



Final evaluation report



Summary

The AgriCoach is an application for smallholder farmers that is used to determine:

What crops to grow? (CropSelector)

When to perform the different cultivation activities? (ActivityCalendar)

How to perform these activities optimally? (Good Agricultural Practice movies)

The **AgriCoach** application has been developed in the GAP4ALL consortium under the Geodata 4 Agriculture and Water facility of the Dutch government and deployed in the AUXFIN network of smallholder farmers in Burundi.

The GAP4 project is developed by AUXIN in collaboration with WeatherImpact, R2000+ and WaterWatch as part of the GAP4A project under the G4AW facility. This project has officially ended in 2021. This document describes the results after these three years: the application itself, scaling results, use by farmers and impact of the application.



400.000

households are using
AgriCoach



2,3 million

Benefitting appr. 2,3 million
people in Burundi



42% Female

28% Youths

Reached by AgriCoach



99%

Of farmers is satisfied with
their plot results after
using AgriCoach



43

Crops published in
AgriCoach



+110%

Yield increase for bean
farmers using AgriCoach



224

Movies on good
practices published



+35%

Yield increase for maize
farmers using AgriCoach



94%

Of the users rate
AgriCoach as (very) good



+65%

Increase in applied Good
Agricultural Practices

Currently the AgriCoach information is used by more than **400.000 households**, benefitting **approximately 2.3 million people**. Over the course of 2022 the AgriCoach will be further scaled to all the G50 households of AUXFIN Burundi, then reaching **550.000 households**, benefitting **approximately 3.1 million people**. Beside these direct users, 51% of the groups report that farmers from outside the group visit the group to learn from AgriCoach.

94% of farmers rate the AgriCoach as **very good (9.3 out of 10)** and would recommend it to other farmers. AgriCoach is appreciated by both trained and untrained farmers

G50 groups often start a demo plot to have a shared learning with the AgriCoach and to test the new techniques before using them on their own fields.

Farmers choose to first implement the practices for **maize and beans**, crops they are familiar with and prefer to cultivate. After some experience, other crops are selected. Farmers in our evaluation have been well able to **cultivate a crop that is new to them and diversified their diet**.

Farmers using AgriCoach had a **65% increase in the use of best practices** and farmers managed to **increase their yields** with +102% for beans, +35% for maize. **99% of farmers are satisfied** with the outcome on their fields, of which 83% is very satisfied.

After several years of using AgriCoach, **the food security status in households improved** as a result of increased production and crop diversification. During our interviews households describe going from **one meal to two meals per day, or from two to three meals per day**. This change improves the social situation in the household and community. Over time, it also impacts income, as farmers indicate they have to buy less food and can sell a surplus of food.

The main problem for AgriCoach implementation is **poverty**. Burundi is one of the poorest countries in the world, about half of the group members lack sufficient means to buy inputs such as compost, chemical fertilizers and quality seeds or have small fields. These farmers benefit from the information but are unable to implement the best practices provided to their full extent.



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Introduction

From start to end of the GAP4A project the use, uptake and impact of the AgriCoach has been monitored and evaluated as a continuous effort.

In this document all monitoring and evaluation efforts have been synthesized in the 'AgriCoach final evaluation report' for the GAP4ALL project. The report provides: a summary of the application, the current scale of use in Burundi, a characterization of the AgriCoach users, the user experience and appreciation, the application of information from the AgriCoach by the farmers and impact of the AgriCoach on the farmer livelihoods in Burundi.

All reports mentioned can also be found at www.auxfin.com for further reading.

Three case studies

During the development phase of the AgriCoach three case studies have been conducted. In these case-studies the appreciation and the use of the AgriCoach and the resulting adoption of Good AgriCultural practices and yield has been established.

The methods and outcomes of these case studies have been used to optimize the AgriCoach design and are published in three reports:

- 1st case study: 'Appreciation and use of AgriCoach by farmers and impact on practices and potato yield' (April 2020)
- 2nd case study: 'Use of AgriCoach and impact on bean yield' (October 2020)
- 3rd case study: 'Use of CropSelector and SeasonalOutlook and cultivation of new crops' (April 2021)

Large scale evaluation

To verify the outcomes of the three case studies an evaluation with a large sample size has been conducted in the first growing season of 2021. A group of 400 farmers were monitored: 314 first time AgriCoach farmers were compared with 126 control farmers not using the AgriCoach.

More quantitative information is obtained in our weekly questionnaire. JEANNE is a chatbot deployed by AUXFIN to communicate with farmers on a regular basis. Every week two to three questions are posed and answered by farmers, usually multiple choice but also numeric or open type questions. These answers provided feedback on AgriCoach among other topics. The chatbot has been used on a weekly basis since March 2021 and receives on average a 1000 number of unique responses per week.

In-depth interviews in the field

To fully understand the impact of the AgriCoach on the farmer's livelihood two field visits have been conducted in 2021 to do in-depth interview sessions with the farmers on their experiences (on top of interviews done for the case studies).

- In March 2021 a total of 12 G50 groups were interviewed and are published as: 'Field report G50 group interviews March 2021 Gitega, Kayanza Karusi (May 2021)'

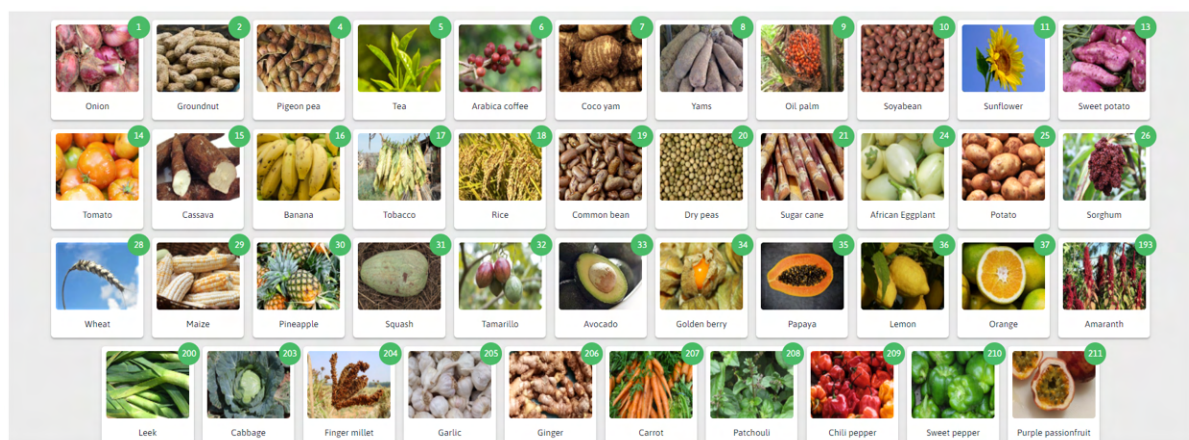
- In November an additional series of interviews were conducted focussing on the long term use of AgriCoach. Several fields were visited as well. Published as 'AgriCoach evaluation - Farmer interviews November 2021'

Insights and quotes obtained from these interviews can be found throughout this report adding the people and their stories to the data, coloring the impact of a successful application.



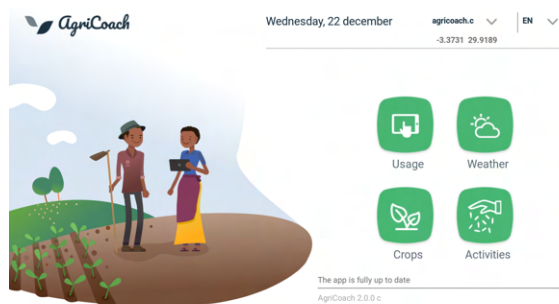
The AgriCoach application

AgriCoach application supports smallholder farmers to improve their agricultural production and income. The app provides farmers **what**, **when**, and **how** to grow their crops. The current version contains the information of 43 crops.

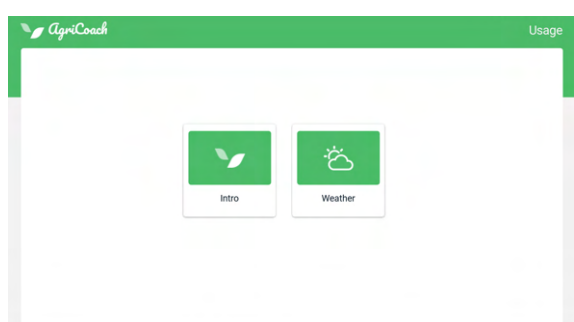


The AgriCoach functions largely offline, because the internet connection in Burundi is unreliable. Only installation and updating of the weather forecast requires internet connection.

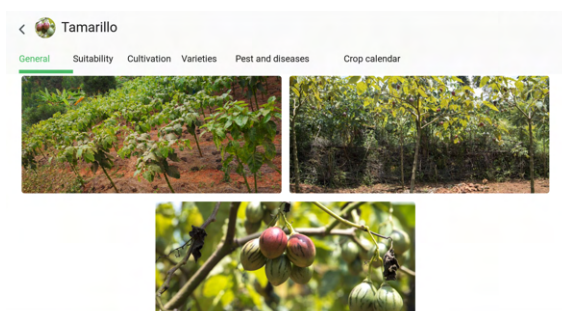
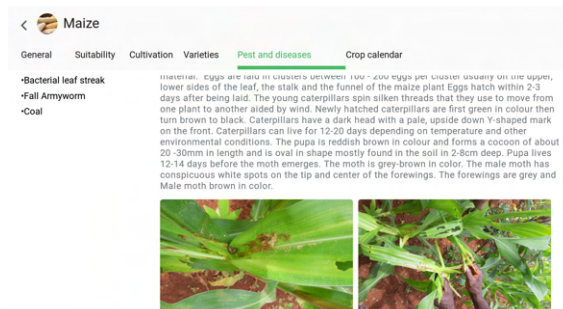
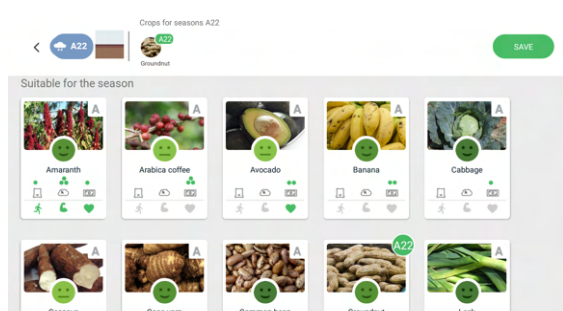
The AgriCoach is transferred with use of a USB storage device, to handle the large amount of video files. After installing the AgriCoach, the group logs in with their AUXFIN UMVA ID. The users' GPS location is retrieved based on the geolocation of the tablet. This location determines the geo specific information of the AgriCoach: the weather and crop suitability. The landing page consists of four options: Guide, Weather, Crops and Activities. The app is available in three languages: English, French and Kirundi.



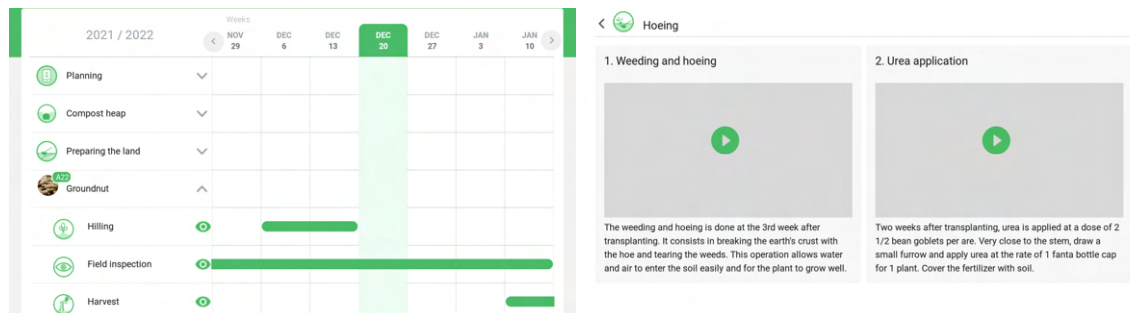
The **Guide** section contains videos that explain how to use the application and the different videos. These videos are several minutes long and in Kirundi. The Guide section also contains some success stories for inspiration.



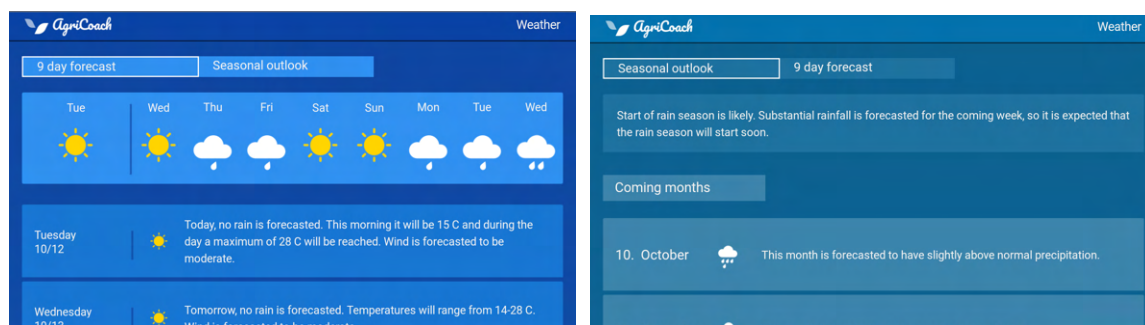
The **CropSelector** presents what crops are suited for a specific location based on satellite data and crop models. In addition it provides detailed information about the nutrition value of the crop, the use, varieties, cultivation requirements, common pests and disease information and the cropping calendar. Currently the CropSelector contains information for 43 crops.



After the selection of the crops to be cultivated for the next season the **ActivityCalendar** can be opened to see when the different activities for the selected crop need to be performed during the growing season. The good agricultural practice is explained in detail in the local language taking into account the possibilities for a smallholder farmer. For 23 crops all activities are explained in 1 or 2 minute movies



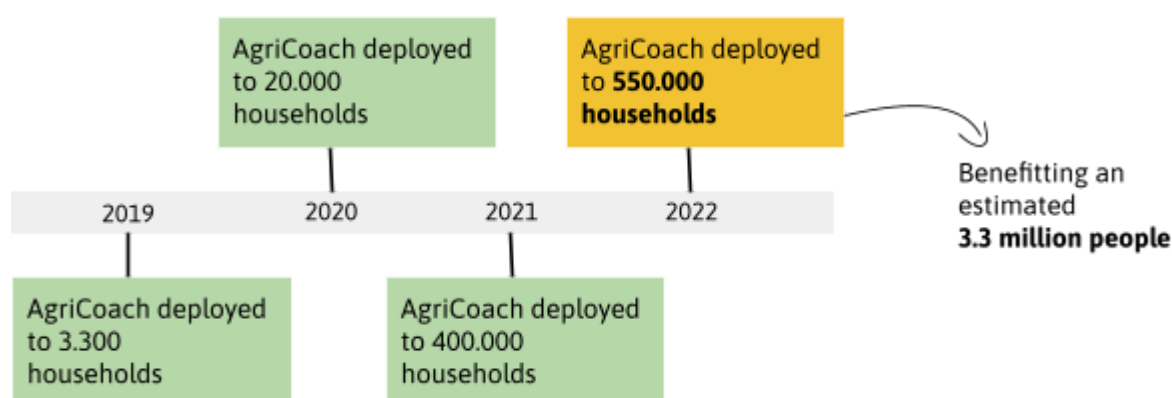
The farmer can use the WeatherCenter to further optimize their timing. It provides the 9-day forecast and the rainfall probability. The SeasonalOutlook shows the expected rainfall in the coming months and indicates the start and end of the rainy season.





Scaling results

In 2018 and 2019 the AgriCoach was developed and tested with a limited number of users in several case studies. The pilot group of 3.300 households was equally distributed across the three provinces covering the different agro ecological zones. After this period of development and evaluation the AgriCoach application was ready to be scaled. Our strategy was first to establish a Champion group with a rainmeter on each hill in the G50 network. Each hill is inhabited by approximately 5 G50 groups. In the next scaling phase we asked the champion groups to support the capacity building of the 4 other G50 groups..



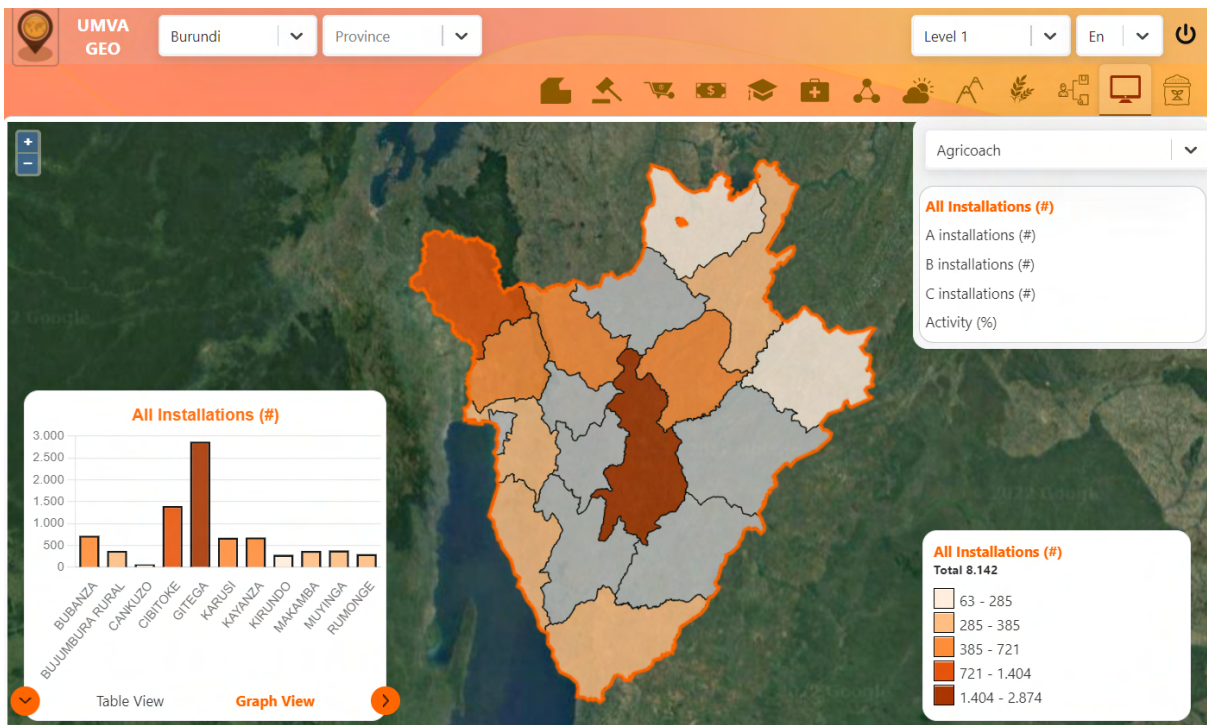
In September 2020 the AgriCoach was deployed to 20.000 households through 425 G50 groups in the provinces of Gitega, Karusi and Kayanza. January 2021 the scaling efforts continued to 2.000 groups in the same provinces, reaching 100.000 households.

In 2021 the G50 network in Burundi was scaled to: Bubanza: Bujumbura Rural, Cankuzo, Cibitoke, Kirundi, Makamba, Muyinga and Rumonge. From September onwards the deployment of the AgriCoach followed. In these new provinces the AgriCoach is introduced in two phases. To manage the intake of new information farmers first start using the 9-day forecast only and after a few months they start using the full application.

At the end of 2021, 8141 groups are using the AgriCoach, reaching **400.000 households**, benefitting an estimated **2.3 million people**¹. In 2022 the AgriCoach will be used by 11.000 groups, reaching 550.000 households, benefitting an estimated 3.1 million people.

¹ The average Burundian household consists of 5.7 household members (EKN Burundi, Mapping FNS interventions, October 2020).

UMVA GEO allows close monitoring of the AgriCoach use. As of January 2021, there are 8142 G50 groups that have installed the AgriCoach.





AgriCoach users

In G50 group

The AgriCoach is used in G50 groups of AUXFIN Burundi. It consists of grouping at most 50 neighborhood households in order to access the different services through a tablet. It is an all-inclusive approach, meaning that all members of a certain community are connected to the network. Groups select their own 3 leaders, which are expected to be representative for the group balancing the number of male/female and old/young leaders

Weekly meetings

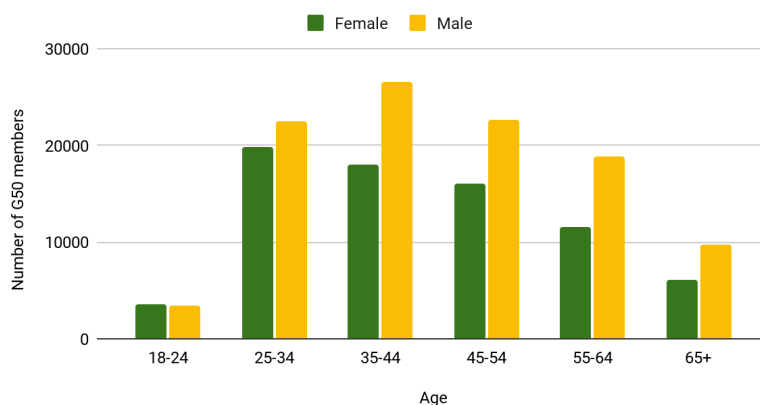
AgriCoach is discussed during the weekly meeting. This meeting takes 69 minutes on average. On average, the weather information takes the longest to discuss for the majority of groups (58%), followed by crop information (24%) and the calendar (16%).

During group meetings both the Group-Leader and the Key-Activator take part in the AgriCoach explanation. To watch movies, both their tablets are used and passed around in the groups, many farmers join to watch. Several groups also meet in smaller groups outside the group meeting, to discuss the AgriCoach information and watch the movies, and take more time to read the crop information.

User demographics

The members of G50 groups cover all age groups, with an average age of 43 years. The G50 groups consist of 28% youths (18-35 years). The gender balance for the G50 groups 42% females to 58% males on average. For youth the ratio of females to males is almost equal with 47% females, while for non-youth (ages over 35) the gender gap grows with 40% females.

G50 members by age and gender



Demo plot

It is common for groups to create a shared demonstration plot. The idea is often created by group members themselves, but also stimulated by AUXFIN activators. The purpose is mainly to have a teaching ground for the practices, but also out of the need to test the practices before applying them on a larger scale. This field can either be hired and maintained by a

G50 (sub)group, but it also happens that the plot of the group leader serves as a demonstration plot.

"The group members wanted to test what was taught in AgriCoach. So last year we hired a plot to plant maize. The results were good, all the plants had two to three cobs per plant. We have continued the plot up to now. In the future we plan to also plant beans here. [...] Today our production has increased. We eat three times per day, in the morning we have enough leftovers from the night before to eat. Some years ago, we could hardly eat two times per day. Now the tablet is like a coach for us." Agnès from Buvyukana-gr1 in Gitega



Farmers outside the G50 group

The AgriCoach information is not only shared in the G50 group but is frequently spreaded with farmers outside of the G50 group. In 51% of the groups this happens on a weekly basis. Especially in the groups that have several years experience, people from outside the G50 frequently come to the meeting for information.

The number of people visiting varies from 5 to 10 people. People come to receive the weather information and information on GAP's. In some cases, they visit the group leader at home. Most of them are interested in joining a G50 group but have not been included yet.

"Outside the G50 group members there are many people that come to me for information. I have helped 20 people outside the group with applying good practices for planting maize. There is also an agricultural cooperative Mirama Twitezimbere with 22 members. These members have seen my test plot of season C, where the plants grew very well. After that they wanted to also apply these practices, so they called and I came to the cooperative to show the videos. After that I helped them to make the sowing lines." – Romwald from Ryagahene-gr3 in Gitega



AgriCoach information is also spread mouth-to-mouth by farmers. It frequently happens that other farmers will ask about the plot when passing.

Farmers have also mentioned that hired land workers also spread the AgriCoach practices. It is common in Burundi for farmers to hire land workers, who work on a number of fields throughout the year.

"People in the neighborhood when they see us applying the practices of AgriCoach. They ask, what are you guys doing?" They envy us and ask us to teach them about it as well. Anicet from Masake-Gr1 in Karusi





User experience and appreciation

The AgriCoach is appreciated by 94% of farmers. The majority of farmers that use the AgriCoach value the app, see added value to them and would recommend it to other farmers. It receives an average rating of 9.3 out of 10. 100% of farmers will continue to use the application. The main added value for them is the increase in yield as a result of following the practices.

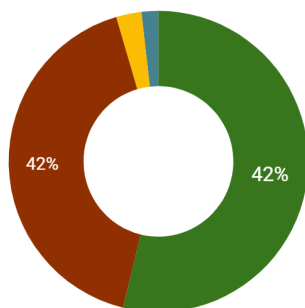
"We want to thank the person who came up with AgriCoach, he is a genius. [...] We want you to tell the person that came up with AgriCoach to come to the group because that person [...] will be invited to a party at our group. We were empowered by AgriCoach. It has become our friend and our daily prayer." Chadrack from Kanyereza-gr1 in Karusi



The AgriCoach is consulted on a weekly or daily basis. In most cases farmers used the AgriCoach every week where they received information during the weekly G50 group meetings. In some cases the information is shared mouth to mouth in between meetings. The farmers classify the information as overall easy (44%), though some parts can be difficult (54%).

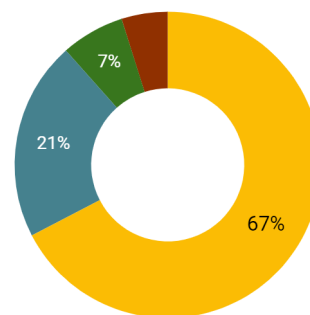
Appreciation of AgriCoach

- Very good
- Good
- Not good
- Not used it



Frequency of consulting AgriCoach

- Every week
- Every day
- Every other week
- Not much



There is a rich variety in farmers and the way AgriCoach is used. Every person seems to favour another element & use it their own way. Most farmers used the majority of information, but not all farmers. Some farmers did not see all the movies or others did not use the calendar.

Part of the groups actively use ALL the information that is offered to its full extent. Another part focuses mainly on the 9-day forecast, calendar and movies. This is explained by the fact that the AgriCoach contains a comprehensive amount of information. It requests a time investment from the groups to consistently go through all of it, while the time for AgriCoach at weekly meetings is limited. Groups will prioritize what is most important to them.

WeatherCentre and SeasonalOutlook

The WeatherCentre is usually the first thing that is appreciated, as the information is easy to understand and directly applies to daily life. Farmers use it to plan their activities, like planting, spraying, drying and hiring labor. Weather information is consulted about once to two times a week. In some cases the information is spread mouth-to-mouth on request. Farmers appreciate the weather information because it enables them to plan their activities, mostly for planting, spraying, hiring labor and drying harvested produce. According to the farmers' observations the weather forecast mostly matches reality, but not always. AgriCoach users frequently request for the weather forecast to be more time specific indicating what part of the day it will rain.

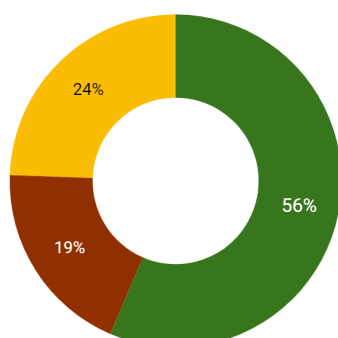
"We learned about the weather and cultivate it according to the weather changes. According to the calendar we know what to plant and how. If we see it will be a dry period we can tell the members to hold on and wait for rainy days. Now we are no longer wasting our seeds. Before we used to plant anyhow, without knowing if the weather would be good, seeds would get wasted without too much sun or for flooding. Now we don't waste seeds anymore." Anicet from Masake-Gr1 in Karusi



The SeasonalOutlook is used by farmers to determine what crops to plant in the coming season, and to a lesser extent, to determine the planting date. Not all farmers start using the SeasonalOutlook right away, about half of the groups did not use it within the first year. Groups will prioritize what is most important to them and the SeasonalOutlook is less concrete, less directly applicable and requires long-term and complexer thinking to make use of the information provided.

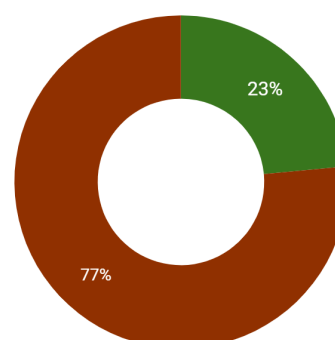
Main reason for using the weather forecast

- It is usefull for a lot of activities
- To know when to hire labour
- To know when to plant



Farmers feedback on amount learned from movies

- Yes, many things
- Yes, several things



ActivityCalendar and BestPracticeMovies

ActivityCalendar helps farmers to plan and think ahead of the upcoming activities. Before they would go into the field and do what they see needs to be done that day. Farmers appreciate having a guideline and overview of activities. Just as important for farmers is the reminder and encouragement they get from the calendar, this is appreciated even if they are aware of good practices. Some have used the ActivityCalendar to time their practices, others indicated to have used it more as a general guide and reminder of activities.

The BestPractice Movies are particularly appreciated. Particularly the videos are appreciated. Watching and discussing movies created enthusiasm among farmers. Farmers find them easy to understand and learn new practices from them. Even farmers trained previously by other organizations appreciated them, mentioning that it was easier for them to see something in a movie than being told how a practice should be done. Farmers request more material in movies, mainly more crops.

"AgriCoach has helped a lot, mostly the weather and good practices. I used to use a lot of seeds for planting and harvested only a little. Now I use less, and I harvest a lot. I have also learned how apply the right fertilizers and about crops that have a good market value." Marie-Estella from Buvyukana-gr1 in Gitega



Farmers usually start by learning just one crop and trying out the practices during the season. The number of crops studied increases slowly with time, increasing to two crops after 2 months and 4.5 crops average after 1 to 2 years.

Length of use of AgriCoach (with movies)	Average number crops watched GAP movies from
1 month	0.8
6 months	2.3
1-2 years	4.5

"We are happy to use AgriCoach because all information that is needed is in the tablets. Most important are the movies that show the activities. It is because the activities are visible there, it helps." Agnès from Nyabwigungo-gr2 in Gitega



CropSelector

The CropSelector is valued by the groups, mainly to learn what crops grow well in their area, and to learn more about these crops. It is very relevant for the groups to know the suitable crops for a season and land type. Some groups indicate that the information CropSelector gets most attention during their weekly meetings, but for others it is the calendar or another part. However, the applicability of the suitability advice has limitations. Several groups mention that their possibility to apply the information on the different grow areas is limited, as their plots mostly had the same grow area type..

"I grew soya. I learned from AgriCoach my type of land was adjusted to soy more than tomato, other crops were riskful to grow. It was easy because it was detailed and together with the text it was easy to learn." Julian from Rutoke-gr1 in Gitega



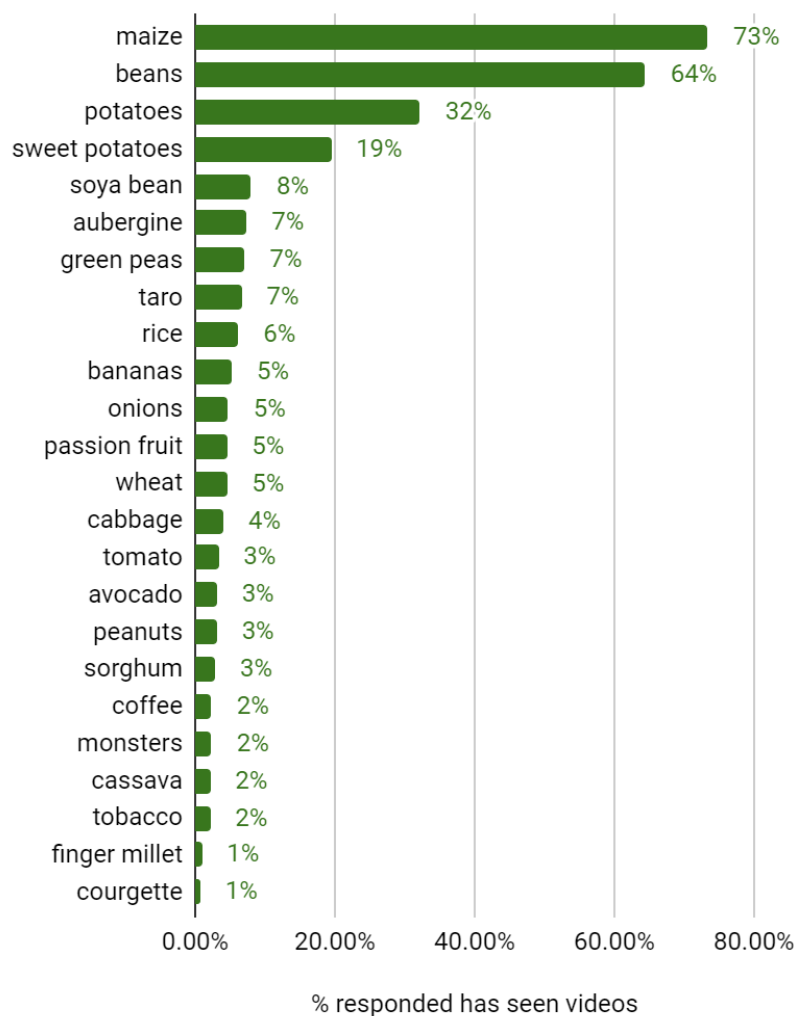
Application of information

Application of GAP practices

On average 19 group members apply the AgriCoach information on their field. The rest of the group receives the crop information, GAPs and weather information without applying the GAP on their fields, or they apply very few good practices.

Farmers tend to first try out the GAP's on crops they are familiar with. The most popular crops for implementation of AgriCoach GAP's are by far maize and beans, followed by potatoes and sweet potatoes. The rest of the crops are learned in lower percentages, though the number of crops tried increases over time.

Popularity of crops among farmers



Limitations to application

The main limitation for implementation of AgriCoach practices is a lack of means. Mainly chemical fertilizers and/or organic fertilizers, while these are important for improving crop yields. For chemical fertilization it is a matter of financial resources, almost all farmers buy some fertilizer but the poor do not have enough fertilizer to make an impact. For compost, it is a matter of finances as well, but moreover owning animals and enough land to create your own compost.

About half of the members do not have means to (fully) apply the GAPs. These members can only apply the information to a part of their field, or not at all. This is a serious problem for these farmers, limiting their options to improve their situation.

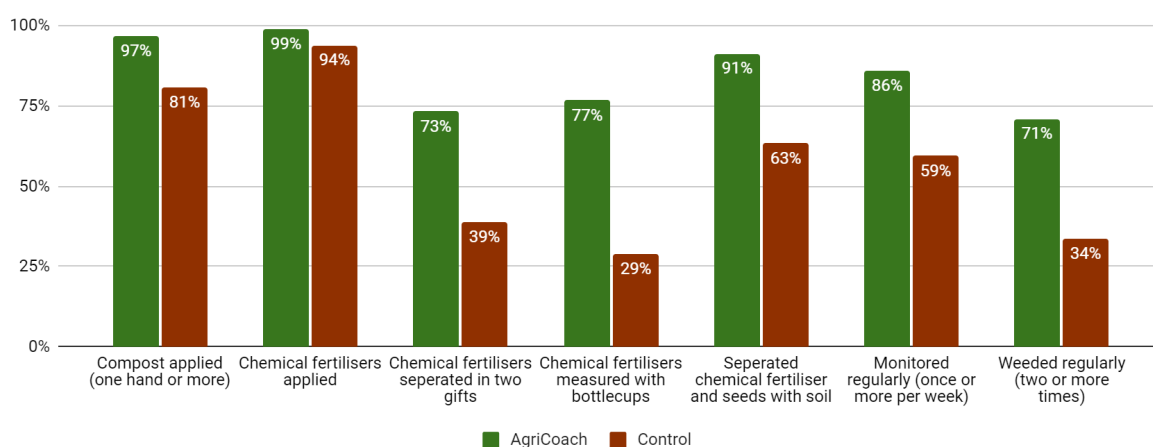
The second challenge for farmers is access to good quality seeds. With AgriCoach farmers expect a good yield, and want to use good quality seeds to get best return on their investments of inputs. However, access to good quality seeds is limited. Beside these challenges, it has been mentioned that some older members don't always have the energy to adopt new practices.

Type of GAP practices changed

All farmers mention with use of AgriCoach their yield has increased and appreciate the AgriCoach for that. The commonly described changes in practices are: a much smaller planting density (instead of planting very dense and using a lot of seed), planting in lines using recommended spacings (instead of planting by spreading and randomly) and using more fertilizers using a measured application (instead of applying fertilizer without knowing what type of fertilizer and what quantity is needed).

The impact evaluation with 400 farmers demonstrated a change in practices compared to the control group, as presented below.

Application of Good Agricultural Practices of AgriCoach farmers vs. control group farmers



"Thanks to the AgriCoach I have really learned how to prepare the soil, how to plant in lines, how to apply chemical and organic fertilizers, and also use of quality seeds. Before I would plant in disorder, now I have learned to plant one seed in one pocket." - Jérémie from Rurinzi-gr1 in Karusi.



Change in efficient use of inputs

The use of inputs is more efficient with use of AgriCoach and in general farmers invest more in (quality) inputs than they did before.

Seeds: decrease in quantity, increase in quality

All farmers use (much) less seeds than before using AgriCoach. This is usually remarked as one of the first things by farmers when talking about AgriCoach.

Farmers use more quality seeds when using AgriCoach. In the same period AUXFIN has started selling improved variety maize seeds to farmers, so the accessibility has improved for maize seeds. But also for other crops farmers report to use quality seeds, as they see it worthwhile now that they know the GAPs and use other inputs as fertilizers. There are also government agencies and NGOs that sell or distribute seeds, however, access to good seeds is still an issue.

"Before AgriCoach I used a lot of seeds. For wheat I used per hectare 200 kg. But now I used 100 to 120 kg and the production is even higher." - Emmanuel from Munanira-gr1 in Karusi.



Fertilizers

The use of fertilizers is more efficient, as before use of AgriCoach farmers did not have information on how much to apply. The application is more efficient in three ways: 1) measurement is exact per pocket/plant, 2) type of fertilizer is specific for the crop and 3) the method of applying is per pocket instead of spreading. Most farmers indicate to have increased their fertilizer use, but some also describe the quantity has decreased because the method of spreading required more than application per pocket.

"Before we used to spread the fertilizers out over the field, now we use a specific amount that is applied in each pocket. That way the use of fertilizers is much more efficient. Now we know exactly the quantity we need to use. We know the number of pockets and the quantity per pocket. Per field in total, we apply less fertilizers now than we did before, but it is more efficient." - Boniface from Manyoni-gr1 in Kayanza.



Water

Irrigation practices in Burundi consist of watering the field by hand. Some farmers describe they now use a watering can instead of a pot. But others remarked water use has not changed due to AgriCoach.

Crop protection products

The use of crop protection products is more efficient with use of AgriCoach. Some farmers did not use these products before and started after applying other AgriCoach practices, others used them but inefficiently and without good measurements.

Change in crop diversity

A part of the farmers has used the AgriCoach to diversify the crops they cultivate and eat, such as sweet potato, soybean, onion and potato. Another part of the farmers express their interests to cultivate a number of new crops, but have not yet started. They watched the videos but not yet started the cultivation. The reasons are lack of access to seeds, limited means, or uncertainty on outcome in their area. Crops mentioned are tamarillo, tobacco, cabbage, and pigeon pea.

“Before AgriCoach I never knew how to plant onions. But now I have seen the good practices and cultivated them. I am motivated to cultivate onions because of the market value, one kilo can be sold for 2800 BIF. I have cultivated onions on 3 are with a production of 320 kilo, I am very happy with the harvest.” - Michel from Magamba-gr1 in Karusi.



Farmers are well able to grow a new crop with help of the AgriCoach, when they have access to the right seeds and inputs. Though farmers indicated it is not easy and is challenging. They need to learn new information and apply all the recommended practices at the right moment. The majority of farmers who tried to grow a new crop were happy with results and appreciated the ability to grow a crop they did not know how to cultivate before.

The criteria to start growing a new crop are mostly market value, nutritional value and/or because it is a favored food in the family. The information for the decision generally does not come from AgriCoach but is based on information that farmers already have. The market value is known, and nutritional values are taught in school or in the community.



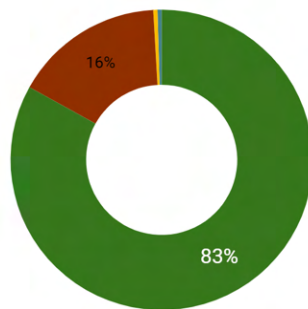
Impact of AgriCoach

Impact on production

The satisfaction with the plot results is high with **99% of farmers being satisfied** and 83% of farmers being very satisfied. **86% of farmers mention their yield increased** because they used the AgriCoach.

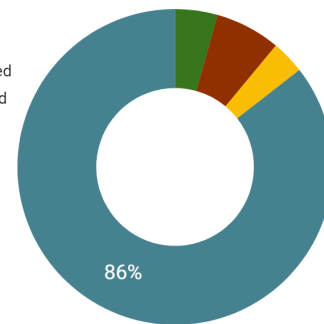
Satisfaction of farmer with the results on his/her AgriCoach plot

- Very satisfied
- A little satisfied
- neutral
- Not satisfied at all



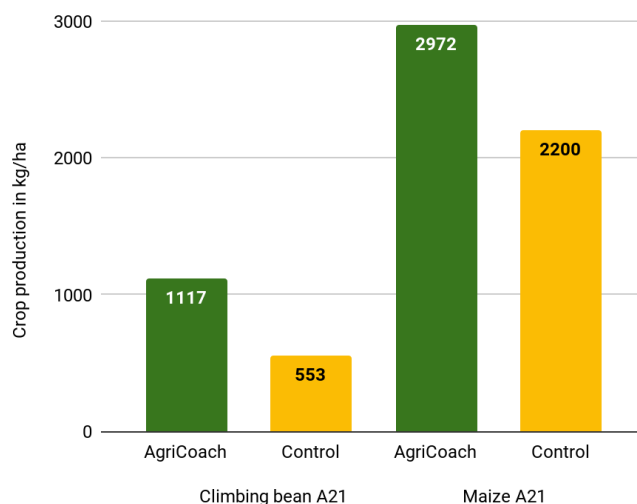
Change in production according to farmers

- Difficult to say
- No changed
- The harvest decreased
- The harvest increased



Yield measurements have repeatedly demonstrated a production increase for AgriCoach users compared with a control group. The AgriCoach showed a production increase of **+35% for maize** farmers in A21 and **+110% for climbing beans** in season A21 (and +127% in B21).

Production in kg/ha by AgriCoach user and control group



“After I started using those good practices is when we started to have more food. The changes came little by little. In the beginning I only had a small field for cultivation, after some good yields I was able to buy larger fields.”
Michel from Magamba-gr1 in Karusi.

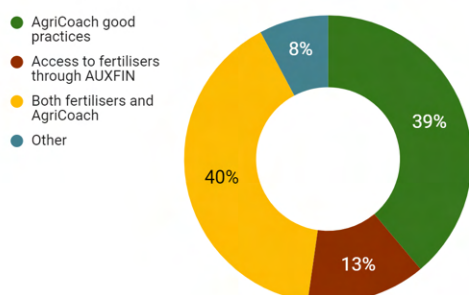


Other influences of crop yield increase

The increase in yield of the farmers can not only be attributed to use of the AgriCoach. It is especially the combination of AgriCoach and other services from AUXFIN that has enabled a positive impact. Through the G50 network of AUXFIN:

- farmers were able to collaborate in groups and motivate and support each other
- farmers have been able to save for inputs
- farmers were able to buy fertilizers and seeds and get their orders delivered in the villages.
- farmers have received AgriCoach and have learned the GAP information.
- Because farmers made an investment, they were more motivated to apply these best practices to ensure a good return on their investment.

Cause of change in production, according to farmers



Impact in food security situation

The AgriCoach has a significant impact on the food security and income of the users. After two years of applying the AgriCoach practices, farmers indicated they went from **one meal to two meals per day, or from two to three meals per day**.

First the increase in production is consumed by the family. When the household need is satisfied, farmers start selling their surplus. Not all farmers interviewed have reached that state. Farmers selling their surplus indicate they invest in their farm and education. The impact builds gradually over the years.

At first the quantity of diet improves for farmers. Over time the quality of diet also improves. Farmers indicate they still wish to improve the diet quality, including animal products and vegetables.

"Before, I used to eat only one meal per day, only in the evening. Now I can eat three times per day. And the children also eat three times per day. [...] I have now been using AgriCoach for two years. The improvement has come gradually while using the AgriCoach. Also the quality has improved, not only the quality. Now we also use vegetables, beans and rice and others.: - Emmanuella from Manyoni-gr1 in Kayanza.



"Before using AgriCoach, I had to go to the market to buy food, but now I only have to buy very little. Now I only have to buy those products that I do not cultivate. For example oil palm, rice, potato. For maize, beans, and sweet potatoes I cultivate myself." - Boniface from Manyoni-gr1 in Kayanza.

At first the quantity of diet improves for farmers. Over time the quality of diet also improves, but farmers also indicate that this is not enough. For example, they wish to improve this with more animal products and vegetables.



"Before for me it was difficult to even have two meals per day, often we would eat only once. Now we eat three times per day. What we have prepared for dinner, there is leftovers that we can eat in the morning. I also eat protein, carbs and vegetables. It is not yet enough, I would like to still add animal foods and other crops that I do not yet grow. I would like to diversify more." - Nestor from Rwimbogo-gr1 in Karusi

"Before at our house we would eat two times per day, but now we eat three times, we also eat in the morning. Now we eat beans for protein, we eat bananas and vegetables. And also, we add oil palm. So, the food we eat is balanced. I am not yet satisfied, I need to add tomatoes, meat and other crops." Aline from Rwimbogo-gr1 in Karusi.



It is underlined that all farmers who have had the means to buy fertilizers or manure see this improvement. However, if farmers don't have enough money to start with, the improvement on their fields is limited even though they practice the other good GAPs.

"My harvest has improved, but not a lot, because I don't have money for fertilizers. But I have seen for my son, he has used the good practices by applying different types of fertilizers and his harvest increased from 100 to 300 kg of potato." Marcienne of Magamba-gr1 in Karusi



"Not all the members have means to get enough fertilizers, some can only buy half a bag. In that case they choose one plot to put the needed quantity of fertilizers." - Mélance from Ryagahene-gr3 in Gitega

The change in the food security situation in households improves the social situation. Farmers describe there are less conflicts between neighbors because their children steal less from fields, relationships improve as there can be an invitation for eating together or donation of food, there are less conflicts in the family and neighbors.

"It really has an impact. For example, the children of the neighbors can come to eat with us. But before, we did not have enough food for them so I could not allow myself to offer them dinner. Today if I harvest a lot of beans, I could also give a kilo of that to my neighbor who does not cultivate with good practices. Also when neighbors come to ask me advice about good practices, it helps to build good relations." – Aline from Rwimbogo-gr1 in Karusi.



If there is famine in the family, everybody is in dispute. There is jalousie if another person sees you eating. When everybody has to eat, there is peace." - Emmanuella from Manyoni-gr1 in Kayanza.

"Before I would go to work at my field without giving food to the children. The children would steal and cause problems. This caused problems between neighbors. This is now not an issue anymore." - Boniface from Manyoni-gr1 in Kayanza.



Impact on income

After using AgriCoach for some time, farmers have to buy less food and can sell a surplus of food. Farmers explain they used to buy maize and beans, but that this is not needed anymore. By using the AgriCoach the costs also increase, mostly due to increased use of fertilizers.



"Two years ago, I used to spend a lot of money on food. Per week 5000 BIF for the household. Nowadays I spend 2000 BIF per week on food. I mostly buy palm oil, salt, soap and cassava flour. Before I did not have enough harvest to be able to sell at the market. But now I have a surplus of maize and harvest. Each season I sell 100 kg maize (700 BIF/kg) and 100 kg the beans (1000 BIF/kg). - Nestor of Rwimbogo-gr1 in Karusi."

"Before I did not sell anything at the market and there was not enough food in the family. But it is difficult to estimate how much I would spend on food. Now from last season, I have sold 260 kg of maize (for 680 BIF per kg) and 310 kg of onion (for 1200 BIF per kg)." - Michel of Magamba-gr1 in Karusi



"Before I had AgriCoach I used to hire two plots of land. Now since having a good yield I was able to buy two plots of land of my own, both for 1.500 million BIF." Annociatte from Masake-Gr1 in Karusi."



