<p><b>Moderator: Do you use the information from radio or TV?</b>  <b>Respondent: No because they don't give localized information the way KALRO does.</b></p> <p><b>- Female Potato Farmer IDI, Nyandarua</b></p>

## Usage: Participants that use crop advisory information such as when to plant, cultivate and harvest have reported increased yields.

- Majority of older and female participants cited using crop advisory information.
- The type of crop advisory information commonly used include; information on taking care of cattle including the appropriate animal feeds and information on vaccines. In addition, majority of farmers also cited using information on what and when to plant, cultivate and harvest.
- Using this information is perceived to be beneficial as it has led to increased yields.

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**Moderator: Is crop advisory information important to your farming activities?**

Respondent: Yes, because I get higher yields when I follow their steps.

**- Male Potato Farmer IDI, Nyandarua**

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“

I watched about Napier grass from Oljolorock, and I implemented.

**- Female Potato Farmer IDI, Nyandarua**

”

“

I told you at this time I am ahead, I saw conservation agriculture there is crop rotation. I've tried it and found it useful. So, I'm changing, yeah.

**- Female Green Grams Farmer IDI, Taita Taveta**

”

“

One Acre Fund was sending a message telling us that now is the time to cultivate. Aren't you preparing to cultivate? In like the second month, they say plow the second time now and so you prepare yourself. When it's time to plant, I have to follow the instruction as I was educated.

**- Female Maize Farmer IDI, Trans Nzoia**

”



# Perceived benefits: Proper planning of farming practices is the main perceived benefits of receiving weather advisory information.

Perceived benefit of receiving weather advisory information cited by participants include:

	Perceived benefit	Quote
1	Planning purposes. Majority of participants believe that receiving weather advisory information is useful in planning what crops to grow and when to grow them thus allowing them to prepare the land in advance. This is also reflected in the reasons why participants use weather advisory information received.	<p><i>It is important for preparing the farm. If you know it's going to rain, you prepare and you know how much, and you know what plant you will plant at what time.</i></p> <p><b>- Male Tomato Farmer IDI, Kajiado</b></p> <p><i>I use the information (weather advisory) to know when to plant crops.</i></p> <p><b>- Female Maize Farmer IDI, Trans Nzoia</b></p> <p><i>When I hear that there will be rain today, I prepare myself and feed the cows early before the rainfall, when it's drought season you find a way of organizing yourself.</i></p> <p><b>- Female Dairy Farmer IDI, Trans Nzoia</b></p>
2	Perceived to be useful to take precautionary measures. A few participants also cited that receiving information such as expected heavy rains allows them to take precautions to prevent yield losses.	<p><i>It (weather advisory information) makes me know how, to take precautions, for example when there is a lot of rain in the upper parts. We are alerted.</i></p> <p><b>- Male Green grams Farmer IDI, Taita Taveta</b></p> <p><i>If there is heavy rain in the forecast, you prepare for floods by early harvesting or making furrows.</i></p> <p><b>- Female Potato Farmer IDI, Nyandarua</b></p>

# Perceived benefits: Increased knowledge on farming practices is the main perceived benefit of receiving crop advisory information.

Perceived benefit of receiving crop advisory information cited by participants include:

	Perceived benefit	Quote
1	Leads to increased knowledge on appropriate harvesting practices.	<i>In the past we used to farm traditionally, and we didn't harvest enough food. KCSAP came taught us how to make furrows and profit from our flood prone farms.</i> <b>- Female Potato Farmer IDI, Nyandarua</b>
2	Leads to increased knowledge on farming methods.	<i>It is useful because according to the change in the country's behavior, there are crops that were grown here in the past, but according to the change in the country's behavior, at this time they cannot stand here. So, they (crop advisory information) are important, you will explain this time grow the maize in this and that way.</i> <b>- Female Green grams Farmer IDI, Taita Taveta</b>
3	Leads to increased knowledge on appropriate pesticides to us.	<i>It is important because if it is pesticides, you are advised which pesticide to apply at what time. Yes, so it is very important.</i> <b>- Male Tomato Farmer IDI, Kajiado</b>

## Interest: Majority of farmers are interested in receiving weather advisory information.

- The profile of participants most interested in receiving weather advisory information include:
  - Participants that currently receive weather advisory information are more likely to cite interest than those that don't receive.
  - Majority of female participants cited interest in receiving this information.
  - Majority of commercial farmers in loose value chains expressed interest in receiving this information.
  - Majority of maize, potatoes and dairy farmers also expressed interest in receiving this information.
- However, a minority of participants cited a lack of interest in receiving weather advisory information. This is mainly due to the perception that they can collect this information themselves by looking at the sky.

“

**Moderator:** Would you like to receive more information?

**Respondent:** Yes. So that I can continue learning.

*- Female Maize Farmer IDI, Trans Nzoia*

”

“

**Moderator:** Would you need that information?

**Respondent:** Yes, because if they told me, it would rain tomorrow, I would prepare myself and go and apply fertilizer in the afternoon so that when it rains the next day, it would go down.

*- Female Potato Farmer IDI, Nyandarua*

”

“

**Moderator:** Who would you like to receive weather or weather information from?

**Respondent:** I don't see I would want to. Because even sometimes I will look at the sky and be informed.

*- Male Maize Farmer IDI, Trans Nzoia*

”

## Interest: Rainfall patterns is the main information of interest to most farmers. This information should however be accurate and received early.

- Majority of participants are interested in receiving information on rainfall patterns.
- In addition, majority of participants cited that this information should be received early and be accurate to allow for proper planning of farming activities.
- Other preferences cited but by a minority is to receive weather advisory information monthly compared to weekly.

---

**Moderator:** Can we say you need more information.

**Respondent:** If I can get it is better. We get weekly updates but if they provide monthly information, it becomes more useful for planning.

*- Male Potato Farmer IDI, Nyandarua*

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“

**Moderator:** Would you like to receive more information?

**Respondent:** Yes. So that I can continue learning.

*- Female Maize Farmer IDI, Trans Nzoia*

”

“

**Moderator:** Would you need that information?

**Respondent:** Yes, because if they told me, it would rain tomorrow, I would prepare myself and go and apply fertilizer in the afternoon so that when it rains the next day, it would go down.

*- Female Potato Farmer IDI, Nyandarua*

”

“

**Moderator:** Who would you like to receive weather or weather information from?

**Respondent:** I don't see I would want to. Because even sometimes I will look at the sky and be informed.

*- Male Maize Farmer IDI, Trans Nzoia*

”



## Interest: Majority of participants cited interest in receiving crop advisory information.

- The profile of participants most interested in receiving this information include:
  - Participants that currently receive crop advisory information are more likely to cite interest than those that don't receive.
  - Majority of male participants cited interest in receiving this information than female participants.
  - Majority of commercial farmers in loose value chains and non-commercial farmers expressed interest in receiving this information.
- Participant's desire to increase their knowledge, experience and skills in farming are the main drivers of interest. This information is also perceived to help them stay up to date with the changing farming landscape.
- However, participants also cited that this information should be received from trusted sources, should include guidance on how this information is to be used and preference for receiving this information in Kiswahili for ease of understanding.

“

**Moderator:** Would you wish to get more information?

**Respondent:** Yes, I would like to.

**Moderator:** Why?

**Respondent:** To increase experience and skills.

*- Female Potato Farmer IDI, Nyandarua*

”

“

**Respondent:** Yes, I would.

**Moderator:** Why, is there something else?

**Respondent:** Because things are continuously changing, what you knew ten years ago might have changed by now, and I might be using outdated information.

*- Male Potato Farmer IDI, Nyandarua*

”

“

If one is to receive, they should know where it is from, how is it used? We might not understand the message.

*- Female Tomato Farmer IDI, Kajiado*

”

# Interest: Farming practices, knowledge on marketable crops and how to sell produce are examples of crop advisory information of interest to farmers.

The type of crop advisory information that majority of participants are interested in receiving include:

	Type of information of interest	Quote
1	Selling their produce as well as how to make farming profitable.	<p><i>They could help us with market information, link us to the market because it is a challenge to us ...if they assist us, we won't be exploited by brokers.</i></p> <p><b>- Female Potato Farmer IDI, Nyandarua</b></p>
2	Farming practices such as planting (crop selection and when to plant), field preparation, irrigation, weeding etc.	<p><i>I would like to know how to farm. For example, in August, I would like them to tell me what to plant, how to weed, and how to top dress. I want them to guide us each month on what to do.</i></p> <p><b>- Female Potato Farmer IDI, Nyandarua</b></p> <p><i>That is to be informed when it is necessary to prepare the field, when to plant, when to harvest, to apply fertilizer, top dressing.</i></p> <p><b>- Male Maize Farmer IDI, Trans Nzoia</b></p>
3	Knowledge on marketable crops.	<p><b>Respondent:</b> <i>I want to start doing modern farming.</i></p> <p><b>Moderator:</b> <i>What do you mean by modern farming?</i></p> <p><b>Respondent:</b> <i>Modern farming is, first I know where I come from, which crops are doing well. Sometimes we are given crops, and they grow but you don't know the soil itself..., so that I keep good records. I need to know which crops are doing well, for example for the season, which crop is marketable. You know sometimes you grow a certain crop and then the prices drop. So, I want the farming that you cultivate when the prices of that thing are okay.</i></p> <p><b>– Male Green grams Farmer IDI, Taita Taveta</b></p>

## Interest: Other topics of interest include seed selection, recommended pesticides and type of cattle to keep.

The type of crop advisory information that majority of participants are interested in receiving include:

	Type of information of interest	Quote
4	Seed selection.	<p><i>I need an officer to advice on time of planting, seed selection, how to plant.</i> - Male Potato Farmer IDI, Nyandarua</p> <p><i>If there is a new type of seed, we also need to be told.</i> - Male Dairy Farmer IDI, Trans Nzoia</p>
5	Types of crop diseases and pesticides to purchase.	<p><i>Sometimes I go to the agrovet to buy medicine, I just go to ask to give me vegetable medicine, now you don't know what you have seen and what you should put. Sometimes we wait until you are attacked then you start treating it. Receiving this information (appropriate medication) will help me to do things in a better way.</i> - Male Green grams Farmer IDI, Taita Taveta</p> <p><i>In farming? Maybe to be told which pesticides is recommended for which pests.</i> - Female Tomato Farmer IDI, Kajiado</p> <p><i>I want to know about potato diseases. Sometimes the crop dries up when affected.</i> - Male Potato Farmer IDI, Nyandarua</p>
6	For dairy farmers, there is interest in learning about what type of cattle to keep.	<p><i>We need to be told the new breed of cows so that we can venture and get that breed.</i> - Male Dairy Farmer IDI, Trans Nzoia</p>

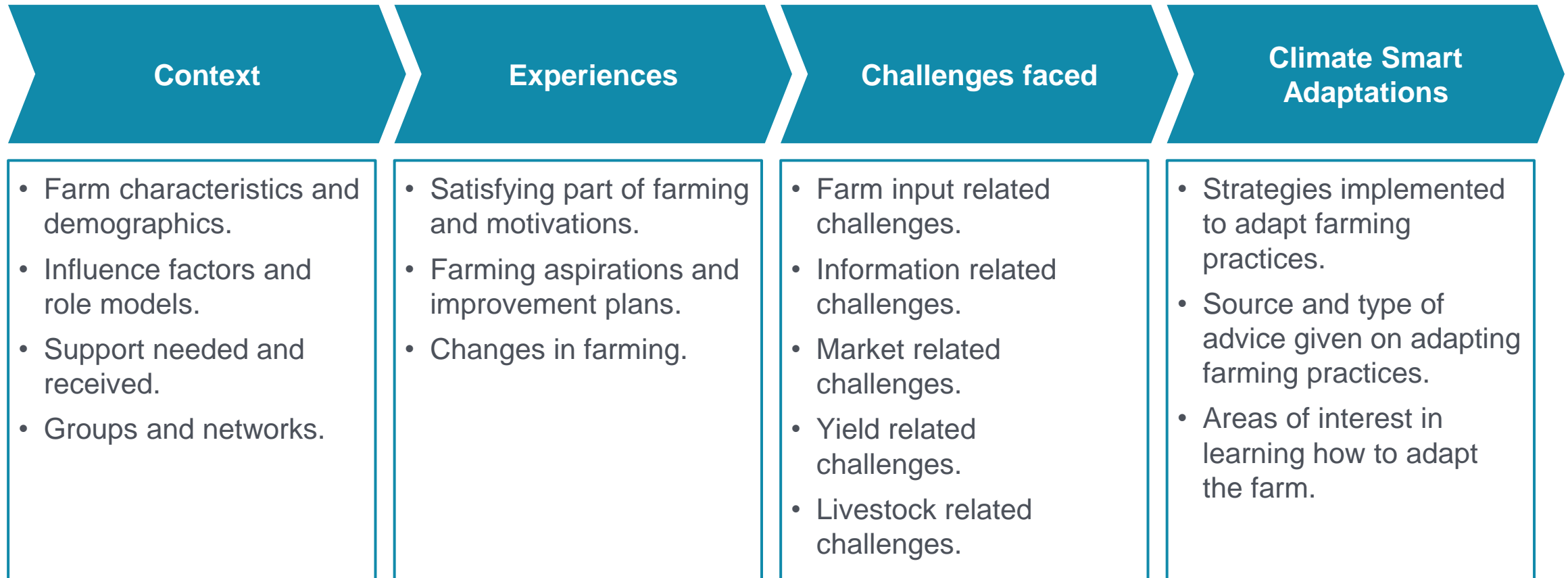


# *Farming practices and experience*



## Farming practices and experiences.

In this section we explore the following areas:



# Farm characteristics and demographics: Majority of the smallholder farmers have been in farming for more than 10 years and are mixed farmers.



Majority of the farmers indicated that they had been in farming for more than 10 years and this cut across the value chains, ages and gender.



Majority of the farmers were mixed farmers<sup>1</sup>, handling at least one other crop in addition to their main crop (we selected 5 value chains of interest to this study). Various participants mentioned the crops that they grew, we noted a total of 18 different crops in total.



The size of the farms ranged from 0.25 acres to 20 acres. Majority of the participants owned the land with a few farmers indicating that they leased land. The ranges are indicated in the table below.

Selected value Chains	Farm size range in acres
Dairy	0.5 – 7
Green grams	0.25 – 6
Irish potatoes	2 - 20
Maize	0.9 – 7.5
Tomatoes	0.5 - 3



**Moderator:** Ok, when did you start farming?

**Respondent:** Started farming in the year 2000, started keeping cows then I came to plant maize, followed by fruits, but mostly I do dairy farming.

*- Female Dairy Farmer IDI, Trans Nzoia*



**Moderator:** And what crops do you usually grow?

**Respondent:** During the maize season is when I plant only maize, and cassava inside. If it is this season we are in, we plant maize, beans, pulses, we mix everything, peas.

**Moderator:** Peas and green grams too?

**Respondent:** Yes.

*- Female Green Grams Farmer IDI, Taita Taveta*



**Respondent:** One acre. Owned, is one acre. But I have rented some.

**Moderator:** The ones you have rented in total can be how many?

**Respondent:** Three acres.

*- Female Tomatoes Farmer IDI, Kajiado*



1: Livestock and crop production take place within the same locality, and the ownership of crops or land and livestock is integrated.

Source: Dalberg in-depth interviews (IDIs) and key informant interviews (KII), Dalberg analysis

# Farm characteristics and demographics: Majority of the smallholder farmers cultivated beans in addition to their respective value chains.

We rank the crops in order of frequency of mention and list the rest under others:

- 1 Beans: Has a short growing period and fetch a better market price.
- 2 Maize: Grown for subsistence and as animal fodder.
- 3 Vegetables (cabbage, kales, spinach) for subsistence.
- 4 Peas.
- 5 Fruits (mangoes, plums, pears, bananas, avocados) for subsistence.
- 6 Carrots.
- 7 Grass and oats for cattle fodder.
- Others: Millet, sorghum, potatoes, tomatoes, sunflower, cassava, green grams, ground nuts, sugarcane, wheat.

“

**Moderator: What is your main crop? And why?**

**Respondent:** I would like it to be beans, I love beans so much. The prices of beans are not bad compared to maize. When you sell at 200, in 1 sack it will be 8000, if the whole acre gives you 20 bags, multiply by the 2000 you see the difference.

- Female Dairy farmer IDI, Trans Nzoia

”

“

**Moderator: What kind of crops do you grow in you farm?**

**Respondent:** I grow potatoes, cabbages, carrots, peas, and maize for fodder. We don't grow maize for human consumption because it takes long.

- Male Potato Farmer IDI, Nyandarua

”

“

It varies depending on the season. This season my main crop was beans, that is why I am expecting much. At least beans use the short rains. So this season my main crop is beans, so it depends on the season. If you are in Taita, there is a season called *kuari*, it is the winter season in favor of beans. Then there is *sumesu*, that is a season that is warm, it is in favor of green grams. Maize is all weather, so we always know very well that the season of *kuari* is beans, and then also you know your beans and benefits. From the ninth month we expect rains to continue, the tenth, eleventh and twelfth months are the best season to plant green grams.

- Male Green grams Farmer IDI, Taita Taveta

”

# Farm characteristics and demographics: Many of the smallholder farmers rely on farming as their main source of income and are key decision makers.

Majority of the farmers reported that farming was a business to them because they made some profit from selling their produce. Besides that, they got direct food provision for their families. Farming and household decisions were mostly made by the participants themselves.

>70%

Majority of the farmers reported that farming was their main income source and on estimate, it contributed over 70% to their household income.

Majority of participants stated that their income in the present growing season had increased when compared to the previous season (see the 2<sup>nd</sup> quote on the right). This growth was mainly because of;



- i. Increase in the prices of produce such as beans, potatoes.
- ii. Increased rainfall received.
- iii. Increased crop yields.
- iv. Reduced fertilizer prices.
- v. Availability of feeds (grass).

Majority of the farmers however stated that the farming income was not sufficient to meet their needs. The main reasons cited include:

- High household expenditure such as payment of school fees using proceeds from the farm.
- High cost of labour and farm inputs.
- Low yields from the farms due to various pests.
- Low sales from harvested produce.

“

Well, let's say it's a business because I don't lack money and I don't lack food.

- Male Dairy Farmer IDI, Trans Nzoia

”

“

**Moderator: Is the money generated by the farm this half of the year more than the money you received for the same period last year?**

**Respondent: Yes**

**Moderator: Why? Has the harvest been good?**

**Respondent:** It has not been good but at least if you get a bag of beans, it was being sold at KES14,000, yet back then, it was going for like KES3,500 - KES4,000.

- Male Tomato Farmer IDI, Kajiado

”

“

**Moderator: Is the money generated from the farm enough to pay bills, purchase farm inputs and reward your work?**

**Respondent:** Not really, because in that money you find that you have to pay school fees and others, that's why I said I am also in chamas. That money I will put in the chama, and then chama will give me some loan.

- Female Dairy farmer IDI, Trans Nzoia

”



# Farm characteristics and demographics: Measures to improve profitability of the farm are mainly centred around farm inputs, among other efforts.

We categorised and ranked the measures cited to improve farm productivity into four as shown below:



## Ensuring sufficient farm inputs are used:

- Use of manure and fertilizer.
- Use of good/certified seeds.
- Use of agrochemicals such as pesticides, fungicides and herbicides.



## Expansion of farming – Crops and land:

- Diversifying crops grown.
- Expansion of the cultivated land.
- Seed farming.



## Improved farming methods:

- Early land preparation and planting.
- Reduced labour or farm size.
- Focus on the main produce.



## Improved water supply:

- Irrigation techniques.
- Harnessing rainwater.

“

**Moderator:** What would you change to make it more profitable?

**Respondent:** If I could get enough fertilizer, the produce would flourish and if I sell them, it will help me.

*- Female Dairy Farmer IDI, Trans Nzoia*

”

“

Maybe if I could ....I would grow and plant the short season crops, like two months, three months, when it is harvested, I grow again.

*- Male Maize Farmer IDI, Trans Nzoia.*

”

“

I reduce the size of the farm I plant on so that the expenses can reduce and work with what I can afford so that I can get a profit.

*- Male Potato Farmer IDI, Nyandarua.*

”

# Influence factors and Role models: Many participants reported that the crops they grew were self selected. They also looked up to their parents as role models.



## Influence factors:

Majority of farmers indicated that they had not been influenced in choosing the crops that they grew on their farms. They reported that they;

- Understood the value of the crops they grew.
- Grew crops that had 'traditionally' been grown in their region.

However, some farmers also indicated that they were **influenced to grow** their current crops by;

- **Family** – Farmers brought up in farming households were taught by their parents.
- **Neighbours and friends** – This happened mostly after farmers observed their neighbour's practices and adopted them for their own farms.
- **Others** – Trainers, farmer groups were also mentioned by a minority as a factor of influence.



## Role Models:

Majority of farmers also identified local persons that are known to the participants and have **relatable success stories** as **role models**.

The following were the role models recognized by the farmers;

1. **Parents** – Farmers were inspired by the progress they saw in their farming households as they grew up, and they desired to emulate their parents' diligence and growing expertise in farming.
2. **Successful farmers** – Farmers view success as high crop yields or increased livestock kept; farm proceeds being able to meet the needs of the household such as school fees payments, and developments such as building homes. These were the reasons they looked up to fellow farmers.
3. **Others** – These include neighbours, authority figures (e.g., the Kenyan president), brothers, sons, spouses, employers.

“

**Moderator:** Okay. were you influenced to start growing potatoes?

**Respondent:** No. potatoes are good because they can be eaten and used as a cash crop as well.

- Female Potato Farmer IDI, Nyandarua”

“

**Respondent:** ...My dad.

**Moderator:** Why do you choose that?

**Respondent:** He did not study, but he became diligent and educated us and he also worked hard, we never went hungry. Everything we needed, he tried to make sure we got it at least. Even if it's not on time, he ensured we got the things we needed.

- Male Maize Farmer IDI, Trans Nzoia”

“

I passed by and saw a guy who has not studied much but he is struggling to make ends meet, he comes and buys his goats. He told me that he started with ten goats and that guy has about seventy goats at this time, I loved it so much that I took it and put it in my mind, even at this moment that is the target in my mind.

- Male Green grams Farmer, Taita Taveta”

# Support: Though participants received support mainly in the form of seeds, they indicated that they would like to receive input such as irrigation equipment.



## Support received:

Approximately half the farmers reported to have received various forms of support from governmental bodies such as KCSAP, from NGOs, and family members. The forms of support are as follows.

- Provision of certified seeds such as sorghum, maize, vegetables, *markies* (potato variety) at no cost, or sometimes farmers paid for them in instalments.
- Agricultural chemicals mainly fertilizers, as well as herbicides and pesticides.
- Financial support in form of loans from farmer groups or farmer facing organizations, or funds from family members.
- Others – Support is also received in form of trainings, poultry, farm equipment, and advice on suitable crop types.

## Support needed:

Many participants reported that they mostly required support in form of **irrigation equipment** including pumps and pipes, as well as **fertilizer**. We categorized and ranked participants' needs as follows.

① Input		② Information
<ul style="list-style-type: none"> <li>• Irrigation pumps and pipes.</li> <li>• Fertilizers.</li> <li>• Pesticides.</li> </ul>	<ul style="list-style-type: none"> <li>• Seeds .</li> <li>• Livestock (goats, cows).</li> <li>• Water storage units.</li> <li>• Tractor (small).</li> </ul>	<ul style="list-style-type: none"> <li>• Training on land preparation, planting, use of agricultural chemicals, other skills.</li> </ul>
③ Infrastructure		④ Finance
<ul style="list-style-type: none"> <li>• Fixing roads.</li> </ul>		<ul style="list-style-type: none"> <li>• Loans.</li> </ul>

“

They uplifted us with *markies* seed which is normally expensive and not available in the market.

- Female Potato Farmer IDI, Nyandarua

”

“

First of all, apart from that, I would also like to be shown how to prepare the field because sometimes the field can only be ploughed once, and I plant yet it deserves to be ploughed twice. Then I get enough fertilizer because I have taken a certain amount because it is to be paid for, and the income is not enough.

- Male Maize Farmer IDI, Trans Nzoia

”

“

If I can get pesticides for the pests, or seeds, I'd be grateful. Any help that will help expand farming. If you were planting, you still need to plant.

- Female Tomato Farmer, Kajiado

”

# Groups and Networks: Majority of the participants were part of farmer groups.

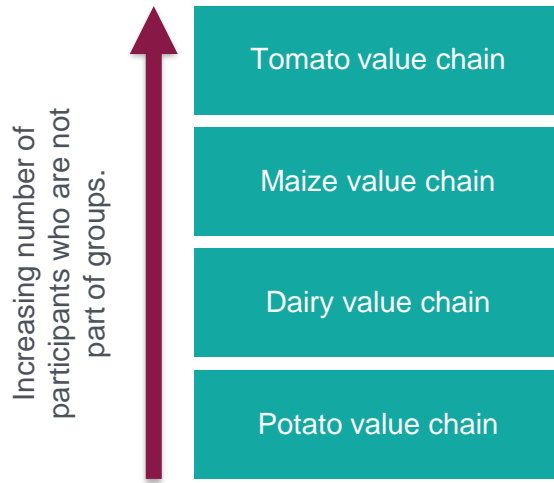
## Participants who were part of groups:



Participants reported that they were in various types of groups which we list and rank below in order of frequency. The names of the groups are listed in appendix 1.

1. Farmer groups. Approximately **two thirds** of the participants belonged to groups. This is except for half the farmers in the tomato value chain, as well as a few others in the maize, dairy and potato value chains. All Green gram farmers reported to be part of groups.
2. Self-help groups for both financial and agricultural support.
3. Cooperatives for varied support in farming.
4. SACCOs that major on financing.
5. Youth groups that capitalize on teamwork and discuss life issues.

## Participants who were not part of groups:



For participants not part of any groups, the main reasons cited include being part of a group but were unable to continue and that there were no groups that they could join. Others opted not to join any groups.

For these participants who were not part of groups, more than half of them did not receive weather or crop advisory information.

“

We formed a cooperative in our area called Gidhafai ward horticulture. This cooperative is for peas and dairy farmers. We want to venture into French beans.

- Female Potato Farmer IDI, Nyandarua

”

“

**Respondent:** These are like welfare or self-help groups

**Moderator:** What inspired you to be a part of this group? What made you be part?

**Respondent:** It is to find that financial support.

- Male Maize Farmer IDI, Trans Nzoia.

”

“

**Moderator:** Are you part of any community group like a cooperative or farming group?

**Respondent:** There was a time I was part, but I was unable to continue and slowed down.

- Female Dairy Farmer IDI, Trans Nzoia

”

# Groups and Networks: Discussion topics in groups were centered around different aspects of farming, prospects for additional projects, and life matters.



## 1. Farming:

Majority of the participants reported to discuss various topics under farming. Of frequent mention were topics on;

- Farming practices such as irrigation, weeding, pesticide application
- Use of certified seeds and crop rotation.
- The end-to-end farming cycle from planting to harvesting and selling the produce.
- Livestock rearing which included breeding cattle and feed preparation for mostly cattle and poultry.



## 2. Additional projects:

Majority of participants discussed other projects whose aim was to help them advance not only in agriculture but also other areas. These topics included;

- Expansion of their farming practice.
- Income generating projects (e. g. making poultry and cattle feed for sale).
- Loans and their use to invest.



## 3. Life matters:

Welfare was also a key discussion topic in the groups where many participants spoke of their personal needs such as school fees and food, as well as how to support each other in difficult times.



We discuss how we can advance ourselves as farmers. Some propose we keep chicken; some propose we grow crops, and there are some who say we rear cattle. That is it.

- Female Tomato Farmer IDI, Kajiado.



There is a topic about table banking, and how to develop ourselves. Let's say, we as a group get a loan if it's from the government or Uwezo fund. If they go into the account and now here each person is given like five thousand, for example, to go and do his project, then he gives it back. A group will attract funding faster than one person.

- Female Green grams Farmer IDI, Taita Taveta






This group is about helping each other. At this time, we want our children to study, if our partner is overwhelmed, we assist with fees so the child should go to school. If someone gets sick, we can get him to go and pay, buy pesticides or pay hospital bill. If one is bereaved, we help him.

- Female maize Farmer IDI, Taita Taveta






# Groups and Networks: Support and encouragement received, as well as knowledge sharing were among the top benefits of the groups as cited by the participants (1/2).

Below we outline the perceived benefits of the groups that the farmers were a part of:

	Benefit	Quotes
1 	<b>Support and encouragement:</b> From the groups, farmers build communities that offered sound advice in agriculture and encouraged personal development among the members. Farmers were also supported when they were bereaved or when they needed to settle hospital bills or pay school fees.	<i>We support each other through advice, you look at what your colleague is doing and help with suggestions.</i> - <b>Female Green grams Farmer IDI, Taita Taveta</b>  <i>We support each other in tough times, if one of us has problems, we visit them to know how the person is doing and offer support.</i> - <b>Female Tomato Farmer IDI, Kajiado</b>
2 	<b>Knowledge sharing:</b> Farmers learn together and from each other while in the groups, their focus is to improve their farm practices for increased yields.	<i>I wanted to gather more information. Gathirika smart farmers educate us about potato farming, Moki farmers educate us about cows and Tawa Sacco about business.</i> - <b>Male Potato Farmer, Nyandarua</b>
3 	<b>Table banking:</b> Farmers contributed a set amount of money at regular intervals to build a culture of saving. This pool of funds enabled them to receive loans to expand their agriculture practice as well as for personal use.	<i>We have table banking. So, I thought, let me join, because even if I'm broke at home, when I get there, I can get three thousand or three hundred, to go back and buy food for the children.</i> - <b>Female Maize Farmer IDI, Trans Nzoia</b>  <i>We normally do table-banking merry-go round. You can buy utensils from that or fertilizer or certified seeds..</i> - <b>Female Potato Farmer IDI, Nyandarua</b>

# Groups and Networks: Other perceived benefits include access to financing and marketing opportunities (2/2).

	Benefit	Quotes
<p>4</p> 	<p><b>Financing:</b> Farmers can access loans for either personal development or expanding their farming. These groups raise participants' eligibility for donor funding.</p>	<p><i>It helps me to contribute to my farming, if I am low in income I go to take a loan, it increases my farming.</i> - Female Maize Farmer IDI, Trans Nzoia</p> <p><i>Moderator: What are some of the benefits you accrue for being part of this group?</i> <i>Respondent: There are interventions that help us through funding, we get money.</i> - Male Dairy Farmer IDI, Trans Nzoia</p>
<p>5</p> 	<p><b>Marketing:</b> Farmers who bring together their produce and are able to sell it at competitive prices.</p>	<p><i>...because there we collect together. So, I can have 5kg and it goes to the market, rather than if I had it alone, it's not that easy.</i> - Female Green grams Farmer IDI, Taita Taveta</p>
	<p><b>Other benefits</b> mentioned include:</p> <ul style="list-style-type: none"> <li>• Investments are made</li> <li>• Personal needs are met</li> <li>• Farm input received</li> </ul>	<p><i>It's called Nyota Tano, we meet on Saturday. We do table banking, we save, we borrow. We have a machine for making cattle and chicken feed, it was given to us by Naridge, we are selling the feeds.</i> - Female Maize Farmer IDI, Trans Nzoia</p>

# Groups and Networks: The role of family members was mainly to offer direct support in farming though labour.



- Majority of the participants cited that they relied on their family members to directly support them in the farming activities such as land preparation, planting, weeding, harvesting, milking cattle, and spraying cattle against ticks, among other activities.
- Participants also relied on family members to coordinate and supervise the labourers in the field, this was common for the wives in the households.
- Family members also provide financial support such as buying seeds and fertilizer and paying the workers.

**Moderator: What roles do the members of your family play in your farming practices?**

**Respondent:** I have got a son with a contract somewhere, sometimes he supplies me with the salt of the animal. The other day my two animals were about to abort, I saw a veterinarian come here, and he told me he has been sent by my son. He has been supporting me because he is the only one who has a (kibarua) job.

*- Male Dairy Farmer IDI, Trans Nzoia*

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**Moderator:** Tell us about, your wife and children, what is their job in your farm?

**Respondent:** They help.

**Moderator:** What is their support like in agriculture?

**Respondent:** When I do that work, we work as a family, that is, the teamwork if I go to weed or plant, harvest.

*- Male Green grams Farmer IDI, Taita Taveta*

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**Moderator:** What about your wife? Does she play any role in farming?

**Respondent:** She is the heart and lungs of farming. She does a lot of work here.

**Moderator:** What role does she play?

**Respondent:** She is directly in control of the people we give menial jobs; she oversees who is to do this, how much has been done. When we do the sales, I do not directly take that money. I want her to feel the sense of doing that job.

*- Male Potato Farmer IDI, Nyandarua.*

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# Farming Motivations: Certainty of farm produce, farm processes and income brought satisfaction to the participants, with income gained cited as the major motivator in farming.

Majority of participants found various aspects of farming to be satisfying. These rewarding facets of farming in turn motivated the participants to continue practicing farming. We describe the top aspects below.



**Farming activities** (planting, weeding, harvesting) and the assurance of yields after the growing season were valued by the participants.

- Participants who reared livestock such as cattle, goats or chicken reported to receive near daily incomes. They also viewed the minimal dependence on rainfall for this process as an advantage.
- Potato farmers appreciated the crop's high value and short growing season which translated to relatively quick returns.

These yields were a motivator because they provided income after sales and as a food source for their households.



**Income gained** was also rewarding for the participants who reported regular incomes during the harvesting period such as is the case for tomato farmers. Participants anticipated that the profits gained would enable them to meet their daily needs. Farming was viewed as a career option by individuals who had a low education level.

Participants were also encouraged to continue farming by family members especially in households with parents who primarily engaged in farming.

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I keep livestock and feed them well, you get milk. Although the milk prices fluctuate, when it is stable it helps us. When you take care of the maize, and observe the weather in time, you get a lot of yield, that is the benefit.

- **Male Maize Farmer IDI, Trans Nzoia**

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Potato matures in short time, and you harvest in four months after planting. The money you receive is in lumpsum so if you want to pay fees you do it with ease, but cows only cater for daily needs.

- **Male Potato Farmer IDI, Nyandarua**

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I was born in a farming family; I took over from my parents as that is the job I can do here.

- **Male Tomato Farmer IDI, Kajiado**




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# Farming aspirations and plans were aimed at improving farm practices. (1/2)

	Aspiration and achievement strategy	Quote
<p>1</p> 	<p><b>To improve present farming practices:</b></p> <p>Participants desired to improve current farming practices such as irrigation of crops and use of certified seeds when planting.</p>	<p><i>I think for this prolonged drought, it is to start using irrigation now. This is natural you cannot change; we don't know that the rains will come or be reliable. So, what can we do, we don't blame this water too much, we are trying to turn it around, I think if I major in irrigation I will have dealt with unreliable rain.</i></p> <p><b>- Male Green grams Farmer IDI, Taita Taveta</b></p>
<p>2</p> 	<p><b>To incorporate new farming methods:</b></p> <p>Participants desired to introduce new inputs and methods into their farming to make their processes efficient as well as improve the yield quality.</p> <p>Such methods reported include:</p> <ul style="list-style-type: none"> <li>• Soil sampling and testing to improve soil productivity.</li> <li>• improving water supply through water harvesting, using solar pumps, sinking boreholes.</li> <li>• Use of appropriate agrochemicals such as pesticides, fertilizers.</li> <li>• Rearing high quality livestock breeds especially cattle, with a mention of rearing rabbits and goats.</li> <li>• Establishing green houses.</li> </ul>	<p><i>...the use of solar to pump water, it is cheaper using solar to pump water.</i></p> <p><b>- Female Tomato Farmer IDI, Kajiado</b></p> <p><i>I used to have local breed cows in the past, but I have changed to high yielding breeds. The challenge is feeding them, but I have planted different crops for their fodder that will yield more milk.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p> <p><i>Now for me, the ability that I have, I have taken the step of making these ditches to harvest these when the water comes and does not pass. If they enter the ditch and the farm, I dig at least let them settle down.</i></p> <p><b>- Female Green grams Farmer IDI, Taita Taveta</b></p>



# Farming aspirations and plans were aimed at improving farm practices. (1/2)

	Aspiration and achievement strategy	Quote
<b>3</b> 	<b>To expand their farming practice:</b> Participants stated that they would save and seek loans to acquire land, increase the volume of crops that they currently planted, as well as plant new crops.	<i>I will use what I earn from the potatoes. I will open a savings account and deposit the money there. I will save some and maybe in three years, I will request a loan and add that to what I have to buy the other farm.</i> <b>- Female Potato Farmer IDI, Nyandarua</b>
<b>4</b> 	<b>To build knowledge in farming:</b> This is through participating in relevant trainings and receiving information.	<i>...due to lack of knowledge, my cows are not getting extra calves, they are not expanding. But because I am focusing on farming, I want to get more knowledge on how I can manage so that I can ensure that I get more animals and production. Then in the crop farm, I am trying my best to follow the weather; when I get information that the rains are not going to be much, I know what to plant in that season.</i> <b>- Female Dairy Farmer, Trans Nzoia</b>
<b>5</b> 	<b>To raise their income level:</b> Farmers indicated that they would seek out markets for their produce as well as establish agriculture related businesses to diversify their incomes.	<i>I have to succeed in farming first and also, I get markets for my produce.</i> <b>- Male Tomato Farmer IDI, Kajiado</b>

# Participants report either reduced or improved harvests as the most noticeable change in farming.

Participants cited having observed positive and negative changes in farming as outlined below:

## Positive Changes:

### 1. Better farming practices:

These include some that the participants practiced themselves such as use of manure for improved crop yield, crop rotation, and using furrows to harvest water and avoid flooding, and early land preparation. They also noted that others had incorporated mechanised farming.

### 2. Improved harvest:

Participants noted that farms were more productive when farmers were resilient, used better techniques and cultivated in new farms.

## Negative Changes:

### 1. Reduced harvest:

This was among the top negative observations. Majority of farmers attributed the low harvests to poor soils in areas where farms had been cultivated for long periods of time, unfavourable weather, subdivision of farms and delayed planting, and crop pests.

### 2. Others:

- Topographical changes where the landscape had been altered due to erosion or flooding.
- Resistant weeds that were more challenging to control.
- Low market prices of farm produce.

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**Respondent:** Yes, most of them have shifted from traditional methods like hand ploughing to using tractors and use of herbicides instead of weeding.

**Moderator:** What changes has mechanized farming brought to the farms around?

**Respondent:** Use of tractor reduces the time for preparing land and it is cheap compared to human labour.

- Female Potato Farmer IDI, Nyandarua

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**Moderator:** Have you observed any changes in the farm around your area?

**Respondent:** There are changes, during the dry season we take manure from the cow and pour it there and plant vegetables, we don't go to buy manure to use for planting vegetables.

- Female Dairy Farmer IDI, Taita Taveta

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Even me what I used to get in this one acre of mine is no longer there, it doesn't give me returns like the other times, even at home where I was telling you we normally get 15-20 bags and we used to get 30-35 bags per acre, I think the soil is affected.

- Male Dairy Farmer, Trans Nzoia

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# The key challenges faced by farmers can be grouped into farm input, market, crop yield, information and livestock related challenges.

Farmers face a myriad of challenges when it comes to farming practices.

In this section, we have grouped these challenges into five main buckets as described below:

- **Farm input related challenges.** These relate to challenges faced in accessing and using farming inputs.
- **Information related challenges.** These relate to perceived lack of information and/or skills for farming as well as access to the wrong information.
- **Market related challenges.** These related to challenges faced in accessing markets and selling farm produce.
- **Yield related challenges.** These relate to pests and diseases affecting crop yields.
- **Livestock related challenges.** These include but are not limited to access of feeds and produce from livestock.

We expound on these challenges in subsequent slides.

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Inputs are available but are becoming too expensive.

- Male Tomato Farmer IDI, Kajiado

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**Moderator:** So, which are the three most, three main challenges or top three challenges are faced by a smaller holder farmer in Kenya?

**Respondent:** Access to quality and affordable inputs, access to market and access to extension services.

- CE – 1 KII, Nairobi

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For now, farming is a lifestyle. I haven't done it as a business because production is very low.

- Male Green grams Farmer IDI,  
Taita Taveta

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# High prices and lack of fertilizers, pesticides and fungicides are examples of farm input related challenges faced by farmers.

	Challenge	Quote
	<b>Farm input related challenges:</b>	
1	<b>Lack of fertilizer.</b> The challenges cited by majority of farmers include lack of fertilizers in the market, lack of money to purchase the fertilizer and/or high fertilizer prices. This is cited to lead to delays in planting and consequently negatively impacting crop yields.	<p><i>Sometimes we have a problem with fertilizers to be used in the farm, sometimes it's so challenging to me until I delay in cultivation and planting.</i></p> <p>- Male Dairy Farmer IDI, Trans Nzoia</p> <p><i>The prices of fertilizer. It has gone up, also sometimes the fertilizers are not available in the market.</i></p> <p>- Male Maize Farmer IDI, Trans Nzoia</p>
2	Majority of farmers cited <b>high prices of pesticides and fungicides and usage of ineffective pesticides</b> as key challenges. This negatively impacts the crop yields given the inability to purchase sufficient pesticides to protect the crops from pests and diseases.	<p><i>Fungicides for early and late blight is expensive. A kilo is going for KES1500 then you need a sticker for it not to be washed by rain. It spreads the fungicide and makes it stick. It costs KES350 for three pumps and a ¾ of an acre needs 20-30 pumps per time. Potatoes grow very fast and become vegetative with so many leaves so one pump will just cover a small area and to sustain that till the end of growing you will have input a lot of money.</i></p> <p>- Male Potato Farmer IDI, Nyandarua</p> <p><i>It has affected me because the pesticide that I used to buy for one thousand shillings is now two thousand shillings. And the income has not increased it is the same.</i></p> <p>- Female Maize Farmer IDI, Trans Nzoia</p>

# Other farm input related challenges include poor and unpredictable weather patterns and lack of appropriate seeds.

Challenge	Quote
<b>Farm input related challenges:</b>	
<p><b>3</b> <b>Weather related challenges.</b> Majority of farmers cited unpredictable weather patterns, lack of rain, drought and floods as the main challenges they face leading to low crop yields.</p>	<p><i>Unpredictable weather patterns. Sometimes you plant and the weather changes, and that affects your crop produce.</i></p> <p><b>- Female Potato Farmer IDI, Nyandarua</b></p> <p><i>On farming, we've experienced drought here in Rombo. There have been no rains for the past four years, yet we've been planting crops, maize and beans that dry up. They do well for some time then dry up. So, for farming, things are not good.</i></p> <p><b>- Female Tomato Farmer IDI, Kajiado</b></p> <p><i>The weather also contributes. Yes, the temperature is getting higher, and the corn does not do as well as in the past.</i></p> <p><b>- Male Tomato Farmer IDI, Kajiado</b></p>
<p><b>4</b> <b>Lack of seeds.</b> The common challenges cited include high prices and lack of access to the appropriate seeds leading to low crop yields.</p>	<p><i>I see the challenge becoming more difficult because the seeds we get sometimes are not good. You go and find seeds in the store that do not germinate, or the crops are small and not what you expected.</i></p> <p><b>- Male Tomato Farmer IDI, Kajiado</b></p> <p><i>First to look for seeds, this year we bought seeds at a high price, if you don't have two hundred and twenty you can't get a kilo of beans.</i></p> <p><b>- Female Green grams Farmer IDI, Taita Taveta</b></p>



# Majority of farmers also cited lack of farm machinery and poor soil quality as additional farm input challenges.

Challenge	Quote
<b>Farm input related challenges:</b>	
<p><b>5</b> <b>Lack of farm machinery</b> such as tractors and pumps to support with farming. This is largely due to the lack of finances to purchase these inputs.</p>	<p><i>The challenge is that you take the medicine, but you don't have a pump to put the medicine, you lack farm equipment, to use as a sprayer, you take medicine, but you don't have the equipment to put it, so you just put it there.</i></p> <p><b>- Male Green grams Farmer IDI, Taita Taveta</b></p> <p><i>Even the tractor is dead here, I have to hire a tractor, which is very expensive.</i></p> <p><b>- Female Maize Farmer IDI, Trans Nzoia</b></p>
<p><b>6</b> <b>Soil related challenges</b> such as soil that is incompatible with fertilizers used as well as soil with low porosity and as a result doesn't retain water. This therefore leads to low crop yield.</p>	<p><i>You see that the crops are drying here and yet your water is there, because this sand tends to release water quickly, so if you are putting water, it means you will really put a lot of water, so it needs at least a pump.</i></p> <p><b>- Male Green grams Farmer IDI, Taita Taveta</b></p> <p><b>Moderator:</b> Does the agricultural officer come to do soil testing?  <b>Respondent:</b> He tests and advises that we use DAP fertilizer, but the soil isn't compatible with DAP.</p> <p><b>- Male Tomato Farmer IDI, Kajiado</b></p>

# Lack of accurate and timely agricultural information was cited as a major challenge faced by majority of farmers.

Challenge	Quote
<b>Information related challenges:</b>	
<p><b>1</b> Information on appropriate farming practices provided is perceived to be <b>inaccurate and not shared in a timely manner</b>. This has led farmers to rely on incorrect information such as what to plant hence resulting in low produce.</p>	<p><i>Right now, I have done my research in handling those crops. At other times you are cultivating, and you find that you are doing the wrong thing, that is why you get a small harvest, that's it.</i>  <b>- Female Green grams Farmer IDI, Taita Taveta</b></p> <p><i>Source of accurate knowledge. Basically, the fact that there's knowledge available there, but it's so difficult for farmers to know where to get that knowledge. So that is one, the other one is that sometimes it is about the relevancy of the knowledge and timeliness. So, whereas someone can be having the knowledge, but if the knowledge is not relevant, it's not timely, it's difficult for farmers to know which knowledge to trust.</i>  <b>- CE - 2 KII, Nairobi</b></p>

## Other information related challenges faced include insufficient information on farming practices while others cited a general lack of information.

Challenge	Quote
<b>Information related challenges:</b>	
<p><b>2</b> <b>Lack of agricultural information from relevant agricultural experts.</b> This results in farmers relying on outdated information and their personal experience which they perceive is not sufficient.</p>	<p><i>We have so many challenges or problems because of lack of information. We don't get agricultural information from the government. In the last 20 years I have never seen an agricultural officer around. I depend on my phone to Google for information on weather and decide what to plant.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p> <p><i>I am not an expert in agriculture, what we do we do is that we were born in the environment of agriculture, we only do it according to what we received, we don't have any research, we don't have any more understanding.</i></p> <p><b>- Male Green grams Farmer IDI, Taita Taveta</b></p> <p><i>Others (farmers) might not have access to the information that the big farmers have that help them increase their produce and production.</i></p> <p><b>- R/GI - 3 KII, Nairobi</b></p>
<p><b>3</b> <b>Farming information provided is not sufficient.</b> There is a desire by farmers to receive more information than is currently provided. This is especially information on weather patterns and the soil.</p>	<p><i>Sometimes we are given crops, and they grow but you don't know the soil itself, or the weather.</i></p> <p><b>- Male Green grams Farmer IDI, Taita Taveta</b></p>

# Majority of farmers cited lack of timely market, exploitation by brokers and fluctuating market prices as examples of market related challenges.

Challenge	Quote
<b>Market related challenges:</b>	
<b>1</b> <b>Lack of available markets and bargaining power in selling farm produce</b> was cited as a key challenge. The perceived lack of bargaining power was attributed to the low farm production by smallholder farmers.	<p><i>Small scale farmers in Kenya their production is fragmented due to things like land subdivision etc., and therefore for the farm produce they have they cannot bargain for a better price in the market, and therefore they'll get any possible market that they'll be given. So, they're more price takers rather than price bargainers.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi</b></p> <p><i>Potatoes is a perishable produce, so we do not get timely market.</i></p> <p style="text-align: right;"><b>- Male Potato Farmer IDI, Nyandarua</b></p>
<b>2</b> <b>Exploitation by brokers</b> was also cited as a key challenge among majority of farmers. Brokers are perceived to set low prices for farmer's produce forcing farmers to sell them at uncompetitive prices. In addition, brokers are also perceived to earn high profits from the sale of the produce but pay back farmers very little.	<p><i>Where you take your maize to the market and you are exploited, you are told that your maize may not be fresh, sometimes it is not properly dried. You find that others are taking advantage of that opportunity because now you have brought it to them (brokers) and they will take it elsewhere, they abuse you, they tell you, we have to send this maize to cereal again, I don't know where to take it, so you are trying to lower the price, so that they can go and sell it at a higher price. That is the challenge.</i></p> <p style="text-align: right;"><b>- Male Maize Farmer IDI, Trans Nzoia</b></p>
<b>3</b> <b>Market saturation.</b> This occurs when there is excess supply of the same produce in the market. Farmers cited that this phenomenon results in a lack of market for their produce.	<p><i>If all of you here have harvested, if it is the same green grams you find, all of you are with 'the same green grams when you go to the shops and they say, they can't get it because they are full, that's it.</i></p> <p style="text-align: right;"><b>- Female Green grams Farmer IDI, Taita Taveta</b></p>

# Other market related challenges cited include market saturation, lack of demand and poor roads that make markets inaccessible.

	Challenge	Quote
	<b>Market related challenges:</b>	
4	<b>Fluctuating market prices.</b> This fluctuation is believed to depend on the season or weather patterns with high prices during the dry season and low prices during the rainy season. This has led to losses as farmers are not able to make significant profits when prices are low.	<p><i>Market matters, the market is different, because today you hear that maize is being sold for KES5000, KES4000, KES6000. It goes back and forth, it is unstable.</i></p> <p><b>- Male Tomato Farmer IDI, Kajiado</b></p> <p><i>Prices fluctuate in relation to weather. A bag is KES6000 during dry season and KES2000 in rainy season.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p>
5	<b>Lack of demand.</b> This refers to lack of buyers of produce in the market. This has resulted in farmers experiencing yield losses as a lot of crops go to waste and/or are not able to make a profit from the sale of the produce.	<p><i>Market is one main thing because we produce surplus, but it goes to waste like now nobody wants to buy. When the market is good, the buyers give you a problem because they ask for potatoes, cabbages. Now we have a lot of cabbages going to waste.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p> <p><i>You find that when you get your produce, one bag, you go to sell and the person you want to sell to says they have more in stock, there is a lot of that produce in the market. They give priority to those with more bags.</i></p> <p><b>- Male Tomato Farmer IDI, Kajiado</b></p>
6	<b>Poor roads</b> that make it difficult to access the markets.	<p><i>When it rains a lot, the roads get cut off. Now those who come to buy our livestock and grains in the farm, you find that getting to the farm becomes a problem because there is no place where a car can get to the farm and take the crops.</i></p> <p><b>- Male Tomato Farmer IDI, Kajiado</b></p>



## Pests and diseases were also cited a key challenge affecting majority of farmers.

- The main yield related challenge affecting majority of farmers is pests and diseases.
- These pests and diseases are not only perceived to negatively impact crop yields but also are perceived to be costly given farmers have to spend a lot of money to purchase pesticides.
- In addition, majority of farmers also highlighted the presence of pests that are resistant to pesticides which also negatively impacts crop yields.

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Pests are also a challenge; you apply a pesticide on the insects and another type emerge. You go to the agrovet after consulting with friends, spend KES1,000 on pesticides that sometimes don't work instead it is like you're feeding them to grow fat. You lose hope in the process because you've lost money and time going for the pesticides, applying it. So, challenges are lack of water and pests.

*- Male Tomato Farmer IDI, Kajiado*

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The third challenge is also diseases, for example, green grams when we are planting but the leaves are starting to turn grey. So, the challenge is pests, and diseases.

*- Female Green grams Farmer IDI, Taita Taveta*

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The pests also develop resistance to the pesticide, so we have to use different pesticides at different stages.

*- Male Tomato Farmer IDI, Kajiado*

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# Illness, insufficient animal feed and high cost of purchased feed are examples of challenges faced by majority of farmers which in turn negatively impacts the earnings from livestock produce.

	Challenge	Quote
	<b>Livestock related challenges:</b>	
1	<b>Insufficient animal feed</b> due to the dry seasons. This leads to death of livestock and reduction in earnings from livestock produce.	<p><i>Dry seasons are the challenges, cows don't get food, milk reduces some even die.</i> - Female Dairy Farmer IDI, Trans Nzoia</p> <p><i>You find that many animals are dying because there is no grass, you cut the grass until it runs out and the sun is still shining. Now you find that those who will remain are few, but many perish.</i> - Female Green grams Farmer IDI, Taita Taveta</p>
2	<b>Illness of cattle that leads to death.</b> This in turn negatively impacts the income earned from livestock produce.	<p><i>Right now, is tough, we were recently given chicken to keep but I think they were sick, they ate the food, finished and started, started falling down., some people say this did well and started laying eggs, don't you see the difference? The situation is very hard.</i> - Female Green grams Farmer IDI, Taita Taveta</p> <p><i>This farm had four cows. He was one of the first graders, but he just died of diseases. I even buried him in this hole here. She was pregnant and died with her baby inside. Right now, I am afraid to even keep the cows.</i> - Female Green grams Farmer IDI, Taita Taveta</p>
3	<b>High cost of animal feed</b> which also negatively impacts the earnings from livestock produce especially in cases where the sale of the produce doesn't cover the costs.	<p><i>You have to go back to your pocket and buy feed for the cattle. The packaged feed they sell at the stores is very expensive. When you calculate the cost of purchasing it along with the salt, which they also sell at a high price, and then compare it to the price at which your milk is bought, you feel like you are being squeezed financially.</i> - Male Potato Farmer IDI, Nyandarua</p>

# To overcome challenges faced, farmers mentioned adopting climate smart agricultural practices such as planting in multiple periods and focus on one value chain.

	Climate Smart Practices Adopted	Quote
1	Majority of farmers cited <b>planting crops in multiple periods focusing on crops that need less water</b> . This is due to the unpredictable weather patterns.	<p><i>The other years we would get food from only the first rain, but for now we have adjusted and don't plan only once, we are starting July and we have already removed the food from the farm, which is too early, we are guessing there will be more rain soon, not sure though. We could plant but not something that will need a lot of water..</i></p> <p><b>- Female Dairy Farmer IDI, Trans Nzoia</b></p> <p><i>The change is that if I want to plant beans, I don't really plant in August, I plant any time. Like now I'm planting soya beans because I am sure the rain will come.</i></p> <p><b>- Female Maize Farmer IDI, Trans Nzoia</b></p>
2	<b>Focusing on one value chain</b> in order to reap more benefits from the produce/yield.	<p><i>I told you mostly about cattle; I plant grass. I focus on cattle farming to ensure there's enough grass for the entire year or two, so I can decide whether to plant for another year or continue for two years.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p>

## Other climate smart agricultural practices adopted include water harvesting, irrigation and planting trees in the farm.

	Climate Smart Practices Adopted	Quote
3	Majority of farmers cited <b>improving their farming practices</b> . These include purchasing seeds resistant to drought and to pests and diseases to overcome the challenges caused by unpredictable weather patterns and pests and diseases. Farmers that previously didn't use fertilizer and pesticides have also started using these and have noticed significant improvement in crop yield.	<p><i>We look for seeds that are resistant to drought, and those that are resistant to diseases and pests.</i> - Male Tomato Farmer IDI, Kajiado</p> <p><i>I was not putting for example those fertilizers, that medicine. I saw a change this time. You find that in the past I used to plant if those are the ones that you find are infected with bright, I did not apply the medicine, you find that the insects have entered the white flowers, these are the ones. You find that the food is all spoiled and you have done a lot of work to handle the plant.</i> - Female Green grams Farmer IDI, Taita Taveta</p>
4	Farmers cited adopting <b>water harvesting practices and irrigation</b> to catch water especially during heavy rain seasons. This helps ensure the farm has sufficient water as well as preventing destruction of crops due to the excess rain.	<p><i>That day it is raining heavily, at other times you have to plan like me, you make the trenches, and if something comes, they should not be buried.</i> - Male Green grams Farmer IDI, Taita Taveta</p> <p><i>In the farms at this time, we are doing this irrigation work, the crops we grow are helping many.</i> - Male Tomato Farmer IDI, Kajiado</p>
5	Farmers also cited <b>planting trees</b> which is perceived to attract rainfall. This was cited by majority of potato farmers.	<p><i>We have planted indigenous trees and other tree species to attract rainfall.</i> - Female Potato Farmer IDI, Nyandarua</p> <p><b>Moderator:</b> What changes have you done in the past two years to adopt to changes in the weather patterns? <b>Respondent:</b> I have planted trees and dug dams. - Male Potato Farmer IDI, Nyandarua</p>

# There however still exists an information gap on how to adapt farming practices to unpredictable weather patterns.

- Majority of farmers cited not receiving information on how to adapt their farming practices.
- For farmers that have received this information, the commonly cited sources of this information include **agricultural extension officers and in meetings or seminars**. The type of information or advice provided is summarized in the table below.

	Type of advice provided	Quote
1	Importance of planting trees.	<p><i>The first one is an agricultural officer from the area who advises on how to plant potatoes like this.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p>
2	Different water harvesting practices such as digging dams and ditches.	<p><i>In the meetings of the council of chiefs, we are told to plant trees so that it can restore the old situation, don't cut down the trees.</i></p> <p><b>- Male Green grams Farmer IDI, Taita Taveta</b></p> <p><i>Well, the (agricultural officers) are advising us, for example, these are my ditches, we should dig these ditches. Even if it rains, the farms don't get spoilt, and they also advise us to plant early before the rain ends and weed early.</i></p> <p><b>- Female Green grams Farmer IDI, Taita Taveta</b></p>
3	Planning and adapting farming practices to unpredictable weather patterns.	<p><b>Moderator: What message did you receive?</b></p> <p><b>Respondent: To prepare yourself and adapt to weather patterns.</b></p> <p><b>- Female Dairy Farmer IDI, Trans Nzoia</b></p> <p><i>When the rains are not there we try and do what we can. the One Acre Fund told us that we should not plant if it has not rained, we should wait for the rains for 2 days and then plant, we tried sometimes it worked, sometimes it did not.</i></p> <p><b>- Male Dairy Farmer IDI, Trans Nzoia</b></p>



# Majority of farmers cited interest in receiving weather and crop advisory information as well as information on appropriate livestock feeds.

Overall, majority of farmers also mentioned interest in receiving information on how to adapt their farming practices. The main areas of interest cited include:

## Topics of Interest

## Quote

### Weather advisory information

including rain prediction, type of crops to plant and seeds to purchase based on the expected amount of rain.

Regarding the weather and the precautions that we will take and also according to the plant. It means a lot once they have done the weather research, they give their opinion. For example, the rain expectation will be low, so when you go to the agrovet, buy this seed or buy this thing according to the amount of rain we see.

**- Male Green grams Farmer IDI, Taita Taveta**

I would wish to know more about which crops can fit the area that I am in that can manage the weather conditions.

**- Female Dairy Farmer IDI, Trans Nzoia**

**Crop advisory information** such as where to source the right seeds, what crops to grow, where to get farm inputs such as fertilizers and pesticides at affordable prices and how to be profitable in farming.

The areas that interest me are how to plant maize and get a lot of yields.

**- Male Dairy Farmer IDI, Trans Nzoia**

For potatoes you need to know where you will source seed from, and where to get fertilizer at fair prices.

**- Male Potato Farmer, Nyandarua**

**Information on livestock** such as appropriate feeds to give livestock and how to take care of livestock.

The areas that interest me is how to feed the cows and get more milk.

**- Male Dairy Farmer IDI, Trans Nzoia**

Information about cows, like how to feed them and how to grow fodder.

**- Male Potato Farmer, Nyandarua**



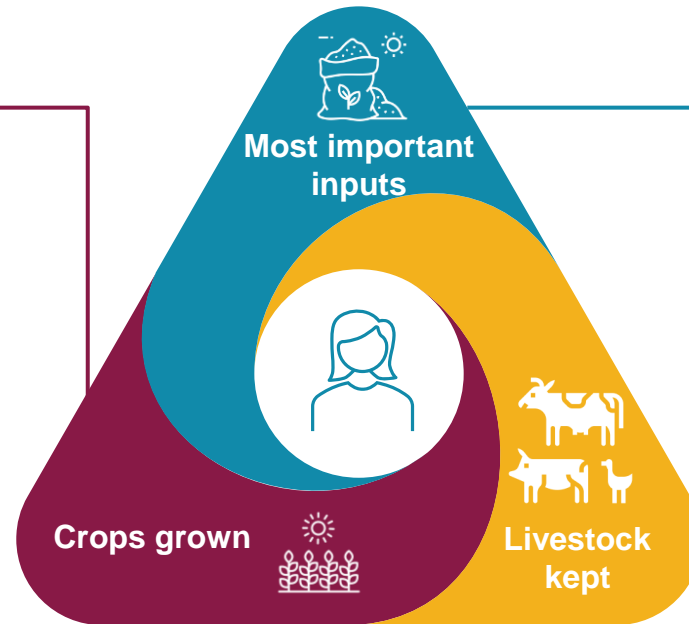
# *Farm produce and operations*

# Farmers grow crops that fetch favourable market prices, value fertilizer as a farm input, and many keep cattle.

## Crops grown

The top three reasons why farmers aspire to grow certain crops includes:

- Favourable market prices.
- Quick growing seasons.
- Low cost of planting.
- The common reasons cited for desiring to stop growing a crop can be classified into biological, environmental and financial factors.
- Many farmers grow crops for subsistence. Those that sell their produce do so in markets and use brokers.



## Most important inputs

The most important inputs highlighted by majority of farmers include:

- Fertilizers.
- Pesticides.
- Seeds.
- Farm equipment such as masks, overalls, pumps, tractors and jembes.
- Farm labor.
- The inputs above are ranked based on frequency of mention.

Labor, then those seeds and fertilizers.

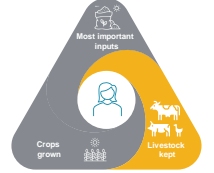
*- Male Maize Farmer IDI, Trans Nzoia*

## Livestock kept

The main livestock kept by majority of the farmers are listed below in order of frequency of mention:

- Cattle, poultry, sheep and goats.
- The main types of feeds cited by majority of farmers includes grass, dairy meals and fodder.

In subsequent slides we explore these characteristics in more detail.



# Most important inputs: Fertilizers, pesticides and seeds are the top three most important inputs cited by majority of farmers.

- Farmers use a variety of inputs in their farming practices. The farming input used is dependent on:
  - Availability of funds to purchase the required inputs.
  - Availability of the input in the market.
  - Price of the input.
  - Appropriate inputs to ensure high yield.
- Across all value chains, the most important inputs cited by majority of farmers are listed below in order of frequency of mention.

“

If I could even get this money, I would leave my ditches, and people would dig them up for me.

- *Female Green grams Farmer IDI, Taita Taveta*

”

## 1. Fertilizers:

We also need things like fertilizer, because if you try to check, right now maybe if you grow crops in the farm if you don't have fertilizer, you will get less yield.

- *Male Tomato Farmer IDI, Kajiado*

## 2. Pesticides:

**Moderator:** Okay, why are these, these three you have talked about fertilizers, medicines (pesticides) and places to put your harvest, why are these the most important to you?

**Respondent:** .... if you get drugs, your crops will not be damaged.

- *Female Green grams Farmer IDI, Taita Taveta*

## 3. Seeds:

**Moderator:** Which kind of inputs would you prefer in your farming activities?

**Respondent:** Fertilizer, certified seeds.... certified seeds are high producers with a yield of 100 bags while ordinary seed produces 40 bags.

- *Male Potato Farmer IDI, Nyandarua*

## 4. Farm equipment and machinery:

**Respondent:** It is the jembe, gumboots, what else? A panga too.

**Moderator:** Why did you mention those?

**Respondent:** They are what we need most in farming.

- *Female Tomato Farmer IDI, Kajiado*

## 5. Farm labor especially during planting and harvesting:

Then there is also labor, that is farming, planting, people to help with the work.

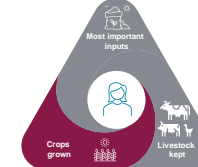
- *Male Maize Farmer IDI, Trans Nzoia*

## 6. Manure:

**Moderator:** You have mentioned several farm inputs and as for you what are the three most important farm inputs?

**Respondent:** Manure seeds and fertilizer.

- *Male Potato Farmer IDI, Nyandarua*

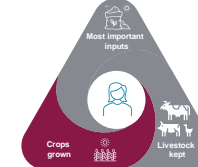


# Crops grown: Participants aspired to grow crops that had favourable market prices, had quick growing seasons, among other beneficial reasons (1/2).

We outline below the various crops that the participants would like to grow and their reasons for the same. Where the reason for selecting a crop was similar, we grouped together the crops under that reason as outlined below:

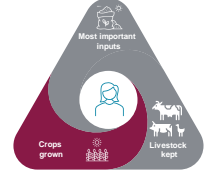
	Aspired crop	Reason for selection	Quote(s)
1	Fruits, maize, wheat, beans, peanuts.	<b>Favourable market prices:</b> Participants wanted to start growing crops that had a ready market and profitable market prices for the yields.	<p><b>Moderator: Why avocados?</b>  <b>Respondent:</b> <i>It is a good fruit; it can be eaten and be used as a cash crop.</i>  <b>- Female Potato Farmer IDI, Nyandarua</b></p> <p><b>Moderator: Why maize?</b>  <b>Respondent:</b> <i>It gives one time profit.</i>  <b>- Female Tomato Farmer IDI, Kajiado</b></p>
2	Beans, green grams.	<b>Quick growing seasons:</b> A short growing season appealed to farmers who desired crops that matured within 2 - 3 months.	<p><i>I should give up maize altogether, because the harvest season for green grams is short and you can't miss it. I believe, with maize, maybe three months; the other (green grams), one and a half months, you're already harvesting it.</i>  <b>- Female Green grams Farmer IDI, Taita Taveta</b></p>
3	Vegetables, Beans, Millet.	<b>Low cost of planting:</b> Farmers desire to grow crops that require relatively lower funds during the growing period.	<p><b>Moderator: Why beans?</b>  <b>Respondent:</b> <i>It is not expensive to grow. After preparing your land, you plant once, apply pesticides thrice. It is not expensive and gives good returns.</i>  <b>- Male Tomato Farmer, Kajiado</b></p>
4	Millet, Flowers (ornamental).	<b>Prevailing weather patterns:</b> Participants were also keen on crops that would suit their climatic conditions, such as opting for drought tolerant crops in the drier areas.	<p><b>Moderator: Like what?</b>  <b>Respondent:</b> <i>Millet—</i>  <b>Moderator: Okay. so why do you want to start millet farming?</b>  <b>Respondent:</b> <i>Millet tolerates the sun.</i>  <b>- Female Green grams Farmer, Taita Taveta</b></p>





# Crops grown: Participants aspired to grow crops that had favourable market prices, had quick growing seasons, among other beneficial reasons (2/2).

	Aspired crop	Reason for selection	Quote(s)
5	Butternut, Sunflower.	<b>Crops rarely grown within that region:</b> Farmers view the crop as one with potentially high income and anticipate a high market price.	<i>Sometimes I think of sunflowers. And I see here, they don't cultivate sunflower much. I'm yet to get where I'll to sell it.</i> <b>- Male Maize Farmer IDI, Trans Nzoia</b>
6	Pyrethrum, Cassava.	<b>Directly propagating crops:</b> This was appealing to farmers since the crops can be grown from stem cuttings.	<i>It is easy when you get clones then you will use splits to expand production.</i> <b>- Male Potato Farmer IDI, Nyandarua</b>
7	French beans, Coffee.	<b>Influence from reference networks:</b> Participants cited that they had been encouraged to pick up new crops by their peers and agriculture specialists.	<b>Respondent:</b> ...we have planned about French beans. <b>Moderator: Do you want to start growing?</b> <b>Respondent:</b> Yes, because we formed a cooperative for our groups and are expected to start. <b>- Female Potato Farmer IDI, Nyandarua</b>  <i>There is a teacher who came and taught us about coffee, I am yet to be encouraged.</i> <b>- Male Dairy Farmer IDI, Trans Nzoia</b>
8	Peanuts.	<b>Nutritious value of the crop.</b>	<b>Respondent:</b> Nuts <b>Moderator: They are called groundnuts, why?</b> <b>Respondent:</b> First of all, they are expensive, they are 200 per kilo, they have a competitive price, very nutritious. <b>- Male Green grams Farmer, Taita Taveta</b>



# Crops grown: Biological, environmental or financial factors are examples of reasons why participants desired to stop growing some crops.

Half of the participants identified crops that they would like to stop growing. Their reasons are classified as either biological (regarded the nature of the crop or its pests), environmental (involving weather patterns and the soils status), and financial (more funding was required). Those who considered stopping farming altogether cited similar financial, biological and environmental reasons expounded below.

**Respondent:** Beans.

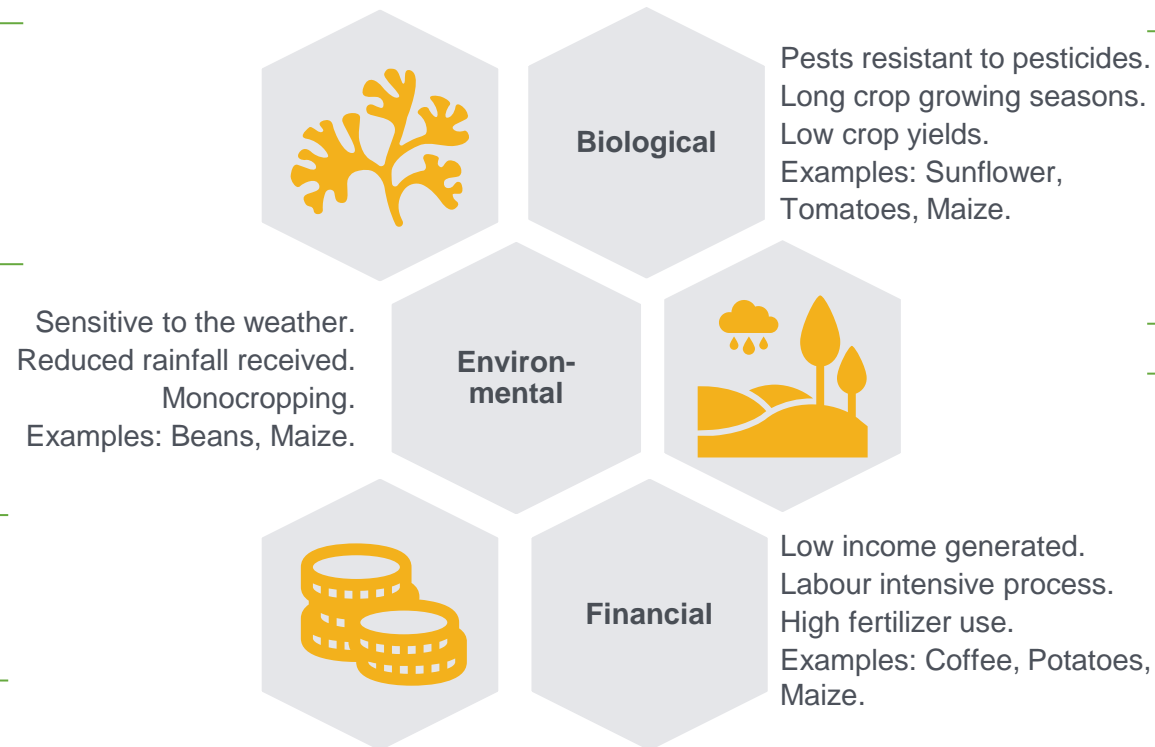
**Moderator:** Why?

**Respondent:** It was affected by ice; because it rains so much that it reaches the place where you find it damaged.

**- Male Maize Farmer, Kajiado**

I grow coffee, but the amount of work is not easy, but I try. I was thinking of getting more livestock.

**- Male Dairy Farmer IDI, Nyandarua**



**Moderator:** Are there any crops that you are currently growing and would like to stop?

**Respondent:** Sunflower.

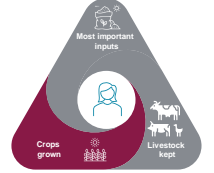
**Moderator:** Why do you want to stop growing sunflower?

**Respondent:** It stays for long in the farm.

**- Male Tomato Farmer IDI, Kajiado**

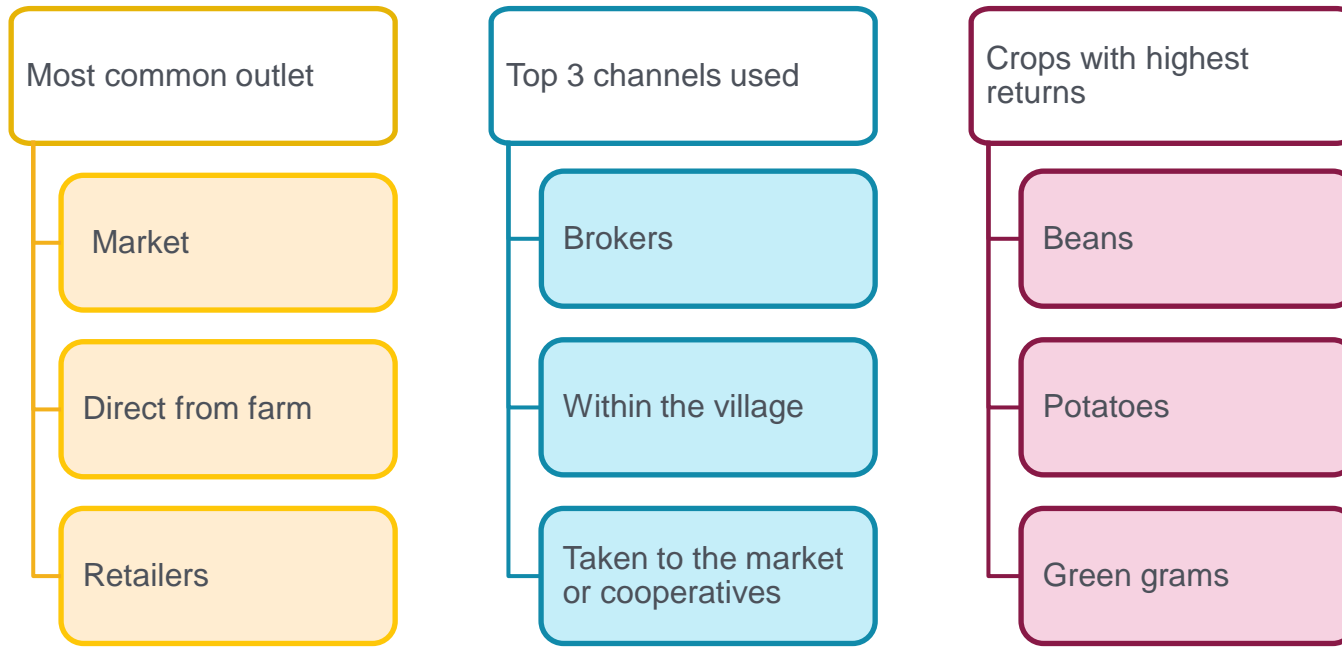
First of all, it is a lot of work, I should plant it, I should weed it the second time, then it will produce flowers, and then you see it dying like this. Now, I look at these other plants, I have weeded them once and I am entering the harvest season. In my evaluation of farming by 2024, I want to give up maize completely to cultivate and turn to other plants.

**- Male Green grams Farmer IDI, Taita Taveta.**



## Crops grown: Beans were reported as the crop with the highest monetary return. Many participants cultivated crops for subsistence, and those who sold their produce used brokers.

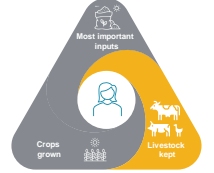
- Majority of the participants reported that the produce from the farms was for subsistence and indicate that they divide their yields to allocate a household portion.
- Participants who sold their produce mostly did so to either local markets or to city markets such as in Nairobi and Mombasa through brokers.
- Participants who sold their produce also cited beans as the most profitable crop due to its favourable prices in the market and a relatively short growing season.



**Moderator:** Where do you sell your farm produce?  
**Respondent:** Initially we used to take to the national cereal and produce board, but the outside market recently became better, so we sell at the market price.  
*- Male Dairy Farmer IDI, Trans Nzoia*

**Moderator:** And where do you sell your produce from the farm?  
**Respondent:** People come, especially brokers. They come and inquire if you have potatoes, and I tell them to find people to dig them out, and then they take the potatoes to Nairobi. So, we sell to brokers.  
**Moderator:** So, you mainly sell to brokers yourself?  
**Respondent:** Yes, I sell to brokers.  
*- Female Potato Farmer IDI, Nyandarua.*

**Moderator:** The one that makes a good profit is beans, the cost of which does not go down to less than 100 per kilo, but maize goes down to 30 shillings at other times.  
*- Female Green grams Farmer IDI, Taita Taveta*



# Livestock keeping: Grass, dairy feeds and fodder are the main examples of animal feeds and are accessed from various sources.

The common livestock feeds cited by majority of farmers are listed below:

## 1 Grass:

- Majority of farmers cited feeding their livestock such as napier grass, bomarose, sugar grass and brachiaria.
- The grass fed to animals is mainly grown within the participant's farms. In addition, some farmers mentioned sourcing seeds to grow the grass from organizations such as KALRO.

**Moderator:** Are there any plants that are grown in the field especially as food for cows?

**You told me there was a napier.**

**Respondent:** I have poma. Another is called brachiaria, I started it the other day, someone gave me that seed.

*- Male Dairy Farmer IDI, Trans Nzoia*

Sugar grass was brought to us by these KALRO people. It is a good grass because they brought it and we planted it when it rained, and it did well.

*- Male Green grams Farmer IDI, Taita Taveta*

## 2 Dairy Meals:

- Farmers cited purchasing supplements such as dairy meals for their livestock due to the presence of nutrients that are helpful in producing milk especially for cattle.
- These supplements are often mixed with other foods.
- These meals are mainly sources from agrovets and co-operatives.

You must purchase dairy meals, they depend so much on it for nutrients and sunflowers, those are the ones that help produce milk. We buy from Kivee or Agricultural Development Corporation (ADC) store.

*- Male Dairy Farmer IDI, Trans Nzoia*

When the milk reduces, we buy dairy meal and mix with masagare and that will be helpful.

*- Female Maize Farmer IDI, Trans Nzoia*

We buy dairy meal costing KES2800 from the agrovet.

*- Male Potato Farmer IDI, Nyandarua*

## 3 Fodder:

- Farmers cited growing various fodder crops for both the cattle and chicken.
- The commonly cited fodder crops include maize and oats.
- These type of fodder are mainly grown in the participant farms.

I have planted different crops for their fodder that will yield more milk.

*- Male Potato Farmer IDI, Nyandarua*

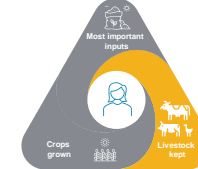
The chicken eat this maize from farm.

*- Male Maize Farmer IDI, Trans Nzoia*

**Moderator:** Have you grown any crops on your farm specifically for your cows?

**Respondent:** Yes. Oats and maize.

*- Female Potato Farmer IDI, Nyandarua*

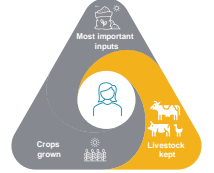


# Erratic weather patterns, lack of funds and presence of contaminated feeds are the main challenges farmers face in accessing animal feeds.

Farmers mentioned several challenges faced in accessing animal feeds. These include:

	Challenges faced	Quotes
1	Erratic weather patterns. Majority of farmers mentioned that the dry season has negatively influenced the access to animal feeds such as napier grass. This has either led to animal death, the need to purchase feeds for their livestock or reduced livestock yield.	<p><i>You find that many animals are dying because there is no grass, you cut the grass until it runs out and the sun is still shining. Now you find that those that remain are few, but many perish.</i></p> <p><b>- Female Green grams Farmer IDI, Taita Taveta</b></p> <p><i>The feeds reduce during dry season and become expensive. There is plenty in rainy season and I don't buy.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p>
2	Access to funds to purchase feeds. Farmers also cited lack of funds and as such they only purchase feeds when they have access to funds.	<p><b>Moderator: Does feed availability change cause of a typical year?</b></p> <p><i>Respondent: Yeah. It depends to the financial ability.</i></p> <p><b>- Female Maize Farmer IDI, Trans Nzoia</b></p> <p><i>If you have been observant, you have seen these lorries carry hay. They sell hay at KES350, you also buy bran dairy meal, that will cost you.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p>
3	Presence of contaminated feeds that lead to cattle death.	<p><i>We buy dairy meal costing KES2800 from the agrovet although there are other challenges because they cost me a cow last three months due to metal pieces.</i></p> <p><b>- Male Potato Farmer IDI, Nyandarua</b></p>





# Livestock keeping: Majority of farmers sell livestock produce either directly to consumers, through brokers, or co-operatives. The proceeds are used to meet household expenses and/or purchase animal feeds.

## Sale of livestock produce

- More than half of the participants sell their livestock produce (e.g., eggs, milk and meat).
- However, those that don't sell the livestock produce mainly use it for subsistence purposes.

## Moderator: How about the eggs?

Respondent: We use for home consumption.

*- Female Potato Farmer IDI, Nyandarua*

## Channels used to sell livestock produce

- The livestock produce is mainly sold either directly to consumers, through brokers or co-operative societies.

Like here we sell milk, and we call the brokers to come buy.

*- Female Green Grams Farmer IDI, Taita Taveta*

## Moderator: What do you do with the milk?

Respondent: I take to cooperative, get money to use, sometimes I use the money to buy food."

*- Male Dairy Farmer IDI, Trans Nzoia*



## Objective of selling livestock produce

- The sale of the produce is intended to either supplement income from other farm produce for mixed farmers or earn an income for farmers that only focus on livestock keeping or in the presence of lack of yield from the crops grown.
- In addition, the income from the sale of livestock produce is used to meet household expenses, pay for school fees and/or purchase animal feeds.

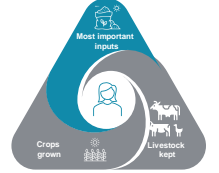
## Moderator: Okay, what do you do with milk from your cows?

Respondent: I pay school fees and lease land with it.

*- Female Potato Farmer IDI, Nyandarua*

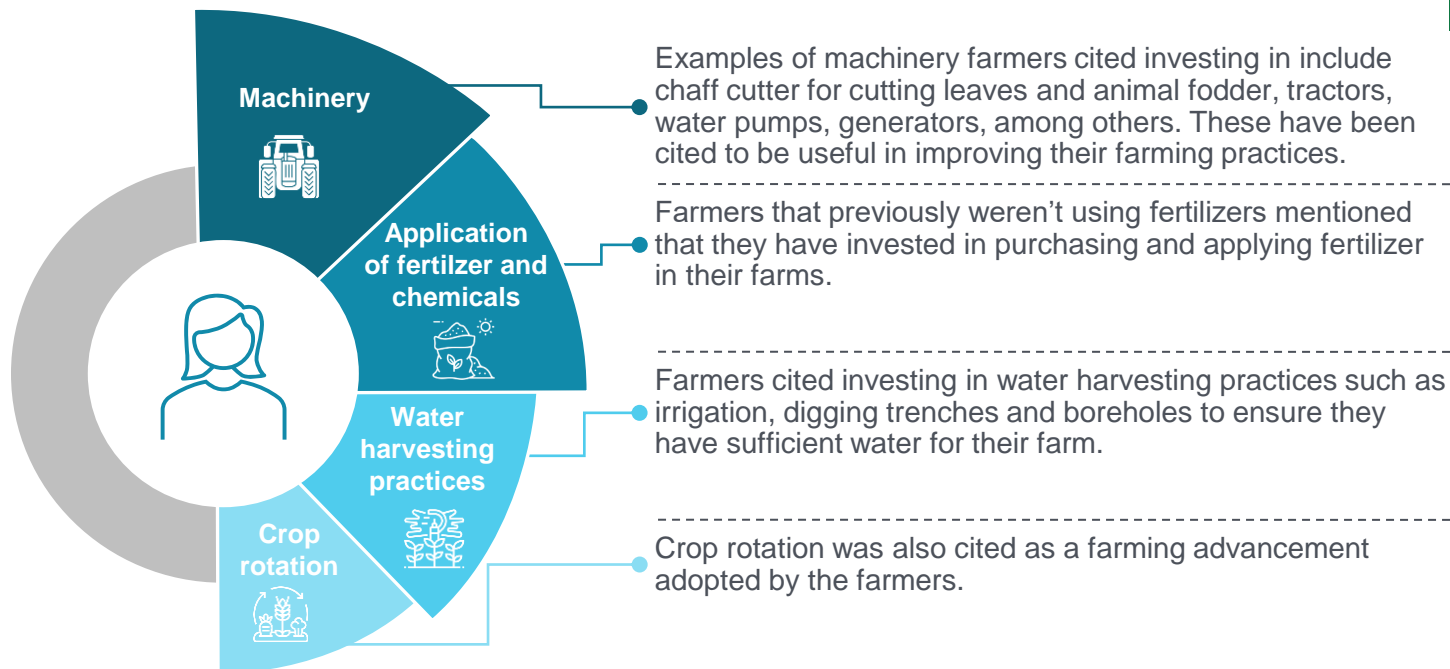
Something like sheep helps me in terms of school fees. I can pay for the students too. I can sell chickens when I have a need like, cattle feed, buy things like dairy and salt.

*- Female Dairy Farmer IDI, Trans Nzoia*



# Farming advances: Most farmers have not invested in advancements in their farm mainly due to competing household expenditure.

- Majority of farmers indicated that they have **not invested** in advancements in their farming practices in the past year. The common reason cited include using current funds for household expenses such as school fees. However, there is a desire by these participants to start making investments in their farm.
- For participants that have made investments, some of the advancements made are listed below in order of frequency of mention.



**Moderator:** What advances have you invested in your farming practices over the last 5 years e.g., technology, machines, and chemicals.

**Respondent:** I have not yet invested; my biggest investment right now is to take (children) to school.

*- Female Dairy Farmer IDI, Trans Nzoia*

Machines like generator only. It helps me pump water and irrigate crops.

*- Male Potato Farmer IDI, Nyandarua*

Proper use of fertilizers and agrochemicals. We only used DAP for production but now we know there is fertilizer for planting and topdressing.

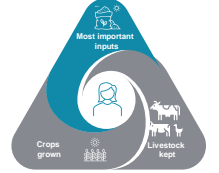
*- Female Potato Farmer IDI, Nyandarua*

Digging trenches and boreholes on the side of the maize so that it grows quickly. When it rains the water comes in a lot, that's all we put in the farm.

*- Female Green grams Farmer IDI, Taita Taveta*

I do crop rotation. I don't repeat a crop in the farm, I plant tomatoes, I take out and put maize, I take out and put beans, the cycle continues. I grow just a little bit of vegetables.

*- Male Tomato Farmer IDI, Kajiado*



# Access to finance: Majority of farmers have not taken loans due to the lack of money to access and repay. However, those that have accessed loans used it to purchase inputs.

- Majority of farmers cited that they have not taken out loans to finance their farming activities. Some of the common reasons cited include:
  - Lack of finance to repay the loan and/or provide deposit needed to access the loan.
  - Low crop yields that result in low income which means access to low disposable income to repay the loan.
  - Fear of defaulting on loans taken.
- However, the minority that have taken out loans mainly cited sourcing them from either chamas, SACCOs or organizations such as One Acre Fund, Agricultural Finance Corporation (AFC), Phase Two Dairy and Apollo Agriculture. The funds were mainly used to purchase inputs.

**“Moderator: Have you ever applied for a loan or requested financial assistance for farming purposes?”**

Respondent: I took from Phase two dairy to buy seed.”

*- Female Potato Farmer IDI, Nyandarua*

**“Moderator: Where did you get the loan?”**

Respondent: From women chamas.”

*- Female Dairy Farmer IDI, Trans Nzoia*

“

I’m trying to get stable before I can take a loan. I tried asking for a loan and I was asked to deposit a certain amount so that I can register with the group to be able to access a loan. I could not afford it.

*- Male Tomato Farmer IDI, Kajiado*

”

“

If I take the loan for the farm, I will be missing the target. Why? I am not guaranteed the return because there are so many factors that will affect my farm. Today the weather is okay and tomorrow there is frost that we do not see the signs today then that crop will go.

*- Male Potato Farmer, IDI, Nyandarua*

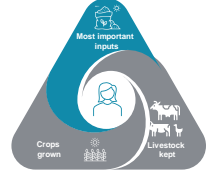
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The fear of failing to pay. Defaulting the loan could bring problems so I work with what I have.

*- Female Potato Farmer IDI, Nyandarua*

”



# Interest in agri finance services: Majority of farmers believe that access to agri-finance services such as loans and insurance would be beneficial in improving their farming practices.

- Majority of farmers believe that access to Agri finance services such as access to loans and insurance would be useful to them. Farmers also cited the preference to receive low interest loans.
- The perceived benefit of accessing Agri finance services cited include but are not limited to:

	Perceived benefit	Quote
1	Access to the funds will be useful in purchasing farm inputs.	<i>If it (Agri finance services) were here, it would be good because you get money for fertilizer. You get the seeds, the pesticides. It can be very profitable.</i> <b>- Male Potato Farmer IDI, Nyandarua</b>
2	Access to funds to hire farm labor.	<i>Now you know that you can be promoted if you get the money that can help agricultural matters, now you can find a place and pay someone to work for you because you know our age right now, that will help.</i> <b>- Female Green grams Farmer IDI, Taita Taveta</b>
3	Ability to purchase farm machinery.	<i>If I get that money, I will look after the farm, like irrigation, I will dig my borehole, I will buy my pipes to plant my trees.</i> <b>- Female Green grams Farmer IDI, Taita Taveta</b>
4	Ability to insure crops.	<i>If there would be Agri finance services, I wouldn't sell my land because if there is Agri finance, my crops would be insured so that if anything happens to my crops I do not have to worry. That is where I think Agri finance comes in.</i> <b>- Male Potato Farmer IDI, Nyandarua</b>



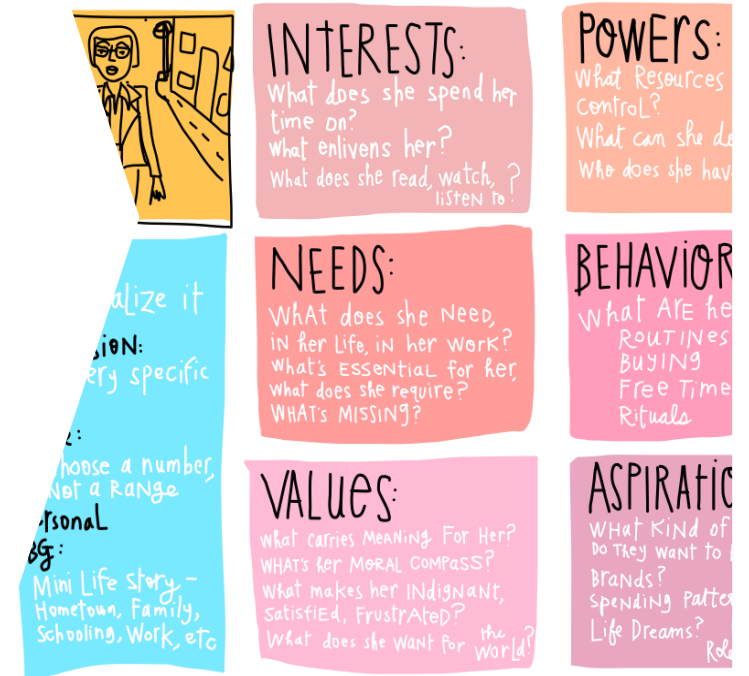
# *Farmer personas*



# Persona development of farmers was based on their access and usage of weather advisory information.

- Personas are descriptive summaries of representative consumers, including an overview of their situation, context, needs, motivations, and benefits that pull together common characteristics of similar people into an “archetype” through which a group can be understood.
- The personas presented in this deck represent four behavioral segments based on access and usage of weather advisory information. They are further profiled by presenting their demographic, farming practices, communication preferences and drivers of usage or non-usage of weather advisory information.
- These personas are developed by synthesizing insights from the in-depth interviews with farmers.

## PERSONA PROFILE



## We present four farmer personas.



### The Traditional Farmer:

- Mainly grow tomatoes and maize.
- Does not have access and hence don't use weather advisory information because they don't know where to access this information.



### The Frugal Farmer:

- Mainly grow maize, tomato, potatoes, and green grams.
- Has access to weather information.
- Does not use the weather advisory information because they don't trust the source of information.
- They also believe that the weather advisory information shared is technical.



### The Tech Savvy Farmer:

- Mainly grow maize, potatoes, green grams and keep dairy cattle.
- Has access to weather advisory information from several sources such as KALRO, M-shamba and agricultural extension officers.
- They also use the weather advisory information received to inform farming practices and to mitigate risks associated with adverse weather events.



### The Commercial Farmer:

- Mainly grow potatoes and keep dairy cattle.
- Receive information from sources such as M-shamba and KALRO.
- They access weather information from several sources to assist in planning farming activities.

# The traditional farmer – Who are they?



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**Moderator:** Have you heard of any weather advisory information?

**Respondent:** I've not heard any.

- Male Tomato Farmer IDI, Kajiado

**Moderator:** No interest? Okay. Have you heard, uh, weather advisory information?

**Respondent:** Nope.

- Female Maize Farmer IDI, Trans Nzoia

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## Background:

- Household Description: Subsistence smallholder farmer.
- Majority are female farmers.
- Age: Older, largely over 55 years
- Farming Experience: More than 3 years (6 growing seasons and more).
- Value chains represented: Tomatoes and Maize.

## Farming practices:

- The farmer prefers to stick to traditional farming management practices.
- The farmer is interested in finding readily available and affordable solutions to their fertilizer and crop irrigation needs.

# The traditional farmer – Communication preferences and usage of weather advisory information.



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**Moderator:** *Would you like to receive more agricultural information? If not, it is okay.*

**Respondent:** *If one is to receive, one should know where it is from and how it is used. We might not understand the message.*

**- Female Tomato Farmer IDI, Kajiado**

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## Communication preferences:

- The farmer communicates predominantly in her local language, as it is most comfortable and effective.
- She/he prefers direct, face-to-face interactions with local members of the community.
- She/he appreciates simple and practical explanations, as complex technical terms or concepts may be challenging for her to grasp.
- The farmer has limited access to technology, such as the internet or mobile apps, making it challenging for her to seek information online.

## Usage of weather advisory information:

- Neither access nor uses weather information. This is because they don't know where to access this advisory information. As such they rely heavily on personal intuition and observing weather patterns.

# Communication product opportunities.



Preferred channel of weather communication for the farmer would be phone-based text messages delivered in local languages.



Develop a community-based peer to peer platform where the farmer can engage in discussions with local advisors and fellow farmers.



# The frugal farmer – Who are they?



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**Moderator:** Do you receive any weather information?

**Respondent:** I receive but it is not correct.

**Moderator:** Why would you say it is not correct?

**Respondent:** They say there are rains yet there are no rains. They direct you to plant a crop, but it doesn't produce any yields, I can't follow them.

**- Male Tomato Farmer IDI, Kajiado**

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## Background:

- Household Description: Subsistence smallholder farmer.
- Age: 50-55 years.
- Farming Experience: More than 3 years (6 growing seasons and more).
- Value chains represented: Maize, Tomato, Potatoes, and Green grams.

## Farming practices:

- Owns a small family farm and relies heavily on traditional farming methods passed down through generations.
- Prefers face-to-face interactions with local agricultural extension officers and fellow farmers as a source of information.
- Perceives that his/her traditional farming practices and knowledge is sufficient to predict and adapt to weather conditions.

# The frugal farmer – Communication preferences and usage of weather advisory information.



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**Moderator:** Why, why don't you trust the radio?

**Respondent:** Because they say it will rain today. At six o'clock it will rain in Taita Taveta then you find it's sunny, and it will maybe rain the day after. We are just waiting for God's will.

**- Female Green grams Farmer IDI, Taita Taveta**

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## Communication preferences:

- They receive agricultural information from agricultural extension officers, attend seminars and training sessions, learning institutions, among others.
- Main channels used to receive agricultural information include radio, SMS, and TV.
- Their preferred channel is though SMS and face to face interactions.

## Usage of weather advisory information:

- Aware of various sources of weather information such as KALRO, M-shamba, One Acre Fund among others. The main channel used to disseminate this information is through SMS.
- Occasionally receives weather updates but he/she rarely actively uses this information in his/her farming practices. This is because of a lack of trust in the information provided hence relies on traditional weather observation patterns.
- They also perceive weather advisory information as too complicated or not directly applicable to his farming methods.

## Communication product opportunities.



To address lack of trust, design a communication platform that shares information from reliable sources.



Relay simplified information that does not use technical terminologies.



Preferred channel of receiving weather advisory information is through SMS.



Leverage on agricultural extension workers to create awareness and encourage use of the weather advisory information sent to farmers. They can also be used to relay feedback on farmer's needs.

# The tech savvy farmer – Who are they?



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**Moderator:** Which kind of assistance have you received?

**Respondent:** We get certified seeds. They also give us fertilizer, herbicides and pesticides.

**- Female Potato Farmer IDI, Nyandarua**

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## Background:

- Age Bracket: 31 - 40 years
- Household Description: Commercial smallholder farmer.
- Farming Experience: More than 3 years (6 growing seasons and more).
- Value chains represented: Maize, Potatoes, Green grams and Dairy.

## Farming practices

- They use readily available material such as manure to replace the expensive fertilizers.
- Has benefited from KCSAP that provided farming input such as certified seeds, fertilizer, herbicides and pesticides.
- Cultivates a variety of crops and expects significant yields if the weather conditions are favorable.
- He also receives guidance and education from farming associations.

# The tech savvy farmer – Communication preferences and usage of weather advisory information.



*Mostly. When you came you found me on the internet. I have also downloaded some PDF documentation that I read to compare what they are doing, if it is Switzerland, I have a pdf on that. I go to various sites that give good information. They also provide the breeds that can be done here like the Ayrshire, Friesian and jersey.*

**- Male Potato Farmer IDI, Nyandarua**

**Respondent:** *That's all, and maybe M-shamba that I usually get.*

**Moderator:** *How does that KARLO message come?*

**Respondent:** *There is an app, you download it, and when you open it, it gives you everything. You can narrow your region where you are like Taita Taveta.*

**- Female Green grams Farmer IDI, Taita Taveta**

## Communication preferences:

- Gains knowledge on agricultural practices from various sources, including agricultural officers and technology-based platforms like iCow and M-shamba. Other sources of agricultural information include agricultural organizations such as KALRO, agricultural extension officers, among others.
- He receives agricultural information from online platforms such as the internet, mobile applications and WhatsApp groups. In addition to using online platforms, they prefer receiving this information through channels such as SMS, radio and face to face interaction.
- Searches for information on technology advancements related to farming, including planting methods, fungicide usage during cold seasons, and alternative fungicides.

## Usage of weather advisory information:

- Receives weather advisory information through channels such as SMS which helps him to make informed decisions about when to plant and harvest his crops.
- He/She pays close attention to weather conditions to mitigate risks associated with adverse weather events such as drought or excessive rainfall.

## Communication product opportunities.



When sharing agricultural information, couple mobile applications with other channels such as SMS, radio and face to face interactions.



Provide a web-based dashboard with weather and agronomic information such as livestock breeding, soil characteristics and appropriate crops to grow.



# The commercial farmer – Who are they?



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**Moderator:** *What encourages you to continue farming?*

**Respondent:** *The earnings I get.*

**Moderator:** *What do you mean?*

**Respondent:** *Success from farming. I earn money.*

*- Female Potato Farmer IDI, Nyandarua*

**Moderator:** *Ok, What advances [technology, machinery, chemicals, labor] have you invested in your farming practice over the past 5 years?*

**Respondent:** *Buying spraying machines and spraying the farm.*

*- Male Dairy Farmer IDI, Trans Nzoia*

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## Background:

- Age Bracket: Above the age of 36 years.
- Household Description: Commercial smallholder farmer in tight value chains.
- Farming Experience: More than 3 years (6 growing seasons and more).
- Main value chains represented: Dairy and Potatoes.

## Farming practices:

- The farmer is highly motivated to earn an income from farming.
- He takes a strategic approach to farming, constantly seeking ways to optimize his operations and maximize yields.
- Open to adopting new technologies to support in adapting their farming practices such as machines to spray pesticides.

# The commercial farmer – Communication preferences and usage of weather advisory information.



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**Moderator:** Which method do you prefer for getting farming information?

**Respondent:** I prefer oral means because they are accompanied with demonstrations. You get educated and see how it's done. It's a challenge to read a pamphlet especially for the illiterate.

**- Female Potato Farmer IDI, Nyandarua**

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## Communication preferences:

- The sources of agricultural information cited include agricultural officers, seminars and training, M-shamba, One Acre Fund and agronomists.
- The channels used to receive this information include face to face interaction, pamphlets, SMS and calls.
- Their preferred channels of information include face to face interaction through trainings and demonstrations.

## Usage of weather advisory information:

- They receive weather advisory information from sources such as KALRO and M-shamba.
- The channels used to receive this information include SMS and radio.
- This information is perceived to be beneficial in determining the appropriate time to harvest, gain knowledge on correlation of climate change to farming and preparing land for farming.

# Communication product opportunities.



## Communication product opportunities:



Consider complementing the MVP with other channels such as face to face interactions, SMS and radio to disseminate agricultural information.



# *Supply side factors – Insights from the stakeholder interviews*

## Supply side factors.

We conducted 5 key informant interviews to understand farmers' needs from a supply point of view and offer insight on various product features that are valued by farmers. We prioritized and recruited from the organizations in consultation with the Mercy Corps and Sprout teams.

We include insights from two categories of organizations:

- **Research and Governmental institutions (R/GI):** These are not for profit organizations that are either national or international who offer weather advisory information in Kenya, initiate research in sustainable agri-food systems and run programs aimed at upscaling climate smart agricultural practices.
- **Commercial entities (CE):** These are for profit companies that offer products and advisories that incorporate forecasts together with climate monitoring and agronomic information.

In this section we explore the following areas:

Profile	Business model	Operations
<ul style="list-style-type: none"><li>• Target audience.</li><li>• Areas served.</li><li>• Farmer interaction.</li><li>• Information Sources.</li></ul>	<ul style="list-style-type: none"><li>• Funding source.</li><li>• Business model.</li><li>• Products and services offered.</li><li>• Fees structure on services.</li><li>• Advertisement strategy.</li></ul>	<ul style="list-style-type: none"><li>• Dissemination channels and frequency of dissemination.</li><li>• Measuring end user engagement.</li><li>• Challenges faced.</li><li>• Opportunities.</li></ul>

## Methodology: Recruitment strategy for key informants.

Our team recruited and interviewed representatives from organizations that:





- Offer crop and weather advisory information in Kenya.
- Offer products such that incorporate weekly, monthly, and seasonal forecasts together with climate monitoring and food security statements.
- Initiate research in sustainable agri-food systems.
- Run programs aimed at upscaling climate smart agricultural practices.

### *Inclusion Criteria*



- Employed by an organization that provides weather and crop advisory information.
- Directly involved in compilation, approval or dissemination of the weather and crop advisory information.
- Willing to participate in the study.





# Research and government institutional profile: They mainly serve farmers countrywide.

		R/GI - 1	R/GI - 2	R/GI - 3	Quotes
	<b>1. Target Audience:</b> The research and government institutions work with various stakeholders most importantly the farmers. They also work with farmer facing organizations, as well as different government departments at both County and National level.	<ul style="list-style-type: none"> <li>Farmer facing organizations.</li> <li>Smallholder farmers.</li> </ul>	<ul style="list-style-type: none"> <li>Farmers.</li> <li>NGO programs</li> <li>Government; Ministry of Agriculture, Livestock development.</li> <li>County governments.</li> <li>National Treasury.</li> </ul>	<ul style="list-style-type: none"> <li>The public including communities at risk.</li> <li>All farmers including farmer groups.</li> <li>Government bodies; Water Resources Authority, National Construction Authority, Kenya National Highways Authority.</li> <li>County governments.</li> <li>Other organizations.</li> </ul>	<p><i>Generally, all farmers. Also, there are various organizations and also the government and the ministries because there are those who are on the policy side so for them, they have to plan on what to do.</i></p> <p><b>- R/GI - 3 KII, Nairobi</b></p> <p><i>We do these, uh, farmer facing organizations and mostly the smaller holder farmers.</i></p> <p><b>- R/GI - 1 KII, Nairobi</b></p>
	<b>2. Areas served:</b> Serve different parts of the country depending on the need. They may customise information to a region depending on the area's needs or risks.	Countrywide reach with the view to serve all the counties and offer ward specific advisories.	Countrywide reach depending on the project implementation areas.	Countrywide reach giving a general outlook but specify advisories per region as is necessary.	<p><i>We target all the counties in the country. All the 47 counties.</i></p> <p><b>- R/GI - 1 KII, Nairobi</b></p> <p><i>We deal with the whole country although in some instances for example when we are dealing with flooding, that one we can say they are specific because you find like not every place that will get</i></p> <p><b>- R/GI - 3 KII, Nairobi</b></p>



# Research and government institutional profile: These mainly interact with farmers directly. They are also primary data collectors.

		R/GI - 1	R/GI - 2	R/GI - 3	Quotes
	<b>3. Farmer Interactions:</b> Are in direct and indirect contact with the farmers.	Serve farmers directly through selling seeds and inputs as well as offering extension advice.	Serve farmers by responding to their needs by showcasing climate smart knowledge and technologies.	Serve farmers directly when forecasts are produced and shared, and through county directors.	<p><i>I think so, because some of the things we do, we do directly with farmers, and we are responding to farmers' needs. So, I believe its farmer facing.</i></p> <p>- R/GI - 2 KII, Nairobi</p> <p><i>We also offer services such as a veterinary service and we offer advisories directly to farmers.</i></p> <p>- R/GI - 1 KII, Nairobi</p>
	<b>4. Information sources:</b> Institutions mainly collect primary data through surveys or field stations. Secondary data is also utilised.	Use data from previous and ongoing research studies as a source.	Ongoing research studies is a source.	Self-sourced data from field stations established countrywide. Use of data from satellites.	<p><i>Whatever research we do is documented. We have, you know, data policies on some of these things. So, we basically look at what we have, work with farmers to pilot, innovate, scale.</i></p> <p>- R/GI - 2 KII, Nairobi</p> <p><i>We have established stations all over the country where we do collect the information, the data, ourselves. When the data comes to the headquarters, we do the analysis.</i></p> <p>- R/GI - 3 KII, Nairobi</p>



# Research and government institutional business model: The government is a major donor allowing for most services to be freely offered.

		R/GI - 1	R/GI - 2	R/GI - 3	Quotes
	<b>5. Funding source:</b> This is mainly from the Government of Kenya or from other partners.	<ul style="list-style-type: none"> <li>Government of Kenya.</li> <li>Development partners.</li> </ul>	<ul style="list-style-type: none"> <li>Partners such as AICCRA.</li> <li>Project based funding.</li> </ul>	<ul style="list-style-type: none"> <li>Government of Kenya.</li> <li>Specific data requests.</li> </ul>	<p><i>Well, this whole thing is financed by the government; yeah, because this is a government entity. Yes, so they give a budget, pays the staff and also some of the maintenance.</i></p> <p><b>- R/GI - 3 KII, Nairobi</b></p> <p><i>Most of the services are financed by our partners. So, our partners come in; we have development partners who help us in our job.</i></p> <p><b>- R/GI - 1 KII, Nairobi</b></p>
	<b>6. Business model:</b> The services offered are mainly free with a few exceptional cases where costs are shared with partnering organizations or services are paid for by interested parties.	All advisory services offered are free.	Services offered are mainly free. Is also project based where costs may be shared with NGO partners.	Weather forecast information and advisories are free. Specific data requests are charged a fee.	<p><i>The services that we offer are all free, yeah. Especially in terms of the, the agronomic advice.</i></p> <p><b>- R/GI - 1 KII, Nairobi</b></p> <p><i>...They're really very project based. Sometimes you'd have some places where you work with organizations to cost share on some things. And when you cost share means the project would pay part and then the NGO would buy down the risk for the farmer</i></p> <p><b>- R/GI - 2 KII, Nairobi</b></p>



# Research and government institutional business model: They offer forecasts, advisory and training services at no cost.

		R/GI - 1	R/GI - 2	R/GI - 3	Quotes
	<b>7. Products and services offered:</b>	<ul style="list-style-type: none"> <li>• Agronomic advisory and weather forecast on online platforms.</li> <li>• Marketing services.</li> <li>• Soil testing and analysis.</li> <li>• Veterinary services.</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity building on climate information services and leveraging group dynamics .</li> <li>• Links to climate information services, focal points and relevant agricultural programmes.</li> </ul>	<ul style="list-style-type: none"> <li>• Weather forecasts.</li> <li>• Weather related advisory.</li> </ul>	<p><i>So, one, we would work with farmers to showcase improved or enhanced climate smart agriculture technologies. We would also build in knowledge on climate information services that makes them respond better to the changing climate. And then we would also be supplying them with the right variety and knowledge, climate smart varieties that they can utilize to increase the productivity.</i></p> <p><b>- R/GI - 2 KII, Nairobi</b></p> <p><i>So, this is a platform that offers weather data to farmers and, what it does is, it gives a 14-day short forecast, a short forecast, short term forecast which helps farmers to plan their farm level activities.</i></p> <p><b>- R/GI - 1 KII, Nairobi</b></p>
	<b>8. Fees structure on services:</b>	All advisory services offered are free. Soil testing and veterinary services offered at a nominal fee.	No fees on services offered.	No charge on weather forecasts and weather related advisory. Fees charged on specific data requests made.	<p><i>...it's not subscription because it's not like it's a regular thing but if there is like maybe a consultant who is building roads and he needs historical data, and since he is paid, he also has to pay for that service so that he is provided for. So, the data he would pay for it.</i></p> <p><b>- R/GI - 3 KII, Nairobi</b></p>

# Research and government institutional business model: Farmer outreach is a major advertisement strategy. SMS is the most common dissemination channel used.


		R/GI - 1	R/GI - 2	R/GI - 3	Quotes
	<b>9. Advertisement Strategy:</b> This was achieved through physical visits, through mobile phone devices, the media, and partners.	<ul style="list-style-type: none"> <li>Farmer Outreach.</li> <li>SMS.</li> <li>Call centre.</li> <li>Social media.</li> </ul>	<ul style="list-style-type: none"> <li>Partners.</li> </ul>	<ul style="list-style-type: none"> <li>Farmer outreach.</li> <li>Open days.</li> <li>Radio and TV.</li> <li>Social media.</li> </ul>	<p>...we have a day called World Meteorological Day held every year – we hold it once in March. That is the time if you want to learn anything here, you'll just visit, we'll tell you where we are hosting it.</p> <p>- R/GI - 3 KII, Nairobi.</p> <p>I think we use partners mostly. We, we try and do a little bit of blowing our own horn, but partners are mostly the key people. When we work with a partner, they already have a reach of these farmers. When we work by ourselves, we also have a reach, but we try and leverage past partnerships for these things. And that was not just marketing, I think it's proof of concept and showing them why you need this and then once they take it on board, then we take it to the next level.</p> <p>- R/GI - 2 KII, Nairobi</p>
	<b>10. Dissemination channels:</b> Institutions leverage on mobile devices and media due to their coverage, online platforms and various forms of farmer groupings.	<ul style="list-style-type: none"> <li>SMS.</li> <li>Online platforms.</li> </ul>	<ul style="list-style-type: none"> <li>Farmer groups.</li> <li>Multi-stakeholder online platforms.</li> <li>WhatsApp groups.</li> </ul>	<ul style="list-style-type: none"> <li>SMS.</li> <li>WhatsApp groups.</li> <li>Radio and TV.</li> <li>Email.</li> </ul>	<p>...we chose mobile applications because everyone is moving mobile, and mobile applications can serve so much information and in terms of SMS, we want to reach the farmers who mostly use a feature phones.</p> <p>- R/GI - 1 KII, Nairobi</p> <p>And others leverage on, you know, farmer cooperatives as a model of learning. Then we also have farmer groups who offer peer to peer learning.</p> <p>- R/GI - 2 KII, Nairobi.</p>

# Research and government institutional business model: Information is disseminated to users once a week. Surveys and social media platforms are the main feedback channels.


		R/GI - 1	R/GI - 2	R/GI - 3	Quotes
	<b>11. Frequency of dissemination:</b> This depends on the information shared where weather information is shared most frequently.	<ul style="list-style-type: none"> <li>Weekly or twice weekly – Agro and weather-related information, and services offered.</li> </ul>	<ul style="list-style-type: none"> <li>Often (schedule not indicated).</li> </ul>	Weather forecast information shared. <ul style="list-style-type: none"> <li>Daily.</li> <li>Weekly.</li> <li>Seasonally.</li> </ul>	<p><i>I think as often as possible. Like I mentioned, we have an open data policy where research that is publicly funded has to be publicly available and so we have repositories of our work, and we allow people to access that.</i></p> <p>- R/GI - 2 KII, Nairobi</p> <p><i>...for SMS we do weekly. Sometimes even twice a week.</i></p> <p>- R/GI - 1 KII, Nairobi</p>
	<b>12. Measuring end user engagement with the service provided:</b>	<ul style="list-style-type: none"> <li>Weekly reports on the impact of the services provided.</li> </ul>	<ul style="list-style-type: none"> <li>Impact evaluation from needs assessment, to baseline and endline implementation.</li> <li>Power surveys conducted as required.</li> </ul>	<ul style="list-style-type: none"> <li>Feedback from social media including Whatsapp, Twitter and Facebook.</li> </ul>	<p><i>...through those WhatsApp groups, we get some feedback. For example, when they are dealing with Narok County, there is feedback.</i></p> <p>- R/GI - 3 KII, Nairobi</p> <p><i>We would visit their farms and check, we would take testimonials from their farms and personally when that happens, we are able to, to evaluate. We start from a baseline... needs assessment, then baseline then implementation, then we monitor and evaluate, and then finally endline and we track that quite a bit.</i></p> <p>- R/GI - 2 KII, Nairobi</p>





# Research and government institutional: The most common challenges experienced were with the dissemination of information.

	R/GI - 2	R/GI - 3	Quotes
 <p><b>13. Challenges faced by the organizations:</b> These were categorized considering dissemination, funding, and end user related challenges. Our key informant from R/GI - 1 did not highlight any challenges with designing or disseminating the services.</p>	<b>1. Dissemination</b>		
	<ul style="list-style-type: none"> <li>Low literacy levels.</li> <li>Low smart phone penetration.</li> <li>Poor network connectivity.</li> </ul>	<ul style="list-style-type: none"> <li>Unstable electricity.</li> <li>Internet down 7.065 time.</li> </ul>	<p>...some of them would say maybe they don't have smartphones. That's one of them. And like I said, we try and steer away from subscription-based platforms to more, you know, voluntary engagement. And so, where farmers have stopped, it's either because, you know, they felt they could no longer access things on applications, or they could no longer afford to stay on platforms that require data.</p> <p>- R/GI - 2 KII, Nairobi</p>
	<b>2. Funding</b>		
	<p>Not mentioned.</p>	<ul style="list-style-type: none"> <li>Lack of funding for MEL.</li> <li>Reduced budgetary allocations.</li> </ul>	<p>...the challenge is the decline in budgetary allocation by the government.</p> <p>- R/GI - 3 KII, Nairobi</p>
	<b>3. End user contact/experience</b>		
	<ul style="list-style-type: none"> <li>Lack of direct contact with farmers.</li> <li>Slow uptake of information.</li> </ul>	<p>Not mentioned.</p>	<p>And sometimes you might want to do this through other programs or NGO programs, but it's not, it's not the same as working directly with farmers.</p> <p>- R/GI - 2 KII, Nairobi</p>



# Research and government institutional: The opportunities to better target farmers include providing additional agriculture advisory information, among others.

			Quotes
	<b>14. Opportunities to better target farmers:</b>	<b>1. Information provision:</b> Including agricultural advisory with weather advisory was seen as a growth area where organizations could additionally provide crop and livestock related advisory.	<i>We develop advisories depending on the value chains that a farmer is engaged in and in livestock. So, from there you are able to maybe as a farmer as of now, although it is centred in R/GI - 1, the farmers are able to get advisories in various value chains. If its maize you'll be told if you encounter this, do this, if you encounter - and sometimes they also send messages or call in so that they also get advised.</i>  <b>- R/GI - 3 KII, Nairobi</b>
		<b>2. Improving the services provided</b> This includes: <ul style="list-style-type: none"><li>• Ensuring that the information provided is understood by recipients.</li><li>• Ensuring accuracy of the forecast.</li><li>• Targeting areas with poor internet connection.</li><li>• Customising services.</li></ul>	<i>We can only improve maybe the way we communicate with the farmers; we make them understand all this.</i> <i>...these are the areas we need to discuss and improve so that when the information gets to you, its fully understood and its actionable.</i> <i>..now the improvement you are talking about is doing what we are calling co-production. You need a specific service; you find its not being provided the way you want it.</i>  <b>- R/GI - 3 KII, Nairobi</b>  <i>There are opportunities that exist in leveraging places that haven't been reached by good internet.</i>  <b>- R/GI - 1 KII, Nairobi</b>
		<b>3. Training/capacity building:</b> Sharing more knowledge with the farmers.	<i>Sometimes you might not give them the money or the incentives, but knowledge I think is what propels into the next level.</i> <i>...information is power. One, and then secondly, you need to keep retooling or enhancing capacity of these people over time.</i>  <b>- R/GI - 2 KII, Nairobi</b>

# Commercial Firms Profile: CE - 1 and CE - 2 both serve smallholder farmers nationally. They also work with various partners to provide their services.

		CE - 1	CE - 2	Quotes
	<b>1. Target Audience:</b> The research and government institutions work with various stakeholders most importantly the farmers. They also work with farmer facing organizations, as well as different government departments at both County and National level.	<ul style="list-style-type: none"> <li>• Smallholder farmers.</li> <li>• Partners providing services such as advisory, soil testing and financial and insurance services.</li> </ul>	<ul style="list-style-type: none"> <li>• Smallholder farmers.</li> <li>• Partners from who they source information from.</li> </ul>	<p><i>We work with partners. We also serve the smallholder farmers. We are defining the value propositions for all the farmer solutions that we roll out to the markets. So, we work directly with the smallholder farmers. In terms of partners giving advisory services, insurance services, financial institutions, mechanization, soil testing, all the other solutions that we provide, we work with partners.</i></p> <p>- CE - 1 KII, Nairobi.</p> <p><b>Moderator:</b> Who is the target recipient of your service?  <b>Respondent:</b> Small scale farmer. I think they're the most vulnerable, disadvantaged sometimes, and underserved. That means that farmers don't get reliable information.</p> <p>- CE - 2 KII, Nairobi.</p>
	<b>2. Areas served:</b>	Countrywide reach.		<p><b>Moderator:</b> Do you target your services to any specific counties?  <b>Respondent:</b> No. So, we do a rollout plan informed by many things and that informs the counties that we roll out when and where. There are a lot of things that we consider, the value change, the structure, the unstructured value change, the impact that we have, the efforts.</p> <p>- CE - 1 KII, Nairobi.</p> <p><b>Moderator:</b> Do you target your services to any specific counties?  <b>Respondent:</b> No, we are all over Kenya. ...Therefore, that is why we wanted to give it a national outlook so that you don't say, oh, you know, you don't serve in this area.</p> <p>- CE - 2 KII, Nairobi.</p>



# Commercial Firms Profile: CE - 1 has both direct and indirect interactions with farmers while CE - 2 interacts with farmers directly.

		CE - 1	CE - 2	Quotes
	<b>3. Farmer Interactions:</b>	<ul style="list-style-type: none"> <li><b>Serve farmers both directly and indirectly.</b> Direct is through registration of farmers on their platform. Indirect interactions involve CE - 1's partners interacting directly with farmers.</li> </ul>	<ul style="list-style-type: none"> <li><b>Has direct touchpoints with farmers.</b> This is through providing information on farming practices.</li> </ul>	<p><i>We work through partners so some of the touch points that the farmers will interact with us through a partner. And then the other solutions are mainly provided digitally. So yes and no. There are solutions that we work directly with the farmer, but others that we go through are partner.</i></p> <p style="text-align: right;"><b>- CE - 1 KII, Nairobi.</b></p> <p><i>So, we have business to customers where, you know, we serve customers directly and we have business to business where we serve other business. So, giving the farmer that free model allows us to find a mechanism of how we can serve business to business.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi</b></p>
	<b>4. Information sources:</b>	<ul style="list-style-type: none"> <li>Not provided.</li> </ul>	<ul style="list-style-type: none"> <li>Sources information from organizations such the Santa Barbara Sentinel Weather Focus for weather advisory information and KARLO and Ministry of Agriculture for crop advisory information.</li> </ul>	<p><i>We get weather from, it is called the center, Santa Barbara Sentinel Weather Focus. But I think, the organization or, the project that collect data is, FEWSNet. FEWSNet is Famine Early Warning System Network. What they do is they collect data on whether or they collect like imagery data and send it to Plant Village and this is created in its form of SMS and sent to CE - 2. When it comes to good agricultural practices who work with various organizations such as KALRO, Ministry of Agriculture. We rely heavily on their publication to create our content. So, our content are basically, I know, derived on that. We also used to get market prices from the government.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi.</b></p>

# Commercial Firms Profile: While CE - 1's business model is mainly B2C, CE - 2's model is both B2B and B2C.


		CE - 1	CE - 2	Quotes
	<b>5. Business Model:</b>	<ul style="list-style-type: none"> <li><b>Mainly business to customer (B2C).</b> Some products and/or services provided digitally (e.g, weather and crop advisory information) while others require a physical touchpoint with farmers (e.g, provision of inputs).</li> </ul>	<ul style="list-style-type: none"> <li><b>Both Business to business (B2B) and business to customer (B2C).</b></li> </ul>	<p><i>Our operational model, we design the solutions that are specifically targeted to smallholder farmers. Now each solution will have a different channel of distribution for a different cost market. We have solutions that will roll them out digitally. We will have solutions that require a physical touchpoint on the ground, and each of these solutions will have different commercial model. So, we'll have the inputs, which will go through an input provider, and we'll need a physical touchpoint on the ground. We'll have advisory in insurance and credits that we can roll out digitally, and then we have the access to market. Where as much as it's a digital solution, you require the physical touch points on the ground.</i></p> <p style="text-align: right;"><b>- CE - 1 KII, Nairobi.</b></p> <p><i>So currently we have a mix of business to business, and we have a mix of, you know, business to customer. So, in business to customer, we basically focus on making sure that we serve the needs, the information to our customers. And when it's come to business, to business, we focus on serving the needs of the specific business. So here we're talking about research like for example, this kind of research if today Dalberg wants to understand what are the emerging trends in farmer communication, they can come to us. We can look at the question we've been receiving. If those are not sufficient or they want to get feedback, we can go to those specific farmers and probably conduct a telephone survey.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi</b></p>

# Commercial Firms Profile: Both provide weather and crop advisory information to farmers among other services.


		CE - 1	CE - 2	Quotes
	<b>6. Funding source:</b>	The organization's revenue is driven by the sale of products and services offered.		<p><i>So, while we do not monetize directly from this service (weather and crop advisory information), the downstream revenue from the other products is what gets this product or what drives this product.</i></p> <p>- CE - 1 KII, Nairobi.</p> <p><i>So, one of our biggest ways of raising revenue is now research and we can do focus group discussion. It could be virtual or physical, we can do telephone surveys, we can collect data based on our interaction with farmers.</i></p> <p>- CE - 2 KII, Nairobi</p>
	<b>7. Products and services offered:</b>	<ol style="list-style-type: none"> <li><b>Weather and crop advisory information.</b> This includes what farming practices to adopt based on the weather patterns.</li> <li><b>Access to financial services.</b> CE - 1 develops a credit score of farmers which is useful in allowing them to access finances. They also link the farmers to financial institutions to access credit.</li> <li>Access to <b>insurance, inputs and markets for farmer's produce.</b></li> </ol>	<ol style="list-style-type: none"> <li><b>Weather and crop advisory information.</b> This includes what farming practices to adopt based on the weather patterns.</li> <li><b>Information on inputs and market prices.</b></li> <li><b>Research services to businesses.</b> This is particularly for businesses that would like to learn more about the farmers CE - 2 serves.</li> </ol>	<p><i>We give an advisory service, which is weather and agronomy and the two tied together in terms of, as we give you the weather information how does that translate to the activity that you need to do on your farm? We tell you it's going to rain, what are you supposed to do on the farm.</i></p> <p>- CE - 1 KII, Nairobi.</p> <p><i>We score these farmers so that they have avenue to access the finance using the data that we have. Like access to financing, but now the financing comes from a financial institution. Of course, we are the face of it, and the farmer knows they're getting the financing from CE - 1 and not any financial institution.</i></p> <p>- CE - 1 KII, Nairobi.</p> <p><i>This is a private limited company. It gives farmers information on farming practices and it's a link that farmer can get information on other, you know, other things we talked about, like, you know, access to markets, access to finance, access to input.</i></p> <p>- CE - 2 KII, Nairobi</p>





## Commercial Firms Profile: CE - 1 provides its services at a fee while CE - 2 has both a free and subscription-based model.

		CE - 1	CE - 2	Quotes
	<b>8. Fee structure of services provided:</b>	<ul style="list-style-type: none"> <li><b>Services are provided at a fee.</b> However, each service has a different pricing model. This is dependent on the nature of the service to be provided, farm size and market conditions.</li> </ul>	<ul style="list-style-type: none"> <li><b>Have both a free service and subscription-based model.</b> For the free model, farmers request for information from CE - 2. However, the information they have access to is limited compared to the subscription-based model.</li> <li>In the subscription-based model, farmer pay to access information on up to four value chains, and their requests are given priority.</li> <li>Both models are driven by the fact that there are farmers not willing to pay for this information.</li> </ul>	<p><i>Different services have different commercial models. Of course, credit is not free anywhere, there are fee attached to it. Of course, inputs, again, there's a cost to it. So, the different services would have a different commercial model, but we price our services and our products according to the markets. How the market is operating.</i></p> <p style="text-align: right;"><b>- CE - 1 KII, Nairobi.</b></p> <p><i>We have a free model, and we have a subscription model. The free model is where we basically allow farmers to call us to send us information and we also send them weekly with the focus and the paid for model is more detailed. It allows farmers to select four commodities and they can also belong to WhatsApp groups; they have their question given priority. they, they have other, you know, best offers. For example, if working with any of the Agro dealers and they have an offer, then we give them priorities.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi</b></p> <p><i>We have been in service for, this is our eighth year and we've already established that majority of farmers are not willing to pay and therefore we are creating relationship with farmers to better understand them.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi</b></p>


# Commercial Firms Profile: While CE - 1 utilizes customer value management approach to advertise its services, CE - 2 relies on TV advertisements and farmer groups.

		CE - 1	CE - 2	Quotes
	<b>9. Advertising strategy</b>	<ul style="list-style-type: none"> <li>Utilize Customer Value Management (CVM) which involves directly sending messages to farmers on the products and services offered.</li> <li>It is perceived to be to be successful given the wide reach, is cost-effective and farmers have been observed to be more responsive to this method.</li> </ul>	<ul style="list-style-type: none"> <li>Utilize TV to advertise its products and services. They also attend shows and exhibitions.</li> <li>The most successful strategy has been through TV and relying on farmer groups.</li> </ul>	<p><i>I'd say CVM targeting. CVM in full is Customer Value Management; where we take it farmers through a message and tell them, this is the service that we have, and this is how to access the services. We've done a few campaigns, maybe on radio and stuff like that, but we've not really gone above the line, most of our campaign are targeted messaging to the farmers.</i></p> <p>- CE - 1 KII, Nairobi.</p> <p><i>It's the one with a wide range. From also a cost perspective it's affordable for us. It gives a better turnaround from when we send out from the farmers.</i></p> <p>- CE - 1 KII, Nairobi</p> <p><i>We primarily use TV. So, we advertise heavily on TV, and then we work with our partners, you know, attend their shows, exhibitions, network. We are currently strategizing on working with counties.</i></p> <p>- CE - 2 KII, Nairobi</p> <p><b>Moderator:</b> Which approach has been the most successful?  <b>Respondent:</b> TV and also organized farmer groups in terms of recruiting our customers.</p> <p>- CE - 2 KII, Nairobi</p>


# Commercial Firms Profile: They both utilize digital channels to disseminate information. The frequency of dissemination however varies.

		CE - 1	CE - 2	Quotes
	<b>10. Dissemination channel:</b>	<ul style="list-style-type: none"> <li>The main channels used in sharing advisory information to farmers are <b>both USSD and a mobile app</b>. USSD is mainly used because majority of farmers they serve have a feature phone.</li> </ul>	<ul style="list-style-type: none"> <li>The main channels used include: <b>Whatsapp, SMS and a call centre</b>.</li> </ul>	<p><i>The main channel is a USSD but we also have a mobile app. About 68% of our farmers are on a feature phone, so the, the convenience channel for them would be an USSD but also as we drive smartphone penetration, and the reason for the app, which has better experience and can give better features.</i></p> <p>- CE - 1 KII, Nairobi.</p> <p><i>We have WhatsApp group. We also have a call center where farmers can call in and ask questions. And they can also send SMS.</i></p> <p>- CE - 2 KII, Nairobi.</p>
	<b>11. Frequency of disseminating information:</b>	<ul style="list-style-type: none"> <li>The frequency with which information is shared to farmers is either <b>farmer driven or CE - 1 driven</b>.</li> <li>CE - 1 shares weekly or biweekly messages upon farmer request. However, there are farmers that choose to interact with the information themselves depending on how frequent they need the information.</li> </ul>	<ul style="list-style-type: none"> <li>The frequency with which information is shared varies. <b>There are farmers that receive weather advisory information weekly or monthly or seasonally.</b></li> </ul>	<p><i>There are two methods. There is push and there's pull. Push is where we push the messages to the farmers. Uh, the farmers will come, and we know this is the value chain you're doing and so those ones, we schedule weekly or biweekly messages. Then there is pull where the farmer interacts with the content themselves and that one, generally the demand is driven by the farmer. Whenever the farmer invests for it, they interact with it.</i></p> <p>- CE - 1 KII, Nairobi.</p> <p><i>We have weather forecast weekly. You have weather forecast monthly and you have weather forecast seasonal.</i></p> <p>- CE - 2 KII, Nairobi.</p>

# Commercial Firms Profile: CE - 1 and CE - 2 both utilize various methods to measure impact of their service. While CE - 1 relies on observation, CE - 2 relies on research.


		CE - 1	CE - 2	Quotes
	<b>12. Measuring engagement with service:</b>	<ul style="list-style-type: none"> <li>Measures impact through <b>observing the impact of the advisory information on farmer's yields</b>. They also <b>observe and record interaction</b> with other services.</li> <li>In the case of loans, they also observe repayment behavior.</li> </ul>	<ul style="list-style-type: none"> <li>Measures impact of its services through <b>conducting research</b> to determine the impact of the information shared on improving farmer's yields.</li> </ul>	<p><i>We've measured the impact in a number of ways. One is the change in terms of the farmer yields but we also look at other behaviour like the loan repayments or somehow the advisory on financial services. I guess those two, mainly the impact that has on the yield, but also the behaviour in terms of how they interact with the other services and products.</i></p> <p>- CE - 1 KII, Nairobi.</p> <p><i>This research we did with, again, Mercy Corps and AgriFin showed that farmers who have been members of CE - 2 for more than 24 months increased their yield, in fact almost doubled. When we started, we did research on potato farmers, so we have farmers, like RCT farmers who were doing potato with CE - 2 and potato farmers without CE - 2. The CE - 2 farmers doubled their yield. Even in the study by 60-Decibel showed that about 70% of farmers say that they could not get an alternative of CE - 2 in terms of how the information is curated.</i></p> <p>- CE - 2 KII, Nairobi.</p>

# Commercial Firms Profile: CE - 1 and CE - 2 experience varying challenges in curating and dissemination agricultural information to farmers they serve.

		CE - 1	CE - 2	Quotes
	<b>13. Challenges faced in creating and disseminating information:</b>	<ol style="list-style-type: none"> <li><b>1. Low smartphone penetration among farmers.</b> This is perceived to limit the number of features CE - 1 can provide the farmers that would ideally be provided through the smartphone app.</li> <li><b>2. Collecting insights on impact of advisory information</b> especially for new farmers on the platform.</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Low uptake of subscription-based model.</b> This is because farmers stopped farming.</li> <li><b>2. Lack of consistency in sourcing information from the government</b> on market prices.</li> <li><b>3. Lack of finance by farmers</b> to adopt practices recommended by CE - 2.</li> <li><b>4. Costly process of developing information</b> that meets farmer's needs.</li> <li><b>5. Difficulty in summarizing content on SMS</b> which has a limitation on the number of characters to be sent.</li> <li><b>6. High cost of disseminating SMS messages.</b></li> </ol>	<p><i>I would say probably, customer engagement, getting the insights from the customer themselves, especially where you are starting work and it's a new product. It's a challenge getting the insights from something they've never experienced before, but over time, I think as the customers interact with the product, we've been getting very good insights. The biggest challenge, of course would be most of our farmers are on a 2G phone or the feature phone. And as we grow this survey, we'd like to give more, more features. We'd like to do it in a better way and give a better customer experience. So, it's also how do we scale up the smartphone penetration and ensure most of our customers are now converting to a smartphone device.</i></p> <p style="text-align: right;"><b>- CE - 1 KII, Nairobi.</b></p> <p><i>I mean ordinarily you will find people dropping off from this service for various reasons including stopping farming.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi.</b></p> <p><i>We also used to get market prices from the government but lately, you know, the way the government does things; it's not probable that you'll get market prices every week; it's not very consistent, and therefore we stopped collecting market prices.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi.</b></p> <p><i>I think when it comes to designing the service, (the challenge) is in coming up with a service that meets the information needs of the farmer in a very specific way. It is costly, it is time consuming because you want to come up with a human-centered design in designing that content; and that is a little bit costly, and you know, time consuming.</i></p> <p style="text-align: right;"><b>- CE - 2 KII, Nairobi</b></p>



# Bundling advisory information with other products, farmer education, and provision of actionable weather and crop advisory information are examples of opportunities identified to better target farmers.

Quotes		
	<b>14. Opportunities to better target farmers:</b>	<b>1. Bundling weather and crop advisory information with other products.</b> This is because of the perception that farmers are not willing to pay for this information. As such, bundling allows the organization to also derive revenue from other products.
		<b>2. Farmer education</b> on where to access services offered by the organization.
		<b>3. Providing actionable weather and crop advisory information to farmers.</b>
<p><i>The opportunity is now how do you bundle it with other products because the value is there, what other products are you driving the market that can pick up the cost of providing this service.</i></p> <p>- CE - 1 KII, Nairobi</p> <p><b>Moderator:</b> So, are their other opportunity you feel or believe can provide smaller farmers with timely and relevant weather and crop advisory information?</p> <p><b>Respondent:</b> Yes, bundling services. So, don't just provide information alone like what we are doing now, try to come up with other services such as loans, markets, etc. and even the thing is, at the end of the day, the ultimate goal that the farmer want to see from you is increased income.</p> <p>- CE - 2 KII, Nairobi.</p> <p><i>The appetite of farmers for these services. So, we've seen when the farmers are sensitized, and they know how they can access these services. They sign up very fast for rates.</i></p> <p>- CE - 1 KII, Nairobi</p> <p><i>The only thing that is we currently have a lot of players who are now coming into this space and keeping this kind of service we just need to be very practical. I can use that word, when it comes to how we deliver it and how friendly it is to the farmer because it doesn't make sense to just tell the farmer tomorrow there'll be overcast, cloud and rain, it's how you translate that content into an actionable message that the farmer can implement in the farm. So, as I tell you that this is the weather condition, what should I do? So, tying that to the value chain and the activity that the farmer needs to do in the farm, I'd say that's, that's the biggest missing link for most of the players currently doing that.</i></p> <p>- CE - 1 KII, Nairobi.</p>		





# *Opportunities*

Dalberg Research







**Sprout**  
THE OPEN CONTENT  
AGRICULTURE PLATFORM



AGRIFIN

# Opportunities for development of the DWAS MVP.

Place 	Product 	Price 	Promotion 
<ul style="list-style-type: none"><li>Weather and crop advisory information to be tailored to the regional context e.g., information on forecasted floods to be sent to farmers in flood prone regions.</li></ul>	<ul style="list-style-type: none"><li>Providing actionable weather and crop advisory information to farmers. For example, including rain prediction, type of crops to plant and seeds to purchase based on the expected amount of rain.</li><li>Consider providing additional agronomic information based on farmer's interests e.g., where to access input and feeds as well as market prices.</li><li>Provide weather and crop advisory information in simplified and local languages.</li><li>Consider leveraging on preferred channels of receiving information e.g., SMS.</li></ul>	<ul style="list-style-type: none"><li>Bundling weather and crop advisory information with other products to generate revenue for the company. This is because of the farmers' unwillingness to pay for the information as cited by the commercial entities.</li></ul>	<ul style="list-style-type: none"><li>Farmer education on where to access weather and crop advisory information. Consider leveraging on farmer groups to educate farmers.</li><li>Leverage on trusted champions e.g., agricultural extension officers to disseminate information and collect feedback on farmer's needs.</li><li>Consider using testimonials from successful farmers to encourage use of weather and crop advisory information.</li></ul>



*Thank You!*

# Annex 1.

Examples of groups or associations farmers were a part of are provided below. We classify these groups into 3 categories based on their main purpose.

## 1. Farming

- Gathinka smart farmers
- Mwatate green gram growers
- Changamka
- Nyota tano
- Karaine farmers
- Kiwaki dairy cows
- Konamga
- Gidhafai ward horticulture
- Jesabi
- Charisonyi farmers group
- Phase two dairy
- Apollo group
- Tupande (One Acre Fund)
- Kibagenge cooperative
- Moki cooperative

## 2. General welfare

- Mkamenyi welfare group
- Kwel self-help group
- Jivunie self-help group
- Ithura self-help group
- Shalom Ndodhwa

## 3. Finance

- Tower SACCO
- Kwetu SACCO