



ANALYSIS OF RISKS AND MITIGATING STRATEGIES EMPLOYED AMONG POULTRY FARMERS IN MAKURDI LOCAL GOVERNMENT AREA OF BENUE STATE

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Abstract

The study analyzed the risk and mitigating strategies employed by poultry farmers in Makurdi Local Government Area of Benue State. Primary data were collected from 100 farmers using multi-stage and simple random sampling techniques. Descriptive statistics and t-statistics were used to analyze the data. Specifically, descriptive statistics was used to analyse socio-economic characteristics of respondents, identify the various types of risks affecting farmers and identify the constraints to poultry production, while t-test was used to assess the risk mitigating strategies employed by poultry farmers. The result revealed that most of the farmers are in their active age (41 years), with an average household size of 6 persons and the mean flock size of 511 birds. The result shows that the three most important risks in poultry production were; disease epidemic (89%), environmental related risks (88%) and change in market price (69%). The result also revealed that the major risk mitigating strategies by the farmers in the study area includes vaccination, fumigation of poultry house and employment of veterinary attendants. However, environmental-related factors, cost of feeds and disease epidemics were the major constraints to poultry production. Based on the findings of the study, the following recommendations are made; government and non-governmental organizations should ensure effective policy formulation to reduce the risks faced, improve risk mitigation strategies faced by respondents in the study area. Also poultry farmers should be encouraged by the government through supply of loans and good insurance policies.

Key words: mitigating, poultry, poultry farming, risk, , insurance, Makurdi

Introduction

Among the rural poor, poultry is a crucial means of livelihood which sometimes serves for augmenting households' protein consumption and sources of income in times of financial distress. Earnings from poultry production, for instance, through sales of eggs or birds is an activity that do not require much fund that can be engaged in to meet household needs. In addition, poultry contributes to household nutrition, as many rural poor households rely on their own poultry production for the supply of their animal protein and essential micronutrients.

In Poultry production, like any other type of agricultural enterprise, decision is made under risks and uncertainties which are pervasive and complex (Kahan,2013). Risk situations in poultry farming have been identified to include, among others, frequent cases of disease outbreak, high cost of medication and vaccines where available, insufficient fund by most farmers, lack of quality feed for improved yield, unfavourable weather condition affecting poultry birds, fragility of poultry products such as eggs and day old chicks, lack of technical know-how of improved farming technologies by most farmers and inadequate credit facilities for improved production (Obike *et al.*, 2017). Production activities of poultry farmers are characterized by high level of risks, extending to high cost of inputs and veterinary services which reduces productivity and net returns from the investment. In some cases, outbreak of diseases could wipe out the entire population of birds in a poultry leading to the death of the business enterprise itself. Further, theft of birds and market glut could force the farmers to sell off their products below production cost. Kahan (2013), reported that risks in livestock farming can be classified into: production (drought, heavy rainfall and diseases and pests); marketing (supply/cost of inputs, demand for a product/price and cost of production); financial risk (loan and its cost); institutional (change in policy at the local, national and international levels) and personal/human (accidents, illness, civil unrest and death).

Coping strategies are also adopted by households in order to mitigate the impact of the risks and uncertainties. It is assumed that the behavior of households would vary depending on whether or not they have access to measures to cope with the emergencies. It should be emphasized that many poultry farmers in Nigeria are less equipped to mitigate risks associated with consumption, income, assets, and their health. This could lead to eventual collapse of the poultry industry if intensive and collaborative efforts are not made by all stakeholders to salvage the situation. In particular, the failure to rise up to the challenge of saving the industry could lead to a serious reduction in poultry production and protein intake

of people. This situation therefore justifies the need for a thorough assessment of existing risk coping strategies of the poultry farmers. Also, an understanding of how the farmers are affected and react to this risk will in due course aid on the design of improved risk management strategies. These factors bring about uncertainty in poultry production; thus affecting the supply of poultry products in the markets (NAN, 2013). The events of a number of periods of price uncertainty and movement (volatility) have caused companies to fall into bankruptcy, farmers leaving the business, farmers falling into semi-permanent poverty traps and consumers to face spiraling costs for food and consequently, decline in the growth of the poultry sector (Adeyemo and Onikoyi, 2012). A general lack of accurate information on the risks sources and mitigation strategies in the livestock sector, combined with insufficient veterinary and breeding services, non-existent or inadequate regulations concerning production, commerce and animal health control are also other important obstacles to the mitigation of risks in poultry production (Food and Agricultural Organisation, FAO, 2008). Obike *et al* (2017) listed enterprise diversification, insurance, marketing strategies, financial strategies, production strategies as well as risks coping as risk management strategies adopted by poultry farmers.

The study was therefore carried out to identify the risk factors associated with poultry farming in Makurdi Local Government Area of Benue State as well as to identified the coping strategies adopted by farmers. The specific objectives are: to describe the socio-economic characteristics of the poultry farmers, describe the various types of risks affecting poultry farmers, identify the risk mitigating strategies employed by poultry farmers, determine poultry farmers risk attitude and identify the constraints to poultry production.

Methodology

The study was carried out in Makurdi Local Government Area of Benue State, Nigeria. Primary data were used for the study. A multi-stage sampling technique was employed. In the first stage, a purposive sampling was used to select six council wards out of the eleven council wards. In the second stage, one hundred poultry farmers were randomly selected from the selected council wards proportionately, according to the number of poultry farmers in the wards. The selected wards were Wurukum, Welfare quarters, Judges Quarters, Achusa GRA, Wadata and Lobi quarters. Data collected were analysed using descriptive and inferential statistics. Descriptive statistics such as mean, median, frequency distribution were used. T-statistics was used to describe the various types of risks affecting poultry farmers and is specified below:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

Where,

\bar{X}_1 = Mean of first set of values

\bar{X}_2 = Mean of second set of values

S_1 = Standard deviation of first set of values

S_2 = Standard deviation of second set of values

n_1 = Total number of values in first set

n_2 = Total number of values in second set.

Results and Discussion

Socio-Economic Characteristics of Respondents in the Study Area.

The socio-economic characteristics of the sampled poultry farmers are presented in Table 1. The result indicated that more men were involved in poultry farming; the mean age of the respondents was found to be 41 years. This may be attributed to the intensive care poultry production require and thus youthful age provide the advantage of handling the task; this agrees with the findings of Adewumi (2008) who found out that the poultry farmers are within the active labour force and are expected to be diligent in managing their poultry farms more effectively. The mean years of farming experience was found to be 7.2 years and the mean household size was found to be 6 persons per household. The result showed that 54% of the respondents had a flock size of 50-250 birds, 22% had between 251-500, 13% had between 501-1000 and 11% had between 1001-3000 birds and the mean flock size was found to be 511; this implies that the poultry farmers were involved in small and medium scale poultry production.

The study shows that 91% of the respondents had formal education. There is high literacy level among the farmers in the study area. This could positively influence their participation in development programmes, awareness and adoption of innovations and risk management

practices (Fawole and Fasina, 2005). Similar findings were reported by Mafimisebiet *et al.*, (2006) among livestock farmers in South-Western Nigeria and by Adewumi, (2008) in his study economics of poultry production in Egba division of Ogun State.

Table 1 Socio-economic characteristics of poultry farmers.

Characteristics	Frequency	Percentage (%)
(a) Gender		
Male	69	69
Female	31	31
(b) Age		
20-30	15	15
31-40	31	31
41-50	43	43
51-60	5	5
61-70	6	6
(c) Marital Status		
Married	66	66
Single	25	25
Widow	4	4
Widower	5	5
(d) Education Level		
Formal	91	91
No-formal	9	9
(e) Poultry Type		
Broiler	72	72
Layers	17	17
Both	11	11
(f) Occupation (Primary)		
Farming	39	39
Civil Service	43	43
Marketing	15	15
Politics	3	3
(g) Flock Size		
50-250	54	54
251-500	22	22
501-1000	13	13
1001-3000	11	11
(h) Rearing Cycle		
1-2	21	21
3-5	79	79
(I) Farm Size		
0.1-0.50	74	74
0.51-1.0	20	20
1.51-2.0	6	6
(J) Years of Experience		
1-10	85	85
11-20	11	11
21-30	3	3
31-40	1	1
(k) Household Size		
1-5	31	31
6-10	63	63
11-15	4	4
16-18	2	2

Source: Field Survey (2017)

Various Types of Risks Affecting Poultry Farmers in the Study Area.

The result presented in Table 3, shows that 89% of the respondents identified poultry diseases as the highest source of risk in poultry production. This is expected given the prevalence of widespread diseases (e.g. avian influenza, Gambaro) in poultry production. In 2006 in Nigeria, the outbreak of avian influenza killed a total of about 480,378 in four States between the periods of January to March. Poultry chickens accounted for 99% of all the birds (Saidu, *et al* 2008). Unfavourable climatic condition during heat period e.g. heat stress was indicated by 88% of the respondents. The result also revealed that 64% of the respondent identified market risk e.g. fall in price as a major source of risk while 62% indicated that hereditary risk is not a major cause of risk in poultry production. This implied that poultry farmers in the study area were producing under risk conditions

Table 2. Various types of Risk affecting Poultry Farmers

Characteristics	Frequency	Percentages (%)
(a) Disease epidemic		
Yes	89	89
No	11	11
(b) Unfavourable climate		
Yes	88	88
No	12	12
(c) Market Risk		
Yes	64	64
No	36	36
(d) Hereditary Risk		
Yes	38	38
No	62	62

Source: Field survey Data (2017) multiple responses recorded.

The Risks Mitigating Strategy employed by Poultry farmers

The Risk Mitigating strategy employed by poultry farmers was tested using t statistics. Table 3 presents 4-point

likert scale which shows strongly agree, 3 shows agree, 2 indicates Strongly disagree and 1 indicates Disagree. From the result obtained 47% of the respondents indicated they strongly agreed to investing in other enterprises as a mitigating strategy while 18% disagreed. Majority (80%) of the respondents indicated they strongly agreed on vaccination while 2% disagreed.

79% of the respondents strongly agreed on Fumigation as a veritable means in mitigating risk. From the result, vaccination and fumigation were shown to be the highest risk mitigating strategies employed by poultry farmers in the study area while insurance policy and agricultural shows were the least tool employed by the farmers. From Table 3, Likert mean value of 2.5 was set to indicate the level of significance of these mitigating strategies, with values higher than 2.5 are said to be significant and those below 2.5 insignificant. From the result, insurance and agricultural shows were not significant; this implies that the poultry farmers do not rely on them as a means of mitigating risk.

Table 3. Risks Mitigating Strategies employed by poultry Farmers

Characteristics	Sig.	Mean	Mean difference
(a) Investing in other enterprises	0.000	3.0600	0.56000
(b) Mixed Farming	0.000	2.9200	0.42000
(c) Insurance policy	0.523	2.5800	0.08000
(d) Employment of Vet. Attendant	0.000	2.880	0.38000
(e) Attending farm meetings periodically to obtain new innovations to prevent losses on the farm	0.004	2.8100	0.31000
(f) Attending agricultural shows	0.247	2.6300	0.13000
(g) Welcome extension agents on the farm periodically	0.000	3.2600	0.76000
(h) Fumigation of poultry house after each cycle	0.000	3.7300	1.23000
(i) Vaccination of poultry birds as against disease epidemics	0.000	3.7400	1.24000

Source: Field survey data (2017)

Constraints to Poultry production

The result in Table 4 shows the various constraints faced by poultry farmers. The result indicated that environmental related factors ranked first with 93% of the respondents indicating it as the highest constraints involved in poultry production. Cost of feeds ranked second with 78% of the respondents indicating it as a serious challenge as feed price is increasing daily with the current fall in Naira to Dollar in the forex market. Disease epidemic and inadequate vaccination jointly ranked third with 76% of the respondents indicating it as a major challenge faced in poultry farming, those endemic diseases such as Newcastle and gumboro are problems to farmers which however require reliable vaccines which are often not available. Fall in market price ranked fifth as 55% indicated it as a problem to poultry

farming. This agrees with earlier reports by Effiong *et al.*, (2014) that the most challenges in poultry production in the study area were changes in weather/climate, infestation of diseases and changes in input prices.

Table 4 Constraints to poultry production.

Constraints	Frequency	Percentage (%)
(a) Problem of Disease	76	76
(b) Environmental related problems	93	93
(c) Fall in Market Prices	55	55
(d) High cost of feed	78	78
(e) Problem of inadequate vaccination	76	76

Source: Field survey data (2017)

Conclusions and Recommendations

Based on the result of the study it was concluded that poultry farmers in Makurdi Local Government area are faced with risk in the course of their production activities and over time have developed some coping strategies to mitigate the effect of the risks. The finding could be useful in designing intervention programmes in an integrated manner that would address poultry production, boost its output on a large scale and to enhance poultry production. Based on the findings of the study, the following recommendations were made: government and non-governmental organizations should ensure effective policy formulation to reduce the risk faced and improve risk mitigation strategies used by respondents in the study area, Poultry farmers should be encouraged to increase their farm size since increased farm size leads to increased reduction of risk on the output, government and non-governmental organizations should organize trainings, workshops and seminars on the effective risk mitigation strategies in poultry production for the respondents to ensure risk mitigation, Poultry farmers should be encouraged to join cooperatives in order to have access to better health hygiene practices, veterinary services, which help in poultry risk mitigation. Unions or cooperatives will further facilitate positive interactions especially on risk sharing. This will present a collective bargaining front, and serve as a conduit for transmitting government extension recommendations to the farmer and small scale poultry farmers should be encouraged to

engage in as many income generating activities as possible, as this tend to increase their off farm income level. This increase in off farm income would lead to increase in the reduction of risk on the output of respondents.

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