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



ASSET UTILIZATION AND MAINTENANCE AMONG GRANT RECIPIENTS

A USAID's ADVANCE Project Report: JUNE 2018



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USAID's ADVANCE PROJECT REPORT

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Executive Summary

Agricultural activities are well boosted when farming equipment, machineries and other implements are utilized in all the various stages of agricultural production, from the preparation of the land, planting, cultivation, harvesting to processing of produce harvested. Activities such as these involve the use of appropriate farm tools like tractors fitted with ploughs, planters, harvesters, threshers, shellers, power tillers and tarpaulins to aid in the entire value chain of production. Not only do these implements lead to increase in crop yield, but also in the quality of the crop. For instance, tarpaulins serve as groundsheets that provide good coverage for harvesting, processing and storing of grains. Being aware of this, ACDI/VOCA, implementers of United States Agency for International Development (USAID) Agricultural Development and Value Chain Enhancement Project (ADVANCE), contracted the University of Cape Coasts' Directorate of Research, Innovation and Consultancy to conduct studies on selected Knowledge Management and Learning (KM&L) topics in six areas. In this report, emphasis is placed on the Asset Utilization and Maintenance among Grant Recipients in the Northern Region of Ghana.

Part of the operations of ADVANCE Project is the provision of some farm and post-harvest equipment to Outgrower Businesses (OBs) through the Project's innovation and investment incentive grant activity which started about four years ago. Through this grant system, the Project has provided some assets such as laptops, tractors, rippers, tarpaulins, weighing scales, reapers, planters, shellers and rice milling equipment to some OBs. For some assets, the project pays 70 percent of the cost while the beneficiary OBs pay the remaining 30 percent. However, in the case of other assets such as rippers, which are rarely used by farmers, ADVANCE reduces the leverage to 15% to promote the acquisition and utilization of such equipment. The OBs then provide farming services such as ploughing, reaping and shelling to Outgrowers (OGs).

Objectives and Methodology

Specifically, this study sought to assess how assets acquired under the ACDI/VOCA innovation and investment incentive grant project were being utilized by asset recipients or beneficiaries in the northern region of Ghana and measures being employed by beneficiary OBs to maintain the assets. By employing both quantitative and qualitative research design (Concurrent Triangulation Strategy), data was gathered from beneficiary OBs, OGs, Asset operators, Farm managers, Key Informants from the ACDI/VOCA office and observations conducted during fieldwork. Other sources of data were the ADVANCE quarterly and annual reports. In all, a total of 54 OBs, representing 86 percent response rate, responded to questionnaires while the other primary data was gathered from some OGs through In-depth Interviews (6), Farm Agents/Managers/Operators (9) and a staff of ACDI/VOCA who a member of the Grants Selection Committee. In addition, 30 discussants participated in four (4) Focus Group Discussions (2 male and 2 female Groups). These respondents were very representative of the OBs that received assets through the ACDI/VOCA innovation and investment incentive grant project as at the end of 2016.

Key Findings

The study has confirmed that beneficiary OBs had received a number of assets including tractors, power tillers, threshers, shellers, harvesters, weighing scales, moisture meters, and several others. It is very significant to point out that more than half (56%) of the OBs indicated that raising the counterpart funding to procure the assets did not come with any challenge at all however, those who did face challenges cited the trade-off against other family obligations, selling off more farm produce at lower prices, the hassle in accessing loans from financial institutions with its attendant high interest rates and

lack of ready market at the time for farm produce as some of the challenges they faced in raising the counterpart funding.

The assets were being used by the OBs to offer varied farming services such as ploughing, planting, weighing and winnowing to significant numbers of OGs who were within the assets operational catchment areas. Thus, the acquisition and utilization of the assets had led to more OGs benefiting from mechanized farming to increase their yield and income as well as diversify their agricultural activities. For instance, as at 2013 (before the acquisition and utilization of the assets by the OBs), about a third of them were operating with a working capital of less than GH¢10,000.00 per annum, but this proportion had reduced by six (6) percent at the time of the data collection (2017). Moreover, the number of OBs with working capital ranging between GH¢10,000.00 to GH¢20,000.00 had increased from 21 percent (before 2013) to 25 percent (as at 2017). Similarly, when profit margins were compared within the same period, the proportion of OBs with profit margins above GH¢10,000.00 increased from almost half (48%) to 77 percent. Finally, before the OB owners acquired the assets, some of them (39%) cultivated their maize, rice or soy on a farm size which was less than 50 acres, but after the acquisition of the assets, the farm sizes of OBs have increased significantly culminating in about 20 percent of them now farming on lands between 50 to 99 acres.

Aside recording significant changes in incomes of OBs and OGs, it was found that there was a major increase in the numbers of OGs drawn into the project through the utilization of the assets, diversification of OB activities and reduction in farming operational challenges. As a result, these have led to significant improvements, for instance, in the quality of maize, rice and soy produced through the use of assets such as tractors and tarpaulins. Other unintended benefits were obvious - enhancement in corporate image, improvement in the health status of OGs, improved and/or increased social network and prestige as well as improved standard of living of beneficiary OBs and OGs.

Maintenance and replacement of assets by OBs were relevant to the study, as this will have a bearing on the sustenance of gains achieved by the scheme's model. In this study, it was revealed that nearly a third of OBs, whose assets needed maintenance after a maximum of three years of ownership, had engaged the services of accredited mechanics to service the assets. Furthermore, some assets (23%) that required servicing usually took place on monthly basis or as and when the need arose (21%). Other servicing activities reported by the OBs included daily routines of checking on the assets by Asset Operators and or Farm Managers to ensure that the assets performed their required functions. It was also the duty of these people to make sure that proper documentation pertaining to the movement of the assets was in place to safeguard the assets. It must also be noted that the majority of the OBs reported that they did not encounter much challenges when it came to servicing their assets; nonetheless, the few who had encountered some challenges enumerated non-availability of certified mechanics in their areas of operation (12%) and the high cost of spare parts. While there was no specific replacement plan on the part of some OBs for broken down assets, there were others who were making provision for depreciation (65%) to replace the asset or considering re-applying to the project (29%) for other assets.

Recommendations

It is recommended that more of the assets should be made available to OBs in order for services to reach more OGs in real time. This will necessitate a speedy processing of applications so that OBs/OGs would have the assets at the time they are really needed since it emerged that several of the assets got to the field of work when the farming season was over.

It will also be worthwhile to have accredited spare parts dealers in the operational areas of the OBs so that the OBs will have ready access to genuine spare parts any time they need them – thus, when the machines need fixing. Connected to this is that a team of accredited after-sales service agents or personnel should be organized and linked to asset owners for easy, reliable and efficient servicing of the assets. This will ensure that the assets will continually be in operation for most parts of the year and prolong its life span even beyond the duration of the ADVANCE project.

CONTENTS

| | Page |
|--|-------------------------------------|
| EXECUTIVE SUMMARY | iii |
| Introduction | Error! Bookmark not defined. |
| Objectives and Methodology | iii |
| Key Findings | iii |
| Recommendations | iv |
| ACKNOWLEDGEMENTS | Error! Bookmark not defined. |
| LIST OF TABLES | vii |
| LIST OF FIGURES | viii |
| LIST OF ACRONYMS AND ABBREVIATIONS | ix |
| 1.0 BACKGROUND | 1 |
| 2.0 PURPOSE AND EXPECTED USE OF THE SURVEY | 2 |
| 3.0 OBJECTIVES OF THE SURVEY | 2 |
| 4.0 SURVEY METHODOLOGY AND DATA COLLECTION TECHNIQUES | 2 |
| 4.1 Research Design | 2 |
| 4.2 Population, Sample Size and Sampling Procedure | 2 |
| 4.3 Survey Instruments | 3 |
| 4.4 Recruitment and Training of Field Staff | 3 |
| 4.5 Data Collection | 3 |
| 4.6 Data Entry, Cleaning and Analysis | 4 |
| 4.7 Ethical Issues | 5 |
| 5.0 MAIN FINDINGS | 5 |
| 5.1 Brief Background of Respondents and Assets | 5 |
| 5.1.1 Background characteristics of respondents | 5 |
| 5.1.2 Background information on assets | 6 |
| 5.1.2.1 Type of asset received: | 6 |
| 5.1.2.2 Year of asset acquisition: | 8 |
| 5.1.2.3 Counterpart funding of asset: | 8 |
| 5.1.2.4 Challenges encountered with raising counterpart funding: | 9 |
| 5.2 Asset Utilization and Service Quality to OGS | 9 |
| 5.2.1 OB farming services to OGS prior to asset acquisition | 9 |
| 5.2.2 Expected and actual services being rendered by assets | 10 |

| | |
|--|-------------------------------------|
| 5.2.3 Effect of time lag between application and delivery | 12 |
| 5.2.4 Mode of OG payment for asset services | 14 |
| 5.2.5 Value for money | 15 |
| 5.3 Effect of Asset on OB and OG Farming Operations | 15 |
| 5.3.1 Impact on working capital, profit margins and farm sizes | 16 |
| 5.3.2 Role of asset in farm business expansion | 18 |
| 5.3.3 Other areas of asset impact | 19 |
| 5.3.4 Unintended benefits from assets utilization | 21 |
| 5.4 Maintenance and Asset Replacement | 22 |
| 5.4.1 Who services assets | 22 |
| 5.4.2 Regularity of asset servicing | 23 |
| 5.4.3 Source of spare parts | 26 |
| 5.4.4 <i>Last time asset was serviced</i> | 26 |
| 5.4.5 Challenges with servicing of asset | 28 |
| 5.4.6 Replacement of asset | 29 |
| 5.5 Success Stories | 31 |
| 6.0 KEY OBSERVATIONS | 32 |
| 7.0 CONCLUSIONS | 33 |
| 8.0 LESSONS LEARNED AND RECOMMENDATIONS | 34 |
| 8.1 Lessons Learnt | 34 |
| 8.2 Recommendations | 34 |
| 9.0 REFERENCES | Error! Bookmark not defined. |
| 10.0 ANNEXES | Error! Bookmark not defined. |
| Annex 1: Research Instruments | Error! Bookmark not defined. |
| Annex 2: Assets and Perceived Purpose(s) for Acquisition | 36 |
| Annex 3: Type of Asset and Actual Services Asset is Performing | 38 |
| Annex 4: Commensurate Benefits from Assets | 42 |
| Annex 5: Type of Asset and After Sales Servicing Personnel | 44 |
| Annex 6: Type of Asset and Servicing Schedule | 45 |

List of Tables

| | |
|--|----|
| Table 1: Summary of response categories..... | 4 |
| Table 2: Background characteristics of OBs | 6 |
| Table 3: Various assets received by respondents | 7 |
| Table 4: Source of counterpart funding | 9 |
| Table 5: OB services to OGs prior to asset acquisition | 10 |
| Table 6: Attribution of expansion to asset..... | 18 |
| Table 7: Unintended benefits from asset utilization | 21 |
| Table 8: Asset servicing..... | 23 |
| Table 9: Regularity of asset servicing..... | 25 |
| Table 10: Source of assets spare parts | 26 |
| Table 11: Last time asset was serviced..... | 26 |
| Table 12: Challenges with asset servicing..... | 28 |
| Table 13: Measures to replace asset | 29 |

List of Figures

| | Page |
|---|------|
| Figure 1: (a) Grains of rice on tarpaulin and (b) a tractor parked at Legbiligbini | 8 |
| Figure 2: Year of asset acquisition | 8 |
| Figure 3: Last time asset performed expected activity | 12 |
| Figure 4: Effects of time lag | 13 |
| Figure 5: Other asset acquisition options | 14 |
| Figure 6: Warehouse containing bags of grains paid to an OB for asset services rendered | 15 |
| Figure 7: Impact of asset on OBs working capital | 16 |
| Figure 8: Asset impact on OBs profit margins | 17 |
| Figure 9: Acreage of asset cultivation (Before and after asset) | 17 |
| Figure 10: Other impact of asset utilization | 19 |
| Figure 11: A large rice farmland | 21 |
| Figure 12: A parked tractor waiting to be serviced | 29 |
| Figure 13: Percentage of OBs by new assets demanded | 30 |
| Figure 14: A motorbike with USAID Sticker | 32 |

ACRONYM LIST

| | |
|---------|--|
| ADVANCE | Agricultural Development and Value Chain Enhancement Project |
| DRIC | Directorate of Research, Innovation and Consultancy |
| FGDs | Focus Group Discussions |
| FtF | Feed the Future |
| IDIs | In-Depth Interviews |
| KM&L | Knowledge Management and Learning |
| OBs | Outgrower Businesses |
| OGs | Outgrowers |
| SOW | Scope of Work |
| UCC | University of Cape Coast |
| USAID | United States Agency for International Development |
| ZOI | Zone of Influence |

1.0 Background

The Directorate of Research, Innovation and Consultancy of the University of Cape Coast (DRIC-UCC) was contracted by ACIDI/VOCA, implementers of the United States Agency for International Development (USAID) Agricultural Development and Value Chain Enhancement Project (ADVANCE), to conduct studies on selected Knowledge Management and Learning (KM&L) topics in six areas. This report is on Asset Utilization and Maintenance among Grant Recipients in the Northern Region of Ghana.

Agricultural activities are well boosted when farming equipment, machineries and other implements are utilized in all the various stages of production. The preparation of the land, planting, cultivation, harvesting and processing of agricultural products are usually enhanced when appropriate farm tools are timely deployed along the production value chain. Farm assets such as tractors are used for agricultural land preparation, cultivation, harvesting and transporting of farm produce while assets such as power tillers also provide other services such as ploughing, cultivation and weeding. Farm assets like tarpaulins also serve as groundsheets that provide good coverage for processing and storing of farm produce. They also ensure that quality grains are produced during harvest by avoiding grains getting contaminated with gravels or other foreign materials.

The utilization of these machines enables farmers to venture into large scale production, minimizes the physical energy exertion by farmers, speeds up the production process, reduces post-harvest losses, increases agricultural output, enhances farm produce quality, promotes the health conditions of farmers and other related actors as well as reduces levels of economic poverty. The extent of farm assets utilization has also been noted as a determinant of intergenerational farm transfer (Calus, Van Huylenbroeck & Van Lierde, 2008). The authors asserted that lower total farm assets utilization often result in farm discontinuation.

ADVANCE is a project that is funded by USAID | Ghana through the Feed the Future (FtF) initiative. It operates in the FtF project Zone of Influence (ZOI) which covers the Northern, Upper East and Upper West as well as some districts in the Ashanti and Brong Ahafo Regions. It seeks to increase the competitiveness of maize, rice and soy value chains by increasing the agricultural productivity of smallholder farmers as well as increasing their access to market, trade and building the capacity of local organizations to implement and support value chain activities. The Project seeks to reach out to 113,000 smallholder farmers (ACDI/VOCA Scope of Work, 2017).

Part of the operations of ADVANCE project is the provision of some farm and post-harvest equipment to Outgrower Businesses (OBs) through the Project's innovation and investment incentive grant activity which started about four years ago. Through this grant system, the Project has provided some assets such as tractors, rippers, tarpaulins, weighing scales, reapers, planters, laptops, shellers and rice milling equipment to some OBs. The Project envisaged to disburse about US\$4million in various farm assets to OBs and OGs operating the ZOI.

For some assets, the project pays 70 percent of the cost while the beneficiary OBs pay the remaining 30 percent. However, in the case of other assets such as rippers which are rarely used by farmers, ADVANCE reduces the leverage to 15 percent to promote the acquisition and utilization of such equipment. The OBs then provide farming services such as ploughing, reaping and shelling to Outgrowers (OGs).

2.0 Purpose and Expected Use of the Survey

The aim of this study was to assess how assets acquired under the ACDI/VOCA ADVANCE project's innovation and investment incentive grant were being utilized by asset recipients to increase output and improve quality and also, to review measures being employed by them to maintain the assets. The findings from this study will present an evidence-based directive on the modes of provision of grants for the acquisition of assets and help institute measures to ensure that assets are properly maintained and can be replaced after their life span.

3.0 Objectives of the Survey

Specifically, this study sought to:

1. Assess use of acquired assets by OBs and OGs relative to the purpose for which they were provided;
2. Determine whether the quantity and quality of agricultural services rendered by OBs to OGs have increased after asset acquisition;
3. Identify changes in businesses of OBs after receipt of the asset; and
4. Analyze how assets are being maintained and strategies for replacement.

4.0 Survey Methodology and Data Collection Techniques

This section of the report presents issues on the evaluation design, population and selection of respondents, development of research instruments, recruitment and training of field staff and ends with data collection and analysis procedures.

4.1 Research Design

This evaluation adopted a mixed-method approach which is described by Johnson and Onwuegbuzie (2004) as the type of research which combines both quantitative and qualitative research techniques, methods, approaches, concepts or language in a single study. The Concurrent Triangulation Strategy of mixed-methods was employed during the data collection phase of the study. This strategy is where both quantitative and qualitative data are concurrently gathered by research investigators with equal priority placed on both (Terrell, 2012). The data is integrated during the analysis and interpretation stage to confirm, validate or corroborate responses. According to Terrell (2012), this strategy makes it possible to collect data at short durations but may present some difficulty when comparing two types of data.

This method and strategy were adopted to collect quantitative data from the beneficiary OBs and qualitative data from OGs, Asset Operators, Farm Managers and Key Informants from the ACDI/VOCA innovation and investment incentive grant project. Other sources of data were the ADVANCE quarterly and annual reports and observations conducted during fieldwork.

4.2 Population, Sample Size and Sampling Procedure

As specified in the evaluation Scope of Work (SOW), the target respondents for this study were all located in the Northern Region of the Project's ZOI and comprised OBs who had received farm assets as at the end of 2016 and their OGs who were receiving services from the assets. Farm managers and asset operators who worked directly with OBs were also to be contacted and interviewed. The last set of targeted respondents consisted of some key staff of the project who were members of the grant

management team. Of these targeted respondents, and at an inception meeting with the Client, the OBs were classified as the primary respondents since they were the ones who directly received the assets from the project and were expected to use the assets to render services to OGs. The OBs were, therefore, well placed to provide comprehensive data on asset acquisition, utilization, efficiency, effectiveness, maintenance, sustainability and external utility. This resulted in the census selection of all the estimated 70 asset recipients in the Northern Region of Ghana as at the end of 2016.

The OGs, Farm Managers and Asset Operators were to be reached through their respective OBs. It was also anticipated that 20 OGs would be accidentally selected from across the various districts in the Northern Region for In-Depth Interviews (IDIs) while additional 42 OGs will be constituted into six (6) groups (7 members per group) for Focus Group Discussion (FGD) to provide group perspectives on the utilization and maintenance of the assets. It was also envisaged that about 15 managers and operators would be accidentally selected for IDIs while the key member(s) of the innovation and investment incentive grant project management team would also be interviewed for their perspectives on the implementation of the Project.

4.3 Survey Instruments

After some discussions with the Client, it was agreed that a questionnaire should be designed and administered to the OBs, while qualitative instruments (IDI and FGD guides as well as observational checklist) should be used to elicit data from the OGs, Farm Managers and Tractor Operators as well as the innovation and investment incentive grant project key informant staff. The contents of the instruments were, thus, based on the objectives of the study, the six critical areas of learning interest to the Client (Relevance, Efficiency, Effectiveness, Impact, Sustainability and External Utility), as well as information gleaned from the project progress and annual reports. The draft instruments were submitted to the Client for their inputs after which it was revised before being finalized to gather primary data from the targeted respondents. Annex 1 is a copy of the various instruments developed for the study.

4.4 Recruitment and Training of Field Staff

Four Research Assistants were recruited to assist in primary data collection. Their recruitment was based on expertise, academic qualifications (minimum of Bachelor degree), familiarity with the local languages and the project sites, and very good experience with projects of this nature and the FtF intervention.

Prior to the fieldwork, a one-day training program, which was monitored by an official of the Client (Tamale Office), was organized for the Research Assistants to enable them to internalize the study's theory of change, objectives of the assessment, the contents of the various research instruments, ethical considerations involved in this study, community entry strategies, anticipated challenges and how to resolve them. The training approach was very participatory and involved role-plays, translations and discussions on the rationale or the philosophy underlying some questions in the research instruments. Another critical component of the training was recording of responses and observation techniques for assessing the state of assets, its operations and maintenance procedures.

4.5 Data Collection

Collection of primary data through questionnaire administration, IDI, FGD and observation commenced on 2nd November, 2017 and ended on 24th November, 2017. The questionnaires (Paper Assisted Personal Interviews) were solely administered to owners of OBs in their respective locations. This led to elicitation

of detailed individual responses on the asset acquisition processes, utilization and maintenance schedules. The process also unearthed other issues on their working relationships with OGs, operators and farm managers. Finally, it afforded them the opportunity to make some recommendations to the innovation and investment incentive grant project team to facilitate improvement of the asset application and distribution process. In total, 63 contacts of OBs were received from the Client out of which 54, representing 86 percent, were reached during the period of the data collection. The nine who could not be reached consisted of two who were yet to receive their assets, one whose tablet had been retrieved by the project, and six who could not be contacted on phone or were unavailable at the time of the data collection.

Thirty (30) discussants participated in the FGDs to provide group perspectives, experiences and lessons learnt with the asset utilization and maintenance process. Four (4) FGDs were conducted with two women groups and two (2) male groups. Furthermore, six individual OGs were interviewed extensively to share their personal experiences with the use of the assets and the benefits they had derived from the services of the asset. All the interviews and FGDs were either digitally recorded and/or hand written. The observations were conducted at various sites including parking places of assets and farms where assets were rendering services. Table 1 provides a breakdown of the categories of respondents whose responses were analyzed for this report.

Table 1: Summary of response categories

| Respondents Category | Methods of data collection | Target | Achieved | Response Rate (%) |
|---------------------------|----------------------------|--------|-----------------|-------------------|
| OBs | Questionnaire | 63 | 54 ¹ | 86 |
| OGs | IDI | | 6 | |
| OGs | FGD | | 4 ² | |
| Agents/Managers/Operators | IDI | | 9 | |
| ACDI/VOCA (Tamale office) | IDI | | 1 | |

Source: Fieldwork data, 2017

Some of the targeted OB respondents had travelled while others were also busy harvesting their farm produce during the period of the data collection. This presented a challenge in scheduling dates and time for interviews with those respondents. The team sometimes traced some of them to their farms for the interviews while arrangements were also made to reach some in the evening. Only two requested to be interviewed via mobile phone. These arrangements, thus, prevented the evaluation team from inspecting some assets since the latter were at locations different from where questionnaires were administered or interviews were conducted. Nonetheless, the support received from the project field staff contributed immensely in facilitating access to majority of the targeted respondents.

4.6 Data Entry, Cleaning and Analysis

The edited questionnaires were entered into the Statistical Package for Service Solutions (SPSS) software which has facilities for analyzing descriptive statistics as well as performing cross tabulations. The data was cleaned to remove errors and inconsistencies that were detected through the entry process. Transcripts of the interviews and discussions were edited for grammatical errors and mistakes in sentence

¹ Responses of two (2) OBs were classified as in-depth interviews instead of responding to a questionnaire because they provided detailed responses to most of the questions asked

² Twelve (12) females and 18 males

constructions before being analyzed manually. The analyses of the qualitative data were deductively conducted based principally on grounded theory, in which theoretical insight emerged from the data, rather than being pre-imposed (Strauss, 1987). This also facilitated the process of identifying common themes that emerged from the data. Some salient quotes in the responses were noted and used to corroborate or elaborate some points discussed in the report.

4.7 Ethical Issues

In recognition of the role of ethics in research, high premium was put on ethical standards at all the stages of the study, but particularly 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. All personal identifiers have, therefore, been removed from the report (except a request by the Client to indicate the first names of the respondents whose quotes have been used in the report). Respondents were informed that the data would be used purposely and strictly for 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 field staff, Consultant and the Client. In order to satisfy ethical appropriateness requirements of the study, each respondent's consent was sought before the interview or discussion commenced (see cover page of each instrument for a copy of the informed consent form used for this study). The Consultant also signed non-disclosure forms with the Client to protect all information contained in hard and soft copies made available by the Client to the Consultant.

5.0 Main Findings

This part of the report presents the results of the KM&L study on asset utilization and maintenance among grant recipients. It provides findings on brief background characteristics of the respondents and the assets, utilization of assets and service quality, effects of asset on OBs and OGs businesses and farming activities as well as issues on maintenance and replacement of the assets.

5.1 Brief Background of Respondents and Assets

5.1.1 Background characteristics of respondents

Table 2 presents brief background information about the owners of OBs who participated in this study. Almost all the respondents from the Northern Region of Ghana who had benefited from the ACDI/VOCA innovation and investment incentive grant project were males, as they constituted 98 percent of the sample. The average age of most of them were in the category of 35-44 years (37%) and 45-54 years (35%). Majority of them (83%) were engaged in agricultural activities with other employees (73%).

With regard to marital status, most of the respondents (83%) were married while the rest were either never married (15%) or divorced. Generally, majority of the respondents had attained academic qualifications higher than Post-Secondary education (33%). As expected, and, in line with the project focus, the respondents were primarily engaged in the cultivation of the three principal crops comprising maize (60%), Soy (23%) and rice (17%); an endeavor which they have been involved in for periods ranging from less than 10 years (29%), between 10-20 years (47%) and above 20 years (23%).

Table 2: Background characteristics of OBs

| Background characteristics | | Frequency | Percent (%) |
|--|---------------------------|-----------|-------------|
| Sex | Males | 51 | 98.1 |
| | Females | 1 | 1.9 |
| Age | 25-34 | 7 | 13.46 |
| | 35-44 | 19 | 36.54 |
| | 45-54 | 18 | 34.62 |
| | 55-64 | 7 | 13.46 |
| | Non-response | 1 | 1.9 |
| Main occupation | Non-agric with employees | 9 | 17.3 |
| | Agric with employees | 38 | 73.1 |
| | Agric without employees | 5 | 9.6 |
| Marital status | Never Married | 8 | 15.4 |
| | Married | 43 | 82.7 |
| | Divorced | 1 | 1.9 |
| Academic qualification | None | 11 | 21.2 |
| | Pre-secondary | 5 | 9.6 |
| | Secondary | 4 | 7.7 |
| | Post-Secondary | 14 | 26.8 |
| | Bachelor degree | 17 | 32.7 |
| | Other (Islamic education) | 1 | 1.9 |
| Primary crop engaged in | Maize | 31 | 59.6 |
| | Soy | 12 | 23.1 |
| | Rice | 9 | 17.3 |
| Years engaged in primary crop production | Less than 10 years | | |
| | 10 to 19 years | 22 | 42.3 |
| | 20 to 29 years | 14 | 26.9 |
| | 30 to 39 years | 13 | 25.0 |

Source: Fieldwork data, 2017

Apart from the two FGDs held at Sung and Binchiretanga in the Mion and Nanumba North Districts respectively, all the other key informant respondents were males, reflecting the dominance of the latter in the asset component of the project. The age category of respondents was found to be very youthful as well (they fell between 22-45 years old), with very few going beyond this sect.

In all, farming was the dominant occupation of these largely ‘illiterate’ farmers who have had either no form of formal education or just up to the basic level. Several of the respondents have had farming as their major occupation from between five (5) to thirty-five (35) years or more. However, OBs or farm managers who were literates mainly engaged in the business as a part-time venture or to lend support to OBs or even family (family business).

5.1.2 Background information on assets

5.1.2.1 Type of asset received:

Various assets had been distributed to owners of some OBs by ACIDI/VOCA to enable the former improve on their maize, rice and soy farming activities. It was ascertained from the data gathered that the project had distributed twenty-eight different assets to the OBs that participated in the study (Table 3 and Figure 1). Tarpaulins, compared to the other assets, emerged as the most distributed asset (38) followed by tablets (24) and tractors (16). Similarly, assets such as radio (13), corn shellers and weighing scales (11

each) have also been distributed to a significant proportion of the respondents. It also came to the fore that other assets such as manual planter, photocopier, hand gloves, office equipment and savings boxes have been provided by the project to a handful of the respondents.

Table 3: Various assets received by respondents

| S/N | Type of Asset | Number of respondents who had received an asset |
|-----|------------------|---|
| 1 | Tarpaulin | 38 |
| 2 | Tablets | 24 |
| 3 | Tractor | 16 |
| 4 | Radio | 13 |
| 5 | Corn Sheller | 11 |
| 6 | Weighing Scale | 11 |
| 7 | Motor bike | 10 |
| 8 | Laptop | 7 |
| 9 | Knapsak Sprayer | 6 |
| 10 | Printer | 4 |
| 11 | Projector | 4 |
| 12 | Moisture meter | 3 |
| 13 | Motor tricycle | 3 |
| 14 | Power Tiller | 3 |
| 15 | Rice Treasher | 1 |
| 16 | Rice Harvester | 1 |
| 17 | Manual Planter | 1 |
| 18 | Photocopier | 1 |
| 19 | Ipad | 1 |
| 20 | Office Equipment | 1 |
| 21 | Hand Gloves | 1 |
| 22 | Hand Sprayer | 1 |
| 23 | Maize Treasher | 1 |
| 24 | Savings box | 1 |
| 25 | Bluetooth reader | 1 |
| 26 | Reaper | 1 |
| 27 | Dibber | 1 |
| 28 | Plough | 1 |

Source: Fieldwork data, 2017



Figure 1: (a) Grains of rice on tarpaulin and (b) a tractor parked at Legbiligbini

Source: Fieldwork data, 2017

5.1.2.2 Year of asset acquisition:

Data from the assessment indicated that the distribution of the assets to the beneficiary OBs peaked during the year 2016 with almost half of the respondents receiving theirs in that year (Figure 2).

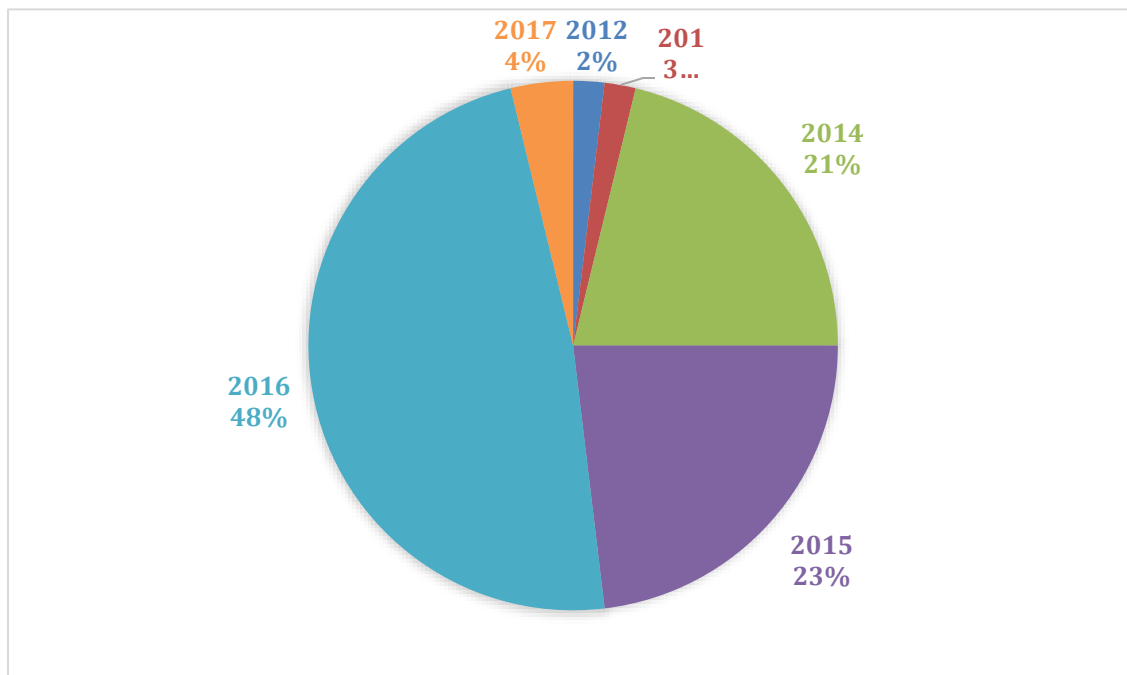


Figure 2: Year of asset acquisition

Source: Fieldwork data, 2017

5.1.2.3 Counterpart funding of asset:

Under the innovation and investment incentive grant activity, the ADVANCE Project pays 70 or 85 percent of the cost of the asset, while the beneficiary OB pays the remaining 30 or 15 percent,

respectively. For some OBs, raising the 30 or 15 percent counterpart funding could be a challenge which might affect the time of receipt of the asset or instances where some family needs are sacrificed for the asset. It was ascertained from the responses of the respondents (Table 4) that largely, the 30 percent counterpart funding was mobilized from personal savings of the OBs (75%). The other sources were through loans from financial institutions and family savings. It is also imperative to note that some of the OBs obtained the funding from a combination of these sources.

Table 4: Source of counterpart funding

| Source of counterpart funding | Response | | | |
|---------------------------------|-----------|------|-----------|------|
| | Yes | | No | |
| | Frequency | % | Frequency | % |
| Personal savings | 42 | 80.8 | 10 | 19.2 |
| Family Savings | 5 | 9.6 | 47 | 90.4 |
| Loan from Family/Friends | 1 | 1.9 | 51 | 98.1 |
| Loan from Financial Institution | 8 | 15.4 | 44 | 84.6 |

Source: Fieldwork data, 2017

5.1.2.4 Challenges encountered with raising counterpart funding:

It is also noteworthy to indicate that more than half (56%) of the OBs indicated that raising the counterpart funding from the sources mentioned above did not come with any challenge at all. They indicated that they were motivated to overlook the challenge because the project had paid the larger proportion of the asset cost. However, those who did face challenges cited the trade-off against other family obligations such as payment of ward's school fees, opportunity cost of forgoing other farm and family demands, selling off other properties, the hassle in accessing loans from financial institutions with its attendant high interest rates and lack of ready market at the time for farm produce as the challenges they faced in raising the counterpart funding. The narrations from these five OBs are very illustrative of the challenges encountered by some OBs in raising the 30 percent counterpart funding:

There was no ready market for my farm produce at the time of raising the counterpart funding. This made it a bit difficult to mobilise the funds in time to acquire the asset (Abukari, Karaga District).

The prices of my produce were very low at the time I was paying for the asset so I had to sell more produce at a time than I had wanted to sell (Emmanuel, Sagnarigu Municipal).

My OBs were expected to contribute about 20% of the cost of the asset and this turned out to be a bit difficult for them (Ziblim, Yendie Municipality).

The procedure and processes involved in acquiring a loan from the bank was cumbersome and tiring for me. Again, the interest rate was very high (Grace, Tamale Metropolis).

5.2 Asset Utilization and Service Quality to OGs

5.2.1 OB farming services to OGs prior to asset acquisition

Farming on subsistence basis is a common practice in several developing countries including Ghana. In these environments, farming is done by families whose focus is to grow enough food to feed themselves and their families, with nothing left to sell or trade. In subsistence farming, any surplus made is kept for future use which the family rely on until the next harvest. This mode of farming is characterized by the

use of crude tools which are manually operated on small farm sizes with low yields while food production comes with very little cost to the farmer. Usually, the farmer needs not purchase or borrow anything from another source as farm inputs.

Per the ACDI/VOCA’s innovation and investment incentive grant project, a beneficiary OB is expected to organize OGs and provide them some farming services with the assets they had acquired from the project. Some of these services include ploughing services, supply of farm inputs and linkages with buyers. It must also be noted that some of these services were rendered on credit basis. It was ascertained from the responses of the OBs that they were rendering some of these services prior to the acquisition of the assets from ACDI/VOCA’s innovation and investment incentive grant project (Table 5).

Table 5: OB services to OGs prior to asset acquisition

| OB support services to OGs prior to asset acquisition | Response | | | |
|---|-----------|-------------|-----------|-------------|
| | Yes | | No | |
| | Frequency | Percent (%) | Frequency | Percent (%) |
| Provision of farm inputs | 32 | 61.5 | 20 | 38.5 |
| Provision of financial support | 17 | 32.7 | 35 | 67.3 |
| Advice on best practices | 22 | 42.3 | 30 | 57.7 |
| Linkages with buyers | 14 | 26.9 | 38 | 73.1 |
| Others (ploughing, etc) | 23 | 44.2 | 29 | 55.8 |

Source: Fieldwork data, 2017

For instance, nearly two-thirds (62%) reported of providing farm inputs to their OGs, while a little above a third indicated providing their OGs with financial support services. There were also some OBs who rendered other services such as ploughing the farmlands of their OGs as well as linking the latter to Agricultural Extension Officers.

OGs emphasized that prior to benefiting from the asset services offered them by their OBs, they were stacked to the old crude and ‘manual’ forms of farming practices which, in the end, resulted in low yields that were also of poor quality. Thus, farmers resorted to the use of animals (cattle) to plough small farmlands and the use of donkeys to cart goods from farms to homes and market centers. Aside the animals not being able to work on large farm sizes, their services were also slow as illustrated in a quote by Adams, a 35-year old male FDG discussant at Yama:

We used to rely on cattle to plough our farms. This was just too slow for us since the animals were not faster, as compared to the tractor.

5.2.2 Expected and actual services being rendered by assets

Farm assets perform a range of services to their owners. It was, therefore, necessary to assess the intention of the OB owners to acquire the asset and match this against the actual services the assets were rendering at the time of the data collection. A detailed asset by asset and the perceived purpose(s) for their acquisition by the OBs has been provided in Annex 2). It could be observed from the Annex that, for a larger proportion of the OBs, the assets acquired were expected to render multi-services such as support mechanized farming, use it for commercial services to maximize their profits, prepare own farmland for cultivation and transporting of crops to market centers. For instance, assets such as tarpaulins were acquired by some OBs to support their farm mechanization activities (45%), for profit making (71%) and to support harvesting of crops. This was similar for other assets such as tractors and

motor tricycles. While 75 percent of OBs who acquired the tractors intended it to support their mechanized farming, seven out of the ten OBs who acquired motor tricycles did so for the same purpose. Furthermore, the 11 OBs who acquired corn shellers had varied purposes for the utilization of the asset. While about 73 percent intended it to support their mechanized farming activities, some also expected it to help them render social services (46%), harvest crops (55%) and process farm produce (46%).

During the assessment, it was identified that, generally all the assets acquired were actually rendering their respective intended services (Annex 3) except in few instances where actual services varied marginally from perceived services. For instance, the percentage of OBs who intended to make profits out of their tarpaulins (71%) reduced to 61 percent while that of corn shellers (64%) reduced to 55 percent. In the same vein, the proportion of OBs who intended their tractors to enable them render social services (63%) reduced to 56%. According to some of the OBs, when they started using the assets, they observed that some assets such as tractors could perform other services which they did not consider during the time they were applying for the asset. Such services included transportation and, in the case of the tablets, sourcing for and sharing of agricultural information by OBs with their OGs.

This finding was also corroborated by Ameyaw (22 years), an OG who resides in the West Mamprusi District of the Northern region. According to him, they *have been ploughing with the tractor and also used it to convey our farm produce to the house or the market*. Indeed, the responses of the OGs did not suggest any negative consequences on their farming activities as a result of the services they were receiving from OBs through the assets acquired via the ACIDI/VOCA's innovation and investment incentive grant project.

Even though some assets such as tarpaulins could be acquired by an OB with the ultimate aim of using it to process farm produce, it is also indicative to stress that profit maximization could be the overriding covert objective for some OBs who acquired the assets. This is so because the other services expected from the utilization of the assets such as processing of farm produce and support for mechanized farming have the net potential of increasing farm size and crop yield which could lead to increased sales and ultimately increased profits.

The assets were expected to be in good working condition and actually being used for the purpose for which they were provided. When the OBs, were asked to indicate the last time their respective assets performed the required functions, it emerged from their responses that most of the assets (89%) performed their recent intended service during the day of the data collection (Figure 3). The owner who indicated that the asset had been used over a month ago cited "off season farming period" to buttress why the asset had been dormant.

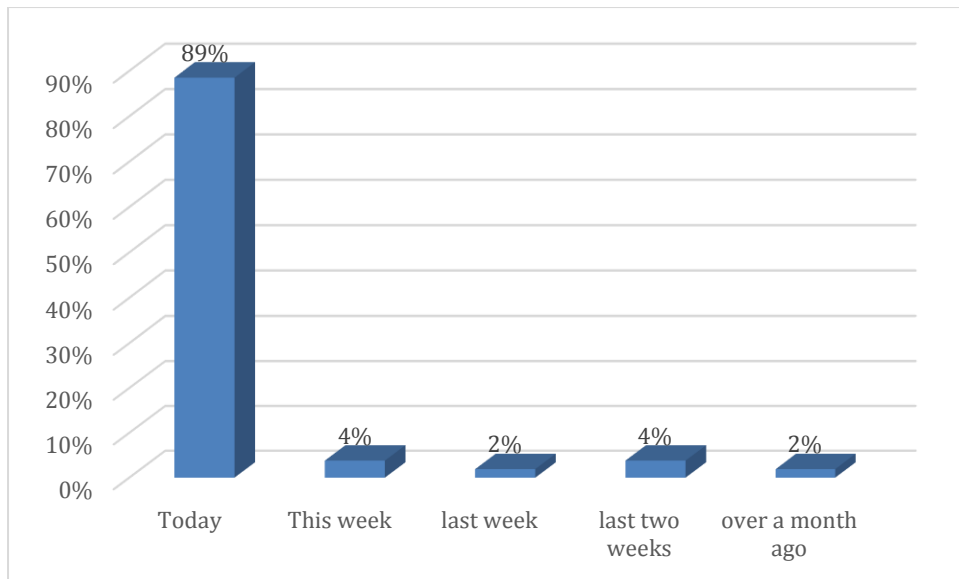


Figure 3: Last time asset performed expected activity

Source: Fieldwork data, 2017

5.2.3 Effect of time lag between application and delivery

Time is of essence in matters that relate to efficiency of performing an activity. Time lapse between the application for the asset and the time it is delivered could affect (positively or negatively) the productivity of the OBs. For example, if a planter is received on time before the planting season, the OGs will be able to take advantage of this to increase their productivity, but the utilization of the asset will be ineffective if it was delivered after the planting season. More than a third (39%) of the OB owners indicated that the time lag between their first application for the asset and the time they actually received it affected their businesses. Of the category of OBs who reported negative effects with the time lag, about a third adduced that their farming activities were delayed due to the time lag, while the others opined that the time lag led to loss of profits and missed farming season when the asset was expected to work in their farms (Figure 4).

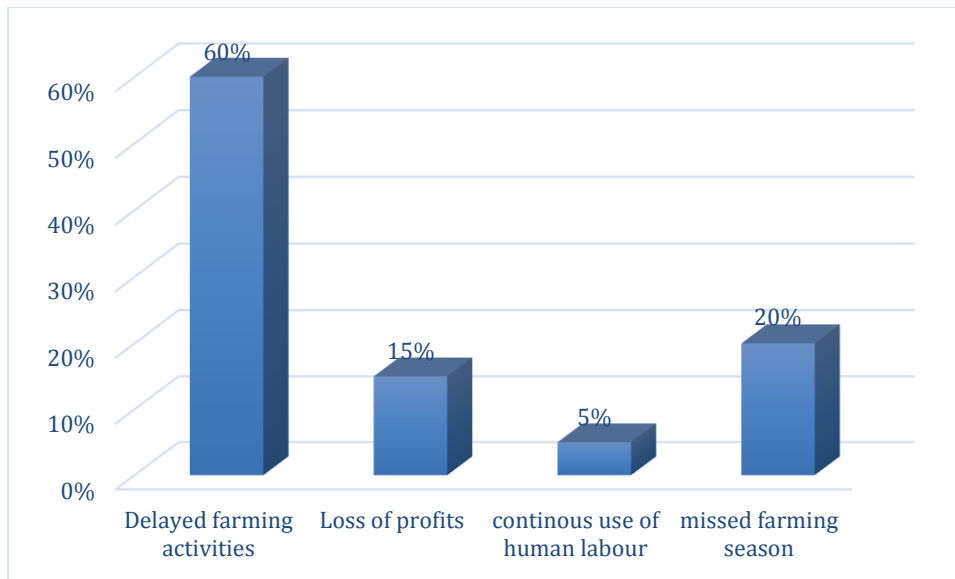


Figure 4: Effects of time lag

Source: Fieldwork data, 2017

Correspondingly, the time lag between OGs request to OBs for asset services and the time the services were rendered could also affect the former in their farming activities. The OGs were, therefore, asked some questions that relate to whether the time lag between their first request for the asset service(s) and the first receipt of the service from OBs had any impact on their agricultural activities. Generally, OGs complained that the services from the OBs normally came in at the time they least needed them, and that by the time, for instance, assets such as tractors, shellers or reapers got to the OB from the project implementers, they (OGs) would have finished ploughing their lands or harvested their produce. Apart from assets getting to their OBs late, OGs had to wait for long periods of time for a service to get to their turn since, in most cases, there was just one asset providing services to a number of OGs in a community or communities. In effect, the first-come-first-serve arrangement has led to some OGs planting ahead of others and thereby taking advantage of the climate ahead of others.

Expressions such as these are typical of the issues raised:

An OG will have to wait till the OB is done with somebody's farm before he comes to yours. So, imagine if you don't request for it earlier, before he gets to you, someone may already be planting...and you know that the rains do not last here. If you miss it, it spells doom for you [Fati (II), 30 years old female Focus Group Discussant, Mion District].

That is one problem we have with the power tiller service. You can only get it when it has finished working on people's farm, and by the time you get to plough your farm, those people might have finished planting. But, if we had about two or more, it would help because two people can receive a service at a time, and you would not have to wait over a long period (Alhassan, 65 years old male Focus Group Discussant, West Mamprusi).

When the official of ACIDI/VOCA was contacted for clarification on the matter, it came up that the delay was not deliberate since the application had to go through a series of checks to determine the suitability and qualification of the applicant as well as the availability of the requested assets and the schedule of the Grants Selection Committee meetings to consider the applications. He further indicated that the slowness sometimes emanated from the procurement process as laid down by the United States Government with particular reference to selection of vendors to supply the assets. It must also be noted

that some delays were also caused by late payment of leverage component by the OBs, which is required before delivery of the asset.

Considering the challenges indicated above, one would have thought that, given the opportunity, the OBs and their OGs would have sought for additional farm assets elsewhere, if they had the opportunity to do so. It was, therefore, imperative to find out from the OBs, if they had other options to procure farm assets with favorable payment terms compared to the ACDI/VOCA’s innovation and investment incentive grant project. It was identified from their responses that, the generality of the OBs (89%) did not know of any option except a handful who cited packages by financial institutions, government support and another project being implemented in the ZOI (Figure 5).

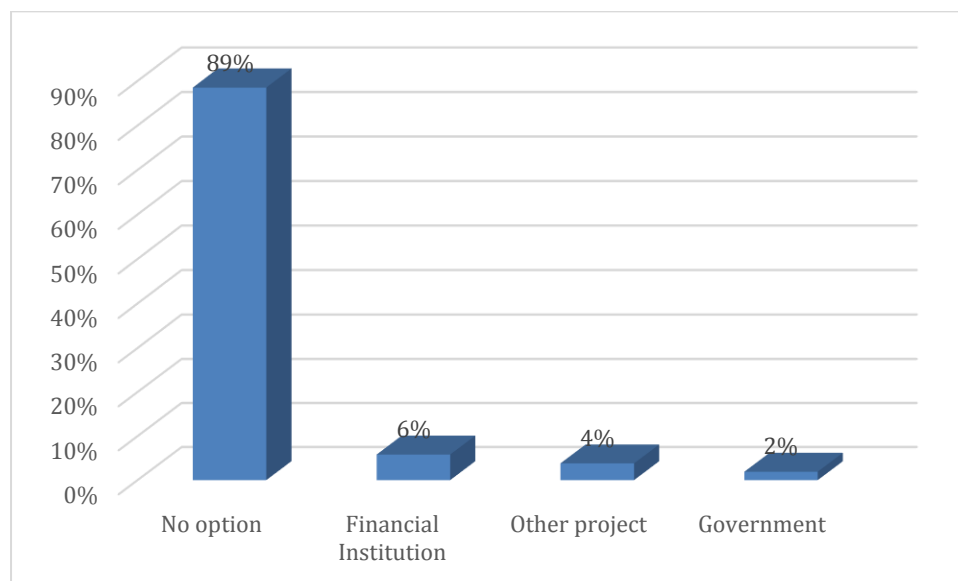


Figure 5: Other asset acquisition options

Source: Fieldwork data, 2017

5.2.4 Mode of OG payment for asset services

Across the districts studied, OGs largely paid for the asset services they received from the OB owners in kind (Figure 6). Thus, for instance, it was very common to have farmers paying with a bag of grain farmed for an acre of land ploughed. This arrangement was popular and accepted because OGs reported not having physical cash to pay OBs for asset services due to the fact that they had to spend all their monies in the long lean period. Where monies were paid, which was rare, they were described as a ‘token’ since the amount was so insignificant as compared to the service received. To some OGs, these terms of payment or payment regimes amounted to ‘free-fall’ social offer given to them by the OBs. There were some exceptional cases, where some participants opined that the amount charged them was dear. One of such is Fati (I), an OG in the Mion district during an FGD. She asserted that:

He takes GH¢50.00 for any acre of land he ploughs, and that is so dear for us but we cannot complain that much because he takes GH¢60.00 from farmers when he goes to the other towns around.

Regarding the tarpaulin services received by the OGs, it was reported that no money was paid. These were given to nuclei farmers as they opined that benefits associated with the arrangement trickled to the OBs eventually.



Figure 6: Warehouse containing bags of grains paid to an OB for asset services rendered

Source: Fieldwork data, 2017

5.2.5 Value for money

The acquisition of an asset does not necessarily mean that the benefits being derived from the asset is commensurate with the cost of acquiring the asset. When the respondents were asked if they were deriving value for their investment in the asset, all the OB owners responded in the affirmative that the derived benefits are commensurate with their investments (Annex 4). For example, the OBs who had received tarpaulins indicated that the asset has helped them to make more profits (53%) which is consistent with what was reported by those who received other assets such as tablets (54%), tractors (87%) and motor tricycles (80%). Aside the assets helping the OBs to maximize profits, other commensurate benefits reported by the respondents included learning new farm techniques with the assets, improving their records keeping activities and improving the quality of their farm produce. With regards to improving quality of farm produce, assets such as tarpaulins, tablets, tractors, radio, corn shellers, weighing scales, dibber and reapers were credited for supporting this. The laptop and printers were also reported by some OBs as contributing to improving records keeping.

5.3 Effect of Asset on OB and OG Farming Operations

The implementation of the ACIDI/VOCA's innovation and investment incentive grant project is expected to impact positively on the farming operations of beneficiary OBs and their OGs, especially as it relates to their maize, rice and soy production. This assessment, therefore, sought to find out from the OBs the effect the acquisition and utilization of the asset has had on their farming businesses and activities. The OBs mentioned a number of significant areas in their activities that had been impacted positively by the acquisition and utilization of the assets.

5.3.1 Impact on working capital, profit margins and farm sizes

Outgrower Businesses operates with working capital which may be mobilized from personal or family savings, a gift from benefactors or a loan from individuals or financial institutions. Working capital may be increased if business owners inject additional funds into the business or plough back part or all profits that accrue to the business. It must also be noted that increased working capital also has the potential to support business owners expand their business, and in the case of farmers, increase their farm sizes and production levels which will eventually lead to increased profits.

As at 2013 (before the acquisition and utilization of the assets by the OBs, about a third of them were operating with a working capital of less than GH¢10,000.00 per annum, but this proportion had reduced by six percent at the time of the data collection (2017). Moreover, the number of OBs with working capital ranging between GH¢10,000.00 to GH¢20,000.00 had increased from 21 percent (before 2013) to 25 percent (as at 2017). The major leap in the change could be observed from those that operated with a capital above GH¢100,001.00. This category of OBs had increased from eight to 21 percent (Figure 7).

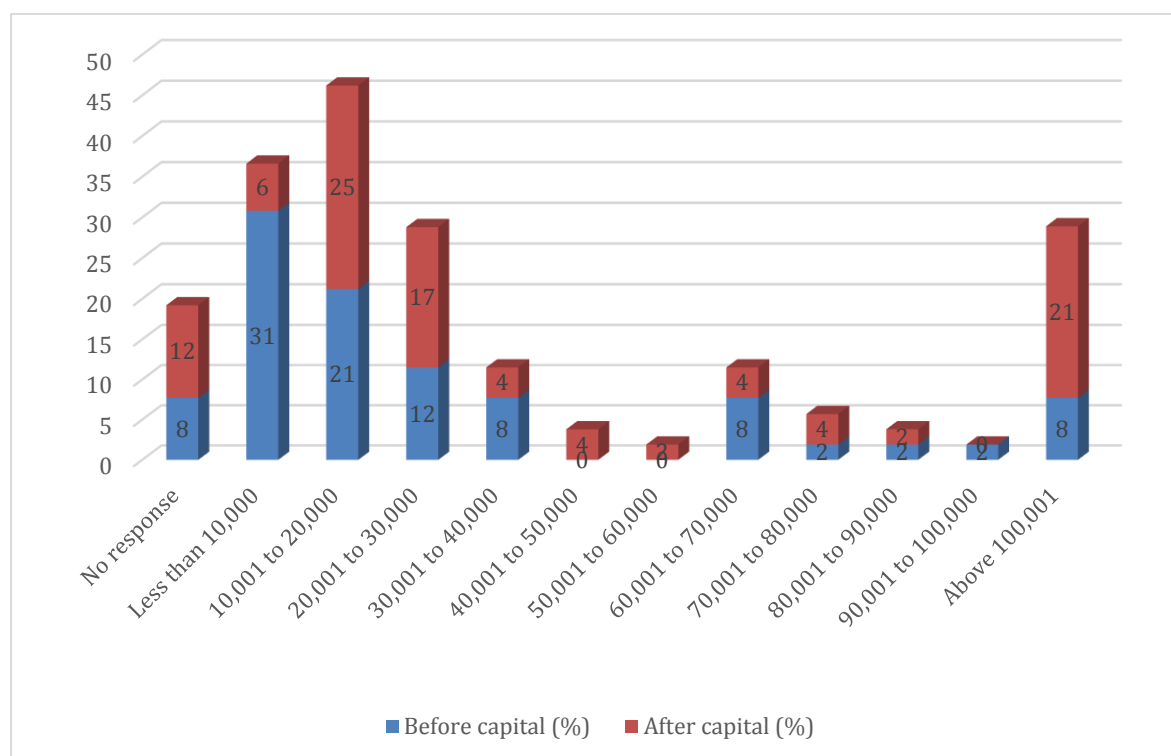


Figure 7: Impact of asset on OBs working capital

Source: Fieldwork data, 2017

Similarly, when profit margins were compared within the same period, the proportion of OBs with profit margins above GH¢10,000.00 increased from almost half (48%) to 77 percent (Figure 8).

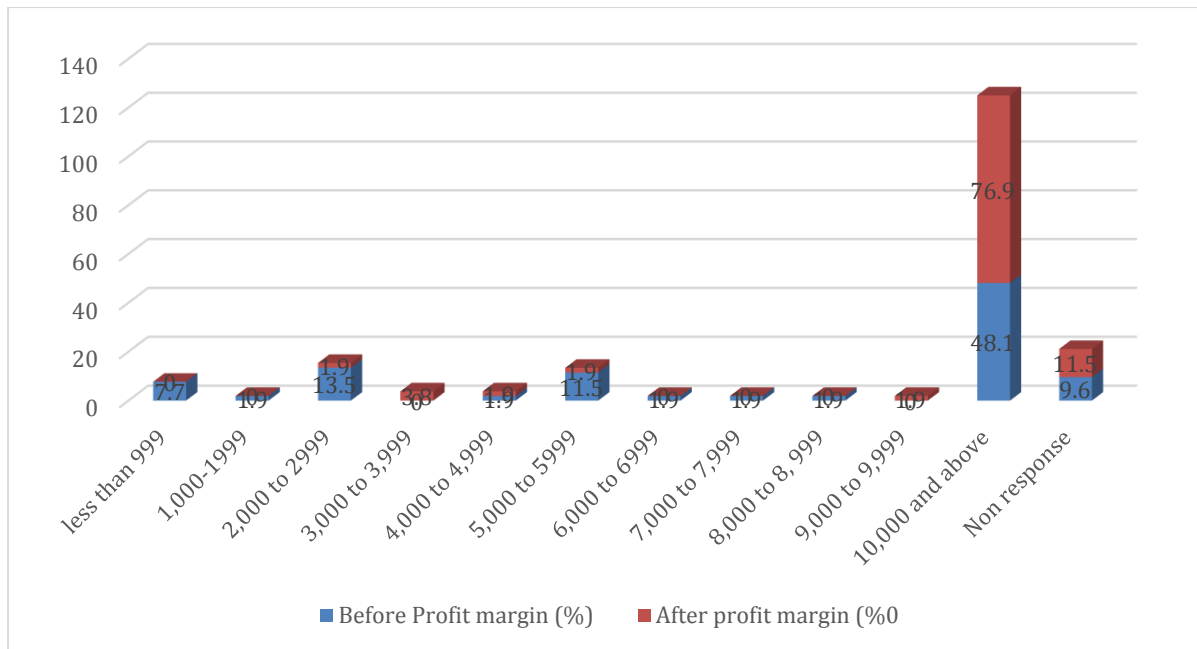


Figure 8: Asset impact on OBs profit margins

Source: Fieldwork data, 2017

Finally, before the OB owners acquired the assets, most of them (39%) cultivated their maize, rice or soy on a farm size which was less than 50 acres, but after the acquisition of the asset, the farm sizes of OBs have increased significantly culminating in about 20 percent of the OBs now farming on lands between 50 to 99 acres (Figure 9).

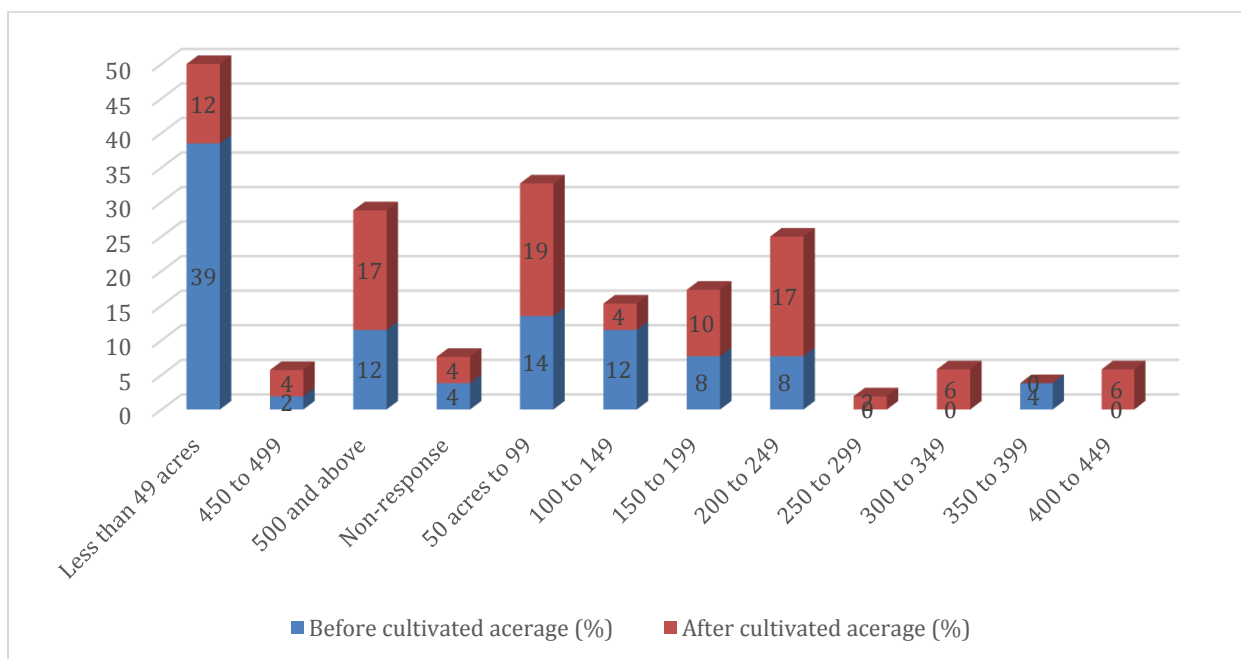


Figure 9: Acreage of asset cultivation (Before and after asset)

Source: Fieldwork data, 2017

5.3.2 Role of asset in farm business expansion

According to the OBs, the critical role played by the services being rendered by the assets clearly accounted for the phenomenal positive changes that had been experienced. The assets acquired under the program were credited by all the OBs who participated in this study as contributing to their business expansion. Assets such as tarpaulins were credited by almost all the OBs (97%) who received them comparable to other assets such as tractors (94%), corn sheller (82%), Knapsak Sprayer (83%), and motor tricycles (100%). The handful of OBs who did not directly attribute the increase in their working capital and profit margins as well as acreage of their farmlands mentioned other interventions such as good agronomical services and trainings they have received from the same ADVANCE project (Table 6).

Table 6: Attribution of expansion to asset

| S/N | Type of asset | Frequency | Asset acquisition | other |
|-----|------------------|-----------|-------------------|-----------|
| 1 | Tarpaulin | 38 | 37 (97.4%) | 1 (2.6%) |
| 2 | Tablets | 24 | 21 (87.5%) | 3 (12.5%) |
| 3 | Tractor | 16 | 15 (93.8%) | 1 (6.3%) |
| 4 | Radio | 13 | 12 (92.3%) | 1 (7.7%) |
| 5 | Corn Sheller | 11 | 9 (81.8%) | 2 (18.2%) |
| 6 | Weighing Scale | 11 | 10 (90.9%) | 1 (9.1%) |
| 7 | Motor bike | 10 | 10 (100.0%) | 0 |
| 8 | Laptop | 7 | 7 (100.0%) | 0 |
| 9 | Knapsak Sprayer | 6 | 5 (83.3%) | 1 (16.7%) |
| 10 | Printer | 4 | 4 (100.0%) | 0 |
| 11 | Projector | 4 | 2 (50.0%) | 2 (50.0%) |
| 12 | Moisture meter | 3 | 2 (66.7%) | 1 (33.3%) |
| 13 | Motor tricycle | 3 | 3 (100.0%) | 0 |
| 14 | Power Tiller | 3 | 3 (100.0%) | 0 |
| 15 | Rice Treasher | 1 | 1 (100.0%) | 0 |
| 16 | Rice Harvester | 1 | 1 (100.0%) | 0 |
| 17 | Manual Planter | 1 | 1 (100.0%) | 0 |
| 18 | Photocopier | 1 | 1 (100.0%) | 0 |
| 19 | Ipad | 1 | 1 (100.0%) | 0 |
| 20 | Office Equipment | 1 | 1 (100.0%) | 0 |
| 21 | Hand Gloves | 1 | 1 (100.0%) | 0 |
| 22 | Hand Sprayer | 1 | 1 (100.0%) | 0 |
| 23 | Maize Treasher | 1 | 1 (100.0%) | 0 |
| 24 | Savings box | 1 | 1 (100.0%) | 0 |
| 25 | Bluetooth reader | 1 | 1 (100.0%) | 0 |
| 26 | Reaper | 1 | 1 (100.0%) | 0 |
| 27 | Dibber | 1 | 1 (100.0%) | 0 |
| 28 | Plough | 1 | 1 (100.0%) | 0 |

Source: Fieldwork data, 2017

5.3.3 Other areas of asset impact

Other areas of asset impact cited by the OBs were expansion in their production base, increased yield and that of their OGs, diversification of OB activities and reduction in operational challenges as well as enhancement in corporate image, improvement in the health status of OGs (more on this in the next section) and improvement in the quality of grains produced (Figure 10). It could also be deduced from Figure 11 that the most significant impact of the asset utilization was felt in the area of increased yield of OGs (77%) and increased income of the OBs. Similarly, areas such as reduction in post-harvest losses and operational challenges were all mentioned by more than two-thirds of the OBs who participated in the study.

These areas of impact were also attested to by an official of the Project. According to him, the Project had observed that the assets, such as tractors, had contributed to increased productivity of the OBs and OGs in terms of expanded farm sizes, reduction in post-harvest losses and increased quality of farm produce. These resulted from the use of assets such as tarpaulins, shellers and threshers.

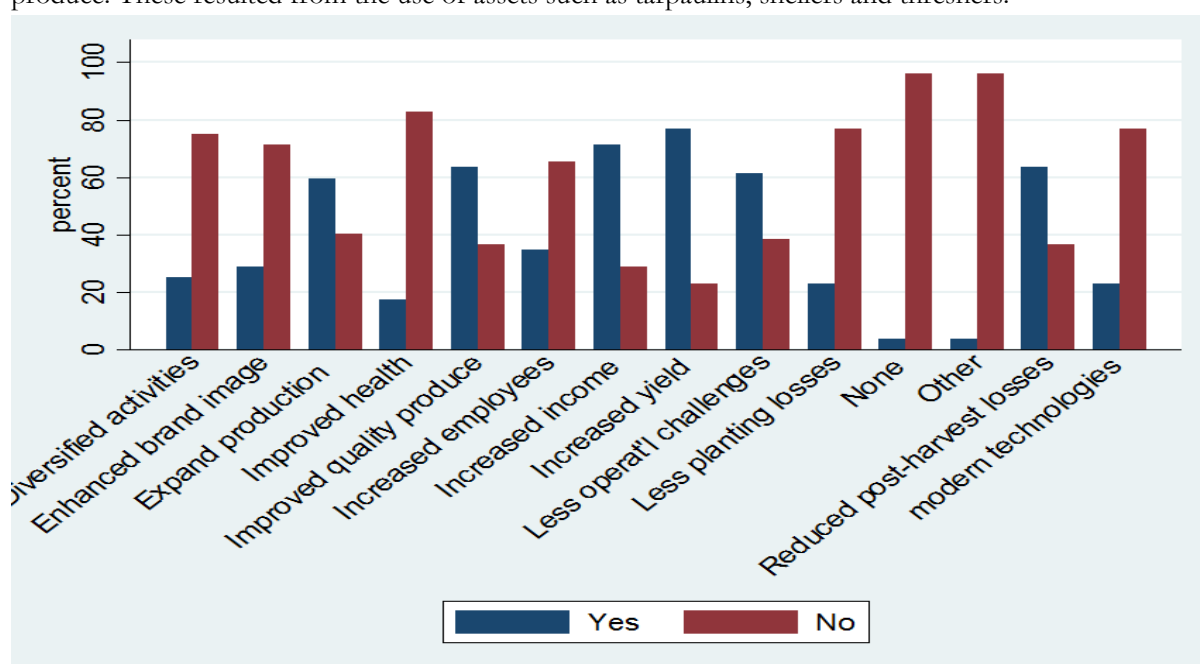


Figure 10: Other impact of asset utilization

Source: Fieldwork data, 2017

The ACIDI/VOCA's innovation and investment incentive grant project could be described as relatively new and hence the effect indicated above could be described as coming sooner than expected. However, when the OB owners were asked if they expected to realize them within the time frame of their acquisition of the assets, the majority (89%) of the OBs indicated that the benefits were expected within the period and, therefore, did not come to them as a surprise.

The impact of the assets on the OBs could also be felt in the increased number of OGs they were rendering services to. This came to the fore during interviews with some Farm Managers who reported that the numbers of the OGs per an OB had seen an upsurge from as low as 10 to between 250 and 500 or sometimes more. These quotes from Farm Managers from Gushegu, Nanumba North, and Zabzugu Districts respectively corroborate these finding:

We currently have about 605 OGs within our catchment area. This increase has been very fast compared to the initial number we started with about two years ago. We actually started with about 46

farmers in this town, but now, we even render services to OGs in the other adjoining communities (Neindow, 36 years old Farm Manager, Gushegu District).

I am currently managing about 250 or more OGs who are all from this and other near-by communities...I can really testify that our number has increased considering the fact that we started with just 20 OGs (Mohammed, 23 years old Farm Manager, Nanumba North District).

From the initial 20 OGs, there are currently about 120 of them that we render services to. Aside this number, there are others in other communities that I support in their farming activities (Osman, 38 years old Farm Manager, Zabzugu District).

The OB managers attributed these substantial increases in the number of OGs to the acquisition of mechanized farming equipment by the OBs through the ACDI/VOCA's innovation and investment incentive grant project.

Effectiveness of the assets acquired was also measured from the point of view of OGs as to whether there had been any increase and improvement in their agricultural activities. It was found out largely from their responses during the IDIs and FGDs that OGs, prior to getting the asset services, were farming on small acreages of farmlands on almost subsistence basis. By engaging the tractor services especially, acreages of farmlands substantially increased leading to farmers recording increases in the yields of maize, rice and soy, and hence increasing their incomes (see example in Figure 11).

Of course, some OGs reported having recorded the increase as a result of the services they received from the assets acquired through ACDI/VOCA. In other words, they reported that it was either going to be impossible for them to have these high yields and income within the period in question, or it was going to take a very long time to record such achievements. This assertion from an OG is very illustrative:

For me, I used to have 3 acres, but I currently cultivate on 15 acres of land. I cultivate largely maize on the land (Timothy, 45 years old Male Focus Group Discussant, West Mamprusi).



Figure 11: A large rice farmland

Source: Fieldwork data, 2017

5.3.4 Unintended benefits from assets utilization

The OBs were further asked if they had acquired other benefits from the acquisition and utilization of the asset that they did not expect. More than half of the OBs that participated in the study indicated achieving some unintended benefits from the acquisition and utilization of the asset. Of this category of respondents, the unintended benefit (that was common) was enhancement in their brand corporate image (23%) and usage of the assets to render some social services to their communities (Table 7).

It was also clear from the responses that some OB owners could boast of properties such as houses as a result of the huge profits they were making from the assets acquired. Elaborating on the latter further, Alhassan, a 45-year old beneficiary in the Gushegu District who received a motorbike indicated that he *uses the motorbike for other social events such as transporting the sick and pregnant women to the hospital*. Another 42-year old in the same district (Idrisu) reported that he *sometimes uses the tractor to carry firewood for some educational institutions in the district*.

Table 7: Unintended benefits from asset utilization

| Unintended benefits from asset utilization | Frequency | Percent |
|--|-----------|--------------|
| None | 25 | 48.1 |
| Education of children | 3 | 5.8 |
| Family recognition | 4 | 7.7 |
| Enhanced brand image | 12 | 23.1 |
| Social services | 6 | 11.5 |
| Employment | 1 | 1.9 |
| New business opportunities | 1 | 1.9 |
| Total | 52 | 100.0 |

Source: Fieldwork data, 2017

The study found that within the Northern Region of Ghana, ACIDI/VOCA's innovation and investment incentive grant project has propelled phenomenal achievements in increasing and improving the quality of farmers' yields in the maize, rice and soy value chain. Quite apart from the reported gains by the OGs, some unintended benefits have been realized by farmers purportedly flowing from the services they received from their OB's assets. Although the pathways on how the assets have facilitated these benefits were not quantitatively captured from the field, evidence from the qualitative data indicates that the acquisition and utilization of the assets such as tractors and shellers led to cultivation of maize, rice and soy on large farmlands. Similarly, the utilization of the assets, in addition to other best agronomic practices introduced to farmers by the project, led to increased production and harvesting of farm produce while some assets such as the tarpaulin and tractors aided in quality harvesting and processing of the produce. Finally, the use of some assets such as the weighing scale and moisture meter also enabled the beneficiaries to have good sales which translated to increased profits.

While some respondents opined that their health status had improved by way of being able to sign all their families to the National Health Insurance Scheme (NHIS), others attributed the assets to the increased social connections between farmers, as well as the prestige of having large farm size and their ability to construct new houses. Some OGs also reported giving their children good education which was not the case some few years ago. Expressions such as those below support the above views:

It has helped in my children's education, and I have been able to register all my family members on the NHIS. The reason is that I have a big farm now, and I am able to increase yield to make greater profit (Mustapha, 50 years old, FGD participant, West Mamprusi District).

I can now afford any health care. Imagine, last year, my brother had an accident, and I had to spend more than GH¢2,000.00 on him. If not the fact that I had this big farm, where was I going to get that money to pay for his accident bills (Alhassan, 46 years old male farmer, West Mamprusi District).

Some of the assets have helped to improve the health conditions of farmers. For instance, with the tractors, we no longer carry heavy goods over the long distances from the farms to the house. The burden of neck and chest pains as well as falls and their attendant problems have all been reduced as a result of the acquisition and utilization of the tractors (Amos, 49 years old, West Mamprusi District).

We are a big family now; yes, they are my family now. We are about 500 farmers in one group, and so whenever you have any problem, you have all these people coming to support you. We go for each other's funeral and marriage ceremonies...The truth is that somebody will not come to tell you stories, the ADVANCE people will do the demonstration farm right in your farm for you to see whatever they are doing so that by the harvest season, you can compare yours to their farm (Khalid, 39 years old OG, Tamale Metropolis).

5.4 Maintenance and Asset Replacement

5.4.1 Who services assets

Asset owners will derive maximum and continuous benefits, if the assets are regularly serviced or maintained (by an accredited professional with approved spare parts or materials). Depending on the type of farm assets, maintenance could be expected to be done through daily inspections, cleaning and lubricating or the asset being routinely inspected and serviced. Failure to adhere to these basic demands may lead to major operational challenges that could lead to a breakdown of the asset. It was, therefore,

imperative to assess the various measures that had been put in place by the recipients to maintain or replace the asset, if the need arises.

It came to the fore from the responses of the OB that nearly a third had engaged the services of an accredited mechanic to service the assets such as tractors. There was also a significant number of the respondents (23%) who had engaged non-accredited mechanics for the same purpose. Cumulatively, one-fourth of the owners had not serviced the asset since date of receipt from the project or opined that the type of asset they acquired did not require any servicing (Table 8).

Table 8: Asset servicing

| Category of after sales personnel | Frequency | Percent (%) |
|-----------------------------------|-----------|--------------|
| Self | 5 | 9.6 |
| Accredited mechanic | 15 | 28.8 |
| Non-accredited mechanic | 12 | 23.1 |
| No servicing till date | 6 | 11.5 |
| Servicing not required | 7 | 13.5 |
| None of the above | 6 | 11.5 |
| Other | 1 | 1.9 |
| Total | 52 | 100.0 |

Source: Fieldwork data, 2017

The category of after sales personnel was also contrasted with the type of the assets (Annex 5). Among other observations from the table, it can be observed from the table that some 27 percent of the OBs who received corn shellers reported that they did the servicing of the asset themselves, while the same proportion of the OBs indicated they allowed accredited mechanics to undertake the servicing. In much the same way, among the three OBs who had obtained moisture meters from the project, only one of them reported using an accredited mechanic to service the machine. Among the 16 OBs who received tractors through the project, only one indicated that he services the asset himself, while the majority of them (56%) reported of outsourcing this duty to an accredited mechanic. Of the six (6) OBs who reported to have received knapsack sprayers, it is instructive to note that two (2) of them indicated that they did not have any knowledge about servicing of the asset.

5.4.2 Regularity of asset servicing

The respondents were also further asked to indicate the regularity with which they service the assets. Their responses were contrasted with those who service the asset (Table 9). It could be gleaned from the table that most assets (23%) that required servicing usually took place on monthly basis or as and when the need arose (21%). Nearly a fifth of the respondents who used accredited and unaccredited mechanics to service the assets generally did so on monthly basis. Only a handful of assets recipients reported servicing the assets on quarterly or semi-annual basis. It is very significant to also point out that more than four in every ten asset beneficiaries did not have any regular maintenance schedule to service the assets, but some of the respondents were indicative, after further probing, that they undertake the exercise on bi-weekly basis.

Some of the maintenance and replacement practices that had been adopted by the OBs included change of oil and filters, greasing, replacement of worn-out parts such as drive belts and tyres. For instance, according to Asoi, a 38-year old beneficiary at Chereponi, *every month, I change the oil, service the motorbike, wash the carburetors and adjust the chain to ensure that the machine works very well in the field.*

Table 9: Regularity of asset servicing

| Who services Asset | Regularity of asset maintenance [Percent (%)] | | | | | | | | |
|-------------------------------------|---|-------------|------------|-------------|------------|-------------|----------------|--------------|-----------|
| | Everyday | Monthly | Quarterly | Half-yearly | Yearly | None | As need arises | Total | N |
| Self | 0.0 | 3.8 | 1.9 | 1.9 | 0.0 | 0.0 | 1.9 | 9.6 | 5 |
| Accredited mechanic | 1.9 | 9.6 | 0.0 | 0.0 | 0.0 | 3.8 | 13.5 | 28.8 | 15 |
| Non-accredited mechanic | 0.0 | 9.6 | 3.8 | 1.9 | 0.0 | 1.9 | 5.8 | 23.1 | 12 |
| No servicing till date ³ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 0.0 | 11.5 | 6 |
| As need arises | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 0.0 | 1.9 | 1 |
| Servicing not required | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 11.5 | 0.0 | 13.5 | 7 |
| None | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 0.0 | 11.5 | 6 |
| Total | 1.9 | 23.1 | 5.8 | 3.8 | 1.9 | 42.3 | 21.2 | 100.0 | 52 |
| N | 1 | 12 | 3 | 2 | 1 | 22 | 11 | 52 | |

Source: Fieldwork data, 2017

³ These largely consisted of tablets, projectors and tarpaulins that were acquired about a year ago

5.4.3 Source of spare parts

Maintenance and sustainability of assets could sometimes be hampered by lack of genuine spare parts to replace damaged or faulty parts of the asset. It was therefore expedient to ascertain from the OBs their source of spare parts for servicing the assets they acquired through the project (Table 10). Two main sources were identified as comprising the open market and an accredited agent within the country. Relatively, nearly half of the respondents did not consult any of the two sources above, maybe because their assets such as tarpaulins did not need spare parts for replacement.

Table 10: Source of assets spare parts

| Source of spare parts | Frequency | Percent |
|--------------------------------------|-----------|--------------|
| From accredited agent within country | 13 | 25.0 |
| From open market | 14 | 26.9 |
| None of the above | 25 | 48.1 |
| Total | 52 | 100.0 |

Source: Fieldwork data, 2017

5.4.4 Last time asset was serviced

The OB owners were asked to specifically indicate the last time they serviced their assets. The various servicing schedules that came up were over a month or six months ago, but generally, most of the respondents were of the view that their assets, as at the time of the data collection did not need servicing (Table 11).

Table 11: Last time asset was serviced

| Current asset servicing schedule | Frequency | Percent (%) |
|----------------------------------|-----------|--------------|
| None | 24 | 46.2 |
| Today | 2 | 3.8 |
| This week | 5 | 9.6 |
| Last week | 4 | 7.7 |
| Last two weeks | 4 | 7.7 |
| Over a month ago | 7 | 13.5 |
| About six months ago | 6 | 11.5 |
| Total | 52 | 100.0 |

Source: Fieldwork data, 2017

When the servicing schedule was contrasted with the type of assets (Annex 6), it was observed from the responses of the OBs that, all OBs who had received manual planters, hand gloves, hand sprayers, wireless, savings boxes, motor tricycles, Bluetooth readers, reapers and dibbers indicated that these assets did not require servicing, at least during the period of the data collection. The beneficiaries of the rice thresher and harvester also indicated servicing the assets on the day of data collection. Other assets such as the tarpaulin, tractor, motor tricycles, weighing scale, radio and Knapsak sprayer were also found to have been repaired at various intervals over a six-period of prior to the data collection.

Responses from Farm Managers and Asset Operators were not different from those of the OBs and OGs in terms of the kind of assets they manage and operate. Specifically, the managers were in charge of assets which had been acquired by their OBs, while the operators, on their part, operated the heavy machines such as the tractor and/or the power trailers, reapers, rippers, planters, shellers, etc.

Though the OBs played a supervisory role of all activities in the field, it was the duty of the Farm Managers to ensure that the services reached the OGs, and that the day-to-day activities on the field were well coordinated and on schedule. This included checking to ensure that the assets were in good shape, which OG received what service at what time, and whether the right payment was received for services rendered. For instance, Farm Managers reported that it was their responsibility to make sure that tractors had their fuel tanks filled before they were allowed to go to the field, and where the assets are supposed to be brought back to 'base' for safe keeping, that was done before the day ended. Most of these roles were, however, performed by the Asset Operators, but with instructions from the Farm Managers. Expressions such as these confirm these assertions made:

Every morning, I have to make sure that all the machines are in good shape before we set off to the field. I make sure, for instance, the tractor's fuel tank is filled...I also have to detail our operators about where what machine should go at any point in time (Mohammed, 23 years old, Farm Manager, Nanumba North District)

I do operate the tractor for the man (OB owner). I have been working with him for some time now, and so he will tell me to go to a particular farm to plough. I cannot go anywhere without his consent. No, I report to the manager, and he tells me what to do (39 years old Farm Manager, Gushegu)

Maintenance of the assets given to OBs occupied a very important place in the ACDI/VOCA's innovation and investment incentive grant project flowing from the fact that sustenance of gains achieved will be dependent on that. Hence, observing good maintenance practices and plans put in place by grantees to replacing broken or worn out assets were pivotal in the structure of the scheme. On the part of beneficiary OGs, there were no specific maintenance and replacement plans made known to them by their OBs, though seen as something important for them to give a thought to, yet, they had not. It was observed that most of the assets had barely broken down (because most of the assets were relatively new – had been acquired less than two years back). This perhaps, might explain the reason why they had not given much thought to maintenance practices because they had not been hit with the reality of any breakdowns.

While this topic was not a serious matter for discussion among OGs, it was a major one among Farm Managers. According to their responses, various measures were put in place to ensure the effective utilization of the assets acquired by the OBs in the Northern Region. The measures ranged from proper booking to track the movement of the assets, making sure that operators were the only persons allowed to operate the machines, coming out with regulations on usage (procedures), ensuring regular maintenance, and even expelling a member from the group on continuous misuse of assets. For example, it was a common arrangement for farmers to keep tarpaulins for a maximum of two days during harvesting. In most cases, Managers and operators would not compromise on the use-arrangements fashioned by OBs in order to ensure longevity of the assets. Examples of the use arrangements are specified in the following quotes:

Regarding the tarpaulin, anytime someone needs it, you will have to book for it, and then direct you to the tractor operator who keeps it. He actually will give it to the OG upon my prompting, and as and when it is available. We have made an arrangement with them such that, no one is expected to keep it for more than two days. We do that so that everyone will benefit from it (Osman, Farm Manager, Zabzugu District)

He monitors all aspects of the tractor. In terms of checking for the water level, engine oil, inspection of tyres and tightening of bolts and nuts before going to the farm every day. But if there is something which is beyond my ability to fix, we have a certain mechanic who comes around to fix it for us. That same

mechanic is the one who services the tractor at the end of every season (Zakaria, Tractor Operator, Gushegu District)

First of all, before a farmer comes for the tarpaulin, I make known to him or her about how to use it – that they clear the land before spreading it, and also spreading a rag on the tarpaulin before putting a corn sheller on it. I also usually make unannounced visits to the farms to make sure that the regulations are adhered to. If by any means, one flouts it, he or she is given some warning, and subsequent ones may even lead him or her being expelled from the group because such a person definitely does not want the good of the group (Mohammed, Farm Manager, Nanumba North District)

5.4.5 Challenges with servicing of asset

The majority of the respondents do not encounter much challenges when it comes to servicing the asset, nonetheless, the few who had encountered some challenges enumerated non-availability of certified mechanics in their areas of operation to service the assets (12%) and the high cost of spare parts (Table 12 and Figure 12).

Table 12: Challenges with asset servicing

| Challenge | Response | | | |
|---|----------|-------------|----|-------------|
| | Yes | | No | |
| | N | Percent (%) | N | Percent (%) |
| No funds to pay for servicing | 2 | 3.8 | 50 | 96.2 |
| No funds to procure spare parts | 0 | 0.0 | 52 | 100.0 |
| No mechanics available in community | 6 | 11.5 | 46 | 88.5 |
| Negative experience with previous servicing | 0 | 0.0 | 52 | 100.0 |
| Do not see the need to do so | 0 | 0.0 | 52 | 100.0 |
| No spare parts available | 2 | 5.8 | 49 | 94.2 |
| High cost of spare parts | 8 | 15.4 | 44 | 84.6 |

Source: Fieldwork data, 2017



Figure 12: A parked tractor waiting to be serviced⁴

Source: Fieldwork data, 2017

5.4.6 Replacement of asset

The respondents had also thought of and instituted measures to replace the assets (Table 13). The dominant measure was provision for depreciation (65%) and re-application to the project (29%) for another asset, ostensibly, with the same payment conditions.

Table 13: Measures to replace asset

| Measure to replace asset | Frequency | Percent (%) |
|----------------------------|-----------|--------------|
| Provision for depreciation | 34 | 65.4 |
| Apply to ACDI/VOCA | 15 | 28.8 |
| None of the above | 3 | 5.8 |
| Total | 52 | 100.0 |

Source: Fieldwork data, 2017

The respondents were also asked if they would acquire more assets under the Project, if the opportunity became available. Their responses indicate that almost all (98%) of them were willing to do so. Indeed,

⁴ As at the time of the data collection, this asset had been parked for one week

the respondents enumerated over 20 different farm assets that, granted the opportunity, they would procure. More than half (54%) and nearly four out of every ten as well as about a third of the OBs, would procure tractors, corn shellers and planters, respectively. Similarly, the demand for assets such as combined harvesters, motor bikes and tricycles were the others that were in relative high demand by the OBs compared to assets like sprayer, rippers and reapers (Figure 13).

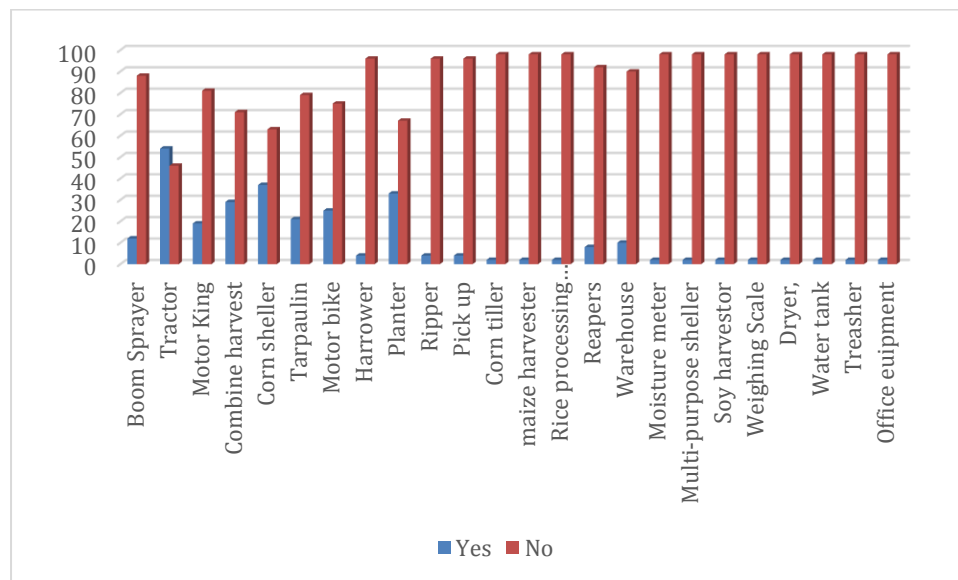


Figure 13: Percentage of OBs by new assets demanded

Source: Fieldwork data, 2017

The IDI and FGD participants were also asked whether they would be interested in procuring more assets through the ACDI/VOCA ADVANCE and what their priority would be. Responses from the set of key informant respondents were analogous - OGs' responses were not different from those of Farm Managers or Asset Operators. All the participants responded in the affirmative that they were interested in securing similar opportunities from the Project.

Demands for new and different types of assets were as varied as their reasons. Among the farm implements on the 'wish lists' of the participants of the study were tractors (with trailers), 'motor king' (tricycle), combine harvesters, tarpaulins, planters, corn shellers, threshers, weighing scales, moisture meters, motor bikes, boom sprayers, and several others. Reasons assigned to these 'wish lists' also varied. Others were of the view that it was costly and slow to rely on human and animal labor/service because, although human labor may charge huge sums of money, it would not work as the machines would have in terms of size or farm worked and the pace of work. Several OGs also found solace in the payment (in kind) arrangement they had with their OBs and reported that they could work to pay their service providers on the grounds that because their OBs were benefiting from some favorable arrangements from the ADVANCE project, they were also gaining from that. There was also the desire of some farmers to fully mechanize their activities from land preparation, cultivation/sowing, harvesting and post-harvesting and even marketing.

These statements attest to these facts:

I want to fully mechanize because I have come to realize that it's the cheapest and most profitable means of farming. It is not that expensive as you might think of it; comparing it with the profit you make, it is that cheap (Khalid, 39 years old OG, Tamale Metropolis)

I will go in for a combined harvester because when you hire the services of laborers to harvest your crops for you, it is so slow, and other times too, some of them steal your crops. You go to the market and see them selling bowls of grains and you wonder where they really got them from because you are perfectly aware that they do not have farms (Fati (II), 30 Years old FGD participant, Mion District)

As I said earlier, there are other communities that we serve; so, by getting a motor bike from ACIDI/VOCA, it will help me to go to the farms to monitor the farmers effectively (Issah, Farm Manager 2, Nanumba North District)

On sustaining this program, all interviewees and discussants who participated in this study deemed it necessary for the incentive grant to be sustained and extended to other parts of the country. This, respondents opined, will ensure food security for the country due to the massive mechanization the program had brought about. Said differently, it was shared by some respondents that farming is a laborious task, and therefore, demands mechanization. However, because of the cost of purchasing these heavy agricultural machineries such as the tractors and harvesters, poor farmers are scared away from engaging in farming activities. In this regard, it was in their view for the program to be extended to every part of the country where access to these assets is almost impossible.

5.5 Success Stories

Almost all the OBs who participated in this assessment had a success story to tell about their engagement with the ADVANCE project in general and its innovation and investment incentive grant activity in particular. The stories emanated from some of the trainings that they had received from the Project and significant roles the assets had been playing in boosting their productivity and profitability. Some of the stories related to shortening the turn-around time for undertaking farming activities, adoption of good farming practices, empowerment of OGS, enhanced record keeping, opening up of new marketing opportunities and establishment of networks with other agricultural stakeholders. The following quotes are typical of their responses:

Now when we take the rice to buyers, they are not able to turn us down because we test our rice before going to the market (Isham, 32 years old, West Mamprusi)

People were asking me how I got the brand-new tarpaulin. Farmers are getting to know more about planting skills because of the videos they watch on the projector (Alhassan, 35 years old, Gushegu)

The bike has branded my business because it is not a common bike. It has USAID sticker (Figure 16) on it and anybody knows that I am into such business (Saaka, 28 years old, Tamale)

The asset is not meant for me alone, but also the society at large. It also serves as a source of an income generation venture as well (Husane, 51 years old, Karaga)

The savings box has helped us to save from our proceeds. We get money out of the tarpaulin by hiring it out. We are also able to video and record the farming activities of farmers (Edward, 32 years old, Saboba).



Figure 14: A motorbike with USAID Sticker

Source: Fieldwork data, 2017

6.0 Key Observations

The following key observations have been made through this KM&L study on assets acquisition and utilization by OBs in the Northern Region of Ghana:

- That the ACIDI/VOCA's innovation and investment incentive grant project has led to more OBs and their OGs effectively and efficiently using farm assets to expand their maize, rice and soy production base which has resulted in increased working capital, income and farmlands. The percentage of OBs operating with an average working capital of GH¢15,000.00, for instance, had increased from 21 percent to 25 percent. In the same way, some OBs profit margins above GH¢10,000.00 increased from almost half (48%) to 77 percent. These improvements were attributable to the acquisition and utilization of asset (92%) which has resulted in cultivation on large farmlands.
- That farm assets such as tractors and tarpaulins were being used by OBs to render various quality farming services such as ploughing, shelling and winnowing to a large number of OGs which has led to production of quality maize, rice and soy with the eventual outcome of increased income for OBs and OGs. For instance, before the acquisition and use of the assets, some OGs were relying solely on cattle to plough their farms and carry farm produce by donkeys. The use of the tractors and plough has now relieved these OGs from these mechanical and slow processes.

- That through the utilization of the assets, the OBs have diversified their services to OGs from simply providing farm inputs, ploughing and some financial support to currently providing broad range of support services including mechanized plantation, harvesting, shelling, transportation and storage of farm produce. Other OBs had also strengthened their monitoring and administrative activities through activities such as keeping of periodic and accurate farm records using some of the assets such as office equipment.
- That mechanization has the ripple effect of promoting high quality agriculture, attracting more OGs into farming, arousing and sustaining the interest of OBs and OGs in farming activities and improvement in the social status and health conditions of beneficiaries including consumers of farm.
- That OBs and their respective Farm Managers and Asset Operators were adopting some measures such as regular oil check and replacement of faulty assets parts as some measures to maintain the assets. However, elaborate asset maintenance mechanisms have not been put in place by some OBs thereby resulting in their use of unaccredited mechanics and spare parts from the open market to service the assets.

7.0 Conclusions

The ACDI/VOCA ADVANCE innovation and investment incentive grant project was instituted to provide some farm assets to OBs who would intend use the assets to service some OGs in the projects ZOI. The Project's assumptions are that assets provided to the OBs will make them more efficient, expand their business and become more sustainable in the production of maize, rice and soy. This study, commissioned by ACDI/VOCA was intended to assess the current state and extent of utilization of assets acquired by the OBs in the Northern Region of Ghana as well as measures that have been adopted by asset(s) recipients to maintain them.

Results of this evaluation have clearly demonstrated that most of the assets, except in few instances were some tablets have been retrieved by the Project, were being utilized by the beneficiaries for the purposes for which they were provided. Specifically, the OBs were required to service OGs with the assets and this requirement was verified through the evaluation as being implemented. This has resulted in several OGs who, hitherto, were denied access to mechanized farming, now having the opportunity to do so at relatively favorable payment terms. The OGs are, thereby, able to maximize their production, harvest high yields and process quality maize, rice and soy.

The assets, aside supporting the OBs to modernize their farming administrative strictures, were also facilitating adoption of good agronomic practices such as ripping and using tarpaulin to enhance produce quality. On the contrary, almost all the asset beneficiaries admitted that they made some proposals on how they will maintain and sustain the assets in their application documents to the ACDI/VOCA's innovation and investment incentive grant management team. Some of the proposals were following regular servicing schedule, engagement of accredited after sales service agents, engagement of qualified asset operators or reverting to the project for support. It was, however, observed that observance of some of these proposed guidelines was at variance with what was currently being implemented by the beneficiaries.

8.0 Lessons Learned and Recommendations

8.1 Lessons Learnt

This assessment has led to the learning of some useful lessons by the Consultant that could impact positively on the overall ADVANCE and the FtF project intervention. Firstly, the respondents were able to link the assets operations with other good agronomical training that they had received from the project implementers. The acquisition and utilization of the assets by some OBs were largely influenced by their realization that they ought to treat farming as a business.

Secondly, the OBs and their respective OGs had come to the understanding that production of quality maize, rice and soy were dependent on utilization of appropriate farm assets such as tractors and tarpaulins. They were, thus, willing to acquire more of the assets to boost their farming activities which would eventually lead to increased yields and income.

Similarly, the acquisition and utilization of the assets had an inter-related links with adoption of some good farming administrative practices such as improved record keeping which will eventually help them to avoid engagement in activities that lead to business losses.

It must also be emphasized that timely acquisition and utilization of the appropriate farm asset has significant implications on the yields and productivity of OBs and their OGs. This lesson is important owing to the huge reliance on the weather by OGs in the study area for their farming activities.

Ultimately, some respondents had come to the realization that, and as succinctly narrated by Ernest, a 38-year old OB owner at Chereponi, *the overall asset project intervention has really played a role in reducing poverty levels of farmers and gender inequality.*

8.2 Recommendations

It is recommended that more of the assets should be made available to OBs in order for services to reach more OGs in real time. This will therefore necessitate a speedy processing of applications so that OBs/OGs would have the assets at the time they are really needed since it emerged that several of the assets got to the field of work when the farming season was over.

It will also be worthwhile to have accredited spare parts dealers in the operational areas of the OBs so that the OBs will have ready access to genuine spare parts any time they needed them – thus, when the machines need fixing. Connected to this is that a team of accredited after-sales service agents or personnel should be organized and linked to asset owners for easy, reliable and efficient servicing of the assets. This will ensure that the assets will continually be in operation for most parts of the year and prolong its life span even beyond the duration of the ADVANCE project.

It is further recommended that a detailed cost-benefit analysis of each asset and their cost relative to their returns on OBs investment be conducted to ascertain the real economic impact of the assets.

Annex 1: Assets and Perceived Purpose(s) for Acquisition

| Asset | Fre'cy | Perceived reasons for acquiring assets | | | | | | | | | | | | Other |
|----------------|--------------|--|------------------------------------|------------------------|------------------------------|---------------------------------|--|-----------------------------------|-----------------------------------|---|----------------------------------|-------------------------------------|------------------------------------|-------|
| | | Mecha nized farmin g | Input service s on credit | Maxim ize profit | Social respon sibility | Prepar e own farmla nd | Prepar e farmla nds of OGs | For produc tion of crops | For harvest ing of crops | Transp orting crops to market | To process farm produce | To market farm produc e | To store farm produc e | |
| Corn Sheller | 11 (100%) | 8 (72.7%)) | 2 (18.2%)) | 7 (63.6%)) | 5 (45.5%)) | 4 (36.4%)) | 2 (18.2%)) | 4 (36.4%)) | 6 (54.5%)) | 2 (18.2%) | 5 (45.5%) | 1 (9.1%) | 0 | 0 |
| Moisture meter | 3 (100%) | 1 (33.3%)) | 0 | 0 | 0 | 0 | 0 | 1 (33.3%)) | 0 | 1 (33.3%) | 1 (33.3%) | 2 (66.7%)) | 1 (33.3%)) | 0 |
| Rice Treasher | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 1 (100%) | 1 (100%) | 0 | 0 | 1 (100%) | 0 | 0 | 0 |
| Motor bike | 10 (100%) | 7 (70.0%)) | 3 (30.0%)) | 7 (70.0%)) | 4 (40.0%)) | 4 (40.0%)) | 4 (40.0%)) | 5 (50.0%)) | 5 (50.0%)) | 1 (10.0%) | 3 (30.0%) | 2 (20.0%)) | 0 | 0 |
| Power Tiller | 3 (100%) | 2 (66.7%)) | 0 | 1 (33.3%)) | 0 | 0 | 0 | 0 | 1 (33.3%)) | 1 (33.3%) | 1 (33.3%) | 1 (33.3%)) | 1 (33.3%)) | 0 |
| Tractor | 16 (100%) | 12 (75.0%)) | 5 (31.3%)) | 13 (81.3%)) | 10 (62.5%)) | 11 (68.8%)) | 9 (56.3%)) | 8 (50.0%)) | 11 (68.8%)) | 8 (50.0%) | 3 (31.3%) | 2 (12.5%)) | 2 (12.5%)) | 0 |
| Tarpaulin | 38 (100%) | 17 (44.7%)) | 7 (18.4%)) | 27 (71.1%)) | 15 (39.5%)) | 12 (31.6%)) | 11 (28.9%)) | 11 (28.9%)) | 13 (34.2%)) | 12 (31.6%) | 20 (52.6%) | 26 (68.4%)) | 4 (10.5%)) | 0 |
| Weighing Scale | 11 (100%) | 4 (36.4%) | 2 (18.2%)) | 5 (45.5%)) | 3 (27.3%)) | 3 (27.3%)) | 2 (18.2%)) | 4 (36.4%) | 5 (45.5%)) | 4 (36.4%) | 4 (36.4%) | 4 (36.4%) | 3 (27.3%)) | 0 |
| Radio | 13 (100%) | 4 (30.8%) | 1 (7.7%)) | 9 (69.2%)) | 2 (15.4%)) | 4 (30.8%)) | 5 (38.5%)) | 3 (23.1%)) | 4 (30.8%)) | 4 (30.8%) | 7 (53.8%) | 1 (7.7%) | 0 | 0 |
| Tablets | 24 | 9 | 3 | 17 | 7 | 6 | 7 | 6 | 5 | 5 | 7 | 3 | 2 | 0 |

| | | | | | | | | | | | | | | |
|------------------|-------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------|--------------|-------------------|-------------------|-------------------|
| | (100%) | (37.5%)) | (12.5%)) | (70.8%)) | (29.2%)) | (25.0%)) | (29.2%)) | (25.0%)) | (20.8%)) | (20.8%) | (29.2%) | (12.5%)) | (8.3%) | |
| Rice Harvester | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 |
| Knapsak Sprayer | 6 (100%) | 3 (50.0%)) | 1 (16.7%)) | 3 (50.0%)) | 4 (66.7%)) | 2 (33.3%)) | 3 (50.0%)) | 3 (50.0%)) | 3 (50.0%)) | 4 (66.7%) | 2 (33.3%) | 2 (33.3%)) | 2 (33.3%)) | 0 |
| Manual Planter | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 |
| Printer | 4 (100%) | 1 (25.0%)) | 0 | 2 (50.0%)) | 1 (25.0%)) | 0 | 0 | 1 (25.0%)) | 0 | 1 (25.0%) | 0 | 1 (25.0%)) | 0 | 1 (25.0%)) |
| Laptop | 7 (100%) | 1 (14.3%)) | 0 | 5 (71.4%)) | 2 (28.6%)) | 1 (14.3%)) | 1 (14.3%)) | 2 (28.6%)) | 1 (14.3%)) | 2 (28.6%) | 3 (42.9%) | 1 (14.3%)) | 0 | 1 14.3% |
| Photocopier | 1 (100%) | 0 | 0 | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 |
| Ipad | 1 (100%) | 0 | 0 | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 |
| Office Equipment | 1 (100%) | 0 | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 1 (100%) |
| Hand Gloves | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 0 |
| Hand Sprayer | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 0 |
| Maize Treasher | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 |
| Savings box | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Motor tricycle | 3 (100%) | 2 (66.7%)) | 1 (33.3%)) | 2 (66.7%)) | 2 (66.7%)) | 1 (33.3%)) | 1 (33.3%)) | 1 (33.3%)) | 1 (33.3%)) | 3 (100%) | 2 (66.7%) | 1 (33.3%)) | 0 | 0 |
| Projector | 4 (100%) | 1 (25.0%) | 0 | 2 (50.0%) | 2 (50.0%) | 0 | 0 | 1 (25.0%) | 0 | 1 (25.0%) | 0 | 1 (25.0%) | 1 (25.0%) | 0 |

| | | | | | | | | | | | | | | |
|------------------|-------------|---|-------------|-------------|-------------|-------------|-------------|-------------|---|---|---|---|---|-------------|
| | |) | |) |) | | |) | | | |) |) | |
| Bluetooth reader | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (100%) |
| Reaper | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 1 (100%) |
| Dibber | 1 (100%) | 0 | 0 | 1 (100%) | 1 (100%) | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 |
| Plough | 1 (100%) | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Source: Fieldwork data, 2017

Annex 2: Type of Asset and Actual Services Asset is Performing

| Asset | Fre'cy | Actual services being rendered by assets at time of data collection | | | | | | | | | | | | |
|-------------------|--------------|---|------------------------------------|------------------------|------------------------------|---------------------------------|--|-----------------------------------|-----------------------------------|---|----------------------------------|-------------------------------------|------------------------------------|-------|
| | | Mecha nized farmin g | Input service s on credit | Maxim ize profit | Social respon sibility | Prepar e own farmla nd | Prepar e farmla nds of OGs | For produc tion of crops | For harvest ing of crops | Transp orting crops to market | To process farm produce | To market farm produc e | To store farm produc e | Other |
| Corn Sheller | 11 (100%) | 8 (72.7%)) | 2 (18.2%)) | 6 (54.5%)) | 4 (36.4%)) | 2 (18.2%)) | 3 (27.3%)) | 4 (36.4%)) | 4 (36.4%)) | 4 (36.4%)) | 3 (27.3%)) | 3 (27.3%)) | 0 | 0 |
| Moisture meter | 3 (100%) | 1 (33.3%)) | 0 | 0 | 0 | 0 | 2 (66.7%)) | 1 (33.3%)) | 1 (33.3%)) | 2 (66.7%)) | 0 | 1 (33.3%)) | 0 | 0 |
| Rice Tresher | 1 (100%) | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 1 (100%) | 0 | 0 | 0 |
| Motor bike | 10 (100%) | 6 (60.0%)) | 4 (40.0%)) | 6 (60.0%)) | 4 (40.0%)) | 4 (40.0%)) | 6 (60.0%)) | 4 (40.0%)) | 2 (20.0%)) | 3 (30.0%)) | 2 (20.0%)) | 0 | 0 | 0 |
| Power Tiller | 3 (100%) | 2 (66.7%)) | 0 | 0 | 0 | 0 | 0 | 1 (33.3%)) | 2 (66.7%)) | 1 (33.3%)) | 1 (33.3%)) | 0 | 0 | 0 |
| Tractor | 16 (100%) | 11 (68.8%)) | 7 (43.8%)) | 11 (68.8%)) | 9 (56.3%)) | 8 (50.0%)) | 7 (43.8%)) | 9 (56.3%)) | 8 (50.0%)) | 7 (43.8%)) | 5 (31.3%)) | 1 (6.3%)) | 0 | 0 |
| Tarpaulin | 38 (100%) | 16 (42.1%)) | 9 (23.7%)) | 23 (60.5%)) | 15 (39.5%)) | 10 (26.3%)) | 13 (34.2%)) | 13 (34.2%)) | 12 (31.6%)) | 24 (63.2%)) | 8 (21.1%)) | 3 (7.9%)) | 2 (2.6%)) | 0 |
| Weighing Scale | 11 (100%) | 5 (45.5%)) | 2 (18.2%)) | 3 (27.3%)) | 3 (27.3%)) | 3 (27.3%)) | 6 (54.5%)) | 5 (45.5%)) | 5 (45.5%)) | 7 (63.6%)) | 3 (27.3%)) | 2 (18.2%)) | 0 | 0 |
| Radio | 13 (100%) | 3 (23.1%)) | 3 (23.1%)) | 7 (53.8%)) | 3 (23.1%)) | 5 (38.5%)) | 3 (23.1%)) | 3 (23.1%)) | 4 (30.8%)) | 9 (69.2%)) | 3 (23.1%)) | 0 | 0 | 0 |

| | | | | | | | | | | | | | | |
|------------------|--------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------|--------------|-------------------|-------------------|---|
| Tablets | 24 (100%) | 9 (37.5%)) | 3 (12.5%)) | 16 (66.7%)) | 8 (33.3%)) | 5 (20.8%)) | 5 (20.8%)) | 5 (20.8%)) | 6 (25.0%)) | 10 (41.7%) | 3 (12.5%) | 1 (4.2%) | 1 (4.2%) | 0 |
| Rice Harvester | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Knapsak Sprayer | 6 (100%) | 2 (33.3%)) | 3 (50.0%)) | 2 (33.3%)) | 4 (66.7%)) | 2 (33.3%)) | 2 (33.3%)) | 3 (50.0%)) | 4 (66.7%)) | 2 (33.3%) | 3 (50.0%) | 1 (16.7%)) | 1 (16.7%)) | 0 |
| Manual Planter | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 0 | 1 (100%) | 0 | 1 (100%) | 0 | 0 |
| Printer | 4 (100%) | 0 | 0 | 2 (50.0%)) | 1 (25.0%)) | 1 (25.0%)) | 1 (25.0%)) | 0 | 1 (25.0%)) | 2 (50.0%) | 0 | 0 | 0 | 0 |
| Laptop | 7 (100%) | 0 | 1 (14.3%)) | 5 (71.4%)) | 2 (28.6%)) | 2 (28.6%)) | 2 (28.6%)) | 2 (28.6%)) | 1 (14.3%)) | 4 (57.1%) | 0 | 0 | 0 | 0 |
| Photocopier | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ipad | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 |
| Office Equipment | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 0 | 0 | 1 (100%) | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 0 |
| Hand Gloves | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 |
| Hand Sprayer | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 |
| Maize Treasher | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 0 | 0 | 0 | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 0 |
| Savings box | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 1 (100%) | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 |
| Motor tricycle | 3 (100%) | 1 (33.3%)) | 2 (66.7%)) | 1 (33.3%)) | 2 (66.7%)) | 1 (33.3%)) | 1 (33.3%)) | 0 | 3 (100%) | 2 (66.7%) | 1 (33.3%) | 0 | 0 | 0 |
| Projector | 4 | 0 | 0 | 2 | 2 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |

| | | | | | | | | | | | | | | |
|------------------|-------------|-------------|---|--------------|--------------|--------------|--------------|---|--------------|-------------|---|--------------|---|---|
| | (100%) | | | (50.0%)) | (50.0%)) | (25.0%)) | (50.0%)) | | (25.0%)) | (25.0%) | | (25.0%)) | | |
| Bluetooth reader | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reaper | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 |
| Dibber | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 1 (100%) | 0 | 1 (100%) | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 |
| Plough | 1 (100%) | 0 | 0 | 0 | 0 | 1 (100%) | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |

Source: Fieldwork data, 2017

Annex 3: Commensurate benefits from assets

| S/N | Type of asset | Frequency | Commensurate benefits | | | | | |
|-----|-----------------|-----------|-----------------------|--------------|------------------------|----------------|--------------------------|--------------------------|
| | | | Free of charge | More profits | New farming techniques | Record keeping | Facilitate communication | Improved product quality |
| 1 | Tarpaulin | 38 | 1 (2.6%) | 20 (52.6%) | 3 (7.9%) | 2 (5.3%) | 0 | 12 (31.6%) |
| 2 | Tablets | 24 | 1 (4.2%) | 13 (54.2%) | 1 (4.2%) | 1 (4.2%) | 0 | 8 (33.3%) |
| 3 | Tractor | 16 | 0 | 14 (87.5%) | 0 | 1 (6.3%) | 0 | 1 (6.3%) |
| 4 | Radio | 13 | 0 | 7 (53.8%) | 1 (7.7%) | 0 | 0 | 5 (38.5%) |
| 5 | Corn Sheller | 11 | 0 | 8(72.7%) | 0 | 1 (9.1%) | 0 | 2 (18.2%) |
| 6 | Weighing Scale | 11 | 0 | 7 (63.6%) | 2 (18.2%) | 0 | 0 | 2 (18.2%) |
| 7 | Motor bike | 10 | 0 | 8(80.0%) | 0 | 1 (10.0%) | 1 (10.0%) | 0 |
| 8 | Laptop | 7 | 0 | 2 (28.6%) | 1 (14.3%) | 2 (28.6%) | 0 | 2 (28.6%) |
| 9 | Knapsak Sprayer | 6 | 0 | 4 (66.7%) | 0 | 0 | 0 | 2 (33.3%) |
| 10 | Printer | 4 | 0 | 1 (25.0%) | 0 | 2 (50.0%) | 0 | 1 (25.0%) |
| 11 | Projector | 4 | 2 (25.0%) | 2 (25.0%) | 0 | 1(33.3%) | 0 | 0 |
| 12 | Moisture meter | 3 | 0 | 1(33.3%) | 1(33.3%) | 0 | 0 | 1(33.3%) |
| 13 | Motor tricycle | 3 | 0 | 2 (66.7%) | 0 | 0 | 0 | 1 (33.3%) |
| 14 | Power Tiller | 3 | 0 | 2(66.7%) | 1 (33.3%) | 0 | 0 | 0 |
| 15 | Rice Treasher | 1 | 0 | 1(100.0%) | 0 | 0 | 0 | 0 |
| 16 | Rice Harvester | 1 | 0 | 1 (100.0%) | 0 | 0 | 0 | 0 |
| 17 | Manual Planter | 1 | 0 | 1 (100.0%) | 0 | 0 | 0 | 0 |

| | | | | | | | | |
|----|---------------------|---|----------|---------------|---------------|---|---|---------------|
| 18 | Photocopier | 1 | 0 | 1 (100.0%) | 0 | 0 | 0 | 0 |
| 19 | Ipad | 1 | 0 | 1 (100.0%) | 0 | 0 | 0 | 0 |
| 20 | Office Equipment | 1 | 0 | 1 (100.0%) | 0 | 0 | 0 | 0 |
| 21 | Hand Gloves | 1 | 0 | 0 | 0 | 0 | 0 | 1 (100.0%) |
| 22 | Hand Sprayer | 1 | 0 | 0 | 0 | 0 | 0 | 1 (100.0%) |
| 23 | Maize Treasher | 1 | 0 | 1 (100.0%) | 0 | 0 | 0 | 0 |
| 24 | Savings box | 1 | 0 | 1 (100.0%) | 0 | 0 | 0 | 0 |
| 25 | Bluetooth reader | 1 | 1 (100%) | 0 | 0 | 0 | 0 | 0 |
| 26 | Reaper | 1 | 0 | 0 | 0 | 0 | 0 | 1 (100.0%) |
| 27 | Dibber | 1 | 0 | 0 | 0 | 0 | 0 | 1 (100.0%) |
| 28 | Plough | 1 | 0 | 0 | 1 (100.0%) | 0 | 0 | 0 |

Source: Fieldwork data, 2017

Annex 4: Type of Asset and After Sales Servicing Personnel

| Asset/Servicing personnel | Self N (%) | Accredited mechanic N (%) | Non- accredited mechanic N (%) | No servicing till date N (%) | Servicing not required N (%) | None of the above N (%) | Other specify N (%) | Total |
|---------------------------|---------------|---------------------------------|---|--|---------------------------------------|----------------------------------|---------------------------|------------|
| Corn sheller | 3(27.3%) | 3(27.3%) | 2(18.2%) | 3(27.3%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 11(100.0%) |
| Moisture Meter | 0(0.0%) | 0(0.0%) | 1(33.3%) | 1(33.3%) | 1(33.3%) | 0(0.0%) | 0(0.0%) | 3(100.0%) |
| Rice Treasher | 1(100.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100.0%) |
| Motor tricycles | 1(10.0%) | 5(50.0%) | 3(30.0%) | 0(0.0%) | 0(0.0%) | 10.0% | 0(0.0%) | 10(100.0%) |
| Power Tiller | 1(33.3%) | 0(0.0%) | 2(66.7%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 3(100.0%) |
| Tractor | 1(6.3%) | 9(56.3%) | 3(18.8%) | 1(6.3%) | 1(6.3%) | 1(6.3%) | 0(0.0%) | 16(100.0%) |
| Tarpaulin | 4(10.5%) | 10(26.3%) | 9(23.7%) | 4(10.5%) | 6(15.8%) | 4(10.5%) | 1(2.6%) | 38(100.0%) |
| Weighing Scale | 1(9.1%) | 2(18.2%) | 4(36.4%) | 1(9.1%) | 1(9.1%) | 9.1% | 9.1% | 11(100.0%) |
| Radio | 4(33.3%) | 3(25.0%) | 3(25.0%) | 1(8.3%) | 1(8.3%) | 0(0.0%) | 0(0.0%) | 12(100.0%) |
| Tablets | 3(12.5%) | 5(20.8%) | 6(25.0%) | 2(8.3%) | 3(12.5%) | 5(20.8%) | 0(0.0%) | 24(100.0%) |
| Rice Harvester | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Manual Plant | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100%) | 0(0.0%) | 0(0.0%) | 1(100.0%) |
| Knapsak Sprayer | 1(16.7%) | 1(16.7%) | 1(16.7%) | 0(0.0%) | 1(16.7%) | 2(33.3%) | 0(0.0%) | 6(100.0%) |
| Printer | 0(0.0%) | 2(50.0%) | 1(25.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(25.0%) | 4(100.0%) |
| Laptop | 0(0.0%) | 3(42.9%) | 1(14.3%) | 1(14.3%) | 1(14.3%) | 0(0.0%) | 1(14.3%) | 7(100.0%) |
| Photocopier | 0(0.0%) | 100.0% | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Ipad | 0(0.0%) | 100.0% | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Office Equipment | 0(0.0%) | 100.0% | 1(100.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Hand Gloves | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0.0% | 1(100.0%) |
| Hand Sprayer | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0.0% | 1(100.0%) |
| Treasher Maize | 0(0.0%) | 100.0% | 1(100.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Wireless | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Savings box | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Motor tricycle | 1(33.3%) | 1(33.3%) | 1(33.3%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 3(100.0%) |

| | | | | | | | | |
|------------------|---------|---------|-----------|-----------|----------|---------|----------|-----------|
| Projector | 0(0.0%) | 0(0.0%) | 1(25.0%) | 1(25.0%) | 1(25.0%) | 0(0.0%) | 1(25.0%) | 4(100.0%) |
| Bluetooth reader | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Reaper | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Dibber | 0(0.0%) | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |
| Plough | 0(0.0%) | 0(0.0%) | 1(100.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 0.0% | 1(100.0%) |

Annex 5: Type of Asset and Servicing Schedule

| Asset/Servicing schedule | No servicing required (%) | Today (%) | This week (%) | Last week (%) | Two weeks (%) | Over a month ago (%) | Six months ago (%) | Total (N) |
|--------------------------|---------------------------|-----------|---------------|---------------|---------------|----------------------|--------------------|-----------|
| Corn Sheller | 36.4 | 18.2 | 9.1 | 0.0 | 9.1 | 18.2 | 9.1 | 11 |
| Moisture Meter | 66.7 | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 | 0.0 | 3 |
| Rice Thresher | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Motorbike | 10.0 | 0.0 | 20.0 | 20.0 | 20.0 | 10.0 | 20.0 | 10 |
| Power Tiller | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 | 66.7 | 0.0 | 3 |
| Tractor | 25.0 | 0.0 | 12.5 | 12.5 | 18.8 | 6.3 | 25.0 | 16 |
| Tarpaulin | 47.4 | 2.6 | 7.9 | 7.9 | 7.9 | 15.8 | 10.5 | 38 |
| Weighing Scale | 45.5 | 4.9 | 9.8 | 9.1 | 9.1 | 18.2 | 9.1 | 11 |
| Radio | 25.0 | 0.0 | 0.0 | 25.0 | 16.7 | 16.7 | 16.7 | 12 |
| Tablets | 45.8 | 0.0 | 12.5 | 4.2 | 8.3 | 16.7 | 12.5 | 24 |
| Rice Harvester | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Knapsak Sprayer | 50.0 | 0.0 | 16.7 | 0.0 | 16.7 | 16.7 | 0.0 | 6 |
| Manual Planter | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Printer | 50.0 | 0.0 | 25.0 | 25.0 | 0.0 | 0.0 | 0.0 | 4 |
| Laptop | 57.1 | 0.0 | 14.3 | 14.3 | 14.3 | 0.0 | 0.0 | 7 |
| Photocopier | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 1 |
| Ipad | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 1 |
| Office Equipment | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 1 |
| Hand Gloves | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Hand Sprayers | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Maize Thresher | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 1 |
| Wireless | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Savings box | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Motor tricycle | 0.0 | 0.0 | 33.3 | 33.3 | 33.3 | 0.0 | 0.0 | 3 |
| Projector | 50.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4 |
| Bluetooth reader | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Reaper | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Dibber | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| Plough | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 1 |

Source: Fieldwork data, 2017

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