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The U.S. Government's Global Hunger & Food Security Initiative

ECONOMIC IMPACT OF AGENTS ON OUTGROWER BUSINESS SCHEMES

USAID's ADVANCE Project Report: JULY 2018



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USAID's ADVANCE PROJECT REPORT

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Executive Summary

Introduction

Outgrower businesses (OBs) are expected to increasingly expand their services to smallholder farmers. These services go beyond tractor services to include the provision of extension services such as input distribution, post-harvest mechanization services, good agronomic practice trainings, management of demo sites and outgrower field monitoring aggregation of produce. Key to delivering these services is the engagement of a field manager or agent who will champion, on behalf of the OBs, these services and with special focus on technical/extension services. ACIDI/VOCA, implementers of the United States Agency for International Development (USAID) Agricultural Development and Value Chain Enhancement Project (ADVANCE) therefore facilitated and motivated OBs to engage the services of field managers or agents who support the OBs to provide effective technical services to their outgrowers (OGs) and expand their (OBs) business. There is cost involved in training and setting up agents to be technically sound in providing these extension services to farmers on behalf of outgrower schemes. Given that the work of these agents will inure to the benefit of outgrower schemes and that setting-up agents for their services is costly, it is pertinent to determine the net effect of the field management program. Being aware of this, ACIDI/VOCA contracted the University of Cape Coast's Directorate of Research, Innovation and Consultancy (UCC-DRIC) to conduct a study on the economic importance of the field management program. In this report, emphasis is, thus, placed on the economic impact of agents on OBs. The study area is the ADVANCE South region which comprises the Brong Ahafo region and some parts of the Ashanti region of Ghana.

Objectives and Methodology

Generally, the study sought to determine the economic impact of agents on OBs. Data were collected from 59 OBs and 28 field agents. Forty-six of the OBs had employed the services of field agents. Three focus group discussions with OGs were also involved in the study. Structured questionnaire and in-depth interview guides were used to collect data from OBs and field agents. Data were collected from OGs through focus group discussions. To determine the net cost or benefit of the field management program, the net present value analysis was employed. Graphs and tables were used to present the performance effectiveness of agents' work to outgrower businesses and the social benefits OBs derive from the activities of agents. Qualitative data was analyzed thematically.

Key Findings

- With the 2017 annual interest rate of 15 percent, the average present value of agents' work from 2015 to date in the ADVANCE South region was found to be positive. The average net present value of the works of all agents to their OBs as at November 2017 is estimated as GH¢1,767,572.00.
- The OBs that had engaged field agents gained both economically and socially. They enjoyed high increase in profit, improved social and business recognition, increase in outgrower base and number of services provided to OGs; gained knowledge in technology application; were introduced to new markets; and got new business lines.
- Field agents in the ADVANCE South region were very effective in playing their roles. They gave regular training to OGs during weekly meetings, visited the farms of OGs, and responded swiftly to emergency calls. All the agents relatively spent about an hour per training session with their OGs. Agents mostly employ different modes of training OGs, namely: one-on-one, lecture, group, demonstrative and electronic mode of training. About two-thirds of the agents responded to emergency calls from OGs either on the same day or the day after. This signifies the commitment

and efficiency of the agents to the OBs. From the perspective of the agents, almost all the OGs applied the knowledge they acquired from training either to a large extent or to a very large extent and in real time.

- Through the ADVANCE program, 18 out of 28 agents interviewed were given tablets and Pico projectors to provide technical services to OGs. Agents had been trained to use the tools for registration and profiling of OGs, assisting in capacity building on agronomic practices and farm business records keeping. Some of the agents were using the tools for these purposes.
- There is a difference in the economic importance of agents to OBs in the years 2015 and 2016. The average benefit of agents' work to OBs in 2015 is GH¢31,540.00 greater than that of 2016. The decrease in the average benefits to OBs engaging agents in 2016 is due to a 50 percent increase in the total OBs engaging agents from 2015 to 2016 (from 30 to 45) compared to only about eight (8) percent increase in the total benefits OBs get from engaging agents in 2016. The relatively low average benefit in 2016 was also because most (4 out of 5) of the agents who reported they started working as agents of OBs in 2016 started their work after July. Thus, the impact of these agents' work was not felt in 2016.
- Female OGs worked with field agents more effectively than male OGs in menial farming activities. In activities that involve sophisticated technology and heavy machinery, male OGs were more effective in their dealings with agents than their female counterparts.

Recommendations

It is recommended that:

- The Field Management Project is worthwhile and, thus, should be continued; and
- Agricultural extension services provided by ADVANCE to OGs should not be limited to a selected number of OGs but should be extended to most farmers in the ADVANCE South region. Other non-governmental organizations and the Ministry of Food and Agriculture should support ADVANCE in this task.

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ACRONYM LIST

ADVANCE	Agricultural Development and Value Chain Enhancement Project
AFMP	ADVANCE Field Management Programme
ANPV	Average Net Present Value
DRIC	Directorate of Research, Innovation and Consultancy
FGD	Focus Group Discussion
FtF	Feed the Future
GoG	Government of Ghana
IDI	In-depth Detailed Interview
KM&L	Knowledge Management and Learning
NPV	Net Present Value
OBs	Outgrower Businesses
OGs	Outgrowers
TOR	Terms of Reference
UCC	University of Cape Coast
USAID	United States Agency for International Development
VSLA	Village Savings and Loans Association

1.0. Background

As part of efforts to enhance agricultural productivity and production in Ghana, ACDI/VOCA is implementing the Agricultural Development and Value Chain Enhancement Project (ADVANCE), funded by the United States Agency for International Development (USAID) under the Ghana Feed the Future (FtF) Initiative. The goal of the project is to increase competitiveness of agricultural value chains. The project aims to support 113,000 smallholder farmers through a strategic framework that strengthens incentives for investment, builds local capacity, broadens and catalyzes relationships to increase agricultural productivity, expand access to markets and trade, and improve the enabling environment. Cognizant of its relevance, the project seeks to tap into Knowledge Management and Learning (KM&L) to enhance the achievement of the objectives of the project. The ADVANCE KM&L strategy centers on a learning agenda, which will operationalize internal learning, and inform and guide the conceptual framework of the Project. This agenda will be informed by and feed into the global FtF learning agenda, but will be tailored to support local learning priorities. The learning agenda will facilitate discussion and learning, drive the collection of evidence and findings, improve project management and implementation, and contribute to USAID Ghana, Government of Ghana (GoG) and partners' good practice in development.

One of the six 2017 learning priority areas for the implementation of the ADVANCE is the study on 'Economic Impact of Agents on Outgrower Businesses'. The project's reliance on field agents is in line with the popularization of agricultural extension officers, which has its evolution dating back to the nineteenth century in Ghana. Central to the use of field agents is diffusion of technology, exposure to standards of operating, contextual issues, opportunities and risk, and establishing networks along the chain of engagement. In the context of the project, field agents are engaged with the aim of building up and broadening the capacities of the Outgrower Businesses (OBs) to improve on efficiencies and effectiveness in agricultural productivity, increase volumes and grain quality made available to markets, and create a sustainable relationship between OBs and their business partners within the value commodity chain.

The ADVANCE project in partnership with the GRAMEEN Foundation made huge investments amounting to GH¢120,000.00 in training agents and equipping them with ICT tools (tablets and pico projectors) to provide extension services to farmers under this Project. It is therefore imperative to benchmark the outturns (benefits) of their services with the cost of their engagement and the expected project results. This provides a justification for the sustenance of the service of field agents or modification of the nature of their engagement.

2.0. Purpose and Expected Use of the Study

The purpose of this study was to determine the economic impact of agents on outgrower businesses (OBs) in the ADVANCE South region. The ADVANCE Outgrower Business Field Management Program has been geared towards OBs investing, among other things, in field agents to be trained by the ADVANCE to provide basic extension services to outgrowers (OGs) on-behalf of OBs. Through the program, a number of agents have received training on some key support services to help provide extension services to OGs. There are costs involved in grooming these agents to be technically sound in providing these extension services. This study, thus, sought to determine whether or not the money spent on these agents is worthwhile.

Measuring the benefits enjoyed and cost incurred from setting-up and engaging agents, the study will either give advice for the continuation, discontinuation or re-orientation of the Field Management Program. The findings from this study will also determine how well or otherwise the activities of agents have impacted on

growth and sustainability of OBs in 2015 and 2016 production years. Thus, the findings from the study will determine the action plan for future existence of the program.

3.0. Objectives of the Study

Specifically, the study:

1. assessed the benefit-cost analysis in setting up an agent for an outgrower business;
2. assessed the socioeconomic impact of the agents' work on the outgrower business growth and sustainability;
3. assessed the performance effectiveness among agents and outgrower business owners in the management and operations of OBs;
4. test proofed the ADVANCE Outgrower Business Management curriculum model;
5. compared and contrasted agents' economic importance to outgrower schemes in 2015 and 2016 production years; and
6. found out who worked more effectively with agents in 2015 and 2016 production years, men or women.

4.0. Survey Methodology and Data Collection Techniques

This section presents the various methods that were employed for the study.

4.1. Research Design

This study adopted the mixed methods and, thus, used both qualitative and quantitative research approaches.

4.2. Population, Sample Size and Sampling Procedure

The study focused on agents from the ADVANCE South region. Data were collected from agents, their OBs and OGs in the South region. Agents were mapped to their OBs and OGs, to determine how agents have performed between 2015 and 2016 and the impact on the growth and sustainability of the OBs.

The study adopted a census approach in determining respondents for the structured questionnaire for both OBs and agents. In the case of in-depth interview (IDI), the simple random sampling technique was used to select five (5) and three (3) OBs and agents, respectively for the study. The study, thus, intended to interact with all the agents from the ADVANCE South region and their OBs.

From the ADVANCE office, there were 32 agents and 84 OBs under this study. The Grameen ADVANCE South database, however, recorded a list of 23 agents and 82 OBs. The team interviewed 28 agents and 59 OBs. The 59 OBs interviewed were from the list of 82 OBs that was provided. Prior to going to the field, the number of OBs (82) was reduced by 12 [i.e. 11 were dropped from the study by the client and the name of one (1) OB was found to be repeated in the list]. Six (6) OBs expressed their unwillingness to participate in the data collection and five (5) OBs could not be reached via their contact details. The 28 agents interviewed for this study comprised two groups. The first group was made up of 17 agents from the list of 23 agents given by the client. The remaining six (6) agents in the dataset provided by the Client were not willing to respond to the study. The second group comprised agents who were identified while on the field. The research team realized that some of the recorded OBs had field agents that were not listed in the South dataset, hence, 11 agents from this category were interviewed.

4.3. Survey Instruments

The study used three types of survey instruments. These are structured questionnaire, IDI guide and focus group discussion (FGD) guide. Details of the survey instruments as per the category of respondents and the number of respondents interacted with are presented on Table 1.

Table 1: Survey Instruments for the Category of Respondents

Category of Respondents	Instrument	Number of Respondents
Field Agents	Questionnaire	28
Field Agents	IDI	3
OBs	Questionnaire	59
OBs	IDI	5
OGs	FGD	3

4.4. Recruitment and Training of Field Staff

Four field assistants (enumerators) were recruited and trained for this study. Their recruitment was based on expertise, academic qualifications (minimum of Master's Degree), familiarity with the local languages in the project site, and very good experience with projects of this nature and the FtF intervention.

Training was organized for the field assistants on Monday, 23rd October 2017 at the International Conference Centre of the University for Development Studies in Tamale, Ghana, to enable them familiarize themselves with the Project and the contents of the various research instruments. The training was led by Prof. Annim of the Directorate of Research, Innovation and Consultancy of University of Cape Coast (DRIC-UCC). The training approach was very participatory and involved role play, translations, and discussions on the rationale underlining some questions in the research instruments. Since the target respondents for this study and one of the other studies under the ADVANCE Projects, 'Abilities of OBs to Engage Buyers', were the same; training of field assistants of the two studies was combined. This was to enable an enumerator to conduct interviews for both studies at a given point in time to avoid respondent fatigue.

4.5. Data Collection

The study used both qualitative and quantitative data collection techniques to gather primary data. On the field, 59 OBs (out of the 70) and 28 agents (out of the 32) were available for the study. The research team interviewed all the available 28 field agents and 59 OBs under the outgrower business scheme. While 24 of the 28 agents were males, two (2) were females. To obtain a much-detailed insight into the works and impact of the agent, the team interviewed three (3) agents using the IDI guide. Forty-six (46) of the OB heads/managers interviewed had agents and the remaining 13 OBs had no agents as at the time of data collection. The team also organized detailed interviews with five (5) of the OB heads/managers who had agents. This was to allow for comparative analysis between businesses without agents and businesses with agents. Lastly, three (3) FGDs were organized for OGs of selected agents. On the average, there were 10 OGs for each FGD. The selection of the OGs was done using stratified sampling based on the categories of gender, educational attainments and age of beneficiaries. Overall, 13 female OGs and 16 male OGs were used for all three (3) FGDs. It should be noted that with the exception of the FDG organized in Yeji where all the participants were females (7 OGs), the other two (2) FDGs had 13 (4 females and 9 females) participants and 10 (3 females and 7 males) participants in Kintampo and Adigyam, respectively. These FGDs allowed for a second view of the economic importance of agents from the perspective of the OGs.

4.6. Data Analysis

Data collected for the study were analyzed using both quantitative and qualitative techniques. In order to achieve the first objective of the study, the Average Net Present Value (ANPV) of the OBs as a result of their engagement with agents was estimated. The ANPV is the mean value of the Net Present Value (NPV) of all the OBs who had engaged the services of agents.

In estimating the NPV, the study used the individual OB's benefit from engaging an agent and the cost of setting-up the agent to calculate the net benefit of engaging an agent. In computing the benefits OBs get from their agents, the following steps were followed:

1. Revenues OBs get from their work in 2014 to 2017 production years were recorded during the survey. This includes the annual revenue prior to and after engaging agent. Annual revenue was determined by either reviewing sales records of OBs or by simply asking the OB in cases where sales records were not available;
2. The difference in each OB's revenue prior to engaging agent(s) and after engaging agent(s) was calculated to get the benefit an OB gets from engaging agent(s); and
3. The average of the benefits of OBs who engaged agents in the same year was then calculated to be the average benefit of the OBs for that given year.

Differences in sales over a period was used as the base for estimating agents' benefits to OBs because the total sales an OB makes depends on the output from his/her own field and those of his/her OGs. Agents were serving their OBs by working directly in the OBs farms or the farms of their OGs. That is, apart from services agents provide to OGs, which feeds into the sales of OBs, they also work for their OBs in their farms (which are by far larger than those of their OGs).

The cost variable includes the transportation, accommodation and feeding expenses incurred on the agent in performing his role as an agent. Similar to the benefits, the averages of the cost of engaging agent(s) to an OB were estimated. Computed average net benefits were then discounted using Ghana's 2017 annual interest rate of 15 percent (Ministry of Finance, 2017) to get the estimated discounted net cash flows to each OB. The summation of the discounted net cash flows for each OB gives the NPV of setting up an agent.

Though it is acknowledged that marginal changes in OBs revenue may not be entirely attributed to the work of their agents, it is assumed that, on the average, the marginal revenue of OBs who engage the services of agents predict the contribution of agents' work to their businesses. Admittedly, other factors such as changes in business or land scale, weather conditions, introduction of new technology, etc. might have effects on revenue. However, given that the contribution of these other determinants of revenue is relatively constant over the years, the marginal revenue was then used as a measure of the yearly benefits OBs attain from engaging agents.

The qualitative data collected using the IDI and FGD guides were analyzed using the thematic approach. In this connection, the data were transcribed, read thoroughly and thought through to distil broad themes and concepts based on the objectives. The analyses took into consideration the six main learning areas of the project, namely relevance, effectiveness, efficiency, impact, sustainability and external utility. Employing the tenets of grounded theory, the thoughts and concepts were mapped and interpreted and triangulated based on the views and perspectives of the various categories of respondents across and within the study region, districts and communities as well as information from project documents and published and unpublished

scholarly literature (books, articles, magazines, etc.). Analyses were done using the most significant stories approach. In presenting the results/findings of the study, relevant typical views and perspectives expressed by the various categories of respondents/discussants were quoted for illustrative and emphatic purposes.

From the foregoing, the survey has a number of limitations:

First, estimating the percentage of an OB's annual revenue due to his/her engagement with an agent was one of the difficulties faced during the survey. It is acknowledged that there are various other factors that influence the revenue of an OB aside the work of an agent. From the OBs, separating the influence of other factors from the effect of engaging agents from revenue was impossible. In going around this shortcoming, the study limited the benefit OBs get from agents to finding the difference between the revenues of OBs the year before and the year after engaging the agent.

Second, it was discovered that the costs of training agents were mostly borne by ACDI/VOCA and Grameen. As such, in order to estimate the net benefit OB gets from engaging agent and hence the economic impact of agents, there was the need to include in the cost of engaging agent the per agent cost incurred by these organizations in training these agents. This was, however, not done. Since the benefit component is enjoyed by the OB and not these external bodies, this exercise gives the true cost-benefit analysis of OBs due to their engagement of agents.

Also, most of the OBs could not provide documentary evidence of their revenues and cost to agents. To rectify the effect of this on the accuracy of the data, the data enumerators sought from the OBs the number of bags of their produce they sold in various years and multiplied by the per unit cost of those produce in the open market in those years to get estimates of the revenues of OBs in the respective years.

Lastly, the study could not disaggregate OBs revenue into revenue they obtain from sale of the OGs produce and revenue from the sale of produce from OBs own farms. These figures were lumped up and given as one value. Since the aim of the study was to determine the impact of agents on OBs and given that the benefits OGs accrue from agents also feed into the benefits OBs get, the lump sum of the revenues was taken.

4.7. Ethical Issues

In recognition of the role of ethics in research, high premium was put on ethical standards at all stages of the study, but particularly so at the data collection stage. To this end, all respondents were assured of confidentiality of the data and information they would provide for this study. They were informed that the data would be used purposely and strictly for the KM&L to improve the mode and method of implementation of the ACDI/VOCA intervention and would not be disclosed to any other person or group of persons except the data collectors and the consultants. In order to satisfy ethical appropriateness requirements, each respondent's consent was sought before the interview or discussion commenced. Informed consent form used for this purpose is attached as Annex 2.

5.0. Main Findings

The study involved 59 OBs in the ADVANCE South region. Out of this number, 52 resided in the Brong Ahafo region, while the remainder was in the Ashanti region of Ghana. The distribution of OGs per the crop they farm is similar to the distribution of OBs engagement per crop in both regions. Per the statistics, 57, 9 and 13 of the OBs engaged in maize, soy and rice, respectively. With a total of 28 agents employed for the study, only two (2) had no formal education. Two (2) of them each had primary education, post-secondary

diploma and teacher training/agriculture/nursing certificate. Most (8) of the agents had SHS/SSS certificate, while only one (1) agent had vocational/technical/commercial education. Table 2 shows the background characteristics of the OBs and their Agents.

Table 2: Background Characteristics of OBs and Agents

Background Characteristic	OB		Agent	
	Frequency	Percentage	Frequency	Percentage
Sex				
Male	55	93.22	26	92.86
Female	4	6.78	2	7.14
Region				
Brong Ahafo	52	88.14	20	78.57
Ashanti	7	11.86	2	7.14
Occupation				
Paid employee	2	3.39	3	10.71
Non-Agriculture				
<i>Self-employed with employees</i>	8	13.56	2	7.14
<i>Self-employed without employees</i>	1	1.69	1	3.57
<i>Self-employed with contributing family worker</i>	0	0.00	2	7.14
Agriculture				
<i>Self-employed with employees</i>	40	67.80	4	14.29
<i>Self-employed without employees</i>	1	1.69	4	14.29
<i>Self-employed with contributing family worker</i>	2	3.39	0	0.00
Domestic employee	0	0.00	1	3.57
Casual workers	5	8.47	9	32.14
Apprentice	0	0.00	2	7.14
Present marital status				
Never married	2	3.39	8	28.57
Consensual union	2	3.39	4	14.29
Married	52	88.14	16	57.14
Separated	0	0.00	0	0.00
Divorced	1	1.69	0	0.00
Widowed	2	3.39	0	0.00
Educational attainment				
No formal education	0	0.00	2	7.14
Kindergarten	6	10.17	0	0.00
Primary	3	5.08	2	7.14
JSS/JHS	5	8.47	0	0.00
Middle	16	27.12	5	17.86
SSS/SHS	6	10.17	8	28.57
Secondary/O and A levels	8	13.56	0	0.00
Vocational/Technical/Commercial	1	1.69	1	3.57
Teacher Training/Agric/Nursing Cert	0	0.00	2	7.14
Post Sec. Diploma (HND, Teacher Training,	5	8.47	2	7.14

Nursing, Univ. Diploma)				
Bachelor degree	6	10.17	6	21.43
Postgraduate	3	5.08	0	0.00
Religion				
Christian	46	77.97	1	3.57
Islam	12	20.34	21	75.00
Traditional	0	0.00	6	21.43
No religion	1	1.69	0	0.00
Total	59	100	28	100

Fieldwork data, 2017

5.1. Benefit-Cost Analysis in Setting Up an Agent for an Outgrower Business

Preliminary findings indicate that the importance of field agents to the outgrower businesses is both economic and social. The activities of agents as extension officers to their outgrowers provide a bridge to the gap between OBs and their OGs. The relevance of agents to the OBs extend from an increase in business revenue, support in credit repayment from OGs, improvement in societal and business recognition/prestige, training of business heads on improved methods of farming practices, and promotion of cordiality and togetherness among the OGs and with OB heads. This section primarily presents the benefit-cost analysis (economic importance) of the operations of agents, while the subsequent section will give details of the social benefits of engaging agents.

To make clear the state of operations of OBs prior to their engagement of agents and to bring out the real contribution of agents to their OBs welfare, Table 3 presents some statistics on OBs with agents prior to the engagement of agents and OBs without agents prior to the introduction of the ADVANCE Field Management Programme (AFMP).

Table 3: Summary of OB's State of Operations before AFMP (2014)

	OBs with Agent			OBs without Agent		
	Frequency	Mean	¹ Std. Dev.	Frequency	Mean	Std. Dev.
² Revenue	29	287345	817440	8	25179	18491
OG base	42	74	75	7	35	22

From Table 3, twenty-nine (29) and eight (8) OBs with and without agents made sale in the year 2014 respectively. It is evident that prior to the introduction of the AFMP and thus engagement of agents, OBs currently with agents were by far greater in size than OBs without agents. The average revenue for OBs with agents was more than 11 times greater than the revenue of OBs without agent even prior to their engagement of agents. Also, 42 and seven (7) OBs with agents and without agents respectively were working with OGs prior to the AFMP. It is evident in Table 3 that, on the average, an OB with agent worked with 74 OGs before the AFMP while an OB without agent was working with only 35 OGs in the same period. It was also observed from the study that 41 OBs with agents were giving loans to OGs in 2014. Out of this number, 30

¹ Standard Deviation

² Revenue for OBs who made sales in 2014

reported their OGs paid the loan in the agreed timeline. Comparatively, only four (4) OBs without agents were giving loans to their OGs out of which one (1) reported the ability of OGs to pay loan within the agreed timeline. From the fore, prior to the AFMP, OBs who latter employed the services of agents were larger than their counterparts without agents. This was vivid from the difference in revenue from sales, outgrower base and loan recovery rate.

Following are discussions on OBs' state of operations after the AFMP. It was observed that most (46 out of 59) of the OBs in the ADVANCE South region had employed agents to provide extension services to their OGs. Table 4 presents the cost of spending on and monetary benefits derived from the operations of the field agents.

Table 4: Cost and Benefits of Agents to Outgrower Businesses (OBs)

Year	³ Number of OBs	Minimum Benefit GH¢	Maximum Benefit GH¢	Average Benefit GH¢	⁴ Average Cost GH¢	Average Net Benefit GH¢	⁵ Discount Factor GH¢	Average Discounted Cash Flow GH¢
2015	22	-30,300	8,000,000	410,464	1,859	408,605	0.75615	308,967
2016	31	-105,060	7,500,000	378,924	1,500	377,424	0.86957	328,197
2017	14	-21,850	14,100,000	1,132,595	2,186	1,130,408	1	1,130,408
ANPV⁶								1,767,572

Fieldwork data, 2017

The average benefit from engaging an agent to OBs and the average cost to the OBs in engaging the agents to support them in their business operations from 2015 to 2017 is presented on columns 5 and 6 of Table 4, respectively. It is evident from Table 4 that while the average benefit to OBs and cost of setting up agents respectively decreased from GH¢410,464.00 and GH¢1,859.00 in 2015 to GH¢378,924.00 and GH¢1,500.00 in 2016, they increased to GH¢1,132,595.00 and GH¢2,186.00 as at November 2017. The decrease in revenue in 2016 is partly due to the fact that most of the agents employed in 2016 were trained at the latter months of the year (out of the 28 agents interviewed, 6 were trained in 2016, out of which 5 had their training after June).

Table 5: Revenue of OBs who have not Engaged Agents

Year	Number of OBs	Minimum Benefit GH¢	Maximum Benefit GH¢	Average Benefit GH¢
2015	8	600	30,000	13,122
2016	8	-600	66,400	15,207
2017	5	-82,800	20,000	-12,160

Fieldwork data, 2017

³Number of OBs (column 2) is the number of OBs who had engaged agents and had made sales in the year in question (see Annex 1)

⁴ The cost component used is just the amount that OBs spent. It will be augmented by the cost incurred by ACIDI/VOCA.

⁵ Interest rate for discounting is the annual interest on returns (i.e. 15%)

⁶ ANPV means Average Net Present Value

Table 5 presents the revenue values of OBs who do not engage the services of field agents. It was generally noted (From Tables 3 and 4) that OBs with or without agents in the ADVANCE South region recorded positive additions to revenue from 2015 to 2017. That is, on the average, the annual benefits OBs got from engaging field agents far outweighed how much they spent on them. This was same in the case of OBs without agents. It is, however, evident from Tables 3 and 5 that the marginal changes in the revenues of OBs who engaged the services of agents far outweigh that of OBs who do not have agents. The minimum and maximum benefits OBs made in each year are presented on the second and third columns of Table 4 respectively. Negative benefit means that the OB had higher revenue in the previous year than the year in question. Differences in the number of OBs used for computations of the averages are due to the fact that every year, more OBs engage the services of field agents as compared to the previous year. It should be noted that as at November 2017, only 14 OBs who had employed field agents had made sales as at the time of the survey (*see Annex 1*). Given the annual interest rate of 15 percent, the average discounted net cash flows to OBs due to the operations of their agent each year are presented on Column 9 of Table 4. From Column 9 of Table 4, it is evident that finding the 2017 equivalence of the net gains to OBs due to the work of their agents for the years 2015 and 2016, the value of agents' work to OBs in the ADVANCE South region increases from year to year. Specifically, the net present value of all agents' operations to their OBs in the ADVANCE South region as at November 2017 is GH¢1,767,572.00.

The study found that the OBs and the agents did not actually have any formal or informal agreement on the latter's transportation cost, wages, refreshment cost, among others. Generally, the OBs indicated that the cost incurred was out of benevolence. These OBs believed in the saying that 'work is unpleasant' and as such thought it wise to offer some form of financial assistance to the agents (as demonstrated in the following quotes).

"It was something I felt responsible for. I just needed to make sure that, at least, I took care of the agents' movements. However, this cost was not agreed upon with the agents prior to engagements and neither did I plan on it. I just felt like doing so". Another OB in Kintampo South narrated that he incurred such costs not because of any prearranged contract with his agent, but because he was really impressed with the work of the agents and their level of commitment, not to mention the improvement the agent had brought to his business. All but a few of the OBs made pronouncements similar to those made above. One of the few OBs who incurred substantial cost on their agents was in Mampong Municipal. In a dissenting view, the OB pointed out that he usually gave the agent pocket money. So, with the exception of this OB who incurred GH¢2,400.00 in 2015 and 2016 each as pocket money payments to his agent, most of the OBs were of the view that the cost incurred on the agents was not agreed upon. These OBs, however, unanimously agreed that the costs incurred were legitimate based on the output realized from engaging the agents (OB at Odumase).

On the benefits that OBs had enjoyed from engaging the agents, the study found that the benefits ranged from helping OBs increase their outgrower base and access to new markets, keeping farm records, access new business lines, ensure timely supply of produce to the OBs and aid in timely loan repayment by OGs. In addition, the agents visited and supervised OGs on individual farms regarding the application of farming management and training knowledge and also enabled OBs to meet targeted quantity of produce and profit. For instance, an OB in Adidwan at Mampong Municipal narrated:

My agent goes to my farm regularly in my absence to supervise all that is going on there. Through his supervision, I have been able to meet my targets on the quantity of produce required from the farmers and as

such my expected profit. My agent helps me to keep record on the inputs I supply to the farmers, and aids in the timely repayment of loans.

In buttressing the point made by the OB in Adidwan, another OB in Amoma had this to say, “They help me to get supplies as and when it is needed. They also guide the outgrowers in going about their farming activities in a manner that ensures improved yields”. The OBs generally expected these benefits from the field agents. However, probing further, the study found that some of the benefits that the OBs got from engaging field agents were unintended. The quotations from the OBs below throw more light on these observations:

On the same small piece of land, I have realized significant increase in the bags of maize harvested after applying the knowledge obtained from his agent on pre- and post-harvest farming activities (OB in Odumase).

Just as I stated earlier, I did not know that helping the farmer’s progress will have a positive impact on my business. I did not know this from the beginning (OB in Susuanso in the Tano North District).

It is evident that the cost OBs incurred in setting up an agent was more or less an act of benevolence. Moreover, by juxtaposing this with the intended and unintended benefits OBs realize from their engagement with agents, it was clear that the cost OBs incurred was quite insignificant. This explains the huge net benefit figures stated on Table 4.

5.2. Socioeconomic Impact of the Agents’ Work on the Outgrower Business Growth and Sustainability

It was found that the activities of the trained agents resulted in benefits that are symbiotic in nature to all stakeholders of the value chain – the agents themselves, their OBs and the OGs they engage with. Objective 1 focused on the direct benefits the OBs receive from the agents in the form of increase in their annual revenue. This section focuses on the social and economic impact of the agent work on their OB and their OGs. The study enquired from the OBs who had engaged the services of agents whether they gained additional benefits from their engagement with agents apart from the financial or economic benefits. Out of a total of 46 OBs with field agents engaged, 44 reported that they receive, at least, one additional benefit from their agents aside the financial benefits, while the remaining OBs did not receive any additional benefit from the work of their agents. This means that, aside financial benefit, the work of most of the agents gave additional benefits to their OBs. Table 4 shows the proportion of OBs who reported that their engagement with agents had made them gain, at least, one social benefit aside improvement in their finances.

Table 6: Other Benefits OBs get from their Agents

Benefit	Number of OBs	Percentage (%)
Increase in profit	38	82.61
Increase outgrower business base	30	65.22
Knowledge and technology application	30	65.22
Business recognition	24	52.17
Social recognition	22	47.83
Increase number of services to outgrowers	22	47.83
New business lines	19	41.30
New market	17	36.96

Setup office equipment	3	6.52
Total number of OBs who gained at least one additional benefit from agents	44	95.65

Fieldwork data, 2017

Thirty-eight (38) OBs representing 82.61 percent of the total OBs reported that their agents had helped them to increase profit. Twenty-two (22) of the OBs representing 47.83 percent also affirmed that their agents had helped them to gain social recognition, while 24 of the OBs reported that their agents had helped them to gain business recognition. Nineteen (19) OBs representing 41.30 percent indicated their agents assisted them to gain new business lines, but 22 (47.83%) of the OBs affirmed that agents had helped them increase the number of services they provide to OGs. Thirty (65.22%) OBs indicated that their agents had helped them to increase their outgrower base, while another 30 OBs affirmed that the agents had helped them in knowledge and technology application. Seventeen OBs indicated that their agents had helped them to establish new market lines, whereas three agents helped their OBs to set up their office equipment. It was observed that aside helping OBs to set-up office equipment, female agents employed for the study helped their OBs gain all of the benefits captured in Table 6. Specifically, both female agents helped their OBs increased profit, increased outgrower business base, gained knowledge in technology application, got business recognition, and got social recognition. Aside the aforementioned five benefits OBs with female agents got, one of the female agents also helped her OB increased number of services he/she provides to outgrowers, got new business lines and new market.

Focusing on the impact of agents' activities on OBs, the team interviewed several OBs for the study. It was realized that the work of field agents was contributing immensely to the economic and social standing of their OBs. From the realms of economic impact, the sort of benefits OBs gained from the field agents was largely centered on improved production (yields and profit shot up incredibly), expansion of the OBs, new clients (buyers) were gained, as well as access to wider markets. From the perspective of social benefits, some interesting revelations were disclosed by the OBs with some even indicating the specific benefits they and, to some extent, their outgrowers had enjoyed due to the crucial roles played by field agents. Some of the quotations from the OBs are shown below:

There has been increased number of outgrowers related to the business, number of services to OGs, and social recognition in my community as well as ability to complete my house, and easily fund my children's education (OB in the Mampong Municipal District).

Clearly, there are numerous socioeconomic benefits that accrued to OBs due to their dealings with field agents. From the narratives, the benefits have improved the societal and business status or recognition, dignity as well as the welfare of the OBs. Though it could be misleading to attribute the benefits entirely to the work of agents, the extent of the impact might have been much less without the activities of field agents (OB in the Yeji).

Adding his voice to the claims, another OB had this to say, "The farmers who received trainings from my field agents became unique in the community. They were known to use different methods which improved their yields and because of that other farmers even want to learn from them as well". One more OB recounted unequivocally as this, "My social status has increased. People now have a lot of trust in my business. I also have legal documents to show that I am a legally registered OB. There is nothing fake about what I am doing. My farm has also expanded due to the help I get from my agent in my operations".

In sum, the works of the field agents trained through the ADVANCE have made enormous contributions to the OBs in the ADVANCE South region. These benefits are either economic or social in nature. OBs are, therefore, appreciative of agents' work and have shown this by making some monetary payments to their agents.

5.3. Performance Effectiveness among Agents and Outgrower Business Owners in the Management and Operations of Outgrower Businesses

In measuring the performance effectiveness of the agents to the management and operations of the OBs, the team used the agents' interactions with the OGs, the agents' role in facilitating repayment of credit owed by OGs to OBs in addition to the extent to which OGs apply the knowledge obtained from the agents. The effectiveness of the interaction between agents and OGs was investigated using the mode of training, duration of training sessions, frequency of training, visiting of individual farms and the swiftness to which agents respond to OGs' requests.

In 2015, the average number of OGs who attended training sessions organized by an agent was 96. This number increased to 102 in 2016. The agents indicated that apart from the group trainings organized for the OGs, they visit the individual outgrower farms. In 2017, all the agents visited the individual farms of OGs under their supervision, at least, once.

The agents were questioned on the various modes of training they use and the findings indicated that agents employ either one-on-one training, lecture, group training, demonstrative or electronic (video/audio) modes to train OGs. Eleven (11) out of 28, representing 39 percent of the agents, used a combination of two modes of training for their OGs; three agents used only one mode of training, three agents used four modes, nine agents used three modes of training and two agents employed all five modes of training for their OGs. Twenty-six of the agents adopted two or more methods of training. The study revealed that five (5) minutes was the minimum engagement time for training OGs, while 480 minutes (8 hours) was the maximum engagement time. Findings from the study indicated that, on the average, 60 minutes was the duration for a normal training session between agents and OGs. It was revealed that OGs meet their agents once every week.

Training OGs on best farming practices only yields the needed results, if the training concepts are applied on the field. The survey, thus, determined the degree to which OGs apply these trainings on their farms. Agents were asked to determine whether their OGs apply the knowledge they gain from them on their farms to a 'very large extent', 'large extent', 'averagely', 'low extent' or 'very low extent'. None of the agents reported their OGs apply knowledge gained from training to a low or very low extent. It was indicated by 15 out of the 28 field agents (53.6%) that the OGs applied the knowledge acquired from the training sessions to a very large extent. Another 42.9 percent of the agents indicated that the knowledge is applied to a large extent, while only 3.57 percent (1 agent) believed OGs averagely applied the knowledge he gave to them during trainings. Basically, all agents except one say that their OGs apply the training at least to a large extent, regardless of the number of methods used. The above implies most of the OGs were able to apply the knowledge they gain from trainings from agents satisfactorily. This finding was for instance confirmed by OGs in Kwabia during an FGD that they are able to apply the knowledge they gain from the agent since he among other methods use demonstratives during trainings. Figure 1 presents the distribution of agents per the extent to which their OGs apply knowledge acquired across number of training methods employed.

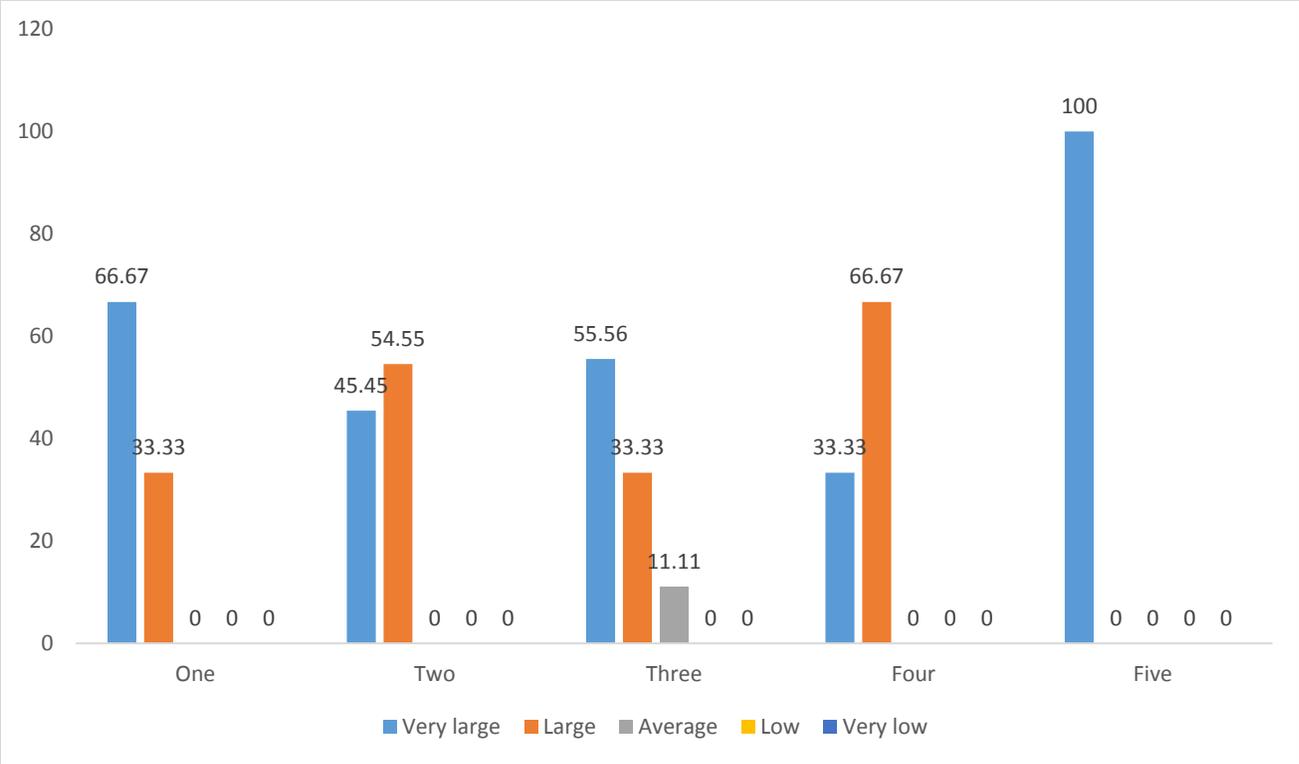


Figure 1: Distribution of Agents per the Extent to which their OGs Apply Knowledge Acquired across Number of Training Methods Employed

Fieldwork data, 2017

As per Figure 1, among the three agents who employ only one training mode, 66.67 percent indicated that, to a very large extent, their OGs applied the knowledge acquired during training, while the remainder (33.33%) indicated that, to a large extent, his OGs applied the knowledge acquired from his training. Out of the 11 agents who employed two training modes, 54.55 percent affirmed that, to a very large extent, their OGs applied knowledge acquired in the training they provided, while the remaining 45.45 percent indicated that, to a large extent, their OGs applied the knowledge acquired during training. Among the nine agents who employ three training modes, 55.56 percent pointed out that, to a very large extent, their OGs apply the knowledge they acquired in training. Three (33.33%) responded in the affirmative that, to a large extent, their OGs applied the knowledge acquired in the training in their farms, while the remaining agents (11.11%) indicated that OGs applied the knowledge they acquired from him averagely. Out of the three agents who employed four training modes, 33.33 percent indicated that, to a very large extent, his OGs applied knowledge from training on their farms, while the remaining 66.67 percent indicated that, to a large extent, their OGs applied the knowledge they acquired from their trainings. Only two (2) of the 28 agents employed all the five methods of training in training their OGs. Both of them (100%) indicated that, to a very large extent, their OGs applied knowledge acquired from training. In all, 15 out of 28 field agents' OGs follow the guidance of the agents to a very large extent. Twelve agents have their OGs following their teachings to a large extent, while only one agent's OGs averagely applied the concepts they acquire from training with the agent.

It was revealed during the survey that, aside scheduled meeting times with OGs, agents, at times, received emergency calls from OGs for their assistance. The survey, thus, enquired the swiftness to which agents respond to emergency calls. It was indicated by 42.9 percent of the agents that they were able to respond to

OGs the same day they requested their service. Another 21.4 percent of the agents were able to visit the farm the day after the OG requested their service. Three (10.7%) of the agents mentioned they mostly respond to calls from OGs two days after the call while the remaining 25 percent of the agents pointed out that it took them more than three days to respond to an OG's call for assistance. According to these agents, the reason for the delay in response to calls from OGs is the difficulty in securing transportation to the far-reaching communities. When OGs were asked to mention the swiftness to which agents respond to their calls outside appointed meeting hours, they pointed out that agents at times delay to respond to their calls for assistance. They, however, added that in most case, agents respond to calls either on the same day or the day after the call for assistance.

It was noted that some OBs gave credit to their OGs mostly in the form of farming inputs. OGs are expected to pay back these loans with their produce per the project module. Comparing OBs with agents and OBs without agents, it was found that the outgrowers of OBs who had employed the services of agents are able to pay back loans on agreed timelines than their counterparts. More than 86.0 percent of OGs that were able to pay back their loans at agreed times were outgrowers under OBs with agents. OBs without agents had over 33.3 percent of their OGs who took credit from them but were not able to pay back the loan on time.

It was revealed that more than two-thirds (20 out of 28) of the agents performed certain roles in helping OGs pay back credit they had secured/received from OBs in the form of inputs like fertilizers. Five of the agents stated that they did nothing to help their OGs repay the loans they owed their OBs. The remaining three agents did not have any role to play, as their OBs did not give credit to their outgrowers. The support that agents offered to their OGs come in the form of financial advice to OGs, negotiating with the OBs for extension in loan repayment, assisting OGs to identify other buyer options, and securing alternative funding for OGs. Of all the supports, most agents (18) in their opinion assisted the OGs to pay back loans by giving them financial advice. Beyond the financial advice, the agents (13) usually negotiated for loan repayment extension on behalf of the OGs. It was noted that OBs often assist OGs to take loans from financial institutions by serving as guarantors. To help OGs repay loans from these financial institutions, agents help OGs to identify other buyer options in cases where OBs are not in the position to buy the OGs' produce. This was seen as the least frequent service that agents provide to OGs.

In finding out how effective field agents had been in the management and operations of activities of OBs, the study sought to first determine the relevance of the scheme to OBs. The striking confession from the OBs was that the outgrower business management scheme had been a timely intervention, as the success stories of their businesses had been turned around for the better. The following quotations attest to this fact:

Everything I learnt from the training was exactly what I needed to turn my business around. It has helped me to improve on what I already know on farming activities and even make changes to the old methods known to me. Yes, it did help not only me, but also the outgrowers who worked with me. When I was trained, I was told not to keep what I have learnt to myself. I am to share with others and surely, when I did, I realized that I got more customers and more business partners. For instance, I made sure I was almost doing everything with my clients and business partners such as prompting them when we should all apply a specific method and how it should be done (OB in the Odumase).

The knowledge I acquired also guided me in getting more farmers so now, my business has also expanded (OB in the Amoma).

In response to the influence the knowledge agents have gained from ADVANCE trainings have had on OBs operations, an OB stated, *“It has helped my work a lot. I have seen a lot of improvements. What we were taught were things and changes we needed to adapt to turn our occupation around for it to see more improvement”*.

The quotations above show that the performance and activities of field agents have been effective in the business operations of the OBs. The study further probed the OBs to ascertain the extent of surety on the revelations above by quizzing them on whether they would like to continue engaging field agents in their business operations or activities. Also, the OBs were asked if the current production level of their OGs and themselves would dwindle or continue to grow, if the agent program was terminated. This was to access the sustainability of the knowledge acquired through the agents. All the OBs unanimously agreed that they would gladly continue engaging the field agents even, if it would mean making payments to them as employees of the business. Illustrative quotes of the OBs are as follows:

If I have to pay him, I will be very willing to do so, if the conditions are right financially. If the program is cancelled, I believe the farmers can continue without him, except on cases that the farmers are not familiar with, and then there will be the need for further training from an extension officer (OB in the Adidwan)

The statement indicates that the performance of the agent is appreciated by the OB and so his willingness to pay the agent if the program requires him to do so. Plus, the comment on OGs application of knowledge acquire from agent in his absence implies that the training sessions by the agent has been effective and can be sustained even in his absence.

Sure, why not? Looking at the progress they have been able to make so far, why wouldn't I want to continue engaging him? I even plan on engaging more agents so that the progress being made will increase more (OB in the Susuanso).

Nonetheless, the study enquired from the OBs whether they would like to continue engaging their current field agents from ADVANCE or prefer a replacement. Again, the OBs unanimously agreed to continue working with their current ADVANCE field agents. The quotations below shed more light on the OBs responses:

Yes, I will continue to engage Mr. Agyare as an agent. He has brought more benefits than cost to the business. I believe we will continue to grow the business. I am prepared to work with a different agent provided the new agent is equally trained (OB in the Adidwan).

Yes, I will. They are very helpful. They even teach my OGs and I a lot of improved methods of farming (OB in the Yeji).

You see, that was why I was a bit skeptical with the number of agents I was dealing with, especially this year. The previous years, they were very active, but this year, some of them are either going to school to continue their education or are inactive. The one I thought was active has been here only once this year. It's been more than six months now since we met to even work. But in general, they have been very helpful combining the previous years to this year (OB in Odumase).

The observation from the above assertion by the OB in Odumase is that though it is prudent to engage field agents, other activities like full-time education makes the agents inactive on the farms.

Interacting with the OGs of some agents, the participants of the group discussion shed more light on the benefits they had gained from working with their agents. According to the OGs, they did not pay for the services of the Field Agents.

The FGD with outgrowers of an agent in Kwabia in the Kintampo South district indicated that the salient benefits among the numerous benefits the OGs have enjoyed since working with their agent are: application of new knowledge, improved productivity, trained in improved technologies in farming activities, financial independence among the group, and accessible credit agreement with banking institutions.

In Adidwan, a community in Kintampo South District, the revelations by the OGs under the watch of another agent was largely refreshing and encouraging. For instance, the OGs pointed out that generally, the benefits they have received from the field agent included good agronomic practices, instructions on right inputs to use (seeds, fertilizer and agrochemicals), demarcation of farm lands to avoid conflict, monitoring of farms activities and progress, sensitization on pest and disease identification and control, farm records keeping in addition to farm demonstrations on how to plant in roles. They indicated that these have led to increased productivity and increased profit.

Outgrowers of an OB in Yeji also mentioned substantial benefits (both social and economic) that members of the group enjoy from the activities of field agents. The OGs present at the discussion mentioned the work of the agent has led to improvement in their finances. All the outgrowers of the OB indicated that their financial status has risen significantly as evident by the increase in the production per land area by 50 to 100 per cent for all the crops cultivated after applying the improved farming methods. The support the OGs receive from the client through their engagement with the agent mostly comes in the form of inputs such as seeds and fertilizer, which otherwise they could not have been able to afford.

5.4. The ADVANCE Outgrower Business Management Model

The field management program aims to expand and improve services provided by OBs to their outgrowers, sustaining these services beyond the support of ADVANCE. In the second quarter of 2016, 36 OBs in the South that engaged agents were trained and equipped with the SmartEx tablet app to begin providing technical services through these agents (ACDI/VOCA, 2016). The OBs and their agents have been trained to use the tools for registration, profiling, capacity building on agronomic practices and farm business records keeping.

It was revealed through the data collection that 18 of the 28 agents were provided tablets through the ADVANCE. All of these agents indicated that the tablets were used for the purpose for which they were given. According to the 18 field agents, the Project also provided them with pico projectors and wireless Bluetooth speakers. These, they said, are used as media of training the OGs. One agent, when asked to mention some of the forms of training he was given to equip him as a field agent, mentioned “We were trained in Giorgio hotel in Techiman before we started work. They taught us how to use a tablet and even register farmers”. The agent added that

...I believe that they [ACDI/VOCA] wanted to aid the setting up of a link between the OBs and their farmers. They did this to ensure that the farmers may benefit from the OBs and the OB's will be able to work with ease. Sometimes, the OBs may want to help the farmers by way of supplying them with inputs. When I meet the farmers, I am able to gather information on their challenges which I mostly record on my tablet. I then return to furnish my OB with such data ...

This pronouncement from Mr. Tetteh shows that the tablets given to agents are mainly used for collecting data on outgrowers and their activities on the farm. This statement was largely consented by two other agents with their OBs in Adidwan and Kobedi. In the words of the former agent, “We were asked to register and profile the farmers on the tablets ...”.

It was also observed that agents and each of their outgrowers set production targets for themselves. They call this pre-harvest plan. Similarly, an agent responded that these were part of what agents are trained to do. In his words he said:

...This pre-harvest plan is also part of our training and also available as an application on the tablets given us during our training. So before the season begins, we have to plan on the targeted yields. After the season too, we return to ask them if they were able to achieve the target and what challenges they encountered during that period. We also calculate the costs involved and other inputs made towards the achievement of the target.

Adding to the use of the tablets, an agent in Kobedi in the Brong Ahafo region said:

...We were also given tablets on which we could check the weather forecast before planning for the day. On the tablets too we could gather information on prices of produce as well. We could also tell where to even get these produce from using the apps on the tablets. We were trained on how to use these IT in our work...

Apart from the tablets, the agents were also trained on the use of pico projectors. The projector is used by agents to train OGs mostly in the evening (after farming hours). Below are the narratives of some of the agents: “...over there the training was basically on IT. They trained us on how to use a tablet and pico projector”. Giving a detail explanation of the facts, an agent in Techiman recounted that,

We were given memory card loaded with data on pre-harvest, harvesting, seed testing, ploughing, etc. With these, we can project it using the projector provided us in educating and showing farmers what they must know. So that before the harvesting season or even the planting season, farmers are well aware of what to do. We mostly organize meetings during the evenings when most of the farmers have returned from their farms. It is also convenient for us because it is better to use the projector night than during than the day. When you project, you now show them the techniques in sowing seeds, even what to do before sowing the seeds. We also show them how to even test the seed before they sow them as well. This is to make sure they use viable seeds.

The above expressions point to the fact that through the field management program under the outgrower business management curriculum model, 18 agents were given tablets and projectors to begin providing technical services to OGs. These agents have been trained to use the tools for registration, profiling, capacity building on agronomic practices and farm business records keeping. Through in-depth interviews with three of the agents, it is evident that agents after getting the tools use them for the purpose for which they were given. This helps agents to keep records of OGs and teach them to help improve their productivity and production.

5.5. Economic Importance to Outgrower Schemes in 2015 and 2016 Production Years

As it has been discussed under objective one, the study ascertained the similarities and differences between economic benefits OBs received in 2015 and 2016. For instance, the OBs had this to say about the impact of field agents to their businesses:

Because the agents knew they are entitled to a percentage of the revenue made from the sale of maize, they ensured that they worked on the marketing aspect of the products to enjoy good market prices. Agents were

also able to introduce me to new business lines and new customers as well. So, the market was really good and I gained a lot (OB in the Odumase).

I started with the agent in 2015, and as such, I cannot really attribute any economic benefits to my engagement with the agent. Although there has been a definite increase in output since he came into the picture (OB in the Adidwan).

I think I benefited a lot from improved yields. I was able to make as much as GH¢7,000.00 (OB in the Amoma).

These OBs were interviewed further to disclose the kind of benefits they had enjoyed from working with the field agents in 2016 as well. An OB indicated that the agent assisted him in various ways, including zoning the farming area to help manage the farmers properly, and farmers receiving training on the application of fertilizers. It was reported that the agents were very dedicated and even volunteered to help the farmers in applying these fertilizers. Another OB was more elaborative in his submission, as he testified that the yield and income level by the end of 2015 had increased, but the increase was not so high. In 2016, with the agent around, he realized a significant increase in the yield and profit level (15-20% increase) of the business, increase in the number of OGs engaged and the overall growth in the business. Before the involvement of the agent, the OB could only manage 6-8 bags on an acre, however, by 2016, it has increased to 26 bags.

Some representative quotes from the same OBs are presented below:

The yields in this particular year were even better. I was able to make as much as GH¢9,000.00. My yields were better and I believe that this year may even be better because so far, I have already made more than GH¢5,000.00 (OB in Susuanso).

I can talk about 2016. It was way better than 2015. The economic benefits within this year were very glaring. I had more clients and I made a lot of sales from the improved yields of the outgrowers (An OB in Yeji).

Another OB, on his part, indicated that he did not see much improvement in his activities or performance as he said, “It was also the same if not more. This year too, I have received a lot of requests from several new clients to supply them with products”.

The economic importance of the field agents to the OBs largely centered on the expansion of businesses, improved production or performance (profit) as well as access to wider market over the course of the two-year period (that is, 2015 to 2016). Some striking confessions in terms of the benefits OBs received over the course of 2015 and 2016 were that sales improved significantly, new clients were gained, yields and profit shot up incredibly too. Despite these gains, both agents and OBs opine that since they deal with a large number of OGs and the farms of some OGs are far from the residence of agents, it made it difficult to visit the farms of OGs as frequent as would have been appropriate and, thus, benefits would have been much higher, if agents had motor bikes as a means of transport to OGs’ farms.

5.6. Men and Women Farmers who Effectively Worked with Agents in 2015 and 2016 Production Years

The working relation between OGs, both males and females, and their agents is very similarly in 2015 and 2016 production years. Measuring the effectiveness of agent’s engagement between male and female OGs

was done using outgrowers' attendance to training sessions, their rates of adoption of the new technology, and reported yields from OGs in 2015 and 2016. Every season, the agents and their OBs organize demonstrative farm training for the latter before the planting season.

Using OGs' attendance to training sessions as a measure of effectiveness of agent's engagements, the study identified that generally, the male OGs attend trainings more often and on scheduled times as compared to their female counterparts. However, the female OGs were quick to grasp the understanding of the little they were taught. The study found that male OGs were more punctual and readily available for trainings/meeting as compared to female OGs. It was found that on the average, 60 males and 37 females attended training sessions organized by an agent in 2015. In 2016, although the number of females that attended trainings increased to 41, the males still held a higher proportion of participants at training meetings at an average of 61. This is possibly due to the unavailability of the females at certain times of the day because of their daily household responsibilities. In the Muslim communities, it was revealed that due to the patriarchal nature of the religion, women are restricted and not allowed same openness that their male counterparts had when it comes to contributing during meetings. This makes training sessions male-dominated.

Comparing 2015 and 2016 production years, the study discovered that in the year 2015, the female OGs had difficulty in attending trainings and making the transition from the familiar traditional methods of farming to applying the new techniques they were taught. However, the females still showed their interest and openness to learn and understand the new and innovative farming practices as compared to the male OGs. The female OGs asked questions when they needed clarification, unlike their male counterparts who sometimes felt they knew it all too well.

In 2016 the women became more active and showed improvements in their engagement with agents due to the extensive sensitization done by the agents in drawing the females out and increasing their interest in the new farming technologies. Regarding the application of acquired knowledge, it is evident the sex that is more effective depends on the equipment needed in implementing the new technique. However, females are generally more corporative and receptive than the male outgrowers in applying the new technology.

The female OGs were mindful of the consequences of making mistakes and readily asked for assistance when the need arose. They also applied the technology just as directed by the agents. The male OGs, on the other hand, were of the belief that they knew better and as such did not ask for assistance even when it was necessary. When it comes to the application of new and improved farming practices that involved sophisticated machinery such as tractor, corn sheller, etc. male OGs were more effective than their female counterparts. The team found that female OGs had farm sizes smaller than their male counterparts. Implicitly, the low education level of the female OGs limited the extent to which they followed certain directives, especially on record keeping of farming activities. This accounts for the yield ratio of 70:30 in 2015 for male and female OGs of the agent of an OB in Techiman North in the Brong Ahafo Region. In 2016, the yield proportion of the female OGs improved as the ratio changed to 60:40. The improvement in the yield for female OGs was attributed to the increase of the female OGs' patronage in the training meetings and application of the improved techniques they are being trained in. Similarly, an agent of an OB in Kobedi in the Brong Ahafo Eegion indicated that male OGs reported higher yields in both 2015 and 2016. This is because in both years, the number of female OGs was fewer than the male OGs.

An agent of an OB in Adidwan in the Ashanti Region reckoned that the female OGs reported/recorded higher yields in both 2015 and 2016 than the male OGs. This was because the male OGs were more hesitant

in applying the new techniques (risk-adverse) and waited to see the impact on the farms of their female counterparts before applying the techniques on their farms. After the demonstrative farm training at the beginning of the farming season, the females were quick and careful in implementing new knowledge/techniques acquired without hesitation.

Lastly, female OGs were very trustworthy when it comes to loan repayment as compared to male OGs. This is partly or possibly due to their smart and innovative ideas. It was discovered that most of the female OGs that accessed credit from financial institutions upon advice by their agents were able to pay back the loan on time. This was due to the fact that they invested part of the loan in other business ventures like buying and selling of groceries to gain more profit, unlike their male counterparts.

6.0. Key Observations

The key observations of the study are outlined below:

- Agents lack efficient means of transport to the farms of the Outgrowers;
- Some OBs serve as guarantors for their outgrowers to take bank loans;
- Outgrower Businesses who support their outgrowers in their farming gain improvement in their business;
- Outgrowers businesses wish to get support in identifying buyers for their produce; and
- Through the services of field agents, OBs and their OGs have become more financially secure.

7.0. Conclusions

The study sought to determine the economic impact of agents on outgrower business schemes in the ADVANCE South region. It was found that the work of agents had positive impact on the OBs they work for. The study revealed a positive average net present value of setting up an agent in the region. The benefits from the services of field agents to their OGs and in extension to the OBs far outweigh the cost OBs incur in setting up an agent. The economic benefit of agents to OBs in 2016 is higher than that of 2015. Apart from the economic benefits OBs gain from engaging agents, they also acquire some social benefits. It was found that female OGs work with field agents more effectively than male OGs in applying the newly improved farming practices. In activities that involve sophisticated technology or heavy machinery, male OGs are more effective in their dealings with agents than their female counterparts.

8.0. Lessons Learnt and Recommendations

- The Field Management Project is worthwhile and, thus, should be continued.
- Agricultural extension services provided by ADVANCE to OGs should not be limited to a selected number of OGs, but should be extended to most farmers in the ADVANCE South region. Other non-governmental organizations and the Ministry of Food and Agriculture should support ADVANCE in this task.

10.0. Annexes

10.1. Annex 1: Distribution of the Number of Years OBs have been in Business per the Year the OB Started Engaging Agents

Year of Engaging an Agent	Years in Business	Number of OB	Number of OBs who made sales
2010	17	1	
Total		1	-
2013	6	1	
	10	1	
	15	1	
	35	1	
Total		4	-
2014	4	1	
	5	1	
	9	1	
	15	1	
	17	1	
	27	2	
	30	1	
	40	1	
	44	1	
Total		10	11
2015	2	2	
	3	1	
	4	1	
	9	1	
	12	3	
	15	1	
	18	1	
	20	2	
	30	1	
	35	2	
Total		15	22
2016	1	3	
	2	2	
	3	2	
	4	1	
	6	1	
	10	3	
	30	2	
	34	1	
Total		15	31
2017	26	1	

Total		1	14
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