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Identifying Major Factors of Poultry Production as Sustainable Enterprise among Farmers Using Improved Methods in Rural Nigeria

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Abstract: Investigations were conducted in 2006 with the primary aim of determining the major factors of improved methods of poultry production in Adamawa State, Nigeria. Purposive and random sampling methods were applied in selecting eight (8) and eighty (80) Local Government Areas and respondents, respectively. Data were analyzed using descriptive statistics and correlation analysis. Results indicated that adult males who produced within the medium-scale were the majority. Major factors that most influenced improved poultry production identified include land, labour, feeds and other investment expenses. Of the constraints that thwart production in the area, absence of poultry farmer education (100%), inadequacy of ready market for poultry and poultry products (98.8%), lack of institutional support (97.5%) and high cost of feeds (96.3%) were most reported. As a matter of policy, agencies that intend to use improved methods of poultry production for rural empowerment should not only address these constraints but also target the large producers in these rural areas, known as the women. This is the only way sustainability would be maintained.

Key words: Enterprises, factors, farmers, Nigeria, poultry, rural

INTRODUCTION

The mere mention of sustainability in the field of agriculture in the developing world will simply tilt the minds of average farmers towards crop production either in form of cereals or tree crops on continuous basis. This is basically the mind-set and perception most farmers in less-developed countries and particularly Nigeria possess. The attitude stemmed from the huge emphasis placed on crop production against livestock production, by both the public and private sectors through the supply and provision of subsidies on inputs such as tractors, fertilizers, seeds, agro-chemicals and extension services, among many. However, in the context of Bruntland concept of sustainable development and by extension sustainable agricultural development, noted Cunningham and Saigo (1999), it encompasses all processes involved in the promotion of agriculture (crop and livestock production) with the intent of meeting the food requirement of the present generation without compromising the ability of the future generation to meet their own needs. This therefore, calls for a rethink in the structuring of agriculture towards achieving appropriate diversification in order to attain a level of meaningful food security for the poor majority.

Treading along this definition therefore, poultry production can be said to possess all the potentials required to be a sustainable enterprise in a rural set-up. For one, peasants are already used to raising local chickens as a way of life. The materials needed to provide housing are usually sourced from the local

environment. The chickens are either fed from the food remnants of household or allowed to roam about for feeds (Ja'afar-Furo *et al.*, 2008). It is under this system of management that family poultry formed the largest proportion of all livestock in Nigeria with a population of 104 million (Sonaiya, 2000). In this regard then, improving poultry production will invariably have tremendous tendency of improving the economic base of most rural populace in the country and other nations with similar economies, especially if the target groups are women whom as noted by Nielsen *et al.* (2003), use assets controlled by them to improve the livelihood of household members and in particular that of children.

The benefits derived from the improved form of this agriculture are numerous. In spite of serving as one of the major sources of readily available protein in the rural areas, Amos (2006) and Ja'afar-Furo *et al.* (2007) reported that poultry enterprise yields quick monetary turnover with prudent management. Similarly, Alabi and Aruna (2006) maintained that although the output from the individual bird is low, family production systems are found to be economically efficient due to the low inputs requirement. As over 70% of the population of Nigeria are resident in the rural areas (Ayichi, 1995), engaging in poultry production will definitely serve as avenue for reducing the teeming unemployed among the majority. However, a thorough investigation need be undertaken in order to determine areas to improve upon in the span of production. Identifying the major factors of poultry production among small and medium scale producers in the study area will hopefully bridge this gap and

also serve the policymakers and extensionists with ample information towards strategising appropriate methods of passing on the improved production practices of poultry farming to rural farmers effectively and by extension, raise the economic status of the populace.

MATERIALS AND METHODS

Area under study: The study was conducted in Adamawa State, Nigeria. Located in the North-Eastern part of the country and specifically between latitude 7° and 11° N and also longitude 11° and 14° E, the State has great potentials for poultry production. At present, the population of poultry is estimated at 4 million (ASMLPNS, 2009). Over 90% of this figure is managed under traditional system with only less than 10% kept under the improved methods.

Sampling and data collection: The State has been divided into four distinct agricultural areas according to the vegetation and type of soil. These are the Northeast zone composed of Gombi, Hong, Maiha, Mubi-north, Mubi-north, Michika and Madagali LGAs; Northwest zone comprising the Numan, Demsa, Lamurde, Guyuk and Shelleng LGAs and the Central zone which is made up of Yola-north, Yola-south, Girei, Fufore and Song LGAs. The remaining LGAs, Ganye, Toungo, Jada and Mayobelwa, formed the forth zone known as the Southwest.

Two LGAs known to have higher number of poultry farmers were purposely selected from each zone, thereby giving the total number of eight (8) LGAs studied in the State. They are Mubi-north, Hong, Numan, Guyuk and Yola-north. Others are Yola-south, Ganye and Mayobelwa. Ten poultry farmers were randomly selected from each LGA, making 80 the number of respondents considered in the study area.

Structured questionnaire were used to source primary information from the farmers through trained enumerators. Basic information requested includes parameters like age and gender of the farmers, scale of poultry production and inputs used in raising birds.

Methods of data analyses: The data were analyzed by the use of descriptive statistics which includes percentage, frequency distribution and means and also correlation analysis. The latter is specified as:

$$Y = f(X_1; X_2; X_3; X_4; X_5; X_6)$$

Where:

- Y = Output or yield in naira (N1 = US\$150)
- X₁ = Area land in m²
- X₂ = Labour in man-hour
- X₃ = Feeds in kg
- X₄ = Medication in naira
- X₅ = Water in litres
- X₆ = Other investment expenses

This analysis is made in order to determine the relationships between the variables themselves on one hand and the variables and yield on the other.

RESULTS AND DISCUSSION

The age, gender and scale of poultry production in the study area: The results in Table 1 indicate the age and gender of the farmers and the scale of poultry production within which they operate in the area surveyed. These socio-economic variables are specifically selected in order to determine the category of persons involved in the poultry business and the capacity in terms of number of birds owned for any policy intervention.

Table 1: The age, gender and scale of production among the poultry farmers in the study area (n: 80)

Criterion	Frequency	Percentage of total
Age		
Adult (18 years and above)	75	93.7
Teenagers (1-17 years)	05	6.3
Total	80	100
Gender		
Male	68	85.0
Female	12	15.0
Total	80	100
Scale of production		
Large-scale (250 and above birds)	15	18.8
Medium-scale (50-249 birds)	58	72.4
Small-scale (< 50 birds)	07	8.8
Total	80	100

Source: Computed from field survey (2006)

Table 2: Result of correlation analysis of factors of poultry production in Adamawa State, Nigeria

	Y	X ₁	X ₂	X ₃	X ₄	X ₅
X ₁	0.996					
X ₂	0.940	0.929				
X ₃	0.954	0.945	0.987			
X ₄	0.789	0.773	0.866	0.822		
X ₅	0.790	0.777	0.855	0.827	0.875	
X ₆	0.927	0.952	0.843	0.858	0.683	0.712

Note: values are run at p<0.05;

Source: Computed from field survey data (2006)

Table 3: Major constraints reported by the poultry farmers in the study area (n: 80)

Constraint	Frequency	Percentage of total
Lack of access to extension service	80	100
Feeds are expensive	77	96.3
Medication is expensive	74	92.5
Occurrence of diseases	50	62.5
No support from government	78	97.5
No ready market for birds	79	98.8

Note: Multiple responses were received;

Source: Computed from field survey (2006)

It could be observed from Table 1 that the bulk (93.7%) of the poultry farmers was adults with only about 6.3% as teenagers. Further inquiries revealed that the latter category of poultry farmers were secondary school

students who had passion of raising birds as members of various youth farmers' clubs in their various schools and were therefore, encouraged by their parents. The entire initial financial requirements for the take-off of the enterprises were provided by the same parents.

Gender will continue to play a significant role in the ownership of improved poultry enterprises in the developing countries like Nigeria due to the resources involved in setting up such a business. The result in Table 1 shows that 85.0% of the poultry farmers were males against 15.0% who were females. This survey was conducted in the northern part (Adamawa State) of the country. But it agreed with Apantaku (2006) who documented 77.0% males and 23.0% females as owners of poultry enterprises in the southern part (Lagos State) of the country. However, these findings are at variance with what is obtainable at the rural extensive management system in which the females are the dominant owners. Reports from Zimbabwe (Oakeley, 1999), Bangladesh (Nielsen *et al.*, 2003), Kenya (Okitoi *et al.*, 2007) and Nigeria (Ogunlade and Adebayo, 2009) indicated that the females are the majority in terms of participation in rural poultry production using the extensive method.

The method of classification of scale of poultry production adopted in Table 1 was according to USAID (2006). Based on the latter, producers are categorized into three thus, owners of less than 50; 50-249 and 250 and above birds as small, medium and large-scales producers, respectively. From the Table 1, it could be seen that majority (72.4%) of the producers operate within the medium-scale. This is followed by the large-scale producers with 18.8% and 8.8% accounted for by the small-scale owners. The result is an indication that even among the male producers; the bulk could only attain medium-scale status. This is further confirming Alam and Shaikh (2007) report from Pakistan, that although poultry production is a very lucrative business there, the capital intensiveness in terms of cost of feeds and medication is making it out of reach for the rural farmers. However, the massive intervention by the government through the provision of liberal financing and credit, income tax exemption, duty-free import of grandparent and parent stocks, machinery and poultry farm equipment coupled with easy access to loan facilities from commercial and financial institutions has made poultry enterprises to flourish and spread all over the rural areas in that country. In Adamawa State, all the respondents that were interviewed practiced deep litter system.

Result of the correlation analysis of factors of poultry production in the area: Six factors considered crucial in poultry production in the area surveyed were selected and included in the analysis to determine the relationship between the inputs themselves on one side

and with the output on another. These are land (X_1), labour (X_2), feeds (X_3), medication (X_4), water (X_5) and other investment expenses (X_6). Of the six factors, land seemed to have had high positive correlation with the output with a coefficient of 0.996 which was significant at $p < 0.05$. This was followed by feeds (0.954), labour (0.940) and other investment expenses (0.927) in descending order. Incidentally, land is not a major limiting factor in rural farming. Therefore, any effort to extend improved poultry production to the rural areas in Adamawa State and by extension Nigeria should concentrate on improving the easy access to/provision of poultry feeds which is the next most relevant factor. In this regard, several feeds factories be encouraged or in the alternative the rural farmers should be taught to locally compound their feeds using the various substitutes to grains and equally nutritious products like Cassava Fruit Coat, CFC, (Iyayi and Fayoyin, 2004). Similarly, the labour cannot be of much constraint as the family members especially the women and children provide most of the labour requirements in rural poultry (Okitoi *et al.*, 2007; Ja'afar-Furo *et al.*, 2008). Other investment cost which covers items like payment of electricity bill, kerosene, detergent, matches etc is another component that is worth noting in this result.

Poultry feeds as the major item of cost in improved production has also been reported in several previous independent studies. While Ja'afar-Furo *et al.* (2007) documented that feeds accounted for about 51.2% of the variable costs among poultry farmers and poultry product hawkers in Adamawa State in northern Nigeria, Iyayi and Fayoyin (2004) and Amos (2006) recorded 60.0% and 60.5% as accounting for poultry feeds in the total cost of broiler production in Oyo and Ondo States, respectively, in the southern part of the country. In a similar study, Alam and Shaikh (2007) in Pakistan stated that cost of feeds accounted for about 70.0% of the total cost of production in poultry farming.

Major constraints reported by the poultry farmers in the study area: The poultry farmers were interviewed with regard to constraints they experienced in poultry farming in the area. Six major problems were identified. These are lack of extension services, inadequate market for stock ready for sale, lack of support from the government, high cost of feeds, high cost of medication and occurrence of diseases. Of these constraints, lack of extension education was the highest (100%) as all the respondents reported this. Further investigation revealed that farmers depended on information from fellow poultry farmers and the few that can read got such information from books and related publications. This finding is in agreement with Fawole (2006) who reported that although extension institutions and various sources of information exist in almost every developing country, the coverage of farm families is still very limited. Also,

Ovwigho *et al.* (2009) stressed improving extension services as a need to stir the minds of chicken egg producers towards adopting the best chicken management system in Delta State, Nigeria.

Marketing of table size birds is another major (98.8%) constraint suffered by the respondents in the area surveyed. Since poverty is so pronounced both in the urban and the rural areas (Kwaghe *et al.*, 2009), demand for these birds became low in spite of the shift in consumption patterns from the other sources of livestock proteins to poultry products and fish due to changing tastes, costs and income (Ja'afar-Furo *et al.*, 2007). This result further buttressed Alkay (2006) report in Turkey where demand for animal sourced proteins were shifted from beef, veal, lamb, mutton and goat to greater consumption of poultry and fish.

Lack of support from the government in terms of provision of soft loan, extension services etc to boost poultry production was the third most (97.5%) pressing constraint experienced in the study area. This finding reconfirmed the negligence of government towards the promotion of improved poultry practices among the poultry farmers in the surveyed area.

High cost of feeds is one of the factors of poultry production among these constraints. The factor ranks fourth (96.3%) in terms of frequency among the problems experienced by the farmers in the area. However, it could be considered major constraint taking cognizance of the fact that the first three problems are government-related. High cost of medication and occurrence of diseases recorded 92.5% and 62.5%, respectively.

Conclusion: Indications from the results of this survey show that adult males who operated deep litter system within the medium-scale were the majority of poultry farmers in Adamawa State, Nigeria. Major factors of improved poultry production were land, feeds and labour input in descending order. Foremost of the reported constraints were lack of farmer education on improved practices methods, poor markets for table size birds, absence of institutional support and high cost of feeds among others. However, the first three are government-related factors, with feeds as the direct factor borne by the farmer.

Policy implication of the study: The government and non-governmental institutions that intend to improve on mass adoption of improved practices methods of poultry production in the rural areas as a tool for sustainable empowerment of the rural populace should address the major factors of production and constraints that thwart poultry farming in the area. In this regard, massive extension awareness campaign on improved method of poultry farming in rural areas of Nigeria should be advanced. Similarly, the poultry feeds which has direct

bearing on the poultry farmer should be made available in these areas through investment by government or private individuals in feeds factories, or educating rural farmers to compound their feeds locally using the available cheap food materials.

Since land and labour inputs are not limiting factors in rural poultry farming in practice, the government should concentrate on putting up appropriate structures towards improving the marketing of the bulk of poultry and poultry products that might results from the anticipated massive adoption of the improved methods of production. As women are the majority of producers of rural poultry, the institutional support should target them before any other group. Therefore, any soft loans scheme either in kind or cash and extension services should place women on the priority list.

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