The Role of Agriculture Extension in Increasing Food Production As a Strategy in Reducing Poverty in Ido Local Government Area of Oyo State

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Abstract
This study was conducted to investigate the role of agriculture extension in increasing food production as a strategy in reducing poverty in Ido Local Government Area of Oyo State. The specific objectives were to describe the socio-economic characteristics of the respondents, identify agricultural extension strategies for poverty reduction among the respondents, identify the roles agricultural extension play in reducing poverty among the respondents and determine the effectiveness of the strategies. A structured questionnaire was administered to 78 contact farmers and 42 extension agents purposively selected in study area. Information obtained was analyzed using frequency distribution tables and percentages. The information obtained shows the major agricultural extension strategies for poverty alleviation. These include participatory extension service, community empowerment and formation of farmer associations amongst others. Several roles played by agricultural extension in alleviation poverty among the respondents in the study area include improved livelihood, education of farmers and increased production amongst others. Agricultural extension should be decentralized, while empowering communities as well as people in the same vein so as to effectively meet the needs of the people. Infrastructures and social amenities should be provided, that will boost production, raise income of farmers and gradually drive them out of poverty.

Introduction

Agriculture is an important sector in the economic development and poverty alleviation drive of many countries. The importance of this sector is more pronounced in developing countries including Nigeria, where it is the main thrust of national survival, employment, food and foreign exchange (Adebayo and Okuneye, 2005). Agricultural enterprise is found to be not very profitable, though a large majority is depending on it. With the globalization of agriculture, major emphasis is laid on increasing productivity. Major emphasis has been given on production-led extension in the past (Duraisumy, 2007). Farmers have received most of the production technologies from the extension system. The extension system needs to be oriented with the knowledge and skills related to the market. This revamping of extension system will certainty play a catalytic role for ushering in farmer-led and market–led extension (Moni, 2004) which can alleviate poverty. Samanta (1991) highlighted the importance of institutional reconstructing and renewal, and decentralized extension structure. Recently, many developing countries have reaffirmed the essential role that agricultural extension can play in agricultural development as pointed out by Birner (2006) and Anderson (2007).

In Nigeria, the incidence of poverty has been high and upward swinging since 1980. The rising profile of poverty in Nigeria is assuming a worrisome dimension as empirical studies have shown. Nigeria, a sub-Saharan African country, has at least half of its population living in abject poverty (Ojo, 2008). Similarly, the publication of the Federal Office of Statistics (FOS, 1996) reveals that poverty has become massive, pervasive and engulfs a large portion of the Nigerian society. Abiola and Olaopa (2008) states that the scourge of poverty in Nigeria is an incontrovertible fact, which results in hunger, ignorance, malnutrition, disease, unemployment, poor access to credit facilities and low life expectancy as well as a general level of human hopelessness. Nwaobi (2003) asserts that Nigeria presents a paradox. The country is rich, but the people are poor. Okpe and Abu (2009) perspicaciously remarked that Nigeria has witnessed a monumental increase in the level of poverty. According to them, the poverty level stood at 74.2% in the year 2000. It is indeed sad that twelve years after, poverty has been on the increase among its populace.

Research Questions

One of the challenges today is to effectively involve clients of the research system to generate more demand-driven research-for-development agenda. The institutional models for achieving this include, among others, the involvement of farmers and farmers' organizations in the governance of agricultural research, and various types of contractual relationships with clients in executing research (Seck et al., 2010).

The current National Agricultural Research System arrangement is, however, largely incapable of addressing these issues in a coherent manner. In particular, a number of weaknesses, challenges and opportunities have been identified these include lack of a coordinating mechanism at national level; inadequate mechanisms to establish priorities; lack of a national system to allocate resources to priorities; lack of institutionalized monitoring, evaluation and impact assessments; land degradation, lack of research and development capacity; lack of an intellectual property rights (IPR) management system; poor partnerships (public-private, public-public, private-private); ineffective linkages among knowledge and information generators and users; inadequate linkages internationally; lack of participation of the second economy in the formal system of innovation; low level of investment in agricultural research; overlapping mandates of role players and lack of clarification of the role and responsibilities of different role players; poor access to information, weak or inadequate value-addition technologies; biased approach towards technology-directed research versus policy and socio-economic research; insufficient resources for maintenance of national assets and infrastructure; lack of trust among stakeholders; declining science and technology capacity and negative perception of agriculture as being 'rural', associated with unskilled labour and poverty,making agriculture unattractive to the youth and potential students who may contribute to research and development.

This study reviews the impacts of agricultural research policies on the agricultural development and suggests a governance structure that can lead to the development of technologies that are acceptable and adoptable by end-users for a better agricultural development and economic growth. It is in view of the fore-goings that this study tends to raise the following questions:

i. What are the socio-economic characteristics of the respondents?
ii. Identify extension strategies for poverty reduction among respondents?

iii. Identify the roles agricultural extension play in reducing poverty among respondents?
iv. What are the effectiveness of the strategies?

Objectives of the Study

The general objective of the study is to evaluate the role of agriculture extension in increasing food production as a strategy in reducing poverty in Ido Local Government area of Oyo State.

Specific objectives of this study are to:

i. Describe the socio-economic characteristics of the respondents
ii. Identify extension strategies for poverty reduction among respondents
iii. Identify the roles agricultural extension play in reducing poverty among respondents
iv. Determine effectiveness of the strategies.

Significance of the Study

This study has the potential of contributing greatly to the growth of existing agricultural research policies particularly in agricultural sector. Practically, this study will contribute to the decision making process and assist other key actors in the government with the road- maps that will necessitate prompt, responsive and efficient policy making in Nigerian agricultural research sector. It will also suggest the panacea through which frequent failures in Nigerian agricultural research policies can be effectively tackled. Lastly, this study has the potential to strategically improve implementations of the agricultural research policies through its advocacy on reformingthe public bureaucracies in Nigeria, especially those concerned with the implementation of government policies on agriculture. In this regard, this work is a practical pain staking "post mortem" surgical examination of the problems of Nigerian agricultural development as well as the wayforwad.

Literature Review

Agricultural Extension Programme for Food Security

The Federal Government of Nigeria has embarked on various extension programmes. These performances are aimed at making extension services more effective in order to realize the objectives of increasing productivity and thereby raise standard of living of the rural people.

Some of the programmes include River Basin Development Programme (RBDP) Operation Feed the Nation (OFN) Green Revolution (GR) the Directorate for Food, Roads and Rural Infrastructure (DFRRI) Agricultural Development Programme (ADP). Not with standing these interventions, imparts bills of Nigeria kept soaring such that she impact approximately US $ 3.5 billion in food products annually making food impacts to grow at an unsustainable rate 11% per annum (www.doreopartner.com).

Roles of Agricultural Extension for Food Security and Rural Development

Agricultural extension brings about changes, through education and communication in farmers attitude, knowledge and skills. The role of agricultural extension involves dissemination of information; building capacity of farmers through the use of a variety of communication methods and help farmers make informed decisions. Sinkaye, (2005) equates help in extension to empowering all member of the farm house hold to ensure holistic development. Chamalsa and Mortis (1990) said extension workers role is to help farmers and rural communities organized themselves and take charge empowerment of their growth and development. This help to develop group management skills. Extension now support rural livelihood; improve farm and non-farm income; develop market instead of giving information only use diverse and involving approaches, facilitate evolution of learning by doing and experimentation (Suleman and Hall 2004) and encourage capacity to improve planning and managerial capability of rural farmers. (Alex Zijp and Byer lee 2001).

No matter what the name of the system approach or programme the function remain for food security and rural development. Extension is extremely important in helping to confront problems of availability, aces and utilization. It helps to enhance the productivity andconsecutively the production of food. It can assist in providing opportunities for income generation. And it generally provides improvement of nutritional advice through home economies programme and enhances the quality of rural life by way of community development.

Concept of Food Security

Food security in a broader sense has to do with having at all times and adequate level of food products to meet increasing consumption demand to migrate fluctuation in output and price (indria, Gwary and Shehu 2008) United Nation (2009) defined food security as "all people at all times having both physical and economic access to the basic food they need". The world food summit of 1996 defined food security as existing "when all people at all-time have access to sufficient, safe nutrition food to maintain a healthy and active life". Ladele and Ayoola (1997) view food security as a function of food production levels that is high levels of food production is equals to food security.

However to Oriala (2009) food security entails producing food that will go round every citizen both quality and quantity. Yakubu (2001) showed that in 1985-1993 plan placed embargo on importation of some food items in the hope that will encourage local production which will support use of agricultural raw materials for the local industries. For Nigeria to achieve full production of food and to be able to have full food security there is need for the government to revisit all these past policies for effective food production and food security for the nation.

Challenges of Agricultural Extension at Achieving Food Security and Improving Rural Livelihood in Nigeria

The Nigeria extension service is attack by several problems as identified by Agbamu (2005) These include inadequacy and instability of funding, poor logistic support for field staff, use of poorly trained personnel at local level, in effective agricultural research extension agent; farm family ratio and lack of clientele participation in programme development. Others are poor input supply irregular evaluation of extension programme and policy, institutional and programme instabilities of national agricultural extension system. San (2000) stated non availability of food in Nigeria is related to poor infrastructure; including poor feeder roads between the rural areas of food production and urban areas of food consumption in addition there is lack of on farm and offarm storage facilities which inhabit expansion of farm land.

According to FAO (2001) when compared to other African countries Nigeria has one of the highest per capital food output; it account for about 70% of the world Yam and 19% of global market share for cassava. Food losses have a great impact on food availability and security

(Osunde 2008) Nkana, Adamu and Igene (1994) revealed that 20% to 30%, 5% 10% to 15%, 20% and 20-67% of maize rice, cassava and yam are lost respectively at post-harvest stored levels in Nigeria. In addition to this extension service delivery system suffers from in adequate number of extension workers and impart tariff on fertilizer and other agricultural inputs.

Direct and Indirect Effects of Agricultural Innovation on Poverty

Agricultural innovation can have both direct and indirect effects on reducing poverty. Which is more important will be determined largely by the relative speed with which a household adopts new technologies, by the status of the household as a net food buyer or seller, by the degree of market liberalisation conditioning whether particular products are tradable or non-tradable, and by the institutions and incentives facing farmers.

Direct effects

The direct effects of technological innovation on poverty reduction are those benefits captured by the farmers who actually implement the changes, and they manifest themselves in the form of higher profits. New technologies can improve a farmer's income when they reduce the marginal cost of producing one unit of output. Since output prices will for a time be driven by the prevalent (old) technology, profits will increase for those who adopt the new one, with early adopters benefiting the most. Eventually all or many farmers may adopt the new technology, causing increases in output and a possible reduction in output prices. The profit margin created by the new technology may or may not disappear completely. Late adopters or non-adopters (who continue to produce with the old technologies when costs and prices are already determined by the new ones) may be negatively affected.

If this occurs in a closed economy, or in a region which is in effect protected due to poor access or any other variable, the adverse effect (from the producer's point of view) of a new productivity-enhancing technology on farm prices will be faster, and there will be a higherpremium on early adoption. If the process takes place in an open economy, local innovation will have a very small or even negligible effect on reducing the price of agricultural

products, but increased productivity will reduce costs per unit of output, and adopting farmers will benefit from larger profit margins.

However, farming in an open economy means competing on a global scale, with output prices determined by the most productive. Poor farmers are not usually among the early adopters; they lack the necessary access to information, capital, skilled labour, roads, and other such factors. It follows that they stand to gain much less than larger, commercial farmers from the direct effects of technical change, particularly in open economies. Millions of such poor farmers in recently liberalised economies are having great difficulty matching the unit costs of production of their counterparts working under better conditions. In a very real sense, they are running behind international prices determined by the higher productivity of farmers in parts of the world with better comparative advantages, due to more favourable asset positions and production environments, better technologies and policies and institutional incentives more conducive to success.

Indirect effects

The indirect effects of technological innovation on poverty reduction are the benefits passed on to others by the farmers who actually implement the changes. These effects can take one or more of several forms: (a) lower food prices due to higher agricultural productivity and output; (b) employment generation in agriculture; and (c) broad-based economic growth through production and consumption linkages with the non-farm economy.

Lower food prices

Lower food prices are an inevitable consequence of increased productivity due to technical change. Recent studies have established that in the absence of Green Revolution technologies, food crop prices would have been 27 to 41% higher over the past 25 years (CGIAR, 2000). Lower food prices are a fundamental contribution to increasing the welfare of the 300 million urban people who live in absolute poverty and who spend very large proportions of their income on food.

In India, the poorest two-thirds of the population which include the majority of rural people – spend 73% of their income on food (Ravallion, 2000).

Lower food prices also have a major impact on the vast majority of the rural poor, who are net buyers of food either because they are landless, or because they have insufficient land to meet household consumption needs. Eleven percent of India's rural inhabitants have no access to land, and 27% do not operate a farm (Mearns, undated). In Mexico, only 28% of the peasants in the 'land reformed' sector (ejidos) are net sellers of maize, the main food staple of the rural population and main component of the traditional peasant farming systems (de Janvry et al., 1997). In Nicaragua, 23% and 28% of rural households are net buyers of maize and beans respectively, while only 39% and 37% are net sellers of these two major food crops (Davis et al., 1997). Because of this, it has long been argued that the main impact of agricultural innovation on both urban and rural poverty should come from increased productivity resulting in lower food prices.

As in the case of the direct effects, market liberalisation alters the importance of indirect effects on poverty through food prices. The price of food paid by the urban poor and by rural net food buyers will largely be defined by global trends rather than by what occurs at a local or even national level. Whether a country with a liberalised economy is self-sufficient in a particular tradable agricultural product will mean little in terms of its average price to consumers.

Agricultural Employment and Wages

Some improved agricultural technologies can increase total on-farm employment, particularly when they stimulate agricultural output per unit of land per year. Depending on the conditions of the labour market, this can result in increased wage rates. Otsuka et al. (1994) and Otsuka (2000) studied the effect of agricultural innovation on labour demands in the Philippines and other Asian countries. While the first-round effect of adopting modern varieties of rice did increase labour use (both because of greater yields per cropping season and because of multiple cropping), they also found that such innovation soon lead to the adoption of labour-saving technologies

(agricultural machinery in particular), which more than offsets the gain. In thePhilippines, for example, the average use of labour per hectare of rice declined by 20% between 1985 and 1998.

After reviewing the evidence on the impact of technological change on the labour markets, Renkow (2000) concludes that 'although rising real wages might appear to be the obvious result of increased labor demand caused by technological change, empirical confirmation for this is small. Rather, available evidence indicates stagnation or, at best, small increases in real wages...'

Linkages with the non-farm economy

There can be production linkages between the farm and non-farm sectors. Upstream linkages are those stimulated by growth in the farm sector, inducing the non-farm sector to increase its activities to supply inputs and services to the farm sector. Downstream linkages arise when the non-farm sector is induced to invest in capacity to supply agro-processing and distribution services, using farm products as inputs (Reardon et al., 2001).

Targeting the poor in research and extension

Partly in response to the above trends and their effects on the poor there has been a move to develop new approaches to prioritise and target the needs of small farmers in agricultural research and extension. Byerlee (2000) discusses different approaches to improve the targeting of agricultural research for poverty reduction. The basic economic surplus models used by many national agricultural research organisations (NAROs) to prioritise research can be refined to differentiate between different categories of consumers (typically, income or expenditure groups) and producers (normally represented by classes of farmers according to farm size). Also, geographical information systems are used to add a regional perspective to the allocation of research, and this can relate to poverty alleviation if there are differential spatial distributions between the poor and the non-poor. According to Byerlee (2000), 'the effectiveness of targeting will depend on the extent that:

(i) benefits of research are captured by producers
(ii) poor producers depend on agricultural incomes

(iii) poverty is correlated to the targeting variable

(iv) the targeted research can generate economic surplus higher than the cost of the research

(v) the degree and nature of technological spillovers.'

Demand-led, participatory targeting and prioritization approaches are being increasingly applied in agricultural research, extension and development (Scoones and Thompson, 1994; Byerlee, 1998; Collion and Rondot, 1998; Guijt and Gaventa, 1998). In this area there has been an explosion in the number and variety of methods and tools, from the now more traditional participatory technology development and rapid rural appraisals, to the promotion of local farmers' research committees and farmers' field schools, participation of farmers and farmers' organisations in the boards of the research and extension agencies and the relatively recent development of competitive agricultural technology funds.

These participatory, demand-led approaches have provided practical, effective and cost-efficient solutions to the very complex problem of how to make agricultural research, extension and development more relevant to the needs of poor farmers. However, they are not free of limitations. Pretty (1998), for example, estimates that in the mid-1990s there were about two million farmers, in 20 countries, involved in projects promoting participatory sustainable agricultural technologies and processes, and yet he states that these are 'small islands of success' and that 'there remains a huge challenge to find ways to spread or scale up' these processes (p. 28). Farmer participation does not always ensure that the poor lead in influencing the agenda of these programmes; local rural elites tend to control decision-making, as in the case of the local farmers' research committees promoted by the International Centre for Tropical Agriculture (CIAT) and others in Honduras, where illiterate farmers are underrepresented in local organisations (Humphries et al., 2000).

Finally, it must be said that these types of participatory methods are most appropriate when the purpose is to maximise the direct effects of agricultural innovation on participating individuals,

households or communities, but are less relevant in contexts in which indirect effects are important.

Concept of Nigerian Agricultural Policy on Food Production

The definition of public policy is germane in understanding agricultural policy. Public discourse today is saturated with the advocacy or criticism of various policies. It is common to hear of foreign policy, defence policy, economic policy, educational policy and policies in almost every area of government activity. We also hear of policy intension and the commitment of millions of naira to the implementation of certain policies (Ikelegbe, 1996). The concept therefore is central to government or public sector. Public policy is simply actions taken or to be taken and actions not taken or not to be taken by government. It is a statement of what the government wants to do, what is doing, what it is not doing and what would not be done. In the same sense, agricultural policy is the statement of what the government wants to do, what it is doing and what it is not doing and what would not be done as regards to agricultural activities in Nigeria. Nigeria's agricultural policy is the synthesis of the framework and action plans of Government designed to achieve overall agricultural growth and development (Ministry of Agriculture Policy Guide 2004). The policy aims at the attainment of self-sustaining growth in the entire subsector of agriculture and the structural transformation necessary for the overall socio-economic development of the country as well as the improvement in the quality of life of Nigerians (Ministry of Agriculture 2007). The Broad Policy Objectives of the Nigerian Agricultural Policy According to the ministry of Agriculture policy Guideline report (2004), the broad policy objectives of the agricultural policies in Nigeria include:-

(1) Attainment of self-sufficiency in basic food commodities with particular reference to those which consume considerable shares of Nigeria's foreign exchange and for which the country has comparative advantage in local production;
(2) Increase in production of agricultural raw materials to meet the growth of an expanding industrial sector;

(3) Increase in production and processing of exportable commodities with a view to increasing their foreign exchange earning capacity and further diversifying the country's export base and sources of foreign exchange earnings;

Modernization of agricultural production, processing, storage and distribution through the infusion of improved technologies and management so that agriculture can be more responsive to the demands of other sectors of that Nigerian economy;

(4) Creation of more agricultural and rural employment opportunities to increase the of farmers and rural dwellers and to productively absorb an increasing labour force in the nations;

(5) Protection and improvement of agricultural land resources and preservation of the environment for sustainable agricultural production;

(6) Establishment of appropriate institutions and creation of administrative organs to facilities the integrated development and realization of the country's agricultural potentials.

Impact of Agricultural policy on Poverty Reduction and Food Security

Poverty and hunger are closely linked and form a vicious circle. In many ways, hunger can be considered the severest form of poverty. People are willing to sacrifice many needs such as clothes, shelter, health care, and education before they surrender to hunger (FAO, 2003). Several studies conducted to evaluate the impact of agricultural research in Africa widely demonstrated the positive impact of agricultural growth on poverty reduction and food security with a major component of this growth being driven by investment in agricultural research (Evenson, and Gollin, 2003; Evenson, 2001; Pinstrup-Andersen, 2001). High rates of return are commonly achieved from agricultural research and development as seen in a comprehensive statistical analysis undertaken by IFPRI that indicates an average return of around 60% per year for research in developing countries. In spite of this, however, investment in agricultural research has declined since the mid-1980s (Evenson, 2001) and discussions still abound concerning how best to organize and manage international and national agricultural research.

Thirtle et al. (2003) explored the relationship between agricultural productivity and poverty in developing countries between 1985 and 1993. It was found that a 1% improvement in crop yields reduced the proportion of people living on less than US$1 per day by 0.6. Fan et al., (2003) also reported that rice varietal improvement research has contributed tremendously to increase rice production in several countries. In each country, the benefits from rice research are, on average, 10 times higher than the total agricultural research investment.

Research has also helped to uplift large numbers of the rural poor above the poverty line. According to more recent impact assessment studies in sub-Sahara Africa (Adekanbi et al., 2009; Kijima et al., 2008) national and international organizations are making a big impact in reinforcing food security and alleviating poverty through rice research. Rice varietal improvement contributed, on average, US$375 million per year to the region's economy. Overall, improved varieties have increased net revenues by $93 per hectare, with the highest gains in irrigated and rain fed lowland ecologies. The annual returns to investment in rice research now exceed 20%. Studies also revealed that, without varietal improvement, the regional balance-of-payment deficit for rice imports would have been 40% higher (CGIAR, 2006); moreover, an additional 658,000 hectares of land would have been required to maintain current levels of consumption. NERICA, developed by Africa Rice and its partners, is a well-known breakthrough.

It is considered as one of the major recent advances in rice variety improvement. There are many reports of NERICA's positive impact on farmers' livelihood across SSA, from Guinea in West Africa to Uganda in East Africa. Impact studies also reveal that rice research contributes effectively to the realization of almost all the Millennium Development Goals, including halving levels of poverty and hunger, promoting education, improving health, reducing child mortality, empowering women and ensuring environmental sustainability (CGIAR, 2006).

Evaluation of the impact of rice research on food security has shown that rice research is the single largest documented source of agricultural research benefits in the developing world . Annual economic benefits from research enhanced rice productivity, as documented by CGIAR centres and their partners, by more than $19.5 billion. This is nearly 150 times the combined annual investment in rice research as provided by IRRI through the national systems. Ironically,

rice research is the source of roughly half of all documented benefits from the CGIAR system, although it has usually received less than 10% of CGIAR expenditures (CGIAR, 2006). Other analyses have also shown that research-enhanced productivity on rice is the largest expected source of future impact for the poor among focal crops for agricultural research. For example, the World Bank Development Research groups of analysts have found that the productivity growth rate for rice has more than doubled the global poverty reduction potential of any other agricultural product. In the same way, a study by the agricultural economists of the International Institute of Tropical Agriculture (IITA) show that maize research in West and Central Africa pays off and that the generation and diffusion of modern maize varieties in SSA lifted more than one million people out of poverty within three decades (1971-2005) (Alene, 2009). The studyfurther revealed that maize improvement research had a benefit-cost ratio of 21 in the region. This means that every dollar invested in maize research generated additional food worth $21. Estimates for country-level benefit-cost ratio ranged from 11 (Mali) to 84 (Nigeria), with an average rate of return of 43% in West and Central Africa. Since maize and rice are major staples in large regions of Africa, it is clear that investment in agricultural research is yielding perceptible impacts on food security and poverty reduction.

Research Methodology

Research Design

Descriptive survey design will be adopted for the study. This involves studying the subject by collecting and analysing data from a sample selected randomly from among the subject. It will be considered appreciated for the study because it was based on the views, opinion of the respondents as well as the resources available in the area of study.

Population of the study

The population for this study comprised all Agricultural extension workers and Agricultural Development programme (ADP) in Ido local government area.

Instruments for Data Collection

The two main sources of data collection in this research were primary data and secondary data. The primary data were collected from the field survey, using questionnaires. Primary data contained information like age, farm size, income level, family size and other relevant information. The secondary data were collected from books, reports, journals, existing literature review, information from library, ADP etc. **Sampling Technique and Sample size**

Purposive sampling technique was employed to select the respondents. A sample size of 100 respondents included 20 extension agents as obtain from the ADP staff list and 80 contact farmers, obtain from the ADP list of contact farmers.

Measurement of Variables

Independent Variable

The independent variable for the study was the impact of agricultural research policies on agriculture development.

Dependent Variables

Socio-economic characteristics of the respondent

Relevant variables were measured to show the socio-economic characteristics of the respondents.

Age: respondents were asked to indicate their age range and this was measured at interval level21-30years, 31 – 40years, 41 – 50years, 50 and above

Sex: This was measured at ordinal level respondents male, female. Respondents were asked toindicate their sex.

Educational Background: This was measured at nominal level as non-formal = 1, primary = 2,secondary = 3, tertiary = 4

Marital status: This was measured at nominal level and scored as single = 1, married = 2,divorced = 3, widowed

Years of experience: This was measured at ordinal level, respondents were asked to indicatetheir years of experience in research activities.

Extension strategies for poverty reduction among respondents: This was measured on a five

(5) point rating scale of Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2 and Strongly Agree = 1.

The roles agricultural extension play in reducing poverty among respondents: This wasmeasured on a five (5) point rating scale of Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2 and Strongly Agree = 1.

Effectiveness of the strategies: This was measured at 4-point likert scale of not effective, fairlyeffective, effective, and very effective.

Data Analysis Procedure

The data collected for this study were analysed using a descriptive statistics which included the use of frequency counts, percentage scores as well as mean. Data on socio-economic characteristics and Constraints faced in research activities will be analysed using descriptive statistics while Objective II – III will be analysed using a 4-point likert scale of not effective, fairly effective, effective, and very effective.

Results and Discussion

The entire data generated for this study has been statistically analyzed in line with the research questions raised in the study. The results are presented along with the statistical analysis of the questions posited in the study.

Socio-Economic Characteristics of the Respondents

Sex of the respondents

Result presented in Table 1 revealed that most (66.0%) of the sampled respondents in the study area are males, while females constitute 34.00%. This implies that majority of the contact farmers and extension agents are male. This might be attributed to the fact that farming practices were usually the role of men in the setting of the people under study.

Age

The age distribution of respondents ranged from 20 to 60years, majority of the respondents (62%) are within the ages of 40 to 59 years while (17%) falls within the ages of 20 to 39 years. The mean age of the respondents was 48.5 years. According to Surry (1994), individual's efficiency tend to be high and activities are approached with seriousness when one is young and agile.

Educational Qualifications

Table 1 reveals that majority of the respondents (42%) had secondary education, 36% had tertiary education while 3% had non-formal education while 19% had only primary education.

Marital Status

From the Table 1, it revealed that 84% of the respondents are married, 8.0% are single and 6.0% are divorce while 2.0% are widow/widower,

Years of Experience

Experience plays a prominent role in any agribusiness or farm enterprise. Table 1 shows that 4% of the contact farmers have farming experience of 31 years and above. 12% have farming experience of 21 to 30 years while 42% have the lowest farming experience of 0 to 20 years.

Table 1 shows that more than half (78%) the respondents (contact farmers) engage in crop farming, while (18%) engage in both animal and crop farming. A small fraction (4%) of the contact farmers are animal farmers.

Household size

Table 1 reveals that 41% has a household size of 4 to 6 members, which is the dominating household size in the area, 35% has a household size of 7 to 9, while 4% has a household size of 10 members and above, which is the lowest household size of the area. The mean of the household size is 5.6. This implies that most of the respondents have high labour which will aid

farm production. Agribusiness production enterprises play a very active role in household food security and welfare in Nigeria both in rural and urban settings (FAO, 2013)

Table 1: Socio-economic characteristics of the respondents (N=100)

Variables	Category	Frequency	Percentage (%)	Mean
Sex	Male	66	66.00	
	Female	34	34.00	
Age	20–39	17	17.00	48.50
	40–59	62	62.00	
	60 and above	21	21.00	
Education qualification	Non-Formal	3	3.00	
	Primary	19	19.00	
	Secondary	42	42.00	
	Tertiary	36	36.00	
Marital status	Single	8	8.00	
	Married	84	84.00	
	Divorce	6	6.00	
	Window/widower	2	2.00	
Farming Experience	0 -10	42	42.00	
	11–20	42	42.00	
	21–30	12	12.00	
	31 and above	4	4.00	
Household size	1 – 3	19	19.00	5.6
	4 – 6	41	41.00	
	7 – 9	35	35.00	
	10 and above	5	5.00	
Farm enterprise	Animal production	4	4.00	
	Crop production	78	78.00	
	Animal/crop production	18	18.00	

Extension strategies for poverty reduction among respondents

From table 4, the results show that 66 % of the respondents received information on Better livestock breeding practices while 34 % did not. Results further show that 49 % of the respondents received information on biological and integrated of pest control, while 51 % did not. Also, 80 % of the were informed on enhancement sustainability in agriculture production, 90 % of the respondents participate in extension strategies while 80 % received information through farmer to farmer extension. Also, 77 % of the respondents involved in community empowerment, 71 % of the respondents focus on high value enterprises while 64 % involved formation of farmers' associations. Results also show that 64 % of the respondents disagree on decentralization of extension agents while 78 % of the farmers have no access to agricultural loans.

Comparing the strategies indicated by the extension agents and the contacted farmers in Table 2, formation of farmer associations and community empowerment were the most selected. Community empowerment had the closest margin between the extension agents and the contact farmers indicated strategies. By taking a livelihoods and rights approach to reducing poverty, the empowerment of poor people to have the capacity to access new opportunities for wealth creation and cope with their vulnerability moves centre stage. Such empowerment enables poor people to build on their strengths and assets and to engage with local structures and processes. The above findings are in line with Percy and Tanko (2003), who posited that farmers have and will continue to manage their farming systems whether or not extension services are available. Extension services must recognize they are intervening in an ongoing system which the farmer has developed over a period of time, possibly many years. The choices farmers make are based on the knowledge they have and their survival strategies. Poor families know best what risks they can take and what factors affect their ability to improve their lives and to cope with adversity. Farmers usually know when they are losing potential profits or degrading their resource base due to more immediate short term needs, and do not do this by choice. Again, for extension to contribute to reducing poverty it is therefore important to recognize different and diverse livelihood strategies and the multiples use and reason which inform farmers'

Table 2: Extension strategies for poverty reduction among respondents

Extension strategies	Agree (%)	Disagree (%)
Better livestock breeding practices	66 (66.00)	34 (34.00)
Biological and integrated of pest control,	49 (49.00)	51 (51.00)
Enhancement sustainability in agriculture production	80 (80.00)	20 (20.00)
Farmers have access to agricultural loans	22 (22.00)	78(78.00)
Creation of more agricultural and rural employment opportunities	81 (81.00)	19 (19.00)
Decentralization of extension	36 (36.00)	64 (64.00)
Participatory extension strategy	90 (90.00)	10 (10.00)
Focus on high value enterprises	71 (71.00)	29(29.00)
Formation of farmers' associations	64 (64.00)	36 (36.00)
Formation of self-help groups	50 (50.00)	50 (50.00)
Farmer to farmer extension	80 (80.00)	20 (20.00)
Community empowerment	77 (77.00)	23 (23.00)

Source: Field survey, (2019). Figures in parenthesis are percentages.

Role of agricultural extension in reducing poverty among respondents

Table 3 shows the role agricultural extension play in reducing poverty among the respondents. 85.7% of the extension agents indicated improved livelihood while 82.1% of the contact farmers indicated improved livelihood. 71.4% of the extension agents as well as 53.9% of the contact farmers indicated technology generation, while 66.7% of the extension agents as well as 43.6% of the contact farmers indicated technology transfer. 66.7% of the extension agents as well as 70.5% of the contact farmers indicated education of farmers. 19.1% of the extension agents, as well as 15.5% of the contact farmers indicated attitude change. Comparing the ways indicated by the extension agents and the contact farmers, improved livelihood was the most selected and had

the closest margin, 85.7% for the extension agents and 82.1% for the contact farmers. Percy and Tanko (2003) explained that improved livelihood is brought about through: understanding the factors which mitigate or worsen poverty and potentials for sustainable livelihood strategies; diversification and specification; balance between security and income generation; sustainable, cost effective, efficient, appropriate and affordable options rather than maximum production with high input, costs and risk; information provision on external trends, opportunities and threats, new options and opportunities for production, financing, markets, linkages etc; capacity building/training in analysis of options, business skills, marketing, integration of enterprises.

The above findings are in line with Christoplos (2010), who posited that extension and rural advisory services (RAS) are crucial to putting farmers' needs at the centre of rural development, ensuring sustainable food security and poverty reduction, and dealing with risks and uncertainty. Knowledge-sharing mechanisms must focus on critical areas including protecting natural resources, productive farming processes, product development, marketing skills, nutritional needs, and household health.

Table 3: The roles agricultural extension play in reducing poverty among respondents

The roles agricultural extension	Extension agents		Contacted farmers	
	Freq	%	Freq	%
Education of farmers	28	66.7	55	70.5
Family support	18	42.9	27	34.6
Improved livelihood	36	85.7	64	82.1
Attitude change and participation in change programs	8	19.1	12	15.4
Increased production	13	31.0	34	43.6
Community development	23	54.8	28	35.9
Assist in coping and thriving	14	33.3	20	25.6
Moving people into more wealth generating	29	69.1	29	37.2

enterprises				
Provision of credit facilities and subsidies	20	47.6	27	34.6
Provision of social, physical and institutional facilities	16	38.1	23	29.5
Technology generation	30	71.4	42	53.9
Technology transfer	28	66.7	34	43.6

Source: Field survey, (2019)..

Effectiveness of the strategies

Table 4 shows the distribution of strategies for poverty alleviation based on their effectiveness. 50.00% of the respondents indicated that demand driven is fairly effective, while 11.90% indicated that the demand driven is not effective. 59.52% of the respondents indicated that community empowerment is effective, and 16.67% indicated that community empowerment is very effective. Out of the 100 respondents, 40.48% indicated that market driven is fairly effective, while 14.29% indicated that market driven extension is not effective. Out of the 42 respondents, 42.86% indicated that farmer to farmer extension is effective, 19.05% indicated that farmer to farmer extension is very effective, while 14.29% indicated that it is not effective. 42.86% of the respondents indicated that participatory extension service is effective, while28.57% indicated that participatory extension service is fairly effective. Half of the respondents (50.00%) indicated that formation of self help groups is effective, while 2.38% indicated that it is not effective. 45.24% indicated that the formation of farmer associations is effective, while 4.76% indicated that formation of farmer associations is not effective. Less than half of the respondents (42.86%) indicated that focus on high-value enterprises is fairly effective, 40.48% indicated that it is effective, while 9.52% indicated that it is not effective. More than half of the respondents (54.76%) indicated that commercialization of extension is fairly effective, 19.05% indicated that it is effective, while 16.67% indicated that commercialization of extension is not effective. 47.62% of the respondents indicated that privatization of extension is fairly effective, 16.67% indicated that it is effective, while 23.81% indicated that privatization of extension is not effective. From Table 4, 40.48% of the respondents indicated that

decentralization of extension is not effective, while 19.05% indicated that decentralization is effective.

Table 4: Distribution of strategies based on effectiveness

Strategies	VE (%)	E (%)	FE (%)	NE (%)
Demand driven is okay for farmers	7.14	30.95	50.00	11.90
Community empowerment	16.67	59.52	23.81	14.29
Market driven extension	16.67	26.19	40.48	14.29
Farmer to farmer extension	19.05	42.86	23.81	2.3
Participatory extension service	28.57	42.86	28.57	4.76
Formation of self help groups	26.19	50.00	21.43	9.52
Formation of farmer associations	26.19	45.24	23.81	16.67
Focus on high-value enterprises	7.14	40.48	42.86	23.81
Commercialization of extension	9.52	19.05	54.76	40.48
Privatization of extension	11.9	16.67	47.62	11.90
Decentralizing of extension	21.43	19.05	19.05	14.29

NE: Not effective FE: Fairly effective E: Effective VE: Very effective. Source: Field Survey, 2019

Summary, Conclusion and Recommendations

This study was conducted to examine the role of agriculture extension in increasing food production as a strategy in reducing poverty in Ido Local Government Area of Oyo State. Respondents were 100 comprises of extension workers and farmers selected through simple sampling technique. Self-structured questionnaire was the major instrument used for the data collection and descriptive statistics were used which include the use of frequency counts, percentage scores. It was observed that, (66.0%) of the sampled respondents in the study area are

males, age distribution of respondents ranged from 20 to 60years, 62.0% of the respondents are between the age ranges 40 - 50years; individual's efficiency tend to be high and activities are approached with seriousness when one is young and agile.

Comparing the strategies indicated by the extension agents and the contacted farmers in Table 2, formation of farmer associations and community empowerment were the most selected. Community empowerment had the closest margin between the extension agents and the contact farmers indicated strategies. By taking a livelihoods and rights approach to reducing poverty, the empowerment of poor people to have the capacity to access new opportunities for wealth creation and cope with their vulnerability moves centre stage.

The role agricultural extension play in reducing poverty among the respondents high number of the extension agents and contacted farmers involved in improved livelihood, technology generation, Attitude change and participation in change programs, Increased production, Community development, Assist in coping and thriving, Moving people into more wealth generating enterprises, Provision of credit facilities and subsidies.

The distribution of strategies for poverty alleviation based on their effectiveness indicates high percentage of the respondents that demand driven is fairly effective, community empowerment is effective, and market driven extension is not effective.

Conclusion

The result of the study revealed that The major extension strategies for poverty alleviation include participatory extension strategy, community empowerment, formation of farmer's associations, etc. The result showed that the major roles agricultural extension play in reducing poverty include improved livelihood, education of farmers, increased production and others. Agricultural extension plays a vital role in alleviating poverty. Based on the findings of this study, community empowerment was found to be the most suitable strategy for alleviation poverty. There is a greater chance that people, farmers will participate in extensions activities and high income ventures if they are empowered. Emphasis should be made on education so as to equip the people with the necessary information they need to move out of poverty. Farmers

should be encouraged to form association so as to enable them easily obtain loans and credit facilities, as well as pool resources together.

Recommendation

Based on the results obtained from this study some policy recommendations and suggestions that are deemed very important in improving the levels of technical and cost efficiency of the poultry feed industry are proffered.

The following recommendations were made:

- Agricultural extension should be decentralized so that the central government provides extension services, private firms, non-governmental organizations and other bodies provide extension services.
- Farmers should be encouraged to form associations so as to enable them build social capital, pool resources together and obtain loans and credits easily from financial institutions.
- Participatory extension service should be practiced which enable farmers to determine and agree change. When farmers determine changes, they agree to it and actively partake in it. The changes should be such geared towards improving their livelihood, and income.
- Emphasis should be made on education so as to equip the people with the necessary information they need to move out of poverty

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