



## **STRATEGIES FOR IMPROVING LOCAL CHICKEN ENTERPRISE IN NIGERIA**

**\*HAMID, M. Y., MWALIMA, D., AND YAHAYA, A.D.**

Department of Agricultural Economics and Extension,  
Adamawa State University, P.M.B. 25 Mubi, Adamawa State.

**\*Corresponding author Email: dawimohammed70@gmail.com  
Mobile: 08101321083**

### **Abstract**

This paper reviewed poultry production systems especially the chicken enterprise in Nigeria. It evaluates both the improved and traditional chicken production systems via literature review, opinions and experiences of poultry operators based on prospects and problems of the systems. The paper recommended some strategies that will enhance local chicken production that will minimize intensive management, high cost of feeding, housing, and disease management. The recommended chicken production is a mix between the improved and local production systems minding the high risk and cost of management associated with the improved system of production and also recognizing the lower returns from the conventional traditional chicken production. The prospects of the conventional chicken production as highlighted includes high adoption potential by poor/low income farming families owing to the fact that the chicken production is a common practice in the rural areas of Nigeria, socio-economic and cultural values attached to chicken as well as ingredients for some traditional medicinal preparations. These factors, in some cases work against the adoption of improved chicken production system in the rural areas despite its potentials, even though it has its own challenges. Therefore, implementing the recommended improved-local chicken management strategies/practices will go a long way as an alternative for chicken enterprise which will serve a means for employment creation/income diversification, improved nutrition and other socio-cultural benefits leading to improvement of livelihoods of the smallholder farmers.

**Keywords:** Strategies, improved, local, chicken, enterprise

### **Introduction**

Rearing poultry contributes meaningfully to household's food security throughout the developing world, it helps diversify incomes and provides quality food, energy, fertilizer and a renewable asset in over 80 percent of rural households. However, Small-scale producers are usually constrained by poor access to markets, and poultry production goods and services; the supporting institutions are weak and lack skills, knowledge and appropriate technologies to support productivity and markets (FAO, 2004). The demand for chicken products (meat, egg, manure, feather etc.) in Nigeria is fundamental and has been growing due to several factors which include; rapidly increasing human population, increasing per capita income, preference for chicken meat and eggs, urbanization, and fast changing food sector (Market Development in Niger Delta (MADE), 2014). However, local chickens contribute to the improved livelihoods of rural households in terms of income generation and nutritional value, low



management attention, ability to incubate and hatch on their own, brood, scavenge for a major part of their dietary requirement and appreciable immunity from major diseases (Abdulhamid, Musa, and Musa, 2019). With proper management, adapted breeds, local feed resources and appropriate vaccines are available, along with proven technologies that can substantially improve productivity and income generation, the trend of the production and productivity of local chicken will be revitalized and improved in Nigeria.

Although, there has been good effort to meet the increasing demand of poultry products through improve breeding and commercial expansion of poultry production in Nigeria, however, the traditional poultry production system is still relevant and constitutes the bulk of the country's chicken population. Despite, the relevance and size occupied by the traditional poultry production system, there are scanty empirical information that reveals how the system is receiving attention towards its improvement. Similarly, there are mixed thoughts / feelings about traditional and improved poultry products in some areas. While some prefer improved products others were of the opinion that the improved poultry products are not better. In an attempt to improve the traditional poultry practices in the area, the authors decided to undertake this review with the aim of making contribution to existing body of knowledge.

Chicken meat and eggs are considered luxury foods in some rural Nigerian economy, where incomes are below the national average (Market Development in Niger Delta (MADE), 2014)). He further buttressed that, Meat from traditional poultry is popular, as these chickens are considered to be tastier due to natural growth and feeding. The relevance of traditional poultry could be evident from the fact that, in rural areas, chickens are normally slaughtered for household consumption on special occasions, such as weddings and religious festivals. Additionally, large proportion is sold into community markets and collectors eventually end them up in live bird markets (LBMs) in urban areas. Furthermore, local chickens are also used to meet cultural obligations of different types. For example, gifting chickens to relatives and friends is a common practice, ingredient in certain forms of traditional medicine, rituals etcetera (Market Development in Niger Delta (MADE), 2014).

In most communities in Nigeria, the common practice of local chicken production is the free range system which entails little or no routine management, supplementary feeding, vaccination schedule, lack of good shelter etc. it is paramount to understand that proper management of poultry is crucial to the growth, health, development and profitability of poultry production. Therefore, any effort towards improving the traditional poultry system from its present status would be a worthwhile exercise and will further improve the income, savings, welfare, wellbeing, living standard and will alleviate poverty in the area on a sustainable basis and hence, that what some Non – Governmental Organizations (NGOs) are advocating and promoting in the area. For instance, there are some NGOs that have built the capacities of Small- scale poultry farmers on how to improve their traditional poultry management through supplementary feeding using local available resources and crossing the hens with improved Cockerels and is positively impacting on their livelihood.

### **Methodology/Materials and Methods**

The methodology for this paper was a literature review from different sources and it was cited in the references. However, practical observations and experiences on local and improved poultry management systems were highly utilized in writing this paper. Therefore, it is more of case study.



## Resources used in local chicken enterprise

### *Housing*

To keep your chickens healthy and in good condition adequate spacing is required for their housing, which protects them to treats of theft, predators, harsh weather conditions etc. the spacing required is dependent on the type of chicken. Chicks requires less space, as they grow older and bigger more area is needed. Although, House made of timber and corrugated iron are used in rearing local chicken which become too hot during the day, in this regard it can be built off the ground to allow air to circulate underneath to stop dogs and pigs digging in or to avoid flood or running water. This house can be built with sticks and other plant based materials that can be sourced locally especially palm fronts in the southern part of the country and other good grasses in the northern Nigeria which make the cost cheaper and usually around the homestead for better management due to proximity. If a dedicated housing cannot be provided for the birds, it is paramount to understand that several factors cannot be controlled such as their breeding, feeding and egg collection properly so you won't be very successful. Local chicken housing made from plant based materials are also more suited to the tropical climate than permanent materials. A platform or sticks can be hanged to allow the birds to perch, because most birds will prefer to spend the night on an elevated platform rather than the floor of their shelter. Below is recommended housing space for chicken base on their age(Parker, 2007)

**Table 1: Area Required for Different Age Groups of Chickens**

Age	0-5weeks	5-10weeks	10-20weeks	Adult
Each chicken	0.50sq m	1sq m	2.5sq m	4sq m

(Parker, 2007)

### *Feeding*

Feeding is also crucial to the growth and development of chickens, therefore, is imperative that the chickens are fed with supplementary nutritious materials and then allowed to scavenge for food by themselves during the day. Well-fed chickens are more likely to develop more body weight than chickens that are only allowed to scavenge for food by themselves without any supplementary feeding. Local chicken knows what sort of feeds they need to make up their balanced diet so all you need to do is provide some of each food group separately in containers and the chickens will take as much as they need of each. This is called free choice feeding. In instances where commercially or self-compounded feed is used the chickens don't get the choice of what they eat and this can be very wasteful and unnecessary. Free choice feeding to be carried out early morning when the day is cooler and the birds are more inclined to eat.

A mixture of the food groups should be provided separately so that the chickens can choose what they need to eat. The different types of daily food can be supplied to the chicken in separate local feeders. You must give the chicken fresh clean water to drink every day.



(Parker, 2007) Feed should be provided every day from the following three groups so that the chicken can choose its own needs each day.

- **Protein:** The main components of the protein requirement can be taken from cooked fishing waste and animal offal when available, earthworms and insects including white ants plus bean and peanut meal once gardens are well established. Fishmeal in bags from canneries is an ideal protein source for larger poultry projects. Beans and peanuts can be crushed and used as good protein feed for the chicken.

Maggot farming is becoming instrumental in feeding of poultry especially in developed countries. Household Agricultural Waste (HAW) is used as the main ingredient in the production of maggot which is fed as primary or secondary feed for the birds. The waste material is put into a container and then kept moist for some days, to allow it to decay and produce maggot. The maggot is harvested manually by sorting them from the decaying matter and fed to the birds in their feeding troughs or otherwise. Special kind of maggot farming containers can be fabricated with locally available materials to make the process clean and easy to harvest the maggots.

- **Energy Feeds:** The most commonly available is fruits and vegetables, sugarcane, yams and potatoes etc. Poultry can be allowed to free range after the middle of the day so they can have access to leaves and grasses as well as the insects by themselves. Potatoes should be boiled to better use the starch and animal fat can also be fed for energy in the hot climate.
- **Minerals and Vitamins:** Most villages have access to seashells calcium rich resources, which can be burnt and crushed to provide calcium and grit for the chickens. Crushed animal bones also provide calcium and phosphorous with salt being available from seaside pools or seaweed.

Green feeds is another very important food for chickens and can be provided to the pens as green leafy vegetables and the chickens can have access to some in grass yards during the day while roaming. Vitamins can be sourced from fresh green leaves of plants; pawpaw, chili, cabbage, hibiscus etc. and can serve as good protective foods for chicken. It could be seen that chickens can find these dietary materials from their surroundings, however, it should be noted that poisonous feeds/ materials should be avoided.

**Table 2: Available feed resources for poultry in Nigeria**

Feed resource	Geographical Zones			
	Northwest	Northeast	Southwest	Southeast
Energy				
Cassava by-products	**	**	****	****
Cocoyam			****	****
Irish potato		**		
Jack bean				**
Oil-palm by-products			***	****
Sweet potato	***	***	**	*
Protein				
Fish offal			**	**
Shea butter waste	***	***	**	*
Shrimp head			**	**
Energy and protein				
Brewer's grain	*		****	**
Cashew			*	***
Cottonseed	***	***	*	*
Cowpea	***	***	**	**
Grain by-products	****	****	***	***
Groundnut	***	***	**	**
Lablab	**	**		
Melon			**	
Pigeon pea		**		
Rubber seed			**	
Sesame seed		**	*	**
Soybean	**	**	**	**
Sunflower seed	*	*	*	*
Minerals				
Limestone	**	**	**	**
Oyster shell			**	**
Periwinkle shell			*	***
Vitamins				
Rice by-products			**	**
Wheat offal	*	*		

**Adopted from:** (Presidential Task Force on Alternative Formulations of Livestock Feeds, 1992).

\* = available; \*\* = reasonable quantity; \*\*\* = good quantity; \*\*\*\* = abundant.

All foodstuffs provided in the chicks' diet should be finely chopped so they are easier for the chickens to eat. It is difficult to make a single chicken food from the ingredients listed because what food is available and the ages of the poultry will vary from community to community. Therefore, after the chickens reach 6 to 8 weeks of age their feed should be provided separately in the three food groups to encourage free choice feeding. Constant supplies of grit and bone should also be made available to birds of all ages and stages of development. It is



important for the chickens to have a good variety of foods to help them develop properly inside to fight disease too.

## **Breeding**

The first important thing to do is select a suitable flock of breeding chickens to suit your customer' needs and expectations. Depending on the financial capacity of the farmer and the size of the market, the farmer can start with as little as five to ten hens and one cock. It is a good idea to keep both local and exotic chickens together to enable crossbreeding so that the characteristics of the both parents will manifest in the off - springs. Usually local chickens are resistant to diseases while the exotic chickens have good feed conversion ratio and or bigger sized eggs. This has the tendency of increasing the benefits from your production. Chickens with such characteristics of the mixed breeds has been developed (Noilers) and can now be found all over Nigeria. If local chickens are given adequate feeding and management the local can produce some good results almost immediately. By keeping them in pens for most of the day, feeding them properly and breeding correctly better results can be achieved.

Select from the surviving village birds for use in the breeding program to provide the following good features in the new flock:

- It should be a more active forager and hardier bird.
- They should be more aggressive protecting their chickens and not such easy prey for predators.
- They should fly well and can roost higher at night than other introduced birds.
- The village hens have just become smaller over the years because they have been allowed to wander and breed freely without very much care.
- Good feeding and management of these fowls will produce better meat and eggs.
- Village fowls are smaller, more compact breed, don't eat as much as larger imported fowls therefore through cross breeding they can produce lots of eggs.
- Females from the improved breeding line will ensure determined broody hens and very protective mothers.
- The present village fowl is a very active forager and it also shows great interest in any food scraps thrown to it. Therefore, it will adapt well to the proposed free choice feeding system of locally based feeds.
- Because of their tight feathering and more active nature semi feral fowls appear to be more successful breeders than many soft feather fowls and usually continue to breed to a greater age.
- It is a good idea to crossbreed the village fowls with imported varieties to mix the good qualities of both together. The chickens will revert to their natural colours of the jungle fowl and therefore provide some camouflage especially for nesting females. The natural brown striped colouring of the chickens from moment of hatching is also great camouflage.
- In the selection of fowls for the village flock you should look for qualities such as open, alert eye and strong beak legs and toenails for foraging for food.
- In countries like Solomon Islands where wild populations of the original jungle fowl still live there are 3.0 also mixtures of this self-sufficient wild fowl with the village chickens. Every effort should be made to obtain breeding roosters from areas where



there are possibilities of jungle fowl existing in the rooster's breeding background. (Parker, 2007)

### **Main Thing to Look for in a Breeding Stock**

- Chickens which are very active and search for their own food.
- Strong and healthy young chickens
- Good egg layers
- Good as broody hens

### **Egg-Laying**

If you have good hens, which are not too old and are cared for properly they will give you plenty of good eggs for eating or breeding.

### **DISEASE AND CONTROL MEASURES**

External parasites that affect local chicken include: poultry body louse, stick tight flea, poultry lice, ticks, feather mites and leg mites.

Control can be done using commercial/synthetic or herbal insecticide. Herbal preparations are cheaper for local chicken but a lot of research is still needed in this area to establish proper dosage.

Internal parasites include worms and coccidian.

Worms can be eliminated using a potent dewormed preferably given as a tablet because these chickens have low water consumption.

Deworming should be done at least every month. Commercial coccidiostats can be used alternately with herbal preparation. These must be given to birds on 8th, 9th, and 10th days of age. Repeat as directed by veterinarian. In early days, vitamins-mineral mixtures should be given to chicks to minimize losses.

Vaccination of birds especially against New Castle Disease. Target first vaccination at the beginning of the dry seasons, repeat after one month and every four months thereafter.

### **3.1 Herbs that are good for chickens**

Any plant material or part that is not hairy but succulent with proven nutritional importance are good for chickens. These are herbs to plant for chickens; they contain appreciable nutrients and can supplement your poultry feed. When you serve your chicken herbs, you enjoy several benefits. Apart from building a solid immune system, the health of your consumer is also secured because as they consume your chicken or its product, it helps build their immune system too, hence, giving your product a good repute.

**Table 3: Some herbs used for local poultry treatments**

<b>Plant Product</b>	<b>Efficacy</b>
Pawpaw leaves	Pawpaw leaf is a proven beneficial herb for poultry; when dried, it contains about 70% crude protein. Not only that, pawpaw leaf extract has anthelmintic property; it can be used as organic de-wormer for chicken.
Bitter leaf	This herb is not too palatable because of its bitter taste but it is very effective in treating various poultry diseases and parasitic worms. It is also a good antibiotic as it helps to boost the immune system of the chickens.
Ginger	Ginger is an effective antibiotic and antiviral herb. It is very effective in treating coccidiosis in poultry and other poultry diseases.
Garlic	Like Ginger, Garlic is also a very effective antibiotic. It may be served wholly or mixed with ginger to cure various poultry diseases and infections.
Christmas Melon	Also known as Tagiri, Christmas melon is another effective antiviral herb. It can be used to cure Newcastle disease in poultry.
Azolla	Azolla is one of the best herbs for chickens to eat. It is rich in protein and other nutrients needed by chickens to grow well. Azolla can be served to improve the quality of the chicken’s product; it can improve the egg yolk colour, the taste of the meat and their nutritional benefits. Azolla has helped increase rice yields as much as 158% per year. And this can help us know where to find it. Also google this for your better knowing of the plant.
Scent leaf	This sweet-smelling leaf is used mainly as a spice due to its aromatic taste and the flavour it adds to meals. it has a distinctive smell and taste. You can make use of scent leaves anyway, you can squeeze out the water and drink, and it can also be used to make soup to be eaten. Scent leaf is a very powerful antibiotic; it contains several essential minerals and vitamins; such as: Calcium, Phosphorus, Iron, Potassium, Carbon and Vitamin A. It has the ability to improve the immune system of the chicken greatly when served on a regular basis.

Adapted from Odumase, 2019

### **Results and Discussion**

The review showed that improved poultry system is well acknowledged as having some advantages in terms of productivity. However, it has other disadvantages especially among small scale operators due to inadequate managerial skills and knowhow on the poultry management, thereby resulting into high mortality rate, high cost of management, high losses of startup capital due to risk encountered thereby discouraging restocking and sustainability of





the enterprise. The traditional poultry system despite its low productivity and returns is still getting recognition among the smallholder farmers due to its low startup cost, low rate of mortality, low cost of management, disease resistance and other sociocultural benefits attached to it already highlighted earlier. Therefore, smooth transition from traditional to improved poultry management systems is facing challenges and hence an alternative management system which is a mix of local and modern production systems is advocated, especially among the stallholder poultry farmers in developing countries like Nigeria.

## Conclusion

It is concluded the traditional poultry system could be enhanced through breeding of special stock, improved housing, and feeding and disease control focusing available and accessible resources with the reach of the smallholder farmers. For instance, the introduction of Noiler breeds of chicken, use of some plant based materials for housing, use of herbs, vegetables, fruits, kitchen waste, maggots' production etc. for improving disease control and feeding. Successful implementation of these strategies will go a long way in improving traditional poultry system in terms of productivity, income, socioeconomic wellbeing and poverty reduction in both rural and urban areas.

It is therefore recommended that:

- i. Government, nongovernmental organizations and individuals should support and promote these types of strategies for improving poultry production system in order to guarantee steady supply of poultry and poultry products on a sustainable basis. This could be achieved through effective sensitization, seminars, workshops, exhibition and summits
- ii. Youths and women should be encouraged to adopt such poultry enterprise as a source of livelihood
- iii. Poultry actors should be encouraged to form producers, marketing and processors cooperatives and associations in order to benefit from all the benefits of group membership, government and nongovernmental projects, loans and grants etc.
- iv. Based on our review high cost of feeding with compounded feeds can be supplemented with production of maggots using household and agricultural waste etc.

## References

- Abdulhamid, H., Musa, A. A., and Musa, A. (2019). Role of Local Chicken (*Gallus Domesticus*) in Economic Development of Rural Farmers in Nigeria: A Review. *International Journal of Science and Research (IJSR)*, 2319-7064.
- Dare Ojo, O. (December, 2014). Impacts of Agricultural Development Programme (ADP) on Rural Dwellers in Nigeria: A Study of Isan-Ekiti. *International Research Journal of Finance and Economics*, 128.
- FAO. (2004). FAO Animal Production and Health manual-Small-Scale Poultry Production Technical Guide. Rome, Italy.
- Market Development in Niger Delta (MADE). (2014, April 30). *Market Development in the Niger Delta (MADE) Business Case*. Retrieved from Foundation for Partnership



*Proceedings of the 64th Annual Conference of Association of Deans of Agriculture in Nigeria Universities (ADAN), Keffi 2021. Faculty of Agriculture Shabu-Lafia Campus, Nasarawa State University, Keffi, Nasarawa State, Nigeria*



- Initiatives in the Niger Delta (PIND): <https://pindfoundation.org/wp-content/uploads/2020/06/MADE-Business-Case.pdf>
- Odumase, S. (2019). *ood herbs for Poultry*. Retrieved from Chicken plaza: [chickenplaza.net/good-herbs-for-poultry/](http://chickenplaza.net/good-herbs-for-poultry/)
- Ojo, I. H., Hiikyaa, A. N., and Oladimeji, Y. U. (2017). Analysis of Honeybee Production among women Beekeepers in kaduna state. *Journal of Animal Production Research* 29(1), 403-409.
- Parker, R. (2007). *Improved Village Poultry Keeping: A trainers Guide*. Red Dingo Multimedia.
- Presidential Task Force on Alternative Formulations of Livestock Feeds. (1992). *Report on livestock numbers, feed resources inventory and supplies*. Abuja, FCT.: Office of the Secretary to the Government of the Federal Republic of Nigeria.