Macrothink Institute™

Business Management and Strategy
ISSN 2157-6068
2022, Vol. 13, No. 2

Training of Rice Farmers and Its Effect on Socio-Economic Assets Acquisition and Change in Status

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Received: April 17, 2022 Accepted: June 12, 2022 Published: June 13, 2022

doi:10.5296/bms.v13i2.19973 URL: https://doi.org/10.5296/bms.v13i2.19973

Abstract

Training programmes for rice farmers is believed to be an activity leading to the improvement in yield if it is well managed and implemented. Japan International Corporation Agency (JICA) initiated a training programme for rice farmers in three regions in Northern Ghana. Indeed, the benefits of training could be social, cognitive, economic or both. The training was intended to help increase rice farmers yield leading to productivity and profitability. This study was set up to evaluate the extent to which the rainfed lowland rice training programme influenced changes

and improvement in socio-economic status of the rice farmers. A sample of 257 out of the total population of 880 was selected across both sex for this study. The analysis showed that all participants in the training benefitted in the form of changes in their socio-economic statuses as well as cognitive improvement. Various assets were acquired from proceeds of excess rice sole after feeding their families. One asset the majority of the farmers acquired was cell phone with all the women farmers acquiring cooking utensils either for their domestic use or in preparation towards settling their daughters when they are due for marriage. It was established that the rice training programme was beneficial to farmers and therefore should be extended to cover all rice farmers in the three regions in particular and to rice farmers in Ghana in general.

Keywords: training evaluation, rice farmers, JICA, socio-economic, rain-fed lowland rice, change in status, training

1. Introduction

Vocational skills are important practices which can help human society meet their basic needs, be it physiological, safety, love, esteem or self-actualisation. Farming remain a profession anchored in vocational practice. It is a practice for most persons who have not had the privilege of benefiting from formal education so as to seek formal white-collar jobs both in the public and private sectors in Ghana. Rice farming is currently perceived as the most lucrative vocational business in Northern Ghana which is practiced by both subsistence and commercial farmers. Traditionally, people are engaged in farming as a generational activity passed on to them by their parents. They are typically engaged in farming mainly to feed their families first and foremost, and if possible, generate income to meet household financial requirements. Various governments in Ghana and in most developing and developed countries now focus their attention on farming as an occupation, especially rice farming. This is influenced by the increasing demand for rice as staple and convenient food. To facilitate the increment in rice production to support its high consumption rate, there has been effort by governments to train rice farmers. It is believed that, this training will help increase farmers skills in rice farming leading to increasing yield. Literature also shows that, when farmers yield increase, there is corresponding increase in their socio-economic status (Issahaku, Obeng & Yeboah, 2022; Issahaku, Obeng & Yeboah, 2021; Issahaku, 2020; Rahman et al, 2018; Tsado, Ojo, & Ajayi, 2014; Alfred, 2000). Through training, rice farmers are put in positions that project them beyond the poverty line due to enhanced yields from their farming activities. This study in question was conceived to consolidate the literature that training has the potential of helping farmers achieve higher socio-economic status. The study was designed and carried out in three regions of Northern Ghana (Northern, Savana and North East) which prior to their splits were administratively classified as northern region. Most training programmes produce both intended and unintended benefits to trainees (Rahman et al, 2018). There has not been any known study to ascertain from beneficiaries whether there are socio-economic benefits accruing to respondent farmers resulting from the rainfed lowland training, hence this research.

1.1 Training and Its Importance to Rice Farmers

It is believed that training is seen as aiding the development of employees. It facilitates the development of lasting cognitive skills and the appropriate behaviours which support the attainment of important capabilities to meet expected level of performance as required by trainees current and future job needs. When training is effectively carried out, the end result is always; increased motivation and commitment, employees engagement and involvement, higher productivity, improvement in work quality, higher morale, employee adaptability, teamwork and job satisfaction. According to Salas and Stagl, (2009), Salas *et al*, (2006), when employees are exposed to training, their error rate reduces, which eventually determine the organisation ability to gain strong competitive edge over its competitors. Rahman et al, (2018), Pandey et al. (2015) and Sajeev and Singha, (2010) posits that through training, rice farmers stand the chance of acquiring superior knowledge and skills regarding the practices and principles of rice and other cereal production, farm management, weeds control, water regulation, seed selection and production and seedling and nursery practices systems.

From farmers perspective, training is considered important because it is the conduit through which they acquire useful knowledge on farming systems and methods. Training of farmers brings about improvement in farmers knowledge of best agronomic practices, harvesting techniques, reducing post-harvest losses, effective and efficient storage systems and the technology supporting new and improved varieties. Training of rice farmers on best agronomic practices can enhance their knowledge on different rice varieties (Issahaku, Obeng & Yeboah, 2022, 2021; Issahaku, 2020; Nakano, Tanaka & Otsuka 2014).

Training is a deliberate and purposeful kind of institutional designed activities which when implemented will offer a value-added opportunities for participants or trainees to improve their performance. It is careful because the activities are most consciously prearranged and organised. Training is goal-oriented because the results expected are predetermined and the training is designed to achieve them in areas such as improved self-esteem, improved performance, increased yield, sales or profits eventually. If training of rice farmers is design with care and carried out with tact, it should lead to highly engaged and motivated farmer.

1.2 Training Pragrammes for Farmers

Farmers' training should cover planned educational activities to acquire information, knowledge, skills and attitudes relevant to obtaining and ensuring the highest productivity of agricultural workers. There are three main actors get themselves involved in the training: the trainee, the trainer and the management who develops and implements the training programme. For the programme to be successful, the active participation of all these actors is required at each stage of training.

Agricultural training is generally considered to play an important role in strengthening farmers' capacities relevant enough to increase productivity and make rice farming sustainable (Kshash, 2016; Gina and Madsen, 2013), Issahaku, Obeng and Yeboah, (2021), Rahman, et al, (2018), Pandey, et al, (2015), Issahaku, (2020) and Ansari (2006) in their works argue that training helps to upskill rice farmers and they find it useful.

In most cases, the aim of the training is to help farmers to on their own carry out their farming activities efficiently and effectively. To achieve this, training providers first need to identify farmers' training needs, based on which training modules can be developed to achieve appropriate yields and profit levels (Kshash 2016; Tsado et al. 2014). This requires assessing the knowledge, skills and training needs of trainees to understand the skill gaps of farmers so that appropriate training models and systems can be developed to support and ultimately increase yields (Rahman, 2018; Kshash, 2016; Benard, Dull, & Nagalapa 2014; Tsado et al. 2014; Chawang, & Jha, 2010). Most of the knowledge gaps of rice farmers that can be addressed through training have been identified in studies on the following topics: proper land preparation, proper and timely application of fertilizer, constructing bund, good seed/variety choice, planting and transplanting, managing insects and rice plant diseases, controlling weeds, and seed production (Devarani, 2013; Goli, Langerodi and Sahbazi, 2013; Alarima, et al. 2011 and Nath & Chowdhury, 2010). The rainfed rice production technology developed by JICA addresses the knowledge gaps of rice farmers in the target areas.

1.3 The Effects of Training on Rice Farmers

Issahaku, Obeng and Yeboah, (2022, 2021), Andam, Makhida and Splelman, (2019), Rahman, et al, (2018), Bonan and Pagani, (2017), Oyebanji, (2010) and Benin and Pender, (2001) found that farmer training increases productivity and farmer acceptance of improved and new technologies, leading to higher incomes. It is said that participant farmers who in varied ways benefited from different training activities experienced substantially increased yields and incomes (Issahaku, Obeng and Yeboah, 2022, Issahaku, 2020, Tsado, Ojo and Ajayi 2014 and Alfred 2000). Training ultimately led to improvement in the standard of living of the participants. It is significant to conclude that the main objective of all training programmes targeted at farmers is to bring about increase yields and incomes. Tsado, Ojo and Ajayi (2014) posit that about 99% of rice farmers who attended training in Nigeria said that the training they participated in led to upward adjustment of their yield, their income and tangible assets they acquired (bicycles, motorbikes and motor vehicles). According to Nakano, Tanaka and Otsuka (2014), training led to successful adoption of new rice variety and cultivation, which help increased their rice yield and increased their rice income.

From the interaction with farmers, it is evident that the training exposed the farmers to more current trends in rice farming hence, making them complex, make them more enlightened and conscious of their right to good life and to maintain certain level of hygiene as individuals (Issahaku, 2020). All the farmers individually and collectively demonstrated high level of responsiveness through their appearance during the questionnaire administrating sessions. The training make them aware of the need to made decent appearance at all times. This indicates that the farmers' training goes beyond the farm level. It is about improving their personal hygiene and outlook.

Nevertheless, there are some negative effects of farmer training that should not be ignored. Fundamentally, training programmes enlightens farmers thereby making them more difficult and smarter to handle, they begin to interrogate any unapproved technology or practice. In the

case of rice farmers, when training increases yields, market prices almost always fall accordingly (Issahaku 2020, Dibba, Zeller & Diagne, 2015, Asante et al. 2014). Yield increase after training will therefore lead to oversupply on the market. This situation is exacerbated when training is not accompanied by a product sales contract.

2. Methodology

The researchers used the mix method as the research design to conduct the study. With this method, both qualitative and quantitative data were collected to make the analysis richer and more comprehensive.

The population for this study was all farmers covered by the JICA rainy season lowland sustainable rice cultivation technology project. The number of farmers in the three districts was 880. Multi-stage sampling was used in this study. The techniques of purposive sampling guided the selection of the districts (localities) as the population was selected from farmers in different communities where the training was provided and where the project was subsequently implemented. In the project, farmers were put into groups of ten (10), each consisting of males and females. The sample size of the farmers was determined using Krejcie and Morgan's (1970) sample scale, so 265 farmers were selected for the study. The population distribution by districts were 330 farmers from Tamale Metropolis (Northern Region), 340 farmers from West Mamprusi Municipality (North-east Region) and 210 farmers from East Gonja District (Savana Region). Proportionately, 99, 103 and 63 farmers were drawn from Northern region, North-east region and Savana region respectively to form the sample size of 265 farmers.

The farmers were stratified by gender to give room for equal representation of male and female respondents. Purposive sampling guided the selection of Individual respondents, but the group leaders were also purposively selected to include those who were trained at the initial stage of the project. All women group members were purposively selected to ensure good female representation, while all other members were selected using simple random sampling techniques.

Questionnaire was used as the instrument for data collection as it gives the benefit of structuring verbal interview into specific scenarios or instances for the respondents to indicate the extent to which they either agree or disagree, using the five-point Likert Scale where 1 is strongly agree, 2 is agree, 3 is neutral, 4 is disagree and 5 is strongly disagree. Respondents were allowed to take the questionnaire home where they had ample time to complete it. The use of questionnaires provides a relatively cheap, quick and efficient way of obtaining large amounts of information from a large sample size (Maggiori, et al. 2017; Cooper & Schindler, 2014, Savickas & Porfeli, 2012). Upon retrieval of the questionnaires, the pattern of responses was thoroughly analysed and numerical codes were assigned to each response and coded into SPSS version 21. Frequencies and percentages were employed to analyse data and presented using tables and charts. This revealed the effect of the training programme on trainees socio-economic status.

3. Results and Discussions

3.1 Demographic Variables and Basic Information of Respondents

The demographic variables of the respondents were presented using descriptive statistics. Demographic data collected and analysed includes sex of respondents, marital status and educational level of rice farming. These data are presented in table 1.

Table 1. Demographic Characteristics of Respondents (farmers)

Responses	**Frequency**	**Percent (%)**
Sex of Respondents		
Male farmers	220	86
Female farmers	37	14
Marital Position		
Single	13	5
Married	244	95
Educational Level		
Not Educated	187	73
Primary Level	27	11
Middle School (form four)	11	4
Junior High School	13	5
Senior High School	16	6
Diploma holder	2	1
1st Degree holder	1	0.4

Source: Field Survey Data **N = 257**

3.2 Sex and Age of Respondents

From the results in Table 1, 220(86%) of the respondents were males while 37(14%) were females. This result in table 1 is an indication that the business of rice farming in the selected areas and for that matter Ghana is a male dominated vocational activity. This is so because farming requires the application of physical strength even if there is high level of mechanisation. As a vocation that requires labour-intensive to achieve, it is surprising to note that the use of machinery by farmers in the norther Ghana is still minimal. From the data on

marital status of farmers, 13(5%) said they were not married while 244(95%) indicated as being married. Conclusion can be drawn that majority (95%) of respondent farmers are married which is an indication that there is high level of responsibility on the farmers. The data shows that most (73%) of rice farmers never attended school. However, 11% said they received formal education up to primary school level. About 1% are said to have diploma level certificate whilst less than 0.5% holds first degree certificate. This is a clear indication that farming in Ghana is a vocation practiced mostly by the uneducated.

3.3 Is There Any Effect on the Socio-Economic Status of the Farmers After Yield Rise

To achieve the objectives of the study, researchers try to establish the impact of the rice yield increase on farmers status and socio-economic prospects. After the adoption of sustainable rain induced rice production techniques, it is expected that the living standards of the respondent farmers will see an improvement. The object here is find out what specific contributions did the increase in rice harvest made in the lives of the farmers.

3.4 How Farmers Benefitted Socio-Economically From JICA Rice Training Project

Training programmes must present some effects on the way of life of the participants or trainees, and JICA's Sustainable Rainfed Rice Farming training programme is not different. The aim of the training was to facilitate increment in rice yield and income to farmers. Any programme that seeks to change lives often come with generic benefits, but their impact is not always immediately understood or felt. The benefits of increase rice production is not limited to food security and adequate food supply but goes beyond the immediate (socio-cultural and socio-economic) levels of farmers. Any rise in rice production will denote increased prosperity. Increased wealth will lead to an improvement in the living standard and change in status of farmers. Significant changes in status likely to be achieved with increased wealth includes chieftaincy title or honours, recognition among community members, members of Assembly, committee membership and nominations for Awards at district and regional levels.

The six points related to socio-economic status mentioned by farmers in this study were: more wealth, adequate food supply (food security), respect and recognition in society, living a healthy and happy life, being able to finance children's education and capable of taking care of personal/family problems. Paradoxically, happiness may be misunderstood as not of socio-economic value for urban people, but for rural people it is a very valuable socio-economic indicator. Happiness influences and shapes society. Happiness in a rural setting is about promoting a good life, ensuring self-sufficiency and caring for others. These six related variables were examined using descriptive statistics. For ease of reading and interpretation, the statistics are presented in the form of bar charts.

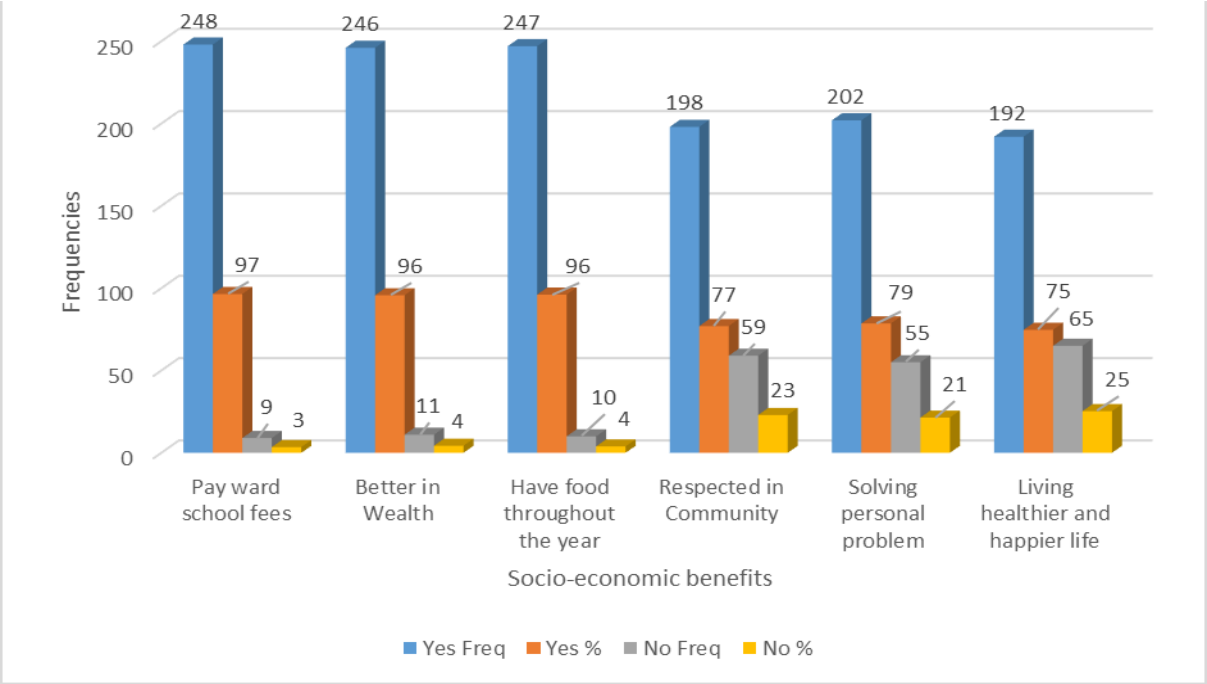

Figure 1. Socio-Economic Benefits after the Training

Source: Field survey data

As shown in Figure 1, 97% of respondent farmers reported they could afford to finance their ward's school fees, indicating that many of the farmers who have been transformed by increased rice production consider this an important socio-economic variable. They stressed that it was a heavy financial burden for them and that they could not afford it. Most farmers said that sending home children who do not pay school fees or PTA fees always has a negative impact on their reputation.

> "…*in a close community such as ours, everyone knows everyone including our children. It is sometimes embarrassing to see your child sent home from school for non-payment of school fees or PTA related payment. My reputation is now solid after adopting JICA way of farming rice. As I speak, all my children do not only attend school uninterrupted but they also attend extra classes which I was able to pay from monies I get from the sale of rice from my farm*".

This statement confirms the findings of Abrar-ul-Haq, Akram and Farooq (2015) that increased parental financial capital leads to children's educational attainment in rural Pakistan. About 96 per cent of respondents reported that they have adequate food all year round (food security) to feed their family. They stressed that after receiving JICA training, they could now provide sufficient and adequate food for their families. Increased food self-sufficiency has contributed to some extent to poverty reduction among rice farmers who have adopted rainfed lowland rice cultivation techniques. Their families are healthier and they spend less money on health care needs. Norton (2004) notes that training programmes in the agricultural sector aims at helping

improve food security, increase income, and reduce poverty by improving farm performance and Wu (2005) also found that training interventions change behaviour and decision-making, which he says leads to high levels of farmer performance.

The vast majority (96%) of rice farmers stated that their 'welfare situation' was better after the training programme. The adoption of JICA technology for ‘rainfed’ rice production in lowland areas contributed to increased rice yields, increased incomes and improved farmers' welfare in selected areas. This finding is corroborated by Asante et al. (2004), who found that embracing best agro-technical practices is estimated to increase farmers' output, thereby increasing incomes and reducing poverty among beneficiaries. In similar findings, ISSER (2007, 2008) concluded that the agricultural sector adopted a wide range of agronomic practices that led to increased yields, reduction in poverty and rise in incomes, especially for rice farmers.

'Ability to solve personal problems' was answered positively by about 79% of respondents. A large number of the respondents stated that they were capable of solving personal problems without having to rely on support from colleagues, family members or acquaintances. In a typical community, the communal spirit makes it possible to solve personal problems with financial support from family, friends, and acquaintances, even when they are personally incapable. Such personal problems requiring personal solutions among others include performing funerals of relatives, naming/outdooring ceremonies, payment of dowry and marriages/wedding ceremonies and festival celebrations.

When asked if they are respected by society, 77% of respondents overall said they were respected. Thus, a large number of rice farmers who profited from training on sustainable technologies for rainfed rice cultivation felt valued in their communities. For rural people, being able to feed their families, pay for their children's education and support those in need is an important source of self-esteem. The results showed that farmers' increased production of rice was a good reason for meeting the respect variable, hence, the statements that farmers are now being respected by members of society in their communities is a reality.

Living healthy and happily (well-being) was responded to by 75% of the farmers, an indication that the farmers associated themselves with the statement, which is influenced by increase rice output from their rice farms. Living healthy and happily (well-being) is a concept which is best defined by those who experienced such life. This result shows that the adoption of the rain-fed rice cultivation techniques directly impacted the standard of living of rice farmers. This study results are consistent with the findings of; Kijima et al., 2008, Mwabu et al., 2006, Mendola, 2006, Hossain et al., 2003, Bourdillon et al., 2002 and de Janvry & Sadoulet, 2002 that there exists a positive strong relationship between improved technology acceptance and implementation and farmers' livelihood improvement. A study by Wiredu et al., (2010) in Ghana also posit that adopting improved techniques led to rice yields which eventually help improve farmers standard of living.

From the results presented in Figure 1, farmers' thoughts and feelings corresponded with the training objectives of increasing rice yields for food security in the selected areas and increasing

farmers' profitability. The results show that for the six indicators of training benefits identified, most farmers agreed that their statuses changed and also, their standard of living improved.

3.5 Type of Assets Farmers Acquired due to Enhancement in Rice Output

It is alleged that higher labour productivity gives people the opportunity to acquire more wealth and property. Wealth is important to people's livelihoods and society attaches importance to the nature and worth of property one possesses. In the study areas where people are mainly engaged in agriculture, income from agricultural production is the basis of people's livelihoods and stability. As rice yields of rice farmers in the study area increased as a result of JICA-implemented sustainable rice development project, this study aimed to determine whether the increase in one yield led to a corresponding increase in assets. The type of assets farmers acquire after the project completion was also of interest to the researchers. Researchers were aware of farmers having multiple sources of income, which together may have contributed to asset accumulation. Nevertheless, the questions were directed on how important the JICA training projects was for asset accumulation. In order to capture the actual impact of the JICA training, responses were restricted to only those assets that could be confidently attributed to increased rice yields as a result of the JICA training project.

Since humans are economic animals, as Maslow described in his theory of the hierarchy of motivations, they always want more (Maslow, 1954), so when their agricultural production increases, they acquire more other assets due to the additional income generated by selling excess produce. The researchers were mindful that a farmer can own more than one asset, hence, farmers were asked to give some multiple answers to this question. The response and the analysis are as displayed in Table 2.

Table 2. Assets farmers acquired from rice induced income

New/Additional Assets Bought by Farmers	Freq.	Percent (%)
Bought Bicycle	184	72
Acquired Motor-Bike	46	18
Bought Motor-Tricycle	56	22
Got a Mobile Phone	212	83
Procured Sheep and or Goats for Rearing	109	42
Bought roofing sheets for my house/room	164	64
Acquired Designer Smock(s)	211	82
Bought Mattress	156	61
Now have Ceiling or Standing Fan	82	32
Acquired Cooking utensils	37	14
Bought Solar Lantern	186	65

Bought a Fridge	76	30
Acquired a Television Set	156	61
Now using Multi-choice Decoder	124	48
Bought Sounds System/Home theatre	49	19

Source: Field survey data **N = 257**

The results in Table 2 show that 184 (72%) respondents agreed to the statement 'bought bicycles for personal use'. Bicycles are used for transporting people to farm and from farm. It is also used for inter-community movements. With bicycles, people can attend markets, funerals, visit family members and other social events such as wedding celebrations and outings (apprentices' graduation ceremonies) with ease. Although there are other superior means of transport that are more efficient than the bicycle, it is the most common, cheaper in terms of cost and maintenance, and suitable means of transport for the rural farmers. A small number of respondents (46), 18%, said they purchased motorcycles for use as transport for farm activities and about 22% indicated they purchased motor tricycle, commonly referred to as "Motor-King or motor-kia". The motor-king is use in generating income and also as a source of transporting people and carting produce from the farm. Forty-two (42%) declared that they are now rearing sheep and or goats as a business which is a lucrative income generating venture. As farmers, they express their carefulness towards their homes or rooms they live in. They now change their thatched roofs to iron roofing sheets. A large number of the respondents (64%), stated that they are able to purchase corrugated iron roofing sheets to adequately cover their rooms so that they feel safer and more secure. The purchase of smock (traditional kente wear) is the second highest acquired asset by a percentage of 82. The smock is considered a prestige garment among the people of the Northern, North-East and Savana regions. It is a preferred garment that is used during festive seasons. It serves both male and female alike. The smock is recognised and regarded nationally and effort are underway marketing it internationally

Mobile phones were the most common item purchased by rice farmers (83%), while beds and foam mattress accounted for 61% of the items purchased by rice farmers. The majority of farmers (65%) reported being able to purchase solar lamps for household lighting. The demand for solar lamps was due to intermittent power outages in rural areas, and 61% said they purchased a television for entertainment. Some 48% said they purchased a satellite TV decoder and 49 farmers (19%) said they purchased a sounds system to enjoy music at home. The least purchased item was kitchen utensils, which all (100%) of the female beneficiary farmers in the project communities said they had purchased.

The goods purchased after the implementation of the knowledge acquired from the training were organised and tabulated according to the sex of the respondent, to aid the identification of which goods were purchased by a percentage of men and which by a percentage of women. The results of the cross tabulations are presented in Table 3.

Table 3. Assets acquired after increase in rice output by Sex, Crosstabs

Assets acquired after the increased rice	Male		Female	
Output	Freq.	%	Freq.	%
Bought Bicycle	152	59	32	13
Acquired Motor Bike	39	15	7	3
Bought Motor Tricycle (Motor King)	51	20	5	2
Got a Mobile Phone	183	71	29	11
Procured Goats/Sheep for Rearing	89	35	20	8
Bought Zinc for Roofing my House/room	136	53	28	11
Acquired Designer Smock(s)	180	70	31	12
Bought Mattress	127	49	29	11
Now have Ceiling or Standing Fan	71	28	11	4
Acquired Cooking Apparatuses	0	0	37	100
Bought Solar Lamps	154	60	32	13
Bought a Fridge	65	25	11	4
Acquired a Television Set	126	49	30	12
Now using Multi-choice Decoder	103	40	21	8
Bought Sounds System/'Home Theatre'	45	18	4	2

Source: Field survey data **N = 257**

As shown in Table 3, which analyses the assets acquired by gender in a cross tabulation, 152 (59%) of the farmers who acquired bicycles were men and 32 (13%) were women. Bicycles are versatile means of transport for both men and women, but are used more frequently by men than women. For rural rice farmers, the bicycle is the cheapest form of transport for domestic and agricultural work. Bicycles are also used widely by pupils who have to travel daily for relatively long distances for schooling.

Motorbikes were used by 39 (15%) males and 7 (3%) females; whilst tricycles (Motor-King or Motor-Kia) were used by 51 (20%) males and 5 (2%) females. The tricycle usage is gaining grounds and is now dominant among farmers as it is used for income generating purposes and is very suitable when transporting various agricultural products. One farmer said;

> *"…in time past, women were mostly responsible for carting farm produce from the farms after harvest. Issues bordering on carriage seem to be the preserve of women in northern Ghana. With improvement in technology and modernisation, the motor king has come to lift that burden off the shoulders of women. We*

> *now use the motor king and motor bike to carry shea nuts we pick from the farms, firewood, water and any farm produce ranging from millet to yam and cassava. The motor king in particular has made life so simple and easy for the women in northern Ghana…"*

Mobile phones are one of the assets that male and female farmers alike acquired the most. As high as 183(71%) men and 29(11%) women owned a mobile phone. The multi-functionality of the mobile phone was the reason for the high acquisition rate. Most farmers indicated that apart from using it to contact AEAs, colleague farmers, friends, loved ones and family members, it was also used easily as a radio set, to get informed on best and contemporary farming practices and for entertaining oneself through music and movies. In fact, most rural folks now rely heavily on mobile phones and its technology, through telecommunication to transact businesses, save their monies, and even secure micro loans which bring them into the financial inclusion brackets. One farmer told us that;

> *"…with the mobile phone, we use it to keep our monies save. We have started encountering the activities of armed robbers on our roads to the market places and towns where we buy fertilizer, weedicides and other household consumables. With your money in your 'momo' electronic wallet, you pay for these goods without the risk of losing it to armed robbers or theft of any kind…" (IDI, 2019)*

A total number of 109 (43%) respondents, 35% male and 8% female respondents said that they invested income from sale of surplus rice in rearing goats and sheep. These goats and sheep are current assets which can be converted quickly into cash anytime without delay. Proper care of these animals will see their rapid multiplication. From a respondent;

> *"…when you sell your excess rice to buy goats for raring, they stand the chance of multiplying quickly then when you keep the rice in the room or store. I sold one bag of rice and bought two goats and within the period of two years, the goats multiply to seven…" (IDI, 2019)*

The rice farmers who rare goats and sheep mostly will sell some during the farming season to help pay tractor operators for ploughing their farmland, buy fertilizer and weedicides.

The purchase of corrugated metal roofing sheets was also more frequent among male farmers. About 53% of roofing sheet buyers were men and 28 (11%) were women. The prestigious garment (smock), which is used by both male and female recorded a high level of acquisition. A majority, representing 180 (70%) men and 31(12%) women reported that the smock is one key asset they owned, courtesy proceeds from the training programme. Most respondent men (127(49%) and 29(11%) women, 71(28%) men and 11(4%) women purchased mattress for their sleeping comfort and standing fans or ceiling fan respectively.

One special items common to all female respondents was kitchen wares. Item of this nature are indispensable in the life of women. The respondents argued that they bought these utensils for their own use. Other reasons proffered were to prepare and or aid the smooth settlement of their daughters at their marriage home in the near future.

Around 60% (154) of men and 13% (32) of farmers reported that they had additional property in the form of a solar lamp. Those who purchased refrigerators at the end of the project accounted for 25% men and 4%) women, 126 (49%) men and 30 (12%) women were able to purchase a television for home entertainment, while 103 (40%) men and 21 (8%) women were able to purchase a multi-choice TV decoder and sounds systems for entertainment in the house.

The information presented in Table 3 is an illustration that all property acquired, with the exception of kitchen wares, are purchased by both sex. Hence, the material needs is similar for both category of respondents in this study. The purchase of properties such as iron roofing sheets, tricycles and mattresses is a confirmation that female rice farmers are willing to support their husbands in their efforts to make life meaningful for the whole family.

4. Conclusion

Training of rice farmers indeed is one particular practice that can change the fortunes of farmers in Northern Ghana in particular and Ghana at large. The sustainable rain-fed lowland rice production technology was well intended and well structure to achieve its purpose. Farmers who accepted the training programme teachings attest to the fact that they really reaped the benefits of following instructions of the sustainable rain-fed lowland rice farming techniques. The training was simple but delivered the intended purpose – improve rice productivity and profitability. The project farmers statuses in their respective communities changed and they were able to acquired life supporting assets after embracing sustainable rain-fed lowland rice production technology.

5. Recommendations

This particular study was conducted to establish the real benefits of the sustainable rain-fed lowland JICA rice production technology. It was an evaluative study to ascertain whether the adoption of the technology through the training led to status change of respondents and improvement socio-economically on the types of assets they possess. The results of this research revealed that the training programme was beneficial to the farmers in varied forms which ranges from changes in their status within and around the communities to the acquisitioning of new life supporting assets which are solely attributable to the JICA training project. It is recommended that the training practice should be extended to all farmers in the selected regions as well as other farmers in all parts of the country. Agricultural Training Colleges/School students should also be equipped with knowledge of the sustainable rain-fed lowland rice production techniques so that they can incorporate the teachings of the technology in their extension services delivery after school.

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