

INCREASING BANANA PRODUCTIVITY IN UGANDA

THROUGH PROMOTION OF GOOD AGRONOMIC PRACTICES







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TRAC FM collects valuable data from citizens throughout Uganda and enables organisations, researchers and government institutions to reach out to citizens in a direct and cost effective way.

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1.0 Summary

Banana growing is one of the economic activities that provide a livelihood to many families in many parts of Uganda. They are also a source of food nutrients, needed to keep Ugandans healthy.

Bananas are grown in many regions of Uganda but on a subsistence level, the leading growers being in Western Uganda producing 66% followed by Central Uganda at 25%.

Bananas can be consumed in different forms depending on the type. They can be roasted, steamed, eaten as dessert or processed into local juice and wine. Bananas are eaten all year round, with peak and off-peak seasons.

However, average smallholder banana productivity has remained low at less than 30% of attainable yield of 60 - 70ton ha⁻¹ yr⁻¹ due to challenges associated with poor management and production constraints such as low soil fertility, drought, pests and diseases. These significantly affect the food and income security in the East African Community. Many farmers can no longer achieve optimal yields with the national average at 10 tons/ha per year.

NARO and partners from IITA, Bioversity International, Tanzania Agricultural Research Institutes of Maruku and Tengeru and CABI are working with private and public scaling partners to support farmers to bridge the yield gap to at least 25 metric tonnes per hectare per year.

This is to be achieved through improving farmers' productivity by providing appropriate knowledge and skills in good management practices.

The 4-year project funded by Bill and Melinda Gates Foundation titled "Improving scalable banana agronomy for small scale farmers in highland banana cropping systems in East Africa" started in 2016 and currently is in its third year of implementation.

The project sites are Bunyangabo, Isingiro and Nakaseke districts of Uganda and Rombo and Izimbya districts of Kilimanjaro and Kagera region in Tanzania respectively

TRAC FM worked with the project team to run a radio campaign aimed at disseminating information on good agricultural practices that support increased banana productivity. The goal of this project is to improve the livelihood and increase the income for banana farmers in Uganda by improving productivity from 10 tons/ha/year to 25 tons/ha/year.

The Banana Agronomy radio polling campaign run for 12 weeks between February and April 2019 on three radio stations; Voice of Kamwenge, Radio West and CBS FM. Each radio station conducted six poll questions - one per week.

Overall, a total of 20,525 responses were received from 15,694 respondents/ radio listeners from 56 districts of Uganda. On average, 24.5 % of the respondents were female.

The radio polling made input into the 12 educative radio talk shows which were aimed at increasing awareness and disseminating information on recommended banana growing practices for increasing productivity. The radio talk shows were also aired on Voice of Toro and Musana FM.

This report was compiled by Javie Ssozi and Innocent Amanyire and submitted to NARO and partners by TRAC FM.

2.0 About TRAC FM

TRAC FM enables citizens in Uganda and other East African countries to take part in meaningful public debate on matters concerning their relationship with government, private sector and public services. TRAC FM reaches out to even the most remote and excluded citizens through the use of basic mobile phones, free SMS and interactive radio talk-shows broadcast in local languages. Through this interaction, TRAC FM gathers real-time citizen data that helps to identify socio-economic and political trends.

TRAC FM's mission is to stimulate responsive governance by leveraging public opinion in interactive radio debates and data-driven advocacy campaigns.

Opinion polls and surveys are broadcasted during radio programs and through the online TRAC FM software platform, listeners' SMS feedback is captured and visualized for debate. Through a wide network of Civil Society Organisations (CSOs) and media partners, TRAC FM structures and amplifies the collective voice of citizens.

2.1 Partnership

TRAC FM partnered with the National Agricultural Research Organisation (NARO) and partners (IITA, Bioversity International and CABI) in March and April 2019 to conduct an interactive radio campaign aimed at disseminating information on good farming practices that support increased banana productivity.

Building on TRAC FM's past experience in implementing interactive radio campaigns on farming, TRAC FM supported NARO and partners right from the initial stages of the radio campaign planning which involved making input into the radio themes and talk show content. TRAC FM also facilitated a workshop at NARO offices in Kawanda during which poll questions on 6 selected topics (challenges affecting banana production, soil fertility management, mulching, water conservation, pests and diseases) were formulated.

TRAC FM's role was to use its polling software to collect the views and experiences of radio listeners in the targeted areas of Buganda, Ankole and Tooro to enrich the project team's understanding of farmers' experiences. The poll questions started after commencement of the radio campaign on CBS FM, Radio WEST and Voice of Kamwenge listeners with the aim of promoting best banana growing practices. The radio programmes were also re-broadcasted on Voice of Tooro and Musana FM based in Nakaseke to increase reach within project sites. The following section describes how the data in section 5.0 was collected.



3.0 How the Data were Collected

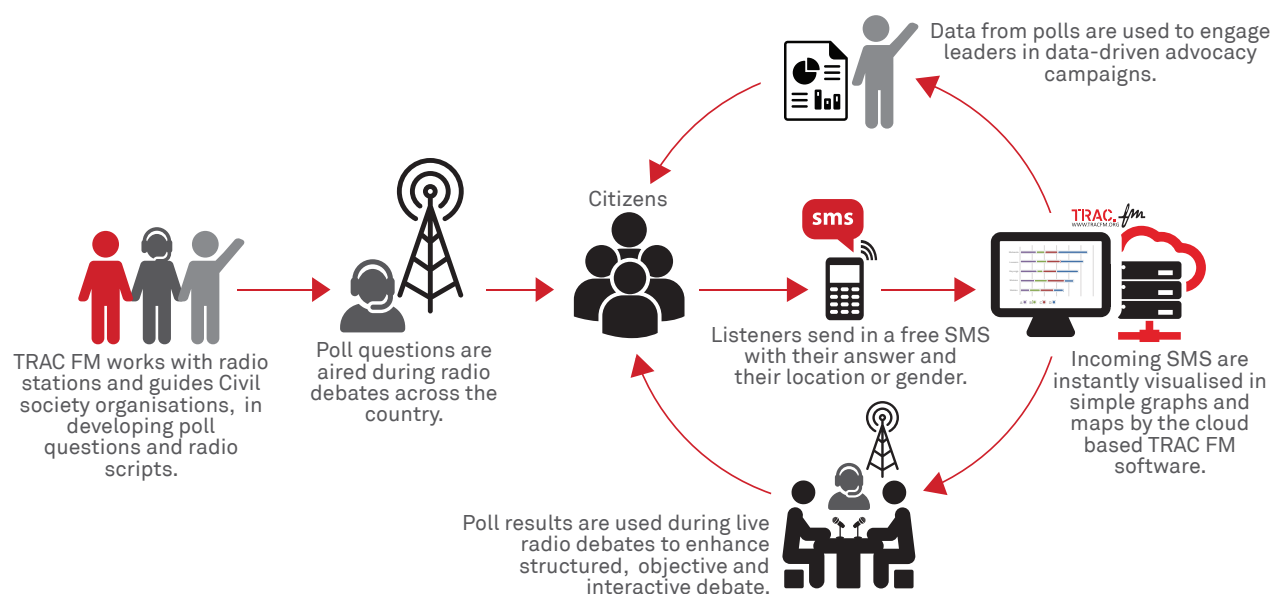
The radio stations were contracted to disseminate information on banana agronomy through radio talk shows between February and April 2019. TRAC FM integrated SMS polls with live radio debates to collect the views of radio listeners based on a preset poll question.

3.1 Interactive Radio Campaigns

TRAC FM worked with these three radio stations to gather the opinions, experiences and perceptions of radio listeners in real-time through radio polls (poll questions) and SMS. During live radio debate, the radio presenters announced a poll question (one question per week) and asked listeners to respond to the question by sending a free SMS through TRAC FM's toll free shortcode. All questions were announced in local languages - Luganda, Runyankole, Rukiga and Rutooro which are

the preferred and most common languages in the three sub-regions of Buganda, Ankole and Tooro respectively.

By creating an instant feedback loop, TRAC FM promotes public engagement while collecting valuable data to improve responsiveness of our development partners. The collected data assists policy-makers and practitioners on the ground to respond in more flexible ways to emerging opportunities and risks.



3.2 SMS Polls

Poll questions were formulated in such a way that they are simple for the radio listener to understand and each listener can only respond once to the poll question. TRAC FM's software automatically visualizes the sms responses of radio listeners into poll results making clear graphs and registers the location and gender of the respondents.

Poll data from the various sub-regions (Buganda, Ankole and Tooro) was further analysed, synthesized and presented in infographic format. The following section presents the data in form of infographics and a deeper analysis of the findings.

TRAC FM's established methodology has shown unprecedented results with over 1,300,000 individual users/ respondents in Uganda alone.



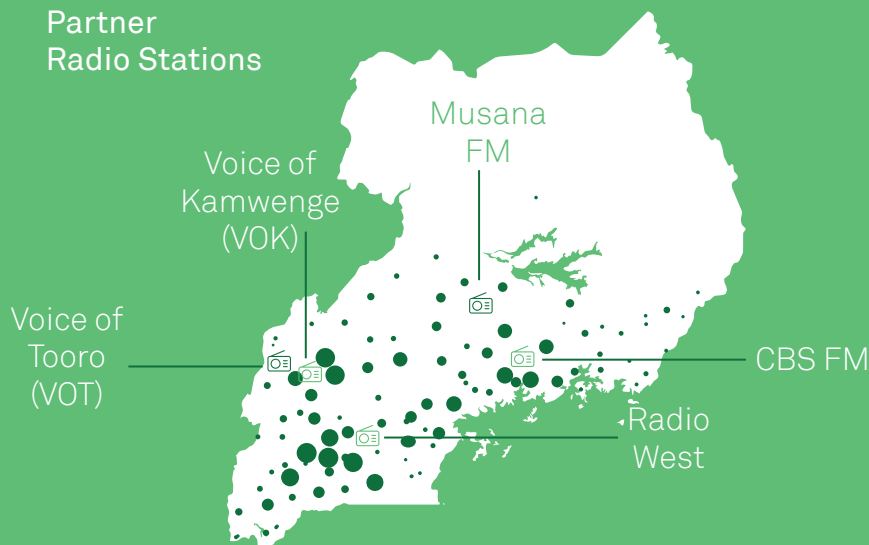
4.0 Project summary



20,525
Overall Responses

15,694
Unique Respondents *

Partner Radio Stations



24.5%
Female
Respondents



75.5%
Male
Respondents

56

Main
Districts
Reached



List of 56 Main Districts Covered.

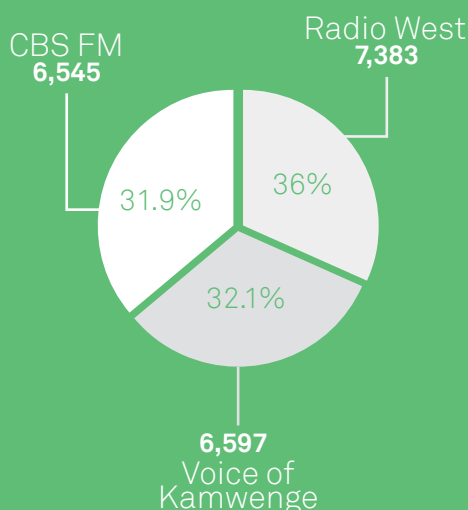
Kamwenge, Rubirizi, Ibanda, Bunyangabu, Kasese, Kyenjojo, Kabarole, Kyegegwa, Kiruhura, Kagadi, Kitagwenda, Masaka, Wakiso, Lwengo, Kyotera, Sembabule, Mukono, Kalungu, Rakai, Mpigi, Bukomansimbi, Mityana, Lyantonde, Gomba, Kampala, Luweero, Kalangala, Mbarara, Sheema, Isingiro, Ntungamo, Bushenyi, Mitooma, Buhweju, Kabale, Rukungiri, Ibanda, Rukiga, Kanungu, Kisoro, Rwampara, Bundibugyo, Kibuye, Mubende, Ntoroko, Mitooma, Kakumiro, Hoima, Ntungamo, Sironko, Masindi, Kibaale, Mayuge, Buikwe, Butambala, Nakaseke.



6

Poll Questions

Responses by Radio Stations



* Unique Respondents are individuals who participated in all the poll questions combined. Some individual responded to only one question. Others responded to more than one question.

5.0 Statistical Analysis

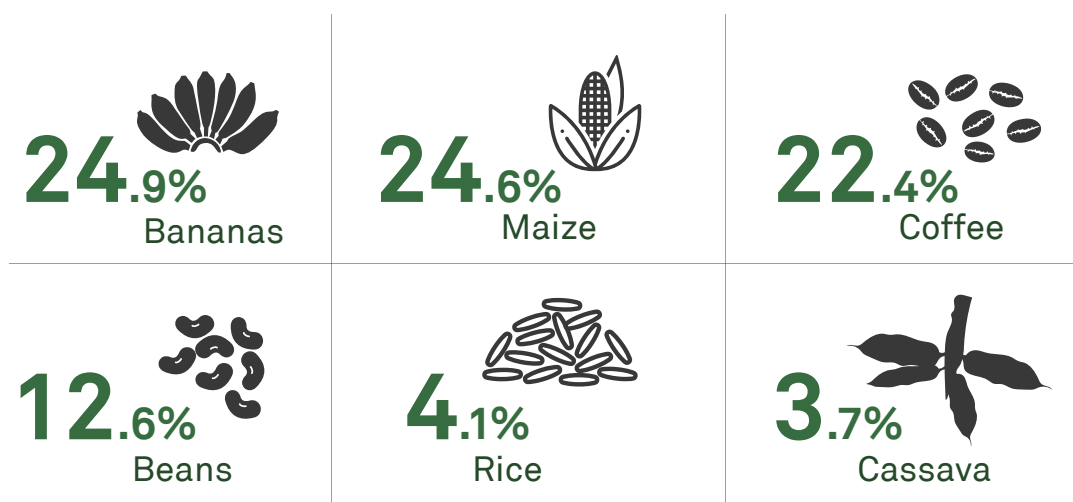
5.1 Poll Question One

Which of the following crops is most important to you and why?

The agricultural sector employs about 7 out of 10 Ugandans. Majority of these practice farming on a small scale both for home consumption and income. Whereas some farmers keep livestock, the majority are involved in the cultivation of various crops and or livestock rearing.


NUMBER OF
RESPONSES
3,398





POLL DURATION
18th Mar to
1st April 2019

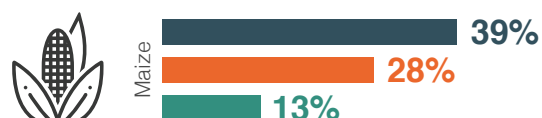


7.4% Others

(Ground nuts, Sweet potatoes, Irish Potatoes, Passion fruits, Tea, Tomatoes and Ginger)

Results per the main districts covered

 **VOK** (Kamwenge, Rubirizi, Ibanda, Bunyangabu, Kasese, Kyenjojo, Kabarole, Kyegegwa)
 **CBS** (Masaka, Wakiso, Lwengo, Kyotera, Sembabule, Mukono, Kalungu, Rakai, Mpigi, Kampala)
 **Radio West** (Mbarara, Sheema, Isingiro, Ntungamo, Bushenyi, Mitooma, Buhweju, Kabale)



Overall 3,398 radio listeners responded to this poll question. The majority (24.9%) say that bananas are the most important crop to them. However, those who said that maize and coffee are more important to them were not far behind with 24.6% and 22.4% respectively.

The data further shows that matooke remains more popular in Ankole where 33% voted it as the most important crop when compared to Buganda (18%) and Tooro (18%). In Buganda and Tooro areas, maize is more popular with 28% and 39% of the votes respectively.

A deeper analysis of the data shows that radio listeners in Isingiro, Mbarara and Sheema who participated in this poll, rank

matooke very highly with a score of 55.6%, 41.3% and 40.5% respectively.

In Buganda and Tooro, coffee (31%) and maize (39%) were voted as the most popular crops respectively.

The reasons given by 24.9% of the radio listeners to explain why matooke is the most important crop to them range from the fact that it is a staple food and source of nutrients to the economic benefits of growing matooke.

A female respondent points out, 'ndyako emmere endala nenjitunda nemperera abaana' – 'I get food from my plantation and sell the rest to pay school fees for my children.'

Reasons given by some who said Matooke is the most important crop;

Matooke is a source of food and money since it can be sold.

Male respondent from Masaka

You can grow matooke in every season.

Male respondent from Kabarole

There's readily available market for matooke.

Female respondent from Ntungamo

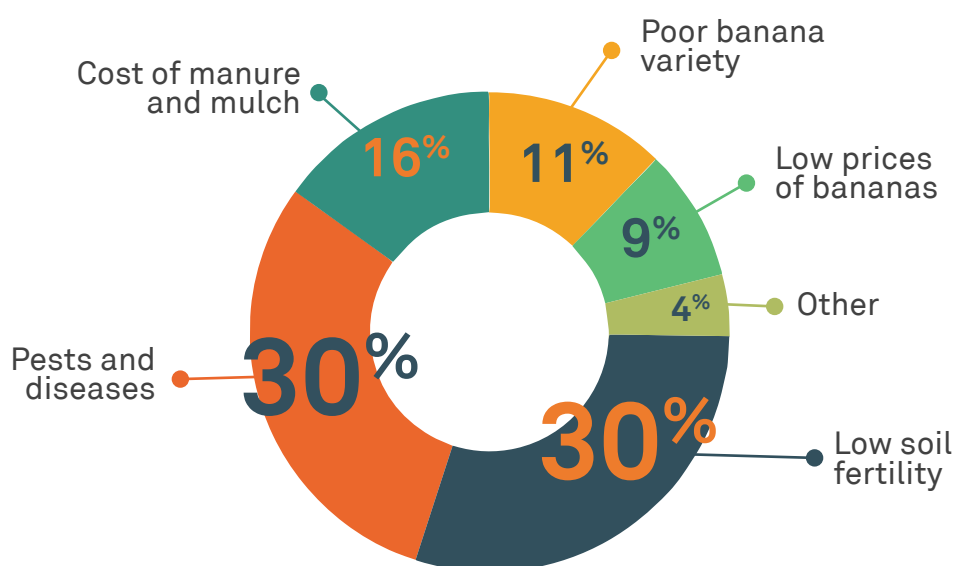
5.2 Poll Question Two

What is preventing you from producing bunches of matooke that will attract buyers?

Matooke growing is one of the economic activities that provide a livelihood to many families mainly in central, western and Mt Elgon region. It is also a staple food in some regions of the country. However, due to various factors, many farmers are unable to produce bunches of matooke that will earn them competitive market prices and also provide a continuous household food supply.


NUMBER OF
RESPONSES
3,827


POLL DURATION
25th Mar to
5th April 2019



Although bananas are a popular crop in Uganda, there are a number of factors that prevent farmers from producing marketable bunches. The majority of the farmers who participated in this poll reported that

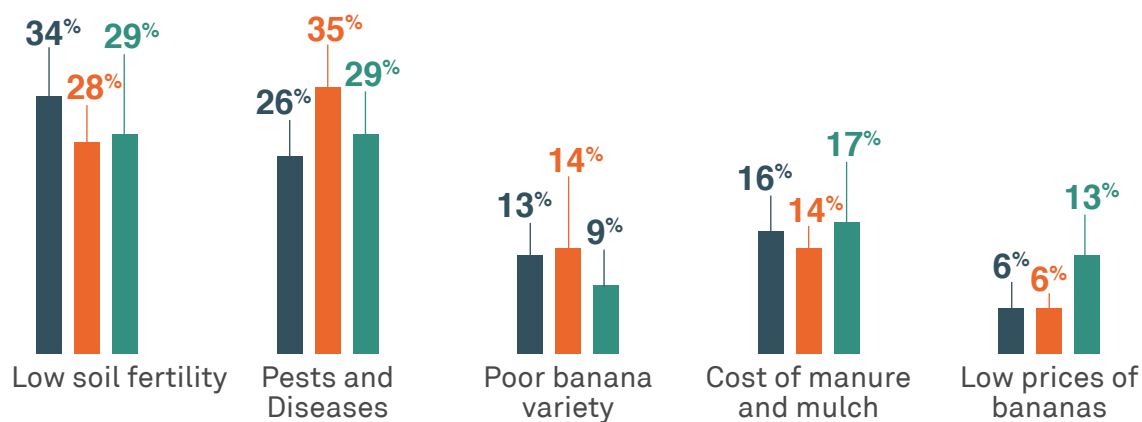
low soil fertility (30%) and pests and diseases (30%) are the major reasons why they are unable to produce bunches of matooke that will attract competitive market prices.



Male respondent from Rakai district says
'Ettaka terikyarina bujjimu ate n'ebeeyi ya matooke eri wansi nyo. Saako nekiwuka ekitatudde' – 'soil is no longer fertile and the prices of matooke are very low. He adds that the pest which destroys suckers is also not rested.'

Results per the main districts covered

VOK (Kamwenge, Rubirizi, Ibanda, Bunyangabu, Kasese, Kyenjojo, Kabarole, Kyegegwa)
CBS (Masaka, Wakiso, Lwengo, Kyotera, Sembabule, Mukono, Kalungu, Rakai, Mpigi, Kampala)
Radio West (Mbarara, Sheema, Isingiro, Ntungamo, Bushenyi, Mitooma, Buhweju, Kabale)



At sub-regional level, in Buganda, more people (35%) say that pests and diseases affect the marketability of their bananas while in Tooro the majority (34%) say that the major challenge is low soil fertility.

The high cost of manure and mulch, poor banana varieties and the low cost of matooke also make it difficult for farmers to fully commit to producing big bunches of matooke. The bottom line here is that the soil's ability to sustain plant growth is very low and therefore inputs like fertilizers remain a very important factor of production.

The rampant pests and diseases that destroy banana plantations also require farmers to have not only pesticides but also improved suckers that are resistant to pests and diseases.



Other (4%) reasons given by respondents on challenges faced in mulching their plantations.

- (i) Little knowledge on how to apply mulch, manure and how to grow good quality matooke.
- (ii) Some pesticides we use have negative side effects on both banana and soil quality.
- (iii) The cost of producing the matooke for sale is very high.
- (iv) Long dry seasons which mean less rains

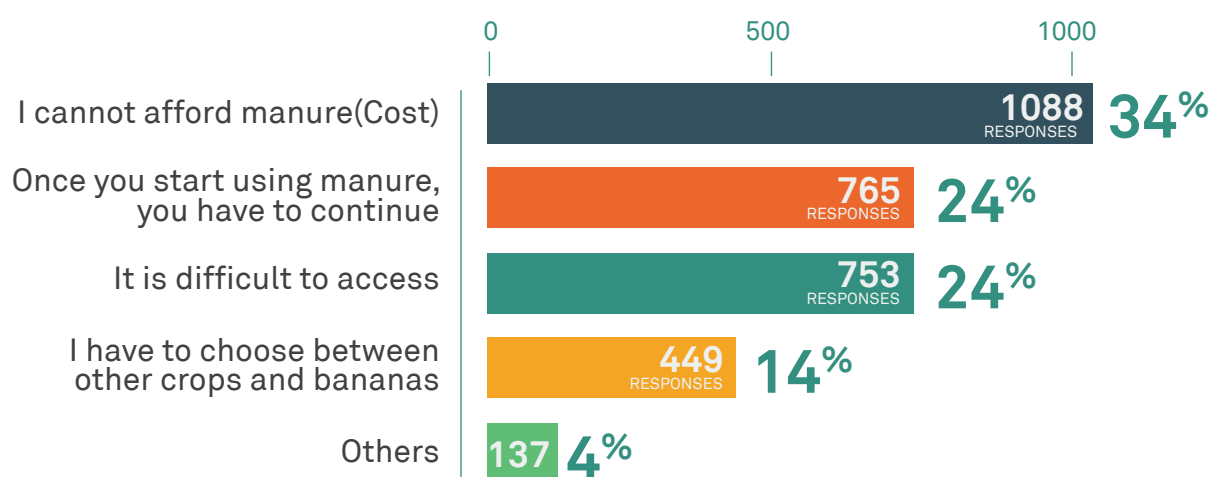
5.3 Poll Question Three

What challenges do you face in applying manure in your banana plantation?

In many parts of Uganda, the soil have low fertility therefore unable to support proper plant growth. Bananas can produce good yields if well fed and managed. Feeding of the bananas can be done in different ways including the use of organic manure obtained from animal waste and crop residues and inorganic fertilizers.


NUMBER OF
RESPONSES
3,192


POLL DURATION
1st April to
10th April 2019



Many farmers in Uganda have been affected by the low soil fertility levels. As a result, manure and other soil fertility management practices have become inevitable farm inputs to increase soil fertility and productivity. However, there are still many socio-economic factors that affect access and application of manure.

From an economic point of view, manure has become a highly-demanded commodity. This means that scarcity of adequate manure and competing demands for livestock feed and source of fuel in some communities. In addition, the high prices are largely attributed to distant places where the manure is sourced from. For example, in the Southwest, most manure used is sourced from districts dominated by cattle keepers far from banana growers; hence increasing the cost of transportation.

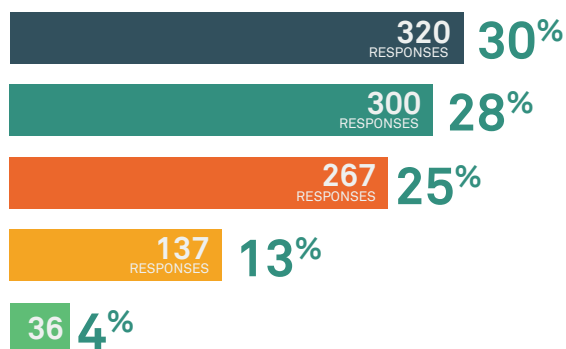
This probably explains why the majority of radio listeners (34%) who responded to this poll question responded that the cost of manure is a big challenge to them. The issue of cost is even a bigger burden for large scale farmers as one farmer from Mbarara recounted. Additionally, 24% also pointed out that manure is difficult to access due to scarcity of adequate manure and competing demands for livestock feed and source of fuel in some communities.

While many farmers still see the need for manure, some 24% also feel that once you start applying manure, you cannot stop thus more costs and labour. This perception, which stems from the fear of over reliance on manure and having to cope with the associated costs can make farmers refrain from using manure.

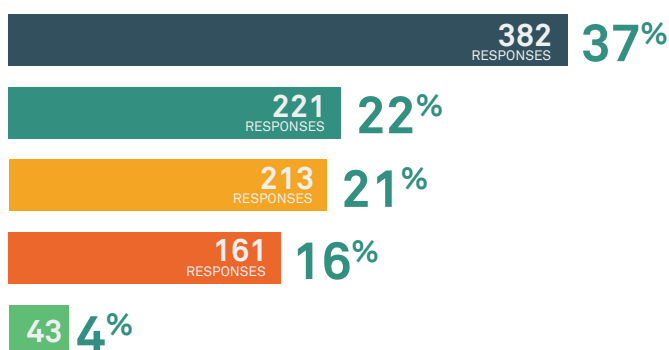
More often than not, farmers are also faced with a difficult decision of having to choose to apply manure on one crop at the expense of others. For example, in areas where maize growing is common, some farmers are more likely to invest their resources in buying fertilizers to apply in their maize fields instead of investing it in manuring their banana plantations. However, the maize residue is often used to mulch the banana plantations, it could contribute to soil fertility improvement through nutrient cycling upon decomposition.

Responses by location.

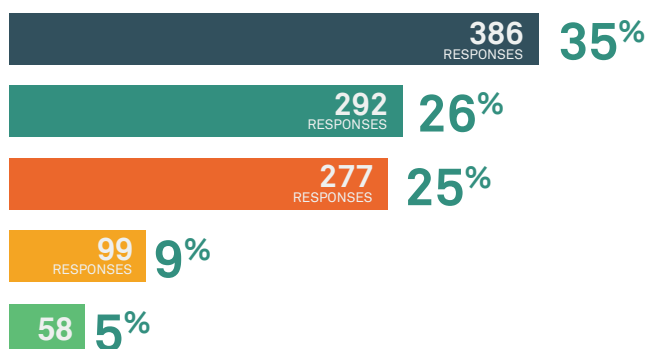
CBS (Masaka, Wakiso, Lwengo, Kyotera, Sembabule, Mukono, Kalungu, Rakai, Mpigi, Kampala)



Radio West (Mbarara, Sheema, Isingiro, Ntungamo, Bushenyi, Mitooma, Buhweju, Kabale)



VOK (Kamwenge, Rubirizi, Ibanda, Bunyangabu, Kasese, Kyenjojo, Kabarole, Kyegegwa)



Key

- I cannot afford manure (Cost)
- Once you start using manure, you have to continue
- It is difficult to access
- I have to choose between other crops and bananas
- Others





5.4 Poll Question Four

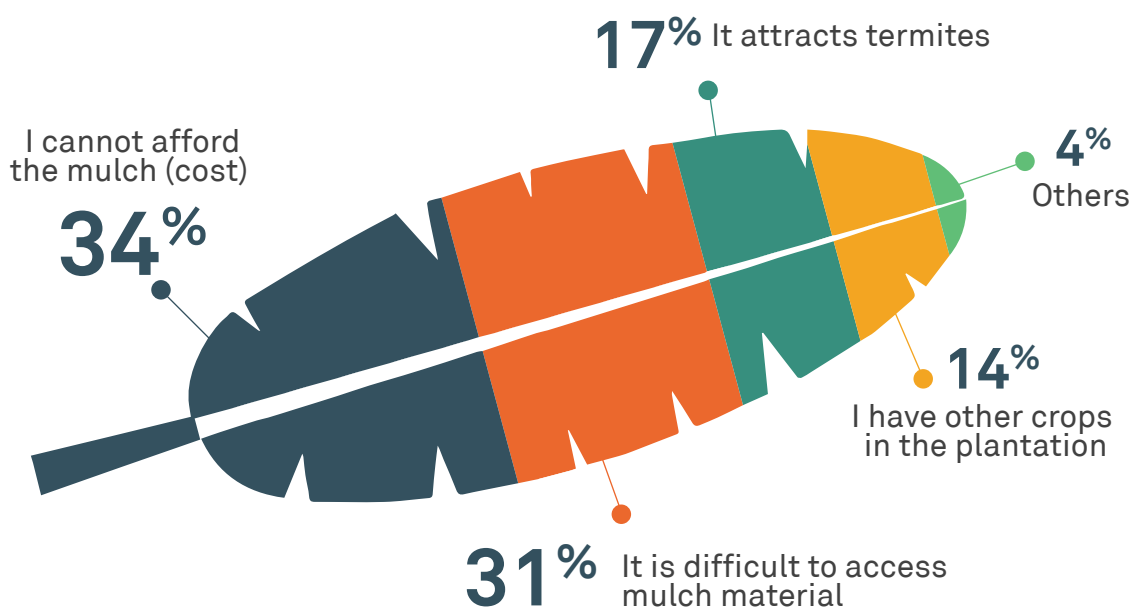
What challenges do you face in applying mulch in your banana plantation?

Bananas require a significant amount of water to grow well and yield big quality bunches. The unreliability of rainfall even during rainy seasons and prolonged droughts have intensified the impact of water shortage on banana farmers. Therefore, farmers need to make sure that the rainwater received in their plantations is kept longer in the soil. This can be achieved in various ways; e.g. mulching. Mulching helps reduce erosion, suppresses weeds, ensures that the rainwater is retained longer in the plantation and improves soil fertility when the mulch material decomposes.


NUMBER OF
RESPONSES
3,136


POLL DURATION
9th April to
17th April 2019

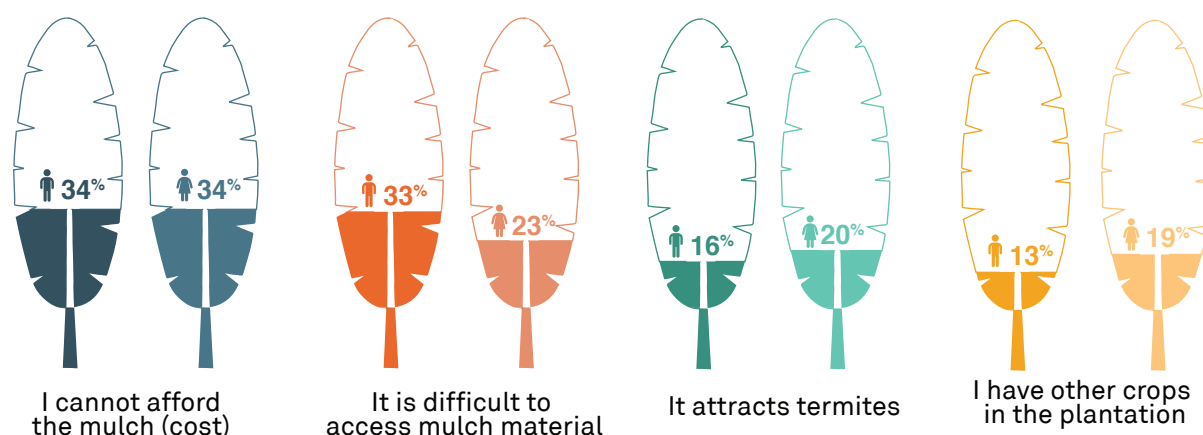
PARTICIPATION BY GENDER
 76%  24%



Experts promote mulching as a good farming practice in banana growing. However, responses to this poll show that just like manure, mulch is costly (34%) and difficult to access (31%). Additionally, farmers also say that mulch attracts termites (17%) and it is not a very friendly farming practice for farmers who practice intercropping (14%).

Mulching is labour intensive and thus costly - right from cutting or gathering it to transporting and even applying it in the plantation. In areas where there is a great concentration of livestock, getting grass for mulching can be difficult due to competition with cattle keepers.

Responses by gender.



More men (33%) than women (23%) say that it is difficult to access mulch. This probably goes back to culture where women are more likely and willing to spend time gathering mulch for their plantations compared to their male counterparts.

A deeper analysis of the data shows that more women (20%) than men (16%) feel that mulch attracts soil organisms such as termites.

While termites aid the decomposition process, farmers feel they can cause catastrophic damage on other crops (maize, beans and coffee are often most affected).

Farmers who practice intercropping are also more likely to fear infestation of termites. There are a number of reasons why farmers do inter-cropping in banana plantations. Among others, many inter-crop due to resource scarcity like land to be able to meet other household needs especially food. Therefore, it is probably not surprising to see that more women (19%) than men (13%) say that they do not apply mulch in their banana plantations because they have other crops in the same plantation.



Other (4%) reasons given by respondents on challenges faced in mulching their plantations.

- (i) Little knowledge on how to apply mulch.
- (ii) Mulching material sometimes kills the banana plants
- (iii) Mulching material can result into weeds that affect the banana plantation.



5.5 Poll Question Five

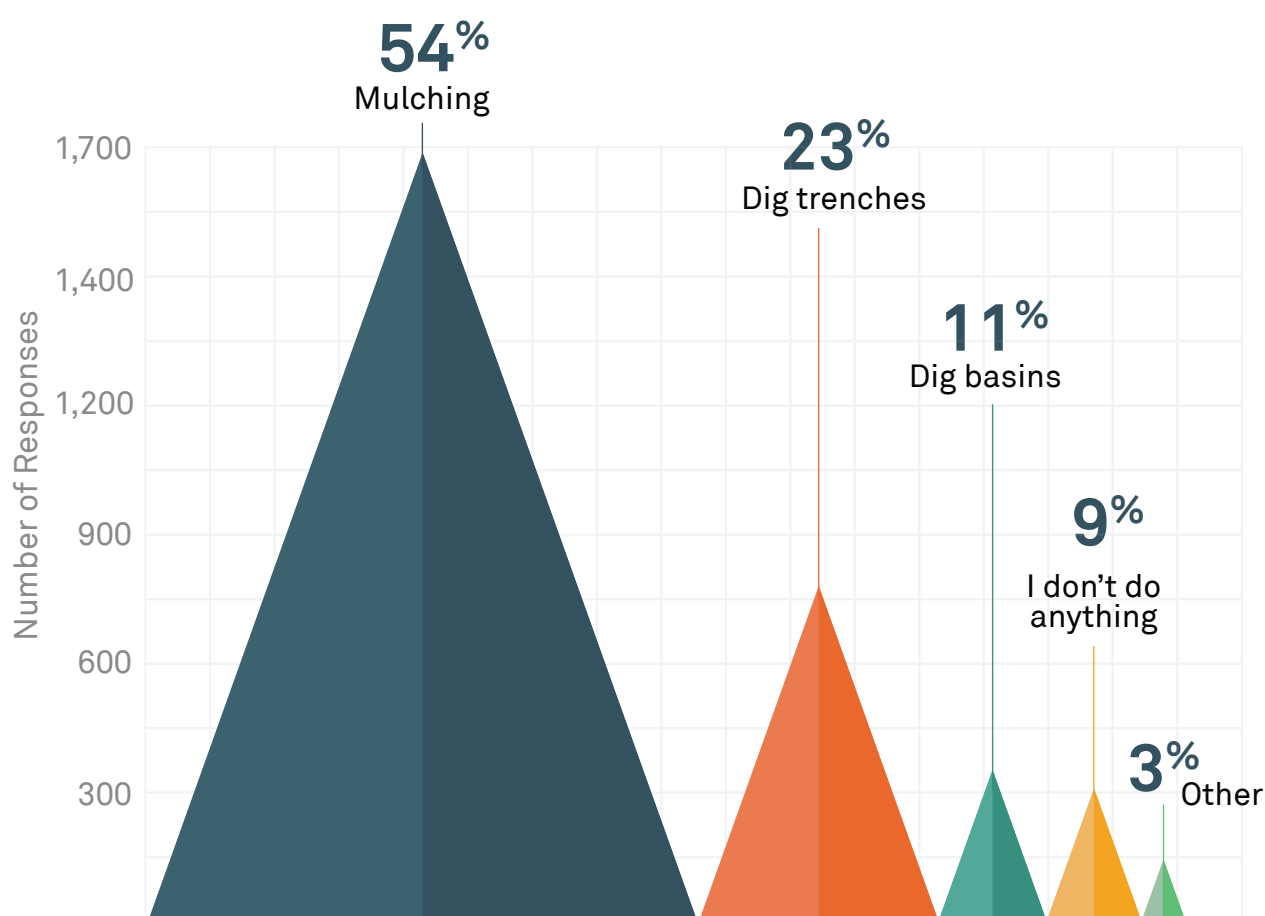
What do you do to keep water in your banana plantation during the dry season?

Bananas require enough water in order to grow well. Since we don't receive rain constantly, we need to conserve the received rainwater in our banana plantations to be able to go through the dry season. There are many ways you can capture and keep water in your banana plantation and we would like to find out how you do it


NUMBER OF
RESPONSES
3,380


POLL DURATION
18th April to
25th April 2019

PARTICIPATION BY GENDER
 75%  25%





Although mulch is both costly and difficult to access as the results from the previous poll indicated, results from the current poll show that mulching remains a very popular farming practice among farmers as a way of retaining water in the banana plantations.

Fifty-four percent (54%) of 3,380 farmers

who responded to this poll said that they apply mulch to keep water in their banana plantations during the long dry seasons. Twenty-three percent (23%) and 11% said that they dig trenches and basins respectively. Nine percent (9%) said that they do not do anything while 3% said that they use other practices to keep water in the plantations.

Responses by gender.

	Mulching	Dig trenches	Dig basins	I don't do anything	Other
Female 	60%	16%	12%	10%	2%
Male 	52%	25%	11%	9%	3%

Gender-disaggregated data shows that more women (60%) than men (52%) apply mulch in their banana plantations. However, more men (25%) compared to women (16%) say that they dig trenches to keep water in their plantations. These particular results reiterate the gender

binary - identities and roles in banana farming - where men are more involved in 'physical' activities such as digging trenches while women will take on the work that ideally requires less 'physical' strength.



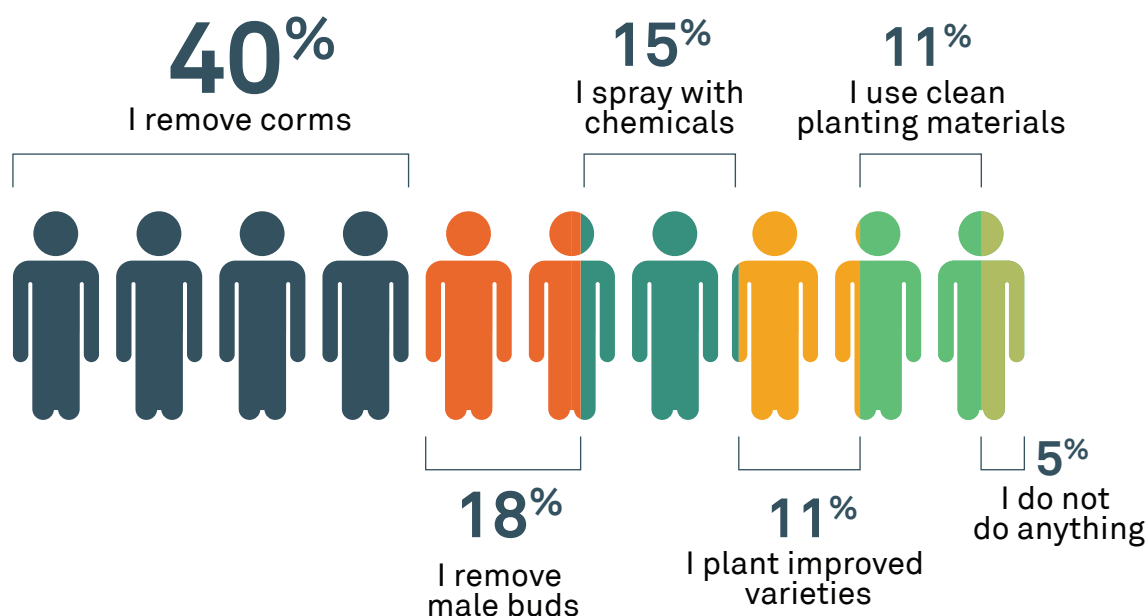
5.6 Poll Question Six

What do you do to control pests and diseases in your banana plantation?

If not controlled, pests and disease can wipe out an entire banana plantation. The most common types of banana pests and disease include: banana bacterial wilt which causes premature ripening of the bunch, Black sigatoka which leaves black spots on leaves, nematodes which attack the roots and banana weevil which mainly attacks the corm. All these lead to low banana yields and if not well managed, they can wipe out your banana plantation completely.


NUMBER OF
RESPONSES
3,402


POLL DURATION
25th April to
6th May 2019



Out of the 3,402 people who responded to this poll, the majority (82%) say that they mostly use cultural methods to control pests and diseases in their banana plantations. Only 18% say that they spray chemicals.

Corm and male bud removal are the most popular practices with 40% and 15% respectively. Both of these practices are labour intensive and yet the fact that farmers are willing to continue using them seems to suggest that they are effective especially for weevil and banana bacterial wilt control respectively.

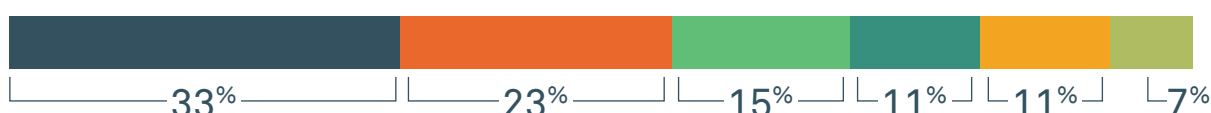


Responses by location.

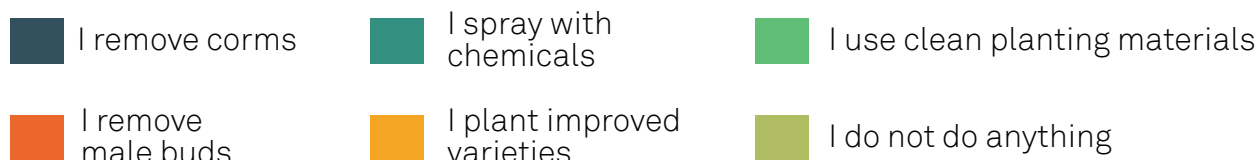
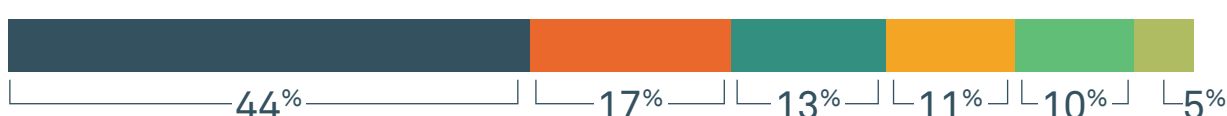
CBS (Masaka, Wakiso, Lwengo, Kyotera, Sembabule, Mukono, Kalungu, Rakai, Mpigi, Kampala)



Radio West (Mbarara, Sheema, Isingiro, Ntungamo, Bushenyi, Mitooma, Buhweju, Kabale)



VOK (Kamwenge, Rubirizi, Ibanda, Bunyangabu, Kasese, Kyenjojo, Kabarole, Kyegegwa)



Use of chemicals to control pests and diseases is a more common practice in Buganda sub-region (21%) when compared to Ankole and Tooro where chemical spraying is reported by only 11% and 13% respectively.


Only 11% say that they plant improved banana varieties as a way of controlling pests and diseases. However, this result seems to be in agreement with the findings in poll question two where 11% say that poor banana varieties are preventing farmers from producing big banana

bunches which would attract competitive market prices.

The low number of respondents who feel that improved banana varieties could help to reduce the impact of pests and diseases on banana production and yields seems to imply lower level of awareness of the benefits of planting improved banana varieties. In the same vein, access to improved banana varieties remains constrained due to both geographical and economic factors.

6.0 Conclusion

The project team packaged information materials addressing the various banana agronomy topics targeting farmers and extension. These are being disseminated using multi-media approach to reach out various banana farmers. The communication products include story chart and extension guide, radio and drama for farmer sensitizations and training. It is hoped that by the project end issues arising from the responses received from the radio campaign would have been addressed.



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