

Baseline Study of Small and Medium Scale Poultry Production in Enugu and Lagos States of Nigeria

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Abstract: A baseline survey of small and medium scale poultry enterprises were carried out in Enugu and Lagos States of Nigeria. The primary purpose of the study is to determine the prospects for the commercialization of the poultry industry in Nigeria. Multi-stage sampling method was employed in the selection of representative small and medium scale poultry farms and farmers from the two target states. Characteristics of both small and medium-scale poultry farms, baseline performance indicators as well as needs assessment of poultry farmers, among other information, were elicited and documented. It was established that the identified constraints, notwithstanding, small and medium scale poultry production holds great potential for commercialisation. It was recommended that there is the need for provision of gender-sensitive technologies (eg hatcheries, feed mills, processing equipment etc), formation of cooperatives by poultry farmers, public-private partnership, capacity building of poultry farmers, as well as the provision of adequate electricity or power supply and other infrastructure (eg access roads, water and health facilities etc) to promote the commercialization of the poultry industry in Nigeria.

Key words: Poultry • Small and medium scale • Nigeria

INTRODUCTION

Agriculture employs about two-thirds of Nigeria's total labour force, contributed 42.2% of Gross Domestic Products (GDP) in 2007 and provides 88% of non-oil earnings. The agricultural GDP is contributed by crops (85%), livestock (19%), fisheries (4%) and forestry (1%). More than 90% of the agricultural output is accounted for by small-scale farmers with less than two (2) hectares under cropping. It is estimated that about 75% (68 million ha) of the total land area has potential for agricultural activities with about 33 million hectares under cultivation. Similarly, of the estimated 3.14 million hectares irrigable land area, only about 220,000 ha (7%) is utilized [1,2].

The poultry sub-sector is the most commercialized (capitalized) of all the sub-sectors of the Nigerian agriculture. The types of poultry that are commonly reared in Nigeria are chickens, ducks, guinea fowls, turkeys, pigeons and more recently ostriches. Those that are of commercial or economic importance given the trade in poultry, however, are chicken, guinea fowls and turkeys,

amongst which the chickens predominate [3]. They are reared under two distinct poultry production systems in Nigeria, as in most developing countries of Africa and Asia, namely, Commercial Poultry and the Rural Poultry. Each of these two systems is associated with features of scale, stock, husbandry and productivity. However, between these two rather distinct prototypes, intermediate grades have evolved over time in response to the natural agro-economy and consumer demands. This is referred to as the "Family Poultry" comprised of the rural or indigenous poultry types in some cases or a mixture of both indigenous and exotic hybrids or even totally exotic breeds [3].

The ban of poultry products by the Federal Government of Nigeria (FGN) has caused a turn-around in poultry which grew by 10.3 percent as compared to 0.3 percent in 2003. This growth was partly due to the ban and also due to the use of veterinary services by lots of farmers [4].

With the global spread of Highly Pathogenic Avian Influenza (HPA1) across several countries since 2003 and especially the confirmation of the epidemic in Nigeria in

February, 2006, there is a new attention focused on the sub-sector by the Government of Nigeria (GoN) and the international community [3]. There is, however, paucity of data on the sub-sector, thus effective planning and execution of intervention programmes in the sub-sector have become a herculean problem and/or challenge. This study was therefore designed to provide basic data/information for careful programming and well-coordinated interventions in the poultry sub-sector in Nigeria, especially now that the present government is well disposed to enhancing the commercialization of small and medium-scale agriculture including the poultry sub-sector in Nigeria.

MATERIALS AND METHOD

The Study Locations: The two states of Enugu and Lagos were selected for the study on the basis of their significant comparative advantage for poultry production in Nigeria.

Enugu State: It is located in the South-East geo-political zone of Nigeria between latitudes 58° 50' and 78° 01' North and longitudes 68° 50' and 78° 55' East. Enugu State is bounded in the East by Ebonyi State, in the North by Kogi and Benue States, in the South by Abia State and in the West by Anambra State. The state comprises of 17 LGAs with a population of 3.3 million people at a growth rate of 2.83% and a population density of 360 persons per square kilometer [5]. About 59% of the population live in rural areas.

Agriculture earns the largest share of the state's GDP while a greater percentage of her citizens derive their incomes and livelihoods from agriculture. The farmers rear livestock and produce a wide variety of staple crops (eg cassava, yam, maize, vegetables and fruits). Dominant livestock species reared in Enugu State are cattle, sheep, goats, pigs and poultry. About 27,782 cattle, 16,928 sheep, 64,777 goats, 7,534 pigs, 80 horses, 2,521 donkeys and 372,400 poultry are reared across the 17 LGAs of Enugu State [6].

Lagos State: Located in the South-West geopolitical zone of Nigeria, Lagos State occupies a land area of about 3,345 sq km. The population is 9.0 million [5] with 6.31% of the population (male and female) rural and 93.69% urban.

With respect to agriculture, major staples produced in the state include maize, cassava and rice. Poultry and other species of livestock and fisheries are

produced in the state. More than 70% of the rural population is involved in agriculture and agro-related activities. Identified critical problems affecting agricultural development in Lagos State are the ageing farm settlements, lack of infrastructure, post-harvest losses and under-developed aquaculture system.

Sampling Technique: Multi-stage sampling approach was used in the selection of poultry farm firms for the study. The first stage involved the identification and listing of the commercial small and medium scale poultry farms in the two states of Enugu and Lagos respectively. Fifteen (15) representative small and medium scale commercial poultry farms respectively were randomly sampled from the two states. Thus thirty farms per state were selected. In total, sixty small and medium scale commercial poultry farms were selected for the study. Criteria used for selection and categorization of commercial poultry farms into small and medium scale include size of farm, number of years of experience in poultry farming and membership of Poultry Association of Nigeria (PAN).

Methods of Data Collection: Rapid appraisal, consultation meetings, focus group discussions and field visits were the methods employed in primary data collection in Enugu and Lagos States. Primary data were generated to provide baseline data and annual targets for the checklist of key performance indicators as well as for needs assessment of the farmers. These were with respect to types of technologies as well as technical and advisory services, capital investment requirements, types of market facilitation required, capacity gaps and needs, network of rural access roads, energy needs of the poultry farms and institutional capacities, among others. It also included data on various target small and medium poultry farms based on location, ownership, types of investment, level of sales, number of employees, access to financial support and constraints to production and processing.

Meetings and discussions were organized with the various stakeholders and target groups in Enugu and Lagos States. Guided discussions and oral interviews were conducted to elicit relevant data/information from the respondents.

Data Analysis: The study made use of both primary and secondary data. Analytical tools such as simple descriptive statistics (eg means, frequencies tables, cross tabulations, etc) were used to characterize and analyse the data generated from the study.

RESULTS AND DISCUSSION

Enugu State

Characteristics of Small and Medium Scale Poultry Enterprises: The baseline characteristics for broiler and layer production enterprises in Enugu State are summarized in Table 1.

Broiler Production: The estimated total production of broiler/cockerel in Enugu State is 1,260,000 birds. Available production technology is the deep litter system. The price of day-old clucks stands at N120.00 per broiler and N45 per cockerel. The average mortality/morbidity rate is 10%. The common diseases prevalent in poultry farms raising broilers/cockerels are the Newcastle, gomboro, fowl pox and chronic respiratory disease. Access to animal health delivery services is moderately high in the urban and low in the rural areas. The average

live weight at market point for broiler is about 1.4kg and 1kg for cockerel. Available processing technologies for broiler/cockerel production are manual as well as mechanical. The estimated net income per cycle per bird is N150.00 for broilers and N100 for cockerel. Although broiler/cockerel producers have access to extension services, it is high in urban and low in the rural areas. Three (3) prioritized constraints to the production of broilers/cockerels in Enugu State are high cost of feed, disease problem and inadequate capital.

Layer/Egg Production: The estimated total egg production is 1.4 million crates annually. The average weight of graded eggs by category is 25 gram for small, 56 gram for medium and 65 gram for large eggs. About N500.00 is the estimated net income per cycle per bird on the assumption that a hen lays one egg per day. Common diseases among the layers include newcastle, gomboro,

Table 1: Baseline Characteristics for Small and Medium Scale Poultry Enterprises in Enugu State

S/N	Enterprise/Activities	Unit of Measure	Estimated Quantity	Narrative
D. Poultry				
(i) Broiler/Cockerel Production				
	- Estimated Production	Birds	1,260,000	
	- Production technologies available			deep litter/battery cage
	- Price of day- old chicks	Naira	120-broiler, 45 cockerel	
	- Mortality/morbidity rate	Percentage (%)	10	
	- Common diseases			New castle, gomboro, fowl pox, Chronic respiratory disease
	- Availability/access to animal health delivery services			moderately high in Urban and scarce in Rural areas
	- Average live weight at market point	kg	1.4/broiler 1.0/cockerel	
	- Available processing technologies	-		Manual
	- Estimated net income per cycle/bird	Naira	150/broiler, 100/cockerel	
	- Access to extension services			High in Urban and low in Rural
	- 3 prioritized constraints to production			1. High cost of feeds 2. Diseases problems 3. Inadequate capital/funds 4. Lack of water
(ii) Egg Production				
	- Estimated total egg production	Crate	1.4 million	Annually
	- Average weight of graded eggs/categories	Grams	25g small, 56g medium, 65g large	-
	- Estimated net income per cycle/bird	Naira	500.00	-
	- Egg production per hen per day	No	1	-
	- Diseases/access to animal health delivery services	-	-	Same as in broiler above
	- Availability of day old chicks	-	-	Expensive and not easily available
	- Prices of day old chicks	Naira	N160/chick	-
	- Sources of day old chicks	-	-	Ibadan, Abeokuta and Sapele
	- 3 prioritized constraints to production	-	-	1.Unavailability/high cost of day old chicks 2. High cost of feeds 3. Disease problems 4. No guaranteed market

coccidiosis and chronic respiratory disease. Disease prevalence notwithstanding, there is general access to animal health delivery services.

Although day-old chicks may be considered available, they are relatively expensive as a result of transportation cost and other related expenses. Day-old chicks are sourced from Ibadan, Abeokuta and Sapele. The price of a day-old chick is about ₦160/chick. Unavailability and high cost of day-old chicks, high cost of feeds and disease problems are the key identified constraints to egg production among poultry farmers in Enugu State.

Needs Assessment of Poultry Farmers

Inventory and database of poultry producers and processors: About 89 commercial small and medium scale poultry farms were identified and inventorised in the state. Majority of the poultry farmers are found in the various LGAs of the state and are not necessarily in clustered locations.

Survey results showed that the number of employees in these poultry farms range from 3-15. Majority of the poultry farms have started business operations more than five (5) years ago. Only about 33% of the poultry farmers have access to financial support from financial institutions. Major constraints to poultry production and processing were identified as electricity, water, high cost of feed, bad road network and inadequate capital/finance.

Technologies and Advisory Services: Available technologies for poultry production in the state include the battery cage system, deep litter system, veterinary services for disease control, poultry feed and watering containers, among others. These technologies are locally produced but improved breeds of broilers and layers are sourced outside the state from Obasanjo farms, S and D Farms, etc. Processing plants and facilities are highly limited or unavailable. However, there are commercial cold rooms and deep freezers. There is no standard hatchery for poultry in Enugu State. Enugu State Agricultural Development Programme (ADP) provides advisory services to poultry farmers in the state with limited coverage because of the poor extension-farmer ratio of about 1:2000 in the state as against the recommended ratio of 1:1000.

Market Facilitation: Poultry producers, marketing agents and consumers have limited information on feed formulation and manufacture, product processing and packaging as well as marketing strategies, product

handling and storage, quality standards, etc. This could be attributed to the limited focus of the mass media such as radio and television and print media on programmes and publications that target this group of farmers in the state. There is the need to equip poultry producers and processors with the above knowledge and skills in order to enhance commercialization of the poultry industry in the state.

Capacity Gaps and Needs: Survey results showed that poultry farmers in Enugu State have significant capacity gaps and needs with respect to production, processing and marketing. Other identified gaps include workplan development and budgeting, input sourcing, group dynamics, market development and financial management, Disease control and poultry production management are also considered as important capacity building requirements/needs of poultry farmers in the state.

Energy Requirements: Most of the poultry farms are not linked to electricity/power supply. Those farmers that are linked to electricity suffer irregular power supply or power outages. The issue of lack of electricity or the epilepsy in its supply does often send cold shivers down the spine of producers, processors and marketers. The poultry farmer who needs electricity to heat up the brooding environment for his birds, the feed miller who needs electricity to run his mill, even the marketer who requires electricity for blast freezing or deep freezing of poultry products before supplying to fast food chains and restaurants are all put in a quagmire on account of the uncertainty of electrical energy supplies. The result is that these people shy away from taking the risk and the economy becomes the worst for it. It is a vicious circle which jeopardises the commercialization of the poultry sub-sector in the state.

Rural Access Road Network: Most of the farm access and rural roads leading to commercial poultry farms in the state are quite passable during the dry season but some can be inaccessible during the rainy season. This attribute makes it difficult for poultry farmers to bring in production inputs such as day-old chicks, feeds, veterinary drugs and other inputs. In the same vein, processors and marketers find it difficult to reach those production areas for the evacuation of poultry birds and products.

Institutional Capacities: There is a preponderance of agro-allied and financial institutions as well as government and non-governmental organizations (NGOs)

Table 2: Baseline Characteristics for Small and Medium Scale Poultry Enterprises in Lagos State

S/N	Enterprise/Activities	Unit of Measure	Estimated Quantity	Narrative Summary
Bi	Poultry			
	Broiler/cockerel			
	Estimated Total Production	No of Birds	2,311,400	
	Production technologies available	--	-	- Improved waste Management techniques in poultry -Inclusion of fermented copra meal (FCM) in poultry feed
	Price of day-old chicks	N/D-O- Broiler	175	
		N/D-O- Cockerel	60	
			12	
	Mortality/Morbidity rate	%		
	Common diseases	--	-	- Newcastle - Coccidiosis - Chronic respiratory disease (CRD)
	Availability/access to animal health delivery services	Frequency		Fair
	Average live-weight at market point – Broiler	Kg/bird	1.8	
	-Cockerel	Kg/bird	1.8	
		-	-	
	Available processing technologies	-		-Dressing of slaughtered birds -Smoking of slaughtered birds
	Estimated net income per Cycle/bird.			
	- Broilers	Naira/Broiler	250	
	- Cockerels	Naira/Cockerel	250	
	Access to extension services	Frequency-	Average-	
	3 prioritized constraints to production			-Bio-security problem -High cost of feed ingredients/finished feed/poor quality feed -High cost/inadequate supply of day-old-chicks.
ii	Egg Production			
	Estimated total egg production	Crates (30)	133,000,000	This amounted to 240,000 tonnes assuming an egg weighs 60g on the average
	Average weight of graded eggs/categories			
	- Large size	Grams	65	
	- Medium size	Grams	60	
	- Small size	Grams	55	
	Estimated net income per cycle/per bird	N/Bird	550	A cycle for layers is estimated at 18 months from day old
	Egg production per hen per day	No/bird/day	0.7	
	A hen was assumed to produce 250 eggs in a cycle			
	Diseases/access to animal health delivery services	Frequency	Average	Access to animal health delivery service is fair
	Availability of day- old chicks	Regularity	Average	There were occasional delays in the supply due to heavy demands
	Prices of day -old chicks	N/D-O-Pullets	175	
	Sources of day old chicks	Farms	-	Obasanjo Farms Chi-Ajanla Farms Zartech Limited S and D Farms etc
	3 prioritized constraints to production	-	-	-High cost of finished feed/feed ingredients/feed quality; -Fluctuations in the prices of eggs; and -Inadequate market outlets which leads to glut and egg spoilage

including development partners that can support the commercialization of the poultry industry in Enugu State. The Enugu State ADP, Ministry of Agriculture and Natural Resources (MANR), First Bank, Union Bank,

Zenith Bank DFID, FAO, World Bank, etc can contribute to commercial poultry farming in the state if the institutions are properly linked and the necessary business environment created.

Lagos State

Characteristics of Small and Medium Scale Poultry Enterprises

Broiler/Cockerel Production: The estimated number of broilers and cockerels produced in Lagos state is about 2,311,400. Available production technologies identifiable in the state are the improved waste management techniques in poultry as well as the inclusion of fermented copra meal (FCM) in poultry feed. The average price of day-old chicks in the state is N118.00 with broiler day-old chick sold at N175 and cockerel N60 per chick.

Although poultry farmers have a fair access to animal health delivery services, estimated mortality/morbidity rate is about 12% in most farms. Common poultry diseases prevalent in the state are new castle, coccidiosis and chronic respiratory disease (CRD). The average live weight of broiler/cockerel at market point is about 1.8kg per bird. Available processing technologies include dressing of slaughtered birds as well as smoking of slaughtered birds. The estimated net income per cycle per bird is N250 per broiler/cockerel. Three (3) prioritized constraints to broiler/cockerel production in the state were identified as bio-security problem, high cost of feed ingredients/finished feed and high cost and inadequate supply of day-old chicks.

Layer/Egg Production: The estimated total egg production in Lagos state is about 240,000 metric tones (mt)/(133 million eggs). The average weight of graded eggs is about 60g. Estimated net income per cycle per bird is N550 on the assumption that a hen produces 250 eggs in a cycle.

Accessibility to animal health delivery services is fair or on the average in terms of frequency. Although there are occasional delays in the supply of day-old chicks due to heavy demand, they could be said to be available to the majority of the poultry farmers. Egg producing farmers source their day-old chicks from Obasanjo farms, Chi-Ajanla Farms, Zartech Limited and S and D Farms, etc. Three prioritized constraints to egg production in the state are high cost of finished feed/feed ingredients, fluctuations in the prices of eggs and inadequate market outlets which lead to glut and egg spoilage. Description of the key baseline performance indicators for broiler/cockerel and egg production in Lagos state is summarized in Table 2.

Needs Assessment of Poultry Farmers

Technologies and Advisory Services: Available in Lagos state are the technologies for egg hatching, poultry feed

milling and poultry management under the deep litter and battery cage systems. Survey results also revealed the availability of technologies for processing poultry products especially the eggs into egg powder and the matured poultry birds into processed chicken parts. These technologies have the potential to mitigate the seasonal gluts experienced by poultry farmers in the marketing of products in Lagos state.

Market Facilitation: Most of the poultry products are sold to traders and fast food dealers who come to the poultry farms on arrangement to procure chickens and eggs. On some occasions, the farmers deliver their products to their customers. It is pertinent to note that in both instances the traders and middle men have the upper hand in price fixing. Hence, the farmers are made to be price takers. This leads to their selling below economic prices since the products are perishable and the farmers do not have the facilities to add value and increase the shelf life of the products.

Capacity Gaps and Needs: The study showed that most of the poultry farmers have no formal training on poultry management. Though some of them are graduates and retired civil servants who are motivated by their interest in the enterprise, there is still the need for organized training on poultry management. Expertise for poultry feed milling with such raw materials as maize and soy beans are still not optimally available. Hence, the feed millers are under-utilised.

Energy Requirements: Presently, the energy needs of the poultry farmers in Lagos state is enormous since electricity supply is epileptic and occasionally non-existent. Most of the poultry feed millers are no longer operational because of their inability to cope with the exorbitant cost of privately supplied energy. There is the need to cluster poultry feed millers and poultry farmers so as to economically assist most of them with uninterrupted power supply.

Rural Access Road Networks: The poultry farms are in scattered locations unlike one of the fish farms which are found in clusters. However, the access roads to the various poultry farms were found to be barely passable during the dry season. Also, other complementary infrastructures like water and health facilities were also visibly lacking in these farm locations.

Institutional Capacities: The Lagos State ADP has a rural institutions department which is designed to assist the farmers including poultry farmers. There are many banks in Lagos state which can assist farmers with loans. Government establishments such as the Lagos State Input Supply and Distribution Agency, Ministry of Commerce and Industry and Ministry of Agriculture and Natural Resources (MANR) as well as NGOs and private sector agencies and development partners (eg DFID, World Bank etc) abound in Lagos State. At present, there are no strong linkages between these institutions and the poultry farmers in the state for significant service provision. The opportunity for synergy exists among these various institutions and the poultry farmers in Lagos State.

CONCLUSION AND RECOMMENDATIONS

In conclusion, it is evident that there is great potential for the commercialization of the poultry industry in Nigeria, the various identified constraints based on the results of this study notwithstanding.

In order to promote the commercialization of the poultry sub-sector, the following recommendations are considered necessary:

There is the need to produce and make available to poultry producers and processors local and gender-sensitive technologies such as hatcheries, feed mills and accessors, production and processing equipment and storage facilities, among others. Research institutes and the private sector should be encouraged with funding support and creation of the enabling business environment to achieve this objective.

Farmers should be encouraged to form cooperatives to enhance their capacity to procure the necessary machineries and farm inputs under their cooperative organizations. Individual farmers can then pool their harvest of chicken and eggs to service/feed their jointly-owned processing and preservation plants. The cooperative movement can embark on market promotion by stressing the importance of protein from chickens to their health and in their diets. The processors under cooperative system can as well go into contract farming arrangements with maize and soy bean farmers and lobby government in power to revisit the buffer stock and strategic grain reserve systems. These can easily be achieved when farmers form formidable cooperative movements.

Public-private partnership (PPP) should be encouraged for the purpose of facilitating the commercialization of the poultry industry in Nigeria. Under this arrangement the enabling environment will be created for effective participation of the private sector as service providers in poultry input supply, production, processing, storage and marketing.

There is the need for capacity training of poultry farmers and processors to enable them cope with the challenges of modern poultry farming and commercialization of the poultry sub-sector. The identified capacity gaps among them can be filled through training and retraining in the area of production, processing and marketing. They should also be equipped with the knowledge and skills in workplan development and budgeting, input sourcing, group dynamics, market development and strategies and financial management, among others.

Lack of and/or epileptic power supply is the bane of agricultural production and commercialization in Nigeria. The President Yara'Adua Administration should tackle the problem to a successful end together with the provision of other basic infrastructure such as rural access roads and water supply, etc to promote rapid rural industrialization and particularly the commercialization of the poultry industry/agriculture in Nigeria.

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