

## Potential Challenges to the Adoption of Organic Poultry Farming in Nigeria: A Review

Review Article

O.S. Adedeji<sup>1</sup>, T.K. Ogunsina<sup>2</sup>, A.O. Akinwumi<sup>1\*</sup>, S.A. Ameen<sup>2</sup>, O.O. Ojebiyi<sup>1</sup> and J.A. Akinlade<sup>2</sup>

<sup>1</sup>Department of Animal Nutrition and Biotechnology, Ladoko Akintola University of Technology, Ogbomoso, Nigeria

<sup>2</sup>Department of Animal Production and Health, Ladoko Akintola University of Technology, Ogbomoso, Nigeria

Received on: 8 Feb 2013

Revised on: 5 Mar 2013

Accepted on: 16 Apr 2013

Online Published on: Dec 2013

\*Correspondence E-mail: [aoakinwumi@lautrech.edu.ng](mailto:aoakinwumi@lautrech.edu.ng)

© 2010 Copyright by Islamic Azad University, Rasht Branch, Rasht, Iran

Online version is available on: [www.ijas.ir](http://www.ijas.ir)

### ABSTRACT

This paper considers the potential problems that may militate against the adoption of organic poultry production in Nigeria. Factors identified include: higher risk of diseases like coccidiosis and Newcastle disease, disease prevention and control / herd health management, disease containment in times of outbreak, land acquisition (land tenure system), market economies / cost-benefit ratio, pasture management, attitudes to change / apathy to change, scarcity of organic inputs, feather pecking, high probability of diets being deficient in amino acids, legislation / policy framework, heavy dependence on fertilizer by northern grain growers, low ratio of veterinary personnel to livestock farmers and shallow penetration of livestock extension services.

**KEY WORDS** health management, organic poultry production, pasture management.

### INTRODUCTION

#### Role of poultry production in the economy of Nigeria

The most popular animal protein sources in Nigeria include frozen fish, beef, poultry eggs and meat. Fewer farmers produce fish and cattle than poultry, especially in south-western Nigeria (Apantaku, 2006). Poultry production has become a large industry in Nigeria providing full-time jobs for many and it is considered to be a commercially viable enterprise contributing significantly to the gross national product of Nigeria (Apantaku, 2006).

The federal department of livestock and pest control services, belonging to the federal ministry of agriculture and rural development, reported that the estimated Nigerian population of poultry in 2003 was of 138 million comprising 84% as backyard poultry and 16% as exotic poultry (Adene and Oguntade, 2006a). Based on raw data given by

the National Bureau of Statistics (2006), a total of 5603465 households are involved in subsistence poultry keeping; 4241996 households keep chickens; 723834 households keep Guinea fowls; 509482 households keep ducks; 63735 households keep turkeys and 64418 households keep other birds.

Adene and Oguntade (2006a) showed that the annual production capacity of the commercial poultry in Nigeria is estimated as 96981001 kg dressed broilers, 40738698 kg dressed culled layers and 8216208000 eggs (273873600 crates of eggs). Also, a report from World Bank estimates that agricultural GDP increased at an annual rate of 2.9% in 1990-1998.

The sector remains the largest contributor to the Nigerian economy, accounting for over 38% of the non-oil foreign exchange earnings and employing about 70% of the active labour force of the population. Although the sector has suf-

ferred much neglect by the federal government since the discovery of petroleum in commercial quantity in 1958, its importance cannot be over-emphasized in the Nigerian economy.

There are recent intensified efforts of the Nigerian government for a paradigm shift from a mono-product, oil-based economy to an export-based economy with agriculture leading the pack. The recent increased demand for organic products in the west presents a potential foreign exchange earning for the export-oriented economies of Africa (Abou-Hadid, 2006). The need for animals raised under near-natural conditions is fast developing. There is need to note this trend and cash in on it in Africa Abou-Hadid (2006).

According to Adedeji *et al.* (2013), the most ethical way to grow poultry is to grow them on pasture. This allows birds to be handled in a low-stress way. They are allowed to be in the fresh air after three weeks of age. This affords them the opportunity to live their normal lives by scavenging, dust bathing and perching. They are not subjected to living on and pecking at their own droppings and have fresh, green, growing grass available to them at all times (Adedeji *et al.* 2013). Almost all chemicals administered to animals result in some trace residue remaining in the carcass (Gracey and Collins, 1992).

Organic poultry production ensures that consumers do not have to consume the medications and by-products that a conventionally raised bird receives. The herbicides and pesticides that are sprayed on conventional grains are completely avoided.

Organic broiler production affords a consumer the choice to go for healthy alternatives when purchasing their food. Organic chickens have to be fed organic feed, which means that it has been produced without chemical additions on land that has not had such chemicals applied for at least three years.

### **The Nigerian organic poultry production terrain**

In Nigeria, like other developing countries, organic livestock farming has not gained prominence as compared to what has occurred in the developed economies of the world. The nature of poultry production systems in Nigeria and the level of awareness about organic farming are some of the reasons attributable to this.

Commercial and family poultry are the two main categories of poultry production in Nigeria (Adene and Oguntade, 2006b). Rural poultry farming has already involved a lot of organic activities, since ethno veterinary (which is the traditional practices of veterinary medicine) practices are used more in this system. The commercial end of the Nigerian poultry production has not received any serious organic attention.

### **Potential challenges to the adoption of organic poultry production in Nigeria**

#### **Newcastle disease**

Newcastle disease is definitely a great challenge to rural family poultry farming in Nigeria. No progress has been made in controlling Newcastle disease in free-ranging village flocks, which represents more than 80% of the total poultry population in low-income food-deficit countries (Branckaert and Guèye, 2000). Newcastle disease occurs every year and kills on average 70 to 80% of the unvaccinated rural family poultry production in many developing countries (Branckaert and Guèye, 2000). Therefore, Newcastle disease control can appropriately be used as an entry-point for developing the family poultry sub-sector as a whole (Guèye, 2002b). It is difficult to vaccinate free-range birds due to the husbandry systems practised (small flock sizes, multi-age birds, scattered flocks over a vast area, birds not usually housed). Moreover, conventional vaccines are not available either in small-doses or in small-lot ampoules. Cold storage, which most commercially available thermo labile vaccines require, is not available in rural areas in low-income food-deficit countries (Guèye, 2002a).

#### **Coccidiosis**

Coccidiosis is a parasitic disease that can cause severe losses in poultry meat and egg production. Sanitation, litter management and contact with faeces are issues of concern in coccidiosis control. Controlling coccidiosis on pasture is trickier with broilers than with layers, since the broilers are faster-growing and less active. They eat a lot, generating large amounts of manure, and congregate in shaded areas. Layers also get off the ground to roost on perches.

High-density, large-scale production almost always requires the use of anticoccidial medication. In contrast, in low-density, small-scale production, the birds tend to stay ahead of the parasites and may not require medication. Many small-scale producers do not use anticoccidial medication; however, as the size of the flocks grows, more problems are encountered and more management is required for natural immunity.

#### **Higher risks of disease incidences**

Raising poultry on pasture increases the risk of disease transmission within flocks due to increased levels of interaction between birds and contact with faeces. For poultry farmers in the country to be prepared to mitigate this risk, a lot of work needs to be done.

#### **Disease prevention and control / flock health management**

Health management and disease prevention in pasture-based organic poultry production calls for a lot of attention.

Since there is a limit to the use of synthetic drugs for the prevention and control of diseases, a lot of care must be taken to control microbial build up in the environment of organically raised animals.

#### **Disease containment**

Disease containment is difficult due to the fact that animal restriction is reduced. So whenever there are outbreaks, containment is not easy.

#### **Land acquisition (land tenure system)**

Organic poultry farming may involve the need for more space if the pasture system is used. It may be a big problem to use this system for commercial poultry production due to the serious bottlenecks posed by the land use decree of 1978 in accessing land for commercial agricultural uses.

#### **Market economies / cost-benefit ratio**

Organic feed is more expensive than conventional feed, unless there is a good price premium placed on organically produced livestock, economies of scale will not allow farmers to embrace this lofty idea. A farmer must be thoroughly convinced of better returns on investment before adopting organic farming. In a nation already characterized by widespread poverty, it makes no economic sense to allow an increase in the cost of producing animal protein, considering the actual food crises in many countries of the world.

#### **Pasture management**

Pasture management is a new challenge that farmers may encounter in the course of raising birds on pasture. The success of the organic enterprise is highly dependent on how well the pasture can be managed. Adedeji *et al.* (2013) have reported that the most ethical way to grow poultry is to grow them on pasture.

This allows birds to be handled in a low-stress way. They are allowed to be in the fresh air after three weeks of age. This affords them the opportunity to live their normal lives by scavenging, dust bathing and perching. They are not subjected to living on and pecking at their own droppings and have fresh, green, growing grass available to them at all times. A well managed pasture goes a long way in controlling diseases.

#### **Attitudes to change / apathy to change**

Nigerian farmers are very sensitive to change; it takes a lot of persuasion and demonstration of effectiveness of novel farming practices before they adopt new farming technologies. The Fulani nomadic herdsman are on top of the list of farmers that may not want to embrace practices foreign to them. A lot of work needs to be done by livestock extension and veterinary officers to sensitize livestock farmers in favour of organic livestock production.

#### **Scarcity of organic inputs**

It will be a hard task to procure organically certified inputs, particularly feeds, in Nigeria now because of the low level of awareness in crop producers for organic crop production. There exist serious synergies between organic crop and livestock production because of their interdependencies.

#### **Feather pecking**

Feather is simply defined as pecking at and pulling out feathers of another chicken. Often times these feathers are eaten as well. It is an indicator of reduced welfare in both the victim and the performer. Feather pecking has been found to occur in organically raised birds in the Netherlands (Bestman and Wajenaar, 2003). The severity of feather pecking increases with decreasing methionine content and methionine per kilocalorie of metabolisable energy in poultry feeds (Zollitsch and Baumung, 2004).

#### **High probability of diets being deficient in amino acids**

This affects chicks and laying hens the most (Zollitsch and Baumung, 2004). This situation becomes difficult if conventional protein supplements can no longer be used. Many synthetic amino acids that were used in feed are not allowed. Making up for these is a big challenge to the poultry feed industry in Nigeria.

#### **Legislation / policy framework**

In Nigeria, there is currently no monitoring and certification of poultry meat processing and there are no quality criteria in place (Adene and Oguntade, 2006a). It is, therefore, excusable if there are not yet standards set for organic livestock production in Nigeria, but efforts must be made towards incorporating these standards into the national livestock policy of the nation in the future. The absence of a solid regulatory framework does not help the promotion of organic livestock production in Nigeria. Therefore, for this novel idea to be embraced, the government of Nigeria needs to be actively involved.

#### **Heavy dependence on fertilizer by northern grain growers**

The vegetation of most of the northern parts of Nigeria demands that crop growing be seriously dependent on the use of fertilizers. Since the agricultural policy of the country has not been tilted yet towards the promotion of organic agriculture, it may be difficult to stimulate the interest of grain growers in northern Nigeria to embrace organic crop farming. This poses a great limiting factor to the supply of organic feed input to organic livestock industry.

#### **Low ratio of veterinary personnel to livestock farmers**

The ratio of available veterinary personnel to livestock farmers in Nigeria is still very low. Many livestock farmers

that desire to adopt modern practices of animal health care are constrained by the lack of finance and the unavailability of consultancy advice from veterinary officers in remote African villages (Kolawole, 2001).

#### Shallow penetration of livestock extension services

The rural / village poultry system in Nigeria typically lacks access to livestock extension services. The structure of the rural poultry production system in Nigeria has constrained attempts to institute health extension services.

#### The way forward

1. The federal government must develop a strategic plan on how organic poultry agriculture could survive in Nigeria. This plan must be all encompassing.
2. Appropriate laws and institutions must be developed by different governments providing protection to farmers that apply organic agriculture in case of any problems.
3. National laws and regulations will make possible to decrease the certification costs faced by farmers as this will result in the establishment of nationally based certification institutions or firms.
4. Strong advocacy for this program must be put in place by the extension agencies in a way of overcoming the ignorance displayed by farmers and the consumers.
5. All poultry stakeholders must team up to look into and brainstorm on analyzing how organic poultry production could work out in the nation considering the potential that it has over the conventional poultry husbandry.
6. Private sector must encourage the realization of scientific research done using local poultry breeds which are able to withstand disease outbreak.
7. Ethno veterinary medicine will be a possible solution to the health problems already highlighted and these have been well documented by Adedeji *et al.* (2013).

#### CONCLUSION

A lot of work needs to be done by the government and policy makers in Nigeria to give the desired impetus to the full adoption of organic poultry farming in Nigeria. The windows of export opportunities that exist in other continents

for organic poultry product must be utilized to boost the Nigerian economy.

#### REFERENCES

- Abou-Hadid A.F. (2006). High value products for smallholder markets in west Asia and north Africa trends, opportunities and research priorities. Pp. 210-219 in Proc. High Value Agric. Prod. Workshop. Cali, Colombia.
- Adedeji O.S., Ogunsina T.K., Akinwumi A.O., Ameen S.A., Ojebiyi O.O. and Akinlade J.A. (2013). Ethnoveterinary medicine in African organic poultry production. *Int. Food Res. J.* **20(2)**, 527-532.
- Adene D.F. and Oguntade A.E. (2006a). The Structure and Importance of the Commercial and Village Based Poultry Industry in Nigeria. FAO. Rome, Italy.
- Adene D.F. and Oguntade A.E. (2006b). Poultry Sector Country Review: Nigeria. FAO. Rome, Italy.
- Apantaku S.O. (2006). Analysis of participation of farmers in participatory poultry production research in Lagos state, Nigeria. *Livest. Res. Rural. Dev.* **18(7)**, 102-107.
- Bestman M.W.P. and Wajenaar J.P. (2003). Farm level factors associated with feather pecking in organic laying hens. *Livest. Prod. Sci.* **80**, 133-140.
- Branckaert R.D.S. and Guèye E.F. (2000). FAO's programme for support to family poultry production. Pp. 244-256 in Proc. Workshop Poult. Tool Pover. Eradic. Promo. Gender Equal. Tune. Denmark.
- Gracey J.F. and Collins D.S. (1992). Meat Hygiene. Balliere Tindall.
- Guèye E.F. (2002a). Employment and income generation through family poultry in low-income food-deficit countries. *World's Poult. Sci. J.* **58**, 541-557.
- Guèye E.F. (2002b). Family poultry research and development in low-income food-deficit countries: approaches and prospects. *Outlook Agric.* **31(1)**, 13-21.
- Kolawole O.D. (2001). Local knowledge utilisation and sustainable rural development in the 21<sup>st</sup> century. *Indig. Knowl. Devel. Mon.* **1(3)**, 13-23.
- National Bureau of Statistics (2006). Available on-line at: <http://www.nigerianstat.gov.ng/about>.
- Zollitsch W. and Baumung R. (2004). Protein supply for organic poultry: options and shortcomings. Pp. 153-159 in Proc. 2<sup>nd</sup> SAFO Workshop. Witzenhausen, Germany.