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# Village Poultry Production Health and Management System in Benue State, Nigeria

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**Abstract:** Most rural communities in Nigeria keep village poultry (VP). These birds are kept with minimal input of resources and are considered by most smallholders as supplementary to the main livelihood activities. A study on village poultry production, health and management system in Benue State was conducted in 24 communities of six Local Government Areas (LGAs) of Benue State. Data were collected through interview by using structured questionnaires, group discussion with key informants and direct observation. The results showed that the main management system used by the village poultry farmers (VPF) was the free range system (92.9%). Most of the VPF (95.6%) provided housing for their birds, some used their kitchen (40.2%) to house birds, about 32.6% used thatched houses. The study showed that 49% gave feed supplement to their birds in the morning, 13.2% gave in the evening. The feed supplement given include guinea corn (29.6%), maize (14.3%) and household leftovers. The main source of drinking water for the birds was from the community well (40.8%) and water from the river (35.7%). Predators (52%) and theft (22.4%) were identified as the commonest cause of losses in the village poultry. About 42.0% of the VPF would eat sick birds, 19.0% (5/98) would use local treatment, while about 36.9% (35/98) would seek veterinary help. The weekly market (62.2%) was where most of the farmers sell their birds. About (81.6%) of the VPF who participated in the study had some knowledge of poultry diseases with Newcastle disease ranking highest in terms of outbreak and mortality. Women played a major role in village poultry development through ownership (61.2%) of the flocks and provision of labour. The study concluded that the productivity of the village poultry in Benue State was low and thus calls for appropriate interventions to be focused on the improvement of feeding, housing and health care.

**Keywords:** Village Poultry, Free Range, Household, Production, Benue State

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## 1. Introduction

In many developing countries of the world, including Nigeria, chicken stands out as the most common livestock owned by many rural families. These village chickens play many vital roles in the life of these poor families. They provide meat and eggs, food for special festivals, offerings for traditional ceremonies and petty cash for the purchase of medicines and payment of school fees [1]. The importance of village poultry production in the national economy of developing countries and its role in improving the nutritional status and incomes of many small farmers and

landless communities has been recognized by various scholars and rural development agencies for the last few decades [2, 3]. Village poultry makes the greatest contribution to the supply of meat and eggs for the average Nigerians, contributing annually about 89% of total poultry meat and over 25% of total poultry egg consumed in the country [4].

In nearly all African countries, poultry production in rural areas is predominantly based on free range systems utilizing indigenous types of domestic fowl [5]. The system is characterized by a family ownership of the birds. The birds are left to scavenge to meet their nutritional needs and

the feed sources vary depending on local conditions and the farming system [6]. Housing may not be provided and where this is done usually local materials are used for construction [7]. Management is minimal with some variations of gender roles in the activities. The health of these birds are not guaranteed because there are no disease control programs [8]. The birds are exposed to many disease conditions and parasites are also prevalent due to favourable conditions. In spite of this low-input by rural farmers on their production, free-range birds play many socio-economic roles [5, 9]. The productivity of village chickens is known to be very low [10]. Despite their low productivity, the village poultry production system are known to possess desirable characters such as resistant to some disease, good egg and meat flavor, hard egg shells and high dressing percentage [11]. The major constraints of village indigenous chicken production were partly due to poor management of the chicken (prevailing diseases and predators, lack of proper health care, poor feeding and poor marketing information [7]. In Nigeria, mortality of indigenous chickens under free-range system is very high due to diseases, poor management, poor breeding system and malnutrition [12, 13]. Similarly, reports of [14] revealed that high mortality and high parasite load due to inadequate housing and health care are problems of extensive poultry production. The predominance of the village poultry in the Nigerian poultry industry is a good indicator that these birds deserve more attention for improved performance. Considering the significance of this production system in rural livelihood improvement, it is important that their production be studied, which can be useful in identifying possible areas of improvement and for strategic intervention.

## 2. Materials and Methods

### 2.1. Study Area

The study was conducted in Benue state located in the north central zone of Nigeria. The state lies within longitude 7° 47' and 10° 0' East, Latitude 6° 25' and 8° 8' North of the Equator and shares boundary with Nasarawa, Taraba Cross River, Enugu and Kogi states and the republic of Cameroun. Benue state has an estimated total poultry population of 6,735,041 [15].

### 2.2. Sampling Technique

Six LGAs were randomly selected which included Gboko, Katsina Ala, Kwande, Makurdi Oju and Otupko LGAs. A total of 24 villages comprising of four villages selected from each LGAs were selected for the study. In each of the selected village, four households were sampled based on the consent and readiness of the village poultry owners to participate in the study.

### 2.3. Assessment of Village Poultry Health Production and Management System

The assessment of the village poultry production was undertaken through the use of structured questionnaires. The questionnaires were designed and first pretested before they were administered to the poultry farmers. The questionnaires were administered and interpreted to the local language where necessary. Detailed information was obtained on the management practices, housing, health and sale of stock, problems prevailing in village poultry production in the study area. A total of 98 respondents participated in the study.

### 2.4. Data Analysis

The data obtained from the questionnaires were analyzed by descriptive statistics using Statistical Package for Social Sciences version 17.0 program (SPSS Inc. Chicago, IL, USA). The frequency and percentages were calculated.

## 3. Results and Discussion

The main management system used by the VPF was the free range system 92.9% (91/98) while 7.1% (7/98) used semi intensive system (Figure 1). Free-range birds do not receive sufficient feed but survive through scavenging. The feed resource base for scavenging birds is limited and varies with seasonal circumstances such as rainfall, cultivation, harvest and crop processing. During the rains, they feed on abundant animal protein by picking up worms, snails and insects [14]. During grain harvests, birds can usually scavenge on enough energy feed but not in the dry season [6, 16]. The study showed that 49% (48/98) of the village poultry farmers gave feed supplement to their birds in the morning, 9.2% (9/98) in the evening while about 37.8% (37/98) gave both in the morning and in the evening. In spite of the fact that village poultry scavenge around homestead and surroundings the study revealed that farmers gave supplementary feed stuff to their birds. Guinea corn, maize and food scraps constitute the major supplement given. Timing and frequency of feeding, what, how to feed and quantity to feed are important aspects to consider in developing strategies to improve nutrition of village chickens [17]. Improved feeding as part of management system for poultry improves the disease resistance of birds to infection [18]. Most of the farmers (95.6%) provided housing for their birds while (4.4%) did not provide house. Some of the farmers used their kitchen (40.2%) to house birds, about (32.6%) used thatched house, (21.7%) used zinc house while (5.5%) kept birds in mud houses (Figure 2). Provision of housing, improved feeding and general management have been reported by [18] to reduce the incidence and severity of Newcastle disease (ND). Similarly, [19] reported that provision of houses protects chickens and chicks from predators, diseases and provide warmth to birds during cold weather.

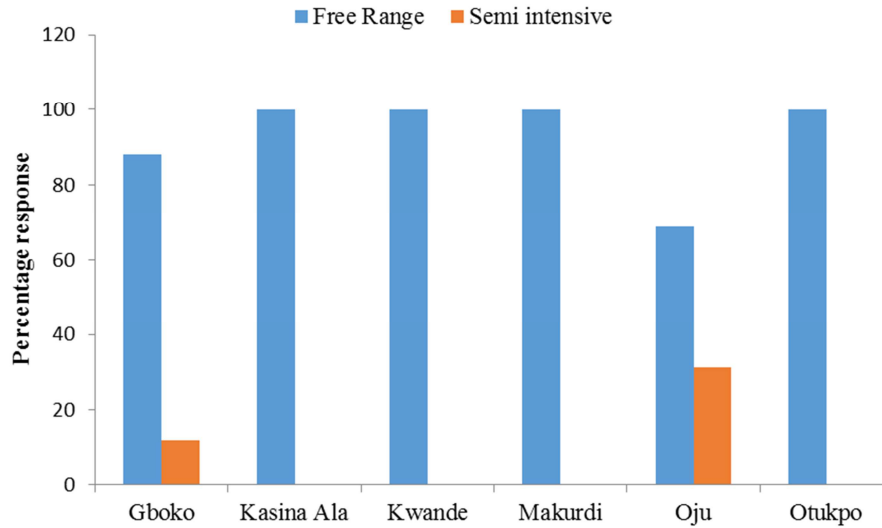


Figure 1. Percentage distribution of type of management system used by village poultry farmers in some Local Government Areas in Benue State, Nigeria.

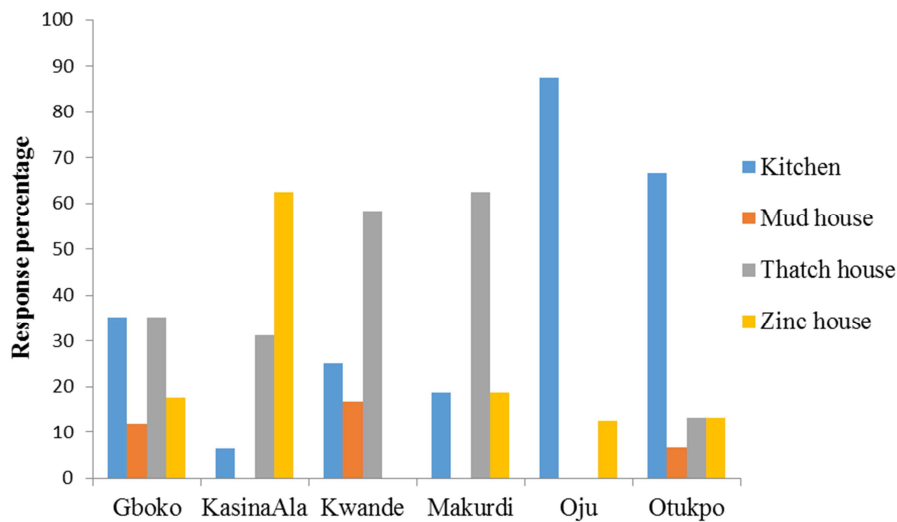


Figure 2. Type of village poultry house used by owners in some local Government areas in Benue state, Nigeria.

The study revealed that most of the village flocks 61.1% (58/95) were owned by wives with about 20.0% (19/95) being owned by the husbands, 14.7% (14/95) were owned by the children, wives and husbands while 4.2% were owned by husband and wife (table 1). About 51.0% of the flocks were cared for by the wives and children (Table 1). This is similar to the report of [5, 17] who reported that ownership of village chickens is by women more than the men and added that women dominate most domestic activities thus have control over domestic chickens. The participation of women in rural poultry improvement programs contributes to human development both by increasing access for rural women to income and by empowering them through provision of microcredits and training and thus increasing production efficiency [8, 20]. Birds of prey 52% (51/98) were the commonest cause of loss in village poultry in the study area. Other causes of loss included thieves 22.4% (22/98) and rodents 3.1% (3/98) (Table 2). This is in agreement with the reports of [21] in Nasarawa State who reported that apart from

disease as a biggest single cause of losses in the village poultry other causes come from predators, stealing and parasites. [15] also reported that, village poultry suffer losses from predators and diseases caused by viruses, bacteria and parasites. The predators include primarily birds of prey such as vultures, which prey only on chickens and wild mammals such as cats and foxes, which prey on mature birds as well as chicks [10].

Table 1. Ownership and care of village poultry flocks in Benue State, Nigeria.

Family members	Care of flock % respondents	Owners of flock % respondents
Husband/wife/children	0.0	14.7 (14)
Husband/children	1.0 (1)	0.0
Wife/children	51.0 (50)	0.0
Husband	12.2 (12)	20.0 (19)
Wife	32.7 (32)	61.1 (58)
Husband/wife	3.1 (3)	4.2 (4)
Total	100 (98)	100 (95)

**Table 2.** Common cause of losses in village poultry production in Benue State, Nigeria.

Cause of loss	No. of respondent	Percentage
Accidents	3	3.1
Birds of prey	51	52.0
Birds of prey/rodents	2	2.0
Birds of prey/rodents/theft	4	4.1
Birds of prey/accidents/rodents	5	5.1
Dogs/rodents	8	8.2
Rodents	3	3.1
Theft	22	22.4
Total	98	100

The study also revealed that VPF use various methods to handle sick birds. Some use local remedies, others slaughtered and ate sick birds. About 42.0% (40/98) of the village poultry farmers would eat their birds when they are sick, 19.0% use local treatment for the birds and 2.1% (2/98) would rather allow them to die. However, about 36.9% (35/98) would seek veterinary help. The use of such treatments may be attributed to illiteracy, poverty, lack of knowledge of basic health and management practices and lack of institutional interventions. Ethno veterinary practices among farmers included addition of ground dry pepper to drinking water or feed, sliced onions in drinking water, use of bark, leaves or seed of some plants in drinking water and palm oil for fowl pox [22]. The farmers believed that these local treatments work for them as it improves the health of their birds. The main source of drinking water for the VP was from the community well 40.8% (40/98) and water from the river 35.7% (35/98). These sources of water were also used as drinking water by the villagers. The implication of this is that wild birds and ducks which are reservoirs of avian diseases such as Newcastle disease and avian influenza are attracted to open water bodies and these could result in spread of the disease from the infected or carrier birds to the susceptible bird. Provision of portable clean water have been reported by [19] to reduce the chances of infection particularly when given with food immediately the birds are released in the morning to scavenge. Weekly markets 62.2% (61/98) was where most farmers sell their birds, 10.2% (10/98) sold in the daily markets with 11.2% (11/98) being sold to poultry traders. Most of the farmers 56.1% (55/98) do not buy new birds but breed them. However, 27.6% (27/98)

would buy new birds from the market while others buy from households in the village. The results showed that VPFs obtained breeding stocks and sell off their birds at the weekly live bird markets (LBMs). The LBMs is a pool of sick and healthy birds of different species, sources and types enhancing disease introduction and transmission [23]. Whenever such birds were not sold at the LBMs, they were returned to households and mixed with other birds. This practice could lead to disease outbreak due to exposure to infectious agents in the LBMs. Most farmers depend on hawkers or middlemen who buy birds for urban markets. Since meat and eggs are perishable goods and smallholder farmers' financial position is poor, they use the shortest routes to the customers to avoid loss of profits by going via the middlemen [24]. The disease that was reported to rank first in terms of outbreak and high mortality was ND with (82.6%) followed by avian influenza (9.8%) and fowl pox (7.6%) (Figure 3). Most of the farmers 81.8% (72/88) do not vaccinate their birds against ND, only 18.2% (16/88) reported vaccination. Knowledge of poultry disease was high among the farmers with ND ranking first in terms of recognition of clinical signs and reports of high mortality during outbreaks. Several studies had reported ND as the main cause of mortality in village poultry production [13, 25-27]. Despite the fact that most farmers were aware of ND, majority do not vaccinate their birds against the disease. This could be due to the fact that conventional vaccines are unsuitable for sustained use in the village poultry sector because of their cost, large dose presentation, transportation and need for maintenance of cold chain as reported by [1, 28]. The findings of [29] also indicated that the level of awareness about availability of vaccines for local chicken is low and the farmers do not have any experience on how to get their birds vaccinated against diseases. On measures necessary to prevent disease outbreak, (30%) of the farmers agreed that more education and awareness on poultry disease will help prevent disease outbreak on their farms while (15%) and (14%) reported early disease detection and regular visit from veterinary officers. (Table 3). This shows the fact that most the farmers have no information about disease control and vaccination because of poor extension services to village poultry production.

**Table 3.** Knowledge of village poultry farmers on disease prevention and control in Benue State, Nigeria.

Preventive measures	No. of respondents	Percentage
Clean feed and water	11	11.2
Early disease detection	15	15.3
High compensation for culled birds	2	2.0
More education/awareness on disease prevention	30	30.6
Safe source of birds	2	2.0
Available vaccine	9	9.2
Someone to advice farmers when birds are sick	10	10.2
Reduce contact between birds from each household	5	5.1
Regular visit from veterinary officers	14	14.3
Total	98	100

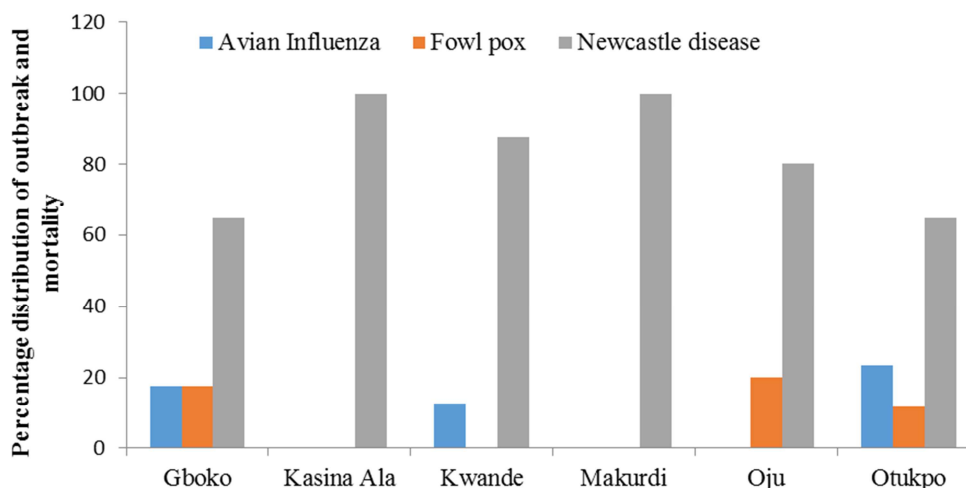


Figure 3. Distribution by Local Government Areas of the poultry disease that rank first in terms of outbreak and mortality in Benue State, Nigeria.

#### 4. Conclusions and Recommendations

The results of this study showed that village poultry were raised under free range management system. Women and children were the main providers of care for the birds and women owned most of the village flocks in Benue State. Newcastle disease and birds of prey were the major cause of mortality and losses in village poultry and most of the VPF do not vaccinate their birds against ND. The study recommends that extension agency should be mandated to disseminate education and improved technology that will stimulate village poultry production in the study area. Capital can be channeled to village poultry production through the provision of microcredit loans and formation of cooperative societies. Women are the most suitable target group through which improvement strategies can be channeled. Extension service workers should also focus on educating women on poultry diseases to help prevent outbreaks. Farmers should source their breeding stock from reputable sources that have no disease problems among their flocks instead of the open market where both sick and healthy birds are mixed up. This will help in reducing disease outbreak and mortality. Drugs and vaccines should be provided by relevant agencies for local poultry farmers at affordable prices to improve the productivity of village poultry flocks.

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