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Occupational Hazards and Productivity of Poultry Farmers in Osun State of Nigeria

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Abstract: This study examined the degree of occupational hazards among Osun state poultry farmers and how it affects their productivity. A structured questionnaire was designed to obtain relevant information from 70 poultry farm owners chosen through random sampling techniques. Descriptive statistics and a linear production function were employed to analyze the data. The results showed that youths were the major set of people in poultry business in the state. All the poultry farmers and farm workers in the study area were educated. Given multiple responses, about 93% of the farm owners experienced physical hazards while 91% were involved in accident at one point or the other. Those who complained of chemical hazards were found to be 86%. An increase in the expenditure on drugs will lead to a decline in net revenue of the poultry farmers per hectares.

Key words: Occupational hazards, poultry farmers, Nigeria

INTRODUCTION

Poultry farming is one of the leading enterprises in Nigerian agricultural sector. It has gained acceptance among the citizens of almost all the regions in Nigeria due to the prolific instinct and short-term rate of returns in form of cash and kind benefits. The population of poultry in Nigeria is about 130-150 million birds and appears more advanced than other livestock with about 14, 34, 32, 4.40 and 1 million cattle, goats, sheep, pigs and donkeys respectively (NARP, 1997). Unfortunately, traditionally managed stock is over 86% for all poultry in Nigeria species (Bourn *et al.*, 1994).

In Nigeria, the demand for poultry products such as eggs, chicks and chicken is relatively huge. These are sources of balanced protein, cholesterol and other essential amino acids. Eggs supply the most nearly perfect protein that has a rich biological and a good dietary source of iron which is a precursor of red blood cell formation. Eggs also serve important roles in many food products because of their functional properties such as coagulation and emulsification (Odunsi *et al.*, 2005). Chicken belongs to white meat category and are rich sources of high quality protein (amino acids), vitamin (B-complex), minerals (Fe and Cu), essential fatty acids (Linoleic, linolenic and arachidonic acids) and high social and therapeutic value. Despite the fact that poultry have the greatest potential contribution to increase the supply of animal protein within the short-run, occupational hazards has been a major set back to poultry production in Nigeria which debarred many people from engaging in reasonable poultry production services.

Generally, livestock farmers are pruned to back-pain and other musculoskeletal problems resulting from over exertion and wrong postures during lifting and moving of animal and feed bags, and shoveling of waste (ILO/CIS, 1999). For clarity purpose, the occupational hazards of livestock production can be classified as accident, physical, chemical and biological hazards, ergonomic, psychological and Organizational factors. The basic aim of this study is to examine the types of occupational hazards in poultry farms on Osun state of Nigeria as it affects the productivity of the poultry.

Generally, poultry production include breeding, raising, gathering and caring of domestic fowl and collecting their products. It covers any combination of the following duties when raising poultry for eggs and meat: removing chicks from shipping cartoons and placing them in brooder houses, cleaning and disinfecting poultry houses, cages and nests, spreading bedding material, and cleaning droppings from the floor. Others include filling feeders and water, containers, vaccinating via drinking water, injection or dusting of air. Inspecting poultry for diseases and removing weak, ill and dead poultry from flock. In addition there is regular collection, inspection and packing of eggs as well as cleaning adjusting and replacing systems parts using hand tools. According to ILO/CIS (1999) such exercises are associated with diverse occupational hazards which can be classified into accident, physical, chemical, biological, psychosocial and economic hazards.

Accident Hazards include (a) Sprains and stains from slips, trips and falls when carrying heavy loads (bags of feed), working in congested and slippery areas soiled

with excreta (b) Eye and skin irritation from contamination of broken skin or from splashing of irritants, allergens, other hazardous fluids (disinfectants) during vaccination/medicating (in feed/water), mixing of feed, transporting feed/medicines, or spraying vaccines, disinfectants and fumigating agents and (c) burns from exposure to hot surfaces (e.g. incubators, debarking tools).

Physical Hazards on the other hand involves exposure to high noise levels particularly in confinement system, heat exhaustion, heat-induced dermatosis, skin-induced dermatosis and cold exposure due to variable thermal conditions of the year, long outdoor work or high temperature/humidity in confined systems.

Chemical Hazards covers (a) Acute and chronic respiratory irritation and diseases from exposure to agricultural dusts. Agricultural dusts are primary organic (feather, micro-organisms etc), but inorganic dusts, like crystalline silica are also found in confinement house dusts. (b) Immunologically diseases (e.g. rhinopharyngitis, a topical asthma) and hypersensitivity (immediate and delayed) reactions (e.g. extrinsic allergic alveolitis/hypersensitivity pneumonitis) from exposure to dusts © Acute and chronic dermal, ocular, and respiratory diseases from exposure to several toxic and asphyxiating gases common especially in confinement systems including ammonia (NH₃) released during microbial degradation of manure fermentation and gas flame heaters, other gases include CO, H₂S, CH₄, SO₂ and NOx (manure decomposition and fuel combustion) (d) exposure to disinfectant, detergents, formaldehyde, ammonia, solutions, sodium carbonate and sodium hypochlorite and (e) Formaldehyde, a suspect carcinogen, is often used as a disinfectant in hatcheries and broader house.

Biological Hazards includes Zoonotic disease and infection naturally transmitted between vertebrate animal and man are common. These include infective agents such as viruses, bacteria, fungi (histoplasmosis) rickettsia and other microbes (psihicosis) as well as aendotoxins. Ergonomic, Psychosocial and Organization Factors cover back pain and other musculoskeletal problems resulting from over exertion and wrong postures during lifting and moving of animal and feed bags, and shoveling of wastes.

MATERIALS AND METHODS

The study was carried out in Osun State with the headquarters at Osogbo. The inhabitants are farmers, traders and artisans. A well structured questionnaire was designed to obtain relevant information from 70 farm owners chosen through random sampling techniques. The primary data were analyzed using descriptive statistics analysis such as percentage, frequency distributions and table presentation. The method is employed to analyze the socio-economic characteristics of the respondents such as age, marital status, educational level, farm size, number of

enterprises etc. In other to examine the productivity of the poultry farmers, three types of production function were fitted. They are linear, exponential and Cobb-Douglas production.

The regression models in explicit form are as shown in equations 1, 2 and 3.

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14} + e \quad (1)$$

$$\ln Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14} + e \quad (2)$$

$$\ln Y = b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + b_7 \ln X_7 + b_8 \ln X_8 + b_9 \ln X_9 + b_{10} \ln X_{10} + b_{11} \ln X_{11} + b_{12} \ln X_{12} + b_{13} \ln X_{13} + b_{14} \ln X_{14} + e \quad (3)$$

Y	=	Net income per hectare in Naira
b ₀	=	Constant
b ₁ -b ₁₄	=	Regression coefficients
X ₄	=	Family Size (number)
X ₅	=	First aid cost in Naira
X ₆	=	Preventive measure (yes = 1, No = 0)
X ₇	=	Education in years
X ₈	=	Drug's cost in Naira
X ₉	=	Machinery's cost in Naira
X ₁₀	=	Sex (Male = 1, Female = 0)
X ₁₁	=	Labor in man days
X ₁₂	=	Number of enterprises
X ₁₃	=	Age in years
X ₁₄	=	Farm size in hectares
e	=	Error term
ln	=	Natural logarithm

RESULTS AND DISCUSSION

A summary of the distribution of the respondents' socio-economic and production variables is presented in Table 1. About 24% of the respondents were between 15 and 20 years old while 61% fell between 21-40 years age bracket. This implies that poultry farming in the study area is dominated by youths. This conforms to the findings of Agbamu (1993), that there is a predominance of youths among the farming population in Nigeria. Table 1, also showed that most of the respondents were male (76%) and all of them were educated. About 7% had primary education, 36% had secondary education while 57% had tertiary education. High level of education among the respondents is expected to equip them to respond to challenges, lucrative opportunities, innovations and technology for high productivity. In respect of their family size, about 44% of the respondents had 1-5 dependants while 39% of them had between 6 and 10 dependants. The descriptive

Table 1: Socio-economic characteristics of the respondents

Characteristics	Frequency	Percentage
Sex distribution of the respondents		
Male	53	76
Female	17	24
Age distribution of the respondents		
20	17	24.3
21-40	43	61.4
41-60	10	14.3
Education status of the respondents		
Primary	5	7
Secondary	25	36
Tertiary	40	57
Family size of the respondents		
1-5	31	44
5-10	27	39
11-15	9	13
16-20	2	3
21-25	1	1
Farm size distribution of the respondents		
Small	34	48.6
Medium	14	20.0
Large	22	31.4
Occupational hazard distribution of the respondents		
Physical hazards	65	93.0
Accident Harvard	64	91.0
Chemical Harvard	60	86.0
Safety practices distribution of the respondents		
Quality drugs	55	79
First aid box	52	74
Nose cover	32	46
Rubber gloves	30	43

Table 2: The result of regression analysis

Variable	Coefficient	t-statistic	Significance level
Constant	6316.904	3.278	0.002
No of enterprises	-458.699	-1.506	0.295
Age	90.025	2.472	0.016
Prevention	-1779.839	-2.447	0.018
Education	-176.178	-0.383	0.703
Labor	0.011	0.126	0.900
Sex	0.006	-0.080	0.939
Farm size	0.005	-4.000	0.000
Machinery	-0.080	-0.259	0.790
First aid	-0.057	-0.948	0.347
Drug	-0.002	-2.270	0.027
Family size	-107.596	-0.923	0.360
R ²	60.8%		
F	27.97		0.000

Source: Field survey 2005

statistics also showed that about 48.6% of the respondents had small farms, 20% had medium sized farms while 31.4% had large farms.

The farmers were interviewed on the nature of their occupational hazards. When allowance was given for multiple responses, the result showed that 93% of the respondents complained of physical hazards. This is followed closely by victims of accident hazards (91%) and chemical hazards (86%). It is obvious that occupational hazards were very rampant among poultry farmers. Several measures taken by the respondents to address the hazards include the use first aid measures

and drugs. They also used some protective materials such as nose cover, rubber boot/rain boot, and gloves to reduce and/or prevent injuries while working on their poultry farms.

The results of the regression model are summarized in Table 2. Linear production function had the highest fit. Hence the results and discussion here are based on the outcome of the linear functional form. The coefficient of determination (R²) showed that about 60.8% of the variation in net income of the respondents per hectare was explained by the independent variables. The F statistic was statistically significant at 5% probability

level. This affirms the good statistical quality of the model fitted. It is obvious from the results that age, preventive measure (denoted as prevention), farm size, and expenses on drugs simply termed drug were statistically significant at 5% level. The significance of drug is the main interest of this study. An increase in the expenditure on drugs will lead to a decline in net revenue of the poultry farmers per hectares. Given the peasant nature of the poultry farming and their level of poverty, this could be a serious problem if measures are not put in place to stem the tide of occupational hazards facing the farmers.

Conclusion: In summary, the study showed that (i) youths are the major set of people in poultry business in Osun state of Nigeria, (ii) all the poultry farmers in the study area were educated, (iii) there was a prevalence of all types of occupational hazards in the study area, (iv) An increase in the expenditure on drugs will lead to a decline in net revenue of the poultry farmers per hectares. Against this background the following recommendations are suggested:

- Results of consistent research on occupational hazards and safety practices should be disseminated to the poultry farmers to show them the need to pay maximum attention to safety practices
- Medical insurance scheme at a very highly subsidized rate should be introduced in the state to cater for medical treatment of the farmers' occupational hazards

- Finally, extension services in the state should include regular training of the farmers on readily available and easily affordable safety practices. They should be taught to see medical doctors as soon as possible after any form of occupational hazards

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