

**EFFECTIVENESS OF THE FARMER PROMOTER APPROACH TO INCREASE FOOD SECURITY AMONG FARMERS.**

**A case study of GIHANGO SECTOR IN RUTSIRO DISTRICT, RWANDA**



**A Research thesis Submitted to Van Hall Larenstein University of Applied Sciences in Partial Fulfilment of the Requirements for the Degree of Master in Management of development - Rural development and food security.**

**By**

**MUGIRANEZA Dieudonné**  
**September 2018**

**Van Hall Larenstein University of Applied sciences,  
The Netherlands**

**© copyright 2018. All right reserved**

## **ACKNOWLEDGEMENTS**

My special thanks are due to the Almighty God for his guidance, support and protection during the research and for the whole period of my stay in Netherlands.

I am thankful to NUFFIC and the entire Netherlands Government for offering a scholarship to study masters in Netherlands. Grateful thanks are due to Van Hall Larenstein lecturers and staff for their contribution towards my academic studies. I extend my sincere thanks to Dr Annemarie Westendorp who was program coordinator and Dr Suzanna Nederloff my mentor for their valuable support and advises provided during my study at Van Hall Larenstein University.

My sincere appreciation also goes to my supervisor Sonja Bleeker for her guidance, criticism and patience for providing me the useful suggestions that lead to the successful completion of this work.

I would like to express my thanks to all the staff members of RAB and RUTSIRO District for their good cooperation during the period of my research also by not hesitating in helping me to get any kind of document needed for the completing of my dissertation.

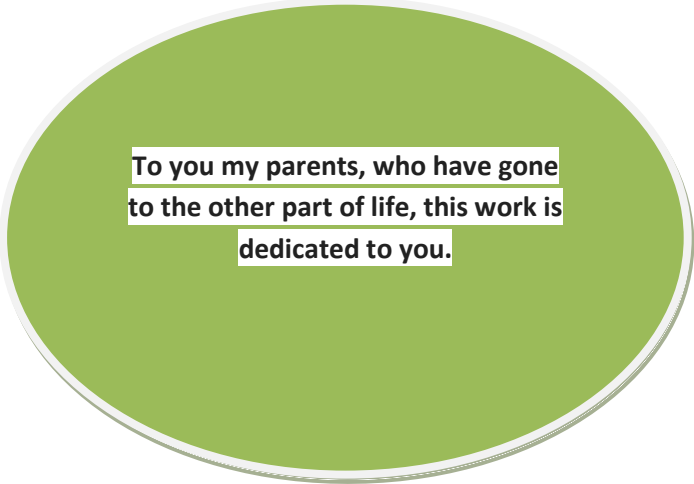
My deep sense of gratitude is also due to my family for their care, encouragement and support they gave me for making my education successful.

Finally, I would like to thank all my fellow students for their good companionship throughout the period of my studies.

May the heavenly father bless you all

**MUGIRANEZA Dieudonné**

## DEDICATION



To you my parents, who have gone  
to the other part of life, this work is  
dedicated to you.

## TABLE OF CONTENTS

### Contents

ACKNOWLEDGEMENTS.....	ii
DEDICATION .....	iii
TABLE OF CONTENTS.....	iv
ABBREVIATIONS .....	vi
LIST OF FIGURES.....	vii
LIST OF TABLES.....	vii
ABSTRACT.....	viii
CHAPTER 1: INTRODUCTION .....	1
1.1 Background of the study .....	1
1.2 Problem statement .....	3
1.3.Problem owner .....	3
1.4.Research objective .....	3
1.5.Research questions.....	3
1.6. Conceptual Framework.....	4
1.7.The organization of the report.....	4
CHAPTER 2:LITERATURE REVIEW .....	6
2.1. Overview of agriculture sector in Rwanda.....	6
2.1.1. Introduction .....	6
2.1.2. Agriculture growth and productivity in Rwanda.....	6
2.1.3 Agriculture strategies of the Rwandan government .....	7
2.2. Description of Farmer Promoter Approach(FPA).....	8
2.3. The Farmer Promoter Approach in worldwide.....	9
2.4. Opportunities and weaknesses of FPA .....	9
2.4.1. Opportunities .....	9
2.4.2. Weaknesses .....	9
2.5. Definitions of Key terms and concepts .....	9
2.5.1. Food security:.....	9
2.5.2. Farmers group (TWIGIRE group).....	10
2.5.3. Effectiveness .....	10

CHAPTER 3:RESEARCH METHODOLOGY .....	11
3.0. Introduction .....	11
3.1. Research Scope. ....	11
3.1.1. Background of Study Area .....	11
3.2. Research design .....	12
3.3 Research Strategy.....	12
3.3.1. Sampling:.....	12
3.3.2 Data collection .....	12
3.3.3.Sub question and Methods.....	17
3.3.4.Data analysis .....	17
3.3.5. Ethical consideration.....	17
3.3.6. Limitation of the study.....	17
CHAPTER 4: RESEARCH FINDINGS .....	18
4.1. Small farmers reaction on Farmer Promoter Approach .....	18
4.1.1. Visit Frequency of Farmer promoter to small farmers .....	18
4.1.2. Services offered by Farmer Promoter Approach to the small farmers .....	19
4.2. Increasing agriculture production (food availability).....	20
4.3. Multipliers effects .....	22
CHAPTER 5: DISCUSSION OF THE RESULTS .....	24
5.1. The small farmers reaction on Farmer Promoter Approach.....	24
5.2. Increasing production (Food Availability) .....	24
5.3. Multiplier effects.....	25
CHAPTER 6: CONCLUSION AND RECOMMENDATION.....	31
6.1. Conclusion.....	31
CHAPTER 7: THESIS RESEARCH REFLECTION .....	34
REFERENCES .....	A
APPENDIX .....	C
ANNEX : QUESTIONNAIRE .....	C

## **ABBREVIATIONS**

BTC	: BELGIAN DEVELOPMENT AGENCY
DAFF	: DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES
FAO	: FOOD AND AGRICULTURE ORGANIZATION
FFS	: FARMER FIELD SCHOOL
FGD	: FOCUS GROUP DISCUSSION
FPA	: FARMER PROMOTER APPROACH
GAP	: GOOD AGRICULTURE PRACTICES
MINAGRI	: MINISTRY OF AGRICULTURE AND ANIMAL RESOURCES
MINALOC	: MINISTRY OF LOCAL GOVERNMENT
NGO	: NON-GOVERNMENTAL ORGANISATION
NISR	: NATIONAL INSTITUTE OF STATISTICS OF RWANDA
RAB	: RWANDA AGRICULTURE BOARD
SPAT	: STRATEGIC PLAN FOR AGRICULTURE TRANSFORMATION
SQ KM	: SQUARE KILOMETER

## LIST OF FIGURES

Figure 1: The difference between FFS and Farmer promoter and how they work .....	2
Figure 2: conceptual framework.....	4
Figure 3:figure shows how the agricultural strategies has succeeded .....	8
Figure 4: Map of Rutsiro District .....	11
Figure 5: research framework.....	12
Figure 6: Interview with respondent .....	13
Figure 7: Focus group discussion with farmer promoters .....	14
Figure 8: Interview with RAB staff .....	15
Figure 9: Interview with District staff .....	15
Figure 10: Sector mapping .....	16
Figure 11: Rate of visit Frequency of Farmer promoter per agricultural season .....	18
Figure 12: FPA ranking by the small farmers .....	19
Figure 13: production increase .....	20

## LIST OF TABLES

table 1: Sub question and method.....	17
---------------------------------------	----

## ABSTRACT

The small farmer in Rutsiro District, Rwanda faces the problem of food insecurity. For solving this issue, the Rwandan government through the Ministry of Agriculture and Animal Resources (MINAGRI) has launched the Farmer Promoter Approach (FPA) for increasing their food production and income in order to help farmers to be food secure. Since 2014, the way of operating of the Farmer Promoter Approach's in Rutsiro District is based on the installation of demonstration plots and the creation of farmers groups called locally Twigire groups. However the effectiveness of the approach for increasing food security has not been assessed. In that sense, the study aims to assess the effectiveness of the Farmer Promoter Approach for increasing food security among farmers.

The following main question was developed to help to meet this objective: What is the effectiveness of the Farmer Promoter Approach in increasing household food security in Gihango Sector, Rutsiro District? The effectiveness of Farmer promoter for increasing food security was measured by:

- Increasing food crops production( food availability)
- The reaction of small farmers to the Farmer Promoter Approach
- Multiplier effects

The methodologies used for gathering the data included desk study, semi structured interviews, focus groups, sector mapping and observation. The data was collected from 34 interviews of small farmers, 3 focus groups of 34 farmer promoters and 2 key informants.

The results of the study revealed that the majority of small farmers have been reached by a farmer promoter with a basic message on good agronomic practices. Through the demonstration plots the small farmers learn about new agricultural technologies such as erosion control, planting, using fertilizers and using improved seeds, which help them to increase food crop production. This study shows that banana, Irish potato and bean are the main crops of which the production per hectare has increased by using FPA. The Farmer Promoter Approach encourages the multiplier effects which is sharing the knowledge, information and skills between the small farmers. This helps also the local authorities and research organization to transmit their messages.

This study identifies the challenges faced by the small farmers such as lack of market or information on markets because the Farmer Promoter Approach does not look at it, lack of crop conservation infrastructure which caused the decay of some crops like vegetables and fruits, some families of farmer promoters have conflicts which limit the some small famers to adopt of the approach. The following are the challenges faced by the farmer promoter: the resistance to change from some small farmers, lack of sufficient knowledge on crop diseases, delay in receiving the material used such as small farmers incentives lists, training books etc, delay in receiving inputs (fertilizers and improved seeds).

As conclusion the Farmer Promoter Approach is effective on increasing food availability by increase production and effective on earning income which reads to food accessibility which are dimension of food security but there are other factors which the approach cannot control like climate change, price fluctuation and market.

**Key words:** Food security, effectiveness, Farmer Promoter Approach, Twigire group (farmer group)



## **CHAPTER 1: INTRODUCTION**

### **1.1. Background of the study**

This study is a research which was conducted on a food security case about assessing the effectiveness of the Farmer Promoter Approach (FPA) to increase food security among farmers in the Gihango, Rutsiro District in Western of Rwanda.

According to World Food Program (WFP, 2016), Rwanda has experienced sustained economic growth coupled with progress in social development in a number of areas and is among the countries that have achieved the Millennium Development Goals (MDGs). Food and nutrition security is recognized as important for the overall development of the country and was highlighted as one of the long-term substantive issues of Economic Development and Poverty Reduction Strategy II (EDPRS II 2013-2018)

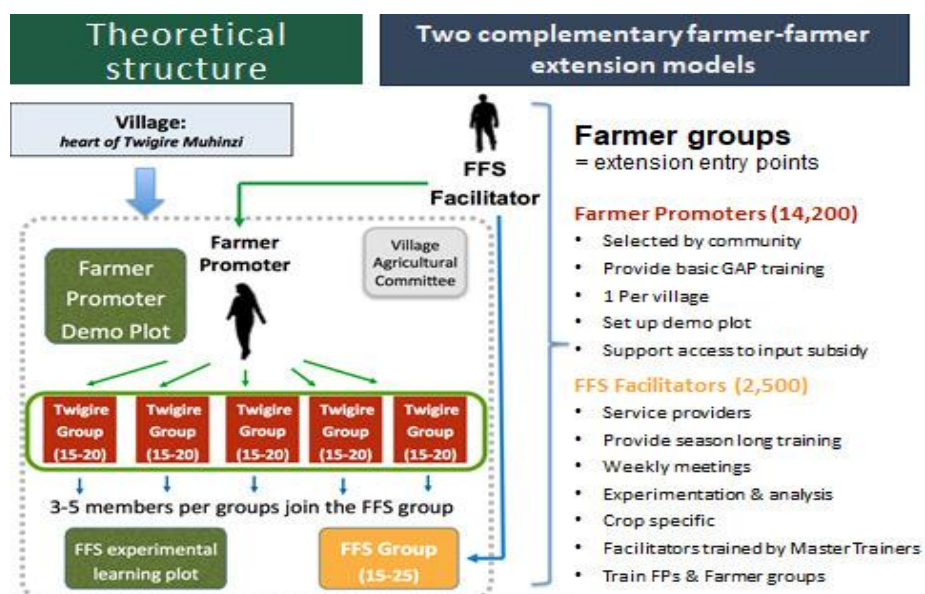
A report from the Ministry of Agricultural and Animal Resources (MINAGRI, 2016) indicates that the majority of Rwandan are smallholder farmers whose households with an average of five household members account for 0.6 hectares for their main source of food and income for buying other food which they not produce. Since 2007 the Government of Rwanda through the Strategic plan for agriculture transformation (SPAT) has initiated the crop intensification program for increasing agriculture production in order to increase food security, generate more income to farmers household and local processors. (MINAGRI, 2010)

In 2012 the MINAGRI through RWANDA AGRICULTURE BOARD initiates the National extension services Approach called locally “TWIGIRE MUHINZI EXTENSION MODEL”. The latter is true “home-grown solution” in which the farmers play the key role in agricultural extension. It is developed and implemented by RAB under the responsibility of MINAGRI in collaboration with District and Sectors which under the supervision of Ministry of local government (MINALOC). It is based on two approaches: Farmer Field School (FFS) approach by FFS facilitator and FPA by farmer promoter (Bertus and Remco, 2016) each is implemented separately but the FFS supports the FPA.

The TWIGIRE MUHINZI extension model strengthens the capacity of farmers' promoters to become the village's first extension agent while FFS facilitators are competent facilitators (with strong technical and facilitation skills) to lead the hands-on learning process.

The following figure (figure1) shows the difference between FFS and FPA and they work

**Figure 1: The difference between FFS and FPA and how they work**



Source: RAB, 2016

Figure 1 shows the differences FPA and FFS and their roles. The farmer promoter is a farmer selected by village inhabitants and provide the good agronomic practices to them it will be explained later therefore, the FFS facilitator is service provider based on cell level. He/she can provide the season training to farmer promoter and farmer. Each FFS facilitator has a specific crop of his specialism.

The Comprehensive Food Security and Vulnerability Analysis (CFSVA,2015), a survey conducted by WFP, MINAGRI and National Institute of Statistics in RWANDA (NISR), reported that the 80 percent of Rwandan household are generally food secure. This report classifies those food secure households into 2 categories: 40 percent of households are totally food secure and 40 percent are marginally food secure which mean they are at high risk of becoming food insecure. The report also found that 20 percent of households are food insecure and they are also categorized into two. 17 percent of households food insecure are categorize as moderately food insecure and 3 percent of them are severely food insecure.

At the provincial level, Kigali is the safest province from a food standpoint; with only 3% of its households considered food insecure while the Western Province has the lowest percentage of household food secure with 36 percent of household food insecurity among them 6 percent of households are severely food insecure. The Eastern Province has only 14 percent of its households are food insecure, the Northern with 14 percent and the Southern province with 24 percent of household food insecure. At the district level, Rutsiro (57%), Nyamagabe (47%), Nyabihu (39%), Nyaruguru (37%), Rusizi (36%), Karongi (35%) and Nyamasheke (35%) have the highest percentages of food insecurity.

Therefore, this study will weigh up the effectiveness of the FPA as the first line extension services in the village for increasing food security in Rutsiro District, Western of Rwanda.

## **1.2. Problem statement**

Since 2012 Rwandan Government through Rwandan Agriculture Board (RAB) put the efforts in Twigire Muhinzi extension Model by combining two approaches which are FFS and FPA for increasing agriculture production and generating more income for smallholder and local processors.

According to Bertus and Remco (2016), the FPA is the first line of extension services which meet the farmers in their village and the farmer promoter provides 21 percent of all services provided while the FFS facilitator is in charge of 13 percent.

A study by Kiptot and Al (2016) in Kenya, Uganda and Rwanda found that the FPA has attracted considerable interest in developing countries due to the failure of government extension services. This approach allows farmers to adapt or innovate, make better decisions and provide feedback to researchers and policymakers.

The FPA works in Rwanda since 2012 by involving farmer promoter on a volunteer basis. The way of operating is demonstration plot and farmers group called locally Twigire group however his effectiveness in increasing food security has not been assessed. This assessment will help to know if the FPA is effective for improving food security for the small farmers in the study area and the recommendation will be formulated for improving the approach. It will help RAB to improve the usefulness of the FPA in order to improve food security.

## **1.3. Problem owner**

The problem owner is the Rwanda Agriculture Board (RAB) whose mission is to develop agriculture and livestock through the reform and use of modern methods of crop and livestock production, research, agricultural extension, education and training of farmers. Its vision is to improve the food security and livelihoods of Rwandans by transforming subsistence agriculture into modern agriculture by generating research and extension innovations that generate sustainable crops, livestock and natural resource management. (RAB,2015)

## **1.4. Research objective**

The objective of this research is to assess the effectiveness of FPA to increase food security to smallholder farmers of Gihango sector, Rutsiro District in Western of Rwanda with the goal of improving food security through the FPA.

## **1.5. Research questions**

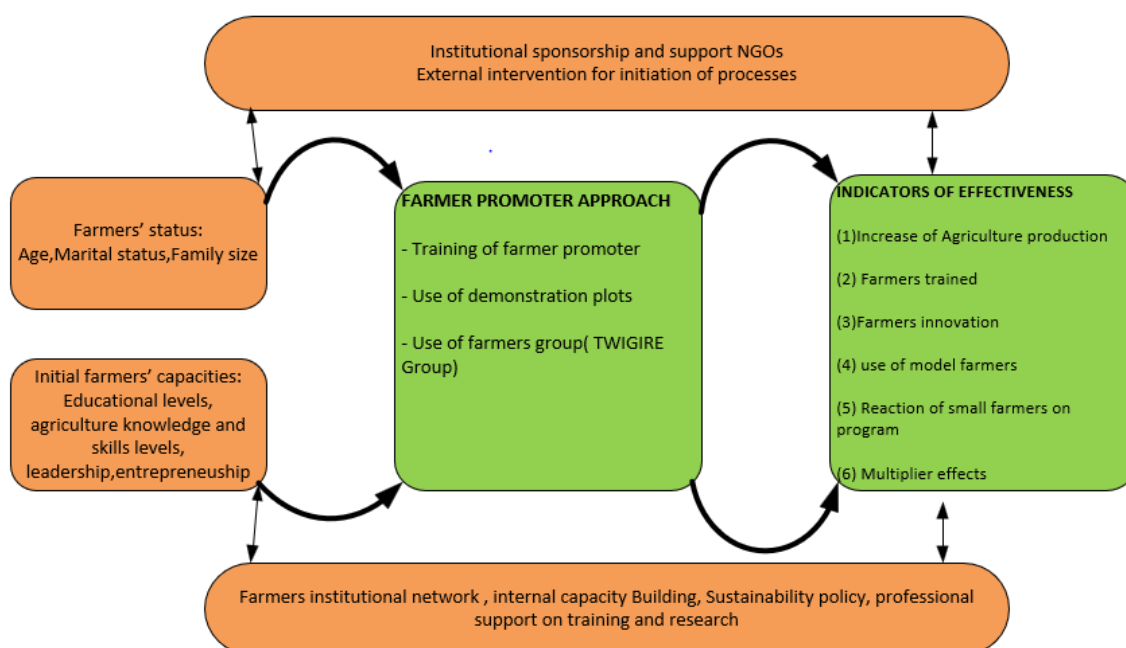
In order to reach the objective of the study the main question and the sub-question were formulated as follows:

- ✓ What is the effectiveness of the Farmer Promoter Approach in increasing household food security?
  - i. How does the FPA work in the study area?
  - ii. How does the FPA contribute to the food available at the household level in terms of production and income?
  - iii. What are the challenges faced by the farmer promoters and the farmers to make the FPA effective?

## 1.6. Conceptual Framework

Several authors have assessed the effectiveness of FPA by using different methods. According to Lukuyu et al (2012) the effectiveness of FPA can be viewed in different perspectives. Lukuyu et al (2012) assessed the effectiveness of farmer to farmer approach in disseminating the new technologies in Kenya while the Ssemukula and Mutimba (2011) measured its effectiveness in increasing technology uptake in Uganda. The present study adapted the conceptual framework of Ssemukula and Mutimba (2011). This framework was adopted because of its applicability for measuring the effectiveness of the FPA for increasing food security.

**Figure 2: conceptual framework**



**Source: adapted from Ssemukula and Mutimba (2011)**

For the current study only the green part and Indicators of effectiveness (1) increase of agriculture production, (5) Reaction of the small farmers to the program and (6) the multiplier effects of the framework, as shown in Figure 2 were used to determine the effectiveness of the FPA for smallholder farmers in the study area to increase food security, since they are most relevant for this study. Those three indicators are the specific indicators for assessing the effectiveness of FPA for increasing food security. The farmer promoter uses the demonstration plots and the farmer groups for delivering the services to the farmers, the indicators above will help us to measure if the approach is effective for increasing food security. The other indicators are not specific in measuring the effectiveness of the FPA to food security.

Furthermore, this study was limited also to the factors that have a direct influence on the effectiveness of the approach, while the factors in the orange part of this conceptual framework were beyond the scope of this study.

## 1.7. The organization of the report

This report is organized into 6 chapters which are ; 1<sup>st</sup> chapter is an introduction of the study, chapter two will be a literature on which other others was wrote about the effectiveness of Farmer Promoter Approach, chapter three show the Methodology used for

the study , it will also show the background of the study. Chapter four will show the findings of the research, chapter five will show the discussion of the results , chapter 6 will show the conclusion and recommendation for this study and the last chapter will focus on research reflection .

**Key words:** Food security, effectiveness , farmer promoter, Twigire group( farmer group)

## **CHAPTER 2:**

### **LITERATURE REVIEW**

In this chapter, the literature related to the study is specifically reviewed by defining the keywords, the theories used, and the experiential evidence on FPA.

#### **2.1. Overview of agriculture sector in Rwanda**

##### **2.1.1. Introduction**

Rwanda's economy is largely agrarian and more than 80 % of the Rwanda's projected population of 10,718,379 depends on farming. The total land area of the country measures 26,338 km<sup>2</sup> and about 79 % of the country's land is classified as agricultural land. The Rwanda has an area of 1,735,025 ha which is used for cultivate the food and cash crops and the pastures, bushes, forests, marshlands and marginal lands in the hillsides occupy the remain where permanent and regular crops are unsustainable (MINAGRI 2010)

With an average of 407 people / km<sup>2</sup>, Rwanda is the most densely populated nation on the continent (NISR, 2011). As a result, land distribution is highly fragmented and unequal in Rwanda.

Global strategies for economic development and poverty reduction in Rwanda that envision social transformation through agriculture require moving from subsistence farming to market-oriented agriculture (Kathuresam, 2012). With agriculture-related spending allocated to other institutions, Rwanda is now meeting the 10% commitment made under the African Union's African Agriculture Development Pact (CAADP), whose Rwanda was the first signatory. The main beneficiaries of the agriculture budget were the Government's flagship programs, such as the Crop Intensification Program(CIP) and the Livestock, Water Recovery and Soil Irrigation Project, also financed by donors. (World Bank, 2011)

##### **2.1.2. Agriculture growth and productivity in Rwanda**

Agriculture is the second largest component of GDP at 33.0 percent but only in 2005, agriculture was the largest contributor to GDP. The declining share of agriculture was absorbed by the services sector, while the industry sector stagnated at around 13.9% of GDP. However, agriculture remains the main employer, especially the poorest and least educated segments of the population (RDB,2018)

Between 2006 and 2010 the average of agriculture growth was at 4.9 percent because the sector started to benefit from large investments in fertilizers, improved seeds and extension services through the CIP. Being by nature highly dependent on weather conditions, favourable climate during 2008 and 2009 also contributed to strong growth. In 2009, agriculture growth reached a record of 7.7 percent, surpassing all other sectors. This reflects the continued importance and dynamism of the sector. In 2010, the agriculture growth was at 4.6 percent (World Bank, 2011).

Land productivity (agricultural valued added/cultivated land/ha) has increased drastically in Rwanda. Indeed, the country is leading compared to other African countries with similar GDP shares of agriculture. The relatively high level of land productivity reflects the favourable agro-climatic potential resulting in two harvest seasons, as well as the intensive nature of the predominant agricultural production systems. However, it appears that most opportunities for

future productivity gains lay in the area of making agricultural production less labour intensive, or in other words less subsistence based (World Bank, 2011).

### **2.1.3 Agriculture strategies of the Rwandan government**

After the Tutsi's Genocide in 1994 the government of Rwanda has put in the place the strategies for boosting agriculture for being food secure

#### **1. Vision 2050**

Envisaging the future, the government of Rwanda aims to transform Rwanda's economy into a middle income country (per capita income of about 900 USD per year). The country's economy need to grow at a rate of above 7 % to accomplish this goal. To facilitate this growth, the country aims to transform agriculture from subsistence farming to market oriented modern farming (MINECOFIN, 2016).

Transformation of agriculture into a productive, high value, market oriented sector is one of the pillars of the country's long-term strategy. Vision 2050 acknowledges that the most important issue retarding Rwanda's agricultural development is not land size, but low productivity associated with traditional peasant-based subsistence farming. It intends to renovate agricultural policies in order to promote agricultural intensification. Vision 2020 sets a target for growth rate for agriculture at 4.5-5 % per year through increase in productivity. The CIP attempts to the concerns reflected in Vision 2050 on the reduction in productivity due to lack of simultaneous application of fertilizer use by emphasizing that intensification should be accompanied by the use of appropriate inputs (MINECOFIN, 2050)

For achieving this, MINAGRI has put in place a strategic plan for agriculture transformation in RWANDA (SPAT) . it was divided into the phases: SPAT I: 2002-2007, SPAT II: 2008-2011, SPAT III 2012 -2017 then SPAT IV: 2018 -2024

#### **2. Strategic Plan for Agriculture Transformation in Rwanda**

This envisage to build a sustainable agricultural sector that can protect Rwanda from food and nutrition insecurity, by increasing productivity per hectare, and generating additional income through export crop production and well developed national markets and value chains. The SPAT has four strategic programs which are: 1) Intensification and development of sustainable production systems 2) Support to the Professionalization of Producers, 3) Promotion of Commodity Chains and Agribusiness Development, and 4) Institutional Development (MINAGRI, 2008).

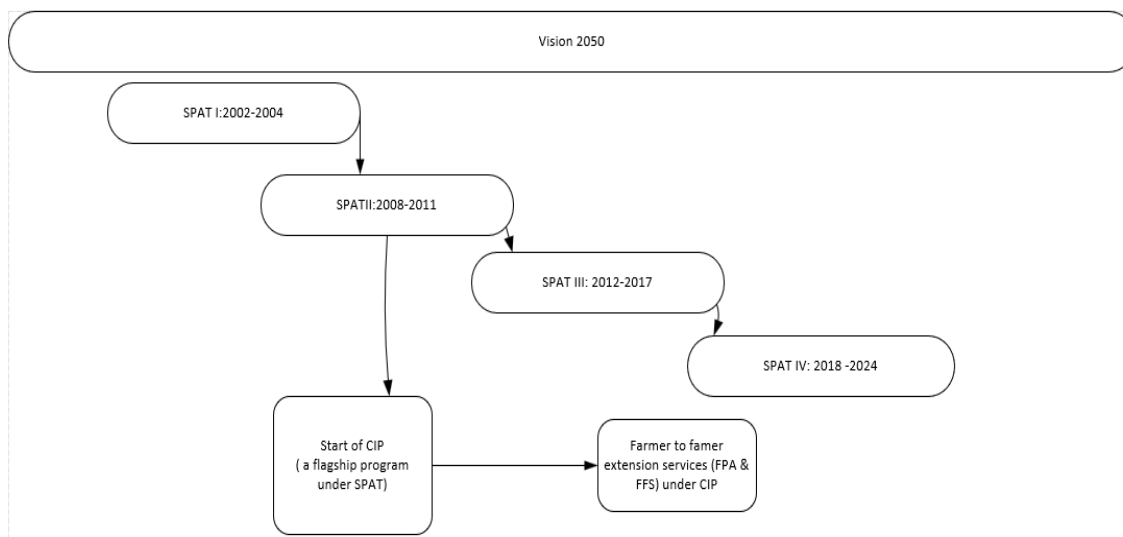
#### **3. Crop intensification program**

Crop Intensification Program (CIP) is a flagship program implemented by the Ministry of Agriculture and Animal Resources to attain the goal of increasing agricultural productivity under SPAT II. CIP currently undertakes a multi-pronged approach that includes facilitation of inputs (improved seeds and fertilizers), consolidation of land use, provision of extension services, and improvement of post harvest handling and storage mechanisms. Started in September 2007, the CIP program focuses on six priority crops namely maize, wheat, rice, Irish potato, beans and cassava (Kathiresan, 2011). The cereals seeds and the cassava cuttings was given by Rwandan government to the small farmers freely and the chemical fertilizers on half price.

In 2014 two approaches namely the farmer field school (FFS) and Farmer Promoter Approach(FPA) have been combined and form the Twigire Muhinzi extension model in order to reach the small farmers in their village and help them to increase productivity which will

leads to food security. In this year the farmers started paying the seeds and fertilizers through the farmer's group formed by farmer promoter.

**Figure 3:figure shows how the agricultural strategies has succeeded**



Source: Author, 2018

The figure above shows how the MINAGRI has made several plan for 5 years for achieving the vision 2050.

## 2.2. Description of Farmer Promoter Approach(

According to Meena et al (2016) the Farmer Promoter Approach is an extension model which makes a systematic use of community leadership and informal communication among farmers. This approach aims to strengthen the flow of information and improve agricultural production.

The FPA is based on the theory that farmers can disseminate innovations effectively because they have deeply knowledge of local conditions, culture ,practices and are known to other farmers and therefore have confidence. (Kiptot and Franzel.2014)

Therefore the role of Farmer Promoter Approach is to promote knowledge generation and sharing in a community development context with a focus on capacity building. The Farmer Promoter Approach is an approach that involves farmers sharing their knowledge of agricultural innovations in their communities. (Lukuyu et Al. 2012)

Each Village as an administrative entity has one farmer promoter chosen by the farmers' village inhabitants by participation exercises. The farmer promoters meet easily the farmers with a message of good agricultural practices (GAP). ( RAB,2016)

He/ she mobilize the farmers to consolidate land, planting on time, using input and organize the groups of 20 farmers. The important tool used by the farmer promoter to deliver the message is demonstration plot and Twigire group which serve as an extension entry point where the farmers meet 3 times a season for learning how to control erosion, input use, pest control, and harvesting ( RAB, 2016).

He works closely with agro-dealers by informing them of the quantity of fertilizers and seeds even pesticides needed in the village and the list of farmers whose will have the government incentives on fertilizers and improved seeds. ( RAB,2016)



### 2.3. The Farmer Promoter Approach in worldwide

Presently, the Farmer Promoter Approach is practiced extensively in many other countries in worldwide( Africa, Asia and Latin America) in different form. It started in the 1970s in Guatemala, followed by Nicaragua in the 1980s, then Mexico and Honduras. The most famous and well-known extension from one farmer to another is the "Campesino a Campesino" Movement (Farmer to Farmer) in Nicaragua.(Meena et Al,2016)

The farmers trainers are the center of the FPA and are known by different names in dissimilar countries or projects. They call them farmer promoters in Nicaragua, Farmers teachers in Kenya, agricultural advisors in Burkina Faso, while in Peru they call the farmer trainers "Kamayogin" in local dialect which is translate as agricultural extension agents.( Meena et Al,2016)

Meena et Al (2016) state that a farmer promoter is an individuals with little or no formal education who, through a process of training, experimentation, learning and practice what their learn, increase their awareness and become able to share it with others farmers.

### 2.4. Opportunities and weaknesses of FPA

#### 2.4.1. Opportunities

Meena et Al (2016) stated that the Farmer Promoter Approach has the following opportunities:

- Reduce the cost of extension services
- Reach more people and increase community accountability
- Use of local language and the culture help in adoption of new techniques

#### 2.4.2. Weaknesses

Meena et al ( 2016) stated also the following weaknesses:

- The farmer promoter need training and technical support. Without these the FP will not work,
- Some programs seem to recruit more farmer promoter than their able to manage,
- Some extension staff perceive the farmer promoter as substitute rather than a compliment that create the conflict between them,
- If the Farmer approach is used by a project and the farmers whom work as farmer promoter gain some money from the project after the end of it the approach will leave it.

### 2.5. Definitions of Key terms and concepts

#### 2.5.1. Food security:

According to FAO (1996, world food summit), food security *"exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern"*.

In this study, the two dimensions of food security as defined by WFP- RWANDA (2016) (availability and accessibility,) areanalysed: .

- ✓ **Food availability:** is the sufficient amount of food that is physically present in the area through all forms of domestic, commercial and food aid. The production increase is the indicator that was help to measure this food availability.

- ✓ **Food access:** Represents the ability of households to regularly acquire a sufficient amount of food through a combination of their own stocks and production, purchase, gift, loan or food aid. Malhotra (2017) stated that when the crop productions increase, the farmer incomes increase. The production increase was the indicator.

#### **2.5.2. Farmers group (TWIGIRE group)**

According to RAB (2016), the farmer's group called locally Twigire group is a group 20 farmers living in the same villages put by farmer promoter in order to be empowered in Agricultural skills. This farmers group will contribute in this study by showing the message delivered by their meeting relating to food security.

#### **2.5.3. Effectiveness**

Generally, it means the extent to which stated objectives are met or the policy achieved what intended to achieve. Australian Government( 2013)

The study conducted by Moena et Al (2016) revealed that effectiveness can be measured by increasing the efficiency of the work of the stakeholders and the extent to which the objectives have been achieved.

For any extension service to be considered an effective program, it must be possible to improve production and productivity, while being readily available and accessible. Ssemukula and Mutimba (2011)

## CHAPTER 3:RESEARCH METHODOLOGY

### 3.1.Introduction

The come up to be adopted in this research consists of all aspects of the research process under the heading of methodology. For that reason, the research plan, the approach adopted in this study, the kind of data collection methods selected and the means of data analysis are all well thought-out part of the study methodology.

### 3.2. Research Scope.

#### 3.2.1. Background of Study Area

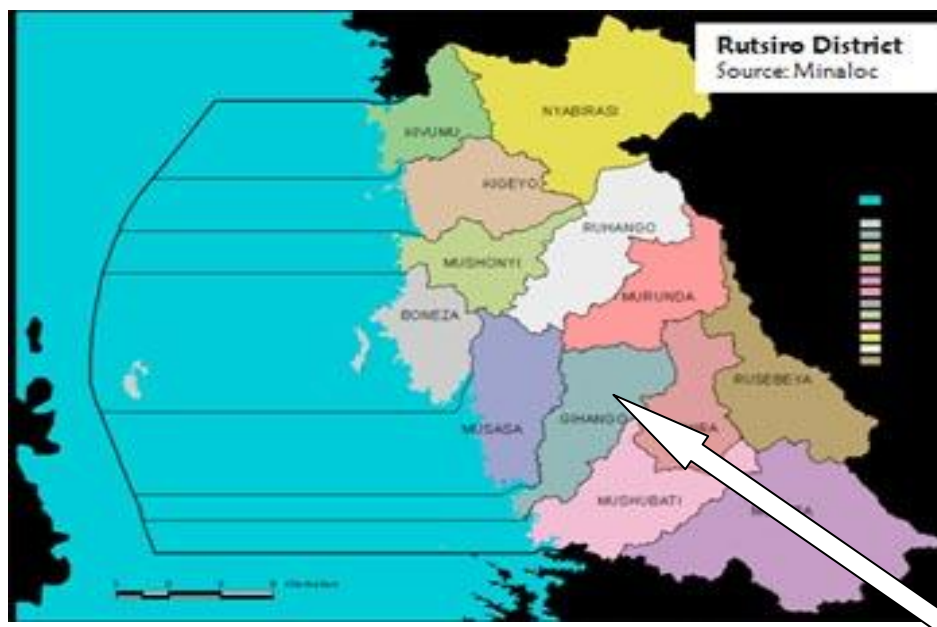
The study was conducted in Gihango Sector localized in Rutsiro District. Rutsiro is one of 7 Districts of Western Province in RWANDA. Sixty percent of its population is below 25 years and 92% of the total population depends primarily on agriculture and livestock.

The CFSVA (2015) reported that Rutsiro District is most food insecure in Rwanda with a high percentage of 57. Among them 13 percent are food secure, 30 percent marginally food secure,48 percent moderately food insecure and 9 percent are severely food insecure.

Gihango is one of the sectors with the population about 23,194 habitats, the male is 11,039 and female 12,155. Gihango has 7 cells and 34 villages as administrative entities each village has a farmer promoter it means Gihango 34 farmer promoters.

This study area was chosen because the district is reported as most food insecure in the country and organisation (RAB) work with small farmers in the area.

**Figure 4: Map of Rutsiro District**

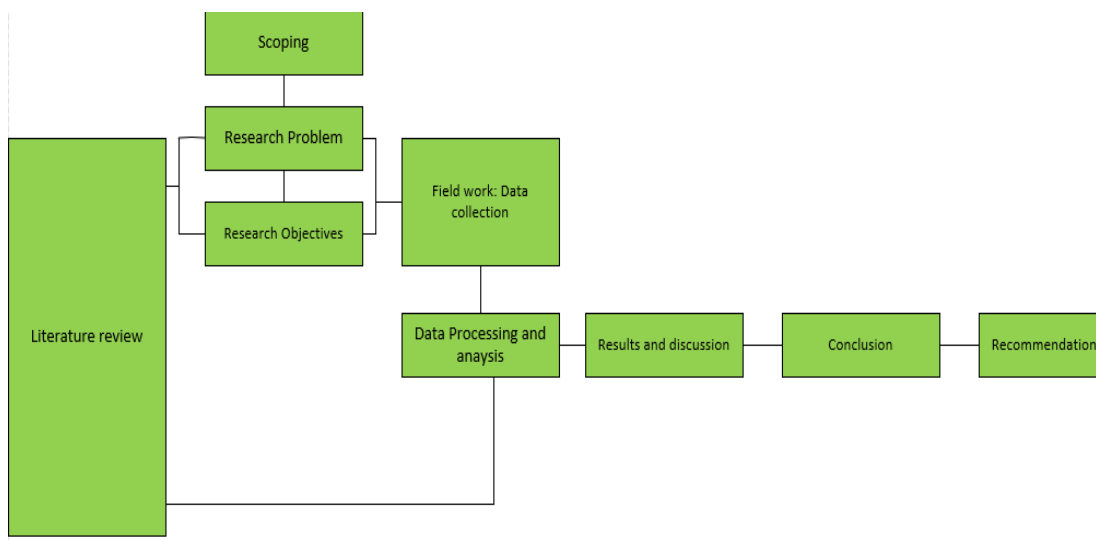


**Study Area: Gihango sector**

### 3.2. Research design

The research employed desk study in assembling relevant literature and secondary data. During the fieldwork, the researcher employed a survey and case study in gathering the primary data and information from actors and stakeholders in the FPA.

**Figure 5: research framework**



**Source : Author 2018**

### 3.3 Research Strategy

The research strategy is a case study. The place where the primary data were collected in order to have an in-depth understanding of the situation. This present research is qualitative with the quantitative concept for better understanding.

According to Verschuren et al., (2010) The Qualitative research is the way to explore and understand the meaning that individuals or groups attribute to a social or human problem. The strategy chosen will help the small farmers and the farmer promoters to express freely how the FPA contribute to their household food security. The quantitative concept tools like Microsoft Excel help us to analyse the data in terms of percentages.

#### 3.3.1. Sampling:

The study area has thirty-four villages and each village had one respondent and the purposive sampling method was used for selecting the households.

One staff of Rwanda Agriculture Board (RAB) and one staff from Rutsiro District were chosen based on their support to approach.

#### 3.3.2 Data collection

The source of data collection were primary and secondary.

##### ✓ Secondary data

The secondary data was collected through desk study by using the scientific books, monographs specialized journals, Ph.D. thesis, reports, seminar papers and the Internet. The secondary data collected was helped the researcher to better understand the theoretical concepts and background information of the study.

## ✓ **Primary data**

Primary data were collected through the semi structured interviews with individual respondents, focus group discussions and by the way of observation. Data collected will be coded, triangulated and analysed.

The strengths of using primary data reside in its nature that brings research to the source in order to collect practical data.

### ❖ **Primary data collection tools:**

#### **1. Semi structured Interview:**

The data was collected through the interview with small farmers. The individual interview of 34 small farmers was done by using a questionnaire (annex) with semi- structured question. Only one person whom works with the farmer promoter was interviewed. The semi structured questions were the same for all small farmers.

The data were collected in Kinyarwanda, language spoken by respondents and researchers. After they were translated into English.

**Figure 6: Interview with respondent**



Source photo: Author, 2018

## 2. **Observation:**

This method was used by a researcher to observe what happens with the individual in tandem with the individual interview and FGDs. This method help research to observe the behavior of the respondents if they are happy with the approach or not.

## 3. **Focus group discussions (FGDs):**

This method was applied for the thirty-four farmer promoters. The farmers promoters were divided into three groups. The two group had eleven person and third twelve persons. During these FGDs the note was taken. The aim of this method was better to understand what the farmer promoter does and the challenges he/she face for achieving their task.

**Figure 7: Focus group discussion with farmer promoters**



Source :Author 2018



Source photo : Author 2018



#### **4. Key Informants**

The key informants of the present study were RAB staff and Rutsiro District staff. They were interviewed for offering the information about the contribution of the farmer promoter in increasing food security in their village respectively ; how they work with the public servant in charge of agriculture, the challenges faced by farmer promoter and the small farmers regarding to increase food security. The researcher has been guided by a questionnaire with the semi structured questions.

**Figure 8: Interview with RAB staff**



**Figure 9: Interview with District staff**



**Source photo : Author 2018**

### **5.Sector mapping**

During the FGD , the research used this method specifically for those areas where the implementation of the FPA has not well adopted The sector map was drawn by the farmer promoters and show where there is the problems. The target was to know why they do not work , if there is not influence of location or other things related to place.

**Figure 10: Sector mapping**



**Source photo: Author 2018**



### 3.3.3. Sub question and Methods

table 1: Sub question and method

Sub question	Who	How	What
How does the FPA work in the study area?	<ul style="list-style-type: none"><li>- Farmer promoter</li><li>- Key informant(District)</li></ul>	FGDs,Interview, Observation, Sector mapping	Multiplier effects and participation reaction
How does the FPA contribute to the food available at the household level in terms of production and income?	<ul style="list-style-type: none"><li>- Small farmer</li><li>- Farmer promoter</li><li>- Key informant</li></ul>	Interview FGDs observation	Food availability and income
What are the challenges faced by the farmer promoters and the farmers to make the FPA effective?	<ul style="list-style-type: none"><li>- Small farmer</li><li>- Farmer promoter</li><li>- Key informant</li></ul>	Interview FGDs	Participants reaction

Source : Author 2018

### 3.3.4 Data analysis

Data collected from study area was organized according to the topics and guided by the sub research questions. They will be coded and emphasize the ones which is so much important. The FGDs, RAB and District staff interview their analysis will be analysed in a qualitative manner.

The data from the member of the household interview was also analysed in a qualitative manner with the quantitative analysis tools by showing the percentages and the graphs.

### 3.3.5 Ethical consideration

Before the interview, participants were informed of the main reason for this research. They have been assured that what they are going to say will only be used for academic reasons without revealing their identity.

After listening to the explanations who want to participate have accepted verbally

### 3.3.6. Limitation of the study

This research encountered few difficulties. The period was not favorable to observe farmer promoters in action because it was the dry season when there were no agricultural activities in study area. which did not allow us to see how the demonstration plots and the farmers' group work.

The other small farmers in the villages also wanted to participate in the study but they were not selected. They tried to influence those who were selectionned in their responses. Since they are also in the approach and have information on this, they came close to know what was going on when they saw the researchers in the area. When they heard the question they had the tendency to answer the question or answer before the selectionned one.

## CHAPTER 4: RESEARCH FINDINGS

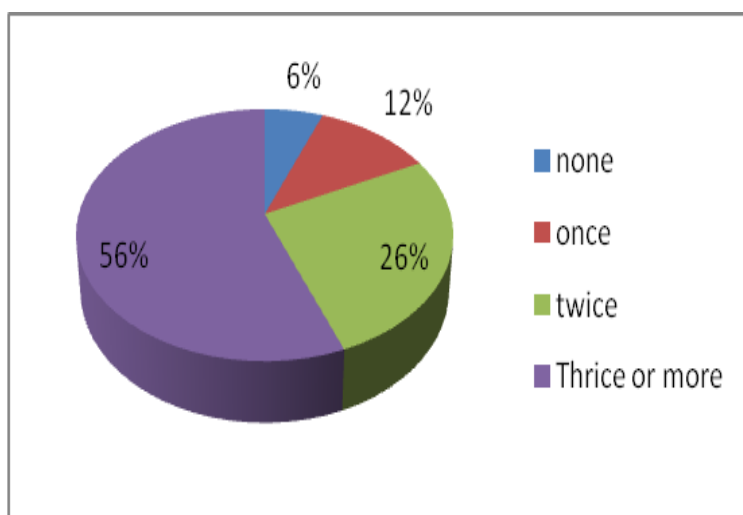
In this chapter, the findings of this study are presented based on the following themes: reaction of small farmers on FPA; increase of agriculture production; multiplier effects.

The following were the findings of the present study:

### 4.1. Small farmers reaction to the Farmer Promoter Approach

#### 4.1.1. Visit Frequency of Farmer promoter to small farmers

**Figure 11: Rate of visit Frequency of Farmer promoter per agricultural season**



Source: Author, 2018

From the figure above, 56% (19 people) for the small farmers have been visited by a farmer promoter thrice or more in the last agricultural season (2018 B) but 6% (2 people) of the respondents revealed that they have not been visited by a farmer promoter.

The small farmers revealed that the reasons of visit were making the list of input subsidies, showing the good agricultural practices (GAP) and kitchen garden issues. The once, the Farmer promoter (FP) visit the farmers in the preparation of season and make the list of small farmers who will gain the subsidies on agriculture inputs (fertilizers and improved seeds) which government will pay a half of price of improved seeds of cereals (wheat and Maize) and fertilizers. Those lists will be used by the agro dealers in selling the input to the farmers. The second time, the Farmer Promoter visits the farmers in their farms through farmers group and train them on good agriculture practices like planting on time, how to use fertilizers etc. The thrice, the farmer promoter visit the household for verifying if they have Kitchen garden, if not sensitise them to have it for improving their Nutrition.

On the other side, the small farmers who are not visited revealed that the farmer promoters were there but they did not work at all. They never visited the farmers, never make the demonstration plots. The small farmers revealed that those farmer promoters have accepted to be the farmer promoter for gaining the training on agriculture practices for their own not for sharing with others. During the FGD we find that those two villages have changed the farmer promoter and previous were not chosen the farmers but the staff in charge of agriculture in the cell.

#### 4.1.2. Services offered by Farmer Promoter Approach to the small farmers

The respondents stated that the farmer promoter help them to obtain the incentives on inputs by making lists of those who will receive it not only the input also they helped them to have the pesticide when it needed . Through the demonstration plot they learned the agronomic practices such as erosion control, land preparation, planting on time, using chemical fertilizers mixed with organic manure, using improved seeds and compost making which help them to increase the production.

During the FGD the farmer promoters revealed that they also helped in government program such as sensitize on land consolidation and kitchen garden in each household by train them how to make it, how to conserve the moisture in it and also checking if each household has it. The farmer promoters in FGD stated the way they work is using the demonstration plots on which the farmers visit thrice a season. It is always on the road where the farmers can see it every day . They form also the farmer group called “*amatsinda ya Twigire*” in local language. This is the group of twenty farmers who have neighboring farms. The farmer promoters transmit the message about season or other District message through this group and in recurrence the farmers communicate him the needs.

In the present study, the small farmers revealed the services which they need but not offered by the farmer promoters such as the market for their production, the way for having irrigation pumps on incentives or on loan, the loan for buying the inputs (fertilizers and improved seeds) and the Field trip. The small farmers stated that they sold their production on local market but sometimes the sector finds them the market for wheat. The irrigation pumps are given by RAB on request of Sector and District. The loan for buying fertilizers and improved seeds is given by One acres (TUBURA: in local names) but select what they can give that loan accordingly to commitment of the farmers while World Vision offered to the small farmers the excursion but those who participate are selected by sector Agronomist. Therefore the farmer promoter offered the small farmers the advocacy through the meeting with local authorities.

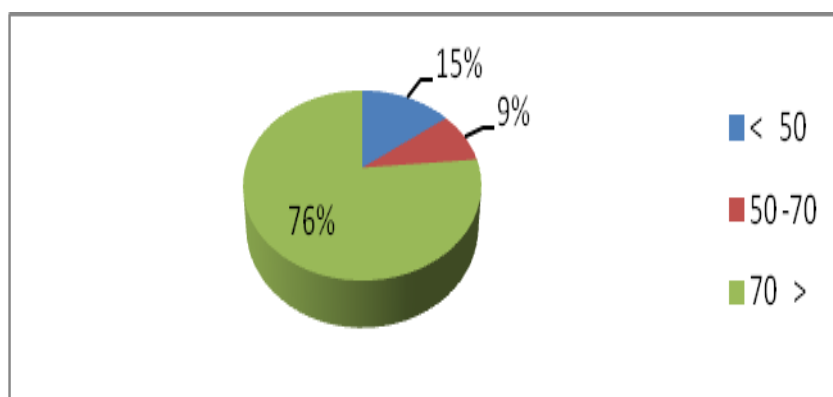


Figure 12: FPA ranking by the small farmersSource : Author, 2018

From the findings above the majority of respondents are happy with the services offered by FPA and stated that the FPA helped them to have the extension services on time and they stated that this approach help them to increase production and gain more income.

On the other hand, the respondents stated that some farmer promoter have the conflict in their family which caused non acceptability of the fellow farmers. Through the FGD the farmer promoters stated that the farmer promoter have to be an good example for the fellow farmers not only in agriculture but also in social matter for better helping other farmers

#### 4.2. Increasing agriculture production (food availability)

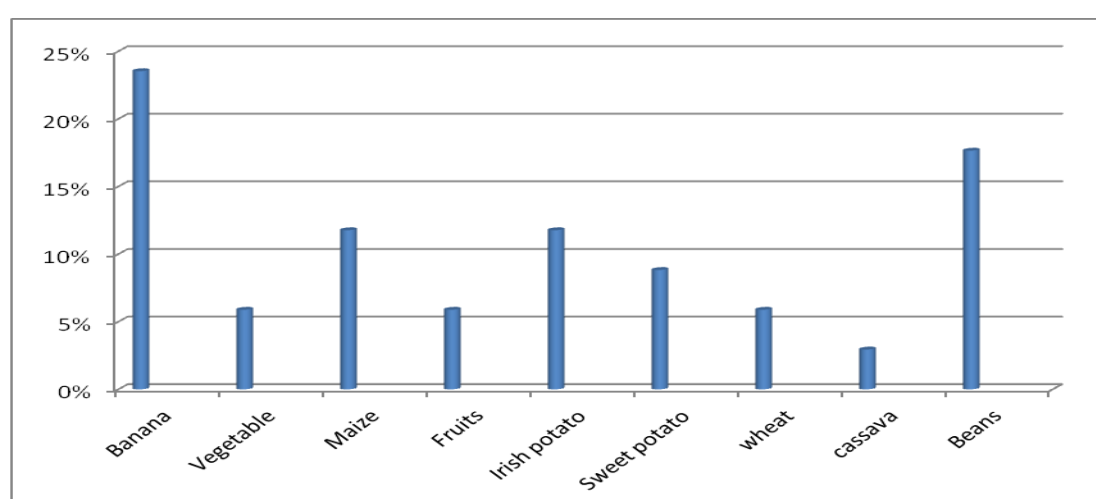
The respondents of this study produce different crops such as maize, wheat, irish potato, sweet potato, common beans, sorghum, cassava, peas, banana, vegetables (carrots, cabbages, eggplant, spinach, tomatoes and amaranths) and fruits ( tree tomatoes, maracuja and pineapple) .

In the present study, the respondents told us about progress of food crops production. During the interview a respondent said: *“before the Farmer Promoter Approach started, we were given the seeds of maize and wheat by government for free, but we used them for eating not for planting, we considered them as food aid. When the approach started i saw how the farmer promoter field was, it was near the road that i use every day. I observed every day the progress of maize in that field until his harvest. After that season i decide to follow his example and I accept his advice and my production went up”*.(Personal interview with a farmer,8 August 2018 )

The Staff of District in charge of Agriculture confirmed this by saying that the demonstration plots and farmers group helped a lot in increasing food crop production. The inputs were used properly and the farmers take the decision themselves and we support them in what they needs.

The table below shows the change in food crop production from to 2014 when the FPAstarted in the study area.

**Figure 13: production increase**



Source: Author, 2018 and small farmers household note books,

The table above shows the change in food crop production since the FPA started in the study area in 2014. The banana is the first for a good performance but its also the first staple food for the small farmer household in the area , followed by the Irish potato.

The sorghum, peas and sweet potato are not sensitising by the farmer promoter because they are not in priority crops that is the cause the production decrease or no significant progress. Despite of that, the small farmers stated that Orange- fleshed sweet potatoes variety give them income and vitamin A. The reduction of maize and cassava production in 2016 and 2017 is due to disease faced by the small farmers such as Maize leather Necrosis Disease ( MLND) and Fall arm worm for maize and cassava mosaic virus for cassava.

The respondents revealed that they also produce the vegetables but did not able to quantify it. During the interview, one small farmer said: *"In the beginning of last season we did a meeting in the village, chaired by village chief and farmer promoter. They sensitise us to produce vegetables In KOKO valley. We agreed and start planting. I planted eggplants. I harvested first round, I sold some on local market and I gain two hundred thousand Rwandan francs(200,000 FRW)(it is equal 200 Euros) and others we used them home. I expect to gain seven hundred thousand(700,000 FRW) or one million Rwandan Francs (1,000,000 FRW) without counting what we will use in my household. I am happy with my production and I thank the agricultural promoter of my village."*(personal interview with a farmer, 26/July/2018)

In the FGD, the Farmer promoters from the villages which are neighboring with the valley stated that before the approach the valley was not organized. Each small farmer had his own plantation, without using the agronomic technologies. During the Sector meeting which had the purpose of season preparation, the Sector Executive secretary asks them to seek a solution of the disorder that is in the valley. After the meeting they went together with their village's chiefs, the idea of planting the vegetables came out. The village's meetings were held and the small farmers accepted the idea.

For implementation they start making the farmers group (group of 20 persons) and the 5 neighboring groups chosen what they wanted to plant and the climate was favorable. The farmer promoters confirm that it gave the good results: the vegetables are available in the households and on the markets which help them to gain the income because the farmer promoters are also produce in that valley. The farmer promoter revealed that the farming is also his source of income.

The key informant revealed that the use of inputs in the region was increased due to farmer promoters efforts and the climate was favorable that reads to increasing in foods crop production and more income. He stated that *"The small farmers do not have other resources only the agriculture, when you go to the agro dealers and small farmers pay cash for the input for the next season and you goes to heath directorate you saw that the payment of health insurance (mutuelle de Santé) is in good way. Those two indicators that show that the small farmers have the income from what they produce"*. (Ir Turamye, District staff in charge of agriculture, 03/08/2018)

The challenge faced by the small farmers is that the approach helps them to increase crop production but not to find market or the conservation infrastructure for their produce. They sell their product on local market and sometime they flood the market which caused the decrease of prices.

### 4.3. Multipliers effects

The study revealed that when the MINAGRI, RAB or District needs to communicate the small farmers about the season, they send a text message on mobile phone to the farmer promoter and on his turn the farmer promoter inform the small farmers through a farmer group leader.

A farmer group is composed by 15 to 20 farmers and they have one group leader. The small farmers and farmers promoter sharing the information regarding the season and activities regarding the agriculture and livestock. Through the farmer group which meet every week the group leader inform them about what is going on and the small farmers can inform the group leader about the performance their crops and the leader shared the information with farmer promoter, on his turn the latter inform the cell and sector agronomist after visiting the farm or household. In side of market if someone the in the group find a market or get an information about market, they inform others which they help them for selling their products on local markets.

The farmers also share the knowledge and skills received during different trainings the example given was making a kitchen garden. There is some small farmers who knows how to make a kitchen garden by build a new Model and they share knowledge without waiting the farmer promoter or the agronomist.

In the FGD, the farmer promoters confirm what comes from interview by revealing that it is easy to transmit a message to the small farmers because they share it each other. They said when they give message a farmer group leader they are sure in the following day 20 small farmer's members of the group will be communicated. The group leader transmits the message to 5 small farmers and the latter inform others.

During the interview, the key informant (The district staff) revealed that the farmer promoters were help the district to reduce the stunting in the area by changing the mind of population on diversifying food, hygiene and breastfeeding. It was transmitted through each meeting and visit done by a farmer promoter during the season then the small farmers have shared the message each other. The Sector of Gihango had 57% in 2014 of stunting children which was reduced to 37% in 2018 due to farmer promoter communication during the every meeting with the farmers and the sharing information between farmers. The FPA can reach several people in a short time.

RAB staff stated that the farmer promoters approach helps in controlling the pest and diseases of crops and domestic animals. The farmer promoter and the small farmers share information between them and communicate the local authorities or RAB about the pest or disease when there is in the village. The FPA disseminates information to the small farmers through the farmer group on how to prevent the disease or where they can buy drugs or pesticides and as it said above the farmers share the information.

Not only the pest and disease, he/she help also for sensitizing new varieties of crops which have been release by the research organisation. When he/she plant it in demonstration plot, the farmers comment on this and the share to others the performance of that crop.

The challenge faced by the farmer promoter is that sometimes they receive information from the sector agronomist about the availability of fertilizers and seeds to agro dealer and inform the farmers but when the farmer arrived to agro dealer, the latter refuses to serve

because the list of incentive beneficiaries comes late from the Sector. This causes conflict between the small farmers and farmer promoter.

## **CHAPTER 5: DISCUSSION OF THE RESULTS**

In this chapter, the results presented in previous chapter are analysed on basis of themes set out in the chapter of findings.

### **5.1. The small farmers reaction on Farmer Promoter Approach**

The findings from the present study revealed that the majority of small farmers were frequently visited by agricultural promoters for providing them the good agronomic practices (GAP) such as having access on information needed on season, agriculture inputs needed in the season and basic agronomic techniques this showed that the farmer promoter is effective. This increase the use of the approach by the small farmers. The study conducted by Dube (2017) in Zimbabwe, supported that in showing that the farmers who have more higher extension visit a year have more probabilities for adopting the FPA compared to farmers with low visits. Meena et al (2016), in showing the opportunity of FPA stated that the approach reach more people and increase community accountability and use of local language and the culture help in adoption of new techniques this is support the findings.

In the findings above, also the majority of respondents have scored high the farmer promoters based to their performance for delivering the services to them through the demonstration plots, visit and farmer groups. This shows how the respondents consider the role of farmer promoter in the approach and how he/she is effective. Lukuyu et Al (2012) in their study in Kenya showed that the farmer promoters are very effective in their roles. Specifically the small farmers perceived them as very effective in hosting demonstration plots, organizing and mobilizing farmers to attend training which is in line with the results of the current study which is in line the findings. On the other side Akkinagbe(2010)contrary that by states that the farmers do not accept easily the fellow farmers demonstration plots because they have tendency for believing that innovation or ne techniques cannot come from the poor and illiterate people only educate people could bring something new which can help the farmers.

### **5.2. Increasing production (Food Availability)**

The results of the present study revealed that adoption of the good agriculture practices (GAD) since it started resulted the increasing of food crop production which is also increasing of food availability. This shows that the effectiveness of FPA in increasing food crop production is the results of use of agronomic practices. This finding is supported by Ssemukula and Mutimba(2011) in their study, noted that increasing the adoption of farming technology of the farmer to farmer beneficiaries is followed by Increasing Agriculture production which means improving food availability.

Hellin and Dixon(2008) stated that like most of traditional agricultural extension programs the “kamayoq” (farmer promoter in Peru) has worked primarily to improve and increase on-farm production after succeeded, the Public and private organization contact the “ Kamayoq” for train other in other places and participate in research for increasing crop production. This study confirms the findings above for increasing food production.

About income earning, the findings shows the increase of productivity and the information about the market increase the small farmer income. after harvesting the small farmers stock what they will use and sell the surplus on local market for generating more income than what they earned before the program which help them to buy other preference foods but for the



vegetables and fruits they harvest what they use or selling directly because they do not have the conservation infrastructure.

As showed by the findings above the banana is the most sold and consumed because it is sought at the local market for eating or making traditional beers. The farmers find the input of banana at low cost and the farmer promoter shows them how to manage it. Malhotra (2017), in his study revealed what is in line with present by noting that the Farmers' income can be improved when productivity increases, the cost of production decreases, if the agricultural raw materials produced benefit from a remunerative price due to a transparent discovery of prices mechanism.

The findings of the present study also shows that the farmer promoter earn the income from his farm they do not have other source of income. The findings from the study done by Simpson et Al (2015) contrary the previous finding by stated that for the farmers agrees to be the farmers trainers( farmer promoter) because they find there the opportunity to earn income such as selling seeds from one's demonstration plot or paid by the group members of the groups served. Kiptot et Al ,(2016) confirm Simpson by noting that the farmer trainer derives income from the sale of inputs and provides training-related services such as baling hay, chaff-cutter hire and silage production. He / she has also contracted with NGOs to train other farmers outside their community for a fee.

### **5.3. Multiplier effects**

The above findings revealed that the FPA helps the small farmers to create multiplier effects by sharing knowledge, information and skills between them. This help to disseminate the knowledge and sharing the information without paying any cost which help the approach to be effective.

Several authors stated what is in line with the result above such as Ssemakula and Mutimba (2011) whom their study in Uganda found that multiplier effects were created when farmers passed on knowledge and skills to other farmers in their community. While Lukuyu et Al (2012), noted that the FPA aims to reach a large number of farmers in the community through the multiplier effects that broaden the coverage in terms of the number of farmers.

## **CHAPTER 6: CONCLUSION AND RECOMMENDATION**

### **6.1. Conclusion**

The objective of this study was to assess the effectiveness of the FPA to increase food security of smallholder farmers in the Gihango sector, Rutsiro District in Western of Rwanda. The study was limited to two dimension of food security which are food availability and food accessibility.

Based on findings of the present study , this chapter conclude if the FPA is effective for increasing food security by answering the sub questions set in first chapter:

#### **1. How does the FPA work in the study area?**

Based on the study, the FPA works through the farmer promoter which trains the small farmers and communicates to them through demonstration plots and farmers group called locally “amatsinda ya Twigire” .

Based on this study, 94% of small farmers are reached by the farmer promoters with the Good Agronomic Practices (GAP) such as access on information needed on season, agriculture inputs needed in the season and basic agronomic techniques.

The results of this study shows that the farmer promoter is effective in hosting the demonstration plots, which he use for transferring the agriculture basic technologies to the small farmers . The role of farmer promoter is helping farmers to have access on extension services.

According to this study the FPA encourage the multiplier effects which is sharing the knowledge, information and skills between the small farmers. This help also the local authorities and research organization to transmit their messages.

#### **2. How does the FPA contribute to the food available at the household level in terms of production and income?**

This study shows that the FPA as extension model help small farmers to adopt the agriculture techniques which increase the food crop production and income. From the study the farmer promoter train the small farmers the GAP through the demonstration plots. Those GAP are land preparation, erosion control, using inputs such as fertilizers, organic manure and improved seeds.

Based on what shows the study the FPA contribute to the food availability by increasing the food crop production. This study has revealed that the FPA is effective for increasing food availability (food crop production) because the FPA has increase the adoption of the agriculture techniques which reads to the production increase. The study has revealed that the production for the several crops since the program started until last season have increased.. Banana, Irish potato and beans have the best performance in the last five years and those three crops are the main staple food in the area.

The small farmers' income has increased because the production has increased. Their income are earned on what their sell on local market. Through the income the farmers can have access on their preference food.

### **3. What are the challenges faced by the farmer promoters and the farmers to make the FPA effective?**

The challenges faced by the farmers are:

- Lack of market or information on markets because the FPA does not look on it. Based on findings the FPA increase the production which reads to income if the small farmers find market of their crop production. The challenge is that in the FPA is limited on production.
- Lack of crops conservation infrastructure which caused the decay of some crops like vegetables and fruits. The small farmers in the study are helped by the farmer promoters produce the vegetable and fruits but after the harvest they are forced to sell them cheaper so they do not rot which floods the market
- The family conflict in some farmer promoters household limited the participation of the small farmers in the approach.

For the first two challenges the farmers are reluctant to produce a lot because they do not find where sell their products or conserve them for waiting the favorable market or price. this reluctant can the FPA reduces its effective. The latter, the Farmer promoter has to be an example for the other small famers not for agriculture also for the social matter. The contrary can the no participation fellow farmers in the FPA.

The challenges faced by the farmers are:

- The resistance to change from some small farmers : some small farmers do not agree with that a fellow farmer, illiterate can train them. They have tendency to wait to public extension workers whom are educated.
- Lack of sufficient knowledge on crop diseases: The small farmers ask to the farmer promoters about the pest and disease faced in their crops which they do not have knowledge about.
- Delay of material used in season such as small farmers Incentives list, training book etc
- Delay of inputs ( fertilizers and improved seeds).

Those challenges can cause ineffective the FPA, if the famer promoter are not well trained for answering the basic needs of small farmers

The answers of sub questions allows to conclude by saying that the FPA is effective for increasing food availability by increase production and effective on earning income which reads to food accessibility, which are the two dimension of food security that are assessed in this study. However, there are other factors which the approach cannot control like climate change, price fluctuation and markets.

### **6.2. Recommendation**

Based on findings, discussion and conclusion of the study, the following points are recommendation to RWANDA AGRICULTURE BOARD ( RAB):

- Offer a training the farmer promoter on pest and disease management. It will help them to have knowledge on it.  
For the pest and disease which was identified in the region they need to be trained on that before the starting season and go I deep for increase the knowledge on management of them.

For those which will be identified during a season a one day training is needed for them to be informed on how to manage it as rescue issue and this will followed by a short course for going in deep.

- Distribute on time the materials needed for the farmer promoters : the farmer promoters receive the season training module all the season. Some times they receive it in mid season which do not help them in their work
- Deliver on time the input for season: One of the agriculture techniques for increasing food production is to plant on time but the farmers declare that the input come late they do not meet the time of planting
- In collaboration with District the Advocacy on market and conservation infrastructure: the famers are mobilize for increasing production but they do not have the store or other adequate infrastructure for conserving they production

The other recommendation are directed to other researchers:

This objective of this study was to assess the effectiveness of FPA to food security but it was limited on 2 dimension; food availability and food accessibility and the other 2 dimensions (utilization and stability) are not assessed. It is recommend to the future researcher to analyze those 2 dimensions as well as others parts of the conceptual framework like the external factors which influence the approach (see figure 2, orange parts) and the indicators that have not been included in the present study.

## CHAPTER 7: THESIS RESEARCH REFLECTION

The aim of this research was assessing the effectiveness of the farmer promoter in increasing food security among small farmers in Gihango Sector, Rutsiro District in West of Rwanda. This chapter reflects on my influence in collecting data and lessons learned during the field work and desk study. It was an opportunity to me to practice what I learned in 9 months at Van Hall Larenstein University in my home country.

I had a meeting with my supervisors before leaving the Netherlands, the purpose of that meeting was focused on my orientation to the field. I had chosen the methodology which I wanted to use in the field such as semi structured interview, focus discussion groups, observation and mapping. I contacted my commissioner which was RWANDA AGRICULTURE BOARD (RAB) and the local authorities in study area. But when I leave Netherlands I was so confused, it was not clear in my mind what I am going to do. I reach Kigali on 21<sup>th</sup>/07/2018 I take the time for understanding what I will do because to link the FPA and food security was difficult to me.

On 5<sup>th</sup> July 2018 I had a meeting with Director of agriculture extension in Western agriculture Zone Division and we planned the logistics for the field. Day after I met the District officers and planned to start first interview on 10<sup>th</sup>/07/2018. On that day when I reach the field surprisingly I realize that the farmers had told by the agronomist to do not give me any information. I was confused since they did not tell me why. I called a colleague with who I studied in undergraduate and work in District, he told that the District thought I was coming as an evaluator, because in the past you assumed that role (in 2014 I worked there as an evaluator). After this answer, I asked myself what can I do about the issue; I remembered the course about leadership and communication on how to react about such issues. I decide to go to take an appointment with the Mayor of District. Day after, I met her and I explained why I conducted this research and we agreed that the data collection would restart the next week on 17/07/2018 after the time of evaluation. In my personal development plan when I started the MOD program in VHL, I planned to improve my communication skills. This situation felt like a test for this, and I realised my communication skills have improved.

The week after, I started my interview and the smallholders farmers were ready to answer the question, but the other farmers which was not selected asked why they were not included in the research. I explained that I could not talk to all but the selected person would represent them.

However, during the interview the non selected farmer tried to interrupt the selected (representative) respondent by answering the question asked which may had influence on the interviewed respondent, in fact, for that issue the response were not taken into consideration.

However, sometimes when I asked things to the respondent, others answered the question before him/her, which again influenced the respondent. FGD with the farmer promoters, I let them to plan the place where the meeting will held and the time. Which make them to feel comfortable. After explaining them the aim of the research and if they agreed to take them photos, they said that I was the first who asked them the permission. Give them that participation was helped them to share the information freely.

My key informant was very cooperative and helped me in my interviews to get what I wanted for them. It was very simple because I showed them the Van Hall Larenstein letter in which explained what I am coming to do.

Looking back on the whole process, I realized that for research it is necessary to prepare myself and read literature for more understanding of what it needs in order to conduct a research. Good time management is also important for conducting a research that I made a point on it because the time for collecting data and returning in the Netherlands was respected, this was also in my personal development plan. Use of all material that is in disposition like books, internet, school module, friends, relations, knowledge and skills.

During this research I realized that I gained knowledge on understanding better the FPA and the opportunities, weaknesses and challenges the approach faces. I also gained knowledge on how it operates in other parts of the world.

## REFERENCES

BTC and RAB, 2016. TWIGIRE MUHINZI: Reflection note. KIGALI, RWANDA

Berti PR, Krasevec J, FitzGerald S. 2004 "A review of the effectiveness of agriculture interventions in improving nutrition outcomes." *Public Health Nutrition*; 7(5), 599-609

DAFF(Department of Agriculture, Forestry, and Fisheries), 2012. A framework for the development of smallholder farmers through cooperative development. Available at: [http://www.nda.agric.za/daaDev/sideMenu/cooperativeandenterprisedevelopment/docs/FAMEW%20-%20OF%20SMALL%20FARMERS%20\(2\).pdf](http://www.nda.agric.za/daaDev/sideMenu/cooperativeandenterprisedevelopment/docs/FAMEW%20-%20OF%20SMALL%20FARMERS%20(2).pdf) accessed on 07/06/2018

Ekise I.E., Nahayo A., Mirukiro J.D, Mukamugema B., 2013. Impact of land use consolidation program on agricultural productivity: A case study of Maize( *Zea Mays L.*) production among household in Nyabihu District, Western of Rwanda. *Nature Science* P. 11-12 available online at [www.sciencepub.net/nature](http://www.sciencepub.net/nature)

MINAGRI, 2010. Crop intensification program 2009-2010, Kigali-Rwanda Pp.34

MINECOFIN, 2016. The Rwanda we wants towards, 2016. Kigali - RWANDA

Nahayo A., Moris O, Zhang X.Z, Li Lian L., Pan G, Joseph S., 2017. Factors influencing farmers' participation in crop intensification program in Rwanda. *Science Direct* available online at [www.sciencedirect.com](http://www.sciencedirect.com)

NISR, 2012. Seasonal Agriculture survey. Kigali, Rwanda

Ponniar A., Puskur R., Sindu W. and Dirk H. 2008. Concepts and practices in agricultural extension in developing countries: A sourcebook. Addis Ababa, Ethiopia. Available online at [https://cgspace.cgiar.org/bitstream/handle/10568/99/Source\\_book.pdf](https://cgspace.cgiar.org/bitstream/handle/10568/99/Source_book.pdf) accessed on 08/06/2018

RAB, 2016. Simplified guide on Twigire Muhinzi extension Model in Rwanda. RAB, KIGALI, RWANDA.

Wennink B., Mur R, 2016. Capitalization of the TWIGIRE MUHINZI agricultural extension Model in Rwanda. Royal Tropical Institute. KIGALI- RWANDA

World Bank. 1999. Process monitoring for improving sustainability: A manual for project managers. World Bank, Washington, DC, USA.

World Food Program (WFP), 2016. RWANDA 2015: Comprehensive food security and Vulnerability Analysis. Kigali, Rwanda

Ssemukula E., Mutimba J.K, 2011. Effectiveness of Farmer to Farmer extension model to increase technology uptake in Tororo, Masaka District, Uganda.

Lukuyu B., Place F., Franzel S., Kiptot E, 2012. Disseminating improved practices : Are volunteer farmer trainers effective ? The journey of agriculture education and extension. Available online at : <https://doi.org/10.1080/1389224X.2012.707066> accessed on 10/07/2018 .

Sygnola A, Franzel s, Debrand A, Simpson B, 2015. Farmer to Farmer extension a survey of lead farmer in Cameroon. Cameroon. Available online at [https://www.researchgate.net/publication/275097103\\_Farmer-to-farmer\\_extension\\_A\\_survey\\_of\\_lead\\_farmers\\_in\\_Cameroon?enrichId=rgreq-bea8c0bdc3d6dedcb3bb8ad573681ea9-XXX&enrichSource=Y292ZXJQYWdIOzI3NTA5NzEwMztBUzoyMTk1NDA5MTYwNTE5NjhAMTQyOTM1](https://www.researchgate.net/publication/275097103_Farmer-to-farmer_extension_A_survey_of_lead_farmers_in_Cameroon?enrichId=rgreq-bea8c0bdc3d6dedcb3bb8ad573681ea9-XXX&enrichSource=Y292ZXJQYWdIOzI3NTA5NzEwMztBUzoyMTk1NDA5MTYwNTE5NjhAMTQyOTM1)

[NDA0MTE2MA%3D%3D&el=1\\_x\\_3&\\_esc=publicationCoverPdf](#) accessed 03/09/2018

Akinangbe OM, Ajayi AR , 2010. Challenges of Farmer-Led extension approach in NIGERIA.

Suresh k. M , 2017. Approaches in transition for Doubling farmers income



## APPENDIX

### ANNEX : QUESTIONNAIRE

Please fill in the following information:

Name respondent: What is your name?	.....
Gender respondent:	<input type="checkbox"/> Male <input type="checkbox"/> Female
Household size	
Village	.....

#### **A. Guiding questions for small-scale farmers**

##### **1. Visit frequency from farmer promoter**

- Whom in the family interacts with the farmer promoter and why?
- How many times have you been visited by a farmer promoter in the last season 2018 B?
- What were the reasons for the visit?

##### **2. Questions about Farmer Promoter Approach**

- What services are being offered by the Farmer Promoter Approach since it started in the area?
- What are the services needed but not offered by Farmer Promoter Approach?
- Who offer you those services?
- What is the contribution of Farmer Promoter Approach to getting those services?
- What is the attitude of farmer promoter when he/she visits you?
- How do you evaluate the support given by farmer promoter?
- How can the agricultural promoter improve its impact on food security?
- What is the perception you have regarding the farmer promoter?

##### **3. Increased agriculture production**

- What do you produce?
- What was the production before 2014(before when the Farmer Promoter Approach started in the area)? And what is the production after?

##### **4. Use of improved seeds and fertilizers**

- Where did you get the improved seeds and fertilizers in 2014? How about this last season?
- What is the size of your farm?
- What is the quantity of seeds/cuttings used the last seasons( according to what you produce)?
- What was the way of acquisition of these input in 2014? Through cash or credit? And in last season 2018 B?

##### **5. Marketing of agricultural production to earn income**

- What is the quantity of production sold this last season 2018 B? What about other seasons if you remember?
- How does income help you to buy the other foods for your preference?

6.

**B. Guiding questions for the former promoter**

Please fill in the following information:

Name respondent: What is your name?	.....
Gender respondent:	<input type="checkbox"/> Male <input type="checkbox"/> Female
Village	.....

- How long have you been a farmer promoter?
- What are your tasks regarding Farmer Promoter Approach?
- How long have you been trained?
- How many demonstration plots did you make this last season?
- What are the challenges you face as farmer promoter?
- What do you gain from this work?
- What is the impact of your work regarding to food security?
- What activities do you think is particularly useful in your work?
- Why you think it is useful?
- Do you think your work has desire outcome?
- Why?

**C. Guiding questions for FPA key informant**

Please fill in the following information:

Name respondent: What is your name?	.....
Gender respondent:	<input type="checkbox"/> Male <input type="checkbox"/> Female
Your post	.....

- What are the services that the farmer promoters provide to the small-scale farmers regarding to food security?
- What are the criteria for identifying the farmer promoters?
- What are the success indicators of the FPA services?
- What are the outcomes realized in the field?
- How do you ensure sustainability of the FPA to small-scale farmers?
- How the Farmer Promoter Approach has increase the food security in the area?