

THE ROLE OF LOCAL CHICKENS IN POULTRY PRODUCTION IN NIGERIA

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INTRODUCTION

Productivity of local chickens at the rural areas and urban centers in Nigeria is low due to the poor health care, poor nutritional plane, and the small body size of the chickens, productivity can be increased by cross-breeding the local chickens with the high-yielding exotic breed, routine vaccination of the birds against the endemic diseases, treatment of various infectious and feed supplementation. This paper highlights the role of local chickens in poultry production, and discusses the different methods available for improving the productivity of the local chicken.

Domestic chicken population in Nigeria

The poultry population in Nigeria has been estimated at approximately 190 million (FAO, 1991). The vast majority of this population (85%) is reared mainly in rural areas while another 5% is reared in the urban centers under the extensive system of management, leaving a small fraction (10%) that is intensively managed in various parts of the country (FAO, 1991). However, the Nigeria Livestock Resources (1992) has estimated the Nigerian poultry population at 104 257, 960 with about 94% and 5% to be in the rural and urban areas respectively. Also, commercially managed chicken in the country (exotic breeds) has been placed at 10,001, 323 (FAO, 1991). From the above data, it is clear that local chickens play a significant role in the poultry industry in Nigeria. There is scarcely any household within the

rural set up where domestic chicken is not raised. Most of the chickens are still of local trait, but the process of introduction of exotic breeds has created a spectrum of crossbreeds with better conformation and high yield. The local birds are noted for their low performance in terms of weight gain and egg production.

Housing management systems

Throughout Nigeria, the local chickens are usually raised under free-range system. The practice of local chicken business requires relatively low capital input as the birds are kept on free-range and are usually left to scavenge for their feed in the day. In many places, their shelters are made either from corn stalks, mat roof, mud houses or straw for the hens to lay eggs. Still in other places, the local birds are not provided with shelters at all, but they roost on trees around the house during the night. Rural households tend to keep chickens even if they have no other livestock.

Feed requirements

The bulk of chicken feed requirement is met at low cost to the local farmers. The feed requirement is met from natural environment around the home or farm. They derive essential nourishment from insects, grubs and carrions. They also pick up any spillages from food preparations and processing, and thus ensure that nothing is wasted. In rare cases, some supplementation with bran, grains or cassava chaff may be necessary in the dry season. Their productivity is, therefore,

generally low-input-low-output, although extension programmes have introduced both supplements, and improved breed with some success (Nigerian Livestock Resources, 1992).

Egg production potential

Local fowl averages 50 eggs per annum if kept in the extensive system (Hill, 1954). However, under intensive management and improved dietary regiment, quite twice this number in the extensive has been achieved by the indigenous chicken (Hill and Modebe, 1961; Nwosu, 1979). The local fowl has been reported to lay, under extensive system, up to three clutches of twelve to eighteen eggs each year and it is known to be very broody when compared with the exotic and their crosses. On the contrary, Omeje and Nwosu (1983) found out that the reciprocal cross of local and exotic breeds show much variability in the production and broody traits.

Quality and growth potential

The Nigerian chickens mature sexually earlier than the exotic breed in both male (Aire, 1973) and females (Nwosu, 1971). The muscle mass of the Nigerian local chicken is not inferior to the Gold Link chicken between 2 and 8 weeks of age (Ihemelandu *et al.*, 1983) and under the same tropical environmental conditions, the post-hatch growth potential of the muscles of the Nigerian chicken has been found to be superior to that of the Gold Link (Ihemelandu and nwosu, 1986; Oluyemi and Oyenuga, 1974). The early faster growth of the muscles, bones, liver, heart and kidney of the Nigerian local chicken over the exotic Gold Link tend to favour the observation that Nigerian local chicken is a potential broiler (Obioha *et al.*, 1983). The small size may have resulted from natural selection over a period of time. It could be argued that as Nigerian chicken is traditionally a foraging

bird, it gets barely enough feed to maintain its body. Hence the small body size.

This small body size of the Nigerian native chicken, notwithstanding, it has been demonstrated that there is no significant changes in whole or component carcass expressed as percentage of live weight, between the exotic cock and Nigerian native cock (Obioha *et al.*, 1983; Oluyemi *et al.*, 1973). Also meat-bone ratio has been shown to be higher in the native chicken than the exotic breeds and that the extra weight of exotic carcass are concentrated in the bones. Concentration of edible meat in the economic cuts (shank and breast) and a lower weight of feathers as well as presence of reasonable wing flesh appear to suggest that the native chicken could be valuable in the development of a meat bird.

Contribution to national economy

From the estimated 190 million Nigerian chicken (FAO, 1991), that 171 million local fowl at an average estimated value of ₦400 each would be valued at 171 x 400 million Naira while the 19 million exotic chickens will be valued at 19 x 800 million Naira at ₦800 per bird. If on the other hand, we consider the figure of 104, 257, 960 estimated by Nigerian Livestock Resources (1992), the Nigerian local chicken would be valued at ₦94, 256, 637x 400 while the intensively reared breeds would be valued at ₦10, 001, 323x 800 Naira. The values of the expected eggs from all birds are not taken into account. From the above figures, it becomes vividly clear that the role of local chicken in poultry production in Nigeria is overwhelming when compared with the contribution from the exotic breeds.

The merit of Nigerian local chicken

The importance of Nigerian local chicken in poultry production cannot be overemphasized and include:

- They remain a quality source of the much-needed animal protein that is generally consumed at least in our locality with minimal if any discrimination at all (Obioha, 1992).
- The local chicken serves as a flexible source of income to the rural community and at the same time contributes significantly to the National Gross Domestic products.
- The local chicken and their eggs are generally used to offer sacrifice to the various deities in preference to the exotic chickens.
- Various social and customary activities are performed with local chickens in various parts of Nigeria.
- Their meat and eggs are more acceptable to a greater proportion of the local people than those of the exotic chicken. This could be attributed to ignorance of some people who claim that as a result of the deep yellow colouration of the yolk of the local chicken eggs, they are richer in protein and vitamin contents than those of their exotic counterparts.
- They have some inherent genetic traits making them to be more hardy and adoptable to harsh climatic conditions.
- They have great potential of concentrating more edible meat at the economic cuts (breast and thigh muscles) than the exotic breeds.
- They have more measurable resistance to endemic diseases than the exotic breeds.
- Their ability to scavenge and fend for themselves reduces the cost of their production.
- Hybridation has improved the egg-laying percentage, size of an adult

cock, percentage laying quality of an average local chicken and weight of an adult bird.

- Broodiness is a desirable trait particularly in our local environment where peasant farmers cannot afford an incubator for hatching eggs. It has been observed that the hatchability percentage of fertile turkey eggs incubated by local hens is generally high.

Although the local chickens are generally considered to be relatively resistant to diseases, our experience shows high prevalence of such diseases as Mycoplasmosis (Orajaka *et al.*, 2002); Salmonellosis (Orajaka *et al.*, 1997); Newcastle disease (Orajaka *et al.*, 1999, Wosu and Okeke, 1989); Helminthiasis (Fakae *et al.*, 1991) and coccidiosis (Okoye and Orajaka, 1984) abound in our local chickens which serve as carriers and subsequently account for their transmission to the more susceptible exotic breeds of chickens.

Recommendation for improvement

To improve the performance of our Nigerian local chicken, research should be carried out in areas of selective breeding, cross breeding and upgrading them by crossing the exotic parents having desirable traits. The expectant first generation hybrids will perform better than the local parent stock and tend to be comparable to the exotic pure breed (Oluyemi and Oyenuga, 1974; Omeje and Nwose, 1982). A good number of poultry body measurements have been highly heritable and subject to selective cross breeding local chickens with exotic breeds having desirable traits will lead to improving the meat potential of the local chicken-improving the development of the back, neck, shank and breast length. In

doing so, it is advisable to use sires of superior genetic worth (Berly, 1968).

Also less productive local breeds of poultry can be of commercial and breeding utility if crossed with improved strains (Nwosu *et al.*, 1985). It is advisable that hybrid chicks with acceptable traits be made available to local farmers so as to improve the overall performance of the Nigerian local chicken in terms of egg production, meat quality and quantity, hardiness and resistance to diseases and livability in adverse environmental conditions.

The National veterinary Research Institute, Vom and other animal health services firms should maintain good quality vaccines against endemic diseases of poultry. The vaccines should be prepared in small dose vials and ampoules for easy flock vaccination of local birds at the rural areas, where the chickens are concentrated at small-scale holdings. This will help to promote the health of the local chickens as well as limit carrier local birds serving as sources of infection to the intensively kept exotic birds.

Extension of veterinary services to attend to the local birds and their crosses in both urban and rural areas should be introduced. Feed supplementation for the local birds and their crosses should be adopted to encourage their productivity.

Education of the local farmers on their need to consult veterinarians for health care of their livestock in general.

Importation of good quality drugs and their distribution through qualified veterinarians to various local government areas should be enforced. Federal and state governments to attend promptly to disease outbreaks involving local birds.

REFERENCES

- AIRE, T. A. (1973). Development of puberty in Nigerian and White Leghorn Cockerels. *Poult. Sci.* **52**: 765-1769.
- HILL, D. H. (1954). Poultry Production in Nigeria. Section Paper 67. 10th World's Poultry Congress, Edinburgh. 318-321.
- HILL, D. H. and Modebe, A. N. A. (1961). Poultry Production at the University College Ibadan.
- F.A.O. (1991). Nigeria National Livestock Survey. 1-2.
- FAKAE, B. B., UMEORIZU, J. M. and ORAJAKA, L. J. E. (1991). Gastrointestinal helminth infection of the domestic fowl (*Gallus domesticus*) During the Dry Season in Eastern Nigeria. *J. Afr. Zool.* **105**: 503-508.
- IHEMELANDU, E. C., NWOSU, C. C. and IBE, D. G. (1983). Comparison of muscles and bone growth in Nigerian and Gold-Link chickens. *Trop. Vet.* **1**: 226-233.
- IHEMELANDU, E. C. and NWOSU, C. C. (1986). Comparison of allometric growth of different organs in Nigerian native chickens and exotic strains. *World Rev. Anim. Prod.* **22**: 10-12.
- LOVEDAY, O. W. and OSITA, O. (1989). The role of local chickens in the spread of Newcastle Disease in Nigeria. *Zarinya Vet.* **4**: 25-29.
- NIGERIAN LIVESTOCK RESOURCES (1992). Executive Summary and Atlas. Vol. 1: Pp.
- NWOSU, C. C. (1979). Characterization of the local chicken of Nigeria and its potential for egg production in Nigeria. *Proc. First National*

- Seminar on Poultry Production, Zaria, 197-210.*
- OBIOHA, F. C. (1992). A Guide to Poultry Production in the Tropics. 1st Edition, Acena Publishers Enugu. 1-9.
- OBIOHA, F. C., NWOSU, C. C., GOWEN, F., ETHIM, D. B., OBANU, Z., IHMELANDU, E. C. and ONUORA, G. I. (1983). Comparative meat yield and anthropometric indices of the Nigerian native chicken and an exotic strain, *World Rev. Anim. Product*, **19**: 59-64.
- OLUYEMI, J. A. and OYENUGA, V. A. (1974). Evaluation of the Nigerian and indigenous fowl. World Congress on Genetics Applied to Livestock. Proceedings of the First Production, Madrid, Spain, Vol. Iie: 87-89.
- OLUYEMI, J. A., SOPIE, S. and OYENUGA, V. A. (1973). Yield and quality of the meat of the Nigerian indigenous fowl as compared with those of exotic breeds. *Nig. Agric. J.*, **10**: 57-62.
- OMEJE, S. S. T. and NWOSU, C.C. (1983). Egg production patterns in local chickens and their crosses in the short-term. *Nig. J. Anim. Prod.*, **10**: (1 and 2): 91-96.
- OKOYE, J. O. A. and ORAJAKA, L. J. E. (1984). Some important poultry diseases and their prophylaxis. Paper Presented at the Workshop on Poultry Production Held at the Faculty of Veterinary Medicine, University F Nigeria, Nsukka, 28 September, 1984.
- ORAJAKA, L. J. E., OKOYE, J. O. A. and OBOEGBULEM, S. I. (1997). Serological screening of chickens for *Salmonella pullorum* antibodies in Nsukka Area. Pilot Study. *Nig. Vet. J.*, **18**: 195-198.
- ORAJAKA, L. J. E., ANENE, B. M. and ONUOHA, E. A. (1999). Seroprevalence of Newcastle Disease in local chickens from Southeast Derived Savannah Zone of Nigeria. *Rev. D'Elecage et De Med. Veterinaire Des Pays Tropicaux*, **251**. 185-188.
- ORAJAKA, L. J. E., OKOYE, J. O. A. and OBOEGBULEM, S. I. (2002). Seroepidemiologic survey of Mycoplasmal infections in native and exotic chickens in Nsukka District of Southeast Nigeria. *J. Sust. Agric. Environ.*, **4**: 77-82.