

Indigenous Poultry Management Practices in Zone C Area of Benue State Agricultural Development Project, Nigeria

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Abstract: This study examines the indigenous poultry management practices in Zone C Area of Benue State Agricultural Development Project. About 200 respondents were interviewed. About 66% of the respondents indicated that extensive methods of management were adopted. The study indicated that apart from age and farming experience, all other socio-economic characteristics were not related to ethno-veterinary practices. The findings suggested that formal educational level, annual income, herd size and contact with extension may not be important influencing factors. Majority of the respondents used ethno-veterinary practices on their indigenous local breeds. It is recommended that there is no need to revolutionise the husbandry practices or to introduce day old hyphed chicks or buy costly feed. What is critical, however, is the provision of affordable feed and animal health services for timely vaccination of chicks to prevent and control disease as the local farmers stick to their indigenous breeds.

Key words: Indigenous, poultry management practices, Benue State, breeds, farmers, health

INTRODUCTION

Government policy favours the introduction and promotion of improved breeds of animals which are thought to be better than the traditional ones. However, due to a number of difficulties such resistance to poultry diseases and their inability to adapt to new environment and without adequate infrastructure it is rarely cost-effective for small-scale farmers to raise improved birds. Traditionally, farmers in the rural areas preferred their indigenous breeds to improved breeds. Indigenous breeds are self-propagating, contribute to poultry diversity and cultural heritage and produce tasty meat and eggs, adapted to the local climate and can survive, produce and reproduce, i.e., hatch chicks through scavenging.

According to Presidential Committee on Livestock (PCOL, 2003), the constraints on livestock production in Nigeria can be broadly summarized to include biological limitations of the indigenous breeds of animal seasonal availability of production inputs, such as; feed, water, good quality pasture, lack of effective veterinary service, availability of vaccines and veterinary drugs at reasonable cost.

According to Philip *et al.* (2009), feeds constitute at least 60% of the total variable costs of livestock production in Nigeria. Livestock such as poultry and pigs depend on compound feeds which are affected by the availability and quality of the constituent raw materials. About 9% of the National Livestock herd is under

traditional management (Philip *et al.*, 2009). Thus, genetic factors seriously limit livestock productivity in Nigeria. Complete absence of Grand Parent Stocks (GPS) affect productivity especially of the poultry sub-sector. A related problem is the collapse throughout the entire country of the breeding and multiplication programme for livestock. Furthermore, while the breeding programmes were still active, there was little or no record keeping as a basis for breed selection. Public veterinary services have declined over time in Nigeria and livestock disease account for 30-40% of the losses in the productivity of animals in Nigeria.

Smallholders tend to keep locally adapted varieties with an innate or acquired resistance to endemic disease agents. These varieties are not only stronger but also fetch higher prices on local markets due to the taste and texture of their products (Otte, 2010). Not only that, inputs into livestock production, such as; concentrate feed, mineral supplements, vaccines or other prophylactics are kept to a minimum. The farmer uses such inputs if he has personal experience of the benefits outweighing the cost; for example, few farmers vaccinate their poultry against newcastle and gumboro diseases even when the vaccine are available. The management practices ensure that the smallholder livestock enterprise is relatively resilient against commonly occurring endemic disease (Pica-Ciamarra and Otte, 2009). When losses occur, the surviving seed stocks are used for restocking distress birds through which disease is easily spread to neighbouring areas.

Recent research from India suggests that rearing indigenous poultry rather than focusing on improved breed that give a higher yield can significantly contribute to the self-sufficient and cultural wealth of rural communities as well as boosting their income. The issue here is that small scale farmers may not always adopt the improved breeds of birds. There is no need to revolutionise prevailing husbandry practices or to make use of costly housing and equipment or to introduce day old hybrid chicks or buy special feed. What is critical, however, is the provision of affordable feed formulation from simple and inexpensive crop residues and wastes and to strengthening poultry farmers to afford animal health services for timely vaccination of chicks to prevent and control diseases.

Knowledge as a vehicle for development is under utilized and indigenous knowledge poultry management practices that could have supported this process in some cases offered an alternative perspective is relegated to the background. Poultry management practices of this nature should be tested, confirmed and mainstream into development process and optimize the benefits of development assistance especially to the poor. Although, research has not yet provided a full understanding of local knowledge of poultry production and management. This study will deepen insights into the local knowledge of poultry production, those who possess it, how it will help researchers and policy makers to work with farmers in developing research and training programmes to meet their needs. The recognition and reinforcement of indigenous knowledge poultry management systems can form the basis for an alternative development model. Livestock farmers are interested in development of sustainable strategies to raise the productivity of their poultry and are very keen to diversify and intensify their traditional poultry system.

Ethnic groups in the ecological zone have generated a lot of indigenous poultry management practices collectively; they represent a dynamic information baseline on the role of indigenous technology for improving poultry production. These indigenous knowledge systems have been largely ignored in many developing countries (Jiggins, 1989; Warren, 1989). But it is known that indigenous knowledge is an important national resource that can facilitate the developmental processes in cost effective, participatory and sustainable way (Vanek, 1989).

This study presents the various management practices in Zone C Area of Benue State, Nigeria. The objectives of the study were to:

- Describe the socio-economic characteristic of the farmers
- Identify the poultry management practices and ethno-veterinary practices used in the area

MATERIALS AND METHODS

The state is divided into three agricultural zones by Benue Agricultural and Rural Development Authority (BNARDA) for administrative and operational purposes into A-C. This study was carried out in Zone C Area's and 5 Local Government Areas were randomly selected. The Local Government Areas were Otukpo, Ohimini, Ogbadibo, Apa and Ado. From each of the 5 Local Government Areas, 200 villages were randomly selected making 10 villages. About 20 respondents were interviewed from each of the 10 villages ($20 \times 10 = 200$). The total number of the sample size was 200 respondents.

The people in the area produce crops because of the fertile nature of the Savannah zone but also keep livestock to augment income from crop production. Structured and unstructured questionnaire were used for data collection. The data collected were analyzed using frequencies, percentages and Pearson product moment correlation.

RESULTS AND DISCUSSION

Table 1 reveals that 41% of the respondents were between 41-50 years of age followed by 25% in the age group of 31-40 years. About 66% of the respondents were found in the groups of 31-50 years. This could be explained that they were within the age group that is productive as a result of strengths and experiences which are indispensable requirements for rearing chicken in the area under study. Ikwue in the study of socio-economic survey of ethno-veterinary practices in Idoma land found most of the respondents between 31-60 years of age. About 73% of women and 28% of men reared local chicken. The higher percentage for women could be explained that there are traditional roles which are reserved for women. Men were more occupied with work outside the home such as crop production. This could also be informed that women have a rich store of knowledge relating to the traditional management of poultry and that traditional poultry production is exclusive responsibilities of women. The educational attainments of the respondents indicated that the majority (56%) had no formal educational followed by about 22% of primary educational status. According to Okwoche *et al.* (1998), higher levels of educational attainment enhanced adoption of scientific innovation therefore low or no formal education will restrict respondents from adoption of innovations. About 58% of the respondents were farmers, followed by 28% who were traders. Sources of farm labour were the family. About 55% of the farmers had the herd size of between 21-30. About 40% had over 31 years experience in farming and about 98% of the respondents had no contact with extension. About 38% earned above ₦21,000 annually from the sale of chickens.

Table 1: Distribution of respondents according to socio-economic characteristics (N = 200)

Variables	Frequency	Percentage
Age (years)		
21-30	30	15.0
31-40	50	25.0
41-50	82	41.0
≥ 51	38	19.0
Total	200	100.0
Sex		
Male	55	27.5
Female	145	72.5
Total	200	100.0
Formal educational level		
No formal education	112	56.0
Primary education	43	21.5
Secondary education	28	14.0
Tertiary education	17	8.5
Total	200	100.0
Annual Income		
≤ 10,000.00	56	28.0
11,000.00	68	34.0
≥ 21,000.00	76	38.0
Total	200	100.0
Herd size		
≤ 10	25	12.5
11-20	49	24.5
21-30	110	55.0
≥ 40	16	8.0
Total	200	100.0
Occupation		
Farming	115	57.5
Trading	55	27.5
Others	30	15.0
Total	200	100.0
Farming experience year		
≤ 10	33	16.5
11-20	37	18.5
21-30	51	25.5
≥ 31	79	39.5
Total	200	100.0
Number of contact with extrusion		
0	195	97.5
1	5	2.5
Total	200	100.0
Source of labour		
Family	200	100.0
Hired	000	000.0
Total	200	100.0

Table 2 shows that about 66% were into extensive system of poultry keeping and about 35% semi-intensive and none into intensive method may be as a result of poor economic status that is associated with the rural people. Omonona (2009) reported that the major feature of the rural farmer is poverty which makes it virtually impossible to accept the agricultural innovation like intensive method of keeping poultry. The result indicated clearly their preference for extensive method whereby birds are allowed to feed themselves during the day and find their own feed (insects and worms). Not only that the hen come into contact with various cocks and allows broody hens come out of broodiness more quickly.

Table 2: Distribution of respondents to indigenous management practices (N = 200)

Characteristics	Frequency	Percentage
Rearing method		
Extensive	131	65.5
Semi-intensive	69	34.5
Intensive	00	00.0
Total	200	100.0
Housing		
Mud wall with thatch roof	26	37.7
Mud wall with mud roof	43	62.3
Total	69	100.0
Cleaning of housing with wood ash	55	79.7
Cleaning of housing without wood ash	14	20.3
Total	69	100.0
Feeding without troughs	200	100.0
Reduction of the wing and tail feathers	200	100.0
Debeaking by using red hot knife and iron	57	28.5
Painting the chicken with bright colours to camouflage them from predators	151	75.5
Multiple responses		

In Table 2, 2 types of housing were predominantly used in the study area, all of which were made from local materials and adapted to the weather conditions. About 62% of the housing was made of mud wall with mud roof and 38% of mud wall with thatch roof. The houses were about 2 m high and restrict them at night, protected them during outbreak of poultry diseases, protect the animals against wild animals, birds and dangerous insects. The houses were located close to the kitchen to provide the needed warmth as well as close monitoring. Wood ashes are used in the cleaning and are spread in the houses to act as litters, prevent lice's and are swept at regular intervals of 2 weeks. As the birds move about, there is less creaking at home and poultry droppings are deposited at some distance from the house keeping the area clean.

In feeding, troughs were rarely used when grains like guinea corn and millets are used as feeds. The feed is then strewn on the ground and this method have three advantages over a trough. Those distributing the feed can see to it that the chicks are not sick or weak and the animal get enough to eat. Moreover, they can observe the appearance, behaviour and face colour and consistency of droppings and feed consumption of the various birds. Feeding is stopped when all of the birds had enough so that nothing is wasted or left lying around. Feeding is usually done in the morning and in the evening and this makes them come back home in the evenings.

The 100% of the farmers reduced the wing and fail feathers to prevent the birds flying into grain barns to feed on and waste household grains. About 29% of the farmers debeak their birds to prevent them from breaking their eggs prematurely before brooding when starved. Most of the farmers, about 76% painted their chickens with bright colours for easy identification and to prevent them being killed by their predators.

Table 3: Medicinal plants used to treat poultry diseases in Zone C Area of Benue State, Nigeria

Plants scientific name	Local name	Parts of plants used	Conditions of diseases used for
Citrus (lime leaves) plus <i>Chromolaena odorata</i> plus <i>Anthocleista vogelii</i>	Epu alemu, epu enagbagu and osele	All the leaves are boiled together and given to drink	Respiratory infection, such as; Cattanrh (agana); Cough (okor)
Datura metel or cannabis plus <i>Capsicum frutescens</i> (hot peper)	Jegemi (Indian hemp) plus akoko	The leaves and the seeds are boiled together and given to drink	New castle; Gumboro; Coccidiosis Diarrhoea (ogogo, omagogo, odamuu and ochola)
<i>Nicotiana</i> spp. (tubaccum) plus palm oil and salt	Epu taba, anoo	Fresh and raw juice of tobacco leaves, palm oil and salt	Fowl pox (ipi-ere-eye; Ochekeye)
Palm oil, salt, stick and rope	Anoo, omaa and ochi	Palm oil is mixed with the salt and applied to fractured area. The stick and the rope are tied around it	Bone fracture (ekpoku-ocha)

In breeding, the respondents explained that there were hardly any conscious efforts to cross breed as birds roam in the day time. The hens and cocks traditionally kept in the rural areas were light and heavy breeds. These traditional breeds need relatively more feed in relation to the quantity of eggs produced (Amin, 1982). Lack of confidence in improved breeds, resistance to diseases, the ability to adapt to new environmental conditions, rural people preferred to keep to their traditional breeds.

In Table 3, respondents were familiar with the behaviour of their chickens. They know, for example, that when animals flap their wings repeatedly or keep their beaks open, spread their wings, ruffle their feathers, they are having trouble maintaining their body temperature. When they see they signs, farmers begin to sprinkle water on the floor and walls around the chamber and their own houses to lower the surrounding temperature.

Newcastle is a highly contagious viral disease that effect poultry of all ages that severally threaten farmers livelihood. Gumboro which have symptom' of prostrating and curdling in one place causes sudden death. Coccidiosis locally called Omagogo has the symptom of inactive condition with blood stain pellated stool and dropping of feathers. Respiratory infection cough (agana and Okor) have symptoms of uncontrolled shaking of the head at intervals and diarrhoea (ochola) frequent watery stool with bad odour. The respondents used a mixture of (citrus) leaves epu alema plus enagbagu (*Chromolaena odorata*) plus Osele (*Athocleista vogelii*) boiled and given for the treatment of respiratory infection in birds. Ground seed of jegemi (datura metel) or (cannabis) India hemp and hot pepper were used for the treatment of newcastle disease, gumboro, coccidiosis and diarroeal. Fowl pox (ico) with symptom of black spots on the head, eye and mouth making the head scaly is treated with juice from fresh tobacco leaves plus palm oil plus salt and is applied to the infected part. It dries the spots or patches with time and drops off.

Table 4: Pearson product moment correlation between socio-economic characteristics and ethno-veterinary practices

Variables	Correlation coefficient (r)
Age	0.200*
Formal education level	-0.265
Annual income	-0.215
Herd size	-0.133
Farming experience	-0.190
Contact with extension	-0.260

*Significant at 0.05 level

Table 5: Distribution of respondents according to the usage of ethno-veterinary and orthodox practices

Diseases	Ethnoveterinary practice		Orthodox practices	
	F	Percentage	F	Percentage
Respiratory infection	156	77.9	44	22.1
Newcastle disease	132	66.0	68	34.0
Gumboro	121	60.4	79	39.6
Coccidiosis	118	59.0	82	41.6
Fowl pox	176	88.1	24	11.9
Fracture	200	100.0	-	-

In Table 4, the study inducted that apart from age and years of farming experience, all other socio-economics characteristics were not related to ethno-veterinary practices. Age is positive and significantly related while years of farming experience though positive but in significantly related to ethno-veterinary practices. The practice increases with age maybe due to the fact that the elderly respondents were risk averse. The findings suggested that formal educational level, annual income, herd size and contact with extension may not be important influencing factors. Rather, positive relationship with these factors would mean seeking more of improve scientific knowledge. The results in Table 5 show that majority of the respondents used ethno-veterinary practices on their local breeds. This is an implication for agricultural extension services.

Integrating research, policy makers and agricultural extension:

The rural populace is characterized by low income and low literacy (Ekong, 1988). This means that they can not afford most of the modern scientific inputs nor understand their composition and application. The use of indigenous knowledge for poultry management,

therefore, takes care of such problems. It is possible for poultry farmers to expand production with their local inputs since they are compatible with their local conditions. The implication is that whatever innovation that is to be disseminated should be compatible with the existing knowledge, cost-effective and adapted to conditions of the people. Like other developing countries of the world, 80% of poultry consisting of chickens, guinea fowls, turkey, ducks, pigeons, etc., are managed in traditional poultry system in Nigeria. These animals of wide variety of indigenous breeds play an important role in the family as small asset, source of food for social and spiritual obligations. The importance of poultry as a tool for poverty alleviation has been long identified. Many projects have attempted to replace the local poultry breeds with specialized egg or meat production, whilst introducing the standardized conditions of more intensive system. Success, however, has been limited. In the past few decades, family poultry projects based on the local knowledge and the improvement of indigenous breeds of different species under local circumstances have been developed. In this processes, high mortality due to infections disease as well as predators and seasonal lack of feed were taken care of, not only that, at the local level, the loss of breed means the loss of indigenous knowledge causing decreased maneuvering room for adapting to environmental and economic changes. Presently, influenced by modernization and globalization, most of these traditional systems are losing their economic and social coherence. However, having known the ecological values attached to these local breeds, researchers, policy makers, agricultural extensions agencies and farmers must work together for mutual understanding. Working alliance with the poultry farmers is absolutely necessary for the identification of their production and management problems and proffer solutions into producing hybrids and vaccines that are sustainable to local conditions.

Indigenous knowledge is not only essential for rural development but it is increasingly becoming rich source of modern scientific discoveries and innovations. Experience has shown that the majority of people in Nigeria and Benue in particular still adopt indigenous poultry methods in their day-to-day farming activities.

CONCLUSION

The present study focuses on the local knowledge upon which appropriate and effective development solutions can be based in terms of their efficiency applicability in poultry management practices, demonstrates that the knowledge of small farmer is a valuable resources. The results of such qualitative

resources can not only improve their economic circumstances but also empower farmers in the rural areas. The need for further research is recommended.

RECOMMENDATIONS

The aim of the research was to describe the actual poultry management techniques used in Zone C Area of Benue State. The study demonstrated that the knowledge of the respondents is valuable resource and that the results of such qualitative research cannot improve their economic circumstances but also empower them in the rural areas with gainful employment. Innovation in indigenous knowledge systems must be encouraged, so that individuals can find new opportunities to mitigate the effect of the scarcity or resources and poverty. If indigenous knowledge systems are to contribute to the quest for sustainable development, their capacity to focus on diversity and locality as well as to innovate on the basis of livestock management knowledge generated must be recognized. On the basis of farmers responses, the following recommendations are made:

- Farmers complained of high mortality rate of improved and crossed breed types leading to non-adoption. It is recommended that extension workers who are para-veterinary staff be employed and trained at the local level to ensure effective animal health care services in the rural areas. Ethno-veterinary medicine should as a matter of policy be recognized and used in complement to orthodox veterinary medicine
- Even though, local breeds are not productive as the hybrids with the use of vaccination provided by the animal health workers, the mortality rate will reduce drastically and there will be efficiency in meat and egg production. As a matter of government policy, cooperative formation should be encourage among the rural poultry farmers so that problems of husbandry can be collectively solved
- The poverty of certain categories means lack of access to or absolute scarcity of resources and lack of hope of any improvement. This, the rural population may have developed a strategy towards dealing with risk and risk aversion. Change agents engaged in agricultural technology development therefore may need a lot of creativity and endurance to identify and overcome the obstacles

- There is often a gap between the research, extension and the rural farmers living in remote areas. Based on their responses, there is the need to understand the needs of the poor farmers and ensuring that policy makers are made sensitive to these needs and are more accountable
- To strengthening self sustainable small holder practices that use indigenous breeds, is the provision of affordable animal health services for farmers including the timely vaccination of chicks
- There is no need to revolutionize prevailing husbandry practices or to make use of costly housing and equipment or to introduce, day old chicks or buy special feeds. What is critical, however, is the provision of affordable feed and health services

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