

RELEVANCE OF AGRICULTURAL COOPERATIVE IN THE SUPPLY CHAIN OF AGRICULTURAL PRODUCTS IN NIGERIA: THE WAY FORWARD FOR NATIONAL ECONOMIC DEVELOPMENT

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Abstract

The paper analyzes the relevance of agricultural cooperatives in the supply chain of agricultural products in Nigeria given the fact that agriculture is one of the important sectors in national development. In general, agricultural activities are carried out by smallholder farmers of less than one hectare and they work individually. They rely on middlemen in the agricultural supply chain because it is not easy to market their agricultural products in urban markets. One of the main issues faced by Nigerian smallholder farmers in the supply chain of agricultural products is the long marketing chain that involves multiple actors and several intermediaries or middlemen whose primary objective is to maximize profit. While the consumers pay higher prices to the middlemen, the farmers, who are the main producers, helplessly receive very low prices from the middlemen which cripple their economy and consequently the economy of the nation. Such issues and challenges related to the traditional agricultural supply chain that militate against agricultural supply chain in Nigeria are discussed in this paper. Amidst the challenges therefore, the paper explains the relevance of cooperative movement in the supply chain of agricultural products and the way forward so as to ensure effective and efficient supply chain of agricultural product so that the present effort of the Federal Government to reposition the agricultural sector for national economic development would be fruitful. Secondary source of data were used, and the paper further made workable recommendations.

Keywords: Cooperative movement, marketing, agricultural supply chain, agricultural products.

Introduction

Agricultural cooperatives, which are commonly formed by smallholder farmers, aim at boosting the production capacity of the members. Based on their main activity, agricultural cooperatives can be classified into three broad categories namely; Agricultural marketing cooperatives which bargain for better prices for the members' produce. They handle, store/preserve, or process and sell members' farm produce. Farm supply cooperatives which may purchase in volume, manufacture, process and distribute farm supplies and inputs such as seedlings, fertilizer, feeds, chemicals, farm equipment, hardware, and building supplies to the members and Service cooperatives which provide services such as trucking, storage, grinding, drying, artificial insemination, irrigation, credit, utilities, and insurance. These categories of Agricultural cooperatives usually vary greatly with regard to functions performed and the size. Most of the agricultural cooperatives are relatively small businesses (Banishree, Nirod & Kumar 2006).

The word 'agriculture' is coined from two Latin words "Ager and "Cultural" meaning field and cultivation respectively. Agriculture is one of the oldest industries and its origin is traced back to the earliest human societies in search for food, clothing and shelter. Man adopted agricultural practices as technical skills and material resources grew. Agriculture is one of the important sectors in every country. There are more than 570 million farms in the world and more than 90% are run by individuals or family (Sarah, Jacob & Saumya, 2014). The vast majority of the world's farms are small or very small of less than one hectare; 12% are between one and two hectares and only 1% of all farms are larger than 50 hectares. Family farms occupy a large share of the world's agricultural land and produce about 80% of the world's food (Sarah et al, 2014). Agricultural production is broadly categorized into input supply, production, processing, sales and distribution to consumers, or known as the agricultural supply chain (Parwez, 2014). One of the issues faced by farmers in the supply chain of agricultural products is the long marketing chain involving multiple actors and several intermediaries between the producers or farmers and the final consumers. Many smallholder farmers rely on intermediaries also known as middlemen in their marketing effort to sell their agricultural products to customers. They rely on collectors as it is not worthwhile to transport and sell their products to the market themselves. The collector will distribute the agricultural products to processors, followed by large and small wholesalers, and then to retailers before it reaches the hands of the final consumers. As many traders are involved, the agricultural supply chain is considered inefficient and a slow process. At the same time, marketing margin occurs each time the agricultural products pass from one intermediary to the others. The more the intermediaries get involved in the supply chain, the less the farmers get the profit. While consumers have to pay high prices for the agricultural products, farmers receive a low profit margin in return.

Considering the drive of the present administration to revitalize the agricultural sector, it becomes critical to ensure an efficient supply-chain management for agricultural products, especially by the Nigerian smallholder farmers who face so many challenges. An alternative pathway for farmers to increase their income is through their involvement in the cooperative movement, particularly agricultural cooperatives. Worldwide, cooperatives have demonstrated their contribution to economic growth, food security and community development. Cooperative movement in agriculture has economic and cultural benefits for farmers as well as consumers (Dimitri, Athina, Vasiliki, & Maro, 2011). The sector increases the income of farmers and the consumption of agricultural products by consumers, thus helping to strengthen rural-urban relationships. The thrust of this paper is to analyze salient issues and challenges associated with agricultural supply chain especially among rural or smallholder farmers and the place of agricultural cooperatives in remedying the situation.

Conceptual Clarifications

Supply Chain

In general, supply chain can be defined as a sequence of processes involved in the production and distribution of a commodity. It is a set of organizations directly linked by one or more upstream and downstream flows of products, services, finance, or information from a source to customers (Jacoby & David, 2009). It is a flow of products from suppliers to end users, and linked by a network of organizations such as producers or farmers, collectors, big wholesalers, small wholesalers and retailers.

The concept of supply-chain management is based on two core ideas. First, generally every product that reaches an end user represents the cumulative effort of many organizations. These organizations are collectively referred to as the supply chain. The second idea is that most organizations only pay attention to their activities. As a result, few organizations really understand, or much less manage the entire chain of activities that ultimately deliver products to the final customer. The result is disjointed and often ineffective supply chains.

Agricultural Supply Chain

An agricultural supply chain encompasses all the input supply, production, post-harvest, storage, processing, marketing and distribution, along the "farm-to-fork" continuum for agricultural products (Rao & Punwar, 2004). These functions typically span other supply chains, geographic and political boundaries and often

involve a wide range of public and private sector institutions and organizations. The underlying objective of agricultural supply-chain management is to provide the right products (quantity and quality), in the right amounts, to the right place, at the right time, and at a competitive cost. For governments, there may be broader objectives involved, especially where the supply chain is specifically strategic for trade or critical in the domestic food system. These objectives might relate to maintaining low inflation, maintaining social stability, sub regional development and increase the national incomes.

According to Jaffee, Siegel & Colin (2008), the agricultural supply chains are networks that typically support three major flows namely:

- i) Physical product flows, which are the physical product movements from input suppliers to producers to buyers to final customers;
- ii) Financial flows, which are the credit terms and lending, payment schedules and repayments, savings, and insurance arrangements, and
- iii) Information which coordinates the physical product and financial flows.

The agricultural supply chain can occur in domestic or cross national borders. The domestic agricultural supply chain refers to the flow of agricultural products from producer to end users in domestic markets while the international agricultural supply chain occurs when the products are exported to other countries. Some organizations and service providers are specialized in specific activity, while others are involved in several different supply chains. For example, a big farm produces agricultural products and at the same time provides logistics and transportation services for other farmers. Some retailers on the other hand, are only involved in the selling of agricultural products to customers. The agricultural supply chain normally receives support services from both the public and private sectors which includes technical and financial services.

The model of agricultural supply chain is presented in Fig. 1.

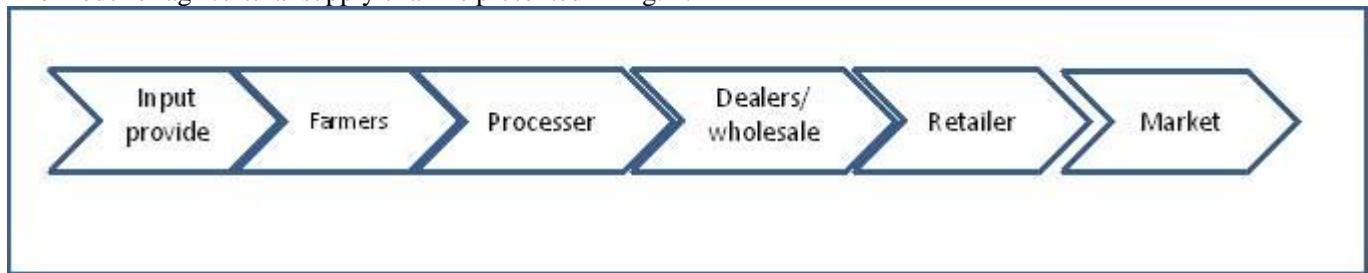


Fig. 1 Traditional Agricultural Supply Chain Model (Adopted from Allen Robert 2004).

According to Banishereet.al (2006), agricultural supply chain is a set of activities from the supply of agricultural input, the production of agricultural products by small and large farmers to consumers. Customer is an integral part of a supply chain. It consists of several intermediary organizations, such as village traders, stockist, processor, wholesaler, retailer, before the agricultural products reach the consumers. The organizations in the agricultural supply chain work individually and independently, and the objective is to maximize their profit. The networks between the organizations basically determine the supply and demand of the agricultural products. The agricultural supply chain activities, according to Banishereet.al (2006), include:

- i) Supply of agricultural inputs such as seed and plant materials, fertilizers and agricultural chemicals by traders in the village or urban areas. The supply of agricultural input is determined by demand in the industry. Generally, the demand is higher during cultivation and fruiting seasons, while it is stabilized during other seasons.
- ii) Production of agricultural products by small and large farmers. The type of agricultural products is usually determined by market trends based on customer demand during certain activities or festivals, such as religious festivals, national celebrations and school holiday.
- iii) The processing aims to add the value of agricultural products by cleaning, drying, sorting, selecting the good-quality products, packaging and storing them in the right environment before they are purchased by wholesalers.

- iv) The collectors or pre-harvest contractor plays crucial roles in collecting the agricultural products which were cultivated and scattered all over the villages and regions. Generally, farmers wait for the collectors or pre-harvest contractor to come to their farm and buy their products at the farm gate. It is not worthwhile for the farmers to bring their produce to the collecting centers because they produce in a small quantity.
- v) Marketing the products at domestic or global markets aims to fulfil the requirements by consumers. They are sold through wholesalers, distant retailers and retailers at village and urban areas. The marketing of agricultural products for international markets will involve the exporters and importers from the receiving countries.

Issues and Challenges associated with Agricultural Supply Chain of Smallholder Farmers in Nigeria

Agricultural marketing involves complex activities as it is carried out by farmers individually and involves a large number of intermediaries or middlemen such as the collectors, commission agents, wholesalers and retailers to market their products. Agricultural products are characterized by their homogeneity, seasonality, bulkiness, preserving methods and are not in standard sizes. The agricultural products require special supply-chain management that includes post harvest handling, processing, packaging, storage management and logistics and transportation. However, the real challenges faced by the farmers in Nigeria are when they want to dispose the same commodities at the same time. The overly supply of the same commodities at the same time gives the chance to the middlemen to manipulate the price. The middlemen exploit farmers resulting in the low share of supply, and because they work individually. They have no bargaining power in the negotiation with the middlemen, resulting in unprofitable sales. The objective of these middlemen is to maximize their profit margins at the expense of the farmers. The exploitative activities of middlemen have always led to the fluctuation of prices of agricultural products which seriously affect the income of the farmers in Nigeria. This ugly trend is worsened by lack of adequate knowledge of price trends, marketing techniques, market channels and the general level of poverty among the farmers.

As farmers, especially local farmers are hard-pressed for money to meet their initial and operational capital for their agriculture venture, they helplessly find themselves at the mercy of the middlemen. Such financial constraints as credit availability, higher interest rates for landing and cut-throat collaterals from money-lenders give the middlemen more room to monopolize price decisions. This forces the farmers to either go into advanced sale contracts or sell their produce at very low prices. These issues need urgent attention by the Federal Government of Nigeria, in its quest to develop the agricultural sector.

Generally, some of the issues and challenges of the traditional agricultural supply chain, according to Sarah, et al(2014) are as follows:

- i) Inefficiency in the whole supply chain coupled with small farm size which results in a long chain of intermediaries, multiple handling, loses in quality and increase in the gap between producers and consumer prices.
- ii) The agricultural supply chain requires support services such as financial and technical services that can assist farmers in entering the local and global markets. The support services for domestic supply chain include fiscal and financial sector policies, pricing and investment incentives and institutions, the regulatory and legal framework. However, the challenges of providing and lending the rural financial services include high interest rate for borrowers and high risks faced by lenders due to uncertainty of agricultural productions.
- iii) The supply chain involves flow of physical products from producers to customers, and flow of financial and information from customers to producers. However, the factor that has attracted the most attention of policy makers has to do with the lack of appropriate information and dissemination of knowledge. According to Parwez, (2014), the traditional models of information dissemination have failed in the growing demand by farmers and the business community.

- iv) The agricultural supply chain needs adequate logistics and transportation services. Logistics and transportation are most important economic activities among business venture. However, the cost of logistics and transportation is estimated between one-third to two thirds of the total cost of agricultural products. The higher cost of transportation reduces the farmers' profit margin.

The Relevance of Agricultural Cooperatives in the Supply Chain of Agricultural Products in Nigeria

In a very simple term, a cooperative can be defined as a group of people work in cooperation for a common objective. The International Cooperative Alliance ICA (1995) on the other hand, defines a cooperative as “an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise”.

A cooperative is a member-owned, member-run and member-serving business organization. Its operations are guided by seven principles that make it distinct from other businesses. The principles are Voluntary and open membership, Democratic member control, Member economic participation, Autonomy and independence, Education, training and information, Cooperation among cooperatives, and Concern for community (ICA, 1995). In general, the co-operative functions and objectives are presented in Table 1.

Table 1: Function and objectives of co-operative movement

Cooperative Functions	Definition	Objectives
Banking/credit	Another form of banking institution that provide business loans to farmers, and mortgages.	To provide financial services for members
Industry	Association of workers involved in cottage or village industries.	To undertake collective production, processing & marketing of goods manufactured by the members & provide them with the necessary services & assistance
Logistics and Transportation	Association of logistics and transport providers	To provide logistics and transportation for individual and business venture
Agriculture production	A collective efforts by farmers in production and marketing agricultural products	To aggregate purchases, storage and distribution of farm input for producing agricultural products
Agricultural marketing	Cooperative business owned by farmers, to undertake transformation, packaging, distribution and marketing of agricultural products	To undertake collective marketing activities for members
Consumer	It is a form of free enterprise that is oriented toward service rather than pecuniary profit. It often takes the form of retail outlets owned and operated by their consumers	Collectively purchase and sell agricultural products to enterprise

The agricultural co-operative also known as farmers' cooperatives which is the focus of this paper is where farmers pool their resources in a certain area of activities and work together in producing and marketing the agricultural products. They purchase and supply their members with inputs for agricultural production,

undertake transportation, packaging, distribution and marketing farm products together. The operation of transportation determines the efficiency of moving products from producer to customers. It involves packaging, moving activities, service quality, delivery speed, cost of operation and the usage of facilities. The logistics and transportation cooperative will determine the customers receive the agricultural products on time, safely, in good quality and at reasonable cost.

The existence of Agricultural cooperatives has a big impact in the generality of agricultural development in Nigeria. These include employment creation, market development, enhancement of rural incomes and the improvement of access to social services. It has been evident that agricultural cooperatives have been responsible for introducing the exchange economy in rural areas. It has been responsible for developing modern markets in rural areas, provide ready markets for farmers' crops and at the same time absorb transaction costs (Dimitiri, et al 2011).

The relevance of Agricultural cooperatives in the supply chain of agricultural products in Nigeria can be seen in the following specific ways:

- i) Farmers can achieve economies of scale from concerted efforts in the production, logistics and marketing of their agricultural products. For example, it is cheaper for a group of farmers to buy agricultural inputs such as seeds, fertilizers and pesticides in a bulk, rather than buying individually in a small amount. The economies of scale enable the supplier to deliver the agriculture inputs in bigger amount and reduce the cost per unit.
- ii) An agricultural cooperative, which is a combination of farmers, can enhance their bargaining power when they want to purchase their agricultural inputs or to get services. They also have a bigger power when dealing with the intermediaries such as collectors, wholesalers and marketing agents. A cooperative that has a bigger amount of agricultural products can bargain a higher price with the wholesalers and retailers because it has the quantity.
- iii) An agricultural cooperative society is generally served by professionals who have unique academic qualification and experience. These professionals work as managers, supervisors, consultants, marketers and agents. These professionals understand the need by the industry and experiences in dealing with other businesses ventures. They will deal with the sellers and buyers on behalf of farmers. This situation reduces the burden of farmers and allows them to manage their time more efficiently.
- iv) Agricultural Cooperative transportation systems integrate the resources of the cooperating companies to optimize the economic benefits. The main benefits of the techniques are (i) properly increasing delivery trip loads; (ii) reducing unnecessary trips, as well as pollution and costs; (iii) reducing service area overlaps; (iv) increasing service quality and company profits.
- v) The consumer co-operative has the objective to provide basic and essential household products at higher quality and at reasonable price to its members. The activities include the running of agricultural markets, fresh and processed stores to members and public at large. This very important in agricultural supply chain.

Table 2 summarizes the relevance of Agricultural cooperatives in the supply chain of agricultural products in Nigeria:

Table 2: The Relevance of Agricultural Cooperatives in Agricultural Supply Chain

Intermediaries in Traditional Agricultural Supply Chain	Cooperative Functions	Scope of Activities	Products/Services
Money lender	Banking/Credit	· Financial services	• Loan/mortgage
	Industrial / Supplier	• Input supplier	• Fertilizer • Bio-products • Seed and plant materials

Logistics and transportation	Logistics and transportation	• Logistics and transportation of agricultural products	• Storage and transportation services
Producer	Agriculture production	• Production of agricultural products	• Fresh and processed products
Collector	Services	• Commission agents	• Collection and distribution of agricultural products
Processor	Industrial	• Processing of agricultural products	• Producing agricultural products
Wholesaler	Agricultural marketing	• Marketing of agricultural products	• Agricultural products
Retailer	Agricultural marketing	• Marketing of agricultural product	• Agricultural products
Local market	Consumers	• Marketing of agricultural products	• Agricultural products

The Way Forward

The aim of agricultural supply chain is to ensure the efficient and fast delivery of agricultural products from producers to consumers. For this to be effectively achieved in Nigeria, the following are suggested as the way forward:

1. Realizing the importance of cooperative movement in the supply chain of agricultural products, the Federal Government of Nigeria through the Cooperative Federation of (FCN), should play greater roles by providing more initiatives and incentives to the cooperative movement for them to be more effectively involved in the supply chain.
2. The national, regional and international cooperative movement should play their roles as the coordinators and monitors in the networks of agriculture movement when the trading is made between the same nations, or between regional and in the global arena. This could be achieved through clearly articulated policies and proper monitoring and evaluation measures.
3. The negative impact of the lack of an enabling environment for cooperative movement in Nigeria cannot be overemphasized. To function well, cooperative organizations need a robust enabling environment with solid prudential regulations aimed at protecting democratic member control and ownership, autonomy, as well as voluntary and open membership. Such a framework must be simple and transparent concerning its registration, auditing and reporting processes.
4. There should be an urgent transfer of intermediaries of agricultural supply chain to the cooperative movement. This will reduce the intermediary organizations in the agricultural supply chain, and create a more efficient value chain of agricultural products. It should be noted that the cooperative movement will return the profit of every business venture in the supply chain back to its members which will contribute immensely to national economic development.
5. The value and objectives of cooperatives are solidarity, cooperation among cooperatives, free will, democratic practices, improving economic and social life, support and development of agricultural incomes. The transformation of the agricultural supply chain through the cooperative movement will remedy the problem faced by individual farmers in Nigeria such as introversion of agricultural

activities, under funding, petty interest in the business venture and lack of technological infrastructure. This is because every business venture in the agricultural supply chain will be carried out by the cooperative movement and all decisions will be made by cooperative members for their benefits. This effort will benefit all parties, especially smallholder farmers in Nigeria who are the members of the agricultural cooperative movement as well as consumers.

The transformation of agriculture supply chain model through the cooperative movement is presented in Fig. 2.

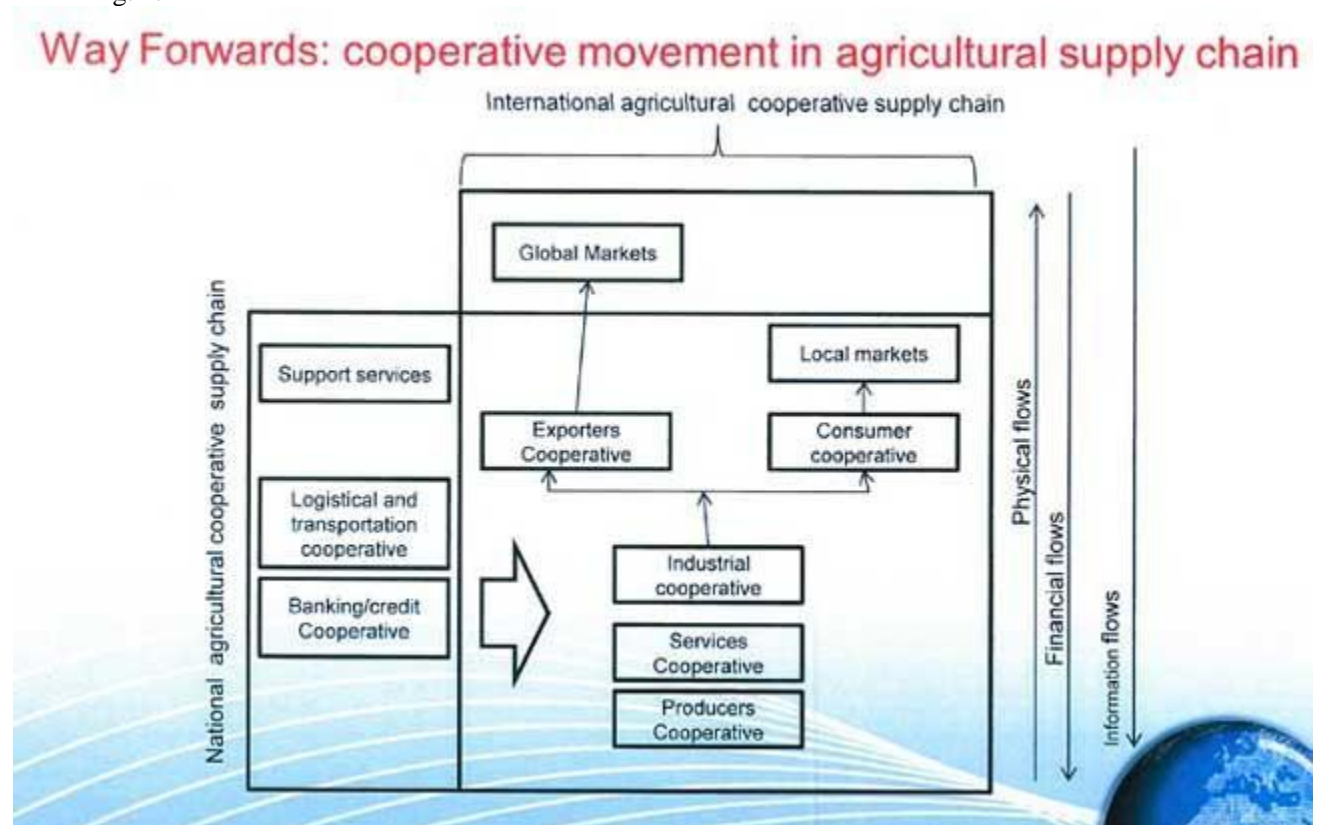


Fig. 2: Transformation of agricultural supply chain model through cooperative movement (Adopted from Jefeet *al.* 2008)

Fig. 2 indicates the agricultural supply chain model that involves the cooperative movement. Every cooperative plays the role of intermediaries in the supply chain and focuses on the function that it has capability and competitive advantages in producing the agricultural products or providing services. The involvement of cooperative movement will reduce the intermediaries of the supply chain and thus, ensures efficient and effective flow among various stakeholders of any business activity and strengthening the supply chain.

The producer cooperative will replace the supplier of agricultural inputs and at the same time integrate the production of agricultural products. The integration of business activities among cooperative movement will reduce the cost among intermediaries. The cooperative movement will enable the purchase of agricultural input and the production of agricultural products in economies of scale. This will enable the cooperative movement in Nigeria to improve the quality and reduce the cost of operation in every intermediary.

The services cooperatives such as the technological and ICT organization and Credit cooperatives will provide technical and loan/mortgage services to other cooperatives, create an horizontal integration in nature. Every cooperative contributes in the supply chain management and follow the cooperative principles, which is sharing of profits.

Optimizing the entire supply chain, therefore, requires a level of information sharing, teamwork, cooperation and collaboration among the participating enterprise. Given the scenario of interdependence among cooperatives, rapid interchange of data on products and activities among cooperatives in a supply chain will reduce the transaction costs. Information can be shared and disseminated efficiently and effectively through the promotion of ICT-based e-government where all farmers and agricultural business community can assess the information freely, faster and accurately. The information can be accessed from computers or hand phone anywhere in Nigeria.

Conclusion

This paper discussed broadly the role of cooperative movement, particularly agricultural cooperatives in the supply chain of agricultural products in Nigeria. From the discussion thus far, agricultural cooperatives can be seen as an effective and efficient marketing channel or composition of intermediaries in the supply chain of agricultural products. The performance of the supply chain is determined by the ability of the cooperative organization to deliver agricultural products to consumers at the right time and with cost effective. The real measure of supply chain success is how well activities coordinate across the supply chain to create value for customers, while increasing the profitability of every link in the supply chain. In other words, supply-chain management is the integrated process of producing value for the end user or ultimate consumers. The instrumental character of agricultural cooperative organization gives it the gamut to enhance effective and efficient supply chain of agricultural products in Nigeria which is quite indispensable to agricultural development in the country.

Recommendations

The following recommendations are made;

1. Agricultural cooperatives in Nigeria should be encouraged with adequate funds by the government through the Bank of Agriculture. This will help boost the supply chain of agricultural produce to consumers both within and outside the country.
2. Cooperatives should help smallholder farmers to source for buyers and possibly involve in the negotiation process. This will not only help the farmers get more money in their purse, but also encourage them to be effective members of the association.
3. Agricultural cooperative societies should carry out aggressive sensitization campaign among smallholder farmers in rural areas on the need to join and be active cooperative members.

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