



## DETERMINANTS OF TRAINING NEEDS OF YOUTHS IN BROILER CHICKEN PRODUCTION IN OSUN STATE, NIGERIA AND IMPLICATIONS FOR EXTENSION WORKERS

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**ABSTRACT.** This study identified the factors influencing the training needs of youth in broiler chicken production and drew implications for extension workers in Osun State, Nigeria. Data were collected from 221 youth farmers through a purposive sampling procedure and a snowball sampling technique. The data were analyzed using descriptive statistics, correlation, regression and factor analytical techniques. Findings reveal that 43.4% of the respondents were between the ages of 26 and 30 years, 26.7% were between the ages of 31 and 35 years, 19.0% were above 36 years of age while 10.9% of the respondents were less than 25 years of age. Majority (60.2%) of the respondents were males while others 39.8% were females. In addition, 40.7% of the respondents had at least three years of broiler chicken production experience, 34.8% had four to six years of experience, 17.6% had seven to nine years of experience and the remaining 6.8% had more than 10 years of broiler chicken production experience. In addition, vast Majority 86.0% of the respondents raise below 200 birds at the time of this research, 8.1% raise between 201 and 300 birds, 5.0% raised above 401 birds while the remaining 0.9% of the respondents raised between 301 and 400 birds. Furthermore, majority (60.2%) of the respondents have not received any training in poultry farming in the past one year while 39.8% of respondents received training between two to five times in the past one year. In addition, respondents were highly in need of training in five standard practices involved in broiler chicken production, which are: growing management / daily routine management, poultry housing, marketing of birds, litter management and equipment. Two groups of factors; income factors (33.2%) and training related factors (21.0%) that were isolated contributed 54.2% to the training needs of youth in broiler chicken production in Osun State, Nigeria.

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### Introduction

Poultry according to Adeyemo and Onikoyi (2012) is generally considered as a domesticated fowl kept primarily for meat and eggs, which includes; chicken, turkey, guinea fowl, pigeons, ostriches, pheasant, quail, peafowl and swimming birds such as duck, geese and swans. According to Partnership Initiatives in the Niger Delta (PIND) (2013), the poultry sector can be split into commercial poultry farming and rural poultry farming or backyard poultry farming. The commercial poultry farming ranges from small-scale businesses to large integrated poultry farms, and it is conducted with the

explicit purpose of the commercial-scale sale of meat and eggs, while the rural poultry farming or backyard poultry farming is reared for subsistence purposes as well as an occasional source of income. Chicken is the dominant form of poultry in the country, and accounts for over 90% of the sector.

In the early 1980s there was a boom in intensive chicken farming when the government subsidized the prices of day-old chicks and feed ingredients, since then, there has been significant transformation in poultry farming in Nigeria, from backyard, peasant, subsistence rearing of domesticated indigenous birds to modern, cash-oriented and commercial rearing of



chicken occupies a place of pride among the livestock enterprises due to its rapid monetary turnover. This single reason pointed out by Laseinde (1994) and among others has made the enterprise attractive and popular among small, medium, as well as large-scale poultry farmers.

However, PIND (2013) reported that the commercial sector collapsed in 1986, when Nigeria subscribed to the World Bank's Structural Adjustment Programme. Under this programme, the Naira was devalued massively, making poultry inputs such as day-old chicks, feed components, vaccines and equipment (which were largely imported) unaffordable, reducing competitiveness. In order to fill the gap created by this collapse, dependence was heavily tilted towards importation of poultry products. Nevertheless, Heise *et al.* (2015) stated that Nigeria government felt compelled to check its importation and drain on foreign exchange and balance of trade, this action therefore led to the ban on poultry products import. In the meantime, backyard poultry farming, common across rural households has grown steadily during this period.

Similarly, Oyeyinka *et al.* (2011) pointed out that poultry industry in Nigeria has been rapidly expanding in recent years and is therefore one of the most commercialized (capitalized) subsectors of Nigerian agriculture involving thousands of birds. Large poultry units have replaced the backyard poultry units while more efficient strains of meat or egg type birds, balanced feed, intensive housing and better poultry equipment came into use by farmers.

The broilers meat value chain consists of parent stock rearing farms and farmers who rear broilers, feed companies and other input suppliers. The value chain begins at the grandparent stock rearing farm. The process includes rearing parent stock, which lay fertilized eggs. The eggs are then hatched and reared into broilers. The input suppliers such as feed companies and poultry equipment manufactures play an important role in this whole process. The chief feed input supplied by these feed companies includes raw materials such as maize, soybean, salt, vitamins and minerals.

Maize is the major component of the feed ration at about 65%. At the level of the farmer, feed costs constitute about 70% of total production costs. Other input costs consist of veterinary services, heating, bedding, and transport, labour and general expenses. The major output produced from the broiler chain includes day-old chicks, pullets, live birds and broiler meat sold to retailers, restaurants, consumers and exporters.

Osun State Government in 2012, embarked on several projects to mitigate youths' unemployment in the state. The Government empowered 20,000 youths in Community Development Programmes (CDP) but also embarked on developmental projects aimed at taking the State and citizenry out of poverty to socio-economic prosperity. Among the projects introduced was O' Chicken (Broiler Programme). The State Government of Osun imbibed the youths into poultry farming so that

they would become self-reliant after their graduation instead of seeking white-collar jobs endlessly without success.

According to Farayola *et al.* (2013), the poultry sector is characterized by relatively faster growth in consumption and trade volume than any other agricultural sector. In terms of the provision of employment, Central Bank of Nigeria (CBN) (2007) has earlier reported that about 75% of the populace depends on agriculture and agro-based businesses for their livelihood and youth dominated this percent.

Farayola *et al.* (2013) also reported that in Osun State, it was made known that poultry farming is dominated by youth, who are considered to be young agile and active poultry farmers, they are considered to be capable of the tasks involved in poultry production. More so, according to them they are likely to be a set of youth that are unemployed but eventually settled for poultry business but in small-scale production. To buttress this Agbamu (1993) has earlier reported that there was a predominance of medium aged people in farming population.

In the Nigerian context, Nigerian National Youth Policy (2001) defines "youth" as all young persons of 18–35 years old who are citizens of the Federal Republic of Nigeria. However, Torimiro and Laogun (2005) implied from the Nigerian reality and defined the country's youth as young men and women between the ages of 13 and 30. This was based on the expected age of entry into primary education or vocational apprenticeship training, which is usually 13 years, while 30 years is the terminal age for participating in National Youth Service Corps (NYSC) – a youth programme for Nigerian graduates from Universities, Polytechnics or Colleges.

Conclusively, the Children and Youth-in-Agriculture Programme (CYIAP-Network, 2006) define youth as people from ages 19 to 40 years, this age bracket is adopted by CYIAP due to the circumstances of poverty, unemployment and deprivations that are prevalent in Nigeria and some other developing countries which make some people to still depend on others for survival, protection and development up to the age of 40 years.

Abiola (2007) expounded that poultry farming can provide wider employment opportunities (especially for youth) than any other livestock business because of chains of the effects on the aspects of poultry industry. In order to achieve optimum levels of performance in broiler chicken production, Farayola *et al.* (2013) explicated that it requires high standards of management which according to Food and Agricultural Organisation of the United Nations (FAO) (2013) it is often difficult to achieve, owing to less-than-optimal housing conditions and inadequate of quality feed, vaccines and trained staff. To achieve optimum performance Manimekalai (2010) asserted that there is need to train employed and unemployed youth in the poultry industry, with the purpose of improving their productivity, quality and income. Good-quality poultry meat

can fetch good price for the produce, improve consumption and help in branding poultry products. In addition, these can contribute to foreign exchange earnings of the country by way of increased exports.

Flippo (1965) defined training as the act of increasing the knowledge and skills of an employee in doing a particular job. On the other hand, Williams (1978) defined training as the process of applying appropriate educational methodology to those situations in which improved performance can result from effective learning. The definition given by Williams above goes in line with the definition given by Van Dersal (1968), he conceives training as the process of teaching, informing and educating people so that they become well qualified to do their work and to perform in a position of greater difficulty and responsibility. From this definition, it is clear that Van Dersal includes trainer and trainee in this definition of training. He considers that a more qualified personnel (trainer) have to transfer knowledge to people that is less qualified (trainee) in terms of knowledge. In addition, Laogun (1991) states that training deals with the acquisition of knowledge, skill and attitude by an individual to bridge the gap between actual situation and the desired situation. Thus, training aims at filling the gap between what the trainee knows and what he/she should know.

Need according to Ajayi (1995) is a state of want, which exists because of the desire to meet up with a targeted goal of production or achievement in the performance of a job. Previous studies have also established several definitions of needs; Leagan (1971) explicate that need is the difference between what is and what ought to be, this infers that need led to a gap being created between two conditions. Ditto to this, Laogun (1985) referred to need as "the difference between what exists and what is desired". Adesoji *et al.* (2006) concluded that need show that there is lack of something, which if present, would better the welfare of an individual or group of individuals whose situation is at stake.

Igwua (1987) recognized training need as an aberration that needs to be corrected. Proctor and Thornton (1961) defined training needs, as skills, knowledge and attitude an individual requires in overcoming problems as well as avoiding creating problem situations. In addition, Morrison (1976) stated that training needs exists anytime an actual condition differs from a desirable condition in the human or people aspect of organizational performances or more specifically when a change in present knowledge, skill and attitude can bring out the desired performance.

Therefore, training needs could be looked upon as a present deficiency that can be corrected by learning requisite knowledge, adequate and relevant skills and developing positive attitude aimed at correcting the deficiency.

Many studies have established the differences in the training needs of different target audience, which are based on set of determinants. Adesoji *et al.* (2006) identified level of education and formal trainings

earlier attended as very crucial factors to predict the training needs of fadama farmers in Osun State. Farinde and Ajayi (2005) stated that the empowerment of women farmers through adequate training in all the expressed areas of training needs in livestock production is a predisposing factor to sustainable rural development. Farayola *et al.* (2013) investigated extension strategy development and training needs for small-scale commercial poultry farmers in Nigeria and Okeoghene (2013) investigated the competency level and training needs of laying bird farm attendants in Delta State, Nigeria.

All these studies have determined various areas of training needs across different demographics; however, none of them has identified or isolated the factors that determine the training needs of youth in poultry farming hence, this study intends to fill this knowledge gap.

The main objective of the study was to isolate the determinants of training needs of youth in broiler chicken production in Osun State, Nigeria. The specific objectives are to:

1. Describe the socio-economic characteristics of youth in broiler chicken production in the study area;
2. Examine the youth's levels of knowledge and skill in broiler chicken production;
3. Determine the training needs of youth in broiler chicken production and
4. Identify the factors influencing the training needs of youth in broiler chicken production in Osun State.

## Materials and Methods

The study area is Osun state in Southwestern Nigeria. It was created on August 27, 1991 from the old Oyo state. Its capital is Oshogbo. The state lies within the rainforest region of the western Nigeria between latitude 60501N and 80101N on the northern-south pole and longitude of 40051E and 50051E on the east-west pole. Osun state, which is located at the centre of the western part of Nigeria and shares boundary with Kwara state in the north, Oyo state in the west, in the east partly by Ekiti State and partly by Ondo State and Ogun state in the south. The state has a population of about 3, 423, 535 as indicated by the 2006 census (National population commission, 2006).

There are over 200 towns in the state. A considerable number of highly urbanized settlements are found in the state. The state is divided into three Senatorial Districts, viz, Osun Central Senatorial District, Osun East Senatorial District and Osun West Senatorial District. The State is made up of 30 Local Government Areas and Ife-East Area Office. Majority of people in the state speak Yoruba language with other ethnic group also seen within the state.

Two geographical seasons are identified in the state, they are; the rainy season starting in March and ending in October, and the dry season starting in November and ending in early March. Annual temperature of the state varies between 21.1 °C and 31.1 °C. Annual rainfall is within the range of 800mm in the derived

savannah agro-ecology to 150mm in the rainforest belt. The state covers a land area of approximately 8,882.55 sq.km.

Agriculture, which is the traditional occupation of the people, is supported by the variety of edaphic and climatic conditions in the State. Major crops grown include cassava, vegetables, yam, maize, tomatoes, pepper and cocoa. The people of the State were also involved in rearing of livestock such as goat, cow and most especially poultry farming (chicken).

The target population was youth in broiler chicken production in Osun State between the ages of 19 and 40 years. Youth have been considered in this study because of the significant roles they play in broiler chicken production and ensuring food security. They have always been considered the future leaders, innovative and energetic all these characteristics are very significant would be exploited in ensuring higher productivity and income in broiler chicken production. Primary data were collected using a pre-tested and validated questionnaire. The questionnaire used captured the personal and socio-economic characteristics of the respondents, relevant information regarding their attendance at previous organised training and information on their knowledge and skill levels in broiler chicken production while secondary data provided by Poultry Association of Nigeria (PAN), Osun State Chapter was used to identify the number of registered youth poultry farmers in the state. Poultry Association of Nigeria (PAN), Osun State Chapter has 243 registered poultry farmers in their database, out of which 100 were youth poultry farmers.

The Agricultural Development Project had divided the state into three zones: Osogbo zone, Ife/Ijesha zone and Iwo zone. Osogbo zone consists of twelve Local Government Areas (LGAs); Ife/Ijesha zone consists of eleven Local Government Areas while Iwo zone consists of seven Local Government Areas. Purposive selection of seven LGAs was chosen from Osogbo zone, five LGAs from Ife/Ijesha and four from Iwo zone, making a total of 16 LGAs, due to the predominance presence of youth in broiler chicken production in the zones. The selection was based on those with the highest number of registered youth members of the Poultry Association of Nigeria (PAN) Osun State chapter.

A snowball sampling technique was used to identify other youth poultry farmers that were not registered under Poultry Association of Nigeria (PAN) Osun State chapter. Using a snowball sampling technique, 15 youth poultry farmers were picked out from each LGA selected making a total of 240 respondents for the study. However, due to incomplete responses, only 221 questionnaires were used for the analysis. Table 1 below shows the distribution of respondents by location.

The dependent variable is the training needs of youth in broiler chicken production. Their mean scores in knowledge and skill levels in selected broilers poultry standard practices or operations indicate their present

knowledge and skill levels. The gap between their present knowledge and skill levels in standard practices or operations and the desired (standard) level was used to identify their training needs.

**Table 1.** Distribution of respondents by location

Zones	LGAs sampled	Number of respondents selected
Osogbo Zone	Osogbo	15
	Olorunda	15
	Irepodun	12
	Ifelodun	14
	Orolu	13
Ife/Ijesha Zone	Boripe	13
	Ife Central	15
	Ife East	13
	Ife North	15
	Ilesa East	15
	Ilesha West	11
Iwo Zone	Obokun	12
	Iwo	15
	Ede North	15
	Ede South	15
Total	Irewole	13
		16
		221

Descriptive statistical techniques such as frequency counts, percentages and mean were used to describe the data collected. However, to determine the relationship between dependent variable (training needs of the youth in broiler chicken production) and independent variables (personal and socio-economic characteristics), correlation analysis and regression analysis were used. Factor analysis was used to identify factors influencing the training needs of youth in broiler chicken production in Osun State. All the statistical computation was done using Statistical Package for Social Sciences (SPSS) version 20.

## Results and discussion

### Personal characteristics of youth farmers

**Age.** Results in Table 2 show that 43.4% of the respondents were between the ages of 26 and 30 years, 26.7% were between the ages of 31 and 35 years, 19.0% of the respondents were above 36 years of age while 10.9% of the respondents were less than 25 years of age. The mean age of the respondents was 30.9 years.

**Sex.** About 60.2% of the respondents as presented in Table 2 were males while others 39.8% were females. This implies that majority of the respondents were males and shows the dominance of the male respondents towards broiler chicken production as a venture in Osun State. This finding agrees with that of Adisa and Okunade (2005) that reported that since most farming work or activities is energy demanding, hence men tend to be more involved in production while marketing and processing are often the routines of women.

**Religion.** Results from Table 2 further reveal that 64.7% of the respondents were Christians while 35.3% practiced Islam. This translates to mean that religious beliefs do not forbid broiler chicken production in the study area.

**Marital status.** The results from Table 2 further reveal that above half (53.4%) of the respondents were married while 46.6% were single. The implication drawn from this result is that young and agile people are showing interest in the poultry industry.

**Ethnicity.** Also, from Table 2 vast majority (95.0%) of the respondents belong to Yoruba ethnic group although, not necessarily from the study area, 4.1% were from Igbo ethnic group while 0.9% of the respondents were from Hausa ethnic group. The results therefore showed that majority of the respondents were native of Yoruba land and speaks Yoruba dialect, although some of the respondents were not a native of study area, they have migrated into the study area in search of 'greener pasture'. This implies that most of the respondents were from within the same ethnic group of the area of study and would at least speak and understand the common language of the ethnic group. This would bring about effective communication among youth farmers and other members of the community and therefore, communication might not be a barrier among youth farmers in broiler chicken production.

**Table 2.** Distribution of respondents by personal characteristics n=221

Variables	Frequency	Percentage	Mean
<b>Age(years)</b>			
≤ 25 years	24	10.9	30.9
26–30 years	96	43.4	
31–35 years	59	26.7	
36 years +	42	19.0	
<b>Sex</b>			
Male	133	60.2	
Female	88	39.8	
<b>Religion</b>			
Christianity	143	64.7	
Islam	78	35.3	
<b>Marital status</b>			
Single	103	46.6	
Married	118	53.4	
<b>Ethnicity</b>			
Yoruba	210	95.0	
Hausa	2	0.9	
Igbo	9	4.1	
<b>Educational level</b>			
Primary education	6	2.7	
Secondary education	37	16.7	
Post-secondary education	178	80.5	

Source: Field survey (2016)

**Educational level.** It was obvious from the results in Table 2, that all the respondents had one form of formal education or the other; above one-third (35.7%) of the respondents had Bachelor of Science Degree (B. Sc.), 24.4% had Higher National Diploma (HND), 16.7% had secondary education, 14.5% had Ordinary National Diploma (OND), 5.9 % had Master of Science Degree (M.Sc.) while only 2.7% of the respondents had primary education. This result agrees with the result of Okeoghene (2013) who reported that the poultry industry is no longer a sector for less literate people. This type of result according to Farayola *et al.* (2013) would help youth farmers to respond to challenges,

innovation and other broiler poultry technologies, which results to high productivity and income.

### Economic characteristics

**Broiler chicken production experience.** Results in Table 3 reveal that 40.7% of the respondents had at least three years of broiler chicken production experience, 34.8% of the respondents had four to six years of experience, 17.6% had seven to nine years of experience and the remaining 6.8% had more than 10 years of broiler chicken production experience. This implies that most of the respondents had less experience in the poultry business. Their little experience might be the cause of their low productivity and income. According to Fetuga (1992) the knowledge on management, which is a key to profitable poultry production, is gained through years of experience of the poultry farmer.

**Purchase of day-old chicks.** Results in Table 3 show that 77.4% of the respondents purchased their day-old chicks from hatchery, 18.1% purchased them from friends while 4.5% purchased them from community cooperative. This implies that majority of the respondents purchased their day-old chicks from hatchery. This might be because they wanted a reliable source of day-old chicks and might have been because the farmers are purchasing at least one cartoon of day-old chicks. A cartoon of day-old chicks consists of 51 birds, half of a cartoon is not sold unless it is divided between two or more people, therefore, the respondents purchasing from friends and community cooperative might have done so because they were purchasing less than a cartoon of day-old chicks.

**Number of broilers kept.** Results in Table 3 reveal that 86.0% of the respondents raise below 200 birds at the time of this research, 8.1% raise between 201 and 300 birds, 5.0% raised above 401 birds while the remaining 0.9% of the respondents raised between 301 and 400 birds. The mean number of broilers kept was 105.2 birds. This is an indication that majority of the respondents were Small Commercial Poultry farmers, this is based on the classification given by Obi *et al.* and PIND (2013) with bio-safety serving as criterion because they were farmers keep between 1-5000 birds and they operate with the explicit objective of earning an income from broilers. This result might be due to the reason given by Akanni (2007) that most small-scale poultry farmers have limited finance to raise larger number of flocks.

### Major target of production

**Major target of production.** Results from Table 3 show that vast majority (93.7%) of the respondents raise their birds for the purpose of selling while the remaining 6.3% raise their birds for family consumption. This implies that majority of the respondents were raising their birds mainly for commercial purpose. This is a hint that majority were practicing Commercial Poultry Production as based on the categorisation given

by Adene and Oguntade (2006) using scale, stock, husbandry and productivity as criteria because this categorisation is capital and labour intensive; as well as inputs and technology demanding.

**Duration before reaching market weight.** Furthermore, the results from Table 3 show that 41.2% of the respondents raised their birds up to 10 weeks before selling them, 31.2% raised them to above 15 weeks while the remaining 27.6% of the respondents raised them between 11 and 14 weeks before reaching market weight. The mean number of weeks in reaching market weight was 12.28 weeks. This result indicates that none of the respondents follow the recommendation given by FAO (2003) that broiler should be raised between six to seven weeks before consumption. This result might be due to two reasons; first, the respondents might be raising the birds for more than 10 weeks because according to FAO (2008) Nigerian market demands big birds, so they are raising them to achieve that bigger size, or secondly, it might be due to slow growth rate resulting from poor quality feed and disease infestation.

**Bird loss.** Results from Table 3 show that 68.3% loses more than 4% of their birds before reaching market weight while 31.7% of the respondents loses less than or equal to 4% of their birds. This implies that majority of the respondents loses more than 4% of their birds before reaching market weight. The mean of bird loss is 1.68%. This shows that majority of the respondents do not follow the recommendation given by FAO (2003) that a mortality rate of 4% up to market age is admissible. According to the same source, it was advised that a higher mortality rate than 4% calls for strict disease control measures from the farmer.

Therefore, since the mortality rate should not exceed 4%, it is of great importance that the respondents should adopt the appropriate disinfecting and disease control measures to keep the mortality rate to a permissible rate. This type of result might be due to the small number of years of experience of respondents in the poultry business.

**Selling of live-bird.** In addition, results from Table 3 show that more than half (57.0%) take their birds to the market directly to sell by themselves, 27.6% sell it at home, 9.0% sell it to middle man, while the remaining 6.3% consume theirs. This implies that vast majority (84.6%) of the respondents sell directly to consumers. This result disagrees with PIND (2013) that reported that Small commercial producers who engage in broiler production sell 20% of their produce directly to live-bird retailers, 40% directly to consumers, and 40% to distributors but the result agrees with FAO (2013) who reported that most Small Scale broiler farmers sell the mature broilers directly to the consumer.

**Price range.** Results from Table 3 show that 6.3% of the respondents sold a bird to be less than or equal to ₦2,000, 17.6% sold a bird between ₦2,000 and ₦2,999, 46.6% sold a bird between ₦2,500 and ₦2,999, 10.9% sold a bird between ₦3,000 and ₦3,499 while the remaining 18.6% sold a bird above ₦3,500. The mean price range of birds sold was ₦2,613.

**Income (during the last production cycle need).** In addition, results from Table 3 show the income of the respondents after the expenses on vaccination, drug and feed has been deducted. The results reveal that majority (71.9%) of the respondents earned less than or up to ₦18,000 as income from broiler chicken production, 15.4% earned between ₦18,001 and ₦168,000, 4.5% earned between ₦168,001 and ₦318,000, 1.8% earned between ₦318,001 and ₦468,000, 5.0% earned between ₦468,001 and ₦618,000, 0.9% earned between ₦618,001 and ₦768,000 while 0.5% earned more than ₦768,001 as their income during the last production cycle. The mean income of the respondents was ₦69,871.06.

**Table 3.** Distribution of respondents by economic characteristics n=221

Variables	Frequency	Percentage	Mean
<b>Broiler chicken production (years)</b>			
≤3	90	40.7	4.5
4-6	77	34.8	
7-9	39	17.6	
10+	15	6.8	
<b>Purchase of day-old chick</b>			
From hatchery	171	77.4	
From friends	40	18.1	
From community cooperative	10	4.5	
<b>Numbers of broilers kept</b>			
≤200	190	86.0	105.1
201-300	18	8.1	
301-400	2	0.9	
401+	11	5.0	
<b>Target of production</b>			
Family consumption	14	6.3	
Sales	207	93.7	
<b>Duration before reaching market weight</b>			
≤10	91	41.2	12.2
11-14	61	27.6	
15+	69	31.2	
<b>Number of bird loss</b>			
≤4%	70	31.7	1.6%
4.01%+	151	68.3	
<b>Selling of live-bird</b>			
Not applicable	14	6.3	
To middleman	20	9.0	
Taking them to local market	126	57.0	
Selling at home	61	27.6	
<b>Price range (₦)</b>			
≤2,000	14	6.3	₦2,613
2,000-2,499	39	17.6	
2,500-2,999	103	46.6	
3,000-3,499	24	10.9	
3,500+	41	18.6	
<b>Income (₦)(during the last production cycle)</b>			
≤18,000	159	71.9	₦69,871.06
18,001-168,000	34	15.4	
168,001-318,000	10	4.5	
318,001-468,000	4	1.8	
468,001-618,000	11	5.0	
618,001-768,000	2	0.9	
768,001+	1	0.5	

Source: Field survey (2016)

The overall results show that the respondents were not breaking even. These results contradicts the results of Lawal *et al.* (2009) who reported that poultry represents an appropriate system to provide income for small-scale farmers, but it agrees with Akanni (2007)

findings who stated that low income from poultry business is one of the constraints to increased productions faced by small scale poultry farmers. In addition, judging by the small number of birds kept by the farmers coupled with the general low level of farm income, it implies that majority of the farmers is still operating at the subsistence level.

### Social characteristics

**Household size.** Results in Table 4 show that 74.7% of the respondents had a household size of less than five persons, 23.1% had a household size of between six and seven persons, 0.5% had a household size of between eight and nine persons and remaining 1.8% had household size of more than 10 persons. The mean household size was 5 persons. This according to Aromolaran *et al.* (2013) indicated that respondents with family size above 2 people would have more hands to work in their poultry which could aid increase in their output.

**Source of labour.** In addition, results in Table 4 reveal that 52.9% of the respondents employed owner's labour for their enterprise, 36.2% make use of family/relatives while 10.9% hire labour for their enterprise. The finding shows that majority of the respondents are using owner's labour. This might be due to its cheapness coupled with the fact that they were Small Commercial Poultry farmers. This result contradicts Farayola *et al.* (2013) who reported that more than half of poultry farmers make use of family/relatives for their enterprise.

**Membership of local organization.** Results in Table 4 show that 58.4% of the respondents belonged to one religious organization or the other while 16.3% and 34.8% belonged to cooperative societies and community development association respectively. Only 31.2% of the respondents do not belong to any association. This implies that majority of the respondents belonged to one organization or the other. Youth's membership of association(s) could be employed in disseminating agricultural information to youth and in influencing decision making by the respondents as emphasized by Adesoji *et al.* (2006). This could also imply that group-learning methods would be better appreciated by the respondents during training.

**Cosmopolitaness.** Results in Table 4 reveal that all (100%) youth farmers normally travel out of their places of abode. Out of this, 78.3% of them had travelled to other states in the country, 14.0% had travelled out of the country while only 7.7% had travelled to other (LGAs) within the state. Less than half (33.3%) of the respondents travelled out of the community on weekly basis while 22.4% travelled on monthly basis. It could be inferred from this finding that since all the youth farmers travelled out of their places of abode, their external orientation might have exposed them to new ideas and practices in broiler chicken production, which might also reduce their training needs.

In addition, from Table 4 it was revealed that 29.0% of the respondents travelled out of their places of abode

for leisure while 27.1% travelled out for business. In addition, 15.4% of the respondents travelled out to greet friends and family, 14.9% travelled out of their places of abode because they are schooling there while the remaining 13.6% of the respondents travelled out to purchase poultry farming inputs and marketing of poultry products respectively. This implies that 44.4% of the respondents travelled out either to greet friends and family or for leisure. This implies that training programmes aimed at improving broiler chicken production in the area should take place at the communities of the respondents for adequate participation since only a few of them travel out of their places of abode to purchase poultry farming inputs and marketing of poultry products.

**Table 4.** Distribution of respondents by social characteristics n=221

Variables	Frequency	Percentage	Mean
<b>Household size</b>			
≤5	165	74.7	5
6-7	51	23.1	
8-9	1	0.5	
10+	4	1.8	
<b>Source of labour</b>			
Hired labour	24	10.9	
Family labour	80	36.2	
Owner's labour	117	52.9	
<b>*Organisational membership</b>			
Religion organisation	129	58.4	
Cooperative association	36	16.3	
Community development association	77	34.8	
<b>Farthest distance travelled</b>			
Outside the LGA	17	7.7	
Other states	173	78.3	
Outside the country	31	14.0	
<b>Purpose for travelling</b>			
Greet friends and family	34	15.4	
Leisure	64	29.0	
Business	60	27.1	
School there	33	14.9	
To purchase poultry farming inputs	15	6.8	
Marketing of poultry products	15	6.8	
<b>*Source of information</b>			
Extension agents	-	-	
Farmers' organisation	26	11.8	
NGOs in agriculture	14	6.3	
Fellow farmer and friends	121	54.7	
Media	22	10.0	
Poultry Association of Nigeria	-	-	
School attended	38	17.2	

\*Multiple responses (exceeds 100%). Source: Field survey (2016)

**Sources of information.** Results in Table 4 reveal that fellow farmers and friends were sources of information on poultry management practices to more than half (54.7%) of the respondents, Farmers' association provided information on poultry management practices to 11.8% of the respondents, media provided information about poultry management practices to 10.0% of the respondents while NGOs in Agriculture serve as source of information to 6.3% of respondents on poultry management practices. It was obvious from the results that none of the respondents indicated that Extension worker and Poultry Association of Nigeria

were sources of information on poultry management practices and many (49.3%) of the youth received information on poultry management practices from fellow farmers and friends, this show that peer groups play an important role in ensuring the sustainability of the enterprise. This result agrees with the result of Farayola *et al.* (2013) who reported that extension agents are not all that recognized by the farmers, which is an indication that they pay little attention to poultry production.

#### Attendance at previously organized trainings

**Contacts with extension agents.** Results in Table 5 show that none (100%) of the respondents had contact with extension agents before. This indicated that extension agents have not been carrying out their duties has expected.

**Past training(s) in broiler chicken production.** Also, from the results in Table 5, 60.2% of the respondents indicated that they have not received any training in poultry farming in the past one year, while the remaining 39.8% had received training, out of this, 15.4% of the respondents have attended training twice in the past one-year while only 7.2% attended training five times in the past one-year. The respondents also indicated that 21.3% of them attended the training organized by the schools they attended, 11.3% attended the training organized by NGOs while the remaining 7.2% attended the one organized by one religious organization or the other. This implies that majority have never been trained before. This might be the major reason of their low productivity and income level.

**Poultry management trained on.** Results from Table 5 also revealed that all the respondents (39.8%) that claimed to have received training before stated that they had received training on poultry housing, equipment, growing management/daily routine management, vaccination and disease control respectively, 33.3% of them were trained on management practices from brooding to weeks, 20.0% were trained on litter management, 14.2% were trained on record keeping while the remaining 12.5% of the respondents were trained on marketing. To this end, it is advisable to carryout training need identification which according to Okeoghene (2013) would help to know the kind of training that is required so that training can be effective. Training needs identification is of paramount importance to every successful training programme.

**Reason(s) for not attending past trainings.** Among the 60.2% of the respondents that did not attend any training before in the past, the results in Table 5 show that 31.7% of them said they were not aware of any, 19.9% said they were aware but not interested while the remaining 8.6% said that they have no money to pay for the training. The implication that can be drawn from this is that for youth to be interested in training training programmes must address their needs; the planners of training programmes must note this. In addition, efforts should be made to subsidize the price of training programme so as to make it affordable for youth if it

could not be made totally free to ensure more youth to participate in the programme and the planners should stimulate the interest of youth into attending the training. In addition, adequate publicity should be made to invite as many youths in broiler chicken production as possible to participate in the programme.

**Table 5.** Distribution of respondents by attendance at previously organized trainings n=221

Variables	Frequency	Percentage
<b>Contact with extension agents</b>		
Once a month	0	0.0
Fortnightly	0	0.0
Not at all	100	100.0
<b>Attendance at previous training</b>		
Yes	88	39.8
No	133	60.2
<b>Number of training previously attended in the past one year</b>		
None	171	77.4
2 times	34	15.4
5 times	16	7.2
<b>*Poultry management trained on</b>		
Poultry housing	88	39.8
Equipment	88	39.8
Management practices from brooding to two weeks	74	33.34
Growing management/daily management routine	88	39.8
Litter management	44	20.0
Vaccination and disease control	88	39.8
Record keeping	31	14.2
Marketing	28	12.5
<b>Reason(s) for not attending past training</b>		
Not aware of any	70	31.7
Aware, interested but not invited	44	19.9
No money to pay for training	19	8.6

\*Multiple responses (exceeds 100%). Source: Field survey (2016)

#### Knowledge and skill levels of respondents in standard practices or operations involved in broiler chicken production

The respondents' knowledge and skill levels mean scores in the standard practices or operations involved broiler chicken production were presented in Table 6. Eight standard practices or operations were presented to the respondents based on the recommendations by FAO (2003) and FAO (2008). These operations include the following: poultry housing, equipment, management practices from brooding to 2 weeks, growing management, litter management, vaccination and disease control, record keeping and marketing of birds. Maximum point obtainable for each of the operations is 5 points while the minimum is one. The range adopted to categorise them as high or low mean score is as follows: 0–3.05 (low) and 3.06–5.0 (high) according to Ajayi (1995).

#### A. Knowledge level of respondents in standard practices or operations involved in broiler chicken production

**1. Poultry house.** It can be deduced from the results in Table 6 that youth farmers had low mean knowledge level in poultry housing (mean score = 2.70). This shows that they were not familiar with construction of



the poultry house; also, it shows that they might have not been housing their birds properly because of their low knowledge level. This agrees with Farinde and Ajayi (2005) that concludes farmers had low mean knowledge score in construction of modern houses for poultry birds.

**2. Equipment.** The knowledge level of the youth farmers in equipment is low (mean score = 1.73) as reflected in Table 6. This implies that the youth farmers were not knowledgeable in handling the poultry equipment adequately such as feeders and drinkers spaces requirement for different stages of the birds, which means they have been feeding their birds without considering the uniformity in their feeding, this will cause the birds not to grow uniformly, while some are big, others will be small. This result agrees with Farayola *et al.* (2013) that reported that poultry farmers have not been feeding their birds properly but this result contradicts the result given by Farinde and Ajayi (2005) that poultry farmers have high knowledge in feeding of poultry birds.

**3. Management practices from brooding to 2 weeks old.** Results in Table 6 show that the knowledge level of youth farmers in management practices from brooding to 2 weeks old was high (mean score = 3.23); this result contradicts the result given by Farayola *et al.* (2013) that poultry farmers had low knowledge level in handling of poultry birds.

**4. Growing management/Daily-routine management.** Also from Table 6, the results show that the knowledge level of youth farmers in growing management/daily routine management is low (mean score = 2.83), this result agrees with the result of Farayola *et al.* (2013) who concluded that poultry farmers had low knowledge level in poultry daily and special routine operations.

**5. Litter management.** It is evident from the results in Table 6 that the knowledge level of youth farmers in litter management is low (mean score = 2.47) this could lead to high mortality rate. The reason for this low mean could be the technicality involved in management of poultry litter, which according to Oyeyinka *et al.* (2011) account for most crises experienced in poultry production where upgraded knowledge for efficiency and effectiveness are required.

**6. Vaccination and disease control.** Results from Table 6 show that the knowledge level of youth farmers in vaccination and disease control is high (mean score = 3.93). This implies that the respondents were knowledgeable in vaccination and drug schedule for the birds. This result contradicts Farayola *et al.* (2013) that reported poultry farmers had a low knowledge level in vaccination and disease control.

**7. Record keeping.** It can be deduced from the results in Table 6 that the youth farmers' knowledge level in record keeping is high (mean score = 3.29), this result supports the result given by Farayola *et al.* (2013) that poultry farmers are knowledgeable in keeping records. To buttress this, Barnett *et al.* (2001), reported that record keeping and meeting production targets are good

management practices that allow the identification and solution of problems in poultry farming.

**8. Marketing of broilers.** From the results in Table 6 it can be deduced that youth farmers had low knowledge level in marketing of their birds (mean score = 2.54). This might be the reason for their low-income rate, since they do not market their birds properly.

## B. Skill levels of respondents in the standard practices or operations involved in broiler chicken production

**1. Poultry house.** It can be inferred from the results in Table 6 that youth farmers had low mean skill level in poultry housing (mean score = 2.54). This agrees with Farinde and Ajayi (2005) that reported that farmers had low skill level in construction of poultry house. This shows that they have not been housing their birds properly, which according to Torimiro *et al.* (2002) is one of the sources of economic losses in poultry business.

**2. Equipment.** From the results in Table 6 it can be inferred that the skill required in handling of poultry equipment by youth farmers is low (mean score = 1.96). This indicates that youth farmers are not skilled in handling the feeders and drinkers spaces required for different growth stages of birds. Since they were not knowledgeable in it, this type of result is expected. This shows that they lack the technical knowledge in handling of poultry equipment, hence need for training. This finding disagrees with the findings of Okeoghene (2013) who concludes that farm attendants were competent in handling of poultry equipment.

**3. Management practices from brooding to two weeks old.** Results in Table 6 show that the skill level of youth farmers in management practices from brooding to 2 weeks is high (mean score = 3.25). Having a low skill level in brooding of the birds can be catastrophic because management in the first four weeks of the chicks' life is by far the most valuable skill a poultry farmer must acquire because the birds are totally depend on them to meet their needs; therefore, adequate training is highly required.

**4. Growing management/Daily-routine management.** Results in Table 6 reveal that the skill level of respondents in growing management/daily routine management is low (mean score = 2.94). This finding concurs with the result given by Farayola *et al.* (2013) that conclude that most of the farmers do not adequately take to guidelines and principles that are required of the poultry business either daily or on special occasions.

**5. Litter management.** The results reveal in Table 6 that youth farmers had low skill level in litter management (mean score = 2.31). This finding is an indication that most of the respondents have been deviating from various precautions involved in litter management. Many of them may spend more money to buy drugs to cure the diseases caused by poor management of litter.

**6. Vaccination and disease control.** It can be inferred from the results in Table 6 that skill level of

youth farmers in vaccination and diseases control is high (mean score = 3.20). This implies that the respondents have been vaccinating their birds appropriately and adequately controlling disease. Many of them may not need to rely on veterinary doctors before they can administer drugs and vaccinate. This finding disagrees with Okeoghene (2013) who concludes that farm attendants were not competent in vaccination of birds.

**7. Record keeping.** The results from Table 6 show that the skill level of youth farmers in record keeping is high (mean score = 3.25). This implies that youth farmers keep records appropriately and as expected. This finding concurs with Farayola *et al.* (2013) that

conclude that most of poultry farmers keep records appropriately and as expected.

**8. Marketing of broilers.** The skill level of youth farmers in the marketing of their birds is low (mean score = 2.91) as indicated in Table 6. This implies that they need adequate training.

In addition, since training aims at increasing the knowledge and skill of performance at a duty as stated by Ajayi (1995), it would be acknowledged that training should be organized and attended regularly for its effectiveness. Therefore, Laogun (1985) has earlier mentioned that the farmers' level of skill and knowledge need to be sought in order to know what to teach them for maximum production.

**Table 6.** Respondents' mean score of knowledge level, skill level and perception of importance of training in the standard practices or operations involved in broiler chicken production (n= 221)

Standard practices involved in broiler chicken production	Mean score	Knowledge level	Mean score	Skill level
Equipment	1.73	Low	1.96	Low
Litter management	2.47	Low	2.31	Low
Marketing of birds	2.54	Low	2.91	Low
Poultry housing	2.70	Low	2.54	Low
Growing management/ daily routine management	2.83	Low	2.94	Low
Management practices from brooding to two weeks	3.23	High	3.25	High
Record keeping	3.29	High	3.25	High
Vaccination and disease control	3.93	High	3.20	High

Source: Field survey (2016)

### Training needs of youth in broiler chicken production

The results in Table 7 were used to identify the gap between the present knowledge and skill levels of youth farmers in standard practices or operations and the desired (standard) level so as to identify their training needs. As stated by Leagan (1971) that training need is the difference between what is and what ought to be, this infers that need led to a gap being created between two conditions, therefore, the present mean scores of both knowledge and skill levels of each operation is subtracted from the desired mean score. As earlier stated the range adopted to categorise them as high or

low mean score is as follows: 0–3.05 (low) and 3.06–5.0 (high) according to Ajayi (1995).

It was evident from the result the respondents were highly in need of training in five standard practices involved in broiler chicken production, which are equipment, litter management, marketing of birds, poultry housing and growing management/ daily routine management. This type of result is expected since they were neither knowledgeable nor skilled in them. This result support that of Farayola *et al.* (2013) which reported that poultry farmers were highly in need of training in poultry housing, daily and special operations and equipment but were in low need of training in record keeping.

**Table 7.** Training needs of respondents in broiler chicken production n= 221

Standard practices involved in broiler chicken production	What is (Mean scores)	What ought to be (Mean score)	Remark
<b>Knowledge Level</b>			
Equipment	1.73	5.0	High need
Litter management	2.47	5.0	High need
Marketing of birds	2.54	5.0	High need
Poultry housing	2.70	5.0	High need
Growing management/ daily routine management	2.83	5.0	High need
Management practices from brooding to two weeks	3.23	5.0	Low need
Record keeping	3.29	5.0	Low need
Vaccination and disease control	3.93	5.0	Low need
<b>Skill Level</b>			
Equipment	1.96	5.0	High need
Litter management	2.31	5.0	High need
Poultry housing	2.54	5.0	High need
Growing management/ daily routine management	2.94	5.0	High need
Marketing of birds	2.91	5.0	High need
Vaccination and disease control	3.20	5.0	Low need
Management practices from brooding to two weeks	3.25	5.0	Low need
Record keeping	3.25	5.0	Low need

Source: Field Survey (2016)

Training programme organized should base on trainees' actual needs. To reinforce this, Ajayi *et al.* (2008) as posited that training should be goal – specific; learner – oriented and designed to lift the trainee to a status of independent work in order for them to perform more efficiently, effectively and improve the quality of their output to increase their profit.

### Correlation analysis showing linear relationship between some selected socio-economic characteristics of respondents and their training needs

The results in Table 8 show the Correlation Coefficient (r) with Coefficient (s), Determination ( $r^2$ ) and it was deduced that at  $p \leq 0.01$ , there was a significant relationship between respondents' age ( $r = -4.411$ ), household size ( $r = 0.272$ ), years of experience ( $r = -0.384$ ), number of broilers kept ( $r = -0.241$ ), number of birds loss ( $r = 0.187$ ), income during the last production cycle ( $r = -0.447$ ), price range ( $r = -0.436$ ), number of past training attended ( $r = -0.208$ ) and their training needs in broiler chicken production. The positive correlation of household size of youth farmers and number of birds' loss indicated that the higher their household size and number of birds' loss, the higher their training needs in broiler chicken production.

**Table 8.** Summary of the results of Correlation analysis showing linear relationship between some selected socio-economic characteristics of respondents and their training needs

Variables	Correlation Coefficient (r)	Coefficient(s) Determination ( $r^2$ )	Decision
Age	-0.411**	0.168	S
Years of formal education	0.005	0.000	NS
Household size	0.272**	0.074	S
Years of experience	-0.384**	0.147	S
Number of broilers kept	-0.241**	0.058	S
Duration in reaching market weight	0.131	0.017	NS
Number of birds loss	0.187**	0.035	S
Income during the last production cycle	-0.447**	0.199	S
Price range	-0.436**	0.190	S
Cosmopolitaness	0.035	0.001	NS
Number of past training attended	-0.208**	0.043	S

\*\* = r is significant at  $p \leq 0.01$  level; NS = not significant; S = significant. Source: Field survey (2016)

Conversely, the negative correlation existing between age, years of experience, number of broilers kept, income during the last production cycle, price range, number of past training attended and their training needs in broiler chicken production indicated that the higher these variables, the less their training needs. The results could further be explained thus:

(i) there was a negative relationship between the age of the respondents and their training needs in broiler chicken production. This indicated that the higher the age of the respondents, the lower their training needs in broiler chicken production. This implies that the older

the youth farmers become, the more their experience in broiler chicken production, hence the less the training they would require;

(ii) there was a weak positive relationship between household size of the youth farmers and their training needs in broiler chicken production. This indicated that the higher the household size of the youth farmers, the more their training needs in broiler chicken production. This implies that the larger the household size of the respondents become, the higher their responsibilities, hence the more the training they would require in order to expand their farm size so as to be able to meet the needs of the members of the household;

(iii) there was a negative relationship between years of experience of the respondents and their training needs in broiler chicken production. This indicated that the higher the years of experience of the respondents, the less their training needs in broiler chicken production. This implies that the higher the experience the respondents gathered during the production of broiler chicken, the better they would become, hence the less the training they would require;

(iv) there was a weak negative relationship between the number of birds kept by youth farmers and their training needs in broiler chicken production. This indicated that the higher the number of birds kept by youth farmers, the lower their training needs in broiler chicken production. This implies that the lesser the number of birds kept by youth farmers the more their major target of production is shifted from selling to consumption, therefore the lower the training required;

(v) there was a weak positive relationship between number of birds loss by the respondents and their training needs in broiler chicken production. This denoted that the higher the number of birds loss by the respondents the higher their training needs in broiler chicken production. This implies that youth farmers would embrace more training in broiler chicken production if they experience higher mortality rate than expected;

(vi) there was a negative relationship between income during the last production cycle of the youth farmers excluding their expenses and their training needs in broiler chicken production. This denoted that the higher the income during the last production cycle of the youth farmers, the lower their training needs in broiler chicken production and vice versa. This implies that the lower the income of youth farmers during the last production cycle, the more they would require training in order to boost their income;

(vii) there was a negative relationship between price range of selling birds by the respondents and their training needs in broiler chicken production. This denoted that the higher the price range, the lower their training needs in broiler chicken production and vice versa. This implies that the higher the price range the respondents were able to sell their birds, the lower their training needs in broiler chicken production would be because the higher the price range, the higher their

income would be, hence the lower the training required; and

(viii) there is a weak negative relationship between the number of past training attended by the youth farmers and their training needs in broiler chicken production. This indicated that the higher the number of past training attended by the youth farmers, the lower their training needs in broiler chicken production. This implies that the more training the youth farmers attended in the past, the lesser the training they would require.

#### Regression analysis establishing relationship between selected socio-economic of respondents and their training needs

The regression coefficients (B) with standard errors, standardized regression coefficients ( $\beta$ ) and t-statistic values were presented in Table 9. The results in Table 9 show that of all the eight variables subjected to multiple regression only five variables were found to be statistically significant predictor. These variables include household size, number of birds' loss, years of experience, number of birds kept, income during the last production cycle, price range, and number of past training attended.

The multiple correlation coefficient (R) value for the regression was 0.662 indicating that a strong association exists between the combination of independent variables and training needs of youth farmers in broiler chicken production,  $R^2$  value was 0.439 and adjusted  $R^2$  value was 0.417 which means that the regression model accounted for 41.7% variation in training needs of youth farmers in broiler chicken production. The F-value was 20.697 and was significant at  $p \leq 0.01$ . The beta coefficient for the variables were household (0.202), number of birds loss (0.923), income (-0.322), price range (-0.268) and number of training attended in the part (-0.145). This indicated that the larger the household, the higher their training needs in broiler chicken production.

This could further be explained thus:

(i) the larger the number of birds loss, the higher their training needs in broiler chicken production;

(ii) the higher the income from broiler chicken production, the lower their training needs in broiler chicken production;

(iii) the higher the price range for selling the birds, the lower their training needs in broiler chicken production; and

(iv) the higher the number of past training attended, the lower their training needs in broiler chicken production.

**Table 9.** Results of regression analysis establishing relationship between selected socio-economic of respondents and their training needs

Model	B	s.e.	Beta	t	P
(Constant)	449.155	58.830		7.635	0.000
Age	-0.944	1.924	-0.034	-0.491	0.624
Household size**	20.951	5.572	0.202	3.760	0.000
Years of experience	-7.513	2.969	-0.152	-2.531	0.012
Number of broilers kept	0.134	0.089	0.114	1.497	0.136
Number of Birds loss**	4.241	0.923	0.257	4.596	0.000
Income during the last production cycle **	0.000	0.000	-0.322	-3.882	0.000
Price range**	-0.039	0.010	-0.268	-3.781	0.000
Number of past training attended**	-4.154	1.515	-0.145	-2.743	0.007

Multiple R-value = 0.662;  $R^2$  value = 0.439; adjusted  $R^2$  = 0.417; F value = 20.697 at  $p \leq 0.01$ ; \*\* = significant at  $p \leq 0.01$  level. Source: Field survey (2016)

#### Factors influencing the respondents' training need broiler chicken production (isolated factors influencing training needs of youth farmers)

The results in Table 10 show the principal component matrix extracted for training needs. Two groups of factors were isolated from the five variables with highly loaded components.

**Factor I. Income factor.** This factor was inferred of three variables from the first component. The variables were; price range (0.814), income (0.757) and number of birds loss (0.544). The price range of selling the birds by the youth farmers will determine their income, also, the higher the mortality rate, the lower their income. Therefore, training is needed in order to reduce the mortality rate of the birds. All these variables are important in determining the training needs of youth farmers.

**Factor II. Training related factor.** This factor was extracted from highly loaded variable such as number of training attended in the past (0.796) and household size (-0.593). The larger the household size of the respondents, the more training would be required to help them acquire more skill and gain more knowledge in broiler chicken production. The more the training attended in the past by the respondents, the more experience they would gain.

**Table 10.** Result of principal component matrix extracted for training needs showing correlation coefficient of highly loaded variables

Highly loaded variables	I	II	Percentage	Cumulative percentage
Price range	0.814		I (Income factors, 33.2%)	I (Income factors, 33.2%)
Income	0.757		II (Training related factor, 21.0%)	II (Training related factor, 54.2%)
Number of birds loss	0.544			
Household size		-0.593		
Number of training attended in the past		0.796		

I= Income factors; II= Training related factors

**Contribution of extracted factors to the training needs of youth farmers.** The results in Table 10 also show that income factors contributed 33.2% to the training needs of youth farmers while training related factors contributed 21.0% to the training needs of youth farmers. The high contribution of income factor may be due to the present of some variables like; price range, income and number of birds' loss, which were involved in the factor. The least contribution of training related factor may be because of interaction of the factor with the dependent variable (training needs). However, the total contribution of all the factors to the training needs of youth in broiler chicken production in Osun State, Nigeria was 54.2%.

### Conclusion

The training needs of youth farmers were evaluated and the crucial factors associated with it were isolated. The two factors isolated were income and training related factors. Five variables household size, number of birds' loss, income during the last production cycle, price range and number of past training attended were identified to be very crucial to predict the training needs of the training needs of youth in broiler chicken production in Osun State. Areas of training needs identified include growing management/ daily routine management, vaccination and disease control, litter management and marketing of birds.

Extension agents should be inspired or motivated towards training of youth farmers on a regular basis. In addition, the factors mentioned above should be considered when planning and executing training for youth farmers. They should note the information sources in the community available to the youth farmers and utilize them adequately to disseminate improved information on broiler chicken production. The identified training needs of youth farmers should be given priorities in the design and implementation of training for them. This is ethical and will allow them to participate fully in the training programme.

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### Conflict of interest

The authors declare that they have no conflict of interest.

### Author contributions

M.O.O-O. – study conception/design/acquisition of data/analysis and interpretation of data/drafting of the manuscript/critical revision of the final manuscript.

A.O.A. – design/sampling/critical revision of final manuscript.

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