



## RESEARCH ARTICLE

# EXTENSION NEEDS OF TURKEY FARMERS IN WURNO LOCAL GOVERNMENT AREA OF SOKOTO STATE, NIGERIA

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### ABSTRACT

The research study was conducted in Wurno Local Government area of Sokoto State to identify the role of agricultural extension services in promoting Turkey production. Simple random sampling technique was employed in collecting data from the respondents. Purposive interview was also used particularly for those that cannot read and write. A total of 60 structured questionnaires were used to collect data and responses obtained were analyzed using simple descriptive statistics comprising frequency distribution tables and percentages. Study discovered that disease outbreak, lack of veterinary assistance, poult mortality and inadequate capital were the most serious problems affecting turkey production in the study area. However, poor level of western education, non-availability of credit facilities, poor transport system, crude and expensive agricultural tools or equipment, weather condition, theft, poor feeds, absence of cooperative societies, lack of technical knowhow on how to manage Turkeys, lack of hatcheries and lack of good extension service delivery were also discovered. A conclusion was drawn to say that, adequate planning, financing, availability of inputs and dependable market are necessary to in solving these problems when adequately provided by government otherwise turkey enterprises will continue to be affected tremendously in the area. General poverty level of farmers coupled with lack of credit facilities have affected farmers' ability to take risk and expand turkey production. Inadequate collateral security, rigidity of government credit scheme and sole dependence on personal savings hinders efficient performance of Turkey farmers in the study area. Therefore, the research study recommended that provision of plants, hatcheries, credit facilities good transport system, subsidized agricultural tools and equipment, provision of western education, extension services and formation of cooperative societies will assist to a greater extent in addressing the problems of Turkey production in the area.

**Key words:** Extension Services, Problems, Turkey Production, Wurno Local Government.

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### INTRODUCTION

Well-fed nation is a strong and healthy nation. Agriculture provides a livelihood for more than three quarters of the human race. Food in the form of plants and animals products is one of the first necessities of life and agriculture is the main source of food and fibre for every growing urban and rural population. Agriculture is by far the most widespread form of human activity and it is more basic than any industry even in this machine age (Falusi *et al.*, 1988). The historical development of agriculture starts during the Paleolithic (Old Stone Age), the dominant practice involved hunting, fishing and gathering of wild leaves, fruits roots, snails and insects. At that time man's survival was based on chance, as man was exposed to grave dangers from rampaging wild animals. During the Neolithic age (New Stone Age) when man started a settled life, the cultivation of crops and domestication of animals began, at this time the population of the world was estimated to be only five million people (Ugochukwu *et al.*, 1999).

A vital feature of agriculture is its permanency, Minerals, continuously mined are sure to be exhausted one day but is not the case with agriculture. Crops and animals have been raised since the earliest times and they are still domesticated. The yields have been increased many times to meet the demands of the growing population (Areola 1992). The African people have in common a vast traditional knowledge of agriculture and it is the exclusive occupation of over 80% of the people, this has all pervasive role the live of the inhabitants. Agriculture is the backbone of a stable economy and its importance, particularly in developing countries of the world cannot be over emphasized. It provides a bulk of labour force and contributes substantially to the gross domestic product (G.D.P). In addition, it provides the food needs of the continent. According to food and agriculture organization F.A.O (1990) 61.9% of the active labour force in Africa in agriculture, unlike Europe which has 8.6%, North America 10.3% South America 22.1% and Asia 58.6% where the proportion of agricultural labour force in agriculture is considerable less. The world average is 45.7% which shows that the proportion of agricultural labour force in Africa is far higher than the world average.

Thus emphasizing the importance of agriculture as it touches the lives of the large percentage of people living in Africa. Therefore any resources that will improve agriculture will directly affect the lives of the majority of the people in the continent (Aina, 1995). The importance of agriculture in the economy of West Africa is profound for despite the growth of industries and commerce, it continues to be the principal economic activity of the people in the region about 75% of the population are engaged in agriculture. The West African countries have now formed an economic union which is called the economic community of West African States with the exception of Liberia among its members states the principal industry of all these nations is agriculture (Komolafe, 1981). In Nigeria agriculture has traditionally been described as the "mainstay" of the economy. This is because agriculture accounts for so much of the national economy and rough estimates show that at least 75% of the population is engaged in farming or other occupations related to agriculture. Nigeria's dependence on agriculture in the pre and post-independence era is unique because it not only provides food but also creates employment opportunities. Feeds the industrial sector as well as providing income and foreign currency through external trade which brought about over ₦190 million into Nigeria in 1963 an amount which accounted for the oil boom of the 1970s, the agricultural sector has been neglected and its importance in the nation's economy has lost its recognition. Consequently, there has been a tremendous exodus from rural to urban areas.

Despite the role agriculture has played in the Nigerian economy, those engaged in it are often regarded as low class illiterate citizens (Abdullahi, 1999). With the development of new agricultural systems and skills came the need for specialization in the practice of animal science as a branch of agriculture which deals with the science and art of raising livestock profitably through careful selection and breeding, adequate feeding, proper maintenance of health and the supply of appropriate housing. It also includes the processing and sales of the animals and their products geared to monetary economy in which the farmer keeps an animal with the eventual aim of selling it or its products for profit (Komolafe, 1981). The main purpose of animal production is to provide food for man and his livestock, animal protein has the nutritional advantage of high quality amino acids which is more readily useful to the needs of the human body than that of plants. This is because people who do not eat animal protein of great variety to satisfy their bodies' requirements for essential amino acids for growth and replacement of worn out tissues will be suffering from nutritional diseases such as kwashiorkor.

Poultry in the context of animal science is used to designate those species of birds that have been hunted or reared for a useful purpose and be able to reproduce and grow in captivity and render products of economic value. Birds kept for companionship or beauty are not considered as poultry. Poultry birds include chickens (domesticated fowls), ducks, turkeys, geese, guinea fowls and to the extent pigeons. Turkey originates from North America it belongs to the genus *Gallus* of the family *Phasianidae* but, the name turkey came from an aboriginal Indian word "Turkie". Turkey rearing spread rapidly and is very popular in many parts of the world especially Europe and America. But turkey rearing is not popular in Nigeria primarily because of the management problems often encountered and it consists of about 10% of the total poultry birds in Nigeria. It is however to be noted that turkey is known all over the country and with better extension

education and management techniques, there is no doubt many will be attracted to its production. Turkeys are adaptable to a wide range of climatic conditions and can be raised successfully almost anywhere in the world if they are well fed and protected against diseases, predators and adverse weather conditions. They are raised primarily as meat birds. Turkeys grow faster than the broiler chickens and have a slaughter weight that is about double that of the broiler chickens at the age of twelve weeks (Ogundipe *et al.*, 1978).

Therefore, the apparent need for extension enlightenment is paramount to local farmers so as to increase protein intake which is an issue in a developing country like Nigeria which is located in the warm humid tropic where the level of per capita animal protein intake represents about one tenth of the level of intake in some advanced countries and hence the need for increased protein intake. Poultry keeping consumption can be achieved in the tropics, in view of the fact that it provides a faster and more economical route to achieve these objectives (Tambari, *et al.*, 2001). Animal protein deficiency in the diets of the average Nigerian has been sufficiently documented (Olayide, 1979). There are evidences of high infant mortality resulting from kwashiorkor in Nigeria and lack of suitable food containing protein of high quality with which to treat and prevent those conditions. At present time only a small proportion of the protein in the diet of average Nigerians is derived from livestock and livestock products (Abaly, 1982). However, for a balanced diet many Nigerian nutritionists have advocated that animal protein should constitute about 45% of the utilizable amino acids in the body. The need to meet part of our animal protein requirement from domestic sources suggests the involvement of extension education through change agents for an intensification of production of meat derived from more prolific animals like poultry. A record study by the national committee on green revolution shows that by 1986 there will be a surplus of 200,434 (Two hundred thousand, four hundred and thirty four tones) of poultry products as compared to 1997 (one thousand nine hundred and ninety seven) deficit in beef and by 1989 the poultry sector would have recorded a surplus of 200,434 tones over projected demand while a comparable for cattle for the same year is only 6,300 tones.

Low meat eating population will increase their consumption of poultry meat, if this can be produced and marketed at a reasonable price. In many countries per capita consumption of poultry meat has expanded directly in proportion to the availability of poultry meat at economic price. Generally money spent on feed and labour is paid back within three months of poultry operation. Now poultry keeping has developed into a commercial enterprise where thousands of birds desired attributes are kept to be replaced by larger ones while more efficient strains of birds, balanced feeds, intensive housing and better poultry equipment come into use (Oluyemi *et al.*, 1988). The diet consumed by man is determined by the quality of protein in the given diet. Consequently meat type turkey has a requirement of protein content of about 45% or more of utilizable essential nutrients in their diet through providing the source through egg and meat production. Turkeys are efficient converters of feed into meat based on the efficiency of meat production (Gefu, *et al.*, 2002). Turkey meat is very palatable and acceptable to many people all over the world, the eggs are used as ingredients or raw materials in soap making industries, in bakeries, paints and production of vaccines, its dropping is an excellent fertilizer for enriching poor soils which is richer than those produced from cattle, sheep

and goats. Because of its growing nature it is an ideal animal for scientific investigations and above all it is a source of income i.e. people make it a business and get their livelihood there (Anyanwu *et al.*, 1999).

### Objectives of the Study

The broad objectives of the study is to assess the extension needs of turkey producers in Wurno local government area of Sokoto State and to come up with the means of raising its productivity to meet the protein requirements of the people.

#### The specific objectives of the study are

- To estimate the number of turkey birds in Wurno Local Government Area.
- To identify its potentials in meeting the protein requirements of the people.
- To identify the problems of turkey production in Wurno Local Government Area.
- To suggest ways of improving its productivity

### Statement of the Research Problem

There are so many problems militating against turkey production under tropical and subtropical conditions. The production problems are remarkable features in the turkey industry, hence the need of extension education. Today the greatest constraint in turkey production is high cost of production due to acute shortage and increasingly high cost of production inputs. There is also the problem of management with resultant losses from disease and death coupled with the natural problems of inclement weather. These problems as they affect the performance of the turkey industry leads to the total closure of many farms and low output with resultant scarcity and increasing price of turkey products in the markets. With adequate enlightenment by the extension officers the challenges of turkey production can be drastically minimized

### Justification of the study

Turkey production is a specialized enterprise, while the production of other types of poultry meat has rapidly increased in recent years in Nigeria, very little has been achieved in turkey production yet consumers continue to pay high prices for imported turkeys and even for local turkeys. The reason for the apparent inertia in turkey production appears to be lack of adequate extension teachings and appreciation of its potential in contributing to the protein needs of the consuming public or perhaps lack of understanding of its management and production requirement. The consumption of animal protein per head of population is greater in developed countries than in developing countries. The average consumption of animal protein is between 20 and 30g per day. Protein deficiency is common in tropical Africa because proteinous foods are expensive in poverty stricken areas. The deficiency of protein intake could lead to a disease called kwashiorkor which is common among children particularly after weaning. Carcasses of turkey contains a higher protein content and less fat than carcasses of chickens. The trend of underutilization of our resources and in adequate data about turkey potentials needs to be changed especially through extension intervention for the better due to high demand of turkey carcass and its products. The significance of this study particularly in developing nations of the world like Nigeria cannot be over emphasized in that it will help solve production problems and reduce protein deficiency in humans.

### Scope and Limitation

The study is designed to cover extension needs of turkey farmers in Wurno Local Government Area of Sokoto State. However, the research work was limited to some selected areas and farms in the study area due to lack of adequate finance, time constraints, in adequate transport as well as problems of obtaining classified information on turkey farming in the local government area. The time of administering the interviews which would suits the convenience of both the interviewer and the interviewee is also limited, laying hands on few text books that are relevant to the research was another problems encountered. In view of the problems encountered in carrying out this research, the study is been limited to Wurno local government area. However, this does not mean that the study has no relevance to other turkey production ventures in other parts of Nigeria.

### MATERIALS AND METHODS

Sokoto State in the present form came into being in 1996 when Zamfara State was created out of the former Sokoto State. Sokoto State has a land area of 26,648 square kilometers. It is located on latitude 11° 30' 13° 50' East and longitude 4° to 6° 0' North. It is bordered in the North by Niger republic, Zamfara State to the East and Kebbi State to the South and West. Sokoto State has a total of 23 Local Government Areas. Over eighty percent (80%) of the inhabitants of the state practiced one form of agriculture or the other. The predominant occupation of the people of this area is arable farming and rearing of livestock, cash crops and subsistence crops such as cotton, garlic millet, ground nut, sweet potatoes, maize and cowpea are also produced, blacksmithing, weaving, dyeing, and tanning are other occupational skills practiced widely in the state. In terms of vegetation, the state falls within the savannah zone. This is an open tse-tsefly free grass land suitable for cultivation of grain crops and animal husbandry. Rainfall starts in April/May and ends in October, it is usually followed by dry season from November to March and may extends to May. The topography of the state is dominated by famous Hausa plain of Northern Nigeria. The vast fadama land of River Rima system dissects the plain and provides the rich alluvial soil fit for variety of crops cultivation. There is also isolated hills and mountains ranges scattered all over the state (NPC, 2006).

Sokoto state was the home of many Empires and kingdoms of the pre-colonial western Sudan. These includes, Gobir and Kebbi Kingdom as well as the world renowned Sokoto caliphate whose spiritual and political is the state headquarters. Sokoto state has a population of 2.8 million people based on 1991 census but, there is a projected increase in the present form amounting to 20%. The state is made up of two ethnic groups namely, Hausa Fulani. There are of course Zabarmawa, Gobirawa, Arawa, Tuareg and others in the border local government areas. All these speaks Hausa as common language, Fulfulde is spoken by the Fulani (NPC, 2006) The main study area, Wurno local government is one of the local government areas created in 1976 by the general Murtala Muhammad's administration. The local government headquarters is located in Wurno town which is about 50km Borth east of Sokoto the headquarters of Sokoto State. The local government headquarters is bordered in the North by Gwadabawa, Goronyo local government to the east, Rabah to the south and Kware local government to the north-west.

According to 2006 population census, the local government has a population of 100,964 people, 21624 house hold, 49,785 people are male while 51,179 are female. The climate is a tropical with Sudan Savannah occupying 92% of the area. Raining season starts April/May and ends in October. It is usually followed by dry season of cold and dusty wind which is experienced between November and February. The weather is generally cold every morning becoming warm progressively up till the evening. The weather changes between March and April when heat becomes a little severe. The main occupation of majority of the inhabitants is farming. Mostly they cultivate rice, onions, maize, guinea corn, millet, garlic, cassava, livestock and other important food and cash crops. The culture of the inhabitants of the local government is generally Islamic. However, the Hausa culture also plays a significant role in the life of the people. The cultural values can be seen in the mode of dressing, social relationship and code of conduct of the people. The local government comprises of three (3) districts, that is Wurno, Achida, and Kwargaba districts. Generally the inhabitants of the three districts are Fulani, Hausa, Gobirawa Kabawa, Zamfarawa and Adarawa (Sokoto State Government, 2000).

### Sampling and Sampling Procedure

A total of 60 farmers were purposively interviewed in three (3) district areas. 20 farmers from each district with the aid of structured questionnaire the aspects covered by the questionnaires were demographic data on extension needs of Turkey farmers (Scale of production problems, areas for improvements and suggestions) The questionnaires were administered through personal interviews with the farmers. Four (4) Villages were randomly selected in each districts and Five (5) farmers were purposively interviewed. The reason for purposive selection was due to the size and population of the Local government since the whole Turkey farmers cannot be covered, this was done to reduce the cost and save time.

### Data Collection

Data for this work was collected from both primary and secondary sources, while the instrument used in the collection of research data included questionnaires and interview.

### Primary Data

In the case of primary data, a comprehensive structured questionnaire was formed and administered randomly to the following villages: Wurno, Dinawa, Tunga, Dabagi, Achida, Gidan Bango, Alkamu, Kwasare, Kwargaba, Lugu, Arba and Barayar Zaki only. Farmers from these villages who keep Turkeys will be interviewed and the findings will be analyzed and interpreted.

### Secondary Data

To review the past Turkey farming, many literatures were consulted such as text books, journals, pamphlets, seminar papers, extension workers and other series of publications were consulted. The information obtained were used for the theoretical background of this work.

### Statistical Analysis

In the analysis of data, the researchers made use of tables for analyzing the responses gathered through the questionnaires. All the objectives were achieved through administering questionnaires. Responses obtained from the farmers were

collated, tabulated and analyzed using frequency distribution counts, tables and percentages to determine their relative weight and importance.

## RESULTS

**Table 1. Estimate of the number of turkey birds of the respondents in each district**

District	Frequency	Percentage
Wurno	148	40.32%
Achida	120	32.70%
Kwargaba	99	26.98%
Total	367	100%

Source: field survey 2013.n=60

**Table 2. Source of finance**

Source	Frequency	Percentage
Government	--	--
Loan	--	--
Share holding	--	--
Self-Financing	60	100%
Other Sources	--	--
Total	60	100%

Source: field survey 2013.n= 60

**Table 3 types of breeds reared**

Breeds	Frequency	Percentage
Local	58	96.7%
Exotic	2	3.3%
Total	60	100%

Source: field survey 2013. n=60

**Table 4. source of feeds**

Source	Frequency	Percentage
Commercial feeds	3	5%
Local feeds	57	95%
Total	60	100%

Source: field survey 2013. n=60

**Table 5. Source of feeds**

System	Frequency	Percentage
Intensive	13	5%
Semi-intensive	47	95%
Extensive	0	0%
Total	60	100%

Source: field survey 2013. n=60

**Table 6. Purpose/reason for turkey rearing**

Purpose	Frequency	Percentage
Profit making	60	100%
Consumption	0	0%
Total	60	100%

Source: field survey 2013. n=60

**Table 8 Problems of turkey Production**

Problems	Frequency	Percentage
Disease outbreak	60	100%
Finance	60	100%
Veterinary assistance	60	100%
Poult mortality	60	100%
Egg glut	49	81.33%
Theft	27	45%
Feeding	11	18.3%
18.3%	5	8.7%

Source: Field survey 2013.n=60

## DISCUSSION

Table 1 Indicates the sum total of all the turkey birds of the sampled respondents in each district. It shows that 148 birds representing 40.32% of the total number of turkey birds are in Wurno district, 120 birds (32.70%) of the total number of turkey birds are in Achida district while 99 birds (26.98%) of the total number of turkey birds are in Kwargaba district. Based on the sample of the respondents it showed that, Wurno is ranked first in the production of turkey birds, followed by Achida and lastly Kwargaba district. The reason why Wurno is ranked first in the production of turkey birds is that, majority of the inhabitants had contact with extension agents and thus realized the importance of turkey farming in meeting the protein requirement of the people as well as in income generation. Achida became the second producer of turkey birds because of little contact with change agents. They do not lay much emphasis on its production and its market is not as high as that of Wurno. Kwargaba became the third producer of turkeys because it is in a remote area than Wurno and Achida and its market is not as high as that of Wurno and Achida. Therefore it could be concluded that, marketability tends to encourage more production in Wurno district. The result of this study (Table 2) showed that, all the sixty farmers that were purposively interviewed financed their turkey business by personal savings or self-financing. There was no any assistance from government, banks or other sources. The research discovered that, turkey producers suffered serious financial constraints. This is due to the fact that, they operate on small scale, do not have collateral security for loans and there exist no co-operative society due to inadequate extension contact that will undertake the responsibilities of helping farmers to obtain loans from government and other sources. Therefore it could be concluded that, turkey farming in the study area is being run solely with personal savings of the farmers.

This study showed in (Table 3) that 96.7% of the farmers interviewed were rearing local breeds while only 3.3% of the farmers had improved breeds (*broad breasted type*). It could be seen that, local breeds were predominant in the study area. This led to the production of small sized, slow growing and generally inferior turkey breeds. The implication of producing turkeys with such qualities may lead to the production of higher disease susceptible turkeys with low meat quality and which will attract low price in the market and as such producing turkey that has these qualities is among the problems of turkey production in the study area. There is strong need of extension education in many villages of the area so as to enable turkey farmer obtain improved breeds of turkey for improved profitability. The exotic breeds are improved for production, they have faster growth rate, higher feed conversion ratio and are generally highly productive. The problems of low production of turkey birds in the study area is partly attributed to the type of breed reared. The reason for the rearing of local breed is that, its chicks are commonly available cheaper and more adaptable to the climatic conditions of the area. The study in (Table 4) showed that, 5% of the respondents obtained their feeds from commercial feed sources while 95% of the respondents obtained their feeds from local feeds sources. Those respondents that obtain and feed their birds with commercial feeds were those farmers that reared improved breeds. Farmers commented that, their birds' productivity was highly encouraging when properly fed with commercial feeds in terms of meat and egg production. However the feed is expensive to purchase and due to the high

cost of the feed, sometimes they find it difficult to feed their birds with the required quantity of feed which they are supposed to be fed. Instead they sometimes combine it with local feeds and in some cases they use local feeds only. The sachets of some ingredients and the machines used in ration formulation and when this machines break down, they have to be exported for repair. In case of loss of any parts and ingredients such parts and ingredients are not locally available. All these have limited the degree of ration formulation in the study area and poses a serious problem to turkey production and hence the need for strong and efficient extension education in the area.

The study showed in (Table 4) that, 21.7% of the farmers are engaged in raising turkeys intensively, 78.3% go for semi-intensive system while 0% for extensive system. The intensive system is a system where by turkeys are housed mainly in buildings and their movement is restricted, feeds is been provided to the birds. In this system, the farmers complained that, the cost involved in feeding, housing and loss due to adverse weather conditions discourages them from the system. The semi-intensive system is the system that allows the turkeys to spend part of their time outside in the open feeding on green vegetation, and some parts under cover. The respondents of semi-intensive system opined that, the system is satisfactory as it reduces the cost involved in bringing birds to market. The building required is smaller, and the birds are allowed to feed on green vegetation that will provide cheap protein. The cost of feeding is reduced as the birds can feed on rich pickings of insects and grains at their disposal. However, the feed that is provided under this system may not be as nutritive as that of the intensive system. The extensive system is the system that allows the birds to move in open range, their movement is not restricted. Under this system there is no respondent. The reason for this is that, in this system Turkeys are not well cared for and so growth and reproductive rate is reduced. The farmers recorded higher losses due to soil borne diseases, snakes, theft and adverse weather conditions. Also there is no control and constant observation over the birds and so productivity is low.

Table 5 showed that 100% of the respondents regarded turkey rearing as a profit making enterprise particularly with extension agent's intervention. The farmers responded that they are all in this business just to generate income. But not for consumption. Saying that, they cannot afford to consume its meat because a matured turkey cock is priced at N5, 000.00 in which a typical village man cannot afford to consume considering the cost involved in rearing it and their levels of income. They prefer to sale it and buy N300 fowl for their families to consume. The remaining money will be used as additional source of income to the farmers. The result of the study in (Table 6) showed that, all the sixty farmers that were purposively interviewed responded positively to four notable problems as obstacles in their farming occupation. These problems are: disease outbreak, lack of finance, lack of veterinary assistance and poult mortality. The other problems were mentioned by 81.33% of the respondents which included eggs glut, 45% theft, 18.3% feeding and 8.7% unfavorable weather conditions. The farmers identified that, disease outbreak, lack of veterinary assistance poult mortality then followed by inadequate capital are serious problems militating against turkey production. Farmers need credits to help them buy some drugs and vaccines to treat their birds especially during the poult stage where the farmers lose more birds than

at any stage of their growth. Farmers also needs credits to purchase balance rations for their birds as well as to expand their business and acquire improve technologies to boost their production. Thus, this implies that, financing turkey business with little resources available will restrict expansion of the business and consequently the return obtained may be low. Inadequacy of drugs and veterinary care affects the performance of many farms. Farmers complaint bitterly that they only use tetracycline and ampicillin capsules in water for the birds to drink as the only drugs they have access to. This is what attributed to the losses encountered by the farmers. Government attributes of neglecting the agricultural-sector over other sectors possess serious threat to both crop and livestock industries in the country. Fluctuations of feed stuff prices sometimes discourages many turkey producers from continuing with the venture. Also glut and unfavorable weather conditions during the dry season does not favour higher production as much egg are lost. Finally thieves' times without number render many farmers hopeless by taking away the birds. Turkey are more delicate than chickens and since they are raised mainly for meat, anyone wishing to raise turkeys commercially must be fully conversant with the practical knowledge of raising turkeys and its essential management techniques. Adequate planning, financing, availability of inputs and dependable market are necessary to make a success in turkey business.

At present there are no commercial hatcheries for turkey in Nigeria but, with increasing demands, it will not be long before such hatcheries will be available. Government and quasi-government departments can apply directly to overseas centers for poults. The business of raising grants and parent stock for hatching poults is much more demanding and must be centred upon only when the necessary inputs and expertise are available. Turkey is one of the most valuable source of animal protein. The carcasses of turkeys contains a higher quality protein than the carcasses of chickens proteins are needed by man so that it can supply necessary amino acids which help in enzymes composition, utilization of feed, conversion of fed to growth, repair of worn out tissues, maintenance to diseases. All growth and living process listed above suffers under conditions of poor supply of protein. Therefore the importance of protein to the diet of people cannot be over emphasized especially to the poor members of this community. This study discovered some problems as obstacles in turkeys production these are disease outbreak, lack of capital, poult mortality, poor education, non-availability of credit facilities, poor governments attitudes, poor transportation system, crude and expensive agricultural tools or equipment, weather, theft, poor feeds, absence of co-operative societies, lack of technical knowhow on how to manage turkeys, lack of hatcheries to provide stock of improved breeds and lack of good extension service. The development of agriculture in the country has to be through the conscious efforts of government to create the necessary infrastructures incentives, provide loans and make implementable policies that will transform the agricultural sector for increased production. The manner in which production is organized and the relationships between the nation's producers, policy makers and the consumers still have to be got right.

### Conclusion

Turkey production is a good consideration due to the fact that we want to increase protein intake in Sokoto State, because

large number of people especially children are suffering from nutritional diseases such as kwashiorkor due to lack of suitable foods containing protein of higher quality with which to treat and prevent those conditions (Tambari *et al.*, 2001). Majority of people pay little attention to the consumption of turkey meat and eggs which provides rich source of protein. The research objectives has been to analyze the extension needs of turkey farmers in Wurno local government area of Sokoto State. The study was conducted by the use of structured questionnaires which were distributed purposively to the farmers in order to obtain in-depth information and to come up with a means of solving the problems towards increased productivity. The findings of the research showed that, there were problems of management which were caused by lack of skilled labour. Diseases caused great mortality in young and adult birds. Farmers do not have access to loans and credits facilities from government and non-governmental organizations, they solely depends on self-financing. This is the reason why many turkey keepers operate on a small scale due to inadequate capital which cannot meet the increase population demand for turkey birds.

Farmers state of Education is very poor, greater number do not receive Western Education neither extension services. This therefore affected their level of production. Also the breeds and feeds are of local origin, this militated against large scale production of turkey due to the fact that, the breeds do not have desirable qualities and are generally inferior. The feed provided Turkey production should be encouraged during the raining season as higher productivity ease of management is recorded It could be concluded here that, turkey production plays significant role towards the development of livestock sub sector in the study area. From the result of the study, the local breeds predominate in the study area. More meat, eggs and other products can be obtained from them by raising the present level of inputs. Appropriate innovative systems should include genotype improvement development of diets based on locally available feed stuff, design of cheap housing units, research on oral oil base vaccines and sustenance of marketing system. A systematic approach to indigenouse poultry development should be encouraged in terms of genetic breeding, health care system, and feeds and feeding. General management and economic aspect of raising the profitability of local breeds are other considerations. More so, inadequate collateral security, rigidity of government credit scheme and sole dependence on the personal savings hinder the performance of turkey producers in the area. But with more assistance from government, the constraints facing the performance of turkey keepers may be reduced or totally eradicated.

### Recommendation

In the light of the above the turkey industry is performing well but there is still room for improvements. The researchers think it is necessary to give certain suggestions both to the farmers and the government which hopefully can remedy the situations. Co-operation is a bedrock of development. Therefore, farmers are advised to form co-operative societies that will help them secure loans from the government and other financial institutions. Such co-operatives societies should be encouraged by change agents and assisted in being functional. Emphasis should be laid on ploughing back profit which is the only avenue for the farmers in the absence of government credit scheme and bank loans sound capital base. Financial

assistance to farmers through agencies such as Peoples Banks, Community Banks, Commercial Banks and the Nigerian Agricultural Co-operative and Rural Development Banks (NACRDB) in particular should be provided. A number of specialized agricultural training institutions should be increased so as to produce adequate manpower in the agricultural sector that will expose the farmers to adequate agricultural extension services. Inputs are necessary in turkey enterprises. Therefore government and non-governmental organizations should establish commercial hatcheries to cater for the needs of the farmers in purchasing poults of desirable qualities at a reasonable price to reduce the cost of applying to overseas centers for poults. Government and non-governmental agencies should establish feed mills to produce higher quality feeds and sold at subsidized rate. Since government regulations hampered the importation of ingredients into the country which leads to the breakdown of some mills. Therefore government should be flexible to these policies because feeds cost 75% of total cost in turkey production.

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