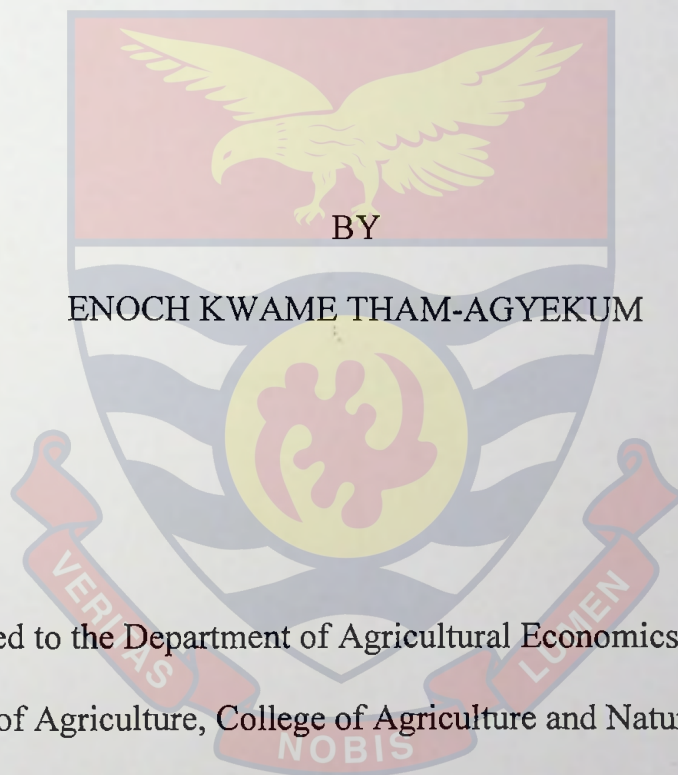


UNIVERSITY OF CAPE COAST

ASSESSING THE MARKET ORIENTATION OF COCOA FARMERS IN
GHANA: THE CASE OF THE FARMER BUSINESS SCHOOL



Thesis submitted to the Department of Agricultural Economics and Extension of
the School of Agriculture, College of Agriculture and Natural Resources,
University of Cape Coast in partial fulfillment of the requirements
for the award of Doctor of Philosophy degree in
Agricultural Extension.

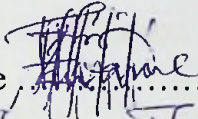
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DECLARATION

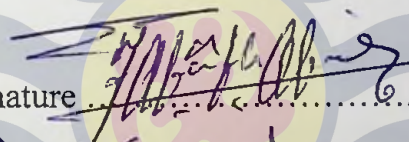
Candidate's Declaration

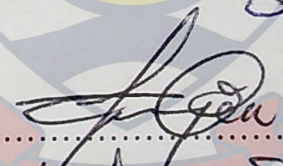
I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature  Date 15/11/18
Name Enoch Kwame Tham-Agyekum

Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature  Date 15/11/18
Name Prof. J. A. Kwarteng

Co-Supervisor's Signature  Date 15/11/18
Name Prof. Ernest L. Okosley

ABSTRACT

The purpose of the study was to ascertain the effect of market orientation on the livelihoods of cocoa farmers in Ghana, using the Farmer Business School (FBS) as a case study. Specifically, the study used the descriptive survey design. The population consisted of all cocoa farmers from the six Cocoa Regions in Ghana. Structured questionnaires were administered to a sample of 600 cocoa farmers (participants and non-participants of the FBS) who were selected through the multi-stage sampling technique. Descriptive and inferential statistical tests were performed on the data collected. Results of the study showed that the effectiveness of the FBS was significant ($p < 0.05$) in improving sustainability of farm activities. Participants of the FBS were found to be more competent in their perceptions of knowledge, attitude and skills ($p < 0.05$) and more market oriented ($p < 0.05$) than the non-participants. A high level of market orientation of cocoa farmers was found to be influenced by entrepreneurial proclivity, innovation characteristics, gender, age, tribe, religion, farm size, yield, source of labour and training of farm workers ($p < 0.05$). Market orientation indicators (customer emphasis, inter-functional coordination and intelligence dissemination) had an effect on the livelihood ($p < 0.05$) of the cocoa farmers. Participation in the FBS had an effect on the livelihood ($p < 0.05$) of the cocoa farmers. Using the FBS module, the study concludes that the market orientation of cocoa farmers can influence the livelihoods of cocoa farmers in Ghana. The study recommends that the FBS is extended to all cocoa farmers in the country since it improved their competency, market orientation and livelihood.

KEY WORDS

Cocoa Farmers

Competency

Effectiveness

Farmer Business School

Livelihoods

Market Orientation



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Finally, to all who in one way or the other contributed in the completion of my PhD studies, especially, Joe Quaye, Benedicta Incoom and Lawrence Kwarteng.

DEDICATION

I dedicate this thesis to my mother, Deaconess Dorothy Onwona Gyemfua
and my late brother, Samuel Kofi Mireku-Agyekum.



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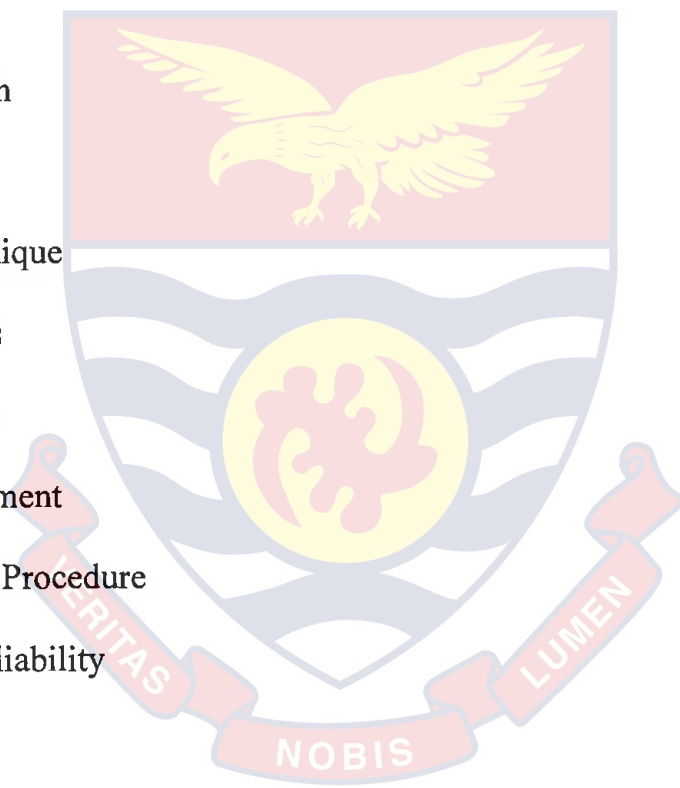
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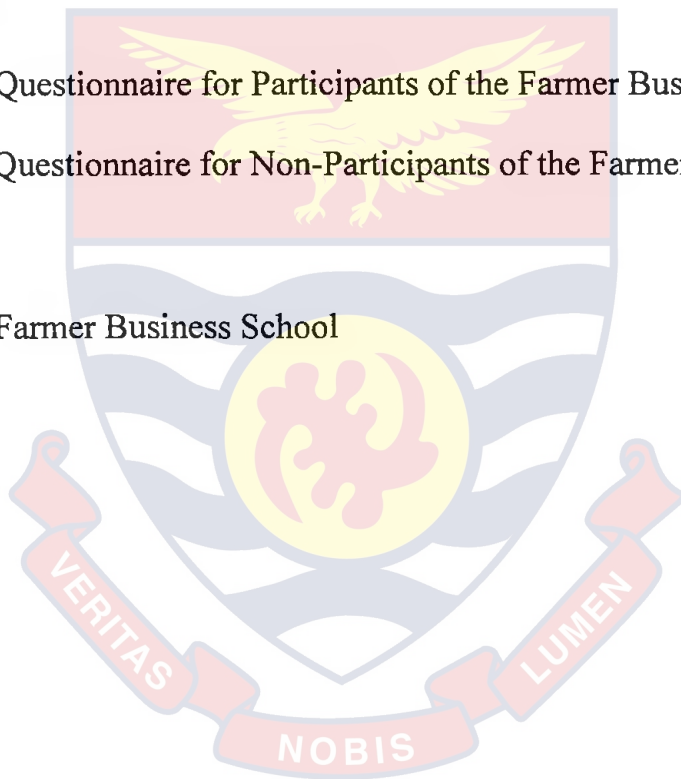
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LIST OF ACRONYMS

AGL	Agroecom Ghana Limited
BoG	Bank of Ghana
CAA	Cocoa Abrabopa Association
CIF	Cost, Insurance and Freight
COCOBOD	Cocoa Board
CODAPEC	Cocoa Disease and Pest Control
CMB	Cocoa Marketing Board
CRIG	Cocoa Research Institute of Ghana
FAO	Food and Agricultural Organisation
FBS	Farmer Business School
FFS	Farmer Field School
FOB	Freight on Board
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoG	Government of Ghana
ICCO	International Cocoa Organisation
ICE	InterContinental Exchange
ICT	Information Communication Technology
IFPRI	International Food Policy Research Institute
IPM	Integrated Pest Management
ISSER	Institute of Statistical, Social and Economic Research
KAS	Knowledge, Attitude and Skills

LBC	Licensed Buying Company
MoFA	Ministry of Food and Agriculture
QC	Quality Control
SME	Small and Medium Enterprise
WCF	World Cocoa Foundation
WIEGO	Women in Informal Employment: Globalizing and Organizing



CHAPTER ONE

INTRODUCTION

This chapter presents the introduction to the research study. It includes information on the background to the study, statement of the problem, research questions, research objectives, justification of the study, scope of the study, definition of terms and organisation of the study chapters.

Background to the Study

In general, the agricultural sector in developing countries remains underdeveloped. Nonetheless, the agricultural sector finds itself at the core of the economies of these countries. An enormous share of the Gross Domestic Product (GDP) is contributed by the agricultural sector. It employs a large share of the labour force and supplies the majority of the basic food requirements for a lot of people. Agriculture provides subsistence for most farm families and it is a major source of income for large rural populations. It is also a major source of foreign exchange earnings for the country (Food and Agricultural Organisation, 2011; Baffoe-Asare, Danquah & Annor-Frempong, 2013).

The country is also blessed with many crops (cassava, maize, cashew, plantain, oil palm, cocoa etc.) that provide several benefits. Cocoa is dominantly produced in Africa by four West African countries; La Côte d'Ivoire, Ghana, Cameroon and Nigeria. La Côte d'Ivoire and Ghana produce approximately 41% and 17% of the world output respectively. The other two important producers are Cameroon and Nigeria, each contributing approximately 5% of the world cocoa production (Binam, Gockowski & Nkamleu, 2008).

Cocoa in Ghana is a major part of the agricultural sector and a major contributor to the Ghanaian economy. Ghana's cocoa has a high reputation in international markets for its high quality (Tutu, 2010). It is largely controlled by the Ghana Cocoa Board (COCOBOD). However, there are many actors and stakeholders involved in its activities and programmes. All the different actors have interests and they operate under different conditions (Vigneri, 2008; Obuobisa-Darko, 2015).

COCOBOD has been in charge of the production and marketing of cocoa since 1984. With its subdivisions, it is in charge of providing inputs and delivering products and services to farmers, traders and buyers (Gockowski, Afari-Sefa, Sarpong, Osei-Asare & Dziwornu, 2011; Vigneri, 2008; Obuobisa-Darko, 2015; COCOBOD, 2011). Its annual contributions average about 35% of the total export earnings of the country (Essegbey & Ofori-Gyamfi, 2012; COCOBOD, 2011) and also contributes about 10% to GDP (COCOBOD, 2011).

In terms of employment, the cocoa industry employs about 800,000 farm families in Ghana. These farm families are in the Ashanti, Brong Ahafo, Central, Eastern, Volta and Western regions of Ghana (COCOBOD, 2011) and therefore, accounts for about 60% of the national agricultural labour force. It contributes about 70% of annual income of small-scale farmers and stakeholders such as Licensed Buying Companies (LBC's) also depend largely on their cocoa beans for market, employment and income (Ntiamoah & Afrane, 2008).

Cocoa is a major source of tax revenue to the government and over the years, cocoa has provided money for infrastructural development and for the

education of the mass of the people. Records also show that Ghana earned about USD 1.5 billion from cocoa in the 2007/2008 cocoa year (COCOBOD, 2011; (Institute of Statistical, Social and Economic Research, 2014).

However, in spite of the pivotal role of cocoa in Ghana's economy, the benefits of cocoa have not been adequately realized. This is because cocoa farmers have a very low level of market orientation which is due to the low adoption of business and entrepreneurial ideas recommended by cocoa organisations. The outcome has been very devastating on the livelihoods of the farmers, the cocoa industry and the economy of Ghana as a whole. A significant portion of cocoa farmers seem to be the poor among the citizenry in Ghana (Otchere, Annan & Anin, 2013).

Rural farm households that survive using the profit from the sale of cocoa have very little material savings and the little they have can be wiped out in a single bad harvest. They experience some difficulties when they need to access the input and output markets. The techniques, inputs and equipment that they employ for their farm activities are relatively inefficient and often produce low yields (Otchere *et al.*, 2013).

The increment in production cost poses as an economic insecurity for millions of cocoa farmers and makes them unable to adequately cover their living expenses. Cocoa farmers get limited income from cocoa sales, they are unable to invest in their business, they cannot provide their workers with proper working conditions, there is often a lack of information on market developments and in the

worst cases, they are prone to use child labour (International Cocoa Organisation, 2011).

Several studies have it that most cocoa farmers in Ghana are small holders who use family lands or leased lands. Production is concentrated on small-scale farms, of no more than four (4) hectares. The implication is that cocoa cultivation in Ghana is dominated by small-scale farmers and it is their main source of income and livelihood. Small farm sizes are likely to produce low livelihood outcomes for cocoa farmers. The continual use of traditional agricultural methods also contributes to the case of low yields among cocoa farmers (Gockowski *et al.*, 2011; Obuobisa-Darko, 2015; Otchere *et al.*, 2013).

Various reforms have been attempted by the Government of Ghana to restructure the production of cocoa. These reforms included better disease and pest control, partial liberalisation of domestic marketing of cocoa, improved cocoa varieties, improved seed and nursery development, integrated nutrient management and other measures like road construction and provision of social amenities in cocoa growing areas. In spite of all these measures, Ghana's estimated annual cocoa yield per hectare (250kg) is still very low compared to countries such as Indonesia and La Côte d'Ivoire with annual yield rate of 1000kg and 600kg respectively (ICCO, 2003; Cocoa Research Institute of Ghana, 2010; COCOBOD, 2011).

Growth in the cocoa industry is and can be spurred by the introduction of suitable innovations. Crossan and Apaydin (2010) indicated that innovation is creation or acceptance, adaptation and use of a value-added novelty in trade and

industry spheres. Likewise, Agboola (2013) stated that innovation is the process of developing new outcomes by initiating new ways of working and product development.

One of such innovations is the idea of farmers imbibing a market-oriented approach to their farming activities. The general idea is that market orientation connects the farm as an organisation to its operational environment by gathering market information and disseminating it for the sole purpose of creating superior value (Harris, 2002). It is a learning process in which farm as an organisation learns from all aspects of their environment, including customers and competitors and takes both short-term and long-term goals into consideration (Kohli & Jaworski, 1990).

In recent years, a lot of attention has been given to the subject of market orientation in widespread government organisations, financial institutions, consumer and public awareness groups. The complex nature of this orientation by cocoa farmers has raised the interest shown (Braunstein & Welch, 2002). Braunstein and Welch (2002) further stated that farmers who have a better market orientation take good decisions that increase their social as well as economic well-being. Moreover, it is one of the surest ways to improve the yields of cocoa farmers. According to Kundu and Roy (2010), there has been commitment shown to reorient smallholder cocoa farmers from subsistence to market focused production.

In response to the issue of market orientation of farmers, the Ghana COCOBOD introduced the Farmer Business School (FBS) in the year 2012 as a

way to help cocoa farmers take cocoa farming as a business. The concept stems from the Farmer Field School (FFS) concept which was developed by the Food and Agriculture Organization of the United Nations (FAO). The aim of the Farmer Business School was to provide farmers with the requisite knowledge and skills in market-oriented farm business planning and management through a “learning by doing” approach (GIZ 2012).

The whole idea is to get cocoa farmers to be more market oriented. The School gives the tools to balance a budget, work within Farmer Based Organisations (FBOs) and act as farmer entrepreneurs. The curriculum accomplishes this by reviewing the farming measurements (hectare, kilometre, kilogram, litres etc.), observing caloric values to ensure families receive the required nutrition, stressing the importance of a balanced budget, practicing budget balancing and demonstrating the benefits of crop diversification. The course also evaluates financial services and management, investment decisions, methods to increase cocoa quality, savings and credit, FBO membership and the advantages of replanting cocoa. The central message of the Farmer Business School is that farming is an entrepreneurial activity (Norton, 2013). According to Fofie (2013), about 45,903 cocoa farmers in Ghana have received training in business and entrepreneurial skills to help them become more market oriented.

With the use of suitable improved concepts or innovations such as market orientation, rapid growth in agricultural incomes is achievable (World Bank, 2007). Many countries and international development agencies give due concern to intensification and commercialization of smallholder agriculture as a means of

achieving poverty reduction (Leavy & Poulton, 2007). Kundu and Roy (2010) believe that the strategy can contribute to the transformation of the rural sector. The subsistence-oriented systems in the rural areas will be shifted gradually into a more market-oriented sector, thereby, contributing to the reduction of poverty and the overall economic growth of the country.

This drive to orient farmers to take farming as a business is crucial for them to exploit new opportunities and to gain competitive advantage. Farmers can therefore increase production and improve their livelihoods if they have a better market orientation. This is because, currently, there is not much knowledge in issues related to handling the farm as a business entity. Cocoa farmers exhibit the lowest level of business and entrepreneurial action. It is not yet high enough to enable farmers benefit from high income, integrate with the market, enjoy the benefits of commercialization or even improve their livelihood outcomes (Mahelet, 2007; Dahlia, Rabitah & Zuraidah, 2011).

Statement of the Problem

Cocoa production still remains a major contributor to the Ghanaian economy. The industry is however, characterized with low productivity and peasantry (Obuobisa-Darko, 2015; Gockowski *et al.*, 2011; ICCO, 2003). This is because, in the past, extension organisations were more concerned with the process of disseminating technical information or innovations about the production needs of farmers. The yields of farmers were improved marginally as a result of such interventions as this was considered to be the goal for good

extension service (Deutsche Gesellschaft für Internationale Zusammenarbeit, 2015; Wiredu, Mensah-Bonsu, Andah & Fosu, 2011).

In recent times, the need to provide not just technical information, but economic and market information has become necessary. This prompted the introduction of market reforms such as the partial liberalisation of the domestic marketing of cocoa, cocoa certification etc. (COCOBOD, 2011). In addition, the COCOBOD initiated a market orientation concept through the Farmer Business School. It is believed that this new orientation can help farmers to consider the market in their production activities in order to make substantial profits. For over five years now, the programme is still being executed (GIZ, 2015).

The Farmer Business School provides support to cocoa farmers in order to improve their market orientation. It helps them invest and consciously apply improved business and entrepreneurial skills of smallholder cocoa farmers, improve producer knowledge of markets and marketing to enhance their capacity to engage with and benefit from such activities, give cocoa farmers a practical knowledge to impact on their productivity levels, help them realize that the financial and marketing-related issues are critically important for improving their incomes and livelihoods and make farming an economic enterprise responding to market demands. The result is to see a promotion of cocoa farmers' rural economic development and alleviate poverty widely (GIZ, 2015; FAO, 2011; Norton, 2013).

Before the start of the Farmer Business School, market orientation principles had not been applied by many farmers. Their farms were perceived as

informal, their activities were mostly unplanned and mostly relied on the intuition and energy of the farmer to make things happen. Thus, uptake of business and entrepreneurial ideas and technical innovations were limited (GIZ, 2015).

Contributing to the problem of market orientation among cocoa farmers is the fact that the farmers are rarely organised to support their negotiating power, they lack insight into market trends for cocoa prices, the sale of cocoa is controlled by the government and they sell their cocoa at prices dictated by the intermediaries. All buyers pay the floor price, although some have introduced various options to cocoa farmers. Many cocoa farmers have to survive on less than GHC 6 a day, below the threshold of absolute poverty (INKOTA-Netzwerk, 2013; Laven, 2007). The consequences of fixed market prices together with increasing production costs are economic insecurity and impoverishment for millions of cocoa farmers. With limited income and lack of market orientation, cocoa farmers are the losers in a lucrative cocoa and chocolate industry (INKOTA-Netzwerk, 2013). However, it is expected that cocoa farmers who adopt market orientation principles may attract additional incomes and better livelihoods.

Since the inception of the Farmer Business School, it is yet unknown the extent of the effectiveness of the Farmer Business School, the extent to which the competencies (knowledge, attitude, skill) of the cocoa farmers have been enhanced, the extent to which the Farmer Business School has helped to facilitate the market orientation of the cocoa farmers, the factors that influence the market

orientation of the cocoa farmers and the influence of the Farmer Business School on the livelihoods of the cocoa farmers.

Various literature sources indicated the characteristics of the farmers, the characteristics of the farm, characteristics of the innovation and entrepreneurial proclivity (Roger, 2003; Reynolds & Lund, 1981; Harris, 2002; Feder *et al.*, 1985; Nowak, 1992; Larbi, 2015; Agboola, 2013; Chi & Yamada, 2002), environmental regulations, public concern (Zhang, Wang & Wang, 2002), government policies (Krishna, 2011) as the factors that account for cocoa farmers' inability to apply market orientation principles. Numerous studies all over the world, including Ghana, have been conducted to explore the effect of market orientation on performance (Dawes, 2000; Zebal & Goodwin, 2012; Hinson, Kastner, Ofori & Mamoud, 2007; Hinson & Mahmoud, 2011; Boohene, Agyapong & Asomaning, 2012) but none on the market orientation and livelihood relationship or on cocoa farmers in Ghana.

Currently, there is also limited empirical information to justify and support the effort of the COCOBOD towards improving the market orientation of cocoa farmers in Ghana through the Farmer Business School. An investigation into this problem has a potential for revamping the cocoa industry for productivity and livelihood improvement.

Purpose of the Study

The purpose of the study was to ascertain the effect of market orientation on the livelihoods of cocoa farmers in Ghana, using the Farmer Business School as a case study.

Research Objectives

To achieve the purpose of the study, the following specific objectives were set:

1. Ascertain the perceived effectiveness of the Farmer Business School by cocoa farmers.
2. Compare the perception of participants and non-participants on their level of competency in the Farmer Business School.
3. Compare the perception of participants and non-participants of the Farmer Business School on market orientation.
4. Analyse the factors that influence cocoa farmers' market orientation.
5. Analyse the effect of participation in the Farmer Business School on the livelihood of the cocoa farmers.
6. Analyse the effect of the market orientation of cocoa farmers on their livelihoods.

Research Questions

1. What is the perception of participant cocoa farmers on the effectiveness of the Farmer Business School?
2. Is there a significant difference between the perceived level of competency in the Farmer Business School by participants and non-participants?
3. Is there a significant difference between the market orientation of participants and non-participants of the Farmer Business School?
4. What are the factors that influence the market orientation of cocoa farmers?

5. To what extent has the participation in the Farmer Business School influenced the livelihoods of cocoa farmers?
6. What is the effect of the market orientation of cocoa farmers on their livelihoods?

Justification of the Study

This study is helpful in the sense that it went beyond farm level or production issues and looked into common business and market relationships among cocoa farmers. The study will therefore help cocoa farmers to identify the benefits and opportunities that exist with applying market orientation principles in order to generate relatively large profits, obtain long-term survival of cocoa farms and improve their livelihoods.

The study will enhance cocoa farmers' understanding and appreciation of the issues related to the business way of farming so that they can churn innovative solutions in their farming activities. The study also presented the factors that best promote or influence market orientation. These factors when understood will help farmers to take advantage of them and use them for their benefit.

The numerous challenges facing cocoa markets in Ghana led to the promotion of the Farmer Business School among cocoa farmers in Ghana. With this in place, there has been growing awareness among cocoa industry players on the need to imbibe market orientation principles. Results from this study could help develop policy initiatives in the cocoa sector.

With the fast expansion of globalization, a market oriented cocoa industry is likely to attract more foreign investors into the country. The knowledge

presented in this study will be beneficial to such investors who are into the trading of cocoa in the international market.

The study may help to expand the marketing outlets available to cocoa farmers for the marketing of cocoa in Ghana. Ofosu-Asare (2011a) noted that COCOBOD was initially the only organisation with the exclusive rights to purchase and export cocoa. Its monopoly in domestic purchase and export has ended with the inclusion of Licensed Buying Companies who have the permission to export up to about 30% of their purchases. Advocacy work could be improved by the findings of this study.

Extension officers, policy makers and other key stakeholders will understand the constraints of cocoa farmers in the application of market orientation principles in Ghana. They will also understand which factors to apply in order to enable farmers to explore market orientation principles.

Results of this study will inform scientists and researchers on the necessary actions to put in place in order to facilitate the market orientation of cocoa farmers in Ghana.

At the international level, numerous studies have been conducted to explore the effect of market orientation on performance (Dawes, 2000; Zebal & Goodwin, 2012). Specific to Ghana's environment, a plethora of studies have been undertaken on the market orientation-performance relationship (Hinson *et al.*, 2007; Hinson & Mahmoud, 2011; Boohene *et al.*, 2012) but not on the market orientation-livelihood relationship. Even though the positive impact of market orientation has been agreed upon generally in Ghana, there is no study of the

market orientation of cocoa farmers in Ghana thus providing ample justification for the study. Therefore, there is originality value to this study because it will contribute to academic literature on the subject. It will serve as a reference material and help enrich the stock of existing but limited knowledge and literature for researchers and academicians.

Scope and Limitations of the Study

In terms of examining the market orientation of the cocoa farmers, six key aspects were the focus; customer orientation, competitor orientation, inter-functional coordination (Narver & Slater 1990; Slater & Narver 1994), intelligence generation, intelligence dissemination and market responsiveness (Jaworski & Kohli, 1993).

The study was considered in the light of the innovations recommended solely by the Ghana COCOBOD at their Farmer Business School. It included other business and entrepreneurial innovations advanced by cocoa Non-Governmental Organisations.

The study delved into the implications of cocoa farmers' market orientation on the monopolized marketing system operated by the Ghana COCOBOD. This was because, within the framework of the Ghana COCOBOD, farmers do not have control over the pricing and sale of their cocoa beans. Licensed Buying Companies are permitted to purchase cocoa beans from the farmers and at a fixed amount.

The study assessed whether the Farmer Business School activities had an effect on the livelihood of cocoa farmers. The livelihoods of the cocoa farmers

centred on the social capital, human capital, physical capital, natural capital and financial capital.

In the absence of adequate record keeping by farmers, the study relied on farmers' power of memory recall.

The questionnaire used for the data collection was a lot and therefore it consumed a lot of time. The researcher relied on their sustained interest in order to get them to answer all the questions.

Finally, the study did not cover every Community or District in each of the Cocoa Regions in the country.

Definition of Terms

This section of the introduction deals with the definition of terms used in the study. They apply to the context in which the study was conducted.

Competency

It is defined as an individual's set of knowledge, attitude and skill (KAS) necessary for the farm activities (Leeuwis, 2004). Competency in this study compares the KAS that the cocoa farmer has, before and after the Farmer Business School programme and also compare participants with non-participants.

Effectiveness

According to Lynton and Pareek (1990), effectiveness measures the extent to which a programme achieves its set objectives. It is defined in the context of this study as the degree to which the result/goals/objectives of the Farmer Business School are perceived or observed by the cocoa farmers to have been attained.

Entrepreneurial proclivity

Entrepreneurial proclivity is defined as the willingness of a cocoa farmer to initiate an action towards the rejuvenation of market offerings, take risks to try out new and uncertain activities (products, services and markets) and be more proactive than other cocoa farmers towards new market opportunities (Wiklund & Shepherd, 2003).

Livelihood of cocoa farmers

They are the assets and activities that determine the living gained by individuals. This includes; natural capital-yield and productivity (yield per unit area or cost), farm lands, farm animals, farm size, quality of cocoa beans; physical capital-ownership/access to productive equipment (vehicle, sprayer, pruner, raffia mat, harvester, cutlass); human capital-access to labour, access to private extension services, ability to register household on the National Health Insurance Scheme (NHIS), payment of children's school fees, access to labour, access to COCOBOD extension services; financial capital-income levels, financial savings, farm insurance, credit facility, debt levels; social capital-payment of development levy, trust in community leaders, access to community information, support from farmer group/associations, participation in communal activities. Overall livelihood is therefore an aggregate of natural, physical, financial, human and social capitals of an individual farmer.

Market orientation

In this study, the farmer is perceived as an entrepreneur and, therefore, the farm as an organisation. The definition of market orientation adopted in this study

is that, market orientation is the farm culture that most effectively and efficiently creates the necessary behaviours for the creation of superior value for customers and, thus, improvement in the livelihood of the cocoa farmer.

Market orientation subsumes into six constructs; cocoa farmers' 1) customer orientation, 2) competitor orientation, 3) inter-functional coordination, 4) intelligence generation, 5) intelligence dissemination and 6) market responsiveness. The six constructs include all the activities involved in acquiring information about the cocoa farmers' customers and competitors in the target market and disseminating this information throughout the farm or the organisation. It also involves coordinated efforts to use the information to create superior customer value or respond to the needs of the market (Narver & Slater, 1990; Slater & Narver 1994; Jaworski & Kohli, 1993).

Perception

It is one's personal indications or inclinations to (dis)regard some things emphasised and put meaning in ones' own way.

Organisation of the Study

The study is organised into five main chapters. Chapter One is the introduction to the study. It contains the background to the study, the statement of the problem, research questions, research objectives, justification of the study, scope of the study, definition of terms and organisation of the study.

Chapter Two reviews related literature in the following subject areas; theoretical framework, the Ghana cocoa industry, Farmer Business School, market orientation, factors that influence the market orientation of cocoa farmers,

the effect of market orientation on farmers' livelihoods, the constraints of cocoa farmers in the application of market orientation principles and the conceptual framework.

Chapter Three presents the methodology employed for the conduct of the study. It further discusses the research design, study area and settings, unit of analysis, the study population, sample size, sampling design, methods of data collection, methods of data analysis, validity and reliability tests and how ethical issues were addressed throughout the process.

Chapter Four presents the analysis and discussion of the results. The analysis and discussion was performed on the key research objectives; find out the perceptions of cocoa farmers on the effectiveness of the Farmer Business School programme towards achieving its objectives; compare the perceived level of competency of market orientation by participant cocoa farmers and non-participants of the programme; measure cocoa farmers' attitude towards market orientation; determine the factors that influence cocoa farmers' market orientation; to determine the relationship between the market orientation of cocoa farmers and their livelihoods; determine the effect of the Farmer Business School on the livelihood of the cocoa farmers and identify the constraints of cocoa farmers in the application of market orientation principles in Ghana.

Chapter Five, which is the final chapter, presents a summary of the findings, conclusions drawn from the findings and appropriate recommendations toward a sustainable application of market orientation principles by cocoa farmers in Ghana.

Chapter Summary

This chapter presented the introduction to the research study. It included information on the background to the study, statement of the problem, purpose of the study, research objectives, research questions, justification of the study, scope and limitation of the study, definition of terms and organisation of the study chapters.



CHAPTER TWO

LITERATURE REVIEW

This chapter deals with the literature review of the study. The section begins with providing information on the Cocoa Industry in the World, Africa and Ghana. The various theories that underpin this study are reviewed as they relate to the specific objectives of the study. The conceptual framework guiding this study is also provided. Literature is then reviewed relating to the six main research questions; perception of farmers on the effectiveness of training programmes, competencies (knowledge, attitude, skills) of farmers attained at training programmes, market orientation, factors that influence the market orientation of cocoa farmers, the effect of market orientation on livelihoods and the effect of farmer training programmes on farmers' livelihoods.

The Cocoa Industry

Cocoa industry in the world

Cocoa is a small perennial tree crop (4-8m tall) that is cultivated in three tropical regions in the world; Southeast Asia, Latin America and West Africa (ICCO, 2010). According to the International Institute of Tropical Agriculture (2009), La Côte d'Ivoire is the single largest producer of cocoa in the world. The country accounts for approximately 31% of the world's supply. Brazil, Cameroon, Ghana, Indonesia and Nigeria are the other leading cocoa farming countries in the world. Cocoa production provides income to more than 4.5 million families worldwide (ICCO, 2010).

African alone accounts for about 70% of the world's cocoa production. Asia and Oceania contribute about 18% and the Americas contribute 14% (ICCO, 2010). McGregor, Watas and Tora (2009) further reiterated that a major advantage of cocoa is that it offers smallholders an opportunity to integrate into a food garden. Guiltinan (2007) noted that the world's exports amount to about USD 5-6 billion per year. The use of cocoa in the manufacturing of chocolate, cosmetics and other cocoa products account for approximately USD 70 billion in the markets.

About 40 to 50 million people all over the world are supported by the cocoa crop and they depend on it for their livelihood. This is because of the number of people (about 4-6 million farmers) engaged in the cultivation of cocoa (Bell, 2009; ICCO, 2010). In the year 2011, the trading volume of cocoa on the InterContinental Exchange (ICE) was 4.95 million tons. In that same year, global sales of chocolate confectionery crossed USD 100 billion for the first time. It is anticipated that consumer demand for chocolate will continue to increase and possibly outstrip supply (INKOTA-Netzwerk, 2013).

Cocoa industry in Africa

Cocoa production is concentrated in West Africa, specifically La Côte d'Ivoire, Ghana, Nigeria and Cameroon. These countries represent more than 70% of world cocoa production. La Côte d'Ivoire is the largest producer in Africa. They produce approximately 31% of the world's supply. Togo, Sierra Leone and Liberia produce small amounts of cocoa (MBendi, 2016; IITA, 2009).

Countries such as Uganda, Tanzania, Madagascar, Equatorial Guinea and Sao Tome are also highly renowned in the cocoa industry. Even though Africa produces about 70% of all the cocoa in the world, the continent gets only 2% of the revenue from the chocolate industry (Ghana Business News, 2016).

In West Africa, cocoa is mostly grown by smallholder farmers. There are about 1.7 million cocoa smallholders in La Côte d'Ivoire and Ghana (GBN, 2016). In La Côte d'Ivoire, cocoa contributes more than 20% of government revenue. There are over three million people engaged in the cocoa sector and they are mostly small-scale farmers. Cocoa made 35% of total export estimated at USD 10.25 billion in 2010. About 15% of the 28.2% agriculture's contribution to the country's GDP 2010 was accounted for by cocoa. It provided job for almost 60% of the working population and contributed about 46% of total export (Giovannucci & Ponte, 2005).

In Nigeria, cocoa accounted for about 27% of the 41.48% of the country's agricultural GDP. Cocoa production provides a good source of livelihood for over 5 million people in the country. Cocoa is also the single largest non-oil export earning commodity for Nigeria in comparison with other agricultural commodities (Aikpokpodion, Motamayor, Adetimirin, Adu-Ampomah, Ingelbrecht, Eskes, Schnell & Kolesnikova-Allen, 2009).

According to Efombagn *et al.*, (2006), about 4 million people in Cameroun depend on cocoa for their livelihood. It is produced by millions of small-scale farmers in more than 200,000 farms on an estimated 400,000 ha of land. It is currently one of the major sources of revenues for rural households (1 to

2 million people). In other countries such as Togo, Sierra Leone, Liberia, Equatorial Guinea, Sao Tome and Principe, Gabon and Democratic Republic of Congo, cocoa production makes significant agricultural contributions to the GDP (Gockowski & Sonwa, 2008).

The major limitations to the growth of the cocoa industry in Africa include the following; high degradation of agricultural lands, dwindling interest among young people in cocoa farming, high incidence of poverty, high incidence of pests and diseases, lack of agricultural land, ambiguous land tenure systems, low soil fertility, weak extension services, poor knowledge dissemination, lack of improved planting materials, aging population, poor road networks, poor communication infrastructure and ill health among cocoa farmers (MBendi, 2016; GBN, 2016).

Cocoa industry in Ghana

Cocoa is produced in six political regions of Ghana namely: Western, Ashanti, Eastern, Central, Volta and Brong Ahafo (Tweneboah, 2000). Over the forest zone, between 1.6 million and 2 million ha of land have been given over for cocoa farms (FAOSTAT, 2016). Ghana is the second leading producer of cocoa in the world. Average production rate is estimated at about 550 kilograms per hectare (kg/ha) (Bosompem, Kwarteng & Ntifo-Siaw, 2011). It is the main agricultural export commodity of Ghana and employs about 60% of the national agricultural labour force (Ntiamoah & Afrane, 2008).

It is a major source of income for approximately 800,000 farmers and many others engaged in trade, transportation and processing of cocoa (World

Bank, 2011) and represents between 70% and 100% of annual incomes for cocoa farmers (Läderach *et al.*, 2013). Cocoa incomes have contributed significantly to efforts towards poverty reduction. For instance, in the 1991/1992 cocoa season, the poverty rates among cocoa farmers were as high as 60%. However, by 2008/2009 cocoa season, this had been more than halved to 24% (Breisinger *et al.*, 2008). The sector accounts for about 6% to GDP and about 11.5% of Agricultural GDP (COCOBOD News, 2010).

Concerns over low productivity have long fuelled uncertainty over the long-term sustainability of the cocoa sector (Gockowski, 2007; Vigneri, 2007). The average annual cocoa yield over the last 30 years (330 kg/ha) is among the lowest in the world and compares unfavourably to leading producers such as La Côte d'Ivoire (800 kg/ha), Indonesia (770 kg/ha) and Malaysia (1700 kg/ha) (Bosompem *et al.*, 2011). Low productivity translates to low incomes for cocoa farming households (Hainmueller, Hiscox & Tampe, 2011).

Ghana's cocoa has ever reached record highs of nearly 1 million metric tons (Anim-Kwapong & Frimpong, 2004). Production has also ever fallen to a record low of 158,000 tonnes in 1983/84 when bush fires and drought destroyed a number of cocoa farms in the country (ISSER, 2012). Although Ghana was the world's largest cocoa producer in the early 1960s, production dwindled almost to the point of insignificance by the early 1980's. The drop from an average of more than 450,000 tons per year to a low of 158,000 tons in 1983/84 was attributed to aging trees, widespread pests and disease attack, bad weather and low producer prices. In addition, bush fires in 1983 destroyed some 60,000 hectares of cocoa

farms, so that the 1983-84 harvest was barely 28% of the 557,000 tons recorded in 1964-65. Output then recovered to 228,000 tons in 1986-87 (Hainmueller *et al.*, 2011; ISSER, 2012).

The trend in cocoa production levels in Ghana from 2000 to 2013 are summarized in Figure 1.

Area Harvested/Production of Cocoa

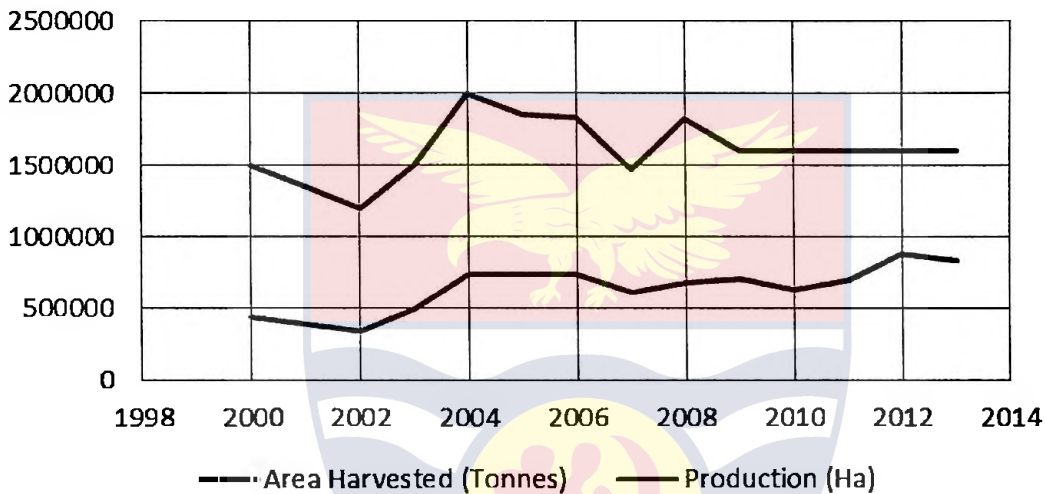


Figure 1: Area Harvested/Production of Cocoa (2000-2013)
Source: FAO, (2016)

In terms of income, a recent survey of 3,000 cocoa farmer households across Ghana showed that the mean annual average household income of cocoa farmers was GH¢ 716. This could be said to be low. Low incomes tend to impede growth and threaten the sustainability of the sector as cocoa farmers are discouraged from making yield enhancing investments into their farm businesses (Hainmueller *et al.*, 2011).

There are also a number of constraints that hinder the growth of the cocoa sector. They include limited access to farm credit, poor availability of affordable and timely inputs, weak organisational capacity of farmers, low literacy of

farmers and a lack of technical extension support. These constraints weaken the ability of farmers and other stakeholders to manage their exposure to risk as well as exacerbate the impact of risk events when they occur (Gockowski, 2007).

Despite these and other challenges, the sector has bounced back in recent years. Since 2000, it has experienced notable growth. Higher producer prices, partial liberalisation of internal marketing, the establishment of a price stabilization system, increased public spending on infrastructure, cocoa rehabilitation, mass spraying, fertilizer credits, improved extension, privatization of input distribution have all played a role in the recovery of the cocoa sector (Hainmueller *et al.*, 2011; WCF, 2010).

Exports and associated foreign exchange earnings have been on the rise. In the 2009/2010 cocoa season, about 632,000 MT of cocoa was produced. About 566,700 MT of the cocoa beans were exported to more than 25 destinations worldwide. This makes Ghana one of the biggest suppliers of cocoa beans, second only to La Côte d'Ivoire. The exports generated over USD 1.66 billion in revenues and represented nearly 21% of total merchandise exports (Bank of Ghana, 2011).

Export earnings in Cocoa (2000-2010) are shown below in Figure 2.

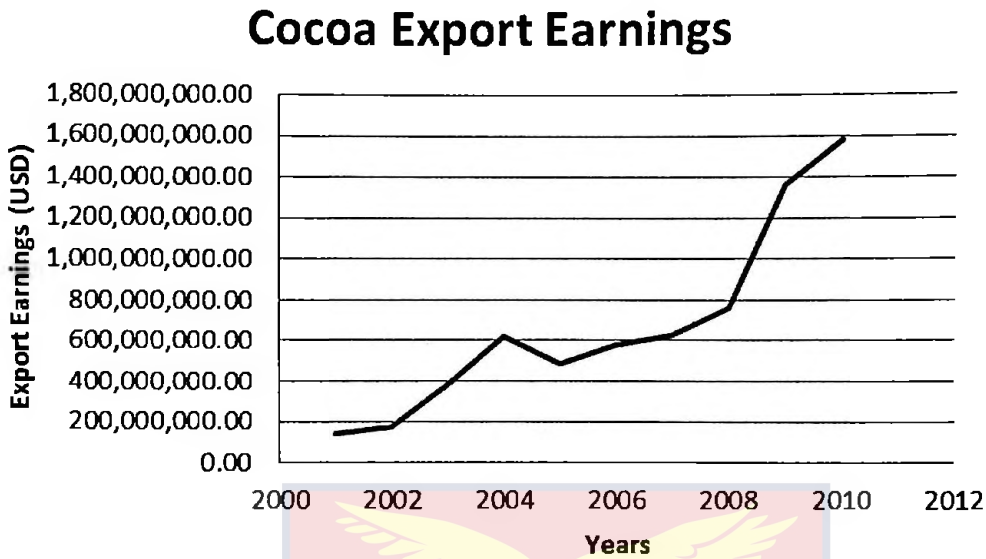


Figure 2: Ghana's Export Earnings on Cocoa (2000-2010)
Source: ISSER, 2011

Finally, it is likely that cocoa can and will continue to play an important role in the economic growth of Ghana. The reasons include the fact that international cocoa prices are likely to remain buoyant for the foreseeable future. Cocoa yields in Ghana are currently well below international averages. However, this suggests a strong potential for productivity-driven growth in the years ahead. Most importantly, the Government of Ghana also recognizes the importance of cocoa to its economy and is likely to maintain its strong support to the subsector (World Bank, 2011; WCF, 2010).

Cocoa markets in Ghana

In Ghana, the Cocoa Marketing Board (CMB) is the sole buyer of all harvested cocoa beans. Ghana sells most of its cocoa in the raw form. A price premium is also placed on cocoa imports from Ghana due to superior content of

fats, propensity for higher yields and the reputation for consistent and reliable supply of cocoa. About 40% of the produce is processed locally (Vigneri, 2008).

With regards to the internal marketing of cocoa, the COCOBOD reverted to the multiple buying system of cocoa purchasing in June, 1993. The reason for that decision was that government wanted to re-introduce competition into the internal marketing of cocoa. Prospective buyers initially apply to the COCOBOD and they are vetted by an independent committee. This system of purchasing cocoa is strictly regulated and it is extremely different from many Cocoa producing countries like Côte d'Ivoire, Indonesia and Nigeria. COCOBOD and its subsidiaries are exclusively authorized by government to certify interested registered companies to be involved in the cocoa purchasing process. The successful applicants are granted provisional licenses which may be converted into full licenses if COCOBOD is satisfied that the provisional licensees have adequate operational logistics for effective operation. The Licensed Buying Companies (LBCs) are required to abide by the regulations and guidelines set out by COCOBOD (Simons *et al.*, 2006).

In addition to Produce Buying Company Limited (PBC Ltd), a subsidiary of COCOBOD, about twenty-five (25) Licensed Buying Companies and 4,600 buying centres were in operation between 1993 and 1997 (COCOBOD, 2011). Some of the Licensed Buying Companies included: Adwumapa Buyers Limited, AkuafɔAdamfo Marketing Ltd, Trans royal (Ghana) Limited and Kuapa Cocoa Limited. The Licensed Buying Companies purchase cocoa directly from farmers at a minimum producer price (Simons *et al.*, 2006).

Licensed Buying Companies try to maximize their purchases of cocoa because they receive a fixed margin of Freight on Board (FOB) price. The only way they can increase their revenues is by buying more cocoa. Licensed Buying Companies are characterized by a huge flexibility of resources. They hire temporary workers in the operating areas when needed and usually outsource the transportation activity to hauliers. They operate in different Districts and Regions and have multiple storage facilities scattered across their operational areas (Norde & van Duursen, 2003).

COCOBOD introduced the seed fund system as a way to provide loans for cocoa purchases. It was distributed at the beginning of the cocoa season (Vigneri, 2008). This was because Licensed Buying Companies were unable to provide collateral for loans and raise funds to purchase cocoa from farmers (BoG, 2011). Seed fund had a lower interest rate than the current market rate. Later on, many Licensed Buying Companies were able to raise funds themselves at competitive interest rates at local banks. They used insurance as a financial protection against potential losses (Vigneri, 2008).

Licensed Buying Companies reported that the internal marketing of cocoa is a profitable activity. Nevertheless, the profit from cocoa is seasonal and the extent to which LBCs are engaged in non-cocoa activities seems to be negligible. Licensed Buying Companies invite Quality Control (QC) to check the quality of the beans, to pack it into special bags and to seal the bags when there is enough cocoa in a warehouse (Baah, Anchirinah & Amon-Armah, 2011).

Each Licensed Buying Company purchases cocoa in several Districts and Regions and has a distributed storage system. They also have partnerships with foreign buyers within certification programmes and deliver cocoa to them through the Cocoa Marketing Board. In such a co-operation, the main role of the Licensed Buying Companies is to make sure that their partners are supplied with the certified cocoa from the agreed area (Simons *et al.*, 2006).

The internal marketing of cocoa in Ghana is characterized by the over-dependency on COCOBOD. COCOBOD provides the Licensed Buying Companies with the capital to purchase cocoa. In addition, Licensed Buying Companies are heavily relying on cocoa-related activities most probably because, internal marketing activity already requires a lot of coordination and human resources. There is also lack of incentives for the Licensed Buying Companies to switch to other activities as they are provided with financial support from COCOBOD to purchase cocoa (Baah *et al.*, 2011).

With regards to the external marketing of cocoa, most external sales of cocoa are made on standard contract; 'FOB', 'CIF' or 'EX STORE'. With 'CIF' and 'FOB' cocoa, the COCOBOD is allowed to ship the cocoa at any time during a specified two to three months period. With EX STORE, the sale of cocoa is confined to the warehouse; a secondary market in consuming countries where cocoa may be immediately available or available at some specified time in the future (Wood & Lass, 1998).

Cocoa beans from Ghana is shipped in Hessian bags (jute sacks) that contain about 62.5kg of beans. Each bag is marked to indicate its country of

origin, the grade and whether the cocoa is light, mid or summer crop. Cocoa from Ghana and Nigeria are sold on the basis of the shipping weight with the buyer having a claim if the weight is not within 1.5% of the nominal weight (Wood & Lass, 1998).

All cocoa is delivered to the Cocoa Marketing Board which ensures that the cocoa is stored in three take-over centres prior to shipment. The three take-over centres are Tema, Takoradi and Kaase. The Board has exclusive rights to export the cocoa beans to local and foreign buyers. The Board is also in charge of pre-harvest sales. A fixed price is also contracted with international merchants and cocoa processors in order to hedge against price volatility. About 60% to 80% of cocoa beans in Ghana is pre-sold. The forward contracts are then provided as collateral to borrow the funds from an international syndicate (World Bank, 2011). These funds are used as the seed fund for Licensed Buying Companies (Vigneri, 2008).

COCOBOD wields excessive power in cocoa marketing in Ghana. This system remains a high negative threat with high severity of impact on the Licensed Buying Companies and other stakeholders directly involved in cocoa purchases. No other individual or organisation is permitted to purchase cocoa. Most Licensed Buying Companies are protesting this sole right because it affects their profit efficiency levels and overall operational effectiveness. Secondly, their profit levels in the purchasing process of cocoa is solely based on the total quantity of cocoa they purchase within the cocoa season (Kumi, 2016).

It is expected that liberalisation efforts in the purchasing of cocoa be extended to help increase cocoa prices significantly through competition. Contrary to the purpose of trade liberalisation, COCOBOD fixes price floor for Licensed Buying Companies to purchase cocoa from farmer. The Licensed Buying Companies only exist as price takers under the partial liberalisation of Ghana's cocoa sector with no influences on price (Kumi, 2016).

Licensed Buying Companies only increases their market share of profit by initiating buying strategies to increase total quantity of annual cocoa purchase since their profit is dependent on total cocoa purchase. Most of the Licensed Buying Companies are of the view that cocoa purchasing guidelines and regulations as enforced by COCOBOD and its subsidiary such as Quality Control Company and Cocoa Marketing Board are hard-pressed on them with little or no consultation (Kumi, 2016).

Theoretical Framework

It is fair to say that elements of perception and behavioural theories are applicable in the context of assessing the market orientation of cocoa farmers using the Farmer Business School. According to Cooper, Heron and Heward (2007), behaviour is the observable response of an individual towards a referenced target. Behaviour is something that a person does that can be observed, measured and repeated. In this study, behaviour refers to a cocoa farmers' response which can be observed, measured and repeated. This section discusses the two major theories that underpin this study.

Theory of planned behaviour

According to the theory of planned behaviour by Ajzen (2002), if an individual evaluates a behaviour as positive and considers that ‘significant others’ expect the performance of that behaviour (subjective norms), there would be a greater intention and motivation to perform the behaviour. Burton (2004) added that the theory was created so that it could include socioeconomic, socio-cultural, psychological and economic approaches into the behavioural analysis. The theory has been used by several authors. For instance, Yusof, Syahlan, Zulkefli and Bakar (2017) used the theory to evaluate the factors influencing the cocoa smallholders’ behaviour decision making in Hilir Perak, Malaysia. Aikins (2014) also adopted the theory to study the effect of access to and use of agricultural information on the livelihood of cocoa farmers.

Situating this in the context of the study, cocoa farmers will always consider the gains and trade-offs present in applying the knowledge, attitude and skills to be gained through the Farmer Business School. The evaluation is generally based on whether the programme or activity is positive or not. This is seen in how those who participated in the Farmer Business School perceive the school to have been effective (achieved its objectives or not). The gains are conceptualised as the livelihood outcomes that the cocoa farmers are likely to derive from participating in the school while the trade-offs are the factors that are likely to influence their ability to apply whatever they are taught at the school.

Cocoa farmers also consider the expectations that are present from the side of the promoting organisation, COCOBOD. This is a major issue that influences

the market orientation of cocoa farmers in Ghana. COCOBOD dictates the policy environment in which cocoa farmers in Ghana are able to operate. Hence, their expectation of the role of COCOBOD is expected to affect their ability to apply the market orientation principles taught at the Farmer Business School.

Theory of programme evaluation

Educational or training programmes such as the Farmer Business School are essentially about change; intended or unintended (Patton, 2011). These could be observed in the competency (knowledge, attitude, skill), market orientation and livelihoods of the cocoa farmers. Underlying this is an assumption of order: as knowledge accumulates, it is expected that there would be movement from disorder to order. The reductionist theory of programme evaluation holds that the outcome (livelihood) can be understood and thus predicted by investigating and understanding the contribution of the constituent parts such as the Farmer Business School, market orientation etc. (Geyer *et al.*, 2005).

This fits into the Bennett (1977) theory of programme evaluation because the study sought to assess the perceived effectiveness, competencies (knowledge, attitude and skills) and effect of the Farmer Business School on the livelihoods of cocoa farmers. Having gone through the Farmer Business School, it is expected that the farmers' capacity in cocoa production will improve and consequently, will affect their level of livelihood.

Perceptions of Farmers on the Effectiveness of Farmer Training Programmes

This section of the literature review deals with information pertaining to the effectiveness of farmer training programmes. Specifically, it gives information on farmer training programmes, the Farmer Business School, evidences of effectiveness of farmer training programmes and finally, it gives information on the sustainability of the Farmer Business School.

Training programmes

Training programmes are always initiated by developing objectives. Unless the training objectives are developed, a training activity cannot be systematically designed to achieve particular outcomes. Objectives must then be stated clearly because they are statements of what trainees will be able to do after trainings (FAO, 2011).

According to Lynton and Pareek (1990), the basic question in evaluating a complete extension training programme is simply to ascertain the extent to which a programme achieved what it set out to achieve. This is the larger scale version of the issue that trainers ask of every session. In most cases, a detailed study is required before strategic difficulties can be located and their strength assessed.

In the training context, objectives arise out of 'gaps' and deficiencies identified in the process of needs assessment. They indicate what is to be done about those gaps by stating an end-of-training performance outcome. If objectives are inadequately formulated in the first place, even a good training programme

has really no chance to be effective. Suffering from incompatible training objectives is a weakness common to many programmes (FAO, 2011).

Effectiveness in extension training programmes refers to the extension systems ability to achieve goals. It is typically determined with respect to the achievements of a goal or set of goals. In its simplest form, evaluation should address the question of whether the training programme achieved its objectives. Basing training objectives on need assessment information and then evaluating those objectives is the most frugal way of summarizing what training evaluation is all about (FAO, 2011).

Kirkpatrick (1979) suggested four criteria to evaluate training programmes: (1) Reaction, (2) learning, (3) behaviour, and (4) results. Each criterion is used to measure the different aspects of a training programme. Reaction measures how the trainees liked the programme in terms of content, methods, duration, trainers, facilities, and management. Learning measures the trainees' skills and knowledge which they were able to absorb at the time of training. Behaviour is concerned with the extent to which the trainees were able to apply their knowledge to real field situations. Results are concerned with the tangible impact of the training programme on individuals, their job environment or the organisation as a whole.

Since the types of effects refer to technological, institutional, socio-economic and environmental aspects, the achievements of a programme can be measured from efficiency (quantity and quality of the products achieved in relation to the human, physical, and financial resources invested), effectiveness

(grade or level to which the expected products, effects and impacts are achieved), relevance (grade or the level the project deals with the most important problems of the target group) and sustainability (extent the products of the project achieved lasting effect and impacts within the target group and the extent skills and capacities are built up within the implementing agency) point of view (Bennett, 1977).

The farmer business school

In the past, extension organisations were more concerned with the process of disseminating technical information or innovations about the production needs of farmers. The yields of farmers were improved as a result of that intervention as this was considered to be the goal for good extension service. In recent times, aside the need to provide just technical information, economic and market information has become necessary. This new orientation can help farmers to consider the market in their production activities in order to bring profit (GIZ, 2015).

A new methodology developed by the Sustainable Cocoa Business Project (SCB) of GIZ and International/Local Partners in Ghana, Nigeria, La Côte d'Ivoire and Cameroon was introduced in 2010. COCOBOD was among the pioneering organisations with whom the Sustainable Cocoa Business Project developed the Farmer Business School approach. COCOBOD has full ownership of the approach. It is called the Farmer Business School. It was developed for cocoa production systems, including maize and cassava. COCOBOD started to work with the SCB in 2010 (GIZ, 2015).

The Farmer Business School is an offshoot of the Farmer Field Schools and the Participatory Market Chain Approach. It comes in to give farmers a practical knowledge to impact on their productivity levels and livelihoods. Adult learning principles are combined with agricultural extension methods and elements of organisational development in order to enhance self-reflection towards the change of attitudes and behaviour. The idea is to transform traditional illiterate farmers into entrepreneurs who will consider and practice farming as a business, therefore giving them a market orientation approach to farming. The Farmer Business School comes in to also help farmers realize that the financial and marketing-related issues are critically important for improving their incomes. The aim is to make farming an economic enterprise responding to market demands and it is therefore expected to promote rural economic development, improve agricultural extension and alleviate poverty widely (GIZ, 2015).

The Farmer Business School focuses on the business and entrepreneurial skills of smallholder cocoa farmers and it is an important prerequisite for investment and consciously applying improved techniques (FAO, 2011; GIZ, 2015). The Farmer Business School also seeks to improve producer knowledge of markets and marketing to enhance their capacity to engage with and benefit from such activities (FAO, 2011).

The objectives set for the Farmer Business School are; to develop socially, economically and environmentally sustainable agricultural sector with long-term profitability, promote skills capacity development among farmers, improve the returns to agricultural activities, improve organisation and trust among market

chain actors, facilitating innovation in the value chain and improve access and use of services (FAO, 2011).

The project is structured in 12 modules and it includes curriculum on principles of farming as a business and planning; units and measurement for rational farm management and investments, basics of human nutrition and farm management for enough food and a balanced diet, economics of a lead crop and two other crops; income-oriented decision making based on cost-benefit analyses of different technologies for the lead crop and other crops, strategies to diversify incomes, financial management, savings and access to credit; benefits from membership in farmer-based organisations, planning investments in replanting and how to become an entrepreneur in practice (GIZ, 2015).

COCOBOD is providing training to cocoa farmers by applying a group extension approach. Each extension agent is expected to implement 16 Farmer Business School trainings per year on average. There are two months per year where a Farmer Business School trainer does three FBS trainings. The focal persons in the groups do the follow-up and the trainer visits the groups every month. There are times, when COCOBOD interrupts the regular extension delivery model for a while due to other tasks like distribution of seedlings or fertilizer, which is part of COCOBOD's duties. One particular objective is to turn the trained farmer groups into formal organisations (GIZ, 2015).

Agroecom Ghana Ltd (AGL) has established a Farmer Business School in cocoa-growing communities in the country where they equip farmers with skills in bookkeeping, profitability assessment, basic reading and writing, budgeting,

records keeping of farm data and understanding modern trends in farming (Baidoo, 2016). GIZ (2015) claimed that a total of 393,874 farmers have been trained on the Farmer Business School as at February 2015. The lowest percentage of women trained on the Farmer Business School is 12% for cocoa farmers in La Côte d'Ivoire. However, in Nigeria and Zimbabwe, women formed the majority of the trainees (58% and 60% respectively). The training programme is delivered in their native language to facilitate assimilation.

Evidence of effectiveness of training programmes

Evidence gathered from some countries on the effectiveness of the Farmer Business School show that the dependence on income from cocoa production decreased from 93% to 69% in Ghana and from 96% to 76% in Nigeria due to the high increase in non-cocoa incomes. This is because the school has grown far beyond cocoa production systems to include other crops such as cotton, rice, cashew, sesame and horticultural products (GIZ, 2015).

In Nigeria, a study by Essiet (2014) showed that small-scale cocoa farmers who grappled with challenges such as low yields and incomes were assisted through the Farmers Business School to improve their skills. Before then, many of them lacked the financial muscle to use the opportunities offered to expand markets and boost their income. According to GIZ (2015), farmers are able to do their own calculations of production cost and household cash expenses at basic level. They are also able to draw up their own financial plan and record all cash flows. Farmers are doing better on banking, savings and credit applications. Farmers are able to make their own cropping calendars. There is also improved

cooperation among farmers on their farmer groups and associations. They are able to purchase inputs as a group as well as from product marketing as a group.

In Zambia and Malawi, satisfaction level with the Farmer Business School is 82% and 95% respectively. Projects indicate higher yields for both the lead crop and complementary crops. In Benin, yield has experienced an increase of about 6% and the average gross margin of producers increased by about 4% (GIZ, 2015). In Togo, farmers indicated that they were motivated to apply business skills because of the Farmer Business School (GIZ, 2015). The effectiveness of the Farmer Field School programme was investigated by Tripp (2004). The results showed that the Farmer Field School had a positive and significant impact on the participating farmers.

Monitoring and evaluation results of a GIZ survey among 17,050 Farmer Business School graduates in Ghana, Nigeria, Cameroon and La Côte d'Ivoire in 2013 demonstrated the effectiveness and impact of the school. The survey shows that more than 90% of the farmers were highly satisfied and considered the school good or excellent. About 40-80% of the trained farmers were able to apply the business tools taught while 40-90% of trained farmers were able to apply Good Agricultural Practices (GAP). The high adoption rates for the business tools taught led to significantly higher cocoa yields (33-50% increase on average) (GIZ, 2015). In Ghana, about 30-75% used the business tools they were taught even after two years and this was reported to have increased cocoa yields of between 40-100% and even higher increases in non-cocoa income (GIZ, 2015).

Sarker and Itohara (2009) studied the perceptions of farmers regarding the effectiveness of a training programme. In that study, training on effective use of natural resources and the effective supply of organic inputs was found to have a greater impact on improving the livelihood of small-scale farmers. The research indicated that extension would be more effective in helping to improve farmers' livelihoods if there was a clear understanding of what farmers want to know and how they want it to be delivered to them.

All projects report that the Farmer Business School trainings are conducive to promote growth of farm businesses. In terms of Farmer Business School tools applied, improved financial management is indicated as a main result of Farmer Business School trainings by four of the eight projects. After the trainings, farmers are able to do their own calculations of production cost and household cash expenses at basic level. Farmers can draw up their own financial plan and record all cash flows. Farmers realise the relevance of gross margin calculations and unit cost calculation. Due to an overall better understanding of cash flows and cost calculation, farmers are able to reduce remaining payments. Through the opening of saving accounts, farmers now have access to loans. Through participating in Farmer Business School trainings, farm operations can be planned more effectively and two projects report an increased income of farmers (GIZ, 2015).

Sustainability of the farmer business school

Projects see a probability of 50-100% that partners continue Farmer Business School delivery after the project ends. The probability varies from one

country to the other, even within one project, e.g. from 10% probability in Ghana to 80% probability in case of Zambia. For projects which started providing Farmer Business School lately, it is still too early to provide a realistic estimation of the sustainability. Three projects expect the sustainability of Farmer Business School provision by the partner to be at the level of 80-100% probability; two projects expect 60-70% probability. The major difficulty for further application of FBS is the availability of the necessary operational budget of the partner organisation whether it is a public institution or a private company (GIZ, 2015)

Perceived Levels of Competency of Cocoa Farmers

Yondeowei and Kwarteng (2006) defined competence training need as the difference between the required level of competence and the present level of competence. Allo (2001) pointed out that one of the main factors limiting the development of effective competence training programmes for farmers in developing countries is the inadequacy of information on their training needs. This is meant to identify performance requirements, knowledge, skills and abilities needed to achieve the required potentials. For instance, Agboola (2013) stated that knowledge on appropriate and effective use of fertilizer on cocoa would help not only to improve yield but also has the advantages of profitability, product quality and environmental protection.

Knowledge level of cocoa farmers obtained at training programmes

Financial literacy in cocoa production is having the knowledge to manage one's finances well, considering one's economic and social circumstances. It is the farmer's ability to source for funds from sources other than his own with the

minimum of cost and payoff requirements. This is one area of interest since most farmers have been found to be uneducated with respect to business financing. The fortunes of a farm entity will decline and possibly collapse if the farmer fails to acknowledge his mounting obligations of increased interests and debts as a result of increasing borrowing (Assibey, 2010).

Information and knowledge on business and entrepreneurial skills are regarded as essential for farmers to respond successfully to the opportunities and challenges of the physical, social and policy environments in which they operate. It has been said that empowering the poor is about providing them with information (World Bank, 2007). Knowledge gaps and information problems are key constraints to efficient functioning of markets and equitable growth and development (Garforth, Angell, Archer, & Green, 2003).

Upon assessing the knowledge of respondents on investment and insurance as well as personal financial opinions by Akoto (2015), it was realized that decisions were critically low with mean correct scores of 32.4% and 34.6% respectively. The study further revealed the factors that account for differences in the financial knowledge among cocoa farmers. From the study, the location of the farmers, thus, their districts were significant in predicting the likelihood of the level of financial knowledge. It was found out that, their districts are significant in predicting their level of financial knowledge in savings and personal financial knowledge as well as their overall financial knowledge. Further, the levels of education were also explored as significant factors in predicting the likelihood of the farmers' financial knowledge. Primary education, secondary education as well

as tertiary education was found out to be significant in predicting the overall level of financial knowledge among the cocoa farmers (Akoto, 2015).

According to a study by Nimoh, Baah and Tham-Agyekum (2011) the respondents were assessed on whether they had ever heard of any farm insurance policy. Thirty-two (32%) of the respondents had knowledge of farm insurance policies while 68% were not aware of farm insurance policies. Out of the 32% who were aware of farm insurance schemes, 25% said farm insurance was a form of compensation in times of uncertainties while 7% indicated that farm insurance was a type of government support. The results indicated that farmers were aware of farm insurance schemes although the response was less than average. This agrees with Shafiei (2007) who noted that developing countries have established crop insurance programmes not only to provide farmers with another risk management tool, but also to promote other goals, such as improving farmers' access to credit, promoting production of high value crops that might also have higher yield risk and providing more stability to agriculture and related industries.

Farmers were asked whether they were aware of the dangers associated with not having farm insurance policies. Majority of the respondents (76%) responded Yes while the rest (24%) responded No. A further probe over the dangers associated with not having farm insurance policies included reasons such as uncertainties, fire outbreak, loss of properties through theft and no benefit can be obtained in times of uncertainties (Nimoh *et al.*, 2011).

Attitude of cocoa farmers obtained at training programmes

Attitude has been described as predisposition to act in a certain way and it is the state of readiness that influences a person to act in a given manner (Oyediran, Fakoya & Omoare, 2016). In terms of the attitude of cocoa farmers towards issues of business and entrepreneurship in their farm activities, Allo (2001) revealed that most (73.8%) of the respondents strongly agreed that considerable amount of money was spent to attend the trainings while few (19.7%) strongly agreed that the recommendations were difficult to implement. The respondents however disagreed that the training was too short to grab details of the training (64.4%) and not in-depth (72.5%). Moreover, majority (65.3%) of the respondents strongly agreed that they would spend more money to participate in future trainings while most strongly agreed that the training is beneficial (84.1%) and satisfied with it (86.2%).

As regards to insurance, only 29.6% ranked buying an insurance policy as very important. When it comes to planning and implementing a regular investment programme, 32.9% viewed it as very important. About 40.8% of the respondents' rank contributing a monthly pension as very important. The analysis made above from the results of the sample suggest that the farmers opinions are influenced by their level of personal finance knowledge and this in turn affects their decisions made about financial matters (Akoto, 2015).

The farmers' responses to the importance of drawing a budget are reported showed that about 56.9% of farmers ranked drawing a budget as very important, 23.3% as important, 15.0% as not sure, 4.2% as not important and 0.6% as not

important at all. As regards to insurance, only 29.6% ranked buying an insurance policy as very important (Akoto, 2015).

Concerning farm insurance, Nimoh *et al.*, (2011) indicated that majority (87%) of the cocoa farmers indicated their positive attitude towards farm insurance. This shows that a very high proportion of the farmers were interested in carrying out farm insurance policies. If this is the case, then farmers are in a good stead for farm insurance as the United Nations has indicated possibility of initiating insurance schemes for crop failure due to climatic disasters such as flood and droughts in Asia, Africa and Latin America (Mahelet, 2007).

Skills of cocoa farmers obtained at training programmes

One of the skills necessary for a cocoa farmer in market orientation is the act of savings. Cocoa farmers are taught to have a savings culture at the Farmer Business School. Savings as a component of the business life of a cocoa farmer serves two purposes; a source of economic security and the accumulation of wealth to improve the individual's standard of living (Braunstein & Welch, 2002).

While access to loans poses challenges to farmers, savings could play a crucial role in cocoa farmers' market orientation. There is no collateral needed for savings, no interest to be paid and no arrears possible. Every willing cocoa farmer could participate even if funds are used for non-productive purposes. The lack of discipline might hinder cocoa farmers from engaging in it. Motivating cocoa farmers to save regularly could lead to higher savings, provide them with sufficient funds to purchase agro-inputs or getting at least some financial backup in case of emergencies (Mahelet, 2007). According to a study by Hoag, Ascough

and Frasier (2000), in terms of general record keeping, farmers use computer for keeping farm production, input, harvesting, primary processing and marketing records.

Farm record keeping is a basic skill that every farmer must have. Farm records have the important function of being a ready source of assessing vital information which could be used for decision making and also helps to reduce risks significantly. Assessing readily available information is considered crucial to any farm business since farmers cannot depend on their memory for accurate information on transactions (Tham-Agyekum, 2012). According to Devonish, Pemberton and Ragbir (2000), most farmers keep their farm records manually. Both stated that the majority of farmers (81%) kept their records hand written, that is in books, ledgers bills and other loose leaves. Devonish *et al.*, (2000) further stated that 4% of them stored their records on the computer using some type of accounting software and 15% of the farmers kept both hand-written and computerised records.

In a study by Okantah, Aboe, Boa-Amponsem, Dorward and Bryant (2003), farmers were asked to determine the frequency with which they collected, inspected, analysed and referred to their farm records. It was noted that most farmers collected farm records on a daily basis but tended to refer to them on a weekly or monthly basis. Thus, records were not likely to have an immediate influence on the daily business decision making process by the poultry farmers. Devonish *et al.*, (2000) showed contrary results that most of the farmers (38%)

interviewed for their research work preferred to record their data weekly whiles 30% preferred monthly basis and 28% recorded data daily.

Budgeting looks at the expenditure planning and pattern and the cash flow analysis of any business and this is very vital for the success of any farm. However, it is well documented that farmers care little about budgeting; their primary concern is the cash flowing into the business and not their expenditure levels (Tham-Agyekum, 2012).

Kwadzo, Korwunor and Amadu (2013) contended that market-based crop insurance is the most effective management tool farmers can use in today's agriculture industry where the degree of uncertainty is highly associated with high loss. Nimoh *et al.*, (2011) in analysing the demand for insurance of cocoa farmers in Ghana using Probit model indicated that factors such as farmers with other occupations, farm size and owner of land for farming have significant influence on farmers' willingness to pay for insurance. Similarly, Falola, Ayinde and Agboola (2013) in assessing cocoa farmer's willingness to pay for insurance showed that age of household head, educational level, access to extension services and farm income affect farmers willingness to pay for agricultural insurance. Thus, farmers can be motivated or deterred by these factors as well as the prevailing insurance policies.

Nimoh *et al.*, (2011) found in their study that the term insurance is not a new term for the cocoa farmers since all of them have heard of one or more types of insurance schemes before the study was conducted. However, none of them was found to be using a farm insurance scheme. However, it was found that cocoa

farmers were involved in other insurance schemes such as the National Health Insurance Scheme (NHIS). Out of the 100 farmers sampled, 72% had already used a type of insurance scheme while 28% have never used insurance schemes. About 61% out of the 72% who had ever used a type of insurance scheme used the NHIS. This was followed by life policies (6%) and car insurance (5%). Farmers were asked to indicate the reasons for using the insurance schemes: About 61% said they were using it to subsidise their medical expenses in times of sicknesses. Another 6% indicated risk management, 3% indicated the protection of their properties including family members while 2% indicated the protection of their vehicles in times of future uncertainties like accidents and theft.

Market Orientation

The concept of market orientation

Narver and Slater (1998) propounded the market orientation theory to shed light on the components that build a market orientation and propose a useable definition of the concept. They proposed that market-oriented firms are focused not only on customers but also equally much on competitors. They agreed that market orientation consists of three behavioural components such as customer orientation, competitor orientation and inter functional coordination and two decision criteria; long term focus and profitability. The degree of market orientation shows through employee and customer satisfaction, as well as content shareholders. Customers of a company with a high degree of market orientation experience great value for money and excellent service that is gladly delivered by skilled and professional employees of that company (Narver & Slater, 1990).

According to Harris (2002), there is a certain ambiguity regarding the nature of market orientation phenomena. In spite of this, the general concept of market orientation is that it connects the organisation to its operational environment, by gathering market information and spreading it inside the organisation with the sole purpose of creating superior value.

Kohli and Jaworski (1990) defined market orientation as the organisation wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organisation wide responsiveness to it. It is the degree of allocation of resources to the production of agricultural produce that are meant for sale.

According to Narver and Slater (1990) and Shapiro (1988), being market oriented implies delivering products and services valued by consumers, usually accomplished through on-going monitoring of market conditions and adaptation of organisational responses. It was also defined as the extent to which culture is devoted to meeting customer needs. Market orientation is a learning process in which farm organisations learn from all aspects of their environment, including customers and competitors and take both short-term and long-term organisational goals into consideration (Kohli & Jaworski, 1990).

Market introduction is a business concept coordinated toward utilising all offices and subdivisions of the organisation to find and serve customer needs at a benefit. It suggests ideal usage of business activities and components that create, disseminate and react to issues relating to the customer (Kohli, Jaworski and Kumar, 1993). Kohli again showed that market orientation alludes to the

organisation wide generation of market insight relating to present and future needs of clients, dissemination and responsiveness to knowledge within the organisation.

Slater and Narver (1995) underlined the cultural nature of the market orientation phenomenon as the culture that places the highest priority on the profitable creation and maintenance of superior customer value while considering the interest of other key stakeholders and provide norms for behaviour regarding the organisational development and responsiveness to market information. It is also defined as the extent to which a farmer uses knowledge about the market as a basis to make decisions (Jaworski & Kohli, 1993).

A market-oriented culture is manifested in the activities and processes of the firm. The term market orientation implies that marketing is the responsibility of the all functional units in the organisation, not just the marketing function. Market orientation is an organisational culture dedicated to delivering superior customer value (Slater & Narver, 1998).

It is defined as the competitive strategy that most efficiently generates the right kinds of behaviour to create enhanced value for the consumer and therefore assures better long-term results for corporations (Lado, Maydeu-Olivares & Rivera, 1998). Gray and Hooley (2002) additionally characterized market orientation as the execution of a corporate culture that supports practices which aim at gathering, disseminating and reacting to information on external activities. This includes clients, competitors and market structure. Hazell, Poulton, Wiggins

and Dorward (2007) characterized it as the level of investment in the output markets with the attention especially on cash earnings.

From the various definitions put forth by the different scholars above, there are similarities and differences among them. They are not alternative to each other rather they complement each other. Each of the definitions of market orientation represents a set of beliefs that puts the customer's interests first, looks at the ability of the farm business to generate, disseminate and use superior information about customers and competitors and finally, the coordinated application of inter-functional resources to the creation of superior customer value.

The definition of market orientation to be adopted in this study is this; market orientation is the farm culture that most effectively and efficiently creates the necessary behaviours for the creation of superior value for customers and, thus, continuous superior performance for the business.

Indicators of market orientation

Customer orientation

Customer orientation suggests that an organisation ought to build up a corporate culture dependent on the client driven procedures. Customer orientation involves a set of beliefs that the client ought to be given priority in the organisation (Deshpande & Farley, 1998). Likewise, every one of the methodologies ought to be produced so that they convey superior incentives to clients. It alludes to the adequate comprehension of one's objective buyers (Narver & Slater, 1990).

This understanding empowers the organisation to make predominant incentives for its clients (Awwad & Agti, 2011). Firms endeavour to set up solid relationship with their clients to acquire benefits in monetary terms. This affiliation is set up when an organisation builds up the values of client orientation (Zhou & Li, 2010).

Customer orientation becomes more vital on account of a rapidly changing business environment. The organisation becomes proficient to detect the market changes on time and takes rapid actions to viably react to these changes (Zhou, Brown & Dev, 2009). Customer orientation guides the organisation to devise the correct blend of methodologies for perceiving the progressions and making fitting arrangements to satisfy the changing needs of the clients. This opportune satisfaction of clients' needs increases the performance of the organisation (Aziz & Yassin, 2010). Customer orientation is regarded as the basic element of market orientation (Shafiei, 2007).

The customer focused methodologies are important for guaranteeing the long-term success of the organisation. The firms should focus on the customers' needs, especially when buying power of the customers is low. Customer orientation can be considered as a major antecedent of organisational performance (Appiah-Adu, 1998).

Competitor orientation

According to Dawes (2000), competitors' orientation is the strongest dimension of market orientation affecting the organisational performance. It refers to the understanding of short-term strengths, weaknesses, long term capabilities

and strategies of both the key current and potential (Narver & Slater, 1990; Zhou *et al.*, 2009).

Competitor orientation focuses on understanding the changing behaviours of current and future competitors (Aziz & Yassin, 2010). The competitor-oriented farm keeps an eye on how competitors are devising their policies to satisfy the needs of their customers. This dimension of market orientation also implies that the farm must have deep insight about the execution of its actions in comparison with competitors (Ellis, 2006).

Firms can better position their products if they have deeper understanding of the strategies of their competitors. They strive to keep ahead of their competitors through quick response mechanism and prompt adjustment of promotional and pricing strategies. Competitor orientation leads the organisations towards the development of innovative products that enable them to secure a distinct position in the market (Grinstein, 2008).

Understanding the changing needs of market plays a vital role in determining firms' performance and attaining the sustainable competitive advantage (Liu, Luo & Shi, 2003). Moreover, farms try to figure out the strength of their resources in the face of competition (Shin, 2012).

Inter-functional coordination

Inter-functional coordination is the coordination of all departments or sections and functional areas in the business in utilizing customer and other market information to create superior value for customers (Awwad & Agti, 2011). Zhou *et al.*, (2009) described it as the coordination of firm resources and customer

related activities throughout the whole firm. The degree of market orientation of one member in the organisation has a strong influence on the other members. The collection of information regarding the consumers by all members plays an important role in creating and delivering a superior value to customers and obtaining a sustainable competitive advantage (Amalia, Ionu & Cristian, 2008).

Farm organisations are required to develop a mechanism and motivate the internal resources. This mechanism is likely to help in the accomplishment of the goal of customer satisfaction. The basis for the accomplishment of this goal would be collecting information regarding the external as well as internal environment (Lings & Brooks, 1998). Employees are considered as the internal customers of the organisation. They should be given equal importance like external customers. The internal aspects, considered by market orientation are related to the functional activities. These employees are the representatives of the organisation and can contribute significantly by actively interacting with the customers of the organisation. The customer satisfaction can be achieved through an effective interaction of employees with the customers (Chen & Volpe, 2002). Each activity of the internal functions should be regarded as a value adding activity. Coordination of these activities plays a vital role in delivering the value-added services to the end user (Lings & Brooks, 1998).

Intelligence gathering

Another unifying element that defines market orientation, according to Lafferty and Hult (2001), is the importance of information within the organisation. This information has its focus, once again, on the customer. This

aspect of information, according to Zebal and Goodwin (2012), can be approached in two ways: First, agreement on information generation regarding customers and factors that affect the customers, and second, information regarding competitors.

Bunic (2007) asserts that it is the collection and assertion of both customers' current and future needs, plus the impact of government regulation, competition, technology and other environmental forces. This assertion finds support in Zebal and Goodwin (2012), who also intimated that for the organisation to serve the market better than its competitors, information regarding the existing and perceived future needs and wants of customers' needs to be collected.

Generation of market intelligence relies on formal and informal mechanisms such as customer surveys, meetings and discussions with customers and trade partners, analysis of sales reports and formal market research. This is the responsibility of all functional departments in the organisation (Kohli & Jaworski, 1990).

Intelligence dissemination

Information or intelligence gathered needs to be disseminated. The application of the information acquisition techniques in organisations should go beyond simple customer satisfaction measurement approaches (Narver & Slater 1990) because, as stated by Ho and Tsai (2006), if information collection, synthesis and response occur at the level of customers' higher order goals, it is likely that novelty and meaningfulness of new value options will align with

customer expectations. Market orientation, for Chen and Volpe (2002) establishes some norms regarding information collection and extensive organisational responsiveness in terms of disseminating information related to customers (potential and actual) so that firms can precede the competitors in market analysis and react to its needs.

Market responsiveness

According to Bunic (2007), market responsiveness involves the selection of target markets, the design and selection of products and services, and the production, distribution and promotion of the product. Jaworski and Kohli (1993) defined the responsiveness component as being composed of two sets of activities, these being response design (using market information to develop plans) and response implementation.

Kohli and Jaworski (1990) stated it as corporate wide responsiveness to market intelligence. Narver and Slater (1990) stated it as utilizing company resources to deliver value to its customers or implementing and executing corporate strategy by being responsive to the needs and wants of the marketplace. This means that responsiveness involves developing, designing, implementing and altering products and services in response to customers' current and future needs (Zebal & Goodwin, 2012).

The methods for measurement of market orientation

The first version of market orientation measure, MKTOR was developed by Narver and Slater (1990). It was made up of three parts (customer orientation, competitor orientation and inter-functional coordination) and two choice segments

(long-lasting and profit). In the wake of utilizing Cronbach alpha coefficient, the two choice segments were rejected. MKTOR has 15 items on a 7-degree Likert scale. Customer orientation incorporates 6 items, competitor orientation contains 5 items, inter-functional coordination has 4 items.

MARKOR is a measure developed by Kohli and Jaworski (1993). It contains 20 items on a 5-degree Likert scale. MARKOR has a different perception. The first component aims at measuring the acquisition of information (6 items). The second component deals with the dissemination of the information (5 items) while the last component aims at the planned response and the implemented response. One limitation of this method is that it does not include items about perceptions of customers and distributors. Farrell and Oczkowski (1997) pointed to another limitation in the use of MARKOR. They indicated that it is difficult to use it as a measure for the evaluation of information dissemination. Secondly, it includes only one item for market measurement. MARKOR does not measure the value of customers.

Hooley *et al.*, (2003) proposed a new method for the measurement of market orientation which measured the role played by marketing in the companies and how the marketing department filled its activities. The method had 11 items placed on 5-point Likert scale. One key limitation in the method proposed by Hooley was that, most of the items were customer oriented and it had only one item for competitors.

Liu, Ke, Wei and Hua (2013) measured market orientation as a key in marketing activities; developing new products, segmentation, coordination of the

activities of organisations, marketing plan, marketing research, sales plan, production plan, plan of offer and price control. The limitation is that this method was only oriented on inter-functional coordination and customers and excluded competitors.

Deng and Dart (1994) proposed a method which contained customer orientation, competitor orientation, inter-functional coordination and performance orientation. The earlier version of the method had 44 items. They were later reduced to 33 items after a correlation analysis was performed on the scales. It was noticed that performance orientation was rather a consequence of market orientation and not a precursor of market orientation. Deng and Dart (1999) finally constructed a new method which had four components; customers' orientation, competitors' orientation, inter-functional coordination and performance orientation.

Lado *et al.*, (1998) tried to develop an alternative method for the measurement of market orientation. They considered market orientation as the degree for using information about stakeholders and for coordinating and implementing strategic activities. Nine (9) components were enlisted in their method; to gain information about end customers, distributors, competitors and environment, inter-functional coordination, response to gaining information about the end customers, distributors, competitors, environment and innovations.

Gray, Matear, Boshoff and Matheson (1998) synthesized MKTOR, MARKOR and the method by Deng and Dart (1994). The Cronbach's Alpha coefficient and factor analysis were performed on the items and 20 of them were

accepted. The items were sorted in 5 components; customer orientation, competitor orientation, inter-functional coordination, response and profit.

Kumar, Jones, Venkatesan and Leone (2011) constructed a method using MKTOR. Customer orientation included 6 items while competition orientation had 4 items and inter-functional coordination had 5 items. Farrell and Oczkowski (2002) tried to unite MKTOR and MARKOR. The result was 18-items (10 items MARKOR and 8 items MKTOR). The items were selected into 5 dependent components: Holding the customers, success of new products, sales growth, return of investments and business performance. The independent components are selected in 10 components: market orientation, costs, market turbulence, competitors' intensity, development of technology, power of customers, market growth, size of the market, entrance barriers, and power of suppliers.

Cadogan, Diamantopoulos and Siguaw (1999) detected a method for measurement of market orientation named 'EMO' with the aim of knowing the behaviour of market orientation in export companies. Three components were detected; gain information, information dissemination and response. Harris (2002) detected a method which had three components; competition orientation, customer orientation and business performance. Competition orientation and customer orientation contain statements such as gaining information, information dissemination, interpretation of the information and the utilization of the information. Business performance is divided into financial performance, performance of firms' response to customers' wishes and innovation performance.

Liu *et al.*, (2003) developed a method and named it CUSTOR. The motive was to measure customer orientation. About 17 items were selected into four components; trust of customers, profit of customers, signification of company for customers and possibility to be better. Helfert, Ritter and Walter (2002) dealt with the redefinition of market orientation. It was divided into 7 components: efficiency of selling, efficiency of developing performance, efficiency of developing market, analysis of customers from the view of commitments, trusts, relationship management to fulfil the commitments and the ability to gain information.

Vázquez, Álvarez and Santos (2002) detected a method specifically for non-profit organisations. The method had three components; to gain information (13 items), information dissemination (8 items) and response to the information (10 items). Farrelly and Quester (2003) developed a method for measurement of market orientation as part of a wider research and reflected commitment and trust from sponsoring organisations. Market orientation was measured by 8 items which were selected for three components: to gain information, disseminate the information and respond to the information.

Pulendran, Speed and Widing (2000) showed that market orientation was dependent on marketing plans. The items they found were; general perspective, rational perspective, political perspective and interactional perspective. Varela and Río (2003) introduced a method called MOB; implementation of MARKOR. MOB included 6 components: intensity of gaining information, the speed of utilization of information, effort of information dissemination, readiness for

information dissemination, plans of market-oriented response and implementation of market-oriented response.

Blesa and Bigné (2005) developed another method which was implemented on MARKOR and MKTOR. It had 16 items and included some items from other methods too. They were price policy, market tendency, segments identification, new products success, stimulation for including the changes to the strategy and fluency of information flow between customers and companies.

The new method for measurement of market orientation as developed by Tomášková (2005) was based on a 7-point Likert scale. The questionnaire containing the market orientation measurement was intended for top managers of organisations. The items were divided into three main fields; external environment analysis, branch environment analysis and internal environment analysis.

The shortcomings to the methods used for measurement of market orientation are evident. A lot of methods included only a few components of market orientation. Customer orientation, competitor orientation and inter-functional coordination were the most named. The other components of market orientation were absent. Some other methods have different problems. They contained items of business performance.

In summary, this study proposes to use six constructs to measure market orientation; customer orientation, competitor orientation, inter-functional coordination, intelligence generation, intelligence dissemination and market responsiveness. The six constructs include all the activities involved in acquiring

information about the cocoa farmers' customers and competitors in the target market and disseminating this information throughout the farm or the organisation. It also involves coordinated efforts to use the information to create superior customer value or respond to the needs of the market (Narver & Slater, 1990; Slater & Narver, 1994; Jaworski & Kohli, 1993)

Market orientation in Ghana

In recent times, much attention has been devoted to market orientation by academics and policy makers. Despite this level of attention, research concentration among small organisations on market orientation has been low-cut. Small organisations on the other hand are very instrumental in a lot of economies. In Ghana, they contribute a lot in terms of GDP and employment (Abor & Beikpe, 2005).

For any small organisation that adopts a market-oriented strategy, there is a high likelihood that that organisations will make successful strides in business. However, because these market-oriented strategies were originally developed for relatively large organisations, they may have different implications and meanings for the small organisations (Mahmoud, 2011). Badger, Mangles and Sadler-Smith (2001) explained the reason for this occurrence. Small organisations face peculiar challenges such as limited resources, low access to technological abilities, autocratic influence of managers on decision-making, high level of dependence on customers and suppliers and focus on the productivity of present operations.

In the Ghanaian context, there have been some empirical studies linking market orientation and firm performance. Kuada and Buatsi (2005) studied

market orientation and management practices in Ghanaian firms. They used the model designed by Jaworski and Kohli (1993) and confirmed its applicability in developing countries, such as Ghana. They intimated that firms that show strong top management commitment to the market-oriented philosophy and give due recognition and reward to their employees based on their commitment to customer orientation become more market oriented. They also showed that the adoption of market-oriented dispositions depends on significant human resource development, organisational restructuring, and reallocation of resources within a company.

Building on this understanding, Kuada and Buatsi (2005) noted that it will be expedient for the top management of organisations in developing countries to make every effort to decentralize the firm's decision-making structures; to improve the skills, competencies, and authority of middle-level managers, empower frontline staff to gain insights into customer problems and needs and to respond to them adequately and promptly.

Shane and Venkataraman (2000) tested the applicability of market orientation within the pharmaceutical industry and concluded that due to improved microenvironment indicators, market orientation in the industry has grown significantly. They also indicated a significant relationship between market orientation and performance of organisations in the pharmaceuticals industry and that the practice of market orientation in the various categories of the sector differs with an increase in size and organisational commitment of the firms involved.

A study linking market orientation and business performance by Mahmoud and Yusif (2012) among Small and Medium Enterprises in Ghana was dissatisfied with the huge emphasis of market orientation research among large scale organisations. This was what prompted the research into Small and Medium Enterprises. The study noted that for market orientation to be developed among Small and Medium Enterprises, the task is for the managers and owners to develop a positive attitude towards it. The results of the study indicated that market orientation leads to the superior performance of organisations.

Mahmoud *et al.*, (2012) studied banks in Ghana and revealed that the pattern of market orientation in banks is dominated by customer orientation, intelligence dissemination, top management emphasis, market-based reward systems and interdepartmental coordination. It was also found that in order to attain high levels of employees' esprit de corps and customer satisfaction, market orientation was a significant factor. This is even more severe for banks facing critical competition in the industry.

Mahmoud (2011) studied market orientation and its influence on the performance of various organisations in Ghana. Top management factors, external factors and organisational factors were found to have a statistically significant influence on market orientation. Four components of market orientation; customer orientation, competitor orientation, inter-functional coordination and intelligence dissemination had a statistically significant correlation with the economic and non-economic performance of the organisations. The implication is that market orientation has a significant influence on the performance of the organisations.

Boohene *et al.*, (2012) explored the influence of market orientation on the financial performance of small businesses and found a positive relationship between the two variables.

Factors Influencing the Market Orientation of Farmers

The factors that influence market orientation principles are of great concern to every farmer. In the context of cocoa markets in Ghana, four main factors were evaluated; the characteristics of the innovation (Farmer Business School), the characteristics of the farmer, the farm characteristics and entrepreneurial proclivity.

Innovation characteristics

In the words of Rogers (2003), an innovation is an idea or thought, practice or project that is seen as new by a person or group of persons. He defined adoption as the full utilisation of an innovation as the best course of action available while rejection was defined simply as the decision not to adopt an innovation. When the market orientation principles taught at the Farmer Business School are viewed as a set of innovations (ideas and practice) to be adopted by cocoa farmers, then the theory of innovation diffusion by Rogers is suitable.

If market orientation as taught at the Farmer Business School is considered as an innovation, the adoption of market orientation principles can be explained by the work of Rogers (1983). According to Rogers (1983), there are five attributes of innovations that help to decrease uncertainty about the innovation; relative advantage, compatibility, complexity, trialability and observability. The perception of the end users affects the rate of adoption of the

innovations. The rate of adoption is the relative speed with which an innovation is adopted by members of a social system. Relating this theory to the use of market orientation principles by cocoa farmers, it helps to visualize the entry points for potential adopters and the diverse reactions of farmers vis-à-vis the innovation. Roger's theory helps to clarify the fact that not all cocoa farmers can adopt the market orientation principles at the same time as well as not every cocoa farmer might even find the Farmer Business School programme worth adopting.

Rogers concluded that the rate of adoption of an innovation is a function of that innovation's attributes and that individuals differ markedly in their likelihood of trying new innovations (due to differences in some personal characteristics) (Rogers, 2003). This section will provide the technology characteristics that could possibly influence market orientation of farmers.

Relative advantage

Rogers (2003) defined relative advantage as the degree to which an innovation is perceived as being better than the idea it supersedes. Chigona and Licker (2008) added that relative advantage is the degree to which an innovation is perceived as being superior to its precursor. The social status and aspects of cost make up the components considered in relative advantage.

Chigona and Licker (2008) noted that perceived relative advantage of an innovation involves the perception of the proposed innovation, the perceptions of other candidates and the status quo. In the words of Mndzebele (2013), it is expedient for farmers to recognise that when they adopt innovations, it will offer them various solutions to their existing challenges. It will also help them increase

their productivity and improve their efficiencies in operation. Al-Jabri and Sohail (2012) agreed that the purpose of relative advantage is to bring increment in efficiency, status enhancement and economic benefits. In summary, these benefits are positively correlated with the rate of adoption of an innovation.

The process of adopting a technology involves a rational decision and this requires that farmers assess the potential benefits (Mndzebele, 2013). Therefore, organisations or farmers must adopt an innovation if they perceive a gap in the performance of their farm activities or they want to take advantage of a business opportunity. The implication is that the usefulness of an innovation must be perceived before the farmer can adopt it. The dimensions of the relative advantage of market orientation as an innovation include the relative effectiveness, usefulness, practicality, chance to achieve corporate objectives and benefits of market orientation as a set of activities (Al-Jabri & Sohail, 2012).

Compatibility

Rogers (2003) and Lee, Hsieh and Hsu (2011) defined compatibility as the extent to which an innovation is perceived as reliable. This is when the innovation is compared to the existing values, past or prior experiences and needs of potential adopters. As indicated by Dzogbenuku (2013), compatibility alludes to how much an innovation is seen as reliable with farmers' current qualities, convictions, propensities together with their present and past experiences. Mndzebele (2013) clarifies that if past innovative thoughts were presented and were not acknowledged then the new thoughts will be judged based on the execution of the

previous ideas. Compatibility is positively correlated with the rate of adoption of an innovation.

This is what happens anytime a farmer want to adopt an innovation. They think of how the innovation is consistent with their beliefs, their culture and their values. They analyse the resistance to change by their working colleagues before they adopt the innovation (Mndzebele, 2013). A correlation exists between the compatibility of the innovation and the rate of adoption or diffusion by the farmers. The assumption is that conformance with user's lifestyle can propel a rapid rate of adoption (Dzogbenuku, 2013). In the case of this study, farmers are likely to analyse the level of compatibility between market orientation and their current farming systems. If there is a need to change, they adopt.

The initiation of innovations may cause an increase in the demand for complementary inputs. When the supply of the inputs is restricted, it will constrain the adoption of that innovation. These are manifested in awareness, availability and affordability (Tambo & Wünscher, 2014).

Complexity

Complexity defines the extent to which an innovation can be considered relatively difficult to understand and use i.e. it is the opposite of ease of use (Rogers, 2003; Al-Jabri & Sohail, 2012). Lee *et al.*, (2011) posited that it is easier to adopt new ideas that are simpler to understand and apply than those that require the development of new skills and abilities. Complexity is negatively correlated with the adoption rate.

Pulendran *et al.*, (2000) posited that the absence of usability of technological innovation negatively impacts on the perceptions of the technology. This prompts diminished appropriation and use of the innovation. In other words, a technological innovation might pose challenges where the systems are complex to the users. However, if the innovation is use-friendly, the rate of adoption will be faster. The evaluative criteria or dimensions for this factor include perceived difficulty in the application of market orientation and perception of the application of market orientation as a complex process. Environmental regulations and public concerns can contribute to the complexity of the innovations (Zhang, Wang & Wang, 2002).

Observability

Rogers (2003) defined observability as the extent to which a person can see the results of an innovation. An innovation must be visible to a community or a person in order for it to be observable. The benefits of the innovation must be easily observed and communicated for it to be observable (Al-Jabri & Sohail, 2012). Since, observability is positively correlated with adoption rate, role modelling or peer observation can be a key factor to motivate farmers to adopt and diffuse the innovation (Chigona & Licker, 2008).

Two issues are key; visibility and tangibility. Visibility refers to the extent to which potential adopters see the innovation as being visible in the adoption context while tangibility refers to the extent to which potential adopters can see the results of using the innovation. In this case, abstract innovations will be

difficult to observe and therefore adopt (Pulendran *et al.*, 2000). Observability can be affected by language and culture (Chigona & Licker, 2008).

Trialability

Rogers (2003) defined trialability as the extent to which an innovation may be experimented or used on a limited basis before it is finally used on a large scale. It also describes how easily potential adopters can explore an innovation. The more an innovation can be tried, it can be adopted speedily. Hence, it can be said that trialability is positively correlated with the rate of adoption. Potential users (farmers) would want to see what the innovation can do and give it a test run before committing to it (Yocco, 2015). The evaluative criteria are that farmers have been able to experiment with the market orientation innovations on a small scale before trying it out on their main cocoa field.

It is quite a challenging to convince farmers to adopt an innovation. One of the things that urges them to adopt the innovation is the confidence they have when they have tried the innovation on a small scale before they decide to apply it on a large scale. They fear being locked into a situation that leaves little chance to return to their previous methods (Otchere *et al.*, 2013).

Farm characteristics

With market orientation, a farm may be viewed as a business entity and therefore an organisation. According to Talukder (2012), farm businesses need to provide facilitating conditions which include the extent and type of support provided to their workers that influence their use of market orientation innovations.

Training of workers

It is the desire of farmers to have concrete solutions for their farm challenges. They have little time to do such. Training sessions can be used as a way to help them overcome their challenges. Their knowledge, attitude and skills will be boosted. At the end, they expect to see that their engagement in the training sessions have been beneficial (Talukder, 2012).

To explain the role of training on adoption of innovations, Kundu and Roy (2010) uses an analogy where an organisation acquires a product but very few people use it. On the other hand, another organisation acquires same and trains its workers to use it. The training provides a favourable attitude towards the innovation. Training helps to improve understanding of concepts and theories, enhance attitude towards change and promote frequent and diverse use of applications. Therefore, by training, farmers are able to handle the difficulties they encounter. Training is a sure way of improving the adoption of innovations (Talukder, 2012).

Farm size

It is usually assumed that large-scale farmers will probably embrace an innovation, particularly if the innovation requires an additional financial investment. Then again, certain innovations are more suitable for the intensive management qualities of small-scale farmers. Farm size may likewise be identified with access to credit facilities, which may encourage appropriation of innovations (Hailu, Abrha & Weldegiorgis, 2014).

The size of a cocoa farm is expected to have a positive influence on adoption of innovations. This is because, as farmers devote their land to cocoa cultivation, output of cocoa is also likely to increase. This is what prompts the adoption of the technology (Aneani, Anchirinah, Owusu-Ansah & Asamoah, 2012). Burton, Rigby and Young (2003) demonstrated in a study that Arabian Coffee farmers were less inclined to adopt technology when their farm size increased. However, the likelihood is that large-scale farmers are more likely to adopt innovations than small-scale farmers (Feder, Just & Zilberman, 1985).

Number of cocoa farms

Hailu *et al.*, (2014) noted that there is a positive relationship between the adoption of cocoa innovations and the number of farms owned by a cocoa farmer. The cocoa farmers who have more cocoa farms are likely to harvest more cocoa. This can translate into higher incomes which can be used to purchase various farm inputs, hence, the high likelihood of adoption.

Age of farm

Aneani *et al.*, (2012) noted that when cocoa farms are aging, they are likely to decline in their yield or output and the incomes received from them. At an advanced age of a cocoa farm, cocoa farmers can be discouraged in adopting technologies.

Farm labour

Technologies have different labour characteristics; some save labour while others significantly increase it. Changes in labour requirements, timing of activities and peak periods during the year, labour availability within the

household, off farm employment, availability of hired labour must be taken into consideration. It is important to know if the labour demand of a new technology coincides with a particular busy time of the year or could take advantage of a period when labour is available. It is important to remember that the labour profile for a certain farming system is determined not only by operations on the target crop but also by demands from various other activities of farmer households (Hildebrand & Russell, 1996).

Aneani, Anchirinah, Asamoah and Owusu-Ansah (2007) indicated that hired labour was significant in influencing adoption of innovations. It had a positive coefficient of 0.023. Because of this, farmers were able to get the labour requirements in order to adopt cocoa innovations. Ben-Houassa (2011) confirmed this assertion and indicated that the availability of hired labour positively affected the rate of adoption of innovations by cocoa farmers.

Farms with a larger supply of labour are more likely to also introduce innovations. They must allocate sufficient time for the implementation of the innovations and new management practices (Schneider, 2016). Non-hired labour and personal labour (own) were also found to be positively significant at 1% (Hailu *et al.*, 2014). The finding agreed with the finding of Obuobisa-Darko (2015) who indicated that cooperative labour (non-hired) had a positive and significant impact on the land used by cocoa farmers. In support of this assertion, Aneani *et al.*, (2012) found that cooperative labour incurs a lower labour cost and therefore, it improves the rate of adoption. The team spirit inherent in the

cooperative system is the system that drives participants to work harder than they would if they were working on their own.

Land tenure system

Land tenure can also affect farmers' ability to adopt innovations. Adoption varies among farmers with various land tenure arrangements. Sharecroppers are likely to be less interested in innovations that have long-term effects. The reason is that they do not have any assurance to use the land in the long term. They are also faced with the issue of not having the power to choose their own crops or varieties (Hildebrand & Russell, 1996).

The land tenure status of farm households was found to be statistically significant in determining adoption decision at 10% level of significance. This means that owning an arable land is a prerequisite to adopt agricultural technologies. Farmers tend to employ technologies when they are using their own lands than when they are using lands owned by others (Hailu *et al.*, 2014).

Farmer characteristics

It is generally agreed that personal characteristics of farmers can influence their decision to make use of an innovation as the best course of action available or the decision that individuals make each time that they consider taking up an innovation (Chand *et al.*, 2011). Therefore, an understanding of the personal characteristics that influence innovation adoption and integration is relevant.

Age

Evidence shows that older farmers may have more experience, resources or authority that would allow them more possibilities for trying a new technology.

This probably means that the age of a cocoa farmer can influence their adoption of an innovation. As the age of a cocoa farmer increases, their physical strength tends to reduce. This can negatively impact on the rate of adoption of the innovations (Aneani *et al.*, 2007). Mahelet (2007) and Boahene, Snijders and Folmer (1999) also found that age can positively influence the adoption of integrated pest management in groundnut production technologies and hybrid cocoa respectively. Studies by Dinpanah and Nezhadhosseini (2013) showed that age positively affected the adoption of integrated pest management practices.

However, Aneani *et al.*, (2012) indicated that it is rather the younger farmers who are more likely to adopt an innovation. According to Odoemenem and Obinne (2010), the older the farmer the lesser his/her willingness to try new innovations or take risk. Al-Karablieh, Al-Rimawi and Hunaiti (2009) also reported a negative relationship between age and likelihood of adoption. They further found that the younger farmers were more willing to innovate while the older farmers were less willing to adopt new varieties. The older farmers who are used to the traditional varieties are more resistant to change. Worthington (2004) found that farmers aged between 50 to 60 years are less likely to adopt financial strategies or market orientation.

In Sweden, young farmers (35 to 50 years) have the highest level of adoption of financial literacy activities as compared to those who are above 50 years of age (Almenberg & Säve-Söderbergh, 2011). In America, the least adopters of financial literacy activities were those aged between 51 to 56 years (Lusardi & Mitchell, 2006). Cole and Fernando (2008) found that the adoption of

financial literacy or market orientation peaks at the age 40 and 45 in India and in Pakistan respectively.

Gender

On the issue of sexual orientation, specialists have discovered that men score better on financial literacy test (Mandell, 2008). Almenberg and Säv-Söderbergh (2011) clarified that in Sweden, men for the most part settle on the family unit's monetary choices and that explains why women are less of financial literates than men. Goldsmith and Goldsmith (1997) likewise contended that men are all the more financially proficient in light of the fact that they are more inspired by the issues of finance and individual investment and subsequently tend to look for more information about these topics.

Women often have a specific role within the farmer household. They have certain tasks, grow specific groups and/or have well defined roles in their farm activities. This affects their rate of adoption (FAO, 2011). Male cocoa farmers are likely to adopt technologies than their female counterparts (MASDAR, 1998; Bonabana-Wabbi, 2002).

In a developing country such as Ghana, it is seen that males in the central region were more likely to adopt Cocoa Disease and Pest Control (CODAPEC) and high-tech cocoa (Baffoe-Asare *et al.*, 2013). In agreement was the result of a study conducted by Tham-Agyekum (2012). In that study, it was found that the male maize farmers in Kwahu North District were more innovative than the female farmers. were male. On the contrary, Doss and Morris (2001) found that gender has an insignificant influence on adoption.

Farming experience

Farmers with more experience in the cultivation of cocoa were found to be more likely to adopt and apply innovations than those with relatively little experience. There is a positive significant relationship between adoption of innovations by farmers and their level of experience in planting (Aneani *et al.*, 2012; Liu *et al.*, 2003; Sharifi *et al.*, 2007).

Extension contacts

According to a report by International Food Policy Research Institute (1998), contact with farmers is a key aspect in the dissemination and adoption of technology. Ayoade and Akintonde (2012) revealed that whenever there is the case of late adoption of innovations, this was due to the irregular visitation schedules of extension agents to farmers. Access to extension services provided by the government and other Non-Governmental Organisations plays an important role in enhances the making of decisions by farmers (Marsh *et al.*, 2000). Contact with extension agents helps farmers to have access to important information and resources. It also helps to clear any doubts and uncertainties the farming activities of the farmers. At the end, adoption of innovation is improved (Aneani *et al.*, 2012).

Source of information

Farmers who did not receive information from the extension agents are less likely to adopt technologies. Those who have the chance to engage the presence and services of various extension agents are more likely to use the practices. Those who do not seek out information can make use of other avenues

such as radio ads, televisions or public service announcements. Others can also make use of fertilizer dealers. The implication is that for farmers to adopt a technology they must first know about it. Sources such as extension services, researchers, other farmers, policy makers, radio, television, newspapers or magazines, extension bulletins, field days/tours, farmers exchange visits, agricultural shows and many others may become very useful to promote innovations (Schneider, 2016).

Wealth/income levels (on-farm and off-farm)

The wealth of farmers can influence the adoption of innovations (Doss & Morris, 2001). Farmers with more resources (land, labour, capital) generally take advantage of new technologies. Wealthier farmers have better access to extension information and financial resources (own funds or credit) and can afford to take some risks (Aneani *et al.*, 2012).

In the pursuit of market orientation, asset accumulation is a factor that promotes it. Poor households are less responsive to market orientation opportunities. The reason is their lack of access to land, capital and education (Leavy & Poulton, 2007). As found by Delavande, Rohwedder and Willis (2008), wealth has a positive effect on financial literacy. A farmer who realises higher profits and income is expected to adopt innovations (Pannell *et al.*, 2006).

Participating in different off-farm activities was found to have a positive and significant relationship with adoption decision at 1%. Off-farm participants have 41.8% likely higher probability of adopting than those who do not participate in off-farm activities (Hailu *et al.*, 2014).

Off-farm income supplements the returns from on-farm. This enhances financial capital and thus, the ability to adopt (Pannell *et al.*, 2006). In Australia, Zhao *et al.*, (2009) found that off-farm income was associated with lower productivity growth while in the United States, Fernandez-Cornejo (2007) found that off-farm income is associated with significantly higher adoption of innovations.

Educational level of farmers

Generally, education is perceived to create a favourable mental attitude for the acceptance of new practices especially of information-intensive and management-intensive practices (Caswell *et al.*, 2001). Educational status was assumed to impact positively on cocoa production technologies. The reason is that education places a farmer in the position to technically and economically assess a new technology to clear doubts and uncertainties associated with it and enhance its adoption. Literate farmers are more likely to adopt than farmers who are illiterate (Aneani *et al.*, 2012; Doss & Morris, 2001).

Complex technologies are more difficult to adopt while it is easier for literate farmers to understand new ideas and concepts provided by extension workers and other informants. Lack of education impedes the ability of farmers to pass on information to other farmers through mass media methods (Al-Karablieh *et al.*, 2009). Results by Dinpanah and Nezhadhosseini (2013) in Iran showed that relation between educational level and adoption was positive. Farmers with a University degree tend to be more market oriented (Cole & Fernando, 2008; Mandell, 2008).

Household size

A household with members above eighteen years may positively influence the adoption of an innovation. This is because it helps to reduce labour constraints (Gbegehn & Akubuilu, 2013). Household size had positive influence on the use of IPM practices in Nigeria (Ofuoku *et al.*, 2006). Baffoe-Asare *et al.*, (2013) showed that there is a statistically significant relationship between household size and adoption of farm practices.

Credit access

If a recommendation being proposed by an extension agent implies a significant investment for farmers, a credit programme may facilitate adoption. It means that there is a strong indication of credit's role in diffusing the technology. Similarly, farmers who do not adopt may complain of a lack of cash or credit as the principal factor limiting their adoption (Hildebrand & Russell, 1996).

In a study by Hailu *et al.*, (2014), access to credit was significant at 1%. Access to farm credit access had a positive and significant influence on the adoption decision. This finding suggests that credit access may empower farmers to adopt an innovation.

Ethnicity

According to a study by Horvitz-Lennon *et al.*, (2012), adoption of innovations is influenced by geographic disparities. Lindert and Williamson (1985) concluded that ethnic effects may account for the rise in adoption. There may also be regional effects due to the spreading of innovations. Particular ethnic

groups may gain ascendancy because they were pre-adapted in some way that allowed them to take advantage of innovations.

Probit estimates of a model showed by Isham (2002) indicated that the probability of adoption increased in ethnically-based social affiliations. Issues of ethnicity act as forms of social capital in aiding the decision to adopt. Lusardi and Mitchell (2006) found out ethnicity was influential in the adoption of technologies. Guiso and Jappelli (2008) and GRDC (2008) argued that ethnicity determines the intensity of information available to a person.

Religion

The religious values of a person lead him or her to live a certain way of behaviour and have a general worldview. Those with a high level of religious commitment also have a relatively higher motivation to adopt technologies than their counterparts who are not. They tend to be independent in their thoughts and actions. Therefore, there is the possibility of the relationship between religiosity and innovativeness of an individual (Roccas, 2005).

There is a positive relationship for the sample of Jews, Catholics and Protestants selected for a study. However, in Asian countries and especially among Muslim consumers, a negative relationship was found due to the fact that they were significantly different in terms of ideology and religion philosophy (Sari, 2015).

Use of information communication technology

The headways made in the innovative field have incredibly impacted how financial products and services are showcased, handled and conveyed. The wide

utilization of the internet as a correspondence conveyance apparatus has prompted the compelling and proficient promoting of budgetary items and better client benefit. Innovation makes it conceivable to serve an extensive number of clients all the more quickly and all the more proficiently in less time with no cut-off points to their geological areas. The measures of information accessible to individual customers have significantly expanded. Farmers who are more readily concerned about the use of ICT in their activities are likely to adoption market orientation strategies in order to develop their farm activities (Varela & Río, 2003).

Farmers' contract services

The use of contract services by farmers is expected to positively influence their level of innovativeness or adoption of innovations (Sunding & Zilberman, 2000). Since farmers often innovate in response to ideas from other people, their usage of contract services such as consultants (agronomists, veterinary officers, harvesting and spraying contractors etc.) serves as useful indicators of exposure to innovative ideas and opportunities (Pannell *et al.*, 2006).

Migration

With migration, Aneani *et al.*, (2012) found that migrant farmers are more likely to adopt innovations than those who do not migrate to other communities. The reason is that, with their exposure to new farm settings, they tend to introduce the use of new technologies into the farming community. They also promote the adoption of innovations by the natives of the area.

Entrepreneurial proclivity

Entrepreneurial proclivity is a dynamic goal-oriented process whereby an individual combines creative thinking in order to be able to identify marketplace needs and new opportunities. This often comes with the ability to manage, secure resources and adapt to the environment to achieve desired results while assuming some portion of risk for the venture (Matsuno & Mentzer, 2000). In the words of Matsuno and Mentzer (2010), entrepreneurial proclivity is the organisation's predisposition to accept entrepreneurial processes, practices and decision making, characterized by its preference for innovativeness, risk taking, and proactiveness.

It is a process and a set of decision-making activities used by entrepreneurs for new entry and support of business activities (Kropp, Lindsay & Shoham, 2006). It is the willingness of a business owner to innovate to rejuvenate market offerings, take risks to try out new and uncertain products, services and markets and be more proactive than competitors towards new market opportunities (Wiklund & Shepherd, 2005). It also occurs when a firm is involved in technological innovation, undertakes risky ventures and proactively pursues opportunities (Kropp *et al.*, 2006). The three key aspects of entrepreneurial proclivity will be discussed; innovativeness, risk taking and proactiveness (Barringer & Bluedorn, 1999; Wiklund & Shepherd, 2005).

Innovativeness refers to the propensity to seek creative or unusual solutions to problems and needs. It occurs when a firm engages and supports a new idea in order to produce new products and services. It is an important factor

in the construction of entrepreneurial proclivity (Kropp *et al.*, 2006; Okpara, 2009).

Risk taking involves the willingness to make large and risky resource commitments or to commit significant amount of resources for opportunities in the face of uncertainties in the market. Firms that are able to take this kind of risk always hope to gain high returns from unknown new markets (Kropp *et al.*, 2006; Okpara, 2009; Wiklund & Shepherd, 2003).

Proactiveness refers to the ability of a firm to take an initiative that emphasises the seizing of new market opportunities with the perspective of looking forward in an identified asymmetry market (Wiklund & Shepherd, 2003). It involves the introduction of new products and services ahead of competitors to serve current markets while at the same time acting in anticipation of future needs of customers in order to create a first mover advantage. Higher profitability, customer loyalty and increased market shares is envisaged (Lumpkin & Dess, 1996).

Research has raised concerns about a direct relationship between entrepreneurial proclivity and market orientation (Wiklund & Shepherd, 2003). According to a study by Acheampong (2012), there is a positive relationship between market orientation and entrepreneurial proclivity of firm owners. Focusing on market orientation or entrepreneurial proclivity alone will not yield the needed results for firm owners. For example, a market-oriented firm may have to collect and disseminate market intelligence by being proactive, innovative and take risk.

Weerawardena (2003) noted that a firm that has a high level of entrepreneurial proclivity is likely to produce an effective market orientation design. Otero-Neira, Lindman and Fernandez (2009) noted that it is therefore a worthy cause to promote market orientation among businesses. Firm managers need to develop a positive attitude towards change so that the needed benefits can be realised.

Effect of Market Orientation on Farmer Livelihood

In this study, livelihood was used as a proxy for performance or profitability. Various studies have established that there are advantages of market orientation. Some studies have uncovered a robust positive relationship between market orientation and business performance (McNaughton, Osborne & Imrie, 2002). Herington and Weaven (2009) reported that market orientation can induce superior customer value, achieve effective and efficient experiential learning and enhance the supply of partnership status. This strategy can lead and motivate front line employees to more adequately serve customers.

Market orientation can assist in empowering the necessary leadership capabilities and in attracting and retaining profitable customers (Narver & Slater, 1990). In a study of market orientation and company profitability, Dawes (2000) found that among the components of a market orientation, competitor orientation emerged the strongest association with performance. Similarly, a study by Ellis (2006) also supported the relationship between market orientation and firm performance. In general, firms can improve their performance by improving on

their competitor orientation. This can happen when they encourage better customer service as compared to their rivals.

Market orientation mainly affects the general profitability of the organisation and not the sales only. It is influenced by the level of customer retention and not necessarily the acquisition of customers (Kumar *et al.*, 2011). However, firms that adopt the market orientation philosophy do improve their business environment. Market orientation enables the organisation to attain sustainable competitive advantage in the market place through the efficient use of the organisational resources. It also helps to build up the capabilities of the organisation to differentiate itself in the market. This differentiation is the key factor in achieving customer satisfaction. The outcome is high profits for the organisation (Borges, Hoppen & Luce, 2009).

McNaughton *et al.*, (2002) found that the application of market orientation can increase customer perceived value, customer satisfaction and loyalty. This orientation was correlated with the growth objectives of the firm. It can lead to coordinated decision making and action between different organisation departments (Lings & Greenley, 2009). It may also serve as a means of more adequately uncovering customer needs in e-business (Borges *et al.*, 2009).

Further, Dawes (2000) found that the competitor orientation component of market orientation is positively correlated to the profitability of the organisation. He also noted that customer orientation and responsiveness were important ingredients to business success. Zhou *et al.*, (2009) analysed the customer

orientation component of market orientation and found that it exerted a positive impact on overall customer performance ratings.

In addition, it has been found that the customer orientation element can create effective means of achieving competitive advantages, more effective service innovation, improved organisational commitment, wealth for the owners of a firm and an increase in new product success (Slater & Narver, 1994; Mahmoud & Yusif, 2012; McNaughton *et al.*, 2002). Bunic (2007) added that market orientation provides a firm with market-sensing and customer-linking capabilities that leads to superior performance. Shin and Aiken (2012) found that a firm's degree of market orientation had a positive effect on their financial performance, thus, profitability, market shares, return on sales (ROS), return on assets (ROA), sales growth and revenue/cost ratio.

Reviewing the previous studies on the relationship between market orientation and organisational performance, it leads to the conclusion that there is a positive relationship between market orientation and farmer livelihoods (organisational performance).

Effect of Farmer Training Programmes on Farmer Livelihood

Livelihoods have been defined as the assets, activities and access determining the living gained by individuals or households (Ellis, 1998). Its central idea is that sustainability of livelihood strategies of individuals or households depends on access to use and development of different types of assets based on local understanding and perceptions of stakeholders in the system. The effects of market orientation on farmer livelihoods will centre on the five key

areas; financial capital, human capital, natural capital, physical capital and social capital (Scoones, 1998).

Financial capital

Financial capital aims at preparing individuals to have the capacity to face the economic realities in the society. Without financial capital, people's livelihood may not be sustainable (Scoones, 1998). The capacity to make savings plays a very vital role in the ensuring the sustainability of the livelihood of farmers (Valerie, Opoku, Adrienne, Bugri & Helena, 2013). Since cocoa farmers have access to various credit facilities, they can equally be able to make some level of savings from their seasonal incomes (Valerie *et al.*, 2013).

A study conducted by Bosompem *et al.*, (2011) revealed that about 92% of the cocoa farmers affirmed that they have had some increase in income, that they were able to save some of their earnings for future use and also had access to credit facilities from banks and micro finance institutions in the areas where they lived. Also, 88% of the farmers said they were able to settle their credited loans either in full or in part. These benefits came as a result of their participation in a cocoa livelihood programme. However, a post doctoral study conducted by Marchetta (2011) in the Northern part of Ghana revealed that farmers did not get access to credit from financial institutions such as banks. Because of this, their livestock became a buffer stock for the household of farmers.

In a study by Chilemba and Ragasa (2018), only 13 percent of Farmer Business School participants reported experiencing positive changes in farm income from Farmer Business School participation while the remaining 87

percent did not experience any change. The average change in farm income that can be attributed to Farmer Business School participation was USD 20 per household per year, in comparison to zero for non-participants. This suggests that completing the Farmer Business School programme does not result in higher farm production, sales and income.

Opoko *et al.*, (2009) conducted an impact assessment of the Cocoa Abarabopa Program (CAP) in Ghana under the auspices of Wienco's Farmer Based Organization (FBO). The study estimated that the programme resulted in a 43% revenue increase for participating farmers and subsequent revenue to cost ratio of 2.5. In contrast, Todo and Takashi (2011) indicated that Farmer Field School participation increased farmers' incomes by 46 to 164 percent in Ethiopia, while Davis *et al.*, (2010) found that Farmer Field School participation increased farmers' incomes by 61 percent in Kenya, Tanzania and Uganda. Soniia and Asamoah (2011) further expressed that participation in the Farmer Field School caused higher incomes. According to Waddington *et al.*, (2014), the Farmer Field School may increase net revenues/profits of its participants (treatment group) by an average of 19% when compared to the non-participants (control group).

Human capital

DFID (1999) refers to human capital as the skills, knowledge, ability to labour and good health which enables a person or group of persons venture into different livelihood strategies to fulfil livelihood aspirations is. Though human capital has an intrinsic value, there is a great opportunity to directly or indirectly

support its accumulation provided those concerned are willing to invest or avail themselves for training programmes.

Examples of both direct and indirect support to human asset build-up are: health, education, training personnel, development of relevant knowledge and skills and changes in local institutions in areas like culture, norms that inhibit for example women access to education. Providing the two types of support is imperative and, in this case, they are combined in an integrated approach way to help the so-called disadvantage groups in the society through a holistic livelihood analysis (DFID, 1999).

An impact report by UTZ (2014) showed that, between 2010 and 2012, about 15% of tea farmers in Kenya improved their knowledge on farming methods through training under UTZ's good agricultural practices (GAP) programme. Also, 60% of cocoa producers in Ghana and Ivory Coast who were trained under UTZ certification followed what they were taught through the training activities and it was realised that it contributed to positive attainment of the dimensions of human capital. The report also revealed that cocoa farmers in Ghana passed on what they had learned to their untrained labourers who helped them in their farms.

In the case of Malawi, lead farmers who were trained to pass on the knowledge could not replicate what they have learned to other farmers. Also, in Vietnam, there were reports of coffee farmers who had acquired substantial knowledge in monitoring and management practices and application of agrochemicals like fertilizers and pesticides. Vietnamese coffee farmers according

to the UTZ impact report were able to maintain their high yields with less inputs like say nitrogen fertilizer (UTZ, 2014).

Natural capital

Natural capital represents all the natural resource stocks which serve as source to materials and services that are critical for livelihood. There are different elements that constitute natural capital. They can either be intangible elements such as air quality, storm protection or tangible elements such as land, forests, marine/wild resources and water (DFID, 1999).

According to DFID (1999), natural capital is indispensable to individuals and groups whose livelihoods come from works such as fishing, farming, mineral extraction and so on which are in fact resource-based activities. The survival of all human beings is significantly connected with the services derived from the environment and food production from natural capital.

Internal and external evaluations by GIZ (2015) showed increases in cocoa yields of 40-100%. There were cases of higher increases in non-cocoa income, higher cocoa incomes, higher spending on the education of children, better nutrition and housing. According to a study by Bosompem *et al.*, (2011), the cocoa high technology programme (CHTP) in Ghana resulted in positive impact of all the four components mentioned under natural capital; increase in yield, increase in yield per unit area, increase in yield per unit cost of inputs and better quality of cocoa beans.

Farm innovation can lead to higher yielding varieties, changes in production processes and changes in organisational and marketing systems. The

aggregate of these changes determines changes in productivity and profitability. While farmers are unlikely to innovate without some payoff, productivity improvements are realised when changes in total farm output exceed changes in total input use (Nossal, 2011).

In a study by Kokic, Davidson and Rodriguez (2006), a significant positive relationship was found between innovativeness and farm productivity among grain growers. The results suggested that farms with greater innovative effort are likely to exhibit higher productivity. The study also found that high innovative effort increases productivity by 3.4%. In the cocoa industry, Edwin and Masters (2003) estimated the yields gains attributable to the breeding of new cocoa varieties in Ghana. Results from their study showed that cocoa yield increases with the adoption of fertilizer use.

Teal and Vigneri (2004) analysed the impact of subsidies on inputs supply and the possible role of technical change in effecting rises in cocoa production. Their results found no evidence that reforms had led to innovation in techniques which raised total factor productivity. Opoku-Ameyaw *et al.*, (2010) investigated the impact of a private sector initiative [Cocoa Abrabopa Association-CAA] in Ghana's cocoa industry. Results of the study indicated that there was large evidence of agronomic and economic returns to participation in the programme as output increased by 638.5kg. The estimate output for the non-participants was 435kg.

According to Obuobisa-Darko (2015), the coefficient of intensity of technology adoption was 5.08 and was significant at 1%. Thus, the results

indicated a positive relationship between intensity of technology adoption and yield or output. In a study by Okorley, Adjargo and Bosompem (2014), it was realized that the facilitation and adoption of improved techniques in cocoa production through Farmer Field School improve yields of cocoa for farmers. The results revealed that, before the Farmer Field School (i.e. 2005), about 79% of the cocoa Farmer Field School participants harvested less than 320 kg/ha of cocoa while nearly 21% of the Farmer Field School participants had yields ranging from 320kg/ha to 960 kg/ha. On the average, about 209 kg/ha of cocoa was recorded with the range being about 27kg/ha to 800 kg/ha. After the cocoa Farmer Field School in 2009, the majority (66%) of the Farmer Field School participants had cocoa yields varying from 320kg/ha to 960 kg/ha, with the mean yield of about 375 kg/ha. The difference in mean yields before and after the Farmer Field School was significant and attributable to the Farmer Field School.

Gockowski *et al.*, (2010) conducted a case study of Farmer Field School implemented in Ghana and showed that yield enhancements attributable to Farmer Field School training was 14% per hectare for participants of the School. This achievement was possible because of increasement in labour input, selective application of the set of field management (pruning, shade management, and proper phytosanitary control) and human capital knowledge acquired in the Farmer Field School training. Clearly, the Farmer Field School training had statistically significant impacts on the beneficiary farmer's productivity.

Norton and Nalley (2013) conducted a cost-benefit analysis of a portion of CLPI in Ghana. Their results showed that the CLPI in Ghana increased average

cocoa yield by 75.24% per hectare. This increased yield, if incorporated into an optimal phased replanting rotation, would have increased net present value (NPV) by USD 401.00 per hectare annually. Soniia and Asamoah (2011) conducted a study where they found that participants of the Farmer Field School produced higher quantities of maize, beans, soybeans, groundnuts and Irish potatoes than the non-participants. According to Tiggelman (2009), the yield of those who participated in the Farmer Field School almost doubled after attending the programme. This means that the Farmer Field School aids in increasing the livelihood of farmers. According to Waddington, Snilstveit, Hombrados, Vojtkova, Phillips, Davies and White (2014), the Farmer Field School may increase yields of its participants (treatment group) by an average of 13% when compared to the non-participants (control group).

Physical capital

Basic infrastructural and merchandise produced which are essential to sustainable livelihood enhancement are what constitutes physical capital. Merchandise are equipment's and tools which helps humans to be more effective in terms of productivity, while infrastructure are physical buildings and structures (affordable transport, housing, roads, good drinking water etc.) in our surroundings. Goods produced under physical capital are either owned by single individuals and groups, so require or attract some fees in order to have access to them (DFID, 1999).

Bosompem *et al.*, (2011) on perceived impact of CHTP on sustainable livelihood of cocoa farmers in Ghana looked at farmer's ownerships of farming

tools and equipment. The study findings in this regard looking at ownership of spraying machine, pruner, harvester, and access to vehicle, spraying machine, harvester and pruner was positive showed that over 50% of the cocoa farmers in the CHTP admitted owning or having access to these farming tools and equipment.

Farmer Business School participation had positive effects on some outcome indicators such as ownerships of assets. Smallholder farmers reported measures of progress in the form of building houses with iron sheets, purchases of irrigation equipment and knapsack sprayers, bicycles, cellphones, radio, livestock, fertilizer, opening of bank accounts and payment of school fees for household members (Chilemba & Ragasa, 2018).

Social capital

Social capital according to DFID (1999) means social resources which enables individuals or a group to pursue their livelihood objectives. Social capital is built through networks and connectedness where there is establishment of trust among people which enables them to work together and at the same time building important links with relevant institutions such as banks, civil society organisations (CSOs) and political bodies. It is also built through membership to known and interest group(s) where there are laid down rules for members to follow and sanction(s) are meted out to those who go against the rules. Lastly, relationship of trust, reciprocity and exchanges which promotes co-operation and reduces cost trading may be used as a foundation to cushion the poor people (DFID, 1999).

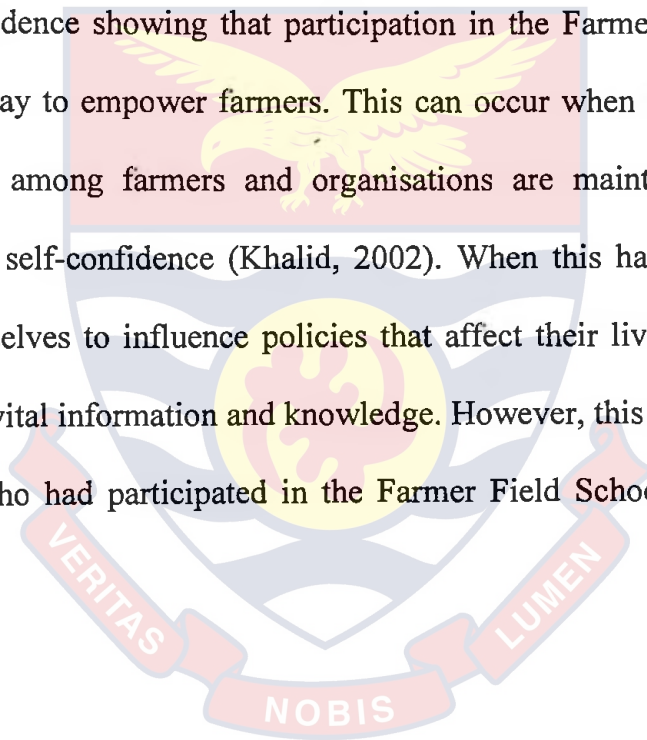
According to a study by Bosompem *et al.*, (2011) on social capital (which included ability to feed family members, pay school fees, support friends), respondents in their study claimed an improvement as a result of the CHTP. While 51% to 97% said the programme had impacted on them positively on their social obligations, 14% of the respondents claimed being able to explore the benefits in the farmers' network associations. These indicators are seen as key elements in the building of social capital structure.

A study by Bunic (2007) statistically proved a strong and positive relationship between market orientation and both organisational commitment and esprit de corps which are social indicators of performance. Zebal and Goodwin (2012) asserted that the adoption of market orientation in an organisation has been found to unite employees with the firm around a common goal. It thus adds purpose to the organisation and in so doing enhances the team spirit of the employees as they pursue the common goal.

Kohli and Jaworski (1990) stated that market orientation enhances organisational commitment by instilling a sense of pride and camaraderie among employees. In this case, organisational commitment includes willingness to sacrifice for the organisation; team spirit, customer orientation (motivation of employees to satisfy customer needs) and job satisfaction. It is an internal feeling, belief or a set of intentions that enhance an employee's desire to remain with an organisation. It also leads to a sense of pride in belonging to an organisation in which all departments and individuals work toward the common goal of satisfying customers.

Organisational commitment relates directly to market orientation and highlights increased organisational commitment towards market-oriented activities that will increase the generation, dissemination and response to market intelligence among firms (Mahmoud & Yusif, 2012). The adoption of market orientation can reduce role conflict amongst employees and unite employees with the firm around a common goal that is dedicated to the fulfilment of customer expectations and meeting market needs (Dauda, 2010).

There is evidence showing that participation in the Farmer Field School can be used as a way to empower farmers. This can occur when friendships are strengthened, trust among farmers and organisations are maintained and the farmers gain more self-confidence (Khalid, 2002). When this happens, farmers can organise themselves to influence policies that affect their livelihoods. They can also exchange vital information and knowledge. However, this did not happen with all farmers who had participated in the Farmer Field School (Nederlof & Odonkor (2006).



Conceptual Framework

The conceptual framework for this study is informed by the theory of planned behaviour by Ajzen (2002) and the theory of programme evaluation by Bennett (1977).

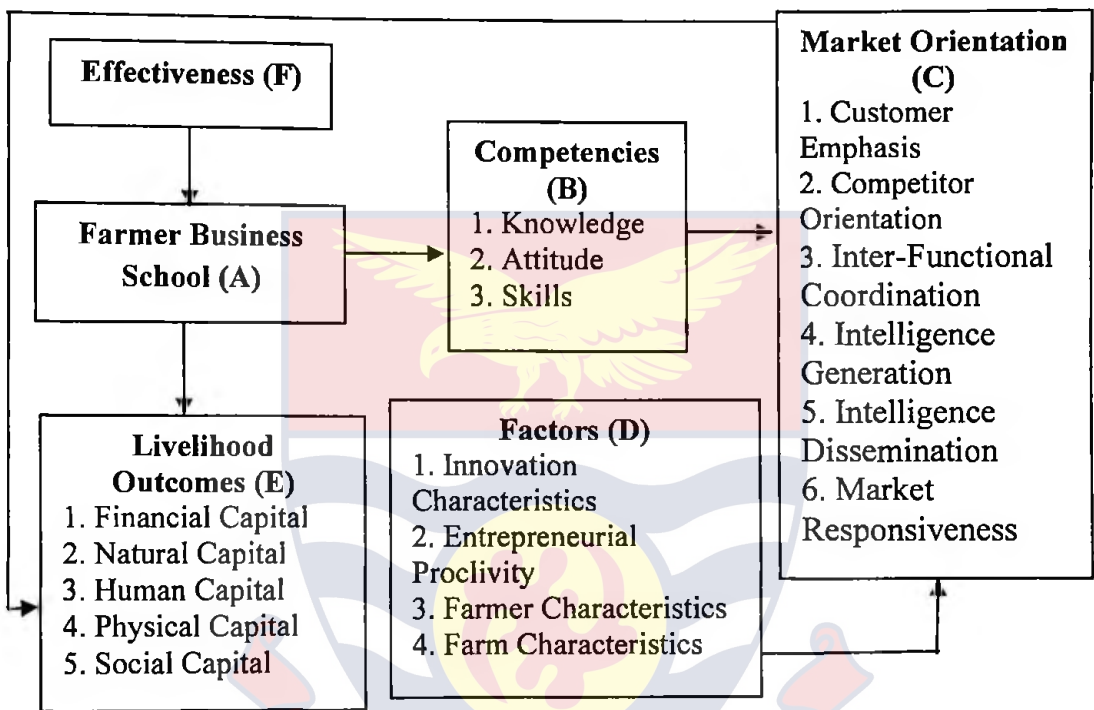


Figure 3: Conceptual Framework on Market Orientation of Cocoa Farmers
Source: Author's Construct, 2017

There are six main sections in the conceptual framework. The Farmer Business School is labelled (A). The perceived competency of the cocoa farmers derived from participating in the Farmer Business School was labelled (B). The competency is measured as a composite of knowledge, attitude and skills (Leeuwis, 2004). The second research question of this study makes a comparison between the competencies of the cocoa farmers who participated in the Farmer Business School and those who did not to determine if there is any significant difference (Brannick, Levine & Morgeson, 2007).

The perceptions of the cocoa farmers who participated in the Farmer Business School on its effectiveness is labelled (F). This explains the first research question which sought to ascertain the extent to which the objectives set before the Farmer Business School has been achieved (Lynton & Pareek, 1990).

The market orientation of cocoa farmers is labelled (C). The market orientation of cocoa farmers is measured as a composite of customer emphasis, competitor orientation, inter-functional coordination, intelligence generation, intelligence dissemination and market responsiveness (Narver & Slater 1990; Slater & Narver 1994; Jaworski & Kohli, 1993). The third research question of this study makes a comparison between the market orientation of the cocoa farmers who participated in the Farmer Business School and those who did not to determine if there is any significant difference.

The factors that influence the market orientation of cocoa farmers is labelled (D). This explains the fourth research question in this study. Four key factors are the focus in the study; innovation characteristics (Rogers, 1983), entrepreneurial proclivity (Acheampong, 2012; Wiklund & Shepherd, 2003), farmer characteristics (Chand *et al.*, 2011) and farm characteristics (Talukder, 2012).

The livelihood outcome of the cocoa farmers is labelled (E). The livelihood outcome is measured as a composite of natural capital, social capital, physical capital, human capital and financial capital (Scoones, 1998). A comparison is made in the fifth research question between the livelihood outcomes of those who participated in the Farmer Business School and those who

did not in order to determine if participation has an influence on their livelihoods. Finally, literature posits a relationship between market orientation and performance of firms (McNaughton, Osborne & Imrie, 2002; Kumar *et al.*, 2011). In this study, performance was conceptualised as livelihood. The sixth research question therefore analyses the effect of the market orientation of cocoa farmers on their livelihoods.

Chapter Summary

This chapter comprised the literature review. Specifically, it provided information on the cocoa industry, theories underpinning the study and the conceptual framework. Literature was reviewed relating to the six main research questions; perception of farmers on the effectiveness of training programmes, competencies (knowledge, attitude, skills) of farmers attained at training programmes, market orientation, factors that influence the market orientation of cocoa farmers, the effect of market orientation on livelihoods and the effect of farmer training programmes on farmers' livelihoods.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the research methodology that was employed for the conduct of the study. It examines the research design, study area and settings, unit of analysis, the study population, sample size, sampling design, methods of data collection, methods of data analysis, validity and reliability tests and how ethical issues were addressed throughout the process.

Research Design

The research design is a blueprint for undertaking a study with maximum command or control over the components or factors that may interfere with the validity of the findings (Burns & Grove, 2009). Polit, Hungler and Beck (2001) posited that the research design is the researcher's overall outlook for answering the research question or testing the research hypothesis.

The survey design as recommended by Burns and Grove (2009) and Polit *et al.*, (2001) was adopted for this study because it provided a quantitative or numeric description of the perceptions of the sample (cocoa farmers). It utilised questionnaires for data collection with the intent of generalizing from the sample to the population. This method as used by the researcher enabled the assessment of the situation within the study area at the time of the study. The nature of the survey design was therefore deemed appropriate for the study as it allowed for investigation of the Farmer Business School.

Specifically, this study used more of the descriptive and causal survey design. The descriptive research provided a picture of the situation as it occurred

at the study area. It was also used to justify and make judgements about the current practice of the Farmer Business School. The causal research emphasised on analysing or determining cause-and-effect relationships between variables.

Research paradigm

The study was informed by some fundamental assumptions. This served as the intellectual framework within the research was conducted. Two main theoretical paradigms were considered; quantitative (positivism) and qualitative (phenomenology) (Saunders, 2009). However, the quantitative approach was used.

The quantitative approach was mainly used because it afforded the researcher the expediency of designing a study that had the aim to describe a phenomenon and also establish the relationship between variables. This relationship was then used to describe and understand occurred incidences and predict future occurrences. Moreover, the quantitative method provided more areas of strength and fewer weaknesses as compared to the qualitative method (Saunders, 2009).

Type of investigation

According to Robson (2002), there are three different approaches that can be used to decide the type of investigation. The three approaches are clarification, correlational and causal. Due to the uniqueness of the specific objectives of the study, it became expedient to employ all three types of investigation.

First of all, the study employed clarification as a measure in examining the effectiveness of the Farmer Business School. The study further used the causal

aspect to compare the perceived competency of the participants and non-participants of the Farmer Business School, compare the perceived level of market orientation of the participants and non-participants of the Farmer Business School, analysed the factors that influenced their market orientation, established the relationship between the market orientation of cocoa farmers and their livelihoods and finally analysed the effect of the participation in the Farmer Business School on the livelihoods of the cocoa farmers.

Study Area

The study area for this study was concerned with the geographical focus for which data was collected and analysed for the report. For this study, the area of interest was Ghana. Cocoa in Ghana is grown in only Six Regions; Ashanti, Brong Ahafo, Central, Eastern, Volta and Western. Hence, the six regions make up the complete study area for the study, Ghana.

Ashanti Region has eleven (11) Cocoa Districts, Brong Ahafo Region has eight (8) Cocoa Districts, Central Region has five (5) Cocoa Districts, Eastern Region has ten (10) Cocoa Districts, Volta Region has three (3) Cocoa Districts, Western South Region has eleven (11) Cocoa Districts and Western North Region has twelve (12) Cocoa Districts. In all, there are sixty (60) Cocoa Districts (COCONEWS, 2017).

The list of names of Cocoa Regions with their Districts is provided in Table 1.

Table 1: *Name of Cocoa Regions and Districts*

Ashanti Region	Brong Ahafo Region	Central Region	Eastern Region	Volta Region	Western Region
Juaso, Offinso, Tepa, Bekwai, Mankranso, Obuasi, New Edubiase, Antoakrom, Brofoyedru, Mampong, Nkawie	Bechem, Berekum, Sunyani, Dormaa Ahenkro, Goaso, Sankore, Nkrankwanta and Dadiesoaba	Assin Foso, Jukwa, Twifo Praso, Breman Asikuma and Nyarkrom	Tafo, Akim Oda, Oyoko, Suhum, Osino, Nkawkaw, New-Abirem, Bawdua, Kade, Asamankese	Papaase, Jasikan and Hohoe-Kpeve.	Dunkwa, Wassa Akropong, Diaso, Huni Valley, Samreboi, Daboase, Asankragwa, Elubo, Anyinase, Kejebriil, Tarkwa, Ajuafua, Adabokrom, Akontombra, Enchi, Sefwi Bekwai, Boinso, Dadieso, Bibiani, Juaboso, Boako, Essam.

Source: COCONEWS, (2017)

Study Population

A population is described as the entire elements of people or events that meet the criteria to be included in a study or are of an interest to the researcher (Robson, 2002; Burns & Grove, 2009). In this study, the population consisted of

all cocoa farmers in the country. This number is estimated to be at 350,000 registered cocoa farmers (Ghana Statistical Service, 2014).

Sample Size

Polit *et al.*, (2001) defined a sample as a subset of a population. A study of this sample can then be used to generalise the characteristics to the entire population (Robson, 2002). It was practically difficult to study every member of the thousands of cocoa farmers in the country. There were also constraints in time, logistics and human resources. Equally so, there seemed to be no theoretical validation for studying all cocoa farmers (population). Hence, an appropriate sample was drawn from the given population (Ghauri, 2005).

Cocoa farmers were sampled from all the six Cocoa Regions in Ghana; Ashanti, Western, Central, Brong Ahafo, Volta and Eastern. In total, six hundred (600) cocoa farmers were selected to form the sample size of this research.

Table 2: *Sample Size Distribution (Regions)*

Name of Region	Participants	Non-Participants	Total
Western Region	90	50	140
Ashanti Region	60	40	100
Eastern Region	60	40	100
Brong Ahafo Region	60	40	100
Central Region	60	40	100
Volta Region	40	20	60
Total	370	230	600

Source: Authors' Construct, (2017)

A formula proposed by Nassiuma (2000) was used to estimate the sample size from the population. The assumptions underlying the formula proposed by

Nassiuma (2000) and adopted in this study are a coefficient of variation of 35%, an error margin of 1.5% and a known population of about 350,000 cocoa farmers. This was used to ensure that the sample was wide enough to justify the results being generalised for the cocoa farmers in Ghana.

$$n = \frac{NC^2}{C^2 + (N-1)e^2}$$

Where: n =sample size; N =population size; C =coefficient of variation; e =error margin

Therefore, sample size =
$$\frac{350,000 * 35^2}{35^2 + (350,000-1) 1.5^2}$$

Using an estimated population size of 350,000 cocoa farmers, the estimated sample was 543.6 but this was approximated to 600. Hence, the total sample size for this study was 600 cocoa farmers.

Furthermore, a sample size of 370 participant cocoa farmers (treatment) and 230 non-participants (control) was selected. The sample of 370 participant cocoa farmers (treatment group) represented about 61% of the total sample while the sample of 230 non-participant cocoa farmers (control group) represented about 39% of the total sample. This selection was supported by Schork and Remington (1967) who justified it by asserting that any conclusions drawn from measuring impact were more reliable if the sample size was adequate and there was a control group. They proposed having a big enough sample and a 'control' group with which to compare. According to Patnaik (1948), the control group can be similar to the treatment group in size but the factor thought to be causing the

effect must have been removed. It was also noted that if the hypothetical difference between the groups was not large, many observations are needed to discern a difference.

Sampling Technique

Sampling technique involves the process of selecting a sub-section of a population to represent an entire population (Burns & Grove, 2009; Polit *et al.*, 2001). There are two methods of sampling; probability and non-probability sampling (Polit & Beck, 2012). The purpose is to generalise the findings (Polit *et al.*, 2001).

Specifically, the multi-stage sampling technique was employed to select six hundred (600) farmers. The first stage involved the selection of Cocoa Districts. Two districts from each of the regions with the exception of Western Region (3) and Volta Region (1) making a total of 12 Districts were selected using the simple random sampling technique. In the Central Region, Nyarkrom and Jukwa were selected. In Eastern Region, Tafo and Nkawkaw were selected. In the Western Region, Sefwi Bekwai, Asankragwa and Daboase were selected. In Volta Region, Papaase was selected. In Brong Ahafo, Berekum and Dormaa Ahenkro were selected. In Ashanti Region, Juaso and Obuasi were selected.

Table 3: *Name of Region and Selected District(s)*

Ashanti Region	Brong Ahafo Region	Central Region	Eastern Region	Volta Region	Western South and Western North
Obuasi, Juaso	Dormaa Ahenkro, Berekum	Jukwa, Nyarkrom	Tafo, Nkawkaw	Papaase	Daboase, Asankragwa, Sefwi Bekwai

Source: Authors' Construct, (2017)

Out of each District, three communities each were selected through the simple random sampling technique. The final stage involved the selection of cocoa farmers to make up the sample size of 600 farmers. They were grouped into two categories; participants and non-participants. A separate list containing names of participants and non-participants was obtained. Out of each category, the simple random sampling design was utilised for the selection of the cocoa farmers. This method ensured that random samples represented the population as each subject had an equal and independent chance of being selected.

The multi-stage sampling technique is explained in the Table below;

Table 4: *Multi-Stage Sampling Schedule*

Stages	Level	Number	Total
First Stage	District	2 each	12 Cocoa Districts
Second Stage	Communities	3 each	36 Communities
Third Stage	FBS Farmers	10	370 Farmers
Final Stage	Non-FBS Farmers	6	230 Farmers

Source: Authors' Construct, (2017)

The data collection sampling schedule is as follows;

Table 5: *Data Collection Sampling Schedule*

Region	Sampled Districts	Sampled Communities
Central	Nyarkrom	Bobikuma, Nyarkrom, Kwaman
	Jukwa	Watreso, Krobo, Abrafo
Eastern	Tafo	Anyinasin, Maase, Tontro
	Nkawkaw	Abepotia, Odumase, Nkawkaw
Ashanti	Juaso	Obogu, Atiemo-Nkwanta, Juaso
	Obuasi	Nhyiaeso, Domeabra, Asonkore
Brong Ahafo	Berekum	Biadan, Anyinaso, Kato
	Dormaa Ahenkro	Wamfie, Dormaa, Jinijini
Volta	Papaase	Ahamansu, Pampawie, Mempeasem
Western	Sefwi Bekwai	Datano, Fordjourkrom, Ahwiaa
	Asankragwa	Essakrom, Nyamendae, Congo
	Daboase	Dompem, Mampong, Odumase

Source: Authors' Construct, (2017)

Unit of Analysis

Every research can be analysed at four different levels; individual studies, two persons interactions, group interactions and organisational issues. The specific type to use is largely dependent on the level of aggregation at the data analysis stage (Robson, 2002). The study employed the individual farmer as the unit of analysis. This was found appropriate to answer the research questions.

Sources of Data

There are two main data types for the conduct of every research work; primary and secondary data. This study made use of only primary data. Ghauri (2005) defined primary data as consisting of materials that the researcher has gathered himself through systematic observation, information from archives, and the results of questionnaires, interviews and case study compiled. Primary data was collected from the cocoa farmers by administering questionnaires to them.

Research Instrument

Questionnaire was the research instrument used for this research. It was a structured closed-ended questionnaire with some sections with 5-point Likert scale type questions which permitted flexible analysis of the findings that were obtained. The scales were easy to prepare, interpret and very simple for the respondents (cocoa farmers) to answer (Ghauri, 2005).

The questionnaire was used for acquiring information on the background of the research participants, their perceptions on their competencies, market orientation and livelihoods (Bulmer, 2004). The questions were sequenced in a logical order, allowing a smooth transition from one section to another section (Sarantakos, 2005). This was accomplished by categorising related questions under different major parts with a short heading or theme (Bulmer, 2004). The closed-ended questions were difficult to construct. However, it was easily administered, coded, analysed and avoided irrelevant responses (Sarantakos, 2005).

Two different sets of questionnaires were prepared; one for Farmer Business School participants and the other one for the non-participants. The two questionnaires were similar except for the part that included the perceptions of the participant cocoa farmers on the effectiveness of the Farmer Business School. The questionnaire was developed with information sourced mainly from the Farmer Business School training notebook (GIZ, COCOBOD and the Ghana Livelihoods Programme), Boohene *et al.*, 2012 and Bosompem *et al.*, 2011.

For participants; Section A sought to ascertain the perceptions of participant cocoa farmers on the effectiveness of the Farmer Business School. Section B sought information on the perception of the cocoa farmers on their competency based on the Farmer Business School. Section C sought information on the perception of the cocoa farmers on their market orientation. Section D sought information on the factors that influenced their market orientation. Section E sought information on livelihood of the cocoa farmers.

For the non-participants; Section A sought information on the perception of the cocoa farmers on their competency based on the Farmer Business School. Section B sought information on the perception of the cocoa farmers on their market orientation. Section C sought information on the factors that influenced their market orientation. Section D sought information on livelihood of the cocoa farmers.

Data Collection Procedure

The questionnaires were administered to the cocoa farmers through personal contact by the researcher or the other trained research assistants. A day's

training was organised for each of the research assistants in order to get them familiarised with the questionnaire before they administer it. The training helped to also get them to understand the reasons for the questions and the thoughts behind the way the questions have been asked. The training sessions also discussed the sampling procedure and how the research assistants were expected to identify the respondents. They also asked questions and suitable answers were given to them.

The data collection procedure for this study involved a systemic way of gathering information from the cocoa farmers as admonished by Burns (1995). During the questionnaire administration sessions, the questions in the research instrument (questionnaire) were translated into the respective languages of the respondents for easy understanding and prompt response. This was done to avoid any form of bias.

The data collection exercise was undertaken from 10th May 2018 to 18th August 2017. It took virtually 3 months to complete the questionnaire administration. The researcher liaised with some District extension officers, some District Chief farmers and community members to randomly identify the potential participants. In all, 12 personnel assisted with the data collection. They were made up of COCOBOD extension agents, MoFA extension agents and national service personnel. The District Chief Farmers also assisted in identifying the respondents.

Respondents were first informed of the purpose of the research and were assured of confidentiality of their responses and anonymity of their identities

before made to participate. While some of the cocoa farmers had to be visited in their homes and farms for the data collection, others were assembled for a meeting in their various communities. At such meetings, they were made to answer the questions individually, without any interference.

Validity and Reliability

Validity

According to Polit and Beck (2012) validity refers to the degree to which the instrument measured what it was supposed to measure. Two important tests were carried out; face validity and content validity.

Face validity addressed the concern of whether the questionnaire truly measured the concepts being investigated and whether the respondents found the wording of the items clear and easily understandable (1995). Before, the main data collection, the questionnaire was pilot tested to twenty (20) respondents in the Central Region (Breman Asikuma District, Mante), selected using the convenient sampling. The sample size was adopted based on a recommendation by Saunders (2009). It was recommended that a minimum of ten (10) responses was ideal for pilot testing. The pilot test enabled the researcher to check errors, ambiguities in wording, check the time spent in completing the questionnaire and clarify other items on the questionnaire (Cohen, 2010). This led to adjustments in a few questions to make them clearer.

Content validity was checked by comparing the items against literature. Copies of the questionnaires were given to colleague graduate students at the University of Ghana, University of Cape Coast and the Kwame Nkrumah

University of Science and Technology. Other experts in the field of academia, research and practice from University of Cape Coast, Kwame Nkrumah University of Science and Technology, COCOBOD, Deutsche Gesellschaft für Internationale Zusammenarbeit-GIZ and the MoFA. They examined each item and made a clear and focused judgement on the suitability of the items of measurement. Their comments and suggestions were incorporated into the final questionnaire.

Reliability

According to Cohen (2010), reliability relates to the precision and accuracy of the instrument. The questionnaire is expected to yield similar results if it is administered to a similar group of respondents in a similar context. Each question was phrased carefully to avoid ambiguity. The respondents were informed of the purpose of the interview before they participated. The face-to-face delivery of the questionnaire ensured that the data was gathered from the target respondents (Parasuraman, 1991).

The Cronbach's alpha co-efficient was used to determine the internal consistency of all the Likert type scales. The main scales with their Cronbach's alpha co-efficient are as follows: Perceived effectiveness (0.73), knowledge (0.92), attitude (0.89), skills (0.94), market orientation (0.95), characteristics of innovation (0.96), entrepreneurial proclivity (0.93) and livelihood outcomes (0.76). It must be noted that some of the questions were eliminated in order to achieve these figures. The figures indicated that the scales were reliable and therefore could be used in the administration of the questionnaire. Pallant (2001)

confirms that a Cronbach's alpha co-efficient of 0.70 or more can be considered reliable.

Ethical Considerations

It is crucial that researchers become aware of research ethics in order to conduct the research in a manner that does not infringe on the rights of the respondents.

First of all, the researcher considered respect for persons as autonomous individuals. The purpose of the study was fully explained to them, they were spoken to in their local dialect, they were allowed to give their informed consent and they were also informed that participation in the study was voluntary and that their participation or withdrawal would not affect their entitlement to cocoa extension services or other benefits.

Secondly, the cocoa farmers were assured of confidentiality and anonymity. The identity of the respondents was protected by not including details which may reveal their identity. This was done to ensure that the researcher could not be able to link any research finding to any of the participants of the study.

Thirdly, the researcher avoided harm through long waiting and their privacy, confidentiality and anonymity were safeguarded during the interview during the administration of the questionnaire.

Data Analysis

Data analysis is the systematic organisation and synthesis of the research data and the testing of research hypotheses, using those data (Polit & Beck, 2012). First of all, all the questionnaires obtained were sorted and arranged, edited for

completeness, inconsistencies and possible blank responses, coded and data keyed into the Statistical Package of Social Sciences (SPSS) Software, version 22.0 for the analysis of the data.

Descriptive statistical techniques including frequency distributions, percentages, means, standard deviations were used. Inferential statistical tests such as chi square goodness of fit test, independent sample t test, multiple linear regression and multinomial logistic regression were performed on the sampled data.

The framework for the data analysis was the 'with/without' scenario. According to Cochrane (1979), the randomised trial (with/without) is the standard method for measuring impacts of development interventions. In this method, a treatment group (group that received intervention) is compared to a randomly selected control group (group that did not receive an intervention) (Pocock, 1983). In the case of this study, the control group is yet to participate in the intervention (Farmer Business School). The process of randomisation for the selection of the respondents ensured that both known and unknown factors that independently affected the intervention outcome were distributed evenly between the trial groups. It can therefore be confidently stated that the observed differences were due to the effects of the intervention (Farmer Business School) rather than other factors (Eccles, Grimshaw, Campbell & Ramsay, 2003).

Analytical Framework

First research question

Effectiveness was measured as the degree to which the result/goals/objectives of the Farmer Business School were perceived by the cocoa farmers to have been attained. A five (5) point Likert-type scale (ranging from 'Very Ineffective'-1 to 'Very Effective'-5) was developed to measure respondents' perceptions on the level of effectiveness of using the objectives of the programme. Means and standard deviations were computed from respondents' responses to describe their perceived level of effectiveness of the Farmer Business School programme (Lynton & Pareek, 1990).

The chi-square goodness-of-fit test was used to find out how the observed values of effectiveness were significantly different from the expected value. The test was applied because there was one categorical variable (effectiveness) response obtained from the sample population. The assumption underlying the test was that the respondents were selected using the simple random sampling. The expected value of the number of sample observations in each level of the variable is at least 5.

Second research question

Competency was measured as a cocoa farmers' knowledge, attitude and skill (KAS) based on the Farmer Business School module. According to Brannick *et al.*, (2007), a 5-point Likert scale using a series of indicators (knowledge, attitude and skill) can be used to measure competency. This can normally be on the 'Agreement' or 'Frequency'. Each statement can be scored, reported and

rolled into each competency indicator for an aggregate perceived competency score. The knowledge possessed by the cocoa farmers referred to the understanding of the topic, attitude referred to the feeling towards the subject as well as any pre-conceived ideas they possessed and practices referred to the ways in which they utilised their knowledge and attitude in their farm activities.

A five (5) point Likert-type scale was therefore developed to measure respondents' perceptions on their level of knowledge, level of attitude and level of skills. Knowledge: 1-*No Knowledge*, 2-*Very low*, 3-*Low*, 4-*High*, 5-*Very High*; Attitude: 1-*Strongly disagree*, 2-*Disagree*, 3-*Neutral*, 4-*Agree*, 5-*Strongly agree*; Skills: 1-*No Skill*, 2-*Very low*, 3-*Low*, 4-*High*, 5-*Very High*. Means and standard deviations were computed from respondents' responses to describe their perceived level of competence of market orientation. An independent sample t test was then used to test whether there was a significant difference between the perceived level of competency (knowledge, attitude and skills) by participant cocoa farmers and non-participants of the programme (Brannick, Levine & Morgeson, 2007).

Third research question

This measured cocoa farmers' level of market orientation. It was measured as a single aggregate mean value of six constructs (a function of two measures; MKTOR and MARKOR); MKTOR consisted of three sub-constructs: Customer orientation (6 items), competitor orientation (4 items), and inter-functional coordination (4 items) (Narver & Slater, 1990; Slater & Narver, 1994) while MARKOR consisted of three sub-constructs: Intelligence generation (5 items),

intelligence dissemination (5 items), and market responsiveness (5 items) (Jaworski & Kohli, 1993).

Thus, the items were measured using the following scales: 1=*Very low*; 2=*Low*; 3=*Average*; 4=*High* and 5=*Very high* to determine the level of market orientation of the cocoa farmers. This was used to get a single aggregated measure of market orientation (Boohene *et al.*, 2012; Narver & Slater, 1990). The use of these two popular scales in a single study is not a new thing. For instance, Farrell and Oczkowski (1997) adopted the MKTOR and MARKOR measures in their study in Australia. Also, Hinson *et al.*, (2007) adopted the two scales in their study of market orientation in Ghana.

Descriptive statistics such as mean and standard deviation was used to describe the level of market orientation of the cocoa farmers. An independent sample t test was then used to compare and test whether there was a significant difference between the level of market orientation by participant cocoa farmers and non-participants of the programme.

Fourth research question

To determine the factors influencing the market orientation of cocoa farmers, the multinomial logistic regression model was used to describe and explain the relationship between the dependent nominal variable (level of market orientation-Y) and the other independent variables (innovation characteristics, entrepreneurial proclivity, farmer characteristics, farm characteristics- X_1 , X_2 , X_3 , X_4 (Rogers, 1983; Acheampong, 2012; Wiklund & Shepherd, 2003; Chand *et al.*, 2011; Talukder, 2012). Schwab (2002) explained that the independent variables

can be either dichotomous (i.e., binary) or continuous (i.e., interval or ratio in scale). Further it does not assume normality, linearity, or homoscedasticity and assumes independence among the dependent variable choices (Mertler & Vannatta, 2002).

The explicit form of the function is specified as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

β = The coefficient of the parameters

e = The error term.

Y = Dependent variable as defined [Likert scale=1-*low*, 2-*moderate*, 3-*high*]

X_i = A vector of explanatory variables (innovation characteristics) for participant cocoa farmer defined, X_{i1} =Compatibility [1 (*very low*)-5 (*very high*)], X_{i2} =Complexity [1 (*very low*)-5 (*very high*)], X_{i3} = Observability [1 (*very low*)-5 (*very high*)], X_{i4} = Trialability [1 (*very low*)-5 (*very high*)], X_{i5} = Relative Advantage [1 (*very low*)-5 (*very high*)].

X_2 = A vector of explanatory variables (entrepreneurial proclivity) for farmer, X_{21} =Innovativeness [1 (*very low*)-5 (*very high*)], X_{22} = Risk taking [1 (*very low*)-5 (*very high*)], X_{23} =Risk taking [1 (*very low*)-5 (*very high*)]

X_3 = A vector of explanatory variables (farm characteristics) for farmer defined, X_{31} = Training (Yes=1, No=0), X_{32} = Age of Farm (1=0-7years, 2=8-30years, 3=>30years), X_{33} = Farm Labour (Paid=1, Unpaid=0), X_{34} = Land Tenure (Outright purchase=1, Others=0), X_{35} = Farm Registration (Yes=1, No=0), X_{36} = Farm Credit (Yes=1, No=0).

X_4 = A vector of explanatory variables (farmer characteristics) for farmer as defined, X_i = Age (1= < 40 years, 2=50-60 years, 3= > 60 years), X_{ii} = Gender (Male=1, Female=0), X_{iii} = Farming Experience (1=1-10years, 2=11-20years, 3=21-30years, 4=31-40years, 5=Above 40years), X_{iv} = Educational Level of Farmers (1=Formal Education, 0=No Formal Education), X_v = Marital Status (1=Married, 0=Single), X_{vi} = Household Size (1=1-5, 2=6-10, 3=11-15, 4=16-20), X_{vii} = Off-farm Income of Farmers (Yes=1, No=0), X_{viii} = Ethnicity (Akan=1, Migrant=0), X_{xi} = Religion (Christian=1, Others=0), X_{xii} = Use of Mobile phone (Yes=1, No=0), X_{xiii} = Farmer Group (Yes=1, No=0), X_{xiv} = Leadership Position (Yes=1, No=0), X_{xv} = Status (Indigene=1, Migrant=0); X_{xvi} = Farm size (1=4.4ha, 2=4.4-8ha, 3=>8ha).

Fifth research question

An independent samples t-test was conducted to compare and test whether there was a significant difference between the livelihood outcomes of the participants and that of the non-participants of the Farmer Business School.

Sixth research question

A multiple linear regression was conducted to test the effect of the market orientation indicators (independent ordinal variable) of the cocoa farmers on their livelihood outcomes (dependent variable).

The explicit form of the function is specified as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

β = The coefficient of the parameters

e = The error term.

Y = Dependent variable as defined [Likert scale=1-very low, 2-low, 3-moderate, 4-high, 5-very high)

X_i = A vector of explanatory variables (financial capital) for cocoa farmer defined, [Likert scale=1-very low, 2-low, 3-moderate, 4-high, 5-very high)

X_{ii} = A vector of explanatory variables (natural capital) for cocoa farmer defined, [likert scale=1-very low, 2-low, 3-moderate, 4-high, 5-very high)

X_{iii} = A vector of explanatory variables (physical capital) for cocoa farmer defined, [likert scale=1-very low, 2-low, 3-moderate, 4-high, 5-very high)

X_{iv} = A vector of explanatory variables (human capital) for cocoa farmer defined, [likert scale=1-very low, 2-low, 3-moderate, 4-high, 5-very high)

X_v = A vector of explanatory variables (social capital) for cocoa farmer defined, [likert scale=1-very low, 2-low, 3-moderate, 4-high, 5-very high)

Chapter Summary

This chapter presented the research methodology that was employed for the conduct of the study. It examined the research design, study area and settings, unit of analysis, the study population, sample size, sampling design, methods of data collection, methods of data analysis, validity and reliability tests and how ethical issues were addressed throughout the process.

CHAPTER FOUR

RESULTS AND DISCUSSION

Chapter four presents the analysis and discussion of the results. The analysis and discussion were performed on the key research objectives set for the study.

Perception of Participant Cocoa Farmers on the Effectiveness of the Farmer Business School

Table 6 presents the cocoa farmers' (participants) perception of the effectiveness of the Farmer Business School.

Table 6: *Perceived Effectiveness of the Farmer Business School*

Measure	Mean	Std. Dev.	F	Sig.
a. Improving relationship with farm actors	3.89	1.10	1.45	0.21
b. Improving sustainability of farm activities	3.93	1.05	2.73	0.02
c. Improving access to and use of cocoa farm services	4.04	0.81	1.79	0.11
d. Improving profits from farm work	4.10	0.97	1.89	0.09
e. Promotion of farmers' skill	4.23	0.95	1.55	0.18

Source: Field Survey, Tham-Agyekum (2017)

Note: Scale: 1=*Very Ineffective*, 2=*Ineffective*, 3=*Moderately Effective*, 4=*Effective*, 5=*Very Effective*; $p < 0.05$; $N = 370$.

All the mean scores of the various objectives that were used to measure the effectiveness of the Farmer Business School were found to be more than 3.8. This means that all the objectives were perceived by the participant cocoa farmers to be effective. The mean perceived effectiveness of the Farmer Business School was found to be 4.07. The implication is that, generally, the Farmer Business

School was perceived to be effective. Three of the standard deviations were below 1.0 while two were only slightly above 1.0; indicating a general agreement (less deviation) of the respondents in terms of their distribution around the mean.

Evidence gathered from some countries by GIZ (2015) on the effectiveness of the Farmer Business School showed that it was effective. For instance, the dependence on income from cocoa production decreased from 93% to 69% in Ghana and from 96% to 76% in Nigeria. About 17,050 of the Farmer Business School graduates in Ghana, Nigeria, Cameroon and La Côte d'Ivoire in 2013 showed that more than 90% of the farmers were highly satisfied and considered the school good or excellent. Unilever (2017) conducted a study and found that about 97% of the respondents believed that the relevance (effectiveness) of the programme was high while 3% felt that nothing had changed.

Okorley *et al.*, (2014) conducted a study and measured the effectiveness of the Farmer Field School, a similar module to the Farmer Business School. In their study, they also found that respondents perceived it to be effective in improving cocoa production (Mean=4.25). Generally, the Farmer Field School was able to facilitate farmers' acquisition of knowledge in cocoa technologies, especially when cocoa farmers perceived the knowledge as responsive to local concerns or needs. Again, Bunyatta, Mureithi, Onyango and Ngesa (2006) also found that the Farmer Field School assisted farmers to acquire more knowledge and to adopt more improved agricultural technologies.

Another study by Sarker and Itohara (2009) researched into the perceptions of farmers regarding the effectiveness of a farmer training programme. In that study, training on effective use of natural resources and the effective supply of organic inputs was found to have a greater impact on improving the livelihood of small-scale farmers. The research indicated that extension would be more effective in helping to improve farmers' livelihoods if there was a clear understanding of what farmers want to know and how they want it to be delivered to them.

The chi-square goodness of fit test was used to find out how the observed values of perceived effectiveness were significantly different from the expected values. It can be observed from the table that the test statistic "improving sustainability of farm activities" has a p value of less than 5% ($p < 0.05$). This is interpreted as statistically significant. It can therefore be concluded that the effectiveness of the Farmer Business School is significant in terms of improving sustainability of farm activities.

In relation to the sustainability of farm activities which was found to be significant ($p < 0.05$), OECD (2001) noted that the adoption of sustainable technologies is normally a challenging issue for most stakeholders in the agricultural sector. This is because the relevance of most agricultural projects does not last especially after the project has ended. When the cost involved in adopting the innovation exceeds the benefits, the projects are not sustainable (Krishna, 2011). The implication is that the COCOBOD needs to employ various farm practices designed by the cocoa farmers themselves and not ideas or

innovations imposed on the cocoa farmers. If they (cocoa farmers) find it relevant to the meeting of their needs, they will keep using the innovation even when the programme has ended. This will help to make the benefits of the Farmer Business School more sustainable.

Perceived Competency of Cocoa Farmers in the Farmer Business School

This section of the study presents information on the perceived competency of cocoa farmers as related to the Farmer Business School.

Perceived knowledge in farmer business school

Table 7 presents the perceived knowledge scores of the cocoa farmers in the Farmer Business School module.

Table 7: *Perceived Knowledge in Farmer Business School*

Perceived Knowledge	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. I am familiar with profit and loss analysis	2.99 (1.01)	2.99 (0.99)
b. I can differentiate between commercial agriculture and other businesses	4.19 (0.78)	2.80 (1.23)
c. I understand the cocoa financial calendar	3.55 (1.09)	2.81 (1.19)
d. I know the ways to improve my cocoa production	3.99 (0.79)	3.13 (1.08)
e. I know the criteria used for selecting quality cocoa	4.08 (0.81)	3.54 (1.01)
f. I know the conditions involved in dealing with financial service providers	4.14 (0.88)	2.62 (1.18)
g. I know the obligations of membership in FBO	4.15 (0.73)	3.17 (1.05)
h. I know the benefits of collective	4.19 (0.76)	2.76 (1.18)

Table 7, continued

business actions		
i. I know the importance of savings	4.27 (0.81)	4.10 (0.85)
j. I know the factors that make farmer organisations succeed	4.31 (0.46)	2.53 (1.25)
k. I know the investment needs of my farm business	4.32 (0.47)	2.75 (1.21)
l. I know the benefits of reimbursing credits	4.35 (0.63)	3.65 (1.14)
m. I know the importance of farm credit	4.38 (0.75)	4.19 (0.88)

Source: Field Survey, Tham-Agyekum (2017)

Note: Scale: 1-No Knowledge, 2-Very low, 3-Low, 4-High, 5-Very High

From the results, it can be observed that all the knowledge scores for both the participants and the non-participants were more than 2.5. This means that, the participants and non-participants perceive that they have a moderate level of knowledge in the Farmer Business School module. Further, it was observed that the mean scores of the participants were higher in all of the knowledge scores than the non-participants. The reason could be attributed to their participation in the Farmer Business School. With majority of the results having a low standard deviation (<1.0), it means that there was a general agreement (less deviation) of the respondents in terms of their distribution around the mean.

The perceived knowledge indicator with the lowest score for the participants was, “I am familiar with profit and loss analysis” (Mean=2.50, Standard Deviation=0.94). This means that the participant cocoa farmers perceive themselves to be moderately familiar with profit and loss analysis. With a moderate knowledge in profit and loss analysis as observed among the participant farmers, Anang, Yeboah and Agboloso (2013) will classify the cocoa farmers as

inefficient. According to them, efficient farm managers want to be able to determine the position of their business at any point of time. The breakeven point and the expected profit are very important analyses done by farm producers who want to know how much they have to produce to cover cost and make profits thereafter. Pandey (2009) explained that the profit and loss analysis involved classifying and allocating to the products and or activities of the farm business and this makes it easy to measure profitability.

The perceived knowledge indicator with the lowest score for the non-participants was “I know the factors that make farmer organisations succeed” (Mean=2.53, Standard Deviation=1.25). This means that the non-participant cocoa farmers perceive themselves to be moderately knowledgeable in the factors that make organisations succeed. With a moderate perceived knowledge in knowing the factors that make farmer organisations succeed as observed among the non-participant farmers, various explanations could be given. The most obvious is that they had not been trained. It could also be that they had either never been part of Farmer Based Organisations or if they had ever been part, they did not realize any benefit from their participation.

However, Pisey (2014) indicated that Farmer Based Organisations aim to ultimately secure economic and social benefits for their members. Participation in Farmer Based Organisations also builds the capacity of members to access market information, improve product quality, save money, build networks, gain management skills and collectively run economic activities. Farmers extend networks and experience stronger social cohesion and relationships through

collective work. In another study by Garnevska, Liub and Shadbolt (2011), factors such as stable legal environment, government support, transparent and efficient internal management, access to technical training and external support from NGOs were found to be benefits cocoa farmers can derive by engaging themselves in Farmer Based Organisations.

The perceived knowledge indicator with the highest score for both the participants and non-participants respectively was, “I know the importance of farm credit” (Participants-Mean=4.38, Standard Deviation=0.75; Non-Participants-Mean=4.19, Standard Deviation=0.88). In addition, there was a general agreement (less deviation) of the respondents in terms of their distribution around the mean. This means that both the participant and non-participant cocoa farmers perceive themselves to be highly knowledgeable in the importance of farm credit. The reason as explained by Ghorbani (2005) could be that most farmers perceive access to credit as a key factor in improving the quality and quantity of farm products. This knowledge can further help improve the incomes of the cocoa farmers by participating actively in credit schemes.

Perceived attitude towards the farmer business school

Table 8 presents the perceived attitude scores of the cocoa farmers at the Farmer Business School.

Table 8: Perceived Attitude towards the Farmer Business School

Perceived Attitude	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. I see myself as an entrepreneur	3.92 (0.84)	2.94 (0.86)
b. I see my farm as a business	3.75 (0.86)	2.90 (1.00)
c. Standard plot measurements are used	3.82 (0.83)	2.96 (0.85)

Table 8, continued

for farm negotiations		
d. Recording of money inflows/outflows helps in managing my money	3.33 (1.11)	2.99 (0.88)
e. Diversification helps me to manage risks	3.34 (1.16)	2.59 (0.97)
f. I spend my money carefully	3.40 (1.21)	2.55 (1.00)
g. I save my money for future needs	3.69 (0.91)	2.33 (1.06)
h. I stick to my original objective of taking farm credits	3.73 (0.96)	2.52 (0.99)
i. I play a key role in ensuring quality of my cocoa beans	3.76 (0.92)	2.74 (0.78)
j. Collective action helps me to get better prices	3.71 (0.95)	2.56 (0.94)
k. Trust, transparency, solidarity is needed for governance of FBO	3.90 (0.80)	3.39 (0.76)
l. I see replanting/planting as an investment	3.66 (1.08)	2.60 (0.94)
m. Record keeping helps me to evaluate my business	3.75 (0.87)	3.00 (0.90)

Source: Field Survey, Tham-Agyekum (2017)

The perceived attitude indicator with the lowest score for the participants was “Recording of money inflows/outflows helps in managing my money” (Mean=3.33, Standard Deviation=1.11). This means that majority of the participants moderately perceive that recording their money inflows/outflows helps in managing their money.

The perceived attitude indicator with the lowest score for the non-participants was “I stick to my original objective of taking farm credits”

(Mean=2.52, Standard Deviation=0.99). This means that the non-participant cocoa farmers moderately stick to the original objective of taking farm credits.

The perceived attitude indicator with the highest score for the participants was “I see myself as an entrepreneur” (Mean=3.92, Standard Deviation=0.84). The perceived attitude indicator with the highest score for the non-participants was “Trust, transparency, solidarity is needed for governance of FBO” (Mean=3.39, Standard Deviation=0.76). The participant cocoa farmers highly perceive themselves as entrepreneurs while the non-participants moderately perceive that trust, transparency, solidarity is needed for governance of FBO.

Investigation into the attitudes of the cocoa farmers towards the Farmer Business School was prompted by the general perception that farmers’ attitudes stand in the way of efforts to achieve higher cocoa productivity (Baah *et al.*, 2011). The general overview is that the cocoa farmers (participants and non-participants) have a good attitude towards the things they were taught at the Farmer Business School. With this kind of attitude, it is expected that cocoa cultivation in Ghana will move forward (Baah *et al.*, 2011).

Studies have also shown that since farmers’ objectives include the meeting of the subsistence needs of their families, they will stop at any programme that can help them fulfil this objective. The Farmer Business School as it were was aimed at helping meet the needs of the cocoa farmers. With this in mind, they will be sufficiently motivated to work towards their goals (Osei-Bonsu, Baah & Afrifa, 2001).

Perceived skills in farmer business school

Table 9 presents the perceived skill of the cocoa farmers in the Farmer Business School module.

Table 9: *Perceived Skills in Farmer Business School*

Perceived Skills	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. Fill a simple cropping calendar	4.11 (1.23)	1.94 (1.06)
b. Obtain a guaranty for a loan	4.14 (1.14)	2.80 (1.33)
c. Manage financial deficits and surplus money	4.15 (1.12)	2.81 (1.06)
d. Use the financial calendar to plan my farm/household expenditure	4.16 (1.14)	1.83 (0.89)
e. Determine profit or loss of my farm business	4.18 (1.14)	2.76 (1.23)
f. Calculate money out and money in	4.19 (1.15)	2.29 (1.33)
g. Bargaining new farm opportunities	4.19 (1.09)	2.77 (1.32)
h. Manage savings and reimburse a loan	4.21 (1.1)	2.64 (1.24)
i. Assess a cooperative business opportunity	4.22 (1.07)	2.84 (1.40)
j. Measure a plot with simple tools	4.24 (1.12)	2.05 (1.02)
k. Contribute to strengthen FBO in business	4.25 (1.02)	3.55 (1.23)
l. How to access cocoa farm support services	4.28 (1.01)	3.16 (1.06)
m. Produce good quality cocoa following COCOBOD techniques	4.36 (0.83)	4.16 (0.93)

Note: Scale: 1-No Skill, 2-Very low, 3-Low, 4-High, 5-Very High

Source: Field Survey, Tham-Agyekum (2017)

The perceived skill indicator with the lowest score for the participants was “Fill a simple cropping calendar” (Mean=4.11, Standard Deviation=1.23). Even though the score was the lowest, it still means that the participant cocoa farmers

perceive that they have a high skill in filling a simple cropping calendar. The perceived skill indicator with the lowest score for the non-participants was “Use the financial calendar to plan my farm/household expenditure” (Mean=1.83, Standard Deviation=0.89). For the non-participants, their perceived skill in using the financial calendar to plan their farm/household expenditure was low. The implication is that most of them do not know how to use the financial calendar to plan their farm/household expenditure.

In support of the above results, Akoto (2015) observed that, generally, most cocoa farmers have low skills in areas such as farm planning, calculating profits of business, practice of savings, credit worthiness, loan co-sign consequences, insurance practice and financial investments. Other areas such as record keeping remain a gray area for most farmers, although it has the potential of reducing risks significantly. With the result that most of the participants of the Farmer Business School have increased their skills in these areas, it implies that given the opportunity to learn these skills, the non-participant cocoa farmers in Ghana are likely to have high skills in business and entrepreneurial skills. In Nigeria, a study by Essiet (2014) showed that small-scale cocoa farmers who grappled with challenges such as low yields and incomes were assisted through the Farmers Business School to improve their skills. Before then, many of them lacked the financial muscle to use the opportunities offered to expand markets and boost their income.

The perceived skill indicator with the highest score for both the participants and non-participants respectively was “Produce good quality cocoa

following COCOBOD techniques” (Mean=4.36, Standard Deviation=0.83; Mean=4.16, Standard Deviation=0.93). This means that majority of the participants and non-participants perceived that they are highly skilled in producing good quality cocoa following COCOBOD techniques.

As observed from Table 9, all the skill scores for the participants were more than 4.0, implying that generally, the level of skills perceived by the participant cocoa farmer in the Farmer Business School module was high. Further, it was observed that the mean skill scores of the participants were higher in all of the indicators than the non-participants. It is highly anticipated that the participants will have better skills as compared to the non-participants in terms of the Farmer Business School module. The reason could be accounted for in their participation in the Farmer Business School.

In support of the results above, GIZ (2015) noted that cocoa farmers are able to do their own calculations of production cost and household cash expenses at the basic level. They are also able to draw up their own financial plan and record all cash flows. Farmers are doing better on banking, savings and credit applications. Farmers are able to make their own cropping calendars. There is also improved cooperation among farmers on their farmer groups and associations. They are able to purchase inputs as a group as well as from product marketing as a group.

Perceived competency indicators

Table 10 presents the perceived knowledge, attitude and skill scores of the cocoa farmers (participants and non-participants) in the Farmer Business School module.

Table 10: *Perceived Competency Indicators*

Competency Indicators	Participants	Non-Participants
Knowledge	Mean=4.07, Std. Dev.=0.34	Mean=3.12, Std. Dev.=0.49
Attitude	Mean=3.68, Std. Dev.=0.62	Mean=2.77, Std. Dev.=0.44
Skills	Mean=4.21 Std. Dev.=0.75	Mean=2.74, Std. Dev.=0.59

Source: Field Survey, Tham-Agyekum (2017)

The results show that the participants had a higher knowledge (Mean=4.07) than the non-participants (Mean=3.12). This implies that the level of perceived knowledge by the participants in the Farmer Business School module was high while that of the non-participants was moderate. The standard deviation scores were less than 1, implying a general uniformity among the respondents (less deviation) on their knowledge perception.

In terms of perceived attitude, the results show that participants have better attitude (Mean=3.68) than the non-participants (Mean=2.77). This means that the level of perceived attitude of the participants was high while that of the non-participants was moderate. The standard deviation scores were less than 1, implying a general uniformity among the respondents (less deviation) on their attitude perception.

In terms of skills, the results show that participants have better skills (Mean=4.21) than the non-participants (Mean=2.74). This means that the level of perceived skills of the participants was high while that of the non-participants was

moderate. The standard deviation scores were less than 1, implying a general uniformity among the respondents (less deviation) on their skills perception.

Cohen's D was used to calculate the effect size for knowledge, attitude and skills. The effect size for knowledge was 0.75, attitude was 0.65 while skills was 0.74. Using Cohen (1988), it could be said that the effect size for the indicators of competency was medium. The implication is that when the participants are compared to the non-participants, there was a medium degree of change which made the participants better than the non-participants.

The reason for the higher knowledge, positive attitude and better skills among the participants than the non-participants could be the exposure that the participants had over the non-participants in the Farmer Business School module. The Farmer Business School as a training programme was also aimed at improving the knowledge of the cocoa farmers, change their attitude towards cocoa farming and improve their skills in cocoa farming. At the Farmer Business School, the participants were engaged in financial and entrepreneurial issues (profit and loss analysis, measuring of cocoa farms, dealing with financial service providers, improving cocoa production, quality criteria for cocoa selection, benefits of collective actions, savings, investments, farm credits, diversification etc). Therefore, it is very likely that those who participated in the Farmer Business School will be more knowledgeable, have positive attitude and be more skilful than those who did not participate in the farmer business school.

A piloted finance and social literacy programme organized by Unilever Ghana in partnership with Solidaridad with young cocoa farmers in Ghana to

encourage them to work in the sector showed similar results to this study. In that study, it was found that about 99% of the participants of the programme experienced high knowledge in the training models on the business and financial literacy issues as compared to those who did not participate. In terms of skills, about 68% of participants gained better skills compared to 25% of non-participants (Unilever, 2017). This means that cocoa farmers who participate in finance or business-related programmes are likely to experience improvement in knowledge, attitude and skills than those who do not participate or are yet to participate.

Test of perceived competency indicators

In Table 11, an independent samples t-test was conducted to compare the perceived knowledge, attitude and skills of the participants and the non-participants.

Table 11: *Independent Sample T-Test of Perceived Competency Indicators*

Independent Sample t test	Levene's Test for Equality of Variances		T-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% Confidence Interval of the Difference		
								Lower	Upper	
Knowledge	EV	33.55	0.00	28.08	598	0.00	0.95	0.03	0.88	1.01
	EV NA			25.92	368.72	0.00	0.95	0.04	0.88	1.01
Attitude	EV	31.07	0.00	-	598	0.00	-	0.05	-	-
	EV NA			19.11	588.61	0.00	0.90	0.04	0.99	0.81
Skills	EV	23.5	0.00	25.12	598	0.00	1.47	0.0	1.35	1.5

Table 11, continued

A	1	0						6	8
EV			26.57	567.4	0.00	1.47	0.0	1.36	1.5
NA				2				6	8

Source: Field Survey, Tham-Agyekum (2017)

Note: EVA-Equal variances assumed, EVNA-Equal variances not assumed

There was a significant difference in the perceived knowledge, perceived attitude and perceived skills for participants and non-participants ($p < 0.00$). This result suggests that participation in the Farmer Business School has an effect on the perceived knowledge, attitude and skill competency of the cocoa farmers. So, for anyone who participates in the school, they are going to be more knowledgeable, gain better attitudes and become more skilful than those who do not participate.

Contrary to the findings of this study, a research by Unilever (2017) found that there was no significant difference ($p > 0.05$) in participant cocoa farmers when compared to the non-participants. The reason given in that study was that the non-participants may have been involved in other programmes which may have improved their knowledge and skills. However, it was found that participants of the programme demonstrated positive results on their knowledge of the training modules, the capacity of beneficiaries to implement or adopt the things learnt in the training and the likelihood of knowledge transfer to peers. The participants also had the business skills to make cocoa farming more profitable, less boring and showing how to save, budget and borrow money efficiently. This means that their skills were improved by participating in the programme (Unilever, 2017).

According to an evaluation report by Unilever (2017), participants of their finance and social literacy programme had a more positive attitude towards business activities in cocoa farming than the non-participants. This implies that training programmes aimed at changing the attitude of cocoa farmers towards a more positive approach are likely to produce the desired effect.

Perceived competency of participants and non-participants

Table 12 presents the perceived competency scores of the cocoa farmers (participants and non-participants) in the Farmer Business School module.

Table 12: *Perceived Competency*

Competency in FBS	Participants	Non-Participants
Perceived Competency	Mean=3.98 Std. Dev.=0.33	Mean=2.88, Std. Dev.=0.37

Source: Field Survey, Tham-Agyekum (2017)

The results show that the participants of the Farmer Business School had a higher level of competency (Mean=3.98, Standard Deviation=0.33) than the non-participants (Mean=2.88, Standard Deviation=0.37). This implies that the level of perceived competency of the participants in the Farmer Business School module was high while that of the non-participants was moderate. The standard deviation was less than 1, implying a general uniformity among the respondents (less deviation). Cohen's D was used to calculate the effect size for competency. The effect size was 0.84. Using Cohen (1988), it could be said that the effect size for perceived competency was large. The implication is that when the participants are compared to the non-participants, there was a large degree of change in competency which made the participants better than the non-participants.

Test of perceived competency of participants and non-participants

In Table 13, an independent samples t-test was conducted to compare the level of competency of the participants and the non-participants.

Table 13: *Independent Sample T-Test of Perceived Competency*

Independent sample t test		Levene's Test for Equality of Variances		T-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% Confidence Interval of the Difference	
									Lower	Upper
Perceived competency	EVA	1.62	0.20	-	598	0.00	-	0.03	-	-
				37.81			1.11	3	1.16	1.05
	EVNA			-	444.85	0.00	-	0.03	-	-
				36.83			1.11	3	1.16	1.05

Source: Field Survey, Tham-Agyekum (2017)

Note: EVA-Equal variances assumed, EVNA-Equal variances not assumed

There was a significant difference in the perceived competency level between the participants and non-participants ($p < 0.05$). The result suggests that participation in the Farmer Business School has an effect on the perceived competency level of the cocoa farmers. So, for anyone who participates in the school, they are going to be more competent in handling their business and entrepreneurial activities than those who do not participate.

In contrast, Moumeni-Helali and Ahmadpour (2013) found that there was not a meaningful difference between the two groups of farmers who attended and those did not participate at the Farmer Field School because of their knowledge about biological control. But the descriptive statistics shows that the Farmer Field

School course has had positive impact on increasing knowledge about biological control. There is a meaningful difference at the level of 1% (confidence of 99%) between the two groups of rice farmers (participated and not participated) at the Farmer Field School in terms of their attitude toward biological control.

Perceived Market Orientation

This section of the study deals with the perception of the cocoa farmers on their level of market orientation.

Perceived customer emphasis

Table 14 presents the perceived customer emphasis mean scores of the cocoa farmers in market orientation.

Table 14: *Perceived Customer Emphasis*

Perceived Customer Emphasis	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. I treat LBCs as business partners	2.51 (0.78)	2.47 (1.05)
b. I consult LBCs to improve my activities with them	2.81 (0.97)	2.45 (1.05)
c. I encourage LBCs comments and complaints	2.87 (0.94)	2.84 (1.24)
d. I incorporate LBC comments into farm operations	2.54 (0.21)	3.02 (1.62)
e. I look for ways to satisfy the needs of the LBCs	3.07 (0.91)	2.45 (1.06)
f. I know the quality criteria used by LBCs in purchasing	4.48 (0.65)	4.54 (0.65)

Source: Field Survey, Tham-Agyekum (2017)

Note: Scale: Very low=1, Low=2, Moderate=3, High=4, Very high=5

The perceived customer emphasis indicator with the lowest score for the participants was, “I treat LBCs as business partners” (Mean=2.51, Standard Deviation=0.78). This means that the cocoa farmers moderately perceive that they treat LBCs as business partners. The perceived customer emphasis indicator with the lowest score for the non-participants was “I look for ways to satisfy the needs of the LBCs” (Mean=2.45, Standard Deviation=1.06). This means that the perception of the non-participants concerning looking for ways to satisfy the needs of the LBCs is low.

The perceived customer emphasis indicator with the highest score for both the participants and the non-participants was “I know the quality criteria used by LBCs in purchasing” (Mean=4.48, Standard Deviation=0.65; Mean=4.54, Standard Deviation=0.65). This means that the perception of the participants and the non-participants concerning knowing the quality criteria used by LBCs in purchasing is high and very high respectively. The implication is that majority of the participants and non-participants perceive that they know the quality criteria used by LBCs in purchasing their cocoa beans.

The mean perceived customer emphasis of the cocoa farmers was found to be 3.01. This means that generally, the perceived customer emphasis of the cocoa farmers in market orientation was moderate. Various reasons could be stated for this state of affairs. Cocoa farmers in Ghana are fixed in a ‘straight jacket’. This is explained in terms of the fact that there is no flexibility in terms of who their customers are. It is only the LBCs who have been licensed by the COCOBOD to purchase their cocoa beans. With a monopolized marketing arrangement, cocoa

farmers are not likely to do anything extra in order to benefit from their partnership with the LBCs. Because of this, they may only be able to make moderate achievements through their customer emphasis (Narver & Slater, 1990).

However, as noted by Jaworski and Kohli (1993), customer emphasis goes beyond simply meeting the needs of the immediate consumer but also having a broader picture of the entire channel and providing the needed products for the buyer and the buyers' buyers. This does not happen in the Ghanaian case because the buyer is only one. The only change that could occur is that there are different groups of LBCs which farmers can probably treat them as different customers. Beyond that, the cocoa farmers are tied to only one customer (LBC). A market oriented cocoa farmer may be more aware and be exposed to different buyers (not only LBCs) and exploit that arrangement for their benefit.

Perceived competitor orientation

Table 15 presents the perceived competitor orientation mean scores of the cocoa farmers in market orientation.

Table 15: *Perceived Competitor Orientation*

Perceived Competitor Orientation	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. I monitor LBCs buying from other farmers	2.07 (0.59)	2.02 (0.66)
b. I know whether other farmers are open to LBC complaints	2.09 (0.60)	1.90 (0.70)
c. I know whether other farmers meet the LBCs quality criteria	2.14 (0.59)	1.99 (0.77)
d. I know whether LBCs buying from other farmers are satisfied	2.18 (0.62)	1.97 (0.69)

Source: Field Survey, Tham-Agyekum (2017)

Note: Scale: Very low=1, Low=2, Moderate=3, High=4, Very high=5

The perceived competitor orientation indicator with the lowest score for the participants was “I monitor LBCs buying from other farmers” (Mean=2.07, Standard Deviation=0.59). This means that majority of the participants do not monitor LBCs buying from other farmers. The perceived competitor orientation indicator with the lowest score for the non-participants was “I know whether LBCs buying from other farmers are satisfied” (Mean=1.97, Standard Deviation=0.69). This means that most of the non-participants do not know whether LBCs buying from other farmers are satisfied.

The perceived competitor orientation indicator with the highest score for the participants was “I know whether LBCs buying from other farmers are satisfied” (Mean=2.18, Standard Deviation=0.62). The perceived competitor orientation indicator with the highest score for the non-participants was “I monitor LBCs buying from other farmers” (Mean=2.02, Standard Deviation=0.66). Although the scores were the highest, the perception of the participants and non-participants on whether LBCs buying from other farmers are satisfied and whether they monitor LBCs buying from other farmers respectively is low.

The mean competitor orientation of the cocoa farmers was found to be 2.06. This implies that generally, the cocoa farmers perceive that their competitor emphasis in market orientation was low. The low level of perceived competitor orientation is that, generally, most cocoa farmers do not perceive their fellow cocoa farmers as their competitors. They all sell to the same customer and they practically receive the same unit returns from their sales. They therefore do not

keep their eyes on how their competitors (fellow cocoa farmers) are putting up strategies to satisfy their customers' (LBCs) needs (Ellis, 2006). There is no point in devising strategies to gain competitive advantage over other farmers if the end point (market) is fixed. The orientation for competition among the cocoa farmers could be changed and improved if the markets or customers and the unit returns are diverse. However, with the current arrangement where only the LBCS are licensed to purchase cocoa beans from the cocoa farmers and at fixed prices, competition among cocoa farmers may still remain low.

However, Aziz and Yassin (2010) noted that, within the local cocoa farming system, cocoa farmers are also aware that their fellow cocoa farmers do other things which get them superior value and other benefits from LBCs. This could be another form of competition. They could devise a good understanding of the changing behaviours of their fellow cocoa farmers who are their current and future competitors. When this is done, they will be able to make more profits since Dawes (2000) asserted that the competitor orientation component of market orientation is positively correlated to the profitability of the organisation. Without it, cocoa farmers will always have low levels of profitability.

Perceived inter-functional coordination

Table 16 presents the perceived inter-functional coordination scores of the cocoa farmers in market orientation.

Table 16: *Perceived Inter-Functional Coordination*

Perceived Inter-Functional Coordination	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. I coordinate activities aimed at training	1.99 (0.80)	1.96 (1.09)

Table 16, continued

my farm workers		
b. I coordinate meetings to discuss market trends with key actors	2.12 (0.61)	2.00 (0.67)
c. I discuss the future needs of my farm with key actors	2.62 (0.92)	2.57 (1.03)
d. I have a cordial working relationship with key actors	4.10 (0.71)	3.98 (0.98)

Source: Field Survey, Tham-Agyekum (2017)

Note: Scale: Very low=1, Low=2, Moderate=3, High=4, Very high=5

The perceived inter-functional coordination indicator with the lowest score for both the participants and the non-participants respectively was “I coordinate activities aimed at training my farm workers” (Mean=1.99, Standard Deviation=0.80; Mean=1.96, Standard Deviation=1.09). Their perception on how they coordinate activities aimed at training their farm workers was low. This means that most of the participants and the non-participants do not coordinate activities aimed at training their farm workers.

The perceived inter-functional coordination indicator with the highest score for both the participants and the non-participants was “I have a cordial working relationship with key actors” (Mean=4.10, Standard Deviation=0.71, Mean=3.98, Standard Deviation=0.98). Their perception on how they have a cordial working relationship with key actors was high. This means that most of the participants and the non-participants have a cordial working relationship with key actors.

The mean perceived inter-functional coordination of the cocoa farmers was found to be 2.68. This implies that generally the inter-functional coordination of the cocoa farmers in market orientation was relatively low. Generally, farming

in Ghana is not perceived as a business entity that requires the setting up of different departments and functions. However, as defined by Zhou *et al.*, (2009), the inter-functional coordination could be viewed as linking up of farm resources and other customer related activities. Cocoa farmers are therefore expected to also develop a mechanism to coordinate activities with their workers, extension agents, licensed buying companies, input suppliers and others for the growth of their farm business. According to Amalia *et al.*, (2008), cocoa farmers who are able to do this will be able to generate and distribute superior values to their customers and obtain sustainable competitive advantage.

Perceived intelligence generation

Table 17 presents the perceived intelligence generation scores of the cocoa farmers in market orientation.

Table 17: *Perceived Intelligence Generation*

Perceived Intelligence Generation	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. I search for information on cocoa market trends	1.91 (0.79)	2.10 (1.36)
b. I meet with LBCs to find out their future needs	2.65 (1.03)	2.73 (1.35)
c. I attend extension meetings to get information on new cocoa technologies	2.69 (1.00)	2.71 (1.27)
d. I quickly detect changes in my farm operations	2.70 (0.95)	2.80 (1.33)
e. I assess LBCs perception on the quality of my cocoa beans	2.79 (1.03)	3.04 (1.32)

Source: Field Survey, Tham-Agyekum (2017)

Note: Scale: Very low=1, Low=2, Moderate=3, High=4, Very high=5

The perceived intelligence generation indicator with the lowest score for both the participants and the non-participants respectively was “I search for information on cocoa market trends” (Mean=1.91, Standard Deviation=0.79; Mean=2.10, Standard Deviation=1.36). Their perception on how they search for information on cocoa market trends was low. This means that most of the participants and the non-participants do not search for information on cocoa market trends.

The perceived intelligence generation indicator with the highest score for both the participants and the non-participants respectively was “I assess LBCs perception on the quality of my cocoa beans” (Mean=2.79, Standard Deviation=1.03; Mean=3.04, Standard Deviation=1.32). Their perception on how they assess LBCs perception on the quality of their cocoa beans was moderate. This means that most of the participants and the non-participants assess LBCs perception on the quality of their cocoa beans.

The mean perceived intelligence generation of the cocoa farmers was found to be 2.60. This implies that generally, the intelligence generation of the cocoa farmers in market orientation was moderate. Information pertaining to the existing and future needs of the customers need to be gathered as a way for cocoa farmers to be able to perform better than their competitors (Zebal & Goodwin, 2012). This can be done through the act of intelligence gathering. According to Lafferty and Hult (2001), intelligence generation is a unifying element that defines market orientation. Therefore, with a low level of intelligence gathering, it means that the cocoa farmers are not aggressive in information or intelligence

generation regarding their buyers and competitors and the other factors that affect their purchases. This means that they cannot experience originality and relevance in producing new choices that will help them align with the expectations of the customers (Hou, 2008).

Perceived intelligence dissemination

Table 18 presents the perceived intelligence dissemination scores of the cocoa farmers in market orientation.

Table 18: *Perceived Intelligence Dissemination*

Perceived Intelligence Dissemination	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. I inform LBCs on issues relevant to their relationship with me	2.58 (1.03)	2.67 (1.35)
b. When I find out something about other farmers, I inform my workers	2.69 (1.04)	2.99 (1.24)
c. Information on LBCs' satisfaction is disseminated to all workers	2.71 (1.07)	2.83 (1.31)
d. I inform LBCs on issues affecting my farm operations	2.73 (1.07)	2.70 (1.35)
e. I inform my workers about my activities with LBCs	2.78 (1.03)	2.66 (1.26)

Source: Field Survey, Tham-Agyekum (2017)

Note: Scale: Very low=1, Low=2, Moderate=3, High=4, Very high=5

The perceived intelligence dissemination indicator with the lowest score for the participants was “When I find out something about other farmers, I inform my workers” (Mean=2.69, Standard Deviation=1.04). Their perception on how they find out something about other farmers and inform their workers was

moderate. This means that most of the participants do not inform their workers when they find out something about other farmers.

The perceived intelligence dissemination indicator with the lowest score for the non-participants was “I inform my workers about my activities with LBCs” (Mean=2.66, Standard Deviation=1.26). Their perception on how they inform their workers about their activities with LBC was moderate. This means that most of the non-participants do not inform their workers about their activities with LBCs.

The perceived intelligence dissemination indicator with the highest score for the participants was “I inform my workers about my activities with LBCs” (Mean=2.78, Standard Deviation=1.03). The perceived intelligence dissemination indicator with the highest score for the non-participants was “When I find out something about other farmers, I inform my workers” (Mean=2.99, Standard Deviation=1.24). This means that most of the participants inform their workers about their activities with LBCs while most of the non-participants inform their workers when they find out something about other farmers.

The mean perceived intelligence dissemination of the cocoa farmers was found to be 2.72. This implies that generally the intelligence dissemination of the cocoa farmers in market orientation was moderate. It is expected that cocoa farmers disseminate the information they generate to all levels of their farm business. If this is done, the information is likely to affect their activities, the activities of their workers and their relationship with other cocoa stakeholders. However, with a moderate level of information dissemination among the cocoa

farmers, it means that they do not circulate the evidence they generate. This information should go beyond just customer satisfaction into satisfying other key areas of the cocoa farm business (Narver & Slater, 1990).

Perceived market responsiveness

Table 19 presents the perceived market responsiveness scores of the cocoa farmers in market orientation.

Table 19: *Perceived Market Responsiveness*

Perceived Market Responsiveness	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. I make new offers based on world market prices of cocoa	1.68 (0.73)	1.91 (1.09)
b. I choose the best purchasing packages from the LBCs	2.65 (1.05)	2.64 (1.31)
c. When I come up with any new business strategy, it is implemented in timely fashion	2.79 (1.02)	2.79 (1.12)
d. I ensure my new business opportunities do not conflict with my work as a cocoa farmer	2.97 (0.84)	3.17 (0.99)
e. I venture into other business opportunities as back up in the minor season	3.18 (1.08)	3.57 (1.19)

Source: Field Survey, Tham-Agyekum (2017)

Note: Scale: Very low=1, Low=2, Moderate=3, High=4, Very high=5

The perceived market responsiveness indicator with the lowest score for both the participants and the non-participants was “I make new offers based on world market prices of cocoa” (Mean=1.68, Standard Deviation=0.73; Mean=1.91, Standard Deviation=1.09). Their perception on how they make new

offers based on world market prices of cocoa was low. This means that most of the participants and non-participants do not make new offers based on world market prices of cocoa.

The perceived market responsiveness indicator with the highest score for both the participants and the non-participants was “I venture into other business opportunities as back up in the minor season” (Mean=3.18, Standard Deviation=1.08; Mean=3.57, Standard Deviation=1.19). Their perception on how they venture into other business opportunities as back up in the minor season was moderate. This means that most of the participants and non-participants venture into other business opportunities as back-up in the minor season.

The mean perceived market responsiveness of the cocoa farmers was found to be 2.72. This means that generally their market responsiveness was moderate. The implication is that the cocoa farmers are not responsive to the market. Under the current marketing arrangement by COCOBOD, it is not strange that the cocoa farmers were not market responsive. Changes in world market prices do not affect the returns they get from the sale of their cocoa beans. They are given a fixed, whether there is a rise or a fall in the world market price. However, the LBCs have developed various strategies and packages in order to attract cocoa farmers. These packages include giving loans to cocoa farmers, supplying farm inputs and training activities but not in the area of cocoa prices. Depending on the LBCs packages, cocoa farmers can make their best choices. The good side of their market responsiveness is that they ensure that their new

business opportunities do not conflict with their work as a cocoa farmer and they venture into other business opportunities as back up in the minor season.

If cocoa farmers will be market responsive, they can be competitive in generating and circulating information (Chen & Volpe, 2002). However, with a moderate level of market responsiveness, it means that the cocoa farmers are not very responsive in initiating and implementing activities that respond to the needs of buyers (Zebal & Goodwin, 2012).

Test of perceived market orientation indicators

Table 20 presents the mean scores for the indicators of market orientation of the cocoa farmers (participants and non-participants).

Table 20: *Perceived Market Orientation Indicators*

Indicators	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. Competitor Orientation	2.12 (0.42)	1.97 (0.57)
b. Intelligence Generation	2.55 (0.58)	2.68 (0.98)
c. Market Responsiveness	2.66 (0.47)	2.82 (0.71)
d. Intelligence Dissemination	2.69 (0.78)	2.77 (1.12)
e. Inter-Functional Coordination	2.71 (0.42)	2.63 (0.49)
f. Customer Emphasis	3.05 (0.51)	2.96 (0.67)

Source: Field Survey, Tham-Agyekum (2017)

The results show that participants (2.12) are more competitor oriented than non-participants (1.97), participants (2.55) have less intelligence generation than the non-participants (2.68), participants (2.66) are less market responsive than the non-participants (2.82), participants (2.69) have less intelligence dissemination than the non-participants (2.77), participants (3.05) have more customer emphasis

than the non-participants (2.96), participants (2.71) have more inter-functional coordination than non-participants (2.63).

From Table 20, it could be observed that the perceived market orientation indicator with the lowest scores for both the participants and the non-participants respectively was competitor orientation (Mean=2.12, Standard Deviation=0.42; Mean=1.97, Standard Deviation=0.57). This means that majority of the cocoa farmers (participants and non-participants) do not place much emphasis on their competitors. The perceived market orientation indicator with the highest scores for both the participants and the non-participants respectively was customer emphasis (Mean=3.05, Standard Deviation=0.51; Mean=2.96, Standard Deviation=0.67). This means that majority of the cocoa farmers (participants and non-participants) place much emphasis on their customers (LBCs).

The findings also suggest that while the participants of the Farmer Business School have higher scores in customer emphasis, competitor orientation and inter-functional coordination than the non-participants, the non-participants have higher intelligence generation, intelligence dissemination and market responsiveness. The things taught at the Farmer Business School could have given the participants a new orientation in terms of their customer emphasis, competitor orientation and inter-functional coordination. For the non-participants, they may have shown some more aggression in trying to generate and disseminate their own intelligence while trying to be more responsive to the market than the participants of the Farmer Business School.

With competitor orientation as the lowest indicator in the market orientation of the cocoa farmers (participants and non-participants), it means that the cocoa farmers do not understand their competitors' strengths or strategies. The case is that cocoa farmers do not even perceive their fellow cocoa farmers as their competitors. A good competitor orientation could help the cocoa farmers to recognize the quality and quantity of cocoa beans to produce and the LBCs markets to enter/avoid (Adjei-Ababio, 2011).

With customer emphasis as the highest indicator in the market orientation of the cocoa farmers (participants and non-participants), cocoa farmers will be able to make achievements through their customer emphasis in relation to the LBCs (Narver & Slater, 1990). However, this must not simply be about meeting the needs of the immediate consumer (LBCs) but seeing the entire network and providing the kind of products that meet the needs of the buyers (Jaworski & Kohli, 1993).

In Table 21, an independent samples t-test was conducted to compare the perceived market orientation scores for the various indicators of the participants and that of the non-participants.

Table 21: Independent Sample T-Test of Perceived Market Orientation Indicators

Independent Sample t test	Levene's Test for Equality of Variances		T-test for Equality of Means							
	F	Sig	T	df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% Confidence Interval of the Difference	Lower	Upper
Customer Emphasis	31.83	0.00	1.73	598	0.08	0.08	0.05	-0.01	0.18	
Competitor Orientation	38.23	0.00	1.63	394.75	0.10	0.08	0.05	-0.01	0.19	
Inter-Functional Coordination	6.66	0.01	3.46	383.47	0.00	0.15	0.04	0.07	0.23	
Intelligence Generation	84.99	0.00	2.09	419.51	0.04	0.08	0.04	0.00	0.16	
Intelligence Dissemination	55.24	0.00	-2.01	598	0.04	-0.13	0.06	-0.25	-0.00	
Market Responsiveness	48.19	0.00	-1.79	329.24	0.07	-0.13	0.07	-0.27	0.01	
SS			-0.92	598	0.36	-0.07	0.08	-0.22	0.08	
EVNA			-0.85	368.93	0.39	-0.07	0.08	-0.24	0.09	
EVNA			-3.36	598	0.00	-0.16	0.05	-0.26	-0.07	
EVNA			-3.07	355.47	0.00	-0.16	0.05	-0.26	-0.06	

Source: Field Survey, Tham-Agyekum (2017)

Note: EVA-Equal variances assumed, EVNA-Equal variances not assumed

There was a significant difference in the competitor orientation for participants and non-participants ($p < 0.05$). There was a significant difference in the perceived inter-functional coordination for participants and non-participants ($p < 0.05$). There was a significant difference in the intelligence generation for participants and non-participants ($p < 0.05$). There was a significant difference in the market responsiveness for participants and non-participants ($p < 0.05$).

The results suggest that there is a significant difference between the participants and the non-participants in terms of their competitor orientation, inter-functional coordination, intelligence generation and market responsiveness except for customer emphasis and intelligence dissemination.

The results suggest that competitor orientation moderates the market orientation of participants and non-participants of the Farmer Business School. Rival organisations provide some form of competition in the industry by providing superior value to their consumers. A cocoa farmer that desires to be - highly market oriented may generate market intelligence that may lead to opportunity discoveries for superior value to the market. They must learn faster than their competitors in order that it may lead to sustainable competitive advantage (Slater & Narver, 1995).

The study revealed that perceived inter-functional coordination moderates the market orientation of participants and non-participants of the Farmer Business School. This is confirmed by Narver and Slater (1990) who noted that a market oriented cocoa farmer will quickly disseminate information among the various units or whoever needs it. This will help in developing services that will meet the

specific needs of the market. Large cocoa farms can involve several business units while the smaller farms may have it instantaneous. It is part of the inter-functional coordination activities of a market oriented cocoa farmer.

Perceived intelligence generation moderates the market orientation of participants and non-participants of the Farmer Business School. Market oriented cocoa farmers are more aggressive in gathering information through both customers and competitors (Narver & Slater, 1990).

The results suggest that perceived intelligence dissemination moderates the market orientation of participants and non-participants of the Farmer Business School. According to Narver and Slater (1990), market oriented cocoa farmers are more aggressive in spreading or disseminating information among their workers.

Finally, the results suggest that perceived market responsiveness moderates the market orientation of participants and non-participants of the Farmer Business School. This is seen in the fact that market oriented cocoa farmers may exploit market opportunities that present themselves by amending current services or by initiating new products or services (Kohli & Jaworski, 1990).

Test of perceived market orientation

Table 22 presents a comparison of the market orientation of the cocoa farmers (participants and non-participants).

Table 22: *Perceived Market Orientation*

Market Orientation	Mean	Std. Deviation
Participants	2.63	0.35
Non-participants	2.56	0.50

Source: Field Survey, Tham-Agyekum (2017)

The results show that participants are more market oriented (Mean=2.63; Standard Deviation=0.35) than the non-participants (Mean=2.56; Standard Deviation=0.50). While a mean score of 2.63 could be said to be moderate (participants), a mean of 2.56 could be also be said to be moderate (non-participants), although a little lower.

Cohen’s D was used to calculate the effect size for market orientation. The effect size was 0.08. Using Cohen (1988), it could be said that the effect size for perceived competency was small. The implication is that when the participants are compared to the non-participants, there was a small degree of change in their level of market orientation which made the participants better than the non-participants.

In Table 23, an independent samples t-test was conducted on the mean scores to compare the market orientation of the participants of the Farmer Business School and that of the non-participants.

Table 23: *Independent Sample T-Test of Market Orientation*

Independent Sample t test		Levene's Test for Equality of Variances		T-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Perceived Market Orientation	EVA	51.23	0.00	2.13	598	0.04	0.07	0.03	0.05	0.14

Table 23, continued

EVN	1.9	375.	0.0	0.07	0.04	-	0.1
A	5	43	5			0.0	5
						1	

Source: Field Survey, Tham-Agyekum (2017)

Note: EVA-Equal variances assumed, EVNA-Equal variances not assumed

There was a significant difference in the perceived market orientation for participants (Mean=2.52, Standard Deviation=0.39) and non-participants (Mean=2.38, Standard Deviation=0.54); $p < 0.05$. This result suggests that participation in the Farmer Business School has an effect on the market orientation of the cocoa farmers. So, for anyone who participates in the school, they are going to be more market oriented than those who do not participate.

In support of this result, Cohen (2010) found that firms that have participated in a programme that underpins financial values will be more market oriented than those who are their inexperienced rivals. In essence, cocoa farmers who have participated in the Farmer Business School programme are likely to be more market oriented than the non-participants. The reason is that they will be made more aware of the opportunities that can provide them superior value than their contemporaries and they will adopt such practices when they have perceived that it is relative advantageous to them.

Factors that Influence Market Orientation

In Table 24, the multinomial logistic regression model was used to describe and explain the relationship between the dependent nominal variable (level of market orientation) and the other independent variables (innovation characteristics, entrepreneurial proclivity, farmer characteristics and farm characteristics).

Table 24: *Multinomial Regression Model*

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	269.20			
Final	169.90	99.30	48	0.00

Source: Field Survey, Tham-Agyekum (2017)
Link function: Logit

The model above indicates the parameters of the model for which the model fit is calculated. The model fit is significant; chi-square=99.30, $p < 0.05$ and indicates that the full model predicts significantly better, or more accurately, than the null model. This means that the model is statistically significant.

The statistical significance is shown in two level of market orientation; moderate and high. Low level of market orientation was found to be not significant and so the details are not presented.

Table 25 presents the statistic of the significant parameters that were used to measure market orientation at a moderate level.

Table 25: *Parameter Estimates I (Moderate)*

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	15.59	2.99	27.09	1	0.00		
Household size-High	1.11	0.52	4.60	1	0.03	1.10	8.39
Farm size-High	1.04	0.46	5.17	1	0.02	0.14	0.87
Education=High	1.14	0.57	3.99	1	0.05	1.02	9.46

Table 25, continued

Off-farm income=Yes	-	0.52	5.37	1	0.02	0.11	0.83
	1.22						
Leadership=Yes	-	0.67	4.67	1	0.03	0.06	0.88
	1.45						
Farm credit=Yes	1.52	0.57	7.11	1	0.01	1.49	13.93
Training of farm workers=Yes	1.20	0.59	4.16	1	0.04	1.05	10.58

Source: Field Survey, Tham-Agyekum (2017)

The results show that at a moderate level of market orientation, household size, farm size, education, off-farm income, leadership, farm credit and training of workers are the factors that influence it ($p < 0.05$). The implication is that the mix of factors such as number of households, farm size, education, off-farm income, leadership, farm credit and training of workers will produce a moderate level of market orientation among cocoa farmers.

The results show that household size was significant ($p < 0.05$) as a factor in influencing a moderate level of market orientation among cocoa farmers. Those with larger household sizes are likely to be more market-oriented than those with relatively small household sizes. Households, especially large ones are cherished by cocoa farm families because of free access to family labour (Asamoah, 2015). Farmers will likely have to employ various strategies to increase their incomes and improve their livelihoods in order to be able to cater for such numbers in their households. Household size with members above eighteen years may influence the adoption of a new technology positively as its availability reduces the labour constraints (Gbegehn & Akubuilu, 2013).

The results show that farm size was significant ($p < 0.05$) as a factor in influencing a moderate level of market orientation among cocoa farmers. This means that the cocoa farmers with large farm sizes are likely to be more market-oriented than those who are smallholders. It is often assumed that large-scale farmers will be more likely to adopt and make use of a technology (Hailu *et al.*, 2014). For business reasons, cocoa farmers with large farm sizes will be more market oriented. This is because as they devote more of their total available land to cocoa cultivation, there is the likelihood that cocoa output and income would increase, enhancing the probability of technology adoption (Aneani *et al.*, 2012).

The results show that education was significant ($p < 0.05$) as a factor in influencing a moderate level of market orientation among cocoa farmers. This means that the cocoa farmers who have formal education are likely to be more market-oriented than those who have not received formal education. The more complex the technology, the more likely it is that education will play a role. This is because with higher level of education, the farmer would be in a position to technically and economically assess the new crop or technology to clear doubts and uncertainties associated with it and enhance its adoption (Aneani *et al.*, 2012). Literate farmers are more disposed to understand new ideas and concepts provided by extension workers and other informants. With the nature of the Farmer Business School, educational level of cocoa farmers needs to be high in order to imbibe its ideals, concepts and strategies (Al-Karablieh *et al.*, 2009).

The results show that off-farm income was significant ($p < 0.05$) as a factor in influencing a moderate level of market orientation among cocoa farmers. This

means that the cocoa farmers who participate and receive income from their off-farm activities are likely to be more market-oriented than their counterparts. Off-farm activities supplement the returns from on-farm. Therefore, participating in different off-farm activities can have a positive and significant relationship with the acceptance of new ideas (Hailu *et al.*, 2014).

The results show that leadership was significant ($p < 0.05$) as a factor in influencing a moderate level of market orientation among cocoa farmers. This means that the cocoa farmers who have ever taken up some form of leadership position in their community are likely to be more market-oriented than those who have never taken up leadership position. This assertion is supported by Rogers (2003) who indicated that an exposure to leadership positions serves as leverage for cocoa farmers to accept new ideas and work with them.

The results show that farm credit was significant ($p < 0.05$) as a factor in influencing a moderate level of market orientation among cocoa farmers. This means that the cocoa farmers who have ever accessed farm credit are likely to be more market-oriented than those who have never accessed farm credit. In a study by Hailu *et al.*, (2014), they confirmed that access to credit has a significant influence on adoption and use of an innovation. Access to credit influences a person's decision to adopt.

The results show that training was significant ($p < 0.05$) as a factor in influencing a moderate level of market orientation among cocoa farmers. This means that the cocoa farmers who engaged in training activities are likely to be more market-oriented than those who do not. The training programme is a way

the cocoa farmers can be exposed to new ideas for their farm business. Kundu and Roy (2010) and Talukder (2012) further explained that the training provides a favourable attitude towards the innovation, promotes greater understanding, more frequent use and more diverse use of applications. It helps farmers to handle the difficulties they encounter in their farm activities.

Table 26 presents the statistic of the significant parameters that were used to measure market orientation at a high level.

Table 26: *Parameter Estimates II (High)*

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Market Orientation=3	9.26	4.07	5.17	1	0.02	1.28	17.25
Entrepreneurial Proclivity=3	0.81	0.34	5.57	1	0.02	0.14	1.48
Innovation=2	-4.58	2.38	3.70	1	0.04	-9.25	0.09
Gender=Male	-0.54	0.24	4.96	1	0.03	-1.02	-0.07
Age=Adults	1.27	0.56	5.16	1	0.02	0.18	2.37
Tribe=Akans	-0.61	0.27	5.18	1	0.02	-1.13	-0.09
Religion=Christian	0.58	0.28	4.29	1	0.04	0.03	1.12
Farm Size=Low	-3.39	0.90	14.07	1	0.00	-5.16	-1.62
Farm Size=Mod	-3.01	0.97	9.57	1	0.00	-4.91	-1.10
Yield=1	1.47	0.70	4.46	1	0.04	0.11	2.85
Yield=2	1.54	0.61	6.41	1	0.01	0.35	2.73
Yield=3	2.54	0.60	17.94	1	0.00	1.37	3.72
Yield=4	2.29	0.59	15.02	1	0.00	1.13	3.44
Yield=5	1.59	0.63	6.27	1	0.01	0.34	2.83
Labour=Paid	0.70	0.26	7.26	1	0.01	0.19	1.21

Table 26, continued

Training=Yes	-1.86	0.31	35.37	1	0.00	-2.47	-1.25
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Source: Field Survey, Tham-Agyekum (2017)

The results show that at a high level of market orientation, entrepreneurial proclivity, innovation characteristics, gender, age, tribe, religion, farm size, yield, source of labour and training of workers are the factors that influence it ($p < 0.05$). The implication is that the mix of factors such as entrepreneurial proclivity, innovation characteristics, gender, age, tribe, religion, farm size, yield, source of labour and training of workers will produce a high level of market orientation among cocoa farmers.

The results show that entrepreneurial proclivity was significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. It was found that compared to other cocoa farmers, at least, a moderate level of entrepreneurial proclivity can influence a cocoa farmer to be market oriented. This result is confirmed by a study by Acheampong (2012) who found that there is a positive relationship between market orientation and entrepreneurial proclivity of firm owners. An entrepreneurial cocoa farmer is able to display innovativeness, proactiveness and risk-taking propensity that helps in taking strategic decisions that can produce an effective market orientation design (Weerawardena, 2003).

The result also show that the innovation characteristics were significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. This means that when the Farmer Business School is perceived at a low level of relative advantage, compatibility, complexity, trialability and observability, it can influence cocoa farmers to be more market-oriented.

However, more work needs to be done in the area of the Farmer Business School, such that it has to be fully tailored into the market orientation of the cocoa farmers. This means that, the current marketing system adopted by the COCOBOD for use by the cocoa farmers needs to be revised. This will affect the options that are available to cocoa farmers in terms of their customers, how they perceive their colleague farmers as competitors, coordinating activities across the different functions of their business entity, generating and disseminating information and being responsiveness to the cocoa market.

Gender was found as a significant ($p < 0.05$) factor in influencing a high level of market orientation among cocoa farmers. It was found that the male cocoa farmers were likely to be more market oriented as compared to their female counterparts. Female cocoa farmers can be targeted in programmes aimed at improving the market orientation of cocoa farmers. Using financial knowledge as a proxy for market orientation, Akoto (2015) found that male cocoa farmers were more likely to be knowledgeable in business than female farmers. According to Mandell (2008), the men mainly make the household's economic decisions and so it makes them more interested in issues related to their finances. They also tend to seek more information about finance issues than females. This makes the women less financially literate than the men (Almenberg & Säve-Söderbergh, 2011).

The study also found that age was significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. It was found that the adult cocoa farmers as compared to the youth and aged were more likely to be more market oriented. Worthington (2004) similarly found that among

Australians, those aged between 50 to 60 years were less financial literates while Cole and Fernando (2008) found those aged between 40 to 45 in India and Pakistan respectively to be less financial literates. In Akoto (2015) validated age of cocoa farmers as an important factor in predicting the likelihood of farmers' financial literacy.

The results show that tribe was significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. It was found that the Akans who formed the majority of the respondents were likely to be more market oriented than those from the other tribes. Lusardi and Mitchell (2006) also confirmed that a person's race or tribe is an influential factor in their level of market orientation.

Religion was significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. It was found that the Christians who formed the majority of the study population were more likely to be market oriented than those from the other religious affiliations. Similarly, Roccas (2005) indicated that there is the possibility of the relationship between religiosity and innovativeness of an individual. In a study by Sari (2015), a positive relationship was found between religion and adoption of technologies for the sample of Jews, Catholics and Protestants (Christians) selected for a study. However, among Muslims, a negative relationship was found due to the fact that they were significantly different in terms of ideology and religion philosophy. The reason is that those with high level of commitments to religious matters have a relatively

higher level of enthusiasm to adopt technologies than their counterparts who are not (Roccas, 2005).

The results show that farm size was significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. It was found that the cocoa farmers with farm sizes less than 21 acres were more likely to be market oriented. This means that the cocoa farmers with small farm sizes were more likely to be highly market oriented. It is rather expected that cocoa farmers with very large sizes of farm were to be more market oriented because they worked purposely for business reasons. This is confirmed by Akoto (2015) who indicated that cocoa farmers whose farm sizes were over 40 acres were more likely to be knowledgeable than farmers with farm sizes less than 40 acres. However, the reason for subsistent cocoa farmers to be more market oriented may be that their main concern was to feed their families with the income from their sales, hence, they will be aggressive in searching for ways to improve their productions.

The results show that yield was significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. It was found that all the levels of yield were significant in influencing the market orientation of the cocoa farmers. With positive estimates, it implies that the higher the yield, the higher the likelihood of the farmers' level of market orientation.

The results show that source of labour was significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. It was

found that the cocoa farmers that paid for labour were more likely to be more market oriented.

Training was found to be significant ($p < 0.05$) as a factor in influencing a high level of market orientation among cocoa farmers. It was found that the cocoa farmers that engaged in training activities are more likely to be market oriented. This goes to emphasize the fact that those who participated in the Farmer Business School were more likely to be more market oriented than those who did not.

Farmer Characteristics

This section of the study deals with the background information of the respondents.

Sex of Cocoa Farmers

Table 27 presents the gender of the respondents (cocoa farmers).

Table 27: Sex of Respondents

Sex	Frequency	Percent
Male	394	65.7
Female	206	34.3
Total	N 600 IS	100.0

Source: Field Survey, Tham-Agyekum (2017)

The study revealed that about 65.7% representing 394 farmers were males. In addition, about 34.3% of the respondents interviewed were females. This shows that majority of the cocoa farmers who were interviewed were males.

This is expected because the cultural setting in the country allows men to have easy access to land especially, where majority of them are the heads of their respective households. Other studies have similarly shown that majority of cocoa

farmers are males. For instance, in a study by Amoah (2013) in the Upper Denkyira West District, it was also found that out of the 150 farmers who were interviewed, 78.0% were male and 22.0% were female.

Another study by Aneani *et al.*, (2012) also showed that 80% of the interviewed cocoa farmers were males while 20.0 % were females. This goes to re-emphasise the notion that cocoa production is predominantly an occupation for men. However, as noted by WIEGO (2017), men and women are active participants in cocoa farming. Additionally, women often gain access to their farms as gifts from their family or husbands in order to provide a reliable or buffer income for the family.

Educational level

Table 28 presents the educational level of the respondents (cocoa farmers).

Table 28: *Educational Level of Respondents*

Educational Level	Frequency	Percent
No Formal Education	175	29.2
Basic School	263	43.8
Senior High School	106	17.7
Tertiary	56	9.3
Total	600	100.0

Source: Field Survey, (2017)

The study revealed that about 29.2% representing 175 farmers have had no formal education. In addition, about 43.8% of the respondents interviewed have had education up to the Basic School level, while 9.3% have had education up to the Tertiary level.

This shows that majority of the cocoa farmers have had some level of education. A closer observation at the results showed that over 70% of the cocoa

farmers interviewed were below Senior High School level. This shows that the educational level of most of the cocoa farmers interviewed was relatively low. This result is similar to a study by Obuobisa-Darko (2015) conducted in 5 regions of Ghana, where only 1% the farmers had tertiary education. Also, Baah and Asamoah (2005) found in the study that majority (71%) of the cocoa farmers in Ghana had up to basic education. All these prove the fact that, there is a relatively low level of education among cocoa farmers in Ghana.

Marital status

Table 29 presents the marital status of the respondents (cocoa farmers).

Table 29: *Marital Status of Respondents*

Marital Status	Frequency	Percent
Single	55	9.2
Married	435	72.4
Separated	43	7.2
Divorced	51	8.5
Widowed	16	2.7
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

The study revealed that about 9.2% farmers were single, 72.2% were married, 7.2% had separated, 8.5% had divorced while 2.7% were widowed.

This shows that majority of the cocoa farmers who were interviewed were married. Similar results were found by Ila *et al.*, (2012), where 68.5% of the farmers were married while 31.5% were single. Another study by Acquah (2017) had similar results where about 77% of the respondents were married. This implies that among cocoa farmers in Ghana, most of them are married and have extra responsibilities at home, aside their cocoa farming business.

Age of cocoa farmer

Table 30 presents the age of the respondents (cocoa farmers).

Table 30: *Age of Cocoa Farmer*

Age (Years)	Frequency	Percent
Young (< 41)	253	42.2
Adult (41-60)	309	51.5
Aged (> 60)	38	6.3
Total	600	100.0

Source: Field Survey, (2017)

Note: Mean=43.77 years; Standard Deviation=9.71

The study revealed that about 42.2% of the farmers were young (less than 41 years of age), 51.5% were adults (between the ages of 41 to 60 years) while 6.3% were aged (above 60 years).

This shows that majority (about 57%) of the cocoa farmers who were interviewed were relatively old since they were above the age of 40 years. The youngest cocoa farmer interviewed was 26 years old while the oldest cocoa farmer interviewed was 91 years. The mean age was 43.77 years with a standard deviation of 9.71. This means that, on the average, most of the cocoa farmers were adults while the standard deviation of the age indicates more deviation of the respondents in terms of their distribution around the mean age.

Confirming the results of this study, a publication by COCOBOD (2011) indicated that, Ghanaian farmers have almost always been old. Obuobisa-Darko (2015), Baah and Asamoah (2005) and Aneani *et al.*, (2012) noted that the average age of cocoa farmers was around 50 years. However, with a relatively youthful population of about 44 years, it gives bright hopes to the future of cocoa farming in Ghana. The youth being more energetic will be able to perform more

strenuous work and achieve much success in the cocoa farming business. Therefore, their interest and participation will be needed to give the industry a bright future.

Years of farming experience

Table 31 presents the years of farming experience of the respondents (cocoa farmers).

Table 31: *Years of Farming Experience*

Age (Years)	Frequency	Percent
Low (< 11)	288	48.0
Moderate (11-30)	292	48.7
High (> 30)	20	3.3
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

Note: Mean=14.10 years; Standard Deviation=7.93

The study revealed that about 48.0% of the farmers were lowly experienced (had been working in the cocoa sector for less than 11 years), 48.7% were moderately experienced (had worked between 11 and 30 years) while 3.3% were highly experienced (had worked more than 30 years). This shows that majority of the cocoa farmers who were interviewed were moderately experienced in their farming business. The cocoa farmer with the least working experience was 5 years while the cocoa farmer with the highest working experience was 43 years. The mean years of working experience was 14.10 years with a standard deviation of 7.93. This means that generally, cocoa farmers in Ghana are moderately experienced.

Similarly, Akoto (2015) found that the majority of the cocoa farmers (80%) in Assin Foso and Twifo Praso Districts had worked for over 5 years. A study by Ila *et al.*, (2012) showed that a very high proportion (99%) of the cocoa farmers had between five (5) and above thirty (30) years of experience in cocoa farming. The mean farming experience as found by Ntiamoah and Afrane (2008) was about 15 years. They further noted that farmers sometimes count more on their experience than educational attainment in order to increase their productivity. Another study by Aidoo and Fromm (2015) observed that the mean experience among cocoa farmers in the Ashanti region was 18 years. Djokoto *et al.*, (2016) also found the mean years of experience among Ghanaian cocoa farmers to be 18 years.

With a moderate level of farming experience in cocoa farming, it means that the cocoa farmers could count on their experience to help them.

Migration status

Table 32 presents the status of the respondents (cocoa farmers); whether they were migrants or indigene farmers. Migrant farmers are farmers who are seeking farm employment outside their place of birth.

Table 32: *Migration Status of Respondents*

Status	Frequency	Percent
Indigene	197	32.8
Migrant	403	67.2
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

The study revealed that about 67.2% of the farmers were migrant farmers while 32.8% were indigene farmers. This shows that majority of the cocoa farmers who were interviewed were migrant farmers.

Contrary results were found by Acquah (2017) who indicated that 58.9% of the respondents were indigenes (natives) while 41.1% were migrants. The situation as was found in this study was that most of the cocoa farmers had relocated to other regions in order to acquire a livelihood. For instance, in the Brong Ahafo, it was reported that most of the farmers had relocated to the Sefwi areas with the hope to acquiring new lands to produce cocoa. In a study by Hill (1963), it was noted that migrant cocoa farmers were uniformly capitalistic and embattled entrepreneurs. Some abandoned their home land where diseases had taken over and moved to new lands. In Côte d'Ivoire for instance, the practice helped promote cocoa expansion in the 1980's and 1990's. The practice of migrating for cocoa establishments as was found in this study could also become profitable for the cocoa industry (Woods, 2003).

Religion

Table 33 presents the religion of the respondents (cocoa farmers).

Table 33: *Religion of Respondents*

Religion	Frequency	Percent
Christian	410	68.3
Islam	131	21.8
Traditional	42	7.0
Others	17	2.8
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

The study revealed that about 68.3% were Christians, 21.8% were Islamic, 7.0% were Traditionalists while 2.8% represented other religions such as Bhuda, Hari Krishna and Atheists. This shows that majority of the cocoa farmers who were interviewed were Christians.

Similarly, Amoah (2013) found that the majority of the cocoa farmers that were interviewed were predominantly Christians (74.7%), with few of them in the Islamic Religion (14.7%) and the Traditional religion (10.7%). It is generally asserted that majority of the Ghanaian populace are Christians, therefore, it is likely that most of the cocoa farmers will be Christians.

Size of household

Table 34 presents the household sizes of the respondents (cocoa farmers).

Table 34: *Size of Household*

Size	Frequency	Percent
Small (1-5)	380	63.3
Medium (6-10)	198	33.0
Large (Above 11)	22	3.7
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

Note: Mean=5.28 years; Standard Deviation=2.66

The study revealed that about 63.3% of the farmers had a small household size (between 1 and 5), 33.0% had a medium household size (between 6-10) while 3.7% had a large household size (above 11). The minimum household size was 1 while the maximum was 20. The average household size was 5.28 with a standard deviation of 2.66. This shows that majority of the cocoa farmers who were interviewed had relatively small household sizes.

Similar to the results of this study, Obuobisa-Darko (2015) found that the average size of the cocoa household was approximately 5 while Effiong (2005) found the mean family size of the cocoa farmers to be 7. Contrary to the findings of this study, Asamoah (2015) asserted that traditionally, large household sizes were cherished by cocoa farm families because of free access to family labour. The study by Acquah (2017) found that the household size of cocoa farmers ranged from 1 to 26 household members.

Membership in FBO

Table 35 presents information on the cocoa farmer membership of Farmer Based Organisations.

Table 35: *Membership in FBO*

Response	Frequency	Percent
Yes	522	87.0
No	78	13.0
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

Table 35 revealed that about 87.0% of the farmers were members of various farmer groups while 13.0% were not. From the results above, it could be said that majority of the respondents belong to a farmer group. Participation in farmer groups offers many benefits. Conley and Udry (2010) indicated that the benefits include; increasing the capacity of the individual farmers to access information about current innovations, increasing individual farmers' awareness and adoption likelihood. Katungi (2006) added that group participation stimulates

information exchange among members as a result of each other's experience and knowledge.

Off-farm activities

Table 36 presents information on the cocoa farmer off-farm activities.

Table 36: *Off-farm Activities*

Response	Frequency	Percent
Yes	468	78.0
No	132	22.0
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

It was also realized that 78.0% of the farmers were engaged in off-farm income generating activities while 22.0% were not. With regards to the off-farm activities, the farmers mentioned activities such as trading, artisanry, teaching, banking, transport and others). From the results above, it could be said that majority of the respondents were engaged in off-farm income generating activities.

Davis (2003) stated that off-farm employment is an alternative source of income for farmers thus a way to boost rural economic activity and employment in many developing countries. Therefore, the large participation of the cocoa farmers in off-farm income generating activities will serve to boost their income and employment prospects. Engagement in off-farm employment means that most of them do not only rely on the proceeds they derive from their cocoa farms. The minor seasons therefore become active with various activities engaged in by the cocoa farmers.

Leadership position

Table 37 presents information on the involvement of cocoa farmers in leadership positions.

Table 37: *Leadership Positions*

Response	Frequency	Percent
Yes	129	21.5
No	471	78.5
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

The study revealed that 21.5% of the farmers were holding various leadership positions in their communities while 78.5% were not. From the results above, it could be said that majority of the farmers do not hold leadership positions in their communities.

The low level of community leadership participation among the cocoa farmers is not commendable. This is because, it may be difficult for them to advocate for their own needs and priorities and that of other cocoa farmers. Cocoa farmers can use their leadership positions in their various communities to influence the policies in the cocoa sector. They can begin by participating massively at local-level decision making meetings (O'Neil *et al.*, 2015).

Use of mobile phone

Table 38 presents information on the use of mobile phones by the cocoa farmers.

Table 38: *Use of mobile phone*

Response	Frequency	Percent
Yes	124	20.7
No	476	79.3
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

About 79.3% of the farmers use mobile phone in their farming activities while 20.7% do not. From the results above, it could be said that majority of the farmers do not use mobile phones.

In recent times, the use of mobile phone by farmers is being encouraged by many extension organisations. This is because, the use of mobile phones can help cocoa farmers to utilise most new technologies. This was attested by Boadi *et al.*, (2007), Ofosu-Asare (2011b) and Salia *et al.*, (2011). Farmers can get access to information, marketing activities and other relevant activities through the use of their mobile phones (Boadi *et al.*, 2007). The work by Ofosu-Asare's (2011b) found that cocoa farmers can use their mobile phones for activities such as arranging for inputs and contacting purchasing clerks.

Farm Characteristics

Farm size

Table 39 presents the farm size of the cocoa farms of the respondents (cocoa farmers).

Table 39: *Farm Size*

Size (Hectares)	Frequency	Percent
Small (Below 4.4)	516	86.0
Medium (4.4-8)	65	10.8
Large (Above 8)	19	3.2
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

Note: Mean=2.46 years; Standard Deviation=1.96

The study revealed that about 86.0% of the farmers had small sizes of farm (less than 4.4 hectares), 10.8% had medium farm sizes (between 4.4 and 8 hectares) while 3.2% had large farm sizes (above 8 hectares). The minimum farm size was 0.4 hectares while the largest was 12.8 hectares. The average farm size was 2.46 hectares with a standard deviation of 1.96. This shows that majority of the cocoa farmers who were interviewed had small sizes of farm lands.

The results are confirmed by Aneani *et al.*, (2012) who indicated that in Ghana, most cocoa farmers are small holders with a mean farm size of 3.0 ha. The farm sizes are therefore not large, implying that cocoa cultivation was dominated by small-scale farmers. The case of small land holdings by cocoa farmers in Ghana was also confirmed by Amoah (2013) and Obuobisa-Darko (2015) who found that cocoa farmers have an average farm size of 1.3ha and 4.9 acres respectively. Similarly, Akoto (2015) found that with regards to farm size, 60% of

cocoa farmers in Assin Foso and Twifo Praso Districts had farm sizes that were less than 10 acres.

Cocoa yield

Table 40 presents the cocoa yield of the respondents (cocoa farmers).

Table 40: *Cocoa Yield*

Yield (Kilograms/Hectare)	Frequency	Percent
Low (Below 400)	330	55.0
Moderate (400-500)	235	39.2
High (Above 500)	35	5.8
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

Note: Mean=325kg/ha; Standard Deviation=29.22

The study revealed that about 55.0% of the farmers had low yield (below 400kg/hectare), 39.2% had moderate yield (between 400 and 500 kg/hectare) while 5.8% of the cocoa farmers had high yield (above 500 kg/hectare). The mean yield is 325 kg/hectare with a minimum of 100kg/hectare, a maximum of 500kg/hectare and a standard deviation of 29.22.

The results suggest that majority of the cocoa farmers had low yield. This amount is relatively low, considering the fact that cocoa farmers are expected to produce at least 600kg/ha. The average yield of 325kg/ha is less than the expected Ghana's average cocoa yield estimate of above 500kg/ha (WCF, 2010). This assertion is also supported by Opoku-Ameyaw *et al.*, (2010) who indicated that the average yield of cocoa farmers was 400 kg/ha. However, they have a high potential of producing about 650 kg/ha and 1400kg/ha. In a study by Aikins (2014), it was found that the mean yield of cocoa per hectare was 491.80kg/ha. The minimum yield was 200kg/ha while the maximum was 1,280kg/ha.

Source of labour

Table 41 presents the source of labour used by the respondents (cocoa farmers).

Table 41: *Source of Labour of Respondents*

Source of Labour	Frequency	Percent
Family	270	45.0
Hired	209	34.8
Labour Exchange	121	20.2
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

The study revealed that about 45% of the farmers used family labour, 34.8% used hired labour while 20.2% used labour exchange (nnoboa). This shows that majority of the cocoa farmers who were interviewed used family labour.

The results show that cocoa farmers used three main kinds of labour on the farms; family, hired and labour exchange. Family labour seems to be the most commonly used labour among the cocoa farmers that were interviewed. This is because, it seems that the average cocoa farmer is usually not in a position to employ annual or seasonal labour. The family unit (wife, child, sister's son or daughter or of any other relation or dependent) serves as the strongest pillar for farm labour for most cocoa farmers.

Hired labour was also found to be used by the cocoa farmers. The hired labour used by the cocoa farmers was of three kinds; those who used casual labour (by day), full time labour and contract labour. The casual (by day) labour meant that the farmer recruited the labourer for a day's work on the farm, paid him the basic wage prevailing in the area and in some cases, provided him with

food and drink in the course of his work. Full time labour consisted of those who were recruited for the whole year or a season and received remuneration in cash plus other incentives such as food, clothing and shelter. The use of hired labour is becoming more urgent in recent times, owing to the competition for land. A farmer has to clear his acquired land within reasonable periods in order to avoid litigation and the bigger the farm, the more hired labour is needed to supplement family labour. However, the use of hired labour was a matter of the capacity to pay. With regard to contract labour, agreement is reached with a labourer or a group of labourers to do a specified piece of work for a specified cash payment (Hill, 1963).

Land tenure system

Table 42 presents the land tenure system used by the respondents (cocoa farmers).

Table 42: *Land Tenure System of Respondents*

Land Tenure System	Frequency	Percent
Outright Purchase	76	12.7
Rent	140	23.3
Share Cropping	253	42.2
Family Inheritance	131	21.8
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

The study revealed that about 12.7% of the farmers were using outright purchase (they bought their own lands for cocoa farming), 23.3% are renting the lands that they are using, 42.2% were using share cropping systems while 21.8% inherited their lands from their family. This shows that majority of the cocoa

farmers who were interviewed do not own personal lands. The sharecropping system is used by the majority of the cocoa farmers.

With access to land becoming a difficulty in recent times for farming purposes, majority of the cocoa farmers were found to have decided with land owners for the use of their lands for share cropping. This is confirmed by Acquah (2017) who noted that migrant farmers use other traditionally accepted means such as sharecropping to gain access to farm lands. Therefore, the majority of cocoa farms in Ghana operate under sharecropping arrangement.

The arrangements can be broken down into ‘*abunu*’ (50:50) where the sharecropper brings the entire farm to maturity within a specified period and produce shared between the sharecropper and the landlord or ‘*abusa*’ (1/3:2/3) the landowner establishes the farm while the sharecropper maintains the entire farm and produce shared (Kasanga & Kotey, 2001).

Age of cocoa farms

Table 43 presents the age of the cocoa farms of the respondents (cocoa farmers).

Table 43: *Age of Cocoa Farms*

Age (Years)	Frequency	Percent
Young (<8)	205	34.2
Matured (8-30)	379	63.1
Aged (>30)	16	2.7
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

Note: Mean=11.10 years; Standard Deviation=6.97

The study revealed that about 34.2% of the lands being used by the farmers are young (less than 7 years), 63.1% of the cocoa farms were categorized

as matured while 2.7% indicated that their lands were aged (over 30 years old). This shows that majority of the cocoa farmers who were interviewed had matured farms. The minimum age of the cocoa farmers was 6 years and the highest was 34 years. The average age of the cocoa farm was 13.10 years with a standard deviation of 6.97. This shows that, on the average, most of the cocoa farms were matured. However, there was more deviation of the cocoa farms in terms of their distribution around the mean age of the cocoa farms.

This case is very good for the cocoa industry since it seems that most of the lands being cultivated now are in their peak ages. However, as noted by Aneani *et al.*, (2012), there is the likelihood that the output / yield would decline with the aging of the cocoa farms.

Farm registration

Table 44 presents information on whether the farms of the cocoa farmers have been registered by the Registrar General's Department or not.

Table 44: *Farm registration*

Response	Frequency	Percent
Yes	9	1.5
No	591	98.5
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

About 98.5% of the farmers have not registered their farm lands with the Registrar General Department while only 1.5% have registered their farm lands. From the results above, it could be said that majority of the farmers were found

not to have registered their farm business with the Registrar General's Department.

In Ghana, business entities are expected to be registered with the Registrar General's Department. However, the case as found among majority of the cocoa farmers is that over 90% of them had not registered their farm businesses. This could be explained by the fact that they do not perceive their cocoa farms to be business entities, hence, they do not bother to register and pay the necessary tax. In migrating towards a market orientation by the cocoa farmers, it is necessary that they take farm registration seriously. This is because it is one of the requirements for securing grants with sponsoring organisations.

Access to farm credit

Table 45 presents information on whether the cocoa farmers have ever accessed farm credit.

Table 45: *Access to Farm Credit*

Response	Frequency	Percent
Yes	359	59.8
No	241	40.2
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

About 59.8% of the farmers had access to farm credit while 40.2% do not. From the results above, it could be said that majority of the farmers have access to farm credit. Ofuoku *et al.*, (2006) mentioned access to credit, inputs and aids from government and extension services as benefits that farmers in groups get access to.

Majority of the cocoa farmers had access to farm credit. Contrary to the findings of this study, Asamoah (2015) found that about majority (71%) of her respondents had no access to credit. Philemon (2008) also recorded low access to farm credit. Access to farm credit has always been a challenge among farmers. Formal credit is a real challenge while informal credit from friends, family, loans and savings firms is easier to acquire. The scope for this study in terms of access to farm credit included formal and informal. Hence, the higher percentage of access to farm credit by the cocoa farmers.

Training of farm workers

Table 46 presents information on whether the cocoa farmers train their farm workers.

Table 46: *Training of Farm Workers*

Response	Frequency	Percent
Yes	171	28.5
No	429	71.5
Total	600	100.0

Source: Field Survey, Tham-Agyekum (2017)

About 28.5% of the farmers train their farm workers while 71.5% do not train their farm workers. From the results above, it could be said that majority of the farmers do not train their farm workers.

Majority of the cocoa farmers do not offer training to their workers. It seems that most of them assume that their workers already know what they were about, hence, no training for them. However, training of farm workers is

necessary in order to improve their knowledge, attitude, skills and aspirations in the cocoa industry.

Entrepreneurial Proclivity

This section of the study deals with the entrepreneurial proclivity of the cocoa farmers.

Innovativeness

Table 47 presents the innovativeness scores of the cocoa farmers in market orientation.

Table 47: *Innovativeness*

Measure	Mean	Std. Dev.
a. I always try to apply new techniques in the performance of my farm activities	3.64	1.04
b. I spend a lot of time thinking about starting another business	3.66	1.09
c. I always seek to improve on the quantity and quality of my cocoa	3.69	1.08
d. I tend to do things that other cocoa farmers do not do	3.69	1.09
e. I favour my own unique ways in solving my farm problems than using already established strategies	3.77	1.11

Source: Field Survey, Tham-Agyekum (2017)

The lowest score for innovativeness was “I always try to apply new techniques in the performance of my farm activities” (Mean=3.64, Standard Deviation=1.04) while the highest score for innovativeness was “I favour my own unique ways in solving my farm problems than using already established strategies (Mean=3.77, Standard Deviation=1.11). This means that majority of the cocoa farmers do not always try to apply new techniques in the performance of

my farm activities. Also, majority of the cocoa farmers favour their own unique ways in solving my farm problems than using already established strategies.

From the results in Table 47, it could be seen that all the indicators used in measuring the innovativeness of the cocoa farmers were above 3.5. This suggests that the level of innovativeness of the cocoa farmers was high. With all the standard deviations greater than 1, it means that there is a general disagreement (more deviation) among the respondents in terms of their distribution around the mean.

The findings of the study imply that cocoa farmers seek creative or unusual solutions to their farm problems and needs (Okpara, 2009). The high level of innovativeness found in this study is also confirmed in another study by Tham-Agyekum (2012) found that the innovative behaviour of majority of the farmers (89%) interviewed were at the moderate level and beyond, meaning that farmers' level of innovative behaviour was relatively high. Nossal (2011) also measured the innovative level of grain growers in Australia and found that most of them (55%) had a moderate level and beyond. The implication from the results is that, cocoa farmers explore opportunities, generate new ideas and always plan towards implementing change (Zhou & Shalley, 2003).

Risk taking

Table 48 presents the risk-taking scores of the cocoa farmers in market orientation.

Table 48: *Risk Taking*

Measure	Mean	Std. Dev.
a. I prefer to take actions even when I know it is risky	3.54	1.14
b. I am always among the first to try any new cocoa technique	3.56	1.13
c. I adopt a bold posture in making decisions for my cocoa farm	3.64	1.08
d. I am willing to invest time/money on something that might yield a high return	3.69	1.11
e. I prefer to 'step up' and get things going rather than sit and wait for someone else to do it	3.76	1.14

Source: Field Survey, Tham-Agyekum (2017)

The lowest score for risk taking was “I prefer to take actions even when I know it is risky” (Mean=3.54, Standard Deviation=1.14) while the highest score for risk taking was “I prefer to ‘step up’ and get things going rather than sit and wait for someone else to do it (Mean=3.76, Standard Deviation=1.14). This means that majority of the cocoa farmers do not prefer to take actions even when they know it is risky. Also, majority of the cocoa farmers prefer to step up and get things going rather than sit and wait for someone else to do it.

From the results in Table 48, it could be seen that all the indicators used in measuring the risk taking of the cocoa farmers were above 3.5. This suggests that the level of risk taking by the cocoa farmers was high. The level of risk taking by the cocoa farmers was high, meaning that, most of the cocoa farmers prefer to

‘step up’ and get things going rather than sit and wait for someone else to do it. There is therefore a relatively high level of willingness of the cocoa farmers to commit significant resources for opportunities in the face of uncertainty (Kropp *et al.*, 2006).

Proactiveness

Table 49 presents the proactiveness scores of the cocoa farmers in market orientation.

Table 49: *Proactiveness*

Measure	Mean	Std. Dev.
a. I usually act in anticipation of future problems, needs or changes	3.35	1.08
b. I spot good opportunities for cocoa farmers earlier than other farmers do	3.36	1.02
c. I am constantly looking out for new ways to improve my cocoa farm	3.44	1.07
d. I tend to plan ahead on my farm activities	3.45	1.13
e. I respond to changes in the cocoa business more rapidly than others do	3.66	1.13

Source: Field Survey, Tham-Agyekum (2017)

The lowest score for proactiveness was “I usually act in anticipation of future problems, needs or changes” (Mean=3.35, Standard Deviation=1.08) while the highest score for risk taking was “I respond to changes in the cocoa business more rapidly than others do” (Mean=3.66, Standard Deviation=1.13). This means that majority of the cocoa farmers do not usually act in anticipation of future problems, needs or changes. Also, majority of the cocoa farmers respond to changes in the cocoa business more rapidly than others do.

From the results in Table 49, it could be seen that most of the indicators used in measuring the proactiveness of the cocoa farmers were below 3.5. This suggests that the level of proactiveness by the cocoa farmers was high.

The implication of this result is that the cocoa farmers take initiatives emphasizing on expectation and seizing opportunities in new markets. They are the first to enter the market and this can result in market dominance, higher profitability, customer loyalty and larger market shares (Wiklund & Shepherd, 2003).

Innovation Characteristics of the Farmer Business School

This section of the study deals with the innovation characteristics of the Farmer Business School.

Relative advantage

Table 50 presents the mean scores for the relative advantage characteristic of the Farmer Business School innovation.

Table 50: *Relative Advantage*

Measure	Mean	Std. Dev.
a. Diversification strategies is better than doing only cocoa farming	3.94	0.98
b. Keeping farm records is better than my keeping information in memory	3.94	0.99
c. Savings with credible banks is better than keeping money at home	3.95	0.99
d. Measuring plots with simple tools is better than using 'eye' estimates	3.96	1.03
e. Obtaining loan guaranty helps in securing loans from banks	3.97	0.99

Table 50, continued

f. Profit and loss analysis helps to know money in/money out	4.02	1.00
g. Collective action is better than doing sole business	4.06	1.00
h. Operating the financial calendar is better than working a work plan	4.08	0.98
i. Meeting the criteria for good quality cocoa is better than producing cocoa without any quality standards	4.12	1.02

Source: Field Survey, Tham-Agyekum (2017)

The lowest score for relative advantage was “Diversification strategies are better than doing only cocoa farming” (Mean=3.94, Standard Deviation=0.98) while the highest score for relative advantage was “Meeting the criteria for good quality cocoa is better than producing cocoa without any quality standards” (Mean=4.12, Standard Deviation=1.02). In terms of the relative advantage of the Farmer Business School over previous innovations, majority of the cocoa farmers perceive that meeting the criteria for good quality cocoa is better than producing cocoa without any quality standards. These quality standards are the things that were discussed during the Farmer Business School.

It could also be seen from the table that all the indicators used in measuring the relative advantage of the Farmer Business School as an innovation were above 3.5. This suggests that the level of relative advantage of the innovation was high. Since majority of the standard deviations are less than 1, it means that there is a general agreement (less deviation) of the respondents in terms of their distribution around the mean.

With a high level of relative advantage, cocoa farmers can be rest assured that they are going to greatly benefit from it. In support of this result, Liao and Lu (2008) indicated that relative advantage is one of the best predictors of an innovations perception of adoption. Joo and Kim (2008) also added that it is positively related to adoption and awareness. Therefore, with a high level of relative advantage of the Farmer Business School innovation, it means that the Farmer Business School is relatively advantageous.

Compatibility

Table 51 presents the mean scores for the compatibility characteristic of the Farmer Business School innovation.

Table 51: *Compatibility*

Measure	Mean	Std. Dev.
a. Keeping farm records is similar to other methods I used previously	3.39	1.22
b. FBO collective action is similar to our communal way of life	3.51	1.15
c. I feel comfortable diversifying into other businesses	3.53	1.03
d. The criteria for good quality cocoa fits into how I want to see my cocoa	3.55	1.07
e. Profit and loss analysis fits how I want to manage my finances	3.59	1.12
f. I feel comfortable operating the financial calendar	3.62	1.09
g. I am already used to the culture of savings	3.63	1.14
h. I feel comfortable measuring my farm with simple tools	3.64	1.12
i. Obtaining loan guaranty is not against our traditional customs	3.67	1.12

Source: Field Survey, Tham-Agyekum (2017)

The lowest score for compatibility was “Keeping farm records is similar to other methods I used previously” (Mean=3.39, Standard Deviation=1.22) while

the highest score for compatibility was “Obtaining loan guaranty is not against our traditional customs” (Mean=3.67, Standard Deviation=1.12). This means that the area of the Farmer Business School which was the most compatible innovation was obtaining loan guaranty. Respondents claimed that it is not against their traditional customs.

It could be seen that majority of the indicators used in measuring the compatibility of the Farmer Business School as an innovation were above 3.5. This suggests that the level of compatibility of the innovation was relatively high. Since all the standard deviations are more than 1, it means that there is a general disagreement (more deviation) of the respondents in terms of their distribution around the mean.

With a high level of compatibility of the Farmer Business School, it means that it is highly compatible with their social norms or culture. Sarel and Marmorstein (2003) showed that an innovation which is incompatible with the social values and beliefs of the people will not be adopted as rapidly as an innovation that is compatible. Since the Farmer Business School is compatible with the needs of the people, uncertainty will decrease and the awareness and adoption of the innovation will increase.

Complexity

Table 52 presents the mean scores for the complexity characteristic of the Farmer Business School innovation.

Table 52: *Complexity*

Measure	Mean	Std. Dev.
a. I had no difficulty operating the financial calendar	1.75	0.88
b. I had no difficulty in participating in FBO collective action	1.76	0.89
c. I had no difficulty conducting profit and loss analysis	1.79	0.91
d. I had no difficulty meeting the criteria for good quality cocoa	1.81	0.92
e. I had no difficulty in measuring my farm with simple tools	1.87	0.93
f. I had no difficulty saving with a bank	2.03	0.75
g. I had no difficulty diversifying into other businesses	2.06	0.76
h. I had no difficulty obtaining loan guaranty	2.12	0.75
i. I had no difficulty in keeping farm records	2.16	0.96

Source: Field Survey, Tham-Agyekum (2017)

The lowest score for complexity was “I had no difficulty operating the financial calendar” (Mean=1.75, Standard Deviation=0.88) while the highest score for complexity was “I had no difficulty in keeping farm records” (Mean=3.67, Standard Deviation=1.12). This means that the area of the Farmer Business School which was the most complex innovation was operating the financial calendar. From the results, it could be seen that all the indicators used in measuring the complexity of the Farmer Business School as an innovation were below 2.5. This suggests that the level of complexity of the innovation was high. Since all the standard deviations are less than 1, it means that there is a general

agreement (less deviation) of the respondents in terms of their distribution around the mean.

The high level of complexity found in this study means that it was difficult for the participants to understand and apply the innovation on their cocoa farms. When members of a social system find an idea simpler to understand or apply, they adopt that idea more rapidly (Rogers, 2003). Hence, it could be said that a low level of complexity could lead to higher adoption rate (Sarel & Marmorstein, 2003).

Observability

Table 53 presents the mean scores for the observability characteristic of the Farmer Business School innovation.

Table 53: *Observability*

Measure	Mean	Std. Dev.
a. I saw others save with credible banks	2.05	0.90
b. I saw others obtaining loan guaranty	2.09	0.89
c. I saw others measure their plot with simple tools	2.67	1.06
d. I saw others operating the financial calendar	2.74	1.08
e. I saw others keep farm records	2.81	0.94
f. I saw others conduct profit and loss analysis	2.90	0.77
g. I saw others diversifying into other businesses	3.43	0.99
h. I saw others interested in FBO collective action	4.00	0.86
i. I saw others meet the criteria for good quality cocoa	4.78	0.43

Source: Field Survey, Tham-Agyekum (2017)

The lowest score for observability was “I saw others save with credible banks” (Mean=2.05, Standard Deviation=0.90) while the highest score for observability was “I saw others meet the criteria for good quality cocoa”

(Mean=4.78, Standard Deviation=0.43). This means that the area of the Farmer Business School which was the most observable innovation was the ability of the cocoa farmers to see other cocoa farmers meet the criteria for good quality cocoa. Most of the indicators used in measuring the observability of the Farmer Business School were below 3.0. This suggests that the level of observability of the innovation was relatively low.

According to Chigona and Licker (2008), innovations that are easier to observe and communicate are rapidly adopted than those that are difficult to observe or described to others. Hence, it could be said that the higher the observability, the higher the adoption rate. With a low level of observability of the Farmer Business School, it means that the participants did not see or observe the benefits of the innovation before they adopted it. The implication is that the rate of adoption could become low and as time goes on, some may drop the innovation for another.

Trialability

Table 54 presents the mean scores for the trialability characteristic of the Farmer Business School innovation.

Table 54: *Trialability*

Measure	Mean	Std. Dev.
a. I measured small plots with simple tools before doing it on a large scale	1.84	0.86
b. I operated the financial calendar before using it	2.23	1.34
c. I tried keeping farm records before using it	2.94	1.17
d. I tried obtaining a loan guaranty before adopting it	2.95	1.20
e. I partook in FBO collective action before using it	2.99	1.19
f. I tried a diversification strategy before adopting it	3.04	1.16

Table 54, continued

g. I conducting a profit and loss analysis before using it	3.05	1.24
h. I saved with a bank before adopting it		
i. I tried meeting the criteria for good quality cocoa before using it	3.09	1.19
	4.25	0.79

Source: Field Survey, Tham-Agyekum (2017)

The lowest score for trialability was “I measured small plots with simple tools before doing it on a large scale” (Mean=1.84, Standard Deviation=0.86) while the highest score for trialability was “I tried meeting the criteria for good quality cocoa before using it” (Mean=4.25, Standard Deviation=0.79). This means that the area of the farmer business school which was the most trialable innovation was the fact that the cocoa farmers were able to try meeting the criteria for good quality cocoa before using it.

From the results, it could be seen that most of the indicators used in measuring the trialability of the Farmer Business School as an innovation were around 2.5. This suggests that the level of trialability of the innovation was moderate. Since majority of the standard deviations are greater than 1, it means that there is a general disagreement (more deviation) of the respondents in terms of their distribution around the mean.

A moderate level of trialability of the Farmer Business School means that the participants moderately experimented the ideas taught at the School. It could also mean that the cocoa famers could not adequately experiment the innovation before finally adopting it. Rogers (2003) argued that farmers would feel more comfortable to adopt innovations if they are able to experiment the ideas. Furthermore, Vigneri (2008) indicated that trialability would have offered the

cocoa farmers the opportunity to evaluate innovation benefits. If they were given that opportunity, it would have allayed their fears and given them confidence to implement the ideas taught at the School.

Innovation characteristics

Table 55 presents summarized mean scores of the characteristics of the Farmer Business School as an innovation.

Table 55: *Innovation Characteristics*

Measure	Minimum	Maximum	Mean	Std. Dev.
a. Complexity	1	3	1.93	0.47
b. Trialability	1	4	2.93	0.65
c. Observability	2	3	3.05	0.28
d. Compatibility	1	5	3.57	0.84
e. Relative Advantage	1	5	4.00	0.77

Source: Field Survey, Tham-Agyekum (2017)

NB: 1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High

The scores are as follows; relative advantage (Mean=4.00, Standard Deviation=0.77); compatibility (Mean=3.57, Standard Deviation=0.84); observability (Mean=3.05, Standard Deviation=0.28); trialability (Mean=2.93, Standard Deviation=0.65); complexity (Mean=1.93, Standard Deviation=0.47).

This means while the Farmer Business School was perceived as relatively advantageous to the cocoa farmers who participated, it is also highly complex to use. Since all the standard deviations are less than 1, it means that there is a general agreement (less deviation) of the respondents in terms of their distribution around the mean.

Rogers (1983) considers the above-mentioned characteristics as key the features in the rate of adoption of an innovation (Farmer Business School) by cocoa farmers. From the results, it could be said that in terms of the characteristics of the Farmer Business School as an innovation, its strongest area is in its relative advantage. This is followed by compatibility, observability, trialability and complexity. Relative advantage is the degree to which an innovation is perceived as being superior to other similar innovations (Chigona & Licker, 2008). This means that the participant cocoa farmers perceive that the Farmer Business School will offer better solutions to their existing problems and present them with new production opportunities (Mndzebele, 2013).

A study by Farquharson *et al.*, (2013) also found that relative advantage was highly significant in the adoption intention decision. In terms of innovation characteristics, relative advantage was most important. With respect to relative advantage Pannell *et al.*, (2006) noted that among those farmers with a focus on profit, the farm-level economics of a proposed practice will be important.

Livelihood Outcomes

This section deals with the livelihood outcomes or assets of the cocoa farmers.

Natural capital

Table 56 presents the natural capital scores as an indicator for measuring the livelihood of the cocoa farmers.

Table 56: *Natural Capital*

Measure	Mean	Std. Dev.
Farm lands	2.83	1.41
Farm animals	2.92	1.45
Cocoa farm size	3.18	1.28
Yield per hectare	3.25	1.29
Quality of cocoa beans	4.91	0.52

Source: Field Survey, Tham-Agyekum (2017)

The scores are as follows; farm lands (Mean=2.83, Standard Deviation=1.41); farm animals (Mean=2.92, Standard Deviation=1.45); cocoa farm size (Mean=3.18, Standard Deviation=1.28); yield per acre (Mean=3.25, Standard Deviation=1.29); quality of cocoa beans (Mean=4.91, Standard Deviation=0.52). This shows that farm lands are the least natural capital of the cocoa farmers and quality of cocoa beans are the highest natural capital of the cocoa farmers.

In another study by Bosompem *et al.*, (2011), they also found that the natural capital of cocoa farmers was highly manifested in the quality of beans (Mean=3.77, Standard Deviation=0.84). The least of their natural capital was found in their yield per unit cost of inputs (Mean=3.38, Standard Deviation=0.88).

This goes to confirm the fact that the natural capital of cocoa farmers is highly manifested in terms of the quality of their cocoa beans.

Physical capital

Table 57 presents the physical capital scores as an indicator for measuring the livelihood of the cocoa farmers.

Table 57: *Physical Capital*

Measure	Mean	Std. Dev.
Ownership of Cutlass(es)	2.55	1.25
Ownership of Harvester(s)	2.56	1.34
Ownership of Sprayer(s)	2.57	1.31
Ownership of Pruner(s)	2.62	1.38
Ownership of Basket(s)	2.71	1.28
Ownership of Raffia Mat(s)	2.74	1.34

Source: Field Survey, Tham-Agyekum (2017)

The scores are as follows; ownership of Cutlass(es) (Mean=2.55, Standard Deviation=1.25); ownership of Harvester(s) (Mean=2.56, Standard Deviation=1.34); ownership of Sprayer(s) (Mean=2.57, Standard Deviation=1.31); ownership of Pruner(s) (Mean=2.62, Standard Deviation=1.38); ownership of Basket(s) (Mean=2.71, Standard Deviation=1.28); ownership of Raffia Mat(s) (Mean=2.74, Standard Deviation=1.34).

From the results, it could be said that in terms of the physical capital of the cocoa farmers, ownership of cutlasses was the least while majority of the cocoa farmers had raffia mats.

In another study by Bosompem *et al.*, (2011), they also found that the physical capital of cocoa farmers was highly manifested in the ownership of harvesters (Mean=3.77, Standard Deviation=1.05). The least of their physical

capital was found in their access to sprayers (Mean=3.31, Standard Deviation=0.93).

Human capital

Table 58 presents the human capital scores as an indicator for measuring the livelihood of the cocoa farmers.

Table 58: *Human Capital*

Measure	Mean	Std. Dev.
Access to private extension services (e.g. NGOs)	2.75	1.30
Ability to register household on NHIS	2.98	1.19
Payment of children's school fees	2.99	1.27
Access to labour	3.10	1.27
Access to COCOBOD extension services	3.13	1.28

Source: Field Survey, Tham-Agyekum (2017)

The scores are as follows; Access to private extension services (e.g. NGOs) (Mean=2.75, Standard Deviation=1.30); ability to register household on NHIS (2.98, 1.19); payment of children's school fees (Mean=2.99, Standard Deviation=1.27); access to labour (Mean=3.10, Standard Deviation=1.27); access to COCOBOD extension services (Mean=3.13, Standard Deviation=1.28). From the results, it could be said that in terms of the human capital of the cocoa farmers, access to private extension services was the least while access to COCOBOD extension services was the highest.

Bosompem *et al.*, (2011) conducted a study and found that the human capital of cocoa farmers was highly manifested in their access to public extension services (e.g. AEAs) (Mean=3.44, Standard Deviation=0.97). The least of their human capital was found in their access to skilled labour (Mean=3.06, Standard

Deviation=0.97). The implication is that there is a high level of access to public extension services (COCOBOD, MoFA) in Ghana.

Financial capital

Table 59 presents the financial capital scores as an indicator for measuring the livelihood of the cocoa farmers.

Table 59: *Financial Capital*

Measure	Mean	Std. Dev.
Farm Insurance	1.01	0.16
Credit facility	2.65	1.25
Debt levels	2.77	1.26
Level of savings	2.80	1.23
Non-farm income	2.80	1.28
Cocoa farm income per season	3.00	1.27

Source: Field Survey, Tham-Agyekum (2017)

The scores are as follows; farm Insurance (2.09, 0.98); credit facility (2.65, 1.25); debt levels (2.77, 1.26); level of savings (2.80, 1.23); non-farm income (2.80, 1.28); cocoa farm income per season (3.00, 1.27). From the results, it could be said that in terms of the financial capital of the cocoa farmers, farm insurance was the least while cocoa farm income was the highest. This implies that the financial capital of cocoa farmers is mainly in their income from cocoa sales.

Income from cocoa sales was found to be the highest financial capital of the cocoa farmers. A study by Bosompem *et al.*, (2011) found that about 92% of the respondents have had a considerable increment in their income under the cocoa innovation for livelihood project for their cocoa. This is because they were given higher amount for the cocoa they sold. Meanwhile, Valerie *et al.*, (2013)

noted that cocoa farmers in Ghana actually receive a low price for selling their cocoa. The view is to maintain the price should the world market price fall. However, this is rather depriving them of the fruit of their hard work.

Bosompem *et al.*, (2011) conducted a study and found that the financial capital of cocoa farmers was highly manifested in their debt levels (Mean=3.44, Standard Deviation=1.16). The least of their financial capital was found in their level of savings (Mean=3.16, Standard Deviation=1.20). This means that the cocoa farmers have debts to live with while they are also not able to do much savings.

Social capital

Table 60 presents the social capital scores as an indicator for measuring the livelihood of the cocoa farmers.

Table 60: *Social Capital*

Measure	Mean	Std. Dev.
Payment of development levy	3.95	0.79
Trust in community leaders	3.96	0.81
Access to community information	4.01	0.76
Support from farmer group/associations	4.03	0.76
Participation in communal activities	4.10	0.75

Source: Field Survey, Tham-Agyekum (2017)

The scores are as follows; payment of development levy (Mean=3.95, Standard Deviation=0.79); trust in community leaders (Mean=3.96, Standard Deviation=0.81); access to community information (Mean=4.01, Standard Deviation=0.76); support from farmer group/associations (Mean=4.03, Standard Deviation=0.76); participation in communal activities (Mean=4.10, Standard Deviation=0.75). From the results, it could be said that in terms of the social

capital of the cocoa farmers, payment of development levy was the least while participation in communal activities was the highest.

In a similar study by Bosompem *et al.*, (2011), they found that the social capital of cocoa farmers was highly manifested in their membership to association or farmer group (Mean=3.41, Standard Deviation=0.98). The least of their social capital was found in their support to friends (Mean=2.65, Standard Deviation=0.95).

Livelihood outcomes

Table 61 presents the mean statistics of the livelihood outcomes of the cocoa farmers.

Table 61: *Livelihood Outcomes*

Measure	Minimum	Maximum	Mean	Std. Dev.
Financial capital	1	4	2.51	0.73
Physical capital	1	5	2.62	0.99
Human capital	1	5	2.98	0.90
Natural capital	2	5	3.42	0.82
Social capital	2	5	4.01	0.55

Source: Field Survey, Tham-Agyekum (2017)

From the results, it could be said that in terms of the livelihood outcomes of the cocoa farmers, their financial capital was the lowest (Mean=2.51, Standard Deviation=0.73) while their social capital was the highest (Mean=4.01, Standard Deviation=0.55). The level of social capital and natural capital of the cocoa farmers were found to be high. Human capital (Mean=2.98, Standard Deviation=0.90), physical capital (Mean=2.62, Standard Deviation=0.99) and natural capital (Mean=3.42, Standard Deviation=0.82) were found to be moderate.

Contrary to the findings of this study, Bosompem *et al.*, (2011) in a study that ranked the livelihood outcomes of cocoa farmers found that social capital was the least (Mean=3.02, Standard Deviation=0.62) while natural capital was the highest (Mean=3.51, Standard Deviation=0.83).

Effect of Market Orientation on Livelihood Outcomes

In Table 62, a multiple linear regression was conducted to test the effect of the various market orientation indicators (independent variables) on the livelihood outcomes (dependent variables) of the cocoa farmers. The coefficients of the independent variables are explained.

Table 62: Multiple Linear Regression Coefficients

Model	Unstandardized		Standardized	t	Sig.
	Coefficients				
	B	Std. Error			
(Constant)	1.22	0.19		6.50	0.00
Customer emphasis	0.22	0.05	0.19	4.31	0.00
Competitor orientation	0.10	0.06	0.08	1.76	0.08
Inter-functional coordination	0.19	0.06	0.13	3.10	0.00
Intelligence generation	-0.05	0.05	-0.06	-0.94	0.35
Intelligence dissemination	0.21	0.04	0.30	5.06	0.00
Market responsiveness	-0.05	0.05	-0.04	-0.87	0.39

Source: Field Survey, Tham-Agyekum (2017)
 Note: R=0.46; R²=0.22; Adj. R²=0.21; F=27.11

This result suggests that market orientation indicators have positive effect on the livelihood outcomes of the cocoa farmers, and statistically significant at 5% significant level. The regression coefficient of determination shows that the market orientation indicators accounts for only 22% of the differences in livelihood outcomes. Using Cohen's F-square, the effect size calculated was 0.28 which can be interpreted as a medium effect (Cohen, 1988). This explains that the degree of change that could be observed among the participants of the Farmer Business School was 28% more than the non-participants.

A previous study seems to give credence to the fact that there is a robust positive relationship between market orientation and business performance as depicted in this study. McNaughton *et al.*, (2002) stated that the market orientation of cocoa farmers has an influence on their livelihood outcomes of cocoa farmers. When business performance is used as a proxy for livelihood outcomes, it can be concluded that the market orientation of the cocoa farmers has an effect on their livelihood outcomes.

Market orientation indicators, thus, customer emphasis, inter-functional coordination and intelligence dissemination were found to have positive significant effect on livelihood outcomes of the cocoa farmers at 5% level of significance. This means that an increase in market orientation (customer emphasis, inter-functional coordination and intelligence dissemination) would result in an increase in the livelihoods of the cocoa farmers. Thus, cocoa farmers with high market orientation practice would perform well in the market place, thereby ensuring the long-term survivability of their farm businesses.

The implication of this result is that the customer section of the cocoa marketing system needs to be regulated in a way different from the current module where only COCOBOD enjoys the monopoly. For the livelihood of the cocoa farmer to be affected in a positive way, they need to be given various purchasing and exporting options which will then breed competition and further, produce superior value for the market. Cocoa farmers need to be oriented to perceive their farming activities as business entities and handle them in such manner, thereby, making inter-functional coordination and the dissemination of information across the business entity important and relevant.

Dawes (2000) and Kumar, Jones, Venkatesan and Leone (2011) also found that market orientation had a positively significant effect on an organisation's profitability (financial capital). In Ghana, Boohene *et al.*, (2012) also established a positive relationship between market orientation and financial performance of small businesses in the Takoradi Metropolis. Adjei-Ababio (2011) also found that market orientation shows large positive and significant relationship with the performance (livelihood) of manufacturing SMEs ($p < 0.00$). Mahmoud (2011) also found a positive relationship between market orientation and performance (livelihood) of SMEs in Accra and Tema in Ghana.

Effect of the Farmer Business School on the Perceived Livelihood of the Cocoa Farmers

Table 63 presents the mean perceived livelihood scores of the cocoa farmers (participants and non-participants of the farmer business school).

Table 63: *Livelihood Capital*

Livelihood capital	Participants	Non-Participants
	Mean (Std. Dev.)	Mean (Std. Dev.)
a. Financial capital	2.60 (0.72)	2.36 (0.72)
b. Physical capital	2.80 (0.96)	2.33 (0.98)
c. Human capital	3.18 (0.94)	2.65 (0.73)
d. Natural capital	3.62 (0.75)	3.09 (0.82)
e. Social capital	4.04 (0.54)	3.95 (0.57)

Source: Field Survey, Tham-Agyekum (2017)

The results show that participants (Mean=3.62, Standard Deviation=0.75) have a higher natural capital than the non-participants (Mean=3.09, Standard Deviation=0.82). Participants (Mean=2.80, Standard Deviation=0.96) have a higher physical capital than the non-participants (Mean=2.33, Standard Deviation=0.98). Participants (Mean=3.18, Standard Deviation=0.94) have a higher human capital than the non-participants (Mean=2.65, Standard Deviation=0.73). Participants (Mean=3.60, Standard Deviation=0.72) have a higher financial capital than the non-participants (Mean=2.36, Standard Deviation=0.72). Participants (Mean=4.04, Standard Deviation=0.54) have a higher social capital than the non-participants (Mean=3.95, Standard Deviation=0.57).

In Table 64, an independent samples t-test was conducted to test if there was a significant difference between the mean perceived livelihood of the participants and the non-participants of the Farmer Business School.



Table 64: Independent Sample T-Test of Livelihood Outcomes

Independent Sample t test	Levene's Test for Equality of Variances		T-test for Equality of Means							
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% Confidence Interval of the Diff	Lower	Upper
Natural capital	4.19	0.04	8.069	598	0.00	0.53	0.07	0.39	0.66	0.66
EVNA			7.91	453.55	0.00	0.53	0.07	0.39	0.66	0.66
Physical capital	0.03	0.85	5.782	598	0.00	0.47	0.08	0.31	0.63	0.63
EVA			5.76	478.98	0.00	0.47	0.08	0.31	0.63	0.63
Human capital	11.19	0.00	7.26	598	0.00	0.53	0.07	0.38	0.66	0.66
EVA			7.70	570.40	0.00	0.53	0.07	0.39	0.66	0.66
Financial capital	1.32	0.25	3.92	598	0.00	0.24	0.06	0.12	0.36	0.36
EVA			3.93	487.36	0.00	0.24	0.06	0.12	0.36	0.36
Social capital	0.01	0.95	1.89	598	0.06	0.09	0.05	-0.00	0.18	0.18
EVA			1.86	463.81	0.06	0.09	0.05	-0.01	0.18	0.18

Source: Field Survey, Tham-Agyekum (2017)
 Note: EVA=Equal variances assumed; EVNA=Equal variances not assumed

There was a significant difference in the natural capital scores for participants and non-participants ($p < 0.05$). There was a significant difference in the physical capital scores for participants and non-participants ($p < 0.05$). There was a significant difference in the human capital scores for participants and non-participants ($p < 0.05$). There was a significant difference in the financial capital scores for participants and non-participants ($p < 0.05$).

These results suggest that participation in the Farmer Business School has an effect on the livelihood outcomes of the cocoa farmers. So, for anyone who participates in the Farmer Business School, they are going to have improved livelihood outcomes than those who do not participate. In effect, the Farmer Business School has improved four aspects of the livelihood of the cocoa farmers; natural, physical, human and financial.

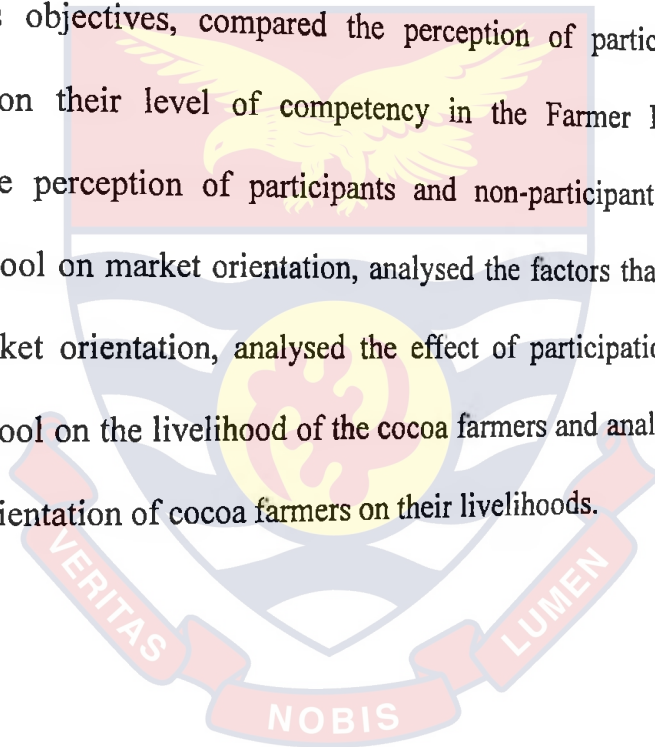
In agreement, Bosompem *et al.*, (2011) in a study that looked at the impact of a programme on the livelihood of cocoa farmers and found that the impact of the programme on their 'overall' livelihoods was 'average' (Mean=3.32, Standard Deviation=0.66), implying that the level of impact though high, was not as high as they anticipated. They further found that farmers generally perceived impact on physical (Mean=3.51, Standard Deviation=0.81) and natural capital (Mean=3.51, Standard Deviation=0.84) to be 'high'. The programme, therefore, improved the two immediate aspects of livelihood (natural and physical) more than the rest.

In Ghana, about 30-75% used the business tools they were taught even after two years and this was reported to have increased cocoa yields of between 40-100% and even higher increases in non-cocoa income. The high adoption rates

for the business tools taught led to significantly higher cocoa yields (33-50% increase on average) (GIZ, 2015).

Chapter Summary

Chapter four presented the analysis and discussion of the results. The analysis and discussion were performed on the key research objectives set for the study. Specifically, it analysed data on the perceptions of participant cocoa farmers on the effectiveness of the Farmer Business School programme towards achieving its objectives, compared the perception of participants and non-participants on their level of competency in the Farmer Business School, compared the perception of participants and non-participants of the Farmer Business School on market orientation, analysed the factors that influence cocoa farmers' market orientation, analysed the effect of participation in the Farmer Business School on the livelihood of the cocoa farmers and analysed the effect of the market orientation of cocoa farmers on their livelihoods.



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Chapter five presents a summary of the findings, conclusions drawn from the findings, appropriate recommendations toward a sustainable application of market orientation principles by cocoa farmers in Ghana and finally suggested other areas for further studies.

Summary

The purpose of the study was to ascertain the effect of market orientation on the livelihoods of cocoa farmers in Ghana, using the Farmer Business School as a case study. To achieve the main objective, the following specific objectives were set; ascertain the perceptions of participant cocoa farmers on the effectiveness of the Farmer Business School programme towards achieving its objectives; compare the perception of participants and non-participants on their level of competency in the Farmer Business School, compare the perception of participants and non-participants of the Farmer Business School on market orientation; analyse the factors that influence cocoa farmers' market orientation and analyse the effect of participation in the Farmer Business School on the livelihood of the cocoa farmers.

Specifically, the study used the descriptive survey design. The population consisted of all cocoa farmers from the six Cocoa Regions in Ghana. Structured questionnaires were administered to a sample of 600 cocoa farmers (participants and non-participants of the Farmer Business School) who were selected through

the multi-stage sampling technique. Descriptive and inferential statistical tests were performed on the data collected.

The first objective sought to find out the perceptions of cocoa farmers on the effectiveness of the Farmer Business School programme towards achieving its objectives. Results showed that the mean effectiveness of the Farmer Business School was 4.07, implying that the Farmer Business School was highly effective. The test statistic “improving sustainability of farm activities” was statistically significant ($p < 0.05$).

The second objective was set to compare the perceived level of competency of participants and non-participants in the Farmer Business School. Results of the study showed that the participants of the Farmer Business School perceived that they had a higher knowledge (Mean=4.07, Standard Deviation=3.12) than the non-participants (Mean=3.12, Standard Deviation=0.49), better attitude (Mean=3.68, Standard Deviation=0.62) than the non-participants (Mean=2.77, Standard Deviation=0.44) and better skills (Mean=4.21, Standard Deviation=2.74) than the non-participants (Mean=2.74, Standard Deviation=0.59). There was a significant difference in the perceived knowledge, perceived attitude and perceived skills between the participants and the non-participants ($p < 0.05$). There was also a significant difference in the perceived competency between the participants and the non-participants ($p < 0.05$).

The third objective was set to compare the perception of participants and non-participants of the Farmer Business School on market orientation. There was a statistically significant difference in the competitor orientation, inter-functional

coordination, intelligence generation and market responsiveness between participants and non-participants ($p < 0.05$). Generally, there was a statistically significant difference in the perceived market orientation between participants and non-participants ($p < 0.00$).

The fourth objective was set to determine the factors that influence cocoa farmers' market orientation. The results showed that entrepreneurial proclivity, innovation characteristics, gender, age, tribe, religion, farm size, yield, source of labour and training of workers were statistically significant ($p < 0.05$) as factors that influenced a high level of perceived market orientation among cocoa farmers. Also, number of households, farm size, education, off-farm income, leadership, farm credit and training of workers were statistically significant ($p < 0.05$) as factors that influenced a moderate level of perceived market orientation among cocoa farmers.

The fifth objective sought to determine the effect of the market orientation of cocoa farmers on the livelihoods of farmers. The results showed that there was a significant difference between the market orientation of cocoa farmers and their livelihood outcomes ($p < 0.05$). Customer emphasis ($p < 0.05$), inter-functional coordination ($p < 0.05$) and intelligence dissemination ($p < 0.05$) were the main constructs or factors that had a significant effect on the livelihoods of cocoa farmers.

The sixth objective sought to determine the effect of the Farmer Business School on the livelihood of the cocoa farmers. The study found that there was a

significant difference in the natural capital, physical capital, human capital and financial capital scores for participants and non-participants ($p < 0.05$).

Conclusions

First of all, all the objectives set for the Farmer Business School were found to be effective. The implication is that all the objectives were achieved. More importantly, the Farmer Business School will help to improve the sustainability of the activities of cocoa farmers.

Secondly, the Farmer Business School has the potential to improve the knowledge, attitude and skills of participants in business and entrepreneurial activities. The implication is that the module could be further advanced as a tool to improve the competency of cocoa farmers in other important areas of their farm businesses.

Thirdly, participation in the Farmer Business School was successful in enhancing the competitor orientation, inter-functional coordination, intelligence generation, intelligence dissemination and market responsiveness of the cocoa farmers.

In order to ensure a high level of market orientation among cocoa farmers in Ghana, the following factors were found to be key promoters; entrepreneurial proclivity, innovation characteristics, gender, age, tribe, religion, farm size, yield, source of labour and training of workers.

Market orientation has an effect on the livelihood outcomes of the cocoa farmers. Customer emphasis, inter-functional coordination and intelligence dissemination are the key market orientation factors that regulate the livelihood of

cocoa farmers. Thus, cocoa farmers with a high market orientation practice would perform well in the market place, thereby ensuring the long-term survivability of the businesses.

Finally, participation in the Farmer Business School had an effect on the livelihood outcomes of the cocoa farmers. So, for anyone who participated in the Farmer Business School, they are going to have improved livelihood outcomes than those who do not participate. This was manifested in four key aspects of the livelihood of the cocoa farmers; natural, physical, human and financial capitals.

Recommendations

Based on the conclusions drawn for the study, the following are the recommendations;

1. Since only “improving sustainability of farm activities” was found to be statistically significant, the study recommends that COCOBOD needs to pay more attention to constant training activities, assisting farmers to earn more profits and access farm services and helping them relate with industry actors.
2. COCOBOD should possibly extend the Farmer Business School to all cocoa farmers in the country since it had the potential of making the participants have improved knowledge, attitude and skills and were more market oriented as compared to the non-participants.
3. As a matter of a paradigm shift in policy, the Government of Ghana in collaboration with the relevant cocoa stakeholders should still put up programmes and activities that will further improve the situation of low

market orientation among the cocoa farmers. The current restrictions and limitations being placed on the Ghanaian cocoa farmer could be the reason for this situation. The flexibility could be in terms of allowing more purchasing and exporting options to the cocoa farmers so as to create some reasonable level of competition among the cocoa farmers. It will serve to boost the individual farmers' motivation for the cocoa business. With that done, cocoa farmers will compete for superior values, place high priority in satisfying their customers, coordinating the various functions within the farm entity, generate and disseminate intelligence, more market responsive and handle their farming activity as a business entity.

4. In terms of the factors that influence the market orientation of the cocoa farmers, COCOBOD can promote activities that will aim to boost the entrepreneurial abilities of the cocoa farmers. The Farmer Business School module needs to be revised in terms of its complexity of usage. It will go a long way to influence the uptake of the innovation. Women cocoa farmers, young and aged cocoa farmers, non-Akan cocoa farmers, non-Christian cocoa farmers, cocoa farmers with large farm sizes, non-paid farm labour users and cocoa farmers who do not engage in training need to be targeted and given more attention to boost their market orientation. Training activities could focus on these groups of cocoa farmers.
5. Since it was found that market orientation has an effect on the livelihood outcomes of the cocoa farmers, the study recommends that COCOBOD needs to revise its Farmer Business School module to fully cater for the

necessary contextualised areas of market orientation such as customer emphasis, competitor orientation, inter-functional coordination, intelligence gathering, intelligence dissemination and market responsiveness. The wholesale lifting of the module as applied in other countries to Ghana will not achieve full success.

6. Participation in the Farmer Business School was seen to influence the livelihood of the cocoa farmers in terms of their natural, physical, human and financial capitals. This means that the Farmer Business School did not influence the social capital/dimensions of the cocoa farmers. The study therefore recommends the formation of strong cooperatives among cocoa farmers. It will help them take advantage of their bargaining power for inputs, selling outputs, access to market information and credits. They can also facilitate farmer participation in the reform process towards trade liberalisation.

Suggestions for further research

Future studies in the area of the Farmer Business School could look into the following;

1. Examine the factors that affect the effectiveness of the Farmer Business School programme.
2. Examine the factors that account for the competencies (knowledge, attitude, skills) of the cocoa farmers in the Farmer Business School programme.

3. Examine the market orientation of other crop farmers such as grain farmers, tuber farmers, fruits and vegetable farmers in order to improve the general framework of agriculture in the country.
4. Explore other farmer characteristics and farm characteristics that could influence the market orientation of the cocoa farmers.
5. This whole study could be taken in a qualitative sense/approach. It may produce interesting and in-depth insights that were not found in this quantitative study. More insights could also be derived from a mixed approach.
6. Since Ghana and La Côte d'Ivoire operate different marketing systems, a comparative study with the two countries as case study will be interesting.
7. Instead of focussing on the 'with/without' phenomenon, another study could look at the 'before/after' phenomenon and focus only on the participants of the Farmer Business School. A more interesting study could look at both scenarios, compare and contrast the methodologies and propose a better phenomenon of the two that will be more suitable for the Farmer Business School.

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APPENDIX A

Questionnaire for Participants of the Farmer Business School

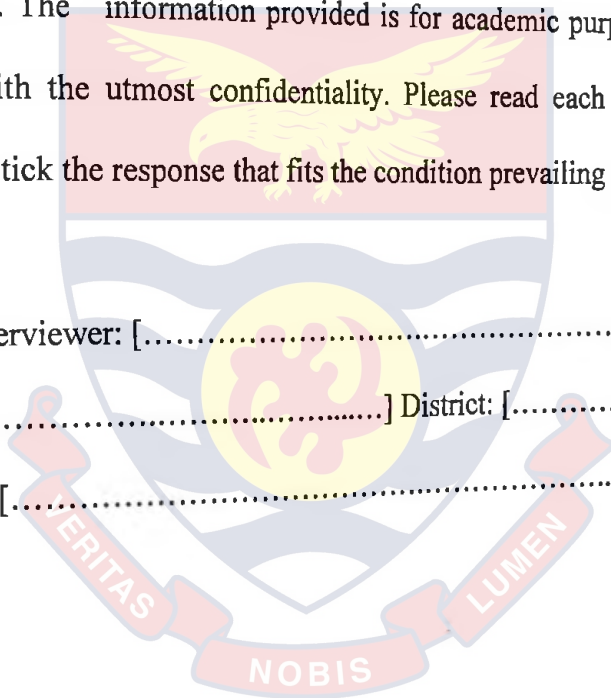
Introduction

My name is Enoch Kwame Tham-Agyekum. I am in the final stages of my PhD studies at the Department of Agricultural Economics and Extension, University of Cape Coast. I am researching into the Market Orientation of Cocoa Farmers in Ghana and would appreciate it if you could take some time to answer the attached questionnaire. The information provided is for academic purpose only and will be treated with the utmost confidentiality. Please read each of the statements carefully and tick the response that fits the condition prevailing in your farm.

Initials of Interviewer: [.....]

Region: [.....] District: [.....]

Community: [.....]



Part I: perceptions on the effectiveness of the farmer business school

1. Rate your responses on the extent of the effectiveness of the farmer business school compared to the objectives planned on a scale of 1 to 5 where 1-Very Ineffective, 2-Ineffective, 3-Moderate, 4-Effective, 5-Very Effective.

Objectives	Rate
a. Promotion of farmers' skill	
b. Improving profits from farm work	
c. Improving relationship with farm actors (extension agents, input dealers, LBCs, NGOs, service providers etc.)	
d. Improving sustainability of farm activities	
f. Improving access to cocoa farm services	
g. Improving the use of cocoa services	

Part II: level of perceived competency in the farmer business school

2. Rate yourself on the following attributes of knowledge on business and entrepreneurship? Use a scale of 1 to 5 where 1-No Knowledge, 2-Very low, 3-Low, 4-High, 5-Very High

Knowledge	Rate
a. I can differentiate between commercial agriculture and other businesses	
b. I am familiar with profit and loss analysis	
c. I understand the cocoa financial calendar	
d. I know the importance of savings	

e. I know the importance of farm credit	
f. I know the benefits of reimbursing credits	
g. I know the conditions involved in dealing with financial service providers	
h. I know the criteria used for selecting quality cocoa	
i. I know the factors that make farmer organisations succeed	
j. I know the obligations of membership in FBO	
k. I know the benefits of collective business actions	
l. I know the ways to improve my cocoa production	
m. I know the investment needs of my farm business	

3. Rate yourself on the following attributes of attitude on business and entrepreneurship? Use a scale of 1 to 5 where 1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly agree

Attitude	Rate
a. I see myself as an entrepreneur	
b. I see my farm as a business	
c. Standard plot measurements are used for farm negotiations	
d. Recording of money inflows/outflows helps in managing my money	
e. Diversification helps me to manage risks	
f. I spend my money carefully	
g. I save my money for future needs	
h. I stick to my original objective of taking farm credits	

i. I play a key role in ensuring quality of my cocoa beans	
j. Collective action helps me to get better prices	
k. Trust is needed for governance of FBO	
l. I see replanting/planting as an investment	
m. Record keeping helps me to evaluate my business	

4. Rate yourself on the following attributes of skills on business and entrepreneurship? Use a scale of 1 to 5 where 1-No Skill, 2-Very low, 3-Low, 4-High, 5-Very High

Skills	Rate
a. Fill a simple cropping calendar	
b. Measure a plot with simple tools	
c. Calculate money out/money in	
d. Determine profit/loss of my farm business	
e. Use the financial calendar to plan my farm/household expenditure	
f. Manage financial deficits and surpluses	
g. Obtain a guaranty for a loan	
h. Manage savings and reimburse a loan	
i. Produce good quality cocoa following COCOBOD techniques	
j. Contribute to strengthen FBO in business	
k. Assess a cooperative business opportunity	
l. Bargaining new farm opportunities	
m. How to access cocoa farm support services	

Part III: cocoa farmers' perceived market orientation

5. Rate the extent to which you undertake the following in your farm business on the 5-point Likert scale; Very low=1, Low=2, Moderate=3, High=4, Very high=5

PERCEIVED MARKET ORIENTATION INDICATORS		Rate
i. Customer Emphasis		
a. I encourage LBCs comments		
b. I consult LBCs to improve my activities with them		
c. I know the quality criteria used by LBCs in purchasing		
d. I look for ways to satisfy the needs of the LBCs		
e. I treat LBCs as business partners		
f. I incorporate LBC comments into farm operations		
ii. Competitor Orientation		
a. I know whether other farmers are open to LBC complaints		
c. I know whether other farmers meet the LBCs quality criteria		
c. I know whether LBCs buying from other farmers are satisfied		
d. I monitor LBCs buying from other farmers		
iii. Inter-Functional Coordination (COCOBOD, LBCs, NGOs, service providers, input dealers, workers etc.)		
a. I coordinate meetings to discuss market trends with key actors		
b. I discuss the future needs of my farm with key actors		
c. I have a cordial working relationship with key actors		
d. I coordinate activities that are aimed at training my farm workers		
iv. Intelligence Generation		

a. I meet with LBCs to find out their future needs	
b. I search for information on cocoa market trends	
c. I assess LBCs perception on the quality of my cocoa beans	
d. I quickly detect changes in my farm operations	
e. I attend extension meetings to get information on new cocoa technologies	
v. Intelligence Dissemination	
a. I inform my workers about my activities with LBCs	
b. I inform LBCs on issues affecting my farm operations	
c. Information on LBCs' satisfaction is disseminated to all workers	
d. When I find out something about other farmers, I inform my workers	
e. I inform LBCs on issues relevant to their relationship with me	
vi. Market Responsiveness	
a. I make new offers based on world market prices of cocoa	
b. I venture into other business opportunities as back up in the minor season	
c. I choose the best purchasing packages from the LBCs	
d. I ensure my new business opportunities do not conflict with my work as a cocoa farmer	
e. When I come up with any new business strategy, it is implemented in timely fashion	

Part IV: factors that influence farmers' market orientation

6. Entrepreneurial Proclivity

Indicate the extent to which you would rate yourself on a scale of 1 to 5 where 1-Very low, 2-Low, 3-Moderate, 4-High, 5-Very High

i. Innovativeness	
a. I favour my own unique ways in solving my farm problems than using already established strategies	
b. I spend a lot of time thinking about starting another business	
c. I always seek to improve on the quantity and quality of my cocoa	
d. I always try to apply new techniques in the performance of my farm activities	
e. I tend to do things that other cocoa farmers do not do	
ii. Risk Taking	
a. I prefer to take actions even when I know it is risky	
b. I am willing to invest time/money on something that might yield a high return	
c. I am always among the first to try any new cocoa technique	
d. I prefer to 'step up' and get things going rather than sit and wait for someone else to do it	
e. I adopt a bold posture in making decisions for my cocoa farm	
iii. Proactiveness	
a. I respond to changes in the cocoa business more rapidly than others do	

b. I spot good opportunities for cocoa farmers earlier than other farmers do	
c. I am constantly looking out for new ways to improve my cocoa farm	
d. I usually act in anticipation of future problems, needs or changes	
e. I tend to plan ahead on my farm activities	

7. Innovation Characteristics

i. To what extent do you perceive the following innovations recommended at the farmer business school to be better than previous innovations on a scale of 1 to 5 where 1-Very low, 2-Low, 3-Moderate, 4-High, 5-Very High

Relative Advantage	Rate
a. Measuring plots with simple tools is better than using 'eye' estimates	
b. Operating the financial calendar is better than working without a work plan	
c. Profit and loss analysis helps to know money in/money out	
d. Savings with credible banks is better than keeping money at home	
e. Obtaining loan guaranty helps in securing loans from banks	
f. Meeting the criteria for good quality cocoa is better than producing cocoa without any quality standards	
g. Collective action is better than doing sole business	
h. Diversification strategies is better than doing only cocoa farming	
i. Keeping farm records is better than my keeping information in memory	

ii. To what extent are the following innovations recommended at the farmer business school consistent with your existing values and needs on a scale of 1 to 5 where 1-Very low, 2-Low, 3-Moderate, 4-High, 5-Very High

Compatibility	Rate
a. I feel comfortable measuring my farm with simple tools	
b. I feel comfortable operating the financial calendar	
c. Profit and loss analysis fits how I want to manage my finances	
d. I am already used to the culture of savings	
e. Obtaining loan guaranty is not against our traditional customs	
f. The criteria for good quality cocoa fits into how I want to see my cocoa	
g. FBO collective action is similar to our communal way of life	
h. I feel comfortable diversifying into other businesses	
i. Keeping farm records is similar to other methods I used previously	

iii. To what extent were the following innovations recommended at the farmer business school difficult to understand and use on a scale of 1 to 5 where 1-Very low, 2-Low, 3-Moderate, 4-High, 5-Very High

Complexity	Rate
a. I had no difficulty in measuring my farm with simple tools	
b. I had no difficulty operating the financial calendar	
c. I had no difficulty conducting profit and loss analysis	
d. I had no difficulty saving with a bank	

e. I had no difficulty obtaining loan guaranty	
f. I had no difficulty meeting the criteria for good quality cocoa	
g. I had no difficulty in participating in FBO collective action	
h. I had no difficulty diversifying into other businesses	
i. I had no difficulty in keeping farm records	

iv. To what extent were the benefits of the following innovations recommended at the farmer business school visible to you on a scale of 1 to 5 where 1-Very low, 2-Low, 3-Moderate, 4-High, 5-Very High

Observability	Rate
a. I saw others measure their plot with simple tools	
b. I saw others operating the financial calendar	
c. I saw others conduct profit and loss analysis	
d. I saw others save with credible banks	
e. I saw others obtaining loan guaranty	
f. I saw others meet the criteria for good quality cocoa	
g. I saw others interested in FBO collective action	
h. I saw others diversifying into other businesses	
i. I saw others keep farm records	

v. To what extent were the following innovations recommended at the farmer business school experimented with on a small scale on a scale of 1 to 5 where 1-Very low, 2-Low, 3-Moderate, 4-High, 5-Very High

Triability	Rate
a. I measured small plots with simple tools before doing it on a large scale	
b. I operated the financial calendar before using it	
c. I conducting a profit and loss analysis before using it	
d. I saved with a bank before adopting it	
e. I tried obtaining a loan guaranty before adopting it	
f. I tried meeting the criteria for good quality cocoa before using it	
g. I partook in FBO collective action before using it	
h. I tried a diversification strategy before adopting it	
i. I tried keeping farm records before using it	

8. Farmer Characteristics

- i. What is your sex? a. Male b. Female
- ii. What is your age? [.....] years
- iii. What is your highest education level?
 - a. No formal education
 - b. Basic School
 - c. Senior High School
 - d. Tertiary
- iv. How long have you been working as a farmer? [.....] years

- v. What is your marital status? a. Single b. Married c. Divorced
d. Separated e. Widowed
- vi. What tribe do you come from? a. Ashanti b. Fanti c. Bono
d. Sefwi e. Kwahu f. Akyem g. Ewe h. Others [.....]
- vii. What is your religion? a. Christian b. Moslem c. Traditional
- viii. Are you a member of a farmer group? a. Yes b. No
- ix. If yes, how many farmer groups are you in? [.....]
- x. How many people are in your household? [.....]
- xi. Do you engage in off-farm income-generation activities? a. Yes b. No
- xii. If yes, please state [.....]
- xiii. Do you hold any leadership position in the community? a. Yes b. No
- xiv. Are you an indigene or a migrant farmer? a. Indigene b. Migrant
- xv. Do you use mobile phone for your farm activities? a. Yes b. No

9. Farm Characteristics

- i. What is the size of your cocoa farm? [.....]
- ii. How many bags of cocoa do you get per year? [.....]
- iii. What is your farm income per year? [.....]
- iv. How old is your cocoa farm? a. Class A: 0-7 years [.....] b. Class B: 8-15 years [.....] c. Class C: 16-30 years [.....] d. Class D: Over 30 years [.....]
- v. Is your farm registered with the Registrar General's Department? a. Yes
b. No
- vi. How many cocoa farms do you have? [.....]

- vii. Have you ever accessed farm credit? a. Yes [] b. No []
- viii. What are your sources of labour for the farm? a. Family labour []
 b. Hired labour [] c. Labour exchange [] d. Others (specify) [.....]
- ix. Do you organize training programmes for your farm workers? a. Yes []
 b. No []
- x. What land tenure system are you operating on? a. Outright purchase
 [] b. Rent [] c. Share cropping [] d. Family Inheritance [] e. Others [.....]

Part V: livelihood outcomes

10. Please indicate the extent to which your livelihood has changed (before and after the farmer business school) using the actuals or relative measures of the following underlisted aspects of your livelihood.

Livelihood Outcomes	Rate
i. Natural Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Yield per acre	
b. Quality of cocoa beans	
c. Cocoa farm size	
d. Farm animals	
e. Farm lands	
ii. Physical Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Ownership of Sprayer(s)	
b. Ownership of Harvester(s)	
c. Ownership of Pruner(s)	

d. Ownership of Cutlass(es)	
e. Ownership of Raffia Mat(s)	
f. Ownership of Basket(s)	
iii. Human Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Access to labour	
b. Access to COCOBOD extension services	
c. Access to private extension services (e.g. NGOs)	
d. Ability to register household on NHIS	
e. Payment of children's school fees	
iv. Financial Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Farm Insurance	
b. Level of savings	
c. Debt levels	
d. Credit facility	
e. Cocoa farm income per season	
f. Non-farm income	
v. Social Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Payment of development levy	
b. Participation in communal activities	
c. Trust in community leaders	
d. Access to community information	
e. Support from farmer group/associations	

THANK YOU!!!

APPENDIX B

Questionnaire for Non-Participants of the Farmer Business School

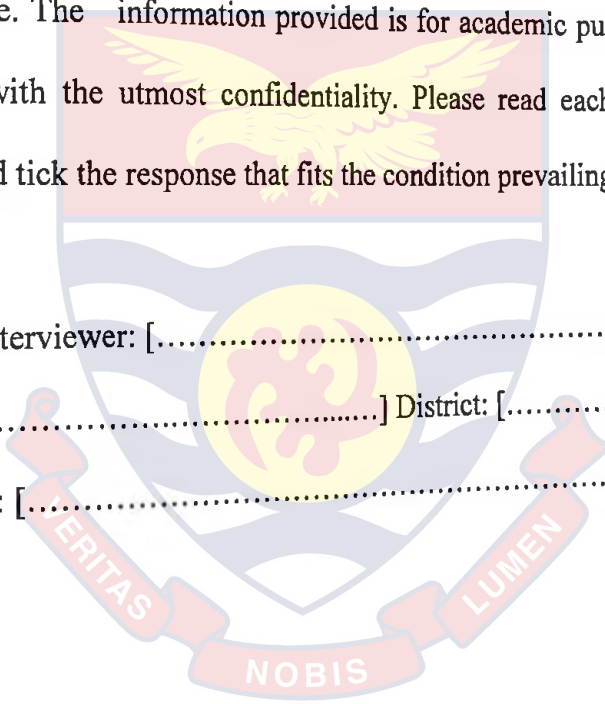
Introduction

My name is Enoch Kwame Tham-Agyekum. I am in the final stages of my PhD studies at the Department of Agricultural Economics and Extension, University of Cape Coast. I am researching into the Market Orientation of Cocoa Farmers in Ghana and would appreciate it if you could take some time to answer the attached questionnaire. The information provided is for academic purpose only and will be treated with the utmost confidentiality. Please read each of the statements carefully and tick the response that fits the condition prevailing in your farm.

Initials of Interviewer: [.....]

Region: [.....] District: [.....]

Community: [.....]



Part I: level of perceived competency in the farmer business school

1. Rate yourself on the following attributes of knowledge on business and entrepreneurship? Use a scale of 1 to 5 where 1-No Knowledge, 2-Very low, 3-Low, 4-High, 5-Very High

Knowledge	Rate
a. I can differentiate between commercial agriculture and other businesses	
b. I am familiar with profit and loss analysis	
c. I understand the cocoa financial calendar	
d. I know the importance of savings	
e. I know the importance of farm credit	
f. I know the benefits of reimbursing credits	
g. I know the conditions involved in dealing with financial service providers	
h. I know the criteria used for selecting quality cocoa	
i. I know the factors that make farmer organisations succeed	
j. I know the obligations of membership in FBO	
k. I know the benefits of collective business actions	
l. I know the ways to improve my cocoa production	
m. I know the investment needs of my farm business	

2. Rate yourself on the following attributes of attitude on business and entrepreneurship? Use a scale of 1 to 5 where 1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly agree

Attitude	Rate
a. I see myself as an entrepreneur	
b. I see my farm as a business	
c. Standard plot measurements are used for farm negotiations	
d. Recording of money inflows/outflows helps in managing my money	
e. Diversification helps me to manage risks	
f. I spend my money carefully	
g. I save my money for future needs	
h. I stick to my original objective of taking farm credits	
i. I play a key role in ensuring quality of my cocoa beans	
j. Collective action helps me to get better prices	
k. Trust is needed for governance of FBO	
l. I see replanting/planting as an investment	
m. Record keeping helps me to evaluate my business	

3. Rate yourself on the following attributes of skills on business and entrepreneurship? Use a scale of 1 to 5 where 1-No Skill, 2-Very low, 3-Low, 4-High, 5-Very High

Skills	Rate
a. Fill a simple cropping calendar	

b. Measure a plot with simple tools	
c. Calculate money out/money in	
d. Determine profit/loss of my farm business	
e. Use the financial calendar to plan my farm/household expenditure	
f. Manage financial deficits and surpluses	
g. Obtain a guaranty for a loan	
h. Manage savings and reimburse a loan	
i. Produce good quality cocoa following COCOBOD techniques	
j. Contribute to strengthen FBO in business	
k. Assess a cooperative business opportunity	
l. Bargaining new farm opportunities	
m. How to access cocoa farm support services	

Part III: cocoa farmers' perceived market orientation

4. Rate the extent to which you undertake the following in your farm business on the 5-point Likert scale; Very low=1, Low=2, Moderate=3, High=4, Very high=5

PERCEIVED MARKET ORIENTATION INDICATORS	Rate
i. Customer Emphasis	
a. I encourage LBCs comments	
b. I consult LBCs to improve my activities with them	
c. I know the quality criteria used by LBCs in purchasing	
d. I look for ways to satisfy the needs of the LBCs	
e. I treat LBCs as business partners	

f. I incorporate LBC comments into farm operations	
ii. Competitor Orientation	
a. I know whether other farmers are open to LBC complaints	
c. I know whether other farmers meet the LBCs quality criteria	
c. I know whether LBCs buying from other farmers are satisfied	
d. I monitor LBCs buying from other farmers	
iii. Inter-Functional Coordination (COCOBOD, LBCs, NGOs, service providers, input dealers, workers etc.)	
a. I coordinate meetings to discuss market trends with key actors	
b. I discuss the future needs of my farm with key actors	
c. I have a cordial working relationship with key actors	
d. I coordinate activities that are aimed at training my farm workers	
iv. Intelligence Generation	
a. I meet with LBCs to find out their future needs	
b. I search for information on cocoa market trends	
c. I assess LBCs perception on the quality of my cocoa beans	
d. I quickly detect changes in my farm operations	
e. I attend extension meetings to get information on new cocoa technologies	
v. Intelligence Dissemination	
a. I inform my workers about my activities with LBCs	
b. I inform LBCs on issues affecting my farm operations	
c. Information on LBCs' satisfaction is disseminated to all workers	

d. When I find out something about other farmers, I inform my workers	
e. I inform LBCs on issues relevant to their relationship with me	
vi. Market Responsiveness	
a. I make new offers based on world market prices of cocoa	
b. I venture into other business opportunities as back up in the minor season	
c. I choose the best purchasing packages from the LBCs	
d. I ensure my new business opportunities do not conflict with my work as a cocoa farmer	
e. When I come up with any new business strategy, it is implemented in timely fashion	

Part IV: factors that influence farmers' market orientation

5. Entrepreneurial Proclivity

Indicate the extent to which you would rate yourself on a scale of 1 to 5 where 1-Very low, 2-Low, 3-Moderate, 4-High, 5-Very High

i. Innovativeness	
a. I favour my own unique ways in solving my farm problems than using already established strategies	
b. I spend a lot of time thinking about starting another business	
c. I always seek to improve on the quantity and quality of my cocoa	
d. I always try to apply new techniques in the performance of my farm	

activities	
e. I tend to do things that other cocoa farmers do not do	
ii. Risk Taking	
a. I prefer to take actions even when I know it is risky	
b. I am willing to invest time/money on something that might yield a high return	
c. I am always among the first to try any new cocoa technique	
d. I prefer to 'step up' and get things going rather than sit and wait for someone else to do it	
e. I adopt a bold posture in making decisions for my cocoa farm	
iii. Proactiveness	
a. I respond to changes in the cocoa business more rapidly than others do	
b. I spot good opportunities for cocoa farmers earlier than other farmers do	
c. I am constantly looking out for new ways to improve my cocoa farm	
d. I usually act in anticipation of future problems, needs or changes	
e. I tend to plan ahead on my farm activities	

6. Farmer Characteristics

- i. What is your sex? a. Male [] b. Female []
- ii. What is your age? [.....] years
- iii. What is your highest education level?

- a. No formal education [] b. Basic School [] c. Senior High School []
d. Tertiary []
- iv. How long have you been working as a farmer? [.....] years
- v. What is your marital status? a. Single [] b. Married [] c. Divorced []
d. Separated [] e. Widowed []
- vi. What tribe do you come from? a. Ashanti [] b. Fanti [] c. Bono []
d. Sefwi [] e. Kwahu [] f. Akyem [] g. Ewe [] h. Others [.....]
- vii. What is your religion? a. Christian [] b. Moslem [] c. Traditional []
- viii. Are you a member of a farmer group? a. Yes [] b. No []
- ix. If yes, how many farmer groups are you in? [.....]
- x. How many people are in your household? [.....]
- xi. Do you engage in off-farm income-generation activities? a. Yes [] b. No []
- xii. If yes, please state [.....]
- xiii. Do you hold any leadership position in the community? a. Yes [] b. No []
- xiv. Are you an indigene or a migrant farmer? a. Indigene [] b. Migrant []
- xv. Do you use mobile phone for your farm activities? a. Yes [] b. No []

7. Farm Characteristics

- i. What is the size of your cocoa farm? [.....]
- ii. How many bags of cocoa do you get per year? [.....]
- iii. What is your farm income per year? [.....]

- iv. How old is your cocoa farm? a. Class A: 0-7 years [.....] b. Class B: 8-15 years [.....] c. Class C: 16-30 years [.....] d. Class D: Over 30 years [.....]
- v. Is your farm registered with the Registrar General's Department? a. Yes b. No
- vi. How many cocoa farms do you have? [.....]
- vii. Have you ever accessed farm credit? a. Yes b. No
- viii. What are your sources of labour for the farm? a. Family labour b. Hired labour c. Labour exchange d. Others (specify) [.....]
- ix. Do you organize training programmes for your farm workers? a. Yes b. No
- x. What land tenure system are you operating on? a. Outright purchase b. Rent c. Share cropping d. Family Inheritance e. Others [.....]

Part V: livelihood outcomes

8. Please indicate the extent to which your livelihood has changed (before and after the farmer business school) using the actuals or relative measures of the following underlisted aspects of your livelihood.

Livelihood Outcomes	Rate
i. Natural Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Yield per acre	
b. Quality of cocoa beans	
c. Cocoa farm size	

d. Farm animals	
e. Farm lands	
ii. Physical Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Ownership of Sprayer(s)	
b. Ownership of Harvester(s)	
c. Ownership of Pruner(s)	
d. Ownership of Cutlass(es)	
e. Ownership of Raffia Mat(s)	
f. Ownership of Basket(s)	
iii. Human Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Access to labour	
b. Access to COCOBOD extension services	
c. Access to private extension services (e.g. NGOs)	
d. Ability to register household on NHIS	
e. Payment of children's school fees	
iv. Financial Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	
a. Farm Insurance	
b. Level of savings	
c. Debt levels	
d. Credit facility	
e. Cocoa farm income per season	
f. Non-farm income	
v. Social Capital (1-None; 2-Very low; 3-Low; 4- High; 5-Very High)	

a. Payment of development levy.	
b. Participation in communal activities	
c. Trust in community leaders	
d. Access to community information	
e. Support from farmer group/associations	

THANK YOU!!!



APPENDIX C

Farmer Business School

Understanding the farmer business school

What is farmer business school?

The concept of the Farmer Business School was developed to build capacity among farmers, to improve their farm business knowledge and decision-making skills, and to change attitudes towards commercialization. FBS, like FFS, are characterized by a focus on adult and experiential learning (“learning by doing”), group-based and participatory approaches, facilitation rather than structured teaching, and capacity building and long-term engagement with farmers. Both FFS and FBS have been likened to models such as farmer-to-farmer extension, farmer-centered extension, and participatory extension approaches.

However, there are important differences between the FBS and FFS approaches. While FFS focus on crop production and addressing technological constraints on the farm, promoting environmentally sustainable management practices, and productivity increases, FBS focuses on marketing, entrepreneurial and management skills. The FBS programme is an interactive program designed to support smallholder farmers who are beginning to or already sell produce in the market. The aim is to increase the capacity of farmers to manage their farms effectively and increase their profitability. Some organizations have combined these into farmer field and business schools (FFBS), while others have developed variants of FFS or FBS which include modules on nutrition, gender equality, or group formation.

FBS are implemented over multiple years, beginning with the adaption or modification of existing modules by the implementing organization, followed by training of Master Trainers. Master Trainers are ultimately responsible for training the district-level trainers, who serve as the facilitators of the FBS at the farmer level. Training and facilitation with farmers usually last one year, starting before the planting season and continuing through a full cropping season.

It is therefore, required to build farmer's entrepreneurship and managerial capacity to enable this shift. The question is how to build farmer's capacity today? It can be done through several ways. For example:

- By obtaining new knowledge from the market, knowing its rules, as well as enhancing existing connections or establishing new linkages with new potential market;
- The farmer must change his attitudes as a small size producer and/or subsistence farmer, planning his production and playing a small role in the market. The farmers need to adopt new production and post-harvest techniques and place himself as part of the whole food supply chain as a relevant player;

By enhancing his skills and tools in order to commercialize his production (e.g. organized procurement of inputs, improved grading, storage and transport, building better negotiation skills to deal with providers of financial resources, input suppliers, buyers, acquire techniques and analytical skills of market follow-up, etc.). Other specific skills such as observation, social and behavioural, communication, and decision-making skills are also required. Farmers are adult

persons and have a specific attitude towards learning. The FBS could be the best to build their capacity.

Why the farmer business school

In the past, extension organizations were concerned with the process of disseminating technical information about farmers' production. This process allowed the farmers to increase their yields. This was considered to be the end goal for good extension service. However, today the demands on extensions services are much greater. There is a need not for providing just technical information but also economic and market information. Farm business management tools can help farmers to have produces which will be possible to be sold at the market and which will bring them profit. It should be cleared that farm business management tools and techniques must be used by the farmers because they answer to following questions:

- What produce is profitable?
- What farmers can market?
- Who will want to purchase it?
- What payment they are likely to receive?

The financial and marketing-related issues are critically important for improving the incomes of small farmers. The FBS is realized through the concept of farmer to farmer learning, as participants are adult farmers which show better results in learning by doing.

Aim of farmer business school

The Farmer Business School's aim is to make farming an economic enterprise responding to market demands. The model can be used in all agriculture sectors like vegetable and fruit growing, livestock keeping, beekeeping and etc. In principle, the number of Farmer Business School participants is smaller than the one of Farmer Field Fora. The concentration of participants is mainly on the most advanced and dynamic farmers in order to be ensured in the long run multiplier effects. The Farmer Business School includes development of marketing strategies and resource management. Farmer Business School can also facilitate improved access to loans and encourage the beneficiaries to apply jointly to Microfinance Institutions in order to overcome collateral requirements.

The final decision of the activities will be based on the identification by the participant of FBS. Principles of functioning of FBS are:

- Farmers work in small groups;
- FBS are established at their place of living and production;
- The FBS sessions are carrying out at an agreed time and duration;
- The learning adheres to the participatory mutual

Implementation process

During preparation and establishment of Farmer Business School, the following stages are proposed: 1) Establishment of a core team of trainers (CTT). The first step is identical like the step with Farmer Field School 2) Brainstorming

session among CTT and planning of next steps of activities 3) Selection and training of farmer facilitators.

Though FBS facilitators could be extensionists, NGOs staff or private sector representatives, the most recommendable is they to be the Lead farmers in the community/municipality. It is good precondition if the selected facilitators are good communicators and with previous experience in farm business management. It is also recommendable during the selection of the facilitators to be taken in mind that the local people could be the best FBS facilitators because they:

- are part of the community;
- are familiar with the nature and extent of community problems;
- are generally trusted, and more willing to help;
- live within the community, so can lend a hand at any time;
- know the local traditions;
- are cost-effective in terms of lower transport and other costs;

Levels of literacy and language requirements

While every effort has been made to keep the level of language accessible, whether using English or a local language, the materials may need to be adapted according to the levels of literacy of the intended participants.

Use of numbers and calculators

Many of the exercises require writing and the use of numbers and calculations. The facilitators will need to assess the capacity of the farmers to utilize calculators. Time should be spent to assist participants refresh themselves of the important keys on the calculator.

Previous experience of training

Particularly if the facilitators have experience of leading Farmer Field Schools (FFS), they can be expected to manage the Farmer Business School material much better.

Cultural norms

Assess the examples and case studies in the Farmer Training Programme materials to ensure that these are culturally appropriate and acceptable to grassroots communities. Pay adequate attention to community protocols to avoid any cultural clash that may derail the programme. Facilitators will need to devise innovative methods to encourage the full participation of women.

Agricultural realities

It is good to stick to the contents of the training material including all examples BUT remember, the best examples are those that come from the participants' and the trainers' own experience. Whenever possible, replace the examples in the Farmer Training Programme with more locally relevant material that gives the same information and message.

Planning of farmer training

The following questions should be kept in mind when planning a Farmer Business School training of farmers programme:

- Who are to be trained? How are they to be selected and based on which criteria?
- Which training needs should be addressed first? How does the initial baseline data help structure training needs?

- How are farmer groups to be organized? Who communicates information to farmers and how?
- Will there be a need to organize a pre-training meeting with farmers to explain the rationale behind FBS?
- How many people should be trained? This depends on the number of schools that are planned, but in participatory processes it is customary to limit the number of participants in a training workshop to between 20 to 25 persons.
- What equipment and materials are needed? What is realistically available and appropriate to local conditions? How are all logistics arranged? Who should be responsible?
- What is in there for farmers and what is not? Are they to be served food? Accommodation? Per diems and transport? It is necessary to inform farmers well in advance in order to avoid conflict situations.
- The type of training provided depends on the available budget and on whether or not the farmers can attend long training sessions while continuing their full-time employment.

Identification and selection of farmers

It is suggested that farmers are selected based on some criteria that are in line with the objectives of the Farmer Business School concept. The following are suggested:

- All participants must be farmers actively involved in the cultivation of one of the main crops supported by the funders (in this case mango or chili pepper).
- Selection of farmers should be gender-sensitive.
- Farmers over 70 years are discouraged unless he/she is literate and continue to make farm enterprise decisions.
- All trainees must be able to commit to the full 5 days – no popping out to do chores or work or excuse to run errands. There are team exercises and work groups, and missing these prevents others in the group from completing the participatory exercises.

Duration

The entire training programme is for 5 days normally from Monday to Friday unless otherwise agreed with the group prior to the start of a training programme. Training should normally start in the morning soon after breakfast (8 – 11:30 am). An extra 30 minutes could be dedicated for Day one to include the so-called Module 0 (for introduction and agenda setting). Farmers are usually tired after 3-4 hours of training. Break between trainings for energizers and always try to read the mood and interest of trainees to assess their continued interests. The last day should also be utilized to explain the FBS Workbook to trainees and for end of training evaluation.

Preparing for training

It is suggested that you prepare each session/meeting in advance and decide on the most effective way of communicating the information. For some

exercises, simple materials are needed like large sheets of paper, pens, pencils, ropes, etc. Be sure to plan the exercises well in advance and make sure you are familiar with them and the related subject area.

Programme facilitation

As facilitators four key elements are important:

- An understanding of the meaning of sustainable livelihoods and the importance of helping farming families and their communities attain them (broad concepts)
- An appreciation of the way in which farmers go about making production decisions (current practices).
- An understanding of how these current practices affect the economic (decisions) aspects of their farm business enterprise - The ability to develop and to communicate messages to farmer to empower them to make more informed production and economic decisions.

Training venue

The venue where the training will take place must be suitable for training.

The participants need to be able to sit in a way that they can see each other and see you and also be comfortable. The venue has to be large enough to seat all the participants comfortably and to allow the participants to break into small groups (teams) that will work on their own. Bear in mind the following requirements for a suitable venue, which will determine the choice, size and seating arrangements within the venue:

- Distance reduces participation
- Rows reduce interaction
- Take care of comfort
- Good visibility of training aids
- Training venue should be available for the entire training period
- Suggested venues include: chief palace, church/mosque, local school community shed etc.

Training aids

It must be ensured that all participants have a copy of their handbooks as these contain all the handouts and forms required to conduct the training. In addition to the handouts, farmers are to feel free to supplement this document with additional handouts/content, as appropriate.

- A white board or chalk board	- Marking pens
- and markers or chalk	- Pencils
- Large sheets of brown paper	- Calculators
- Masking tape	- Measuring tape
- Sharpeners/erasers	- Training manual and workbook

Structure and schedule

Day 1: Getting to know each other; introduction of participants to farmer business school and its objectives; choosing farm business enterprise (sketch/role-play; class exercise required).

Day 2: Understanding costs of the business enterprise; differences between fixed and variable costs; how to measure farm size; use of calculator;

recordkeeping; business planning – cropping calendar; GM calculations. (Field exercise, group exercise and plenary discussions required).

Day 3: Money-in, money-out – GM calculation for maize, chili and mango cultivated under current practices to understand costs, revenues and profits. Decisions for better business – GM calculations for maize, chili and mango cultivated under best practices to compare with that cultivated under current practices for yield, costs, revenues and productivity (for capital and labour) (Group exercise required).

Day 4: How to get good financial services – savings, mobilizing finance (loan/interest rate); Business and household expenses – cash-flow calculations (group exercises required).

Day 5: Farm Business Risk and Marketing – risk management strategies, marketing channels; the entrepreneur and FBOs – importance of FBOs (Plenary).
End of training evaluation.

Timing

Organizers and facilitators must make sure that they always arrive at the training site well before the start to meet each other and help set up venue. Preferably, the facilitator should visit the venue a day before the training starts. Module arrangements are intended to address closely related business enterprise needs and should as often as practicable be adhered to. However, facilitators can be flexible to discuss other parts of the manual in-so-far-as it relates to current discussions.

Evaluation of trainees

To achieve a certificate, participants must achieve 100% attendance; they must participate in all lessons, in all individual and group exercises and practical. Indicate this to trainees on Day one and follow it up by keeping an attendance sheet. Be flexible so as not to scare a trainee who must have missed a class for genuine reasons from attending the rest of the training programme.

Source: FAO (2014); Donkor (2013).

