Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

Determinants of Farmers Use of Farm Hygiene Practices in Preventing and Controlling Poultry Diseases in Lagos State, Nigeria

https://dx.doi.org/10.4314/jae.v22i2.2

Akinnusi, F. A.
Department of Agricultural Extension and Rural Development,
Federal University of Agriculture, Abeokuta, Nigeria.
Email: akinnace19bc@yahoo.com or akintundeakinnusi@gmail.com
Phone: 08023909764

Sodiya, C. I.
Department of Agricultural Extension and Rural Development,
Federal University of Agriculture, Abeokuta, Nigeria.
Email: comfortibironke@yahoo.com
Phone: 08035702655

Adamu, C. O.
Department of Agricultural Extension and Rural Development,
Federal University of Agriculture, Abeokuta, Nigeria.
Email: comlare2004@yahoo.com
Phone: 08033020406

Abstract

This study assessed factors that determine farm hygiene practices towards preventing and controlling poultry diseases among poultry entrepreneurs in Lagos State, Nigeria. Structured questionnaire was used to obtain data from 148 respondents selected using multistage sampling technique. Results show that respondents' mean age was 48.5years, majority (68.2%) were male, 95.3% were married, 59.5% had secondary education and mean years of farming experience was 18.8years. All the respondents sourced information on hygiene practices from extension agents, family, friends and cooperatives. Electronic media and prints were also used by 96.6%, 47.9%, respectively. The majority (81.8%) of the respondents operate on a government owned land while 10.1% operate on personal land. Majority (77%) periodically clean their poultry pen, 72.9% agreed that quarantine services is of necessity, 80.4% periodically administer vaccines and drugs to prevent diseases in their poultry farms. More so, 98.7% disinfect poultry kits/equipment after use and 91.9% agreed that raw/uncooked poultry products are not good for consumption. Test of significance indicated that respondents' farm hygiene practices was related to educational level (χ^2=7.96, P≤.05), years of farming experience (β=-0.87, P≤.05), sources of information (r=-0.21, P≤.05), land ownership type (r=-0.22, P≤.05). It was recommended that public enlightenment and campaign should be strengthened to generally enlighten the public and poultry entrepreneurs specifically towards positive attitudes and handling of poultry products through routine management like regular sanitation, periodic vaccination, poultry house entrance' dips, drug administration and quarantine services towards developing the poultry enterprise.

Keywords: Farm hygiene practices, Poultry Entrepreneurs, Lagos State

Creative commons User License: CC BY-NC-ND
Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

Introduction

The benefits from poultry production cannot be overemphasized. The Food and Agricultural Organization (2001) described Nigerian poultry industry as one of the fastest means of bridging the protein deficiency prevailing in Nigeria. Apantaku *et al.* (1998) further described chicken as the most popular poultry meat representing 85% of the total poultry meat output worldwide. In 2002, broiler meat production was estimated at 70% (approximately 43 million metric tons) of the world total poultry meat production.
Heise, Crisan and Theuvsen (2015) also stated that due to the high population growth in Africa (World Health Organization, 2010) and growing income, the demand for eggs and poultry meat has significantly increased in recent years across large parts of the continent. According to estimates by the United States Agency for International Development (USAID), this trend is very likely to continue over the next few years. Therefore, the consumption of poultry and eggs will increase between 2010 and 2020 for at least some countries in sub-Saharan Africa (USDA, 2013). However, certain poultry diseases like fowl cholera, Merek's disease or fowl pox, avian influenza, anthrax, coccidiosis, among others are prevalence around the world and have posed threat to the poultry industry. Variable local conditions were believed by Thear and Fraser (1986) to have favoured the built-up of these diseases, more so, most poultry parasites or pathogens (diseases causal organisms) like virus, bacterial, nematode, gapeworm among others when after been controlled are reintroduced, accumulated and gradually concentrated on over-used ground.

World Health Organization (2010) analysed seasonal influenza as a highly infectious disease which spreads around the world in seasonal epidemics, affecting 10% to 20% of the total poultry population. The most important strains of influenza virus A and B have several subtypes, of which two, H1N1 and H3N2, are currently of epidemiological significance. It was further opined that the threat from previous outbreak of poultry diseases (for example Avian Influenza) has decreased, yet there remain flare-ups around the world, therefore, FAO urges countries to remain vigilant and fully cooperate with international organisations. Such outbreak that spreads across many countries in a short time is a sort of epidemiological form of instant globalism killing millions of poultry in countries in Asia, Europe and Africa, and had raised concern about poultry production, marketing and consumption globally, thus threatening to throw the poultry industry into a crisis due to increasing number of bird-to-bird and bird-to-human transmissions leading to clinically severe and fatal human infections. Water fowl was found to be directly spreading the strain to chickens, crows, pigeons, and other birds with increasing ability of infecting mammals. FAO (2007) found out and stated that small poultry keeper's problems arise from the fact that the ground upon which they rear animals is not properly rotated and managed. When poultry birds spend year after year on the same ground, there is inevitable build-up of parasites and soil becomes literally sick which thus calls for worry and better management practices. Thear and Fraser (1986) and Lombin (2006)

Creative commons User License: CC BY-NC-ND
Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

thus opined that prevention is better than cure, and one can avoid a great deal of trouble and disease simply by paying adequate attention to hygiene, feeding and general care.

Certain problems that could arise from outbreak of poultry diseases within poultry population, among which are severe mortality, depression, apathy and decrease in feed and water intake, diarrhoea, lack of coordination and drop in egg production with unfavourable symptoms like dullness and somnolence, prostration, cyanotic comb and cyanosis of the wattle filled with fluid, torticollis, yellow green diarrhoea, soft shell/cracked egg, swollen eyelid, coughing, serious discharge from the nostrils, paralysis, depression , sneezing, sudden death, including significant economic losses in poultry production regardless of the size and sophistication of their livestock. However, Thamsborg, et. al. (2010) stated that it is evident from several on-farm surveys that levels of parasite infections vary markedly between livestock production systems and from one farm to another. The background for these differences relates to livestock breeds, different management factors and other practices that directly or indirectly affect parasite infections, and also to farmers' attitudes e.g. the chosen threshold for intervention. At local level, infections of livestock of this nature invariably result into: substantial loss of yield; reduction in growth rate of meat; reduction in fertility; death of young animals; the need to cull unproductive and chronically infected animals; and gross disruption of farming practices including loss of income, loss of valuable breeding flock and disruption of livestock improvement programmes. At national level, notable effects are: disruption of livestock production and international markets with consequential impacts on availability and prices of livestock products including the possible need to increase importation of the same or alternative foods; and loss of export markets through embargoes imposed by trade partners.

Imperatively, an increase in cost of poultry production will automatically result into high market price and very low demand for poultry products like egg, chicken meat and a shift to other substitute product like fish as source of protein intake. Supporting this view is economists' assertion of law of demand that the higher the price of a commodity the lower the demand. This scenario nevertheless causes high competition between poultry products and other available dietary-protein-products, and threat of diminishing supply of protein from the poultry industry within the past decade. Table 1 shows different facet of life in Nigeria that the avian disease could have effect on.

Table 1: Impacts of 2006 avian disease outbreak in Nigeria

Market supply effects		**Market demand effects**
Increased Prices	**Farm income**	Drop in domestic prices
Reduce Volume of Domestic Supply		Reduced exports
Reduce production/ Increased production costs		Ban or tightened controls by improving counties
Increased financial Costs	**Disease**	Food insecurity Health concerns Environmental degradation
Financial effects	**Social costs**	**External effects**

Source: Obayelu (2007).

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

Findings have shown that great deal of these poultry problems can be averted when adequate attention is paid to proper hygiene practices and health management as identified by Adekunle (1974). Such practices include:

- inspection of flock as early as possible in the morning, as late as possible in the evening and occasionally at other times;
- removal of any dead birds and dispose properly by burial or by using disposal pit;
- removal of mouldy or contaminated feed and add fresh supply;
- removal of the water trough, proper washing and refilling with fresh clean water that is fit for human consumption, changing of water in the afternoon if it becomes dirty;
- adequate warmth (about 40^{o}c);
- good and regular sanitation; removal of wet litter and replace with fresh and dry litter material;
- adequate natural ventilation;
- sufficient light intensity;
- balanced diet;
- sufficient clean water as a necessity to life;
- regular veterinary care; and
- report abnormal signs such as decreased feed consumption, bloody faeces, decreased activities or droopiness, immediately to nearest veterinary officer.

WHO (2007) also pointed out that Complimentary Alternative Medicine (CAM) like cleanliness, right attitude towards healthy living, herbal remedies, among others as alternative ways of preventing and controlling poultry diseases. Furthermore, Obayelu (2007) believed that farm hygiene practices could vary from one farmer, farm or location to another due to variable generic, individual and economic determining factors. Previous studies like Bloss, Wainaina and Bailey (2004), WHO (2015), Siddiqi, Haque and Goni (2011), Wang, Moreno, Caballero and Cole (2006) and Fuchs, Sultana, Ahmed and Iqbal (2014) have included proxy indicators and used multiple regression to quantify the independent contribution of each variable to hygiene, however, such analyses fail to capture the multifaceted nature of socioeconomic status and hygiene domains.
It is therefore imperative to carryout out necessary research to investigate and make recommendations that could bridge the gap created by previous researches and present relationship between socioeconomic status and hygiene. Such research would also help to ascertain their practices and influencing factors within local communities that are prone to diseases.

Objective of the Study

This study assessed the determinants of farm hygiene practices towards the prevention and control of poultry disease by poultry farmers in Lagos State Nigeria.
Specifically, the study:

Creative commons User License: CC BY-NC-ND
Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

1. described socioeconomic characteristics of poultry farmers in Lagos State;
2. identified source(s) of information on hygiene practices;
3. identified farm hygiene practices; and
4. identified determinants of the respondents' farm hygiene practices.

Hypotheses of the Study

Ho_1: There is no significant relationship between the respondents' socioeconomic characteristics and their farm hygiene practices.

Ho_2: Poultry farmers' sources of information on hygiene is not significantly related to their farm hygiene practices.

Methodology

Lagos is bound by Ogun, Republic of Benin and Atlantic Ocean. The State is currently experiencing transformation into one of the Africa's largest important, commercial and industrial cities. The State is mainly rainforest. Lagos State has 20 Local Government Areas but divided into five divisions and is inhabited by over 21 million human population (National Population Commission, 2016 statistics). Its agricultural administration and extension is handled by the State Ministry of Agriculture and the Lagos State Agricultural Development Authority with agricultural extension terrain which is made up of Western zone, Eastern zone, and Far-Eastern zone.

The study population was poultry farmers in Lagos State from which 148 samples were selected. The sample selection involved three agricultural zones in Lagos state. Blocks in each zone were listed and two blocks were randomly selected in each zone to make-up six blocks to be sampled. Poultry farmers were purposely selected from the farmers in the selected blocks and 148 samples were then proportionately selected from the sample frame of 217 poultry farmers from the location as sourced from the Lagos State Agricultural Development Authority (LASADA).

Primary data and information were elicited from the respondents using questionnaire while secondary data were consulted from previous available literatures and agricultural organizations. Test-re-test method over time was used to ascertain the reliability of the instrument and Pearson Product Moment Correlation coefficient above 0.60 to establish it content validity.

Investigated independent variables include respondents' personal characteristics such as age, sex, religion, ethnicity, marital status, educational level, year of experience in poultry farming, family size, farm size and Sources of information. Dependent variables include respondents' Farm hygiene practices (which was measured using a self-constructed scale on a 5-point Likert format of Strongly Disagree = 1, Disagree = 2, Slightly Agree = 3, Agree = 4 and Strongly Agree = 5). Descriptive statistical tools such as frequencies, mean, mode, percentages and charts were used to describe respondents' personal characteristics, sources of information on hygiene and land ownership types while Chi-

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

square, Multiple regression analysis and Pearson Product Moment Correlation (PPMC) were employed to test the hypotheses at ≤.05 probability level.

Results and Discussion

Socioeconomic Characteristics of the Respondents

The majority (39.2%) of the respondents belong to the age bracket 40-49 years old and the mean age was 48.5 years which means that majority belong to the active age (Table 2). This implies that most of the respondents are occupationally active, matured and are believed to subject themselves to proper hygiene practices. This submission supports Akinnusi and Sodiya (2012) who found out that most poultry farmers in Lagos State are matured adults. More so, report of Shin-Aba (1998) and Okwoche *et al.* (1998) also revealed that age is a trademark of farming business and is highly correlated with farming experience and resource endowment. Poultry production in the study area is dominated by male (68.2%). The majority (95.3%) of the respondents are married, 0.7% single while 4.0% are widow/widower. This means that the majority of the respondents are family men and women and could be more responsible in hygiene management. Christians (82.4%) engaged more in poultry production in the study location than Muslims (16.9%) and African traditional religion worshipers (0.7%).

More than half (59.5%) of the respondents had secondary education and 22.3% have tertiary education. It has been reported that higher education attainment is tantamount to increase knowledge and better management practices (including hygiene practices) (Benor et. al. 1997; Akinnusi and Sodiya, 2012). Benor et. al. (1997) also believed that education is important in creating positive attitude in life. Most (89.8%) of respondents are mainly Yorubas, while 8.8%, 0.7%, and 0.7% are Ibos, Hausas and non-Nigerian, respectively. This is an expected finding since the study was conducted in Lagos, a location populated mainly by the native of Yoruba land. The mean years of farming experience is 18.8years. Adegbite et. al (2007) believed that greater experience is desirable for better coping mechanism in farming. There is tendency to have better farm hygiene practices as years of experience in poultry production increases. Majority (57.4%) of the respondents has family size between 5-10 members while only 29.1% has less than 5 members and 13.5% has above 5 members. Members of a large household could contribute towards achieving better practices. Majority (81.8%) of the respondents only farm on a land space below 1 hactare which agreed with Ajayi and Aphunu (2007) that small farming holdings constitute farming activities in Nigeria.

Creative commons User License: CC BY-NC-ND
Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

Table 2: Socioeconomic characteristics of the respondents

Variables		%	Mean	Mode
Age	Less than 30yrs	14.2		
	30-39yrs	31.8		
	40-49yrs	39.2	48.5years	49years
	Above 50yrs	14.8		
	Total	**100**		
Sex	Male	68.2		
	Female	31.8		
	Total	**100**		Male
Marital status	Single	.7		
	Married	95.3		
	Widow/Widower	4.0		Married
	Total	**100**		
Religion	Christianity	82.4		
	Islam	16.9		Christianity
	African Religion	.7		
	Total	**100**		
Educational level	No Formal Education	1.3		
	Primary Education	16.9		Secondary Education
	Secondary Education	59.5		
	Tertiary Education	22.3		
	Total	**100**		
Ethnicity	Yoruba	89.8		
	Igbo	8.8		Yoruba
	Hausa	.7		
	Non Nigerian	.7		
	Total	**100**		
Years of farming experience	Below 10yrs	14.2		
	10 - 20yrs	47.9		16years
	20 - 30yrs	23.6	18.8years	
	Above 30yrs	14.2		
	Total	**100**		
Family size	Less than 5 Members	29.1		
	5 – 10 Members	57.4		7Members
	Above 10 Members	13.5		
	Total	**100**		
Farm size	Below 1 hectare	81.8		
	1 – 2 hectares	9.4		
	Above 2 hectares	8.8		Below 1hectare
	Total	**100**		

Source: Field survey, 2016.

Creative commons User License: CC BY-NC-ND
Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

Sources of Information of Respondents on Hygiene Practices

All the respondents sourced information on farm hygiene from extension agents, cooperative, families and friends (Table 3). However, 96.9% of the respondents sourced information from electronic media (television and radio) while below average (47.9%) of the respondents also consult information on the hygiene practices from the internet. This implies that extension agents, families, friends and farmers' cooperatives are greatly active in disseminating information to farmers in the study location. Electronic media such as television, radio, and other information communication and technologies are also contributing greatly towards information delivery while the print media is contributing averagely towards informing farmers on farm hygiene practices.

Table 3: Poultry farmers' sources of information on farm hygiene

Source of information on farm hygiene*	Percentage (%)
Extension Agents	100
Families and Friends	100
Cooperatives	100
Electronic Media	96.6
Print Media	47.9

Source: Field survey, 2016. *multiple response

Land Ownership Type for Poultry Production

Figure 1 shows that the majority (81.8%) of the respondents operate on government-owned land while only 10.1%, 2.7% and 5.4% operate on personal land, communal land and inherited land respectively. Thus, most of the poultry farmers operate on land made available by the state government to support agricultural production. This implies that farmers can easily access and use government land for farmers especially land within farm settlement which are made available at little or no cost.

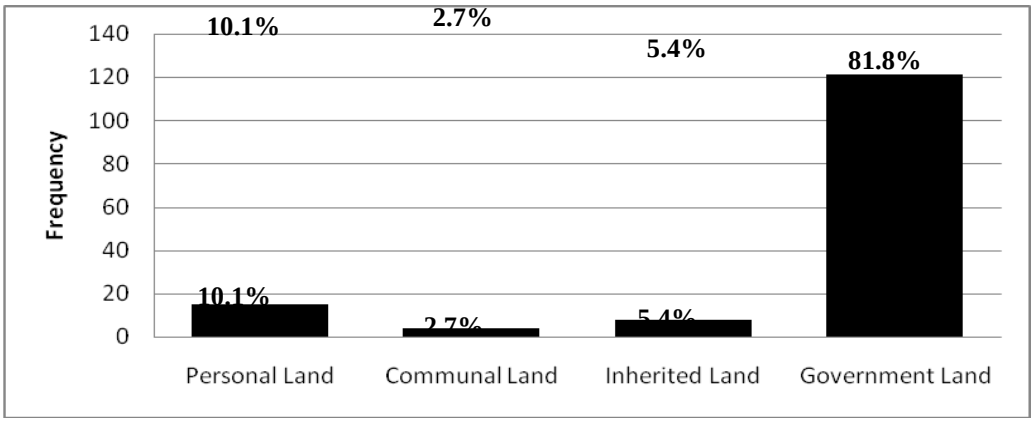

Figure 1: Respondents' land ownership type for poultry production

Creative commons User License: CC BY-NC-ND
Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

Poultry Farm Hygiene Practices

Table 4 presents the farm hygiene practices of the respondents. A mean of 4.71 was computed for farmers' response. There was also an indication that 99.3% periodically clean their poultry pens. The majority (81.7%) of the respondents disagreed that sanitation should only be done last Saturday of every month while very few (18.3%) agreed. Most (88.5%) of the respondents agreed that quarantine service is of necessity while only 11.5% disagreed with a mean value of 4.44 computed for this response. The majority (96.6%) of the respondents agreed that vaccines and drugs should be administered periodically. About 99%) of the poultry farmers believed that poultry kits/equipment should be disinfected after use while very few (1.3%) of the respondents did not share such opinion. Few (7.1%) agreed that raw or uncooked poultry products are good for consumption while majority (92.9%) disagreed. Further, 27.7% of the respondents agreed that long exposure of poultry products to heat kills the nutritive value of the products while 29.1% disagreed. This result is in agreement with Adekunle (1974) that daily activities of poultry management include: regular inspection, proper disposal of waste, use of clean feeding and water trough, as well as litter management of the poultry pens.

Table 4: Respondents' farm hygiene practices

Statements	M	SD
Periodic cleaning poultry pen environment	4.71	.55
Sanitation should only be done last Saturday of every month	1.77	1.19
Quarantine services is of necessity	4.44	1.06
Quarantine services should be bye-passed because it is too expensive	1.57	1.00
Drugs and vaccines should only be administered when poultry birds are sick	1.84	1.23
Vaccines and drugs should be administered periodically	4.70	.62
Poultry kits/equipment should be disinfected after use	4.76	.57
Poultry equipment should only be washed during monthly environmental sanitations	1.78	1.34
Raw/uncooked poultry products is good for consumption	1.60	.87
Long exposure of poultry products to heat kills the nutritive value of the products	3.09	1.10

Source: Field survey, 2016.

Relationship between Respondents' Socioeconomic Characteristics and Farm Hygiene Practices

Table 5 shows the multiple regression result between the socioeconomic characteristics of respondents and farm hygiene practices. Farm hygiene practices are related to educational level (χ^2=7.96, P <.05), religion (χ^2=7.62, P <.05) and years of farming experience (β = -.87, P <.05). This implies that only respondents' educational level, religion and years of farming experience are related to farm hygiene practices. This result

Creative commons User License: CC BY-NC-ND
Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

supports Benor et. al. (1997) who believed that education is important in creating positive attitude to life. It was also found-out by Akinnusi and Sodiya (2012) that higher education attainment is significant towards increasing knowledge and better management practices (including hygiene practices). Table 6 further shows that respondents' age, sex, marital status and ethnicity were unrelated to the criterion. Thus hypothesis 1 is not fully supported and hereby rejected since some of the socioeconomic characteristics of the respondents are related to their farm hygiene practices. Respondents' compliance or motivation to practice proper hygiene is couched in terms of their socio-economic circumstances such as their personal and communal possessions, marital status, sex, ethnicity, educational status, perceived need and farming experience. Proper hygiene cannot be sustainably achieved without reference to the socioeconomic context,

Table 5: Relationship between respondents' socioeconomic characteristics and farm hygiene practices

Variables	χ^2 calculated	Df
Sex	1.62	2
Marital Status	4.81	2
Religion	7.62	2
Educational Level	7.96	3
Ethnicity	3.62	2

- ≤.05

Source: Field survey, 2016

Table 6: Determinants of hygiene practices

	Beta (β)	t-value
Constant	44.94	6.23*
Age	.33	.93
Year of farming experience	-.87	-.23*

- R = .35, R^2 = .12, Adjusted R^2 =.08, Standard Error = 3.91, F = 3.21*, DF = 4/164, * P **≤.**05

Source: Field survey, 2016

Relationship Between Respondents' Land Ownership Types and Farm Hygiene Practices

Table 7 shows the result between respondents' land ownership types and farm hygiene practices using PPMC. Respondents' farm hygiene practices are significantly (r = -.22*, P <.05) related to the respondents' land ownership types Thus, hypothesis 1 is hereby rejected, meaning that method through which the respondents acquired/owned their land significantly influence their farm hygiene practices. This result supports the common description of land as a free gift of nature which requires better management practices to

Creative commons User License: CC BY-NC-ND
Abstracted by: EBSCOhost, Electronic Journals Service (EJS), Google Scholar, Journal Seek, Scientific Commons, Food and Agricultural Organization (FAO), CABI and Scopus

Journal of Agricultural Extension
Vol. 22 (2) June, 2018
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

get the best out of it. In this case, the result contravenes Otitoju *et al.* (2013) who found land tenure (method of land acquisition) for agricultural production as a non-determinant of adaptable strategies and practices in agricultural production.

Table 7: Relationship between land ownership type and farm hygiene practices

Variables		r value	Significant	Decision
Independent	**Dependent**			
Land ownership types	Farm hygiene practices	-.22	Significant	Ho_1 Rejected

Source: Field survey, 2016.

Relationship between Respondents' Sources of Information and Farm Hygiene Practices

Table 8 shows the result between respondents' sources of information on hygiene and farm hygiene practices using Pearson Product Moment Correlation (PPMC). Source of information is significantly (r = -.21, P**≤.05**). related to farm hygiene practices. This result supports Mbanaso et. al. (2013) who believed that source of information is significant to adopting practices that lead to better production. Thus Ho_2 is hereby rejected.

Table 8: Relationship of respondents' sources of information and their farm hygiene practices

Variables		r value	Significant	Decision
Independent	**Dependent**			
Sources of information	Farm hygiene practices	-.21*	Significant	Ho_2 Rejected

Source: Field survey, 2016. * P **≤.**05

Conclusion and Recommendations

Poultry farmers' farm hygiene practices in the study location was found to be determined by the respondents' educational level, years of farming experience, sources of information of hygiene, farm size, family size and land ownership type.

The majority of the poultry farmers periodically clean their poultry pens, disinfect poultry kits/equipment after use, thus, shunning the attitude that sanitation should only be done last Saturday of every month. The majority of the respondents also agreed that quarantine service is of necessity, and vaccines and drugs should be administered periodically. It was agreed by most of the respondents that raw or uncooked poultry products are not good for consumption. This result agrees with Adekunle (1974) daily activities of poultry management which include regular inspection, proper disposal of

waste, use of clean feeding and water trough, as well as litter management of the poultry pens.

More so, members of farmer's family have contributory roles in ensuring hygiene both at home and on the farm as most of the respondents have average family size between 5 and 10 members and the variable thus significantly related with farm hygiene practices. Extension agents, farmers' friends, farmers' cooperative societies, electronic and print media have significant role to play as major sources of information on hygiene practices.

To further support farmers, extension agents and farmers' cooperatives to conduct seminars, lectures, workshops and conferences periodically as part of their activities to keep farmers informed of proper management of diseases. The print media to publish more write-ups on farm hygiene in the agricultural section of their papers to enable farmers read current information on hygiene practices. Public enlightenment and campaign should be strengthened to enlighten the public towards positive attitudes and handling of poultry products. Farm hygiene practices and routine management like regular environmental sanitation, periodic vaccination, poultry' entrance dips, drug administration and quarantine services should continue. Concerned health and pharmaceutical organisations to continue to make vaccines and drugs readily available to poultry farmers at affordable price for easy access and utilization to prevent and control disease infections in poultry birds. Poultry birds and poultry products should be bought from authorised and certified agents. Poultry waste should be properly handled where poultry diseases outbreak had occurred.

References

Adegbite, D. A., Olaoye, O. J., and Oloruntoba, A. (2008). Performance assessment of Ogun State Agricultural and Multi-Purpose Credit Agency (OSAMCA) in credit delivery and operation (2004-2006). In. Awonorin, S. O. (Ed.) An International Journal of Agricultural Sciences, Science, Environment and Technology (Asset) Series C vol.3, number 1 University of Agriculture Abeokuta, Nigeria: 21-38 pp.

Ajayi, M. T., and Aphunu, A. (2007). Farmers' perception of their extension agents' effectiveness and introduction of extension reforms in Delta State, Nigeria. In. Awonorin, S. O. (Ed.) *An International Journal of Agricultural Sciences, Science, Environment and Technology (Asset) Series C* vol.2, number 1 University of Agriculture Abeokuta, Nigeria: 191-202 pp.

Akinnusi, F. A. and Sodiya, C. I. (2013). Personal factors affecting awareness and perceptions of farm settlement-based poultry farmers to avian influenza in Lagos State, Nigeria. In Nwara, J. C. (ed.) Proceedings of 26th Annual Conference of Farm Management Association of Nigeria (FAMAN) held at Michael Okpara University of Agriculture Umudike, Nigeria, October 15th – 19th, 2012. Liu house of Excellent Ventures, Owerri, Nigeria: 130 – 136 pp.

Apantaku, S. O., Omotayo, A. M., and Oyesola, A. B. (1998). Poultry farmers willingness to participate in NAIC Scheme in Ogun. Oduguwa (ed.) *Proc. of the Silver Anniv. Conf. Of NSAP*: 542.

Benor, D., Harrison, J. Q., and Barter, M. (1997). *Agricultural Extension: The Training and Visit System, Washington D.C. The World Bank.*

Bloss E, Wainaina F, Bailey RC (2004) Prevalence and predictors of underweight, stunting, and wasting among children aged 5 and under in western Kenya. *Journal of tropical pediatrics* 50: 260–270. pmid:15510756

Food and Agriculture Organization, and World Organization for Animal Health. (2007). New bird flu outbreaks require strong vigilance. http://www.fao.org/newsroom/en/news/..... Retrieved on 18/02/08

Fuchs C, Sultana T, Ahmed T, Iqbal Hossain M (2014) Factors associated with acute malnutrition among children admitted to a diarrhoea treatment facility in Bangladesh. *International journal of pediatrics* 2014.

Heise, H., Crisan, A., and Theuvsen, L. (2015) The poultry market in Nigeria: Market structure and potential for investment in the market. *International Food and Agribusiness Management Review (IFAMA), volume 18* special issue A. 197-222 pp.

Lombin, L. H. (2006). Strategic plans for the prevention and control of emerging and re-emerging diseases in Nigeria-*2006. World Veterinary Day Celebration Lecture:* 3-4 pp.

Mbanaso, E. O., Agwu, A. E., Anyanwu, A. C., Ememandu, E., and Asumugba, G. N. (2013). Adoption of improved sweetpotato varieties by farmers in South-East agro-ecological zone of Nigeria. In Nwara, J. C. (ed.) Proceedings of 26th annual conference of Farm Management Association of Nigeria (FAMAN) held at Michael Okpara University of Agriculture Umudike, Nigeria, October 15th – 19th, 2012. Liu house of excellent ventures, Owerri, Nigeria. 137 – 144 pp.

National Population Commission. (2016). Estimated population of Nigerian States. National Population Commission 2016 statistics. http://www.worldpopulationreview.com/world-cities/lagos-population/

Obayelu, A. E. (2007). Socio-economic analysis of the impacts of Avian Influenza epidemic on households poultry consumption and poultry industry in Nigeria: *Empirical investigation of Kwara State. Livestock Research for Rural Development 19 (1):* 203-216 pp.

Okwoche, V. A., Voh, J. P., and Ogunwale, S. A. (1998). Socio-economic characteristics influencing adoption behaviour of women cooperators and non-cooperators in Oju Local Government Area of Benue State. *Journal of Agricultural Extension 37,(2)*: 116-132 pp.

Raihan, M. J., Farzana, F. D., Sultana, S., Haque, M. A., Rahman, A. S., and Waid, J. L (2017) Examining the relationship between socio-economic status, WASH practices and wasting. PLoS ONE 12(3): e0172134. https://doi.org/10.1371/journal.pone.0172134

Shin-Aba, M. O. (1998). Economic analysis of sugarcane production in Ogun State. A case study of Papalanto. *Agricultural Extension and Rural Development, University of Agriculture, Abeokuta, Ogun State Nigeria:* 5.

Siddiqi, M.N.A, Haque, M.N, and Goni, M.A. (2011) Malnutrition of under-five children: evidence from Bangladesh. *Asian Journal of Medical Sciences 2*: 113–119 pp.

Thamsborg, S. M., Roepstorff, A., Nejsum, and Mejer, H. (2010). Alternative approaches to control of parasites in livestock: Nordic and Baltic perspectives. Acta Veterinaria Scandinavica 2010; 52 (suppl 1): S27. Biomed central, the open access publisher. PMCID: PMC2994304. doi: 10.1186/1751-0147-52-S1-S27

Thear, K., and Fraser, A. (1986). The complete book of raising livestock and poultry. A smallholder's guide. University service limited educational publishers, Yaba, Lagos, Nigeria: 37.

United States Department of Agriculture (2013). International egg and poultry report. United States Department of Agriculture report.

Wang Y, Moreno, L. A, Caballero, B, and Cole, T. J. (2006). Limitations of the current World Health Organization growth references for children and adolescents. *Food & nutrition bulletin 27*: 175–188 pp.

World Health Organization (2010). World Health Statistics. World Health Organization publication. 2-3 pp.

World Health Organization (WHO (2007). The World Health Organization (WHO) situation updates and cumulative reports of human cases of Avian Influenza A (H5N1). http://www.who.org Retrieved on 18/02/08.

World Health Organization (2015). Child growth indicators and their interpretation. WHO global database on child growth and malnutrition 1-4 pp.