

The Level of Awareness of Respiratory Mycoplasma Infections among Poultry Farmers in Nsukka Agro -Ecological Zone, Enugu State, Nigeria

Nneoma Okwara

Department of Veterinary Medicine, College of Veterinary Medicine, Michael Okpara University of Agriculture, Umuhia, Abia State, Nigeria

Abstract: A structured questionnaire survey of 14 poultry farms was conducted in Nsukka Agro-ecological Zone to collect data of history of respiratory infections, severity of infection on egg production rate and frequently observed clinical signs during such outbreaks. The farms sampled were randomly selected based on accessibility and cooperation of farm owners. The survey was designed to assess the knowledge and practices of farmers to respiratory avian mycoplasma infections. 85.7% of farms kept chickens only while 14.3% kept both chickens and turkeys. 92.9% practiced the intensive management system. 78.6% recorded the frequent occurrence of 1 or more respiratory clinical signs such as cough, ocular and nasal discharges; 50% affirmed that the respiratory signs they observed affected egg production rate of affected layers with losses ranging mostly from 0-50%. The study observed that the farmers' level of experience and education could lead to the detection of respiratory clinical signs in the birds they rear. Also, the possibility of the presence of avian respiratory mycoplasma infection in the study area was established. Not all farmers in the area made use of Veterinary services thereby incurring avoidable losses.

Keywords: Questionnaire, Respiratory Mycoplasma, Poultry farmers, Nsukka

I. Introduction

In the Nigerian agriculture sector, the poultry sub sector remains the most commercialized. Although different types of poultry such as chickens, ducks, guinea fowls and pigeons are commonly reared in Nigeria, the chickens predominate [1].

Avian mycoplasmosis is an infectious and contagious disease which affects chickens and turkeys as well as many other species with many economics losses [2].

Mycoplasma attaches to host epithelial cells, such as in the respiratory tract, which causes cell damage and inflammatory response. There are currently over 100 species of Mycoplasma known. The following have been isolated from wild birds: *Mycoplasma buteonis*, *Mycoplasma corogypsi*, *Mycoplasma falconis*, *Mycoplasma gypis*, *Mycoplasma sturni*, and *Mycoplasma gallisepticum* [3]. *M. gallisepticum* is the most important pathogen in poultry. It also causes disease in other avian species. *M. gallisepticum* infections are also known as chronic respiratory disease (CRD) of chickens, infectious sinusitis of turkeys and house finch conjunctivitis. Some major clinical signs of *M. gallisepticum* in chickens include those of respiratory distress such as coughing, sneezing, slight to marked rales and difficulty breathing, mild catarrhal sinusitis, tracheitis, and airsacculitis [4]. Swollen eyelids, ocular discharge and loss of sight are signs and symptoms that are very important for this disease as well [5]; poor productivity, leg problems, nasal discharge, stunting, inappetance, slow growth, reduced hatchability, reduced chick viability, and abnormal feathers are also some relevant clinical signs of the disease [6].

M. gallisepticum can be transmitted through infected poultry eggs, which come from infected breeders to progeny. Also, *M. gallisepticum* can be infected via infectious aerosols and through contamination of feed, water, and environment as well as human activity on fomites which can come from equipment and shoes [3]. Some sources that could possibly cause infection and transmission are cold weather, poor air quality, concurrent infections, and some live virus vaccinations [4].

M. gallisepticum causes respiratory disease and weakens the immune system which makes the bird vulnerable to any disease that they come into contact with. Small bubbles will appear in the corners of the eyes and sinuses will swell up. Once infected, they are carriers for the disease for life. Some birds have good resistance to the disease while others may die; some become ill and recover and others may not show any symptoms at all. There is currently no risk to humans. For domestic animals, there is a high concern and there should be a prevention of any interaction between wild birds and domestic poultry. Wild bird species affected by the disease are infectious and are often found in close contact with domestic species [3].

Since the disease causes reduced feed and growth production, carcass condemnations, and retarded growth in juveniles, serious economic losses have occurred [3].

The economic losses associated with avian mycoplasma infection necessitated this study.

II. Materials And Methods

Determination of poultry farms in Nsukka Agro ecological Zone, Enugu State.

The sampling frame of the study consisted of all known poultry farms in the 3 Local Government Areas that make up Nsukka Agro ecological Zone, Enugu State namely: Nsukka, Udeni and Igbo-Eze South. Poultry farm identification in this zone was based on information from day old chick suppliers and poultry Veterinarians. In addition, information from farm owners about other poultry farms was used to identify such farms.

In this study, sampling units (poultry farms) were randomly selected, based on accessibility and cooperation of farm owners. For each poultry unit sampled, the following were recorded: breed/species of bird, source of bird, management system, number/age of birds, effects of infection/diseases on egg production, mortality rate and frequently observed clinical signs.

Questionnaire survey

A well structured questionnaire was designed to collect information on the presence and effects of avian mycoplasmosis on poultry farms. A total of fourteen (14) farms were visited between September, 2010 and March, 2011. All the information on the questionnaire was obtained through direct interview with respondents who were either farm owners or farm managers.

Data were obtained on history of respiratory infections, severity of infection on egg production rate, mortality rate and frequently observed clinical signs during such outbreaks. Also, the farming system, breed and age of birds were also noted.

Data analysis

Data derived from the questionnaire were analyzed using SPSS version 20. Descriptive statistics was used to calculate the percentages of various variables.

III. Results And Discussion

From the fourteen (14) poultry farms surveyed (Table 1), eight (57.1%) were in Nsukka, three (21.4%) were in Udeni and three (21.4%) were in Igbo-Eze LGAs. The choice of these LGAs was based on accessibility to the farms and the farm owner's willingness to participate in the survey. Information obtained from the questionnaire survey indicated that 92.8% of the farmers had some level of education which is of importance because it has been shown by [7] that farmer's education positively affects productivity. Also, most of the farmers (57.1%) had more than 5 years experience in poultry production. This indicates that the experience gathered over the years could lead to the detection of respiratory clinical signs in the birds they rear.

The farmers interviewed had small scale poultry farms with most (28.6%) having between 250-500 birds, (21.4%) had less than 50 birds while (21.4%) had more than 500 birds (Fig 1).

Twelve (85.7%) of the farmers kept chickens only while two (14.3%) reared both chickens and turkeys. Four (28.6%) reared layers only, five (35.7%) reared broilers only while five (35.7%) reared both. It was observed that most of the farmers in the study area preferred to rear chickens and this could be linked to the peculiarities involved in rearing turkeys [8]. Also, among those that reared chickens, most preferred layers to broilers this could be due to the fact that production of layers tends to be more profitable than that of broilers [9, 10].

Table 1: Frequencies of the different variables in relation to management

VARIABLES	FARMS	FREQUENCIES (%)
FARM LOCATION		
NSUKKA	8	57.1
UDENU	3	21.4
IGBO-EZE SOUTH	3	21.4
TYPE OF POULTRY BIRD		
Chicken	12	85.7
Turkey	2	14.3
BREED OF CHICKEN		
Layers	4	28.6
Broilers	5	35.7
Both	5	35.7
AGE		
Day old - 8 weeks	5	35.7
8 - 18 weeks	1	7.1
> 18 weeks	6	42.9
Multi age	2	14.3
HOUSING SYSTEM		

Extensive	1	7.1
Intensive	13	92.9
VETERINARY SERVICES PATRONAGE		
YES	8	57.1
NO	6	42.9

In five (35.7%) of the farms surveyed, the ages of the birds varied from day old to 8 weeks, one (7.1%) had an age range of 8-18 weeks and six (42.9%) had birds 18 weeks of age. Two (14.2%) of the farms surveyed had birds of different ages on their farms (Table 1).

Thirteen (92.9%) farms employed the intensive management system while one (7.1%) made use of the extensive system. Of those that use intensive management system, thirteen (92.9%) of them used deep litter system while one (7.1%) used both deep litter and battery cage system. The preferred usage of deep litter system can be attributed to the fact that layers reared on deep litter tend to have a laying rate higher than those in battery cages: incidences of broken eggs is also reduced in the deep litter system. This agrees with [11], who also reported that deep litter system seems to be the preferred method of management among poultry farmers. Eight (57.1%) of the farmers affirmed to their frequent patronage of Veterinary services while six (42.9%) do not.

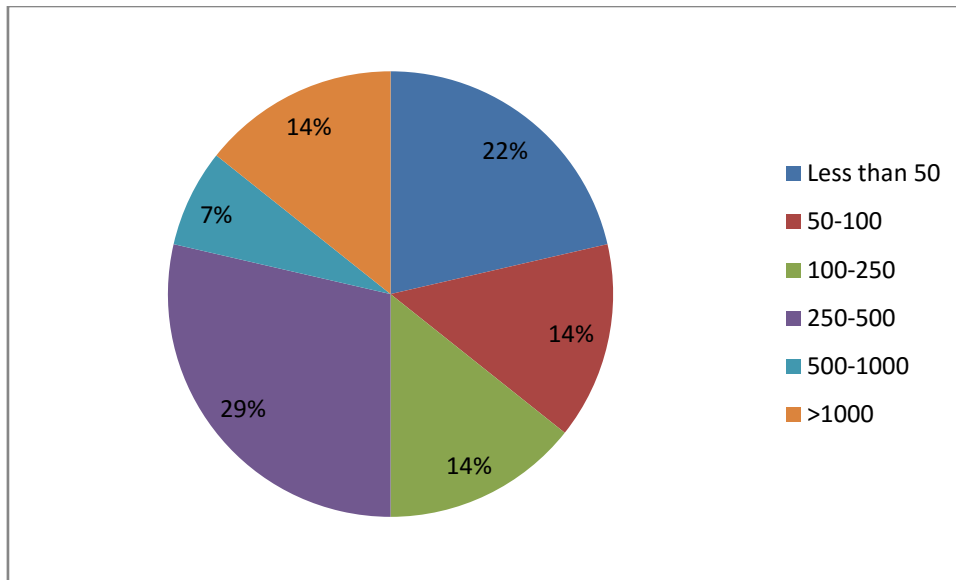


Fig 1: Number of birds kept by poultry farmers in the study area

From the study, eleven farmers (78.6%) reported that the most affect system during disease outbreaks in their poultry farms, was the respiratory systems of the birds (fig 2) with clinical signs such as cough, conjunctivitis, sneezing, ocular and nasal discharges while three (21.4%) indicated the involvement of other body systems. Four (28.6%) farmers recorded one respiratory related clinical sign while eight (57.1%) recorded more than one of such clinical signs.

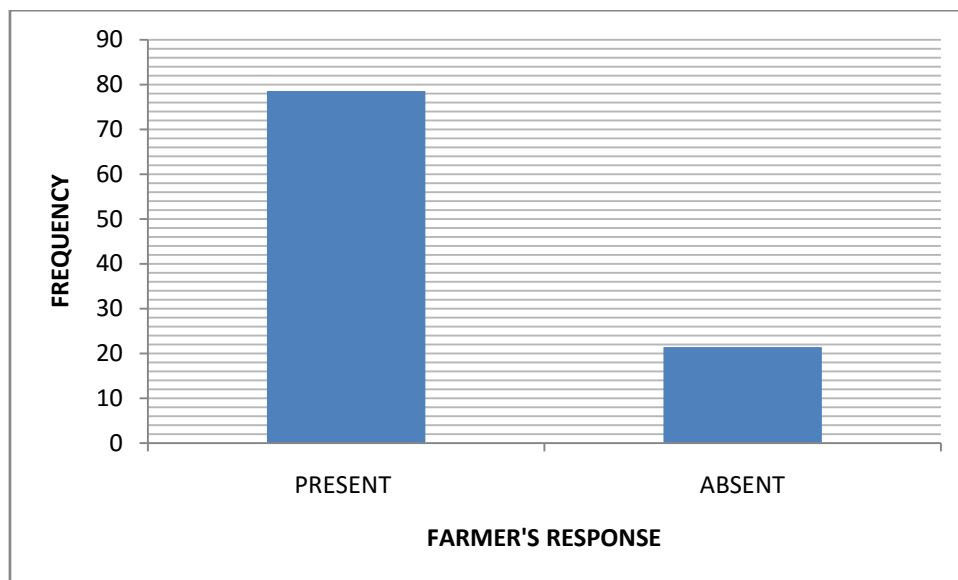


Fig 2: Presence of respiratory illness in poultry farmers

However, seven (50%) affirmed that the respiratory distress encountered during such disease outbreaks affected the egg production rate of layers; severity ranging from less than 50% drop in production (64.3%) to about 50% drop in production (7.1%) (Table 2). These clinical signs and production losses could be attributed to avian mycoplasma infection because the scenario resembles the situation created by avian mycoplasma outbreaks and a parallel study [12] reported the presence of avian mycoplasma in the same study area. Also, egg production losses of between 10 and 20% due to avian mycoplasma infections have been reported by [13]. In this study, most farms (42.7%) recorded mortalities ranging from 0-5%.

Table 2: Frequencies of the different variables in relation to effects on production

VARIABLES	RESPONSE	FREQUENCIES (%)
Production rate affected	Yes	50
	No	28.6
	Others	21.4
Severity of disease on production rate	Less than 50% drop	64.3
	>50% drop	7.1
	Others	28.6
Frequent respiratory clinical signs observed during infection	1 clinical sign	28.6
	>1 clinical sign	57.1
	Others	14.3
Mortality recorded in such outbreaks	Yes	64.3
	No	21.4
	Others	14.3

IV. Conclusion And Recommendation

From this study, it was observed that although the farmers could detect to an extent the existence of respiratory clinical signs in their flocks, their low patronage of Veterinary services which led to losses in some cases should be addressed. The farmers should be educated on the importance of calling in Veterinarians when such or any other clinical signs are noticed to minimize such losses and also to enhance proper management of their farms.

Since stress is a predisposing factor to the occurrence of avian respiratory mycoplasmosis, it is also recommended that farmers should be educated on the need to reduce stress levels on the poultry they rear so as to reduce the incidences of the disease on their farms.

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