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Effect of Agro-Cooperatives on Cocoa Production among Farmers in Akure South Local Government Area, Ondo State

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DECLARATION

I hereby declare that the Project was written by Falebita Dotun J, under the supervision of Dr. O .A Olaniyan and accurately documents my own study. It has never before been submitted for consideration for a degree at this or any other university. References provide a thorough acknowledgement of all citations and information sources.

Name: **Falebita Dotun John**

Signature……Date…….

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CERTIFICATION

We hereby certify this project entitled "Effects of Agro-cooperatives on cocoa production among farmers in Akure South local government, Ondo state, Nigeria" was solely written and compiled by Falebita Dotun John, in the Department of Agricultural Extension and Rural Development, Faculty of Agricultural Science, Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria.

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DEDICATION

This project work is dedicated to God Almighty for His protection, guidance, provision, and grace. This is dedicated to all who contributed to my modest success in life, particularly my esteemed parents, Mr. and Mrs. Falebita and to my wonderful supervisor in person of Dr. Mrs. O.A. Olaniyan.

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ABSTRACT

The study examined the impact of agro-cooperatives on cocoa production among farmers in the Akure South local government area of Ondo State. A survey research method was employed with a structured questionnaire as the instrument, which was administered to 50 farmers In the Akure South Local Government Area of Ondo State. A multistage sampling procedure was utilized in selecting respondents for the research The research demonstrated the effect of agro-cooperatives on cocoa production among farmers in Akure South local government is significant, including their impact on cocoa production for several reasons, including economic impact; by helping member producers increase their sales and profitability Effect, including agriculture, agro-cooperatives, and farmers' loss of soil fertility, has a detrimental impact concerning the productivity of cocoa in the surrounding area. This often leads to increased cocoa yields, agricultural increases for farmers, and agro-cooperatives for local communities. The research findings showed that participation in agricultural cooperatives has an effect. In cocoa production and. the type of co-operatives that farmers engage in most is the Savings and Credit Cooperative 87.3%. Therefore Cocoa farmers ought to be motivated to establish agricultural cooperatives and engage in the exchange of ideas to gain access to enhanced agricultural technologies. Additionally, governmental and developmental organizations should bolster the capabilities of extension agencies to deliver effective educational programs among cocoa farmers.

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CHAPTER ONE
INTRODUCTION

➢ *Background of the Study*

According to Kehinde, Adeyemo & Ogundeji (2021),Perennial crops, including cocoa, coffee, cashew, and oil palm, are significant elements of small-scale agriculture in the damp tropics of West Africa, particularly in Nigeria. Cocoa significantly influences the farming practices of Nigeria due to its economic, social, and environmental benefits, as well as its role in food security. Kehinde et al. (2021).Cocoa offers a sustainable and equitable means to enhance the welfare of farmers engaged in its production.Kehinde et al. (2021). Cocoa production constitutes a significant economic endeavor for more than 650,000 households. (Kolawole, Tijani & Kehinde, 2020; Kehinde & Tijani, 2021), Additionally, 7 million Nigerians rely on the cocoa trade for their income. (Kolawole *et al*., 2020; Uwagboe, Meludu & Agbebaku, 2020).Despite cocoa's role in enhancing the standard of living of cocoa farmers and other stakeholders within its value chain, production has continued to decline to the present day. (FAO, 2016; Alao, Bamire & Kehinde, 2020).

Data regarding cocoa production in Nigeria indicate that the average output from 2000 to 2010 was 389,272 tonnes annually. Production decreased to 192,000 tonnes per year from 2015 to 2016.(International Cocoa Organization ICCO, 2017). Manufacturing increased to 230,000 tonnes per year from 2017 onwards 2019 (ICCO, 2019) and increased to 238,000 tonnes in 2022 (Statista, 2023). However, It has not achieved the potential or the production volume levels seen prior to the year 2000. The decline in production is anticipated to impact the foreign exchange rate of the country and, consequently, the welfare of its population of farmers (FAO, 2016). Despite ongoing interventions aimed at strategically enhancing cocoa production, efforts to increase cocoa result in the country continue to be ineffective. Cocoa yields on individual farms are three to five times lower than the frontier, indicating a significant disparity. The average observed cocoa yield is approximately 500 kg/ha, compared to a potential yield of 1500 kg/ha, which may reach up to 2500 kg/ha in certain instances. (Wessel and Foluke Quist-Wessel, 2015). The predominance of smallholder farmers, managing areas ranging from one to five hectares, characterizes the cocoa-based farming system in Nigeria.(FAO, 2016).Smallholder farmers persistently produce below the potential cocoa production levels due to aging and unproductive cocoa trees, traditional cultivation practices, and reliance on basic tools. Key to improving yields in cocoa-based agriculture through Agricultural cooperatives (FAO, 2016).

Cooperatives are increasingly considered a strategy to enhance agricultural technologies and address food insecurity and poverty Verhofstadt and Maertens (2015); Ma and Abdulai (2016); Mojo, Fischer, and Degefa (2017).Cooperative societies are considered a significant institutional innovation which can address the constraints hindering the adoption of improved technologies. (Wossen, Abdoulaye, Alene, Haile, Feleke, Olanrewaju & Manyong, 2017). Membership in agricultural cooperatives is recognized as a significant driver of agricultural knowledge and technological transfer through collective actions which facilitates Innovation and learning among societal members (Chagwiza, Muradian & Ruben, 2016). This is accomplished by promoting the exchange of data regarding the successful implementation of enhanced technologies. Agricultural cooperatives enhance access to reliable credit facilities. This is due to the farmer's membership in the cooperative, which provides the use of inputs, disclosure services, market bargaining power, and credit. A notable feature of agricultural cooperatives is the collaboration among farmers to pool resources, addressing needs that individual capacities alone cannot fulfill (Wossen et al., 2017).

➢ *Statement of the Problem*

The continued misidentification of key barriers to adoption is disappointing (Wossen et al., 2015; Wossen et al., 2017). One of the most plausible reasons for low adoption by farmers is the lack of access to credit (Wossen et al., 2017). Regarding a technology or advanced farming practice to Farmers must be able to afford it for it to be successfully implemented. The majority of improved Smallholder farmers cannot afford the high cost of cocoa technologies.(Wossen *et al*., 2017). This is due to the requirement of substantial initial investments for technology or farming practices, which may be challenging for smallholder farmers to obtain, while the technologies take many years to produce benefits. Farmers frequently embrace only portions of the agricultural technology package presented to them.(Pervez, Islam, Uddin & Gao, 2018).

Numerous documented investigative investigations illustrate the functions of agricultural cooperatives in crop production (Wossen *et al*., 2015; Ainembabazi, van Asten, Vanlauwe, Ouma, Blomme, Birachi, Nguezet, Mignouna & Manyong, 2017; Wossen *et al*., 2017; Ma and Abdulai, 2017). This study, however, diverges from related research as it seeks to ascertain the impact of agro cooperatives on crop production among cocoa farmers in the Akure South Local Government Area, Ondo State.

➢ *Research Questions*

- What are the socio-economic attributes of the farmers in the research area?
- What are the types of Co-operatives that farmers engage in and their level of involvement?
- What are the roles of agricultural cooperatives regarding cocoa production within the study area?
- What are the impact of agriculture cooperatives Regarding cocoa production in this research region?

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➢ *Objectives of the study*

The general objective of this study is to assess the effect of agro cooperative on crop output among cocoa farmers in Akure South Local Government Area, Ondo State. The specific objectives are to:

- Ascertain the socio-economic attributes of the farmers in the research region
- Ascertain types of co-operatives that farmers engage in and their level of involvement within the study region
- Ascertain the roles of agricultural cooperatives in cocoa output in the research region; and
- The overarching aim is agriculture cooperatives on cocoa output in the research region.

➢ *Hypothesis*

- There exists no substantial correlation between agro-cooperatives and cocoa production within the research domain.

➢ *Significance of the Study*

The study of Agro-cooperatives and their influence on manufacturing of cocoa is significant for several reasons including economic impact; by helping member producers increase their sales and profitability Also, this study would expose the farmers to sustainability through cooperatives such as exposures to organic farming, fair trade, and environmental stewardship. Exploring their objectives can help identify ways to support sustainable agriculture and responsible consumption. It would also underscore the importance of knowledge sharing by enabling them to derive insights from one another's experiences and knowledge. Studying their objectives can shed light on effective ways of facilitating knowledge exchange within agricultural communities.

Overall, this research will inform decision-making processes, policy development, and innovation in the agricultural sector, leading to more sustainable and inclusive agricultural systems.

➢ *Operational Definition of Terminology*

- **Effect**: An implied consequence or outcome, suggested indirectly. The condition of being engaged or linked to something.
- **Agriculture**:This is the process of generating food, feed, and fiber through the cultivation of specific plants and the rearing of domesticated animals. It is a broad phrase encompassing productive activities such as crop cultivation, livestock rearing (including poultry), fishing, and forestry..
- **Agro-Cooperatives**: Cooperatives engaged in agro-allied enterprises. Agricultural cooperatives are seen as economic and social entities focused on agricultural growth.
- **Farmers**:A person whose principal occupation pertains to animals and/or agriculture. A farmer meticulously undertakes all requisite measures to guarantee the adequate nourishment of the products cultivated, thereafter selling them to buyers. Certain farmers have successfully leveraged the demand for high-demand products, like organic vegetables and cattle..

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CHAPTER TWO
LITERATURE REVIEW

A. History of Cocoa Production in Nigeria

Cocoa farming, discovered in the 18th century in the Amazon basin, has proliferated to other tropical regions of South and Central America, as well as West Africa, which emerged as the predominant producer from the mid-1960s. (Kehinde *et al*., 2021). According to Meludu & Agbebaku (2020), The preeminence in global cocoa production transitioned from America to Africa in the second half of the nineteenth century and persists to the present day. Cocoa was introduced to West Africa from Brazil, specifically from Fernando Po, into Nigeria in 1874 and Ghana in 1879 by Squiss Bamengo, a chief of the Niger Delta. (Kehinde *et al*., 2021). West Africa has been the epicenter of cocoa cultivation for numerous decades, since it accounts for two-thirds of global cocoa production.(Kolawole *et al*., 2020).

According to ICCO (2017),The principal producers of cocoa are Côte d'Ivoire, Ghana, Indonesia, and Nigeria. Nigeria is the third largest producer of cocoa and ranks sixth worldwide. Prior to the advent of crude oil in Nigeria, cocoa was the predominant cash and export crop, particularly in the southern region of the country. Cocoa was initially cultivated in the Delta region and subsequently disseminated northward to its appropriate cocoa belt of Western Nigeria. Cocoa was first planted in the Western Region in 1890 (ICCO, 2019). It swiftly attained fame in Nigeria, resulting in the country becoming the second largest producer worldwide by 1965. Prior to the advent of black gold (crude oil) in Nigeria Cocoa was the predominant cash and export crop, particularly in the southern region of Nigeria. Almost all Southwest States in Nigeria, with the exception of Lagos, engage in cocoa production.. The top states—Ondo, Ogun, Osun, Oyo, and Ekiti—constitute around 60% of cocoa production and represent at least 30% of Nigeria's overall cocoa exports. Additional states include Cross River, Edo, Abia, Kwara, Kogi, Adamawa, and Akwa Ibom. Statista (2023) listed eighteen cocoa-producing states in Nigeria. Consequently, in addition to the previously named State, the others include Taraba, Delta, Lagos, Bayelsa, Rivers, and Imo States.

B. Status of Cocoa in Nigerian Agriculture

Cocoa is Nigeria's primary non-oil foreign exchange generator; yet, sector growth has slowed since the dissolution of the Nigerian Cocoa Board in 1986 (FAO, 2016). The preeminence of small-scale farmers in the cocoa production sector, coupled with a deficiency of agricultural labor resulting from heightened urbanization, impeded productivity. Nigeria has the capacity to yield in excess of 300,000 tons of cocoa beans annually; nevertheless, production reached about 145,000 tons in 1999 (Statista, 2023). Suboptimal yield, mature trees, and insufficient equipment have been recognized as impediments to production (Alao et al., 2020).

The agriculture sector's contribution to Nigeria's foreign revenues declined from 62% prior to the discovery of petroleum to around 3% in the 1990s (Statista, 2023). Notwithstanding the reduction in the sector's contribution, cocoa remains prominent for its importance in foreign exchange profits, ranking second behind petroleum. Cocoa is a significant source of revenue for many rural farmers in Nigeria, particularly in the South West, and is essential for their subsistence. Recently, Nigeria has fallen from the position of the world's second largest producer to fifth, trailing behind Cote d'Ivoire, Ghana, Indonesia, and Cameroon, with a production volume of 160 thousand tonnes, accounting for 4.6% of global production during the 2006-2007 seasons (ICCO, 2019)..

C. Agricultural Cooperatives

An agricultural cooperative, or farmers' cooperative, is an organization established by farmers or agriculturalists who have pooled their resources for the production and distribution of their products (FAO, 2016). They acquire equipment and commodities to improve the efficiency of their production and marketing efforts, aiming to provide financial and economic benefits to members (FAO, 2016). This encompasses obtaining loans, agricultural inputs like fertilizer, professional counsel, financial literacy, savings mobilization, extension services providing, credit management, government support attraction, land and soil conservation, and irrigation. (Wessel and Foluke Quist-Wessel, 2015).

An agricultural cooperative, as a type of business organization, is distinct from conventional investor-owned businesses (IOFs). Both are structured as enterprises; however, IOFs aim for profit maximization, whereas cooperatives seek to optimize the advantages for their members, typically operating at a break-even point. (Wessel and Foluke Quist-Wessel, 2015). Agricultural cooperatives are established in circumstances where farmers are unable to access essential services from Investor-Owned Firms (IOFs) due to the perceived unprofitability of such services, or when IOFs offer these services at unfavorable terms for the farmers, characterized by excessively high, profit-driven prices. The above scenarios are characterized by economic theories such as market failure or the absence of service incentives.(Ma and Abdulai, 2016). The former motivates the establishment of cooperatives as a benchmark or as a strategy for farmers to develop countervailing market strength against the IOFs. (Ma and Abdulai, 2016).The notion of a competitive yardstick suggests that farmers, encountering inadequate performance from Investor-Owned Firms (IOFs), may establish a cooperative entity aimed at compelling the IOFs to enhance their services through competition. (Fischer & Degefa, 2017).

A practical impetus for the establishment of agricultural cooperatives is occasionally referred to as “mitigating the curse of smallness’’ A cooperative, as an association of numerous small farmers, functions as a substantial corporate entity in the market, capitalizing on the considerable benefits of economies of scale unattainable by its individual members. (FAO, 2016).

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- *Roles of Agricultural Cooperatives*

According to FAO (2016), Agricultural cooperatives play crucial roles in agricultural advancement. They include:

- *Educational Role*

Agricultural cooperative organizations offer expert guidance to farmers regarding the application of chemicals for pest and disease eradication, as well as on agricultural mechanization. They inform farmers in advance on the prices of their products.

The agricultural cooperatives conduct research on product marketing and provide education on optimal seedlings and appropriate planting times. They convey new concepts to farmers via extension workers using individual methods, personal contact, group methods, and mass media.(Fischer & Degefa, 2017).

The educational activities of agricultural cooperatives align with the concepts of the Rochdale Equitable Pioneers, which emphasize providing cooperative members with qualitative and effective education. Agricultural cooperatives not only offer education and training in farming practices, marketing, and extension services but also finance the education of members, their dependents, and individuals from the surrounding community.(Wossen *et al*., 2017).

- *Pooling of Risks.*

Agriculture as an enterprise is replete with uncertainties. A multitude of individuals refrain from engaging in the industry due to this factor. Cooperatives are essential in alleviating the risks associated with a company through several activities. Cooperators exchange knowledge regarding optimal techniques implemented on their farms. They also disseminate information regarding dependable sources of inputs and market channels that optimize profitability.(Wossen *et al*., 2017).

Cooperatives enhance agricultural business practices through collective input procurement, reaping corporate advantages while holding individuals accountable for business losses on behalf of their stakeholders. Risk pooling enables farmers to recover from losses sustained during their agricultural operations.(Chagwiza *et al*., 2016).

- *Mobilizations of Savings.*

Kehinde *et al*. (2018) reported that For agricultural development to progress effectively, the following factors must be meticulously considered:

Sufficient transportation infrastructure to convey personnel (extension officers) to all areas of the community to engage with the farmers. Sufficient funds must be allocated for the transportation of adequate materials to supply the designated farmers.

An agricultural cooperative facilitates the mobilization of funds among farmers by educating them on the advantages of saving. A culture of savings will be established across the cooperative members, namely farmers in this context. Agricultural cooperatives thus play a significant role in mobilizing funds among its members.

- *Provision of Extension Services.*

Extension is a service designed to transfer knowledge from one environment to another. Agricultural extension serves as a conduit between researchers and farmers. Agricultural extension serves as a conduit between research and farming communities. Farmers gain specific expertise in animal husbandry and crop production through agricultural agents. It enhances the farmers' quality of life and facilitates the organization and execution of training for them. The extension services enhance and augment food production.(Kehinde *et al*., 2021).

Extension personnel convey information to subsistence farmers via personal interaction, group methods, mass media, seminars, excursions, film presentations, and agricultural exhibitions, among other means. The subsequent agricultural extension programs and institutions in Nigeria are as follows. (FAO, 2016).

- Agricultural Development Programmes (ADPs)
- National Accelerated Food Production Programmes (NAFPP)
- Agricultural Ministries
- Farm Settlement Schemes
- Green Revolution
- Young Farmers Club
- Cooperative Societies
- Back to Land Farming Programme
- Radio Television Programme

Farmers' issues are sent to research institutes for resolution via the extension agent. It additionally facilitates the establishment of Farmers' Cooperative Societies.

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- *Management of Credit*

Agricultural Cooperatives provide loans to members for productive endeavors. A small farmer, for example, may incur disproportionately high interest rates from commercial banks, who overlook the elevated transaction expenses associated with modest loan amounts, or may be denied credit entirely due to insufficient collateral. An agricultural cooperative, such as a Farmers' Credit Union, can secure loan funds at favorable rates from commercial banks due to its substantial membership number, thereafter distributing these monies to its members based on mutual or peer-pressure guarantees for repayment.(Kehinde & Adeyemo, 2017).

Capital obtained from governmental bodies and their agencies, together with financial institutions, is disbursed to cooperative members as loans. It is important to acknowledge that loans obtained by members from their cooperative societies are often returned over an extended duration, and the interest rate is comparatively low.(Kehinde *et al*., 2018).

- *Attraction of Government Support*

The Nigerian government asserts that cooperative societies are vital for the economic advancement of agricultural farmers in Nigeria. The situation is bolstered by the enhanced functions of the Agricultural Development Programmes (ADPs) and the River Basin and Rural Development Authorities.(RBRDAs) (Wossen *et al*., 2015).

It should be noted that both ADPs and RBRDAs consistently organize farmers into groups within their programs to enhance the coordination of their efforts. The collaborative method for group activity has proven beneficial under the oversight of these two programs. The principal aim of establishing group farming cooperatives in ADPs and RBRDAs is to enhance agricultural production; nevertheless, their participation in the selling of their products has also been achieved. (Wossen *et al*., 2017).

It should also be noted that the Federal Department of Agricultural Cooperatives (FDAC) has an advisory role for the identification of viable groups (cooperatives) within the ADPs and RBRDAs, by organizing workshops, seminars and mass enlightenment programmes for the projects (Wossen *et al*., 2015).

D. Cooperatives Roles in National Development Plan

The government designated positions for cooperatives within national development plans and projects, including numerous programs aimed at agricultural advancement and poverty alleviation. The role of cooperatives was continually emphasized in successive national development and rolling plans, including the most recent initiatives such as NEEDS, Vision 2020, and Vision 20:2020.(Kehinde *et al*., 2021).

- *Legislative Role*

The government's primary involvement in cooperative issues is to legislate and guide them in obtaining legal personality. Consequently, Nigeria has enacted legislation tailored to the cooperative context. The prevailing cooperative legislation is the Cooperative Decree of 1993.

- *Giving Out Loans (Credit) to Agricultural Cooperatives*

The government provides loans to cooperatives, which are anticipated to utilize them for the implementation of successful agricultural projects. It is important to acknowledge that, in addition to providing loans, the government also offers direct funds to agricultural cooperative groups. The grants are typically not repaid. (Ainembabazi *et al*., 2017).

- *Payment of Annual Subscriptions*

The government finances the annual subscriptions of certain apex organizations that exist not solely for economic purposes but also to offer services to their affiliate members. Payments are made to apex organizations outside Nigeria, such as the International Cooperative Alliance (ICA) (Ainembabazi *et al*., 2017).

- *Provision of Extension Services*

The government recruited numerous individuals in the agricultural sector to oversee and motivate farmers to embrace advancements. The extension personnel not only supervise but also instruct local farmers on enhancing their agricultural output. This has led to an increased interest among farmers in agriculture as they enthusiastically adopt and apply new developments**.** (Pervez *et al*., 2018).

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CHAPTER THREE
METHODOLOGY

A. Study Area

The research was conducted in the Akure South Local Government Area of Ondo State, Nigeria. The State is wholly located within the tropics. It is situated between longitudes 4° 20' and 6° 5' East of the Greenwich Meridian, and latitudes 5° 45' and 7° 52' North of the equator. Akure South is situated in the tropical rainforest zone, including an estimated size of around 1,514 square kilometers. It is bordered by Ijesa to the west, Ondo to the south, Benin to the east, and Ado to the north. The local government consists of over 12 communities. The primary occupation of the inhabitants is agriculture.. A number of studies have Furthermore, it was suggested that Ondo State is the foremost region for cocoa production in Nigeria. Other often farmed crops include yam, cassava, maize, vegetables, fruits, cotton, and tobacco, while additional economic activities encompass trade, public service employment, and the service sector, among others.

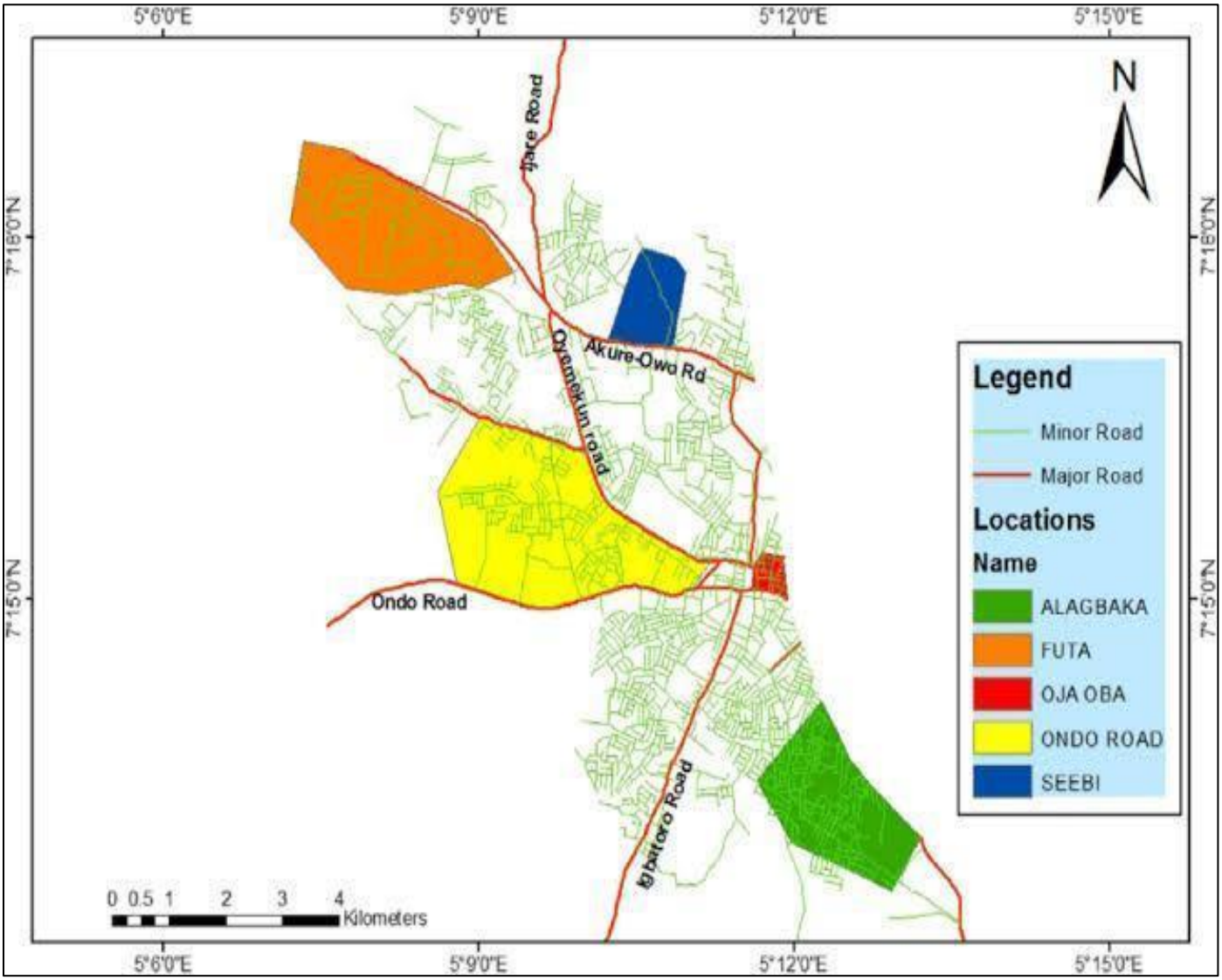

Fig 1 Map of Akure South Local Government Area
Source: Mapcarta (2023)

B. Population of the Study

The study's target population will comprise all cocoa producers in the Akure South Local Government Area.

C. Sample Procedure and Sample Size

The research will utilize a multistage sampling method for respondent selection. The initial phase will entail a deliberate selection of Akure South Local Government Area because there are major Produce marketing cooperatives in the cocoa producing areas of the Local Government. The second stage would entail the random selection of four regions from the local government area: Ita Olorun, Adofure, Store community, and Ipoba. The final stage will consist of the random selection of twelve cocoa producers from each of the chosen communities, resulting in a total number of (50) cocoa farmers will be sampled.

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D. Sources of Data

The primary source of information will be utilized to get the data.

E. Method of Data Collection

Validated and well A standardized questionnaire was utilized as an interview agenda to obtain information from the respondents. It consists of open and close-ended inquiries pertaining to the study's aims. Quantitative method was used to obtain data For this research.

F. Measurement of variables

➢ *Dependent Variable*

- *Effect of Agro-Cooperatives on Crop Production*

A 5-likert point scale (Strongly Agree), A (Agree), U (Undecided), D (Disagree) and SD (Strongly Disagree) was used for the following positive elements: It promotes collaboration among farmers, It improves access to resources, It enhances bargaining power, It fosters knowledge sharing, It increases agricultural productivity, It creates better market access, It causes overall rural development. These will be reversed for negative statements.

➢ *Independent Variable*

- *Socio-Economic Characteristics*

✓ Age: Respondents will be asked to indicate their actual age in years. Respondents were asked to indicate if they were less than 20 years (1), 21-30 (2), 31-40 (3), 41-50 (4), 51-60 (5), Above 60 years (6).
✓ Sex: Respondents will be asked to indicate their sex and it was coded as (1) for male and (2) for female.
✓ Marital Status: Respondents will be asked to indicate if they are single (1), married (2), widowed (3), widower (4), divorced or separated (5).
✓ Religion: Respondents will be asked to indicate their religious affiliations from Islam (1), Christianity (2), traditional (3) or others which must be specified.
✓ Household size: ≤ 5 (1), 6 – 10 (2), >10 (3)
✓ Indicate the type of cooperative society you belong to:……
✓ Years of farming experience: < 10 (1), 11 – 20 (2), 21- 30 (3), 31 – 40 (4), >41 (5)
✓ Farm size (Hectare): < 2 (1), 3 - 5 (2), 6 – 8 (3) >8 (4)

➢ *Types of Co-Operatives that Farmers Engage in and their Level of Involvement.*

A 4-point Likert-type scale will be used [High, Moderate, Low 'Yes or No' will be used for the level of incidence]; for these types of Co-operatives: Agricultural Produce Cooperatives, Agricultural Produce Marketing Cooperative, Saving and Credit Cooperative, Multipurpose Cooperative.

➢ *Roles of Co-Operatives.*

A 2-point Likert-type scale will be used [Yes or No] for the following type of cooperative and their roles: Agricultural Produce Cooperatives (Management and production plan, Installation of machinery, Procurement of materials, Inspection); Agricultural Produce Marketing Cooperative (Promotion of agricultural products, Preservation of harvested crops, Wholesale distribution, Transportation of goods); Saving and Credit Cooperative (Credit provision, Chemical supply, Fertilizer supply, Distribution of subsidized inputs); Multipurpose Cooperative (Credit provision, Fertilizer supply, Conducting workshops, Bearing risks of operations).

G. Method of Data Analysis

The data generated will be analyzed using descriptive statistics such as frequency table, percentage. Also, inferential statistics PPMC) will later be used for hypothesis testing to show association between variables under investigation.

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CHAPTER FOUR
RESULTS AND DISCUSSION

A. Socio-Economic Characteristics of the Respondents

This comprises of the attributes of the participants which includes variables such as their age, gender distribution, conjugal status, household size, educational status and their income, etc.

- *Age*

Outcome on Table 4. showed that majority (91.7%, 58.3% & 64.3%) for Agricultural Produce Cooperative (APC), Multipurpose Cooperative (MC) and Saving and Credit Cooperative (SCC), respectively belonged to the age group of 41-50 while Agricultural Produce Marketing Cooperative (APMC) respondents all belonged to the age range of 51-60. This implies that the respondents are not much older than each other. Also, the age of farmers is significantly relevant in relation to affinity with cooperatives (Kehinde, 2020).

- *Sex*

Majority of the respondents were male with the one female involved in the study a member of the SCC. This suggests that male farmers exhibit greater engagement in cocoa production activities within the research area, maybe attributable to the stresses associated with cocoa planting and the gendered division of labor, wherein females primarily participate in maintenance, processing, marketing, and transportation of cocoa.(Kehinde, 2022).

- *Marital Status*

A portion of the responders were married and had families. This confirms that cocoa production is predominantly a family enterprise managed by farm households, where spouses contribute to farming activities, hence lowering labor costs.(Ma *et al*., 2018).

- *Religion*

All of the respondents were Christians. Although, this may have to do with the number of respondents used for the study.

- *Household Size*

The household size of the majority of respondents across APC (58.3%), APMC (75.0%), MC (58.3%) & SCC (78.6%) were less than or equal to 5. This indicates that the farmers in the research area possess a small household, which may not provide a safeguard against deficiencies in farm labor supply.(Kehinde, 2022).

- *Average Income Per Annum*

Table 1 indicates that the participants in APMC (75.0%) and MC (58.3%) earned between #1,000,000-1,500,000 annually. However, respondents in APC (75.0%) and SCC (85.7%) earned between #1,501,000-2,000,000 annually. The significance of these findings is that cooperatives in the study area possess considerable influence on cocoa production income. Although, this result contradicts the results of Olutegbe and Sanni (2021) who stated that non-cooperative farmers have a better income than cooperative farmers.

- *Farming Experience*

From the study, it was observed that 66.7% of the respondents across all the cooperatives had above 11-20 years' farming experience. This emphasizes that the extent of farming experience asserts influence on affinity to respective cooperatives (Nigussie *et al*., 2017).

- *Farm Size*

Majority of the cocoa farmers in APMC (58.3%) & SCC (71.4%) cultivated less than 2 hectares while farmers in APC (66.7%) and MC (91.7%) cultivated between 3-5 hectares. This indicates that cocoa cultivation occurs on small farms within the research region. This corroborates the findings of Otsuka (2016), who indicated that the majority of farmers in five cocoa-producing states in Nigeria possess between one and five hectares of cocoa farmland.

Table 1 Description of Socio-Economic Characteristics of the Respondents

	APC		**APMC**		**MC**		**SCC**	
Variables	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
Sex								
Male	12	100.0	12	100.0	12	100.0	13	92.9
Female	-	-	-	-	-	-	1	7.1
Age								
Less than 30	-	-	-	-	-	-	-	-
31-40	-	-	-	-	1	8.3	4	28.6
41 -50	11	91.7	-	-	7	58.3	9	64.3

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	APC		APMC		MC		SCC	
Variables	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
51-60	1	8.3	12	100.0	4	33.3	1	7.1
Above 60	-	-	-	-	-	-	-	-
Marital status								
Single	-	-	-	-	-	-	-	-
Married	12	100.0	12	100.0	12	100.0	14	100.0
Widow/Widower	-	-	-	-	-	-	-	-
Separated	-	-	-	-	-	-	-	-
Religion								
Christian	12	100.0	12	100	12	100	14	100.0
Muslim	-	-	-	-	-	-	-	-
Traditional	-	-	-	-	-	-	-	-
Household size								
≤ 5	7	58.3	9	75.0	7	58.3	11	78.6
6-10	5	41.7	3	25.0	5	41.7	3	21.4
>10	-	-	-	-	-	-	-	-
Average income per annum (#)								
Less than 1,000,000	-	-	2	16.7	-	-	-	-
1,000,000-1,500,000	3	25.0	9	75.0	7	58.3	2	14.3
1,501,000-2,000,000	9	75.0	1	8.3	5	41.7	12	85.7
Above 2,000, 000	-	-	-	-	-	-	-	-
Years of farming experience								
< 10	2	16.7	2	16.7	2	16.7	-	-
11-20	8	66.7	8	66.7	8	66.7	12	85.7
21-30	2	16.7	2	16.7	2	16.7	2	14.3
31-40	-	-	-	-	-	-	-	-
>41	-	-	-	-	-	-	-	-
Farm size (Hectare)								
≤ 2	-	-	7	58.3	-	-	10	71.4
3-5	8	66.7	5	41.7	11	91.7	4	28.6
6-8	4	33.3	-	-	1	8.3	-	-
>8	-	-	-	-	-	-	10	71.4

Source: Field Survey, 2023

B. Type of Co-Operatives that Farmers Engage in and their Level of Involvement

Table 2 reveals that respondents engaged more in Saving and Credit Cooperative ($\bar{X}$=2.86), followed by Multipurpose Cooperative ($\bar{X}$=2.83), Agricultural Produce Cooperatives ($\bar{X}$=2.67) and Agricultural Produce Marketing Cooperative ($\bar{X}$=2.33) were ranked third and fourth respectively. This corroborates the findings of Baruwa et al. (2016) that the predominant cooperative societies in rural regions include marketing cooperatives, multipurpose farmers' cooperatives, and thrift and credit cooperatives.

Table 2 Type of Co-Operatives that Farmers Engage in and their Level of Involvement

Items	**High**		**Moderate**		**Low**		**Mean**	**Rank**
	Freq	**%**	**Freq**	**%**	**Freq**	**%**		
Saving and Credit Cooperative	2	14.3	12	85.7	-	-	1.86	1st
Multipurpose Cooperative	2	16.7	10	83.3	-	-	1.83	2nd
Agricultural Produce Cooperatives	5	41.7	6	50.0	1	8.3	1.67	3rd
Agricultural Produce Marketing Cooperative	8	66.7	4	33.3	-	-	1.33	4th

Source: Field Survey, 2023

C. Roles of Agricultural Cooperatives in Cocoa Production

Table 3 reveals the roles of agricultural cooperatives in cocoa production. Majority of the respondents under each cooperative agreed that they all play their roles except for market price control, inspection for APC and supply of fertilizers for SCC as the farmers believed the cooperative did not play the roles. This aligns with Kehinde's (2022) study, which indicated that farmers were satisfied with the roles played by their respective cooperatives.

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Table 3 Roles of Agricultural Cooperatives in Cocoa Production

Types and Roles	Yes		No	
	Freq	%	Freq	%
Agricultural Produce Cooperatives				
Management and production plan	12	100.0	-	-
Distribution of subsidized inputs and installation of cocoa production machinery/equipment	12	100.0	-	-
Market price control	-	-	12	100.0
Inspection	-	-	12	100.0
Agricultural Produce Marketing Cooperative				
Promotion of agricultural products	12	100.0	-	-
Storage of harvested produce	12	100.0	-	-
Wholesale distribution	12	100.0	-	-
Transportation of goods	12	100.0	-	-
Saving and Credit Cooperative				
Credit supply	14	100.0	-	-
Supply of chemicals	14	100.0	-	-
Supply of fertilizers	-	-	14	100.0
Supply of seeds	14	100.0	-	-
Multipurpose Cooperative				
Credit supply	12	100.0	-	-
Marketing of farm produce	12	100.0	-	-
Organizing workshops	12	100.0	-	-
Bearing risks of operations	12	100.0	-	-

Source: Field Survey, 2023

D. Effect of Agriculture Cooperatives in Cocoa Production

Table 4 reveals the effect of agriculture cooperatives in cocoa production. Agric cooperatives does not promote collaboration among farmers in the society but only enrich the elected officials ranked first ($\bar{X}$=4.52) followed by agric cooperatives improve access to resources, agric cooperative does not enhance bargaining power, agric cooperative does not foster knowledge sharing, agric cooperative does not increase agricultural productivity and agric cooperatives create better market access all ranking second with ($\bar{X}$=4.0). This outcome aligns with the findings of Wossen *et al*. (2017) who posited that agricultural cooperatives provide better and reliable access to credit facilities. The authors emphasized that this is due to the farmer's membership in the cooperative, which provides access to inputs, disclosure services, market bargaining power, and credit. This is accomplished through a defining trait of agricultural cooperatives, wherein farmers unite to consolidate their resources to address requirements that cannot be fulfilled by individual capacities alone.

Table 4 Effect of Agriculture Cooperatives in Cocoa Production

	Strongly agree		Agree		Disagree		Strongly disagree		Mean	Decision
	Fre	%	Fre	%	Fre	%	Fre	%		
In my own opinion, agric cooperatives does not promote collaboration among farmers in the society but only enrich the elected officials	26	52.0	24	48.0	-	-	-	-	4.52	A
I don't think agric cooperatives improve access to resources	-	-	50	100.0	-	-	-	-	4.00	A
Agric cooperative does not enhance bargaining power	-	-	50	100.0	-	-	-	-	4.00	A
Agric cooperative does not foster knowledge sharing	-	-	50	100.0	-	-	-	-	4.00	A

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	Strongly agree		Agree		Disagree		Strongly disagree		Mean	Decision
	Fre	%	Fre	%	Fre	%	Fre	%		
Agric cooperative does not increase agricultural productivity	-	-	50	100.0	-	-	-	-	4.00	A
I don't think agric cooperatives create better market access	-	-	50	100.0	-	-	-	-	4.00	A
It causes overall rural development	-	-	24	48.0	26	52.0	-	-	2.96	D
Agric cooperative does not cause overall rural development	-	-	26	52.0	-	-	24	48.0	2.56	D
It improves access to resources	-	-	-	-	50	100.0	-	-	2.00	D
It enhances bargaining power	-	-	-	-	50	100.0	-	-	2.00	D
It creates better market access	-	-	50	100.0	-	-	-	-	2.00	D
It fosters knowledge sharing	-	-	-	-	24	48.0	26	52.0	1.48	D
It promotes collaboration among cocoa farmers	-	-	-	-	-	-	50	100.0	1.00	D
It increases agricultural productivity	-	-	-	-	-	-	50	100.0	1.00	D

Mean response ≥ 3.0
Source: Field Survey, 2023

E. Hypothesis Testing

➢ *Association between Agro-Cooperatives and Cocoa output in the Research Region*

The finding in Table 4.5.1 revealed there is a substantial relationship between agro-cooperatives with cocoa production in the research region as the variables are positively correlated ($r = 0.901$, $P<0.05$). This indicates that when the effect of agro-cooperative is positive, cocoa production tends to increase. Consequently, the null hypothesis is dismissed, whereas the alternative hypothesis is affirmed.

Table 5 PPMC result showing relationship between agro-cooperatives and Cocoa cultivation in the research region.

Table 5 PPMC Result Showing Relationship between Perception and Perceived Effects

Correlates	Mean	StD	r-value	p-value	Decision
Agro-cooperative	12.25	1.26	0.901	0.050	Significant
Cocoa production	39.56	11.58			

P<0.05
Source: Field Survey, 2023

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CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter summarizes the previous chapters and formulates conclusions and recommendations based on the findings of the study. Also, areas for further research with respect to the problem under this study are indicated.

A. Summary of the Study

➢ *Introduction*

A study was conducted to evaluate the impact of agro cooperatives on crop output among cocoa farmers in the Akure South Local Government Area, Ondo State, Nigeria.

Cooperatives are widely regarded as a mechanism to advance agricultural technologies and mitigate food insecurity and poverty. The incorrect identification of the primary obstacles to adoption continues to be a significant concern. Many enhanced cocoa technologies are prohibitively costly for small-scale farmers to acquire.

The objective of this study is to evaluate the impact of agro cooperatives on crop production among cocoa farmers in Akure South Local Government Area, Ondo State. The explicit aims are to:

- Ascertain the socio-economic attributes of the farmers in the research region.
- Ascertain types of cooperatives that farmers engage in and their degree of engagement in the research domain;
- Determine the functions of cooperatives within the study area.; and
- Assess the impact of agro-cooperatives on crop output within the research region.

The research was conducted in the Akure South Local Government Area of Ondo State. A multi-phase methodology was employed to recruit 50 participants for the study. The gathered data underwent descriptive and inferential statistical analysis. Frequency counts and percentages were utilized in the description of the data. Regression was used to test for the hypothesis.

➢ *Summary of the Findings*

The principal conclusions of the study are hereby presented. The chosen socioeconomic attributes of the respondents in the study area showed that 92.9% of the respondents were males within the age of 41-60 years. All of the household were married and Christians. Majority of the cocoa farmers in APMC (58.3%) & SCC (71.4%) cultivated less than 2 hectares while farmers in APC (66.7%) and MC (91.7%) cultivated between 3-5 hectares. 71.5% had between 11-20 years' experience in cocoa farming. The household size of the majority of respondents across APC (58.3%), APMC (75.0%), MC (58.3%) & SCC (78.6%) were less than or equal to 5. The respondents in APMC (75.0%) and MC (58.3%) earned between #1,000,000-1,500,000 annually. However, respondents in APC (75.0%) and SCC (85.7%) earned between #1,501,000-2,000,000 annually.

Results on the type of co-operatives that farmers engage in and their level of involvement revealed that respondents engaged more in Saving and Credit Cooperative ($\bar{X}$= 2.86), followed by Multipurpose Cooperative ($\bar{X}$=2.83), Agricultural Produce Cooperatives ($\bar{X}$=2.67) and Agricultural Produce Marketing Cooperative ($\bar{X}$=2.33) were ranked third and fourth respectively.

Results on the roles of agricultural cooperatives in cocoa production indicated that the majority of respondents within each cooperative concurred that they all play their roles except for market price control, inspection for APC and supply of fertilizers for SCC as the farmers believed the cooperative did not play the roles. On the effect of agriculture cooperatives in cocoa production, Agric cooperatives does not promote collaboration among farmers in the society but only enrich the elected officials ranked first ($\bar{X}$=4.52) followed by agric cooperatives improve access to resources, agric cooperative does not enhance bargaining power, agric cooperative does not foster knowledge sharing, agric cooperative does not increase agricultural productivity and agric cooperatives create better market access all ranking second with ($\bar{X}$=4.0).

On the results of the PPMC The analysis conducted to evaluate the proposed hypothesis indicated that there is not a significant relationship among agro-cooperatives and cocoa production in the studied area.

B. Conclusion

The study concluded that membership in agricultural cooperatives has an effect in cocoa production. Owing to the fact that cooperative societies perform numerous roles. The type of co-operatives that farmers engage in most is the Saving and Credit Cooperative. Among the effects of agriculture cooperatives in cocoa production, Agric cooperatives do not promote collaboration among farmers in the society but only enrich the elected officials ranked first.

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C. Recommendations

This study's findings led to the following recommendations:

- Cocoa producers ought to be incentivized to establish agricultural cooperatives to facilitate more social contact and the exchange of ideas, thereby gaining access to superior agricultural technologies.; and
- Government and developmental agencies should enhance the capabilities of extension agencies to deliver effective educational programs, as well as bolster the capacity of agricultural cooperatives to offer microcredit essential for the increased adoption of advanced cocoa production technologies among farmers.

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