CURRENT INTENSIVE POULTRY PRODUCTION SITUATION IN THE HOT HUMID TROPICAL ENVIRONMENT OF SOUTHERN NIGERIA

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ABSTRACT
The hot humid tropical climate of southern Nigeria with its prevailing high ambient temperature and relative humidity imposes a lot of stress on commercial poultry production dominated by small–scale producers who practice mostly mixed farming of broilers and layers in deep litter pens.Many of these poultry farms are however finding it increasingly difficult to survive because of high cost of inputs, such as feeds and feed raw materials. In addition,the hot humid climate exerts continuous heat stress on the high producing imported breeds. However, most small-scale farms still utilize commercially produced feeds in feeding their birds, while the large-scale farms produce their feeds in-house.The major diseases prevalent in the farms are Newcastle, Gomboro, fowl pox, chronic respiratory diseases and coccidiosis.Poultry production remains attractive in the region because birds are able to adapt easily, have low economic value, rapid generation time and high rate of productivity.

Keywords: Poultry, chicken, humid tropics, southern Nigeria

INTRODUCTION
Southern Nigeria is situated in sub-Saharan Africa with coordinates of longitudes 3^{o} and 14^{1} East of the Greenwich Meridian and latitudes 4^{o} and 14^{1} north of the equator. The area is made up of three geo-political zones and seventeen distinct states; the South east (Enugu, Imo, Anambra, Abia and Ebonyi states), South- south (Rivers, AkwaIbom, Cross River, Edo and Bayelsa states) and South west (Oyo, Lagos, Ogun, Ondo, Oshun and Ekiti states). The population of the three southern zones was estimated at 63.813,163 (NPC, 2006). Although there are variations in their socio-cultural characteristics that reflect in observable differences in their languages, culture, religions, food habits and other socio-cultural values, the zones have similar climate which is tropical, wet and humid, while the vegetation consists of dense mangrove/ rain forests (Okeudo, 2004).
This tropical climate has been shown to impose a lot of stress on animals with the high ambient temperature and relative humidity, particularly placing continuous heat stress on high producing imported breeds. These result in reduction in feed intake and growth rate (Okeudo, 2004), especially in intensively reared commercial poultry (Ukwu*et al.*, 2018). The high temperature also increases the rate of ammonia release from poultry dung and in many poultry farms a strong and choking odor fills the air and adversely affect the health of the birds to which the solution is reducing the stocking density and increasing the ventilation (Okoli, 2004).
The objective of this paper is to report the currentintensive poultry production situation in the hot humid tropical environment of southern Nigeria

Types of poultry operations
Small–scale producers dominate the commercial poultry industry in southern Nigeria (Okeudo, 2004). According to the report of a survey on commercial broiler production conducted in the south-east of Nigeria, about 50% of the farms had between 200 and 300 birds, 20% had 400 – 500 birds, 26% had 1000 – 1500 birds and no farm had more than 2700 birds. Specifically, Akandu (2012) reported that the major poultry operations were egg, broilers, feed production and to a lesser extent breeder and turkey productions as well as feed distribution. This study also reported that 48% of broiler farms have 100 - 1000 birds, while another 36% of the farms have 1000 - 5000 birds. The highest percentage of layer farms (34.40%) stocked 1000 - 5000 birds, followed by 21.90% that stocked 100 - 1000 birds and another 15.60% each stocking 5000 - 15000 and 15000 - 30000 birds. These results

show that poultry farmers in Southern Nigeria stock more layers than broilers and are in agreement with the report of USDA (2013) that Nigeria is the leader in Africa with respect to egg production and fourth in broiler production. Ogegbuna (2014) reported that 48% of poultry farmers in south east Nigeria had mixed broiler and layer farms, while 44% reared only broilers. In the south-south, Bassey (2014) reported 40.70, 33.89 and 25.42% for broiler, layer and mixed farming respectively. Oluyemi and Roberts (2000) attributed higher mixed farming activities to the shorter maturing period of broilers and the need for farmers to maximize market opportunities.

Deep litter system is the preferred rearing approach by most of the farmers in the zones (Ugwu, 2009).Akandu (2012) reported a 50.00% adoption of deep litter, 15.60% of cage system and 34.40% of combined approach. This report is however at variance with the results of a focused study on Imo state which showed that most (100%) farmers kept their birds on deep litter probably because of their inability to access battery cages at that time (Okoli*et al.,* 2004). Alimi*et al.* (2006) showed that there has been a steady growth in the Nigerian poultry industry with growth figure standing at 112% during a 14-year period of (1990-2003). It is therefore probable that over the period of eight years from 2004 to 2012 that the farming system in the zone have changed.

Production constraints

According to Okoli*etal*. (2005), many poultry farms are finding it increasingly difficult to survive in the business in southern Nigeria, because of high cost of inputs, particularly high cost of feeds and feed raw materials. For example, in Enugu and Imo states of south eastern Nigeria, high cost of feeds, disease and high cost of day old chicks are considered the key identified constraints to poultry production (Okoli*et al*., 2005). Ugwu (2009), also identified marketing problem as another constraint of the southeast states, which manifests as fluctuations in prices of products and inadequate market outlets, leading to egg glut and spoilage of products during certain periods of the year (Ugwu, 2009). Overall however, poultry keeping has become a practicable livelihood empowerment and poverty reduction venture in the region, just as in other developing countries. Poultry production is attractive in the region because birds are able to adapt easily, have low economic value, rapid generation time and high rate of productivity that results in the production of meat within eight weeks and eggs within eighteen weeks of first chick being hatched.

Chick quality

In southern Nigeria under review, although day old chicks may be considered available, they are relatively expensive (Okoli*et al*., 2005). In a survey conducted by Ugwu (2009), this high cost was attributed to high transportation costs and other contingent expenses. Commercial chicks raised in Southeastern Nigeria are sourced mostlyfrom Ibadan, Abeokuta and Sapele in Southwestern and South-south regions of Nigeria respectively (Akandu, 2012). Because of the distance between the southeast and these centers of day old chick production, Ukwu (2013) reported that there is always a time-lag between the hatching and on-farm feed and water treatment of considerable percentage of chicks being reared in this area. Delay factors such as poor condition of roads and vehicles used in transportation of chicks as well as delays occasioned by corrupt law enforcement agents have been reported. These factors often occasion delays which may lead to the exhaustion of the chicks with various levels of in-transit and post-transit loss of chick condition and mortality. The occasioned early feed and water denial, as well as transportation stress compromises the development of broiler chicks and prevents them from achieving their growth potential (Ukwu, 2013).

Feed and feeding

Feeding is a critical factor in intensive poultry production all over world, including the study area of southern Nigeria (Oluyemi and Roberts, 2000). The cost of producing meat and egg is heavily burdened by the high cost of feed materials, which is estimated to be more than 70% of the production cost of the finished products (Esonu, 2006). Income from poultry production is thus highly dependent on feed utilization for all types of intensive poultry production in the region. Quality feeds of appropriate nutritional value suitable for efficient production are therefore critical inputs in the enterprise (Omede, 2010). Most small-scale farms utilize commercially produced feeds in feeding their birds, while the large-scale farms produce their feeds in-house (Adene and Oguntade, 2006). The nutritive values of the commercial feeds have been shown to vary widely across brands and types

(Omede, 2010). They have been shown to vary due to factors such as age of feed materials, processing methods, seasonal variations in nutrient contents of feedstuffs and method of conservation as well as possible presence of toxic substances and pathogens (Omede,2010). Therefore, there is perhaps no other factor directly or indirectly related to feed quality in impacting performance of poultry and this is ultimately linked to productivity and profitability of the ventures.

The high cost of conventional feedstuffs has made the search for alternative feed materials, imperative. The use of these alternative feed materials has been shown to be relatively cost effective (Esonu, 2009). Among the alternative feedstuffs that have been utilized in the region are cassava tuber products as sources of energy (Okoli and Udedibie, 2017), cassava leaves as source of protein, minerals and xanthophyll andcassava peel meal when processed adequately. Cassava tubers and cocoyam corms flours have been demonstrated to be good maize replacers in poultry diets when given adequate processing treatment (Abdurashid and Agwunobi, 2012). Also, combinations of different alternative feed materials such as palm kernel cake and cassava tuber flour supplemented with appropriate additives to boost their utilization as poultry feed materials have been reported (Okoli and Udedibie, 2017).

Animal health

The increase in intensive poultry production in southern Nigeria provides the optimum conditions for the concentration and transmission of pathogens, specifically because the crowding of birds in enclosed environments is highly conducive for the transmission of pathogenic organisms. The major poultry diseases in the region are Newcastle, Gomboro, fowl pox, chronic respiratory diseases and coccidiosis (Okoli*et al*., 2005). Etuk*et al*. (2004) reported that coccidiosis is a major disease of the area, whileKanu*et al*.(2019) reported incidence levels of 30.85% for coccidiosis, 30.35% for Newcastle disease, 14.93% for Gomboro disease, 14.43% for chronic respiratory disease and 9.45% for fowl typhoid over a period of five years (2013 – 2017).The reports of Okoli*et al*. (2005) for Imo state, Bassey (2014) for AkwaIbom state and Ogegbuna (2014) for Anambra state show that antibiotics, coccidial drugs and vaccines are the most prescribed animal health products, supporting the report of high occurrence of coccidiosis, Gumboro and New castle diseases in farms. There is however limited access to animal health care services, especially among the small-scale farmers. Ogegbuna, (2014) reported that only 48.00% of poultry farmers in Anambra state retained the services of animal health workers, while Bassey (2014) reported a high 72.00% retainership of animal health workers' services in AkwaIbom state. These workers also reported high level of self-medication and poor consultation of animal health workers by farmers in southern Nigeria and attributed this to high cost of veterinary services, small-size of poultry farms and remote rural locations of many poultry farms.

CONCLUSION

Poultry production remains an attractive venture in southern Nigeria because birds are able to adapt easily, have low economic value, rapid generation time and high rate of productivity.

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