
AGRICULTURAL EDUCATION AS CATALYST FOR ACTIVATING PROGRAMMES, ACTS AND POLICIES FOR ENHANCING FOOD SECURITY IN NIGERIA

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Abstract

A significant proportion of the world's population is undernourished with about 26.8% of the population in sub-Saharan Africa suffering from chronic malnutrition. The issue of food security has been one of the major concerns of the twenty-first century. The paper adopted the literature review approach to examine the contribution of agricultural education to food security in Nigeria as well as the present and past government efforts at addressing food security. The paper also examines the agricultural policies of past and present governments of Nigeria to address the issue of food insecurity. Some of the policies acts and programmes include National Accelerated Food Production Programme (NAFPP), Agricultural Development Projects (ADP) and National Home-Grown School Feeding Programmes (NHGSFP) among others. The study recommended that government should boost agricultural education through an increase in budgetary allocation, motivation and recruitment of qualified personnel, and change of current status of agricultural science from elective to compulsory while linkage between agricultural education and agricultural policies and programme and acts in Ministry of Agriculture and Natural Resources should be ensured. The study, therefore, concluded that food security can be attained through effective repositioning of agricultural education, to serve as means of sensitizing the youths to government efforts in agriculture thereby catalyzing to boost government agricultural programmes.

Keywords: Food Security, Agricultural Education, Agricultural Policy,

Introduction

Agriculture adds substantially to the development of Nigeria's economy through the provision of food for the increasing population, provision of needed raw materials for the growing industrial sector and generation of foreign exchange among others (Food and Agriculture Organization [FAO], 2006). The practice of agriculture could be traced to the origin of man. It is the process of tilling the soil and raising animals and supply man with plant and animal products (Asoegwu & Asoegwu, 2007). Ndem (2013) stated that Agriculture is an aspect of biological science that involves growing of crops and keeping of farm animals for the use of man as well as supplying industrial raw materials.

The basic use of agriculture lies in the provision of food for human nutrition. Food is substance eaten to supply the body with nutrients to support a man to maintain life and growth. Food is very essential to man as it is a basic need of life for sustainability and survival of humans. The need to ensure that every citizen of the country is well fed and nourished and have excess for sale to other countries inform the inclusion of agricultural education into Nigerian schools. In other words, the introduction of the study of agriculture in school as a subject was to ensure better productivity in agriculture thereby ensuring food security.

The Food and Agriculture Organization of the United Nation [FAO] (2010) explained food security as an uninterrupted opportunity by people to produce the food required for health needs and active life. The provision of adequate, nutritious, and safe food to all people has been one of the major global concerns of all times. Food security is a situation where all individuals and households at national, continental and worldwide have direct and economic opportunity to enough, safe and nutritious food to supply the dietary requirements and food preference for a strong and healthy life at all times (Abbey, 2011). Food security can also be referred to as the ability of households to meet basic/subsistence needs of protein and energy to function effectively as healthy individuals. This entails a situation where everyone has access to enough food that can support a healthy as well as productive life to the extent that malnutrition will not exist. This will also include a situation where food is produced through an efficient and effective food system that is costless and which is per the use of natural resources in a sustainable way (Short, 2001).

Food security is usually perceived in four dimensions: food availability, accessibility, utilization, and stability (FAO, 2010). The discussed dimensions formed the total framework of the concept/meaning founded by the FAO. One achieves food security when food is always available at the right quantity and quality. Anyanwu and Anyanwu (2008) reported that cases of food insecurity ensued due to a sudden population increase which implies that the quantity of food and fruits gathered during hunting and local farming is insufficient.

Nigeria, as well as other developing countries, are experiencing food insecurity (food shortage) due to increase in population, lack of good resources management and poor ability to conform to technological changes as well as inability to use education to cope with emerging trends and challenges. Science and technology have played a significant role in ensuring food security. Several technologies have been applied by the government to play a significant role in addressing concerns related to the four dimensions of food security (Steven & Kretzer, 2014)

However, the absence of quality agricultural education has made people to unable to benefit maximally from many of these technologies that are aimed at boosting agricultural productivity.

The significant roles which agriculture plays in the economic advancement of Nigeria prompted the Nigerian government through the Ministry of education to introduce agricultural education into all levels of education in Nigeria to inculcate agricultural knowledge and skills into farmers and upcoming youths to boost national agricultural production. Government belief that through this agricultural knowledge and skills,

there will be an increased supply of agricultural produce to feed the nation as well as boost the national economy. Agricultural education is the form of education that involves the training of learners in the act of farming as well as the techniques of teaching agriculture. Agricultural education trains people who will engage in farming to supply food to the population in human society (Eze & Bankole, 2011).

According to Egbule (2004), Agricultural education is the practice of imparting in learners the agricultural process and the strategies for teaching agriculture. Agricultural education equips learners with knowledge and skills that youths and farmers will require to benefit from technologies as well as maximize the opportunities presented by the government to boost agricultural productivity and achieve food security. Agricultural science or agricultural education is both applied science and vocational subject that is taught to learners from the primary school to university level in Nigeria for promoting self-reliance as well as preparation for further studies. Agricultural education is thus designed for the imparting relevant knowledge and skills for practising agriculture to enhance food security in Nigeria.

According to Federal Ministry of Education (FME) (2008) and Nigerian Educational Research and Development Council (2012), agricultural science is among the major vocational subjects taught at junior and senior secondary school levels in Nigeria. The objectives of the senior school agricultural education programme are to stimulate and sustain students' interest in agriculture; enable students to acquire basic knowledge and practical skills in agriculture; prepare students for further studies in agriculture and prepare students for work in agriculture. Agricultural education objectives for secondary school are all-encompassing. One very important objective of agricultural education as stated above is to stimulate and sustain students' interest in agriculture. According to Isangedighi (2007), students tend to perform well in subject areas that they find interesting. Moreover, the National curriculum on agriculture for secondary schools (NERDC, 2012) stipulates that secondary school agricultural science should be taught in theory and practice to develop the right skills and values in students towards agriculture. To ensure that students are saddled with productive skills and exposed to practical, the Nigerian Educational Research and Development Council (NERDC, 2008) and West African Examinations Council (WAEC, 2017) recommend that schools offering Agricultural Science at the Senior Secondary School level should have school farm and other requisite farm inputs; keep at least one type of ruminant and one non-ruminant animal; establish fish pond; establish apiary (for bee-keeping) and have an orchard. All these recommendations are aimed at making agricultural education effective and qualitative enough to be able to address the problem of food insecurity.

A well-implemented agricultural education programme in the school will achieve the stated objective of stimulating students' interest to produce farm produce. Also, executing agricultural education with a well-equipped school farm could lead to the production of farm produce such as meat, eggs, fish, cassava, maize and yam as well as supplementing protein and energy intake for human beings (Clover, 2003). Farm produce gotten from the school farm because of well-executed agricultural education programmes can also be sold in markets, thereby contributing to the food security as well as bringing financial returns to the school.

As the government is trying to boost agricultural productivity through agricultural education in schools, efforts are also being made through the agricultural ministries and parastatals to enhance farmers' productivity through series of programmes, policies, acts and reforms. Agricultural policies, acts, reforms and programmes are different governmental intervention programmes aimed at re-strategizing, restructuring, and reactivating the agricultural sector for more engagement in farming as well as enhancing national agricultural output (Adama, Ohwofasa & Ogunjobi, 2016)

However, as good as government effort in boosting agriculture through education and programmes, acts, reforms or policies are, the problem of the dichotomy between the two areas have made agriculture not attain the enviable heights envisaged by the government. Implementing agricultural education as stipulated in the curriculum with the use of appropriate resources could also help the student to make good use of opportunities presented through agricultural policies, programmes, reforms and acts of government aimed at boosting agricultural productivity thereby enhancing food security. Therefore, the next few paragraphs briefly examined the government acts, policies, programmes and reforms in the agricultural sectors as well as how agricultural education could be incorporated into the programmes to enhance food security

The Place of Agricultural Education in Agricultural Policies, Acts and Programmes in Ensuring Food Security in Nigeria

Aside from the use of technology to boost agriculture to address the problem of food insecurity, the government has also been engaging the use of acts, policies and programmes to boost food availability thereby enhancing food security. Having technologies to ensure food security is one aspect; making use of such technologies is another thing. Therefore, to ensure adequate use of technologies there is a need for adequate policies, acts and programmes through which farmers and youths are brought in contact with the latest technologies of farming. Hence, the government of Nigeria has made a series of efforts to solve food security by enacting policies, acts and engaging in programmes and reforms that will stimulate the proper use of technologies in tackling food security problems. Few among those acts, policies, programmes and reforms are discussed below:

National Accelerated Food Production Programme (NAFPP) (1972): The programme was conceived by the federal and state government to speed up crop production (maize, rice, guinea corn, millet, wheat, cassava and cowpeas). The initiators of the programme believe that if the production of the targeted staple food crops is accelerated and there will be abundant production to end hunger and related food crisis that may ensue in future (Ayoola, 2001).

Agricultural Development Projects (ADP) 1974: Agricultural Development Projects (ADP) was established in 1974 with pilot schemes in different geographical zones in North East (Funtua), North West (Gusau) and North Central (Gombe) states (Iwuchukwu & Igbokwe, 2012). The success and effects of ADP were discovered to be in the aspect of transformed extension service, building capacity of local people, improvement of rural infrastructure, distribution of inputs, development and transfer of technology to improve rural livelihood and food security (Daneji, 2011).

River Basin Development Authority (RBDA) 1976: The existing abundant water resources in the country and its potential for increasing agricultural production led to the founding of the River Basin Development Authority (RBDA) in 1976. The River Basin Authority became necessary as a result of a consistent reduction in raining season in many parts of Nigeria which has limited cultivation of crops to single cropping throughout the year. RBDA resulted in the creation of many large scale irrigation projects and the nation experienced multiple cropping patterns and an increase in area under cultivation for livestock and fish production (Daneji, 2011).

Agricultural Credit Support Scheme (ACSS) 1977: Agricultural Credit Support Scheme was initiated to enhance the growth of the agricultural sector by making credits available to farmers at the lowest cost. By adopting this method, the government seeks to reduce processing of agricultural credit to increase produce most especially staple foods thereby reducing inflation and increasing export leading to the diversification of government sources of income and enhancing foreign exchange earnings. The initial ACSS fund of N50 billion was established with contributions from the Central Bank of Nigeria as well as from deposits from commercial banks which are meant for the financing of large agricultural projects like establishment of plantations, cultivation of crops, rearing of livestock and raising of fishes as well as hiring and servicing of farm machinery (cited in Eze, Lemchi, Ugochukwu, Awulonu & Okon, 2010).

The National Fadama Development Programme (NFDP) 1990: The term "Fadama" was coined from the Hausa language in Nigeria meaning "irrigable land, usually low-lying plains underlain by shallow aquifers found along with major river systems". One of the key features of the Fadama project was to empower the local communities to make decisions collectively or jointly on how resources will be managed and distributed for their sustenance. Ensuring that farmers are involved in the design and implementation of their sub-projects is an important characteristic of the Fadama project. The project approved by the World Bank has six main components:

1. Capacity building, local governance, and communication.
2. Small scale community-owned infrastructure.
3. Advisory services and input support development.
4. Support to the Agricultural Development Programs (ADPs) sponsored research and on-farm demonstrations.
5. Asset acquisition for individual Fadama Users Groups (FUGs)/Economic Interest Groups (EIGs).

Project management, monitoring and evaluation

It employs a community demand-driven approach that emphasized and promotes beneficiaries' participation and ownership of sub-projects from initiation, implementation, monitoring to an evaluation of the developmental projects (Innih & Dimelu, 2013). The financing comprised counterpart contributions from World Bank, federal, state and local governments and beneficiaries in Nigeria. The Fadama project was implemented in phases as Fadama I, II and III and supported the production of arable crops in the country (Akinola, 2003). The World Bank's Fadama III project was an addendum to the Fadama II project that has made a positive effect on the lives of

rural farmers by increasing their earnings by 63 per cent. Fadama III was established to address the inadequacies observed in Fadama I and II (Ja'afar-Furo, Bello, Mshelia, & Hammanya, 2013). Fadama III project is implemented in 35 states, and in Nigeria's Federal Capital Territory.

National Special Programme for Food Security (NSPFS) 2002: The broad objective of NSPFS is to increase and stabilize food production rapidly and sustainably through the widespread dissemination of improving technologies and management practice in areas with high potentials, and to create an economic and social environment conducive to food production (FAO, 2002). The main aim of the programme is to ensure a high increase in food production in an environmentally and economically sustainable manner through the adoption of local participation, the use of trusted technologies and south-south cooperation (Mero, 2001). The success of the programme was reported by Daudu and Ajayi (2009) and Oruche, Atala, Akpoko and Chikaire, (2012) that there was a high performance of the NSFSP in Benue State in the production of crops such as soya beans, cassava, yam, rice and maize.

Growth Enhancement Support Scheme (GESS) 2012: The Growth Enhancement Support Scheme (GESS) is a component of the Agricultural Transformation Agenda (ATA). It is an innovative approach to fertilizer subsidy and other inputs administration through an electronic system that ensures that only registered farmers would benefit from the scheme. The GESS involved the private sector in the agro-inputs business, especially in the purchase and distribution of farm inputs such as fertilizers, agro-chemicals, and improved seeds to small-scale farmers (Akinwumi, 2012). GESS has drastically reduced the brazen of corruption and massive fertilizers diversion of inputs in the past. The advent of GESS afforded farmers adequate access to agro-inputs which has helped to increase agricultural productivity and improve food security.

National Home-Grown School Feeding Programme (NHGSFP) 2016: Another programme of the government geared towards food security is the homegrown programme. The National Home-Grown School Feeding Programme (NHGSFP) is an initiative of the Federal Government of Nigeria to increase school enrolment and literacy level particularly through feeding of pupils at the lower basic educational level. The homegrown programme could serve as a source of motivation to the school in investing in the agricultural programme since harvest from the school farm could be sold to interested buyers including homegrown contractors or food vendors for school feeding. Also, income realized from the school farm can be used to meet the critical needs of the school aside from knowledge and skills gained by agricultural science students.

The Place of Agricultural Education in Agricultural Policies, Acts and Programmes: As good as the above policies, acts, programmes and reforms in agricultural sectors are, it is noteworthy to mention that the problem of hunger and poverty has not been totally eradicated or significantly reduced in Nigeria. This implies that Nigeria has not achieved sustainable food security. Hence, the need to think of other means through which the objectives of these policies and programmes can be fully realized which could catalyze the achievement of some of these laudable policies, programmes, acts and reforms. One of the programmes that could help to boost the realization of these

programmes, acts and policies in agricultural education. The absence of adequate agricultural education has made many of these agricultural policies, acts and programmes to be ineffective.

The absence of adequate agricultural knowledge and skills through the inadequate blending of agricultural education with government agricultural policies, acts and programmes have made most of those policies, programmes, acts and reforms unable to achieve the desired result of increasing farmers' productivity. Thus, agricultural education must be incorporated into government acts, policies and programmes designed to enhance food security. Agricultural Education involves the acquisition of skills, knowledge and attitude required for the raising of crops and rearing of animals for human use. Agricultural education also entails the training of teachers and instructors who are to inculcate agricultural knowledge, attitudes and skills in youths and farmers. Both dimensions of agricultural education could go a long way in the implementation of agricultural policies and programmes in ensuring food security. Incorporating a Quality agricultural education programme will help the youths and farmers to understand the usefulness of any government agricultural acts, policies and programmes to their personal agricultural development and productivity rather than seeing such programmes as a bogus government project that does not concern the local farmers.

Agricultural education in conjunction with the adoption of relevant agricultural policies, programmes and acts could serve as an important tool by the government to achieve food security in Nigeria. The proper linkage between institutions offering agricultural education and ministries or parastatals coordinating government agricultural policies, programmes and acts is a good practice in this direction. This could be achieved through regular capacity building fora such as workshops, conferences, seminars, symposiums, exchange of facilities and signing of memoranda of understanding where teachers of agriculture and practitioners in the ministry will interact to share ideas. This sharing of ideas will include keeping the practitioners informed about the latest discoveries through research from schools while the practitioner will also keep the school abreast of their challenges as well as government agenda and expectations for national agricultural programmes. Doing this could help to improve the contents of agricultural education by keeping the school abreast of the latest government efforts in boosting agriculture; thereby enabling the school to tailor their curriculum towards the government agenda. At the same time, such fora will assist to update the practitioners about the latest agricultural technologies; thus achieving the long-expected food security for the nation.

Furthermore, agricultural education could help to boost government agricultural programmes by incorporating an informal agricultural education programme into all government agricultural policies, acts, reforms and projects to educate the farmers on the objectives of such policies and acts; the benefit that the farmers will derive from it; the role expected of the farmers; the duties of the government in such acts and policies; the potential benefits to the economy as well as the modalities for participating in such policies, acts and programmes by farmers.

Such informal agricultural training could also include the inculcation of required skills that will enhance the achievement of such agricultural policies, acts and programmes in farmers where there is perceived deficiency. Students in a school

should also be kept abreast of any ongoing agricultural policies, acts and programmes through agricultural education, so that when an opportunity to participate in future agricultural policies, acts and programmes presents itself they can maximize such opportunities. Incorporating agricultural education into these policies, programmes, reforms and acts could help to achieve the long-expected food security for the nation.

Contribution of Agricultural Education to Food Security

Agricultural education inculcates knowledge, skills and attitudes in the area of agriculture into youths. Encouraging agricultural education by the government will enable youths to be well informed about agricultural practices and how to make use of new technologies in agriculture. This acquired knowledge and skills through agricultural education will, in turn, make the youths to appreciate various government policies, acts, programmes and reforms in the area of agriculture, thereby assisting them to make better use of those programmes and policies to achieve sustainable food security.

Another important aspect of agricultural education that could also assist in achieving government programmes, policies and acts on agriculture thereby enhancing food security is the Young Farmers' Club (YFC). The YFC was introduced to attract the youths in all secondary schools across the state to develop an interest in Agriculture. It's an organized group of young people with a common objective to see agriculture as a dignified profession from which people can earn their living. The YFC is an extra-curricular program of activity channelled for complementing teaching and learning of agriculture in schools and boosting food production among the youths.

The Young Farmers' Club makes the choice of projects and programs in agriculture that is undertaken by the club to help them acquire entrepreneurial skills that will enable them to be proficient in the business of agriculture. Example of such project includes crop production, horticulture and orchard development, livestock farming, fishery, poultry and snail production (Egbule, 2002). A well managed YFC under the leadership of agricultural science teacher as the chief adviser or patron could help the club to be aware of government programmes, acts and policies in the area of agriculture thereby sensitizing the youths to avail themselves of these opportunities and at long-run increase food production and contribute to food security of the nation.

Despite the lofty goals of agricultural education in ensuring food security, it has not been able to contribute maximally to food production due to some limiting factors. For example, many secondary school agricultural science teachers are not well trained, hence they lack the pedagogical skills required to stimulate the interest of students in agricultural science. Some of those teachers are not specialists in Agricultural science which makes it difficult for them to impart needed skills in agriculture. Other factors hindering agricultural education from being a potent tool for attaining food security in this country include inadequate qualified agricultural science teachers, non-availability of school farms in public and private schools to support practical agriculture, encroachment on the school land by members of host communities, use of land for non-agricultural related projects, lack of funds to sustain the cost of school farm inputs, erosion, poor storage facilities, lack of interest in agriculture by the students, poor government policy on the status of agricultural

science as an elective subject in secondary school and insecurity among others (Makusidi, 2016 and Amadi & Lazarus, 2017).

However Agricultural education could be used in conjunction with the aforementioned policies, acts, and reforms and programmes to achieve food security in Nigeria if the bottlenecks to implementation of Agricultural education can be minimized or eradicated.

Conclusion

The important position that agricultural education occupies in the implementation of any government agricultural programme cannot be quantified. It is believed that the failure witnessed by the government in most of their agricultural programmes with its attendant food insecurity problems could be due to inadequate blending of agricultural education with agricultural development agenda. Thus, it is expected that the government should not view the agricultural education sector as a separate entity from the government agricultural programme coordinating ministries and parastatals. Rather, they should be viewed as partners in progress and both should be carried along in any government agricultural transformation agenda. Therefore, food security can be attained through effective repositioning of agricultural education, to serve as a means of sensitizing the youths to government efforts in agriculture thereby catalyzing to boost government agricultural programmes.

Recommendations

Based on the foregoing, the study recommends that:

1. Agricultural education should be boosted through proper funding, adequate motivation, and employment of professionally qualified personnel and change of status of agricultural science from elective to compulsory subject.
2. The linkage between agricultural programmes and agricultural education should be ensured through well-organized fora that bring agricultural educators and agricultural practitioners together.
3. Every government agricultural policy, programme, act and reform should also include non-formal agricultural education training sessions to keep the participants well informed about the programmes.

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