Constraints to Guinea fowl production in northern Ghana: A case study of the Damongo area

G. A. TEYE & M. ADAM
Department of Animal Science, University of Development Studies, Tamale, Ghana

ABSTRACT

A study was conducted in the Damongo area to identify major constraints to Guinea fowl production. The survey involved 35 farmers chosen randomly from Damongo and four other villages within 5 km radius of Damongo. All the farmers (100 %) indicated that high keet mortality, difficulty in sexing, and absence of a source of quality day-old keets were the main constraints. The other problems identified were lack of information about nutrient requirements of the local Guinea fowl, loss of birds and eggs through picking by predators, worm infestation, and taming of birds. The farmers indicated that Guinea fowl production is lucrative because there is a high demand for the meat and eggs.

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RÉSUMÉ

TEYE, G. A. & ADAM, M.: *Contraintes à l'élevage de pintade au nord du Ghana: Une étude de cas de la zone de Damango.* Une étude s'est déroulée dans la zone de Damango pour identifier les contraintes majeures envisagées dans l'élevage de pintade. L'enquête comprennait 35 éleveurs choisis au hasard de Damango et quatre autres villages dans un rayon de cinq kilomètres de Damango. Tous les éleveurs (100 %) indiquaient que la mortalité de pintadeau élevé, la difficulté de la détermination de sexe et l' absence d'une source de pintadeau d' un jour de qualité sont les contraintes majeures. D'autres problèmes identifiés sont : le manque d' information des besoins nutritifs de la pintade locale, la perte des volailles et des œufs à travers la prise par les prédateurs, l'infestation de ver, et l'apprivoisement des volailles. Les éleveurs indiquaient que l'élevage de pintade est rentable parce qu'il y a une haute demande pour la viande et les œufs à la fois.

Introduction

Domestic Guinea fowl (*Numida meleagris*) is a common farm animal reared under the extensive system by almost all farmers in northern Ghana. Beside their main use as source of income and protein, Guinea fowls also play other important roles in the social life of many tribes. They are exclusively used for the annual Guinea fowl festival by the Dagombas and Gonjas. The pure, white fowl is used for religious sacrifices and to perform certain funeral rites. Customarily, the Frafras, Dagabas, and Bulsas use Guinea fowls to welcome mothers-in-law.

Guinea fowls are reported to be less susceptible to most poultry diseases (Roy & Wibberly, 1979). The flesh of Guinea fowl has been reported (Koney, 1993) to be tastier and firmer than that of chicken. The yield of edible meat is also higher than that of chicken due to its slender skeleton (Koney, 1993). The eggs are very popular and common on the market from May to July. Their thicker shells give them an obvious advantage for longer storage and handling with less breakage (Farkas, 1965).

The foregoing advantages and importance of the bird have enticed many farmers to take special interest in their production. However, scientific information on the local Guinea fowls have been very scanty.

The objective of this study was to identify the constraints faced by farmers so that scientific studies can be carried out for possible solutions.

Materials and methods

A 4-week survey was carried out in the West Gonja District, the largest of all the districts in the Northern Region of Ghana. Since the whole district could not be covered due to logistic problems, Damongo, the District capital, and four other towns within 5 km radius were selected for the study. Information was solicited from respondents by administering a four-paged, well-structured questionnaire. In all, 35 farmers, seven from each town, were randomly chosen and interviewed. The literate farmers were given the questionnaires to fill after explaining the rationale behind the survey. Farmers were visited and interviewed either very early in the morning before they left for their farms, or in the evening after returning from their farms. This strategy was adopted to avoid disrupting their farming activities. The data were analyzed as percentage of the total number sampled.

Results and discussion

Farmers' background

An attempt was made to establish the background of the sampled farmers. The information sought included age, level of education, and rearing experience of farmers.

Age of farmers. Table 1 indicates that about 80 per cent of the total number of farmers sampled (TNFS) were aged between 20 and 60 years with the majority (51.4 %) in the middle age bracket. Only seven (20.0 %) out of the TNFS interviewed were aged above 60 years. This indicates that Guinea fowl production in the area is dominated by relatively younger and energetic farmers who can effectively carry out important management practices. It was observed that those under 20 years of age are not permitted by custom to own Guinea fowls.

Level of education. Sixty per cent of TNFS were illiterate (Table 2). Out of the educated 40 per cent of TNFS, 25.7 per cent had secondary education, 8.6 per cent had diploma or degree, while the remaining 5.7 per cent had not gone beyond the middle or junior secondary school level. The high level of illiteracy among the farmers suggests that good management practices may be lacking due to ignorance.

Rearing experience. Most farmers interviewed (42.9 %) had over 10 years' experience in rearing Guinea fowls (Table 3). Another 51.4 per cent had reared Guinea fowls for between 3 and 10 years. Only two farmers (5.7 % of TNFS) had 1-2 years experience in the rearing of Guinea fowls.

It is deducible from the trend of rearing experience that most farmers were conversant with the constraints to Guinea fowl production, and

TABLE 1

Age of Farmers Interviewed

Age (years)	*Number of farmers*	*TNFS (%)*
20-40	10	28.6
41-60	18	51.4
61-80	7	20.0
Total	35	100.0

TABLE 2

Level of Education of Farmers Interviewed

Level	*Number of farmers*	*TNFS (%)*
Illiterates	21	60.0
First cycle	2	5.7
Secondary	9	25.7
Tertiary	3	8.6
Total	35	100.0

TABLE 3

Rearing Experience of Farmers Interviewed

Number of years	*Number of farmers*	*TNFS (%)*
1-2	2	5.7
3-4	8	22.9
5-6	4	11.4
7-8	2	5.7
9-10	4	11.4
Over 10	15	42.9
Total	35	100.0

this was vividly expressed as reported below.

Main constraints to production

The survey showed several stumbling-blocks to Guinea fowl production in the study area and likely the whole region. The major constraints reported by all the farmers (100 %) included high keet mortality, difficulty in sex determination, and lack of a source of quality day-old keets (Table 4).

TABLE 4

Constraints to Guinea Fowl Production

Constraints	*Number of farmers*	*TNFS (%)*
High keet mortality	35	100
Sexing of keets	35	100
Lack of quality day-old keets	35	100
Lack of nutrient requirement guide	25	71.4
Loss of eggs due to changing of laying spot	23	65.7
Lack of quality eggs for hatching	15	42.9
Loss of keets to predators	7	20.0
Poor housing	11	31.4
Leg paralysis	3	8.6
Worm infestation	2	5.7
Taming of birds	5	14.3

Keet mortality. High early keet mortality was ranked as the major constraint to production. The farmers enumerated the factors responsible for keet mortality to include the following:

1. Lack of knowledge about their nutrient requirements, resulting in poor feeding.
2. Exposure of keet to bad weather such as rain, cold or heavy dew.
3. Ingestion of poisonous substances.

The farmers suspected a particular type of termites or 'white ants' (*Macrotermes bellicosus*) to be poisonous to Guinea fowl. It was indicated that Guinea fowls may also be poisoned to death when they eat maggots from decomposing pigs, dogs, and warthogs. Liquid waste from processed dawadawa fruit and tortoise meat or feed contaminated with tortoise meat are also lethal to Guinea fowls.

Harpreet *et al.* (1993), working in India, also reported high keet mortality during the first 2 weeks of brooding, and attributed it to omphalitis, enteritis, hepatitis, colibacillosis, and yolk sac and leg paralysis. Gordon (1970, 1971) reported that Guinea keets in Ghana are highly susceptible to perosis which leads to death.

Sexing of keets. The absence of a suitable method for sexing Guinea keets is another major problem facing farmers. The male and female keets look alike, making it highly impossible to distinguish between them. Even at the adult stage, it is quite difficult differentiating between the sexes. The inability of the farmers to separate the sexes makes it difficult to raise a breeder stock or layers. It was indicated that a whole stock intended for breeding sometimes turns up to be all males with only one or two females. It has been reported by Awotwi (1972) and Alawiye (1973) that the length and width of head, width of abdomen, length of ceres and tail feathers of keets are related to body weight rather than sex. Awotwi (1975) suggested that pelvic inlet width could be a suitable determinant for sexing keets.

Source of day-old keets. The absence of a reliable source of quality day-old keets is another major problem hindering large-scale commercial production. The farmers depend on brooder hens to hatch clutches of eggs. The establishment of a day-old keet centre will, therefore, greatly improve the production of Guinea fowls. However, the development of good breeders requires the raising of quality females and males as breeding stock. This makes the issue of sex determination more important.

Nutrient requirements. Lack of information about feed requirements contributed to early keet mortality. About 71 per cent of the respondents indicated that they were compelled to keep the birds on free range because they did not know their nutrient or feed requirements. On the free range, the birds eat varieties of insects and succulent leaves. The farmers indicated that keets grew faster if supplemented with ground sorghum or millet with chopped scraps of cooked meat or

fish meal. This observation suggests that the keets and adult birds will perform better on formulated diets.

Loss of eggs. The frequent change of laying nest by Guinea hens was indicated by 65.7 per cent of the farmers as another ma or constraint to production. This is responsible for lack of good hatching eggs or fewer eggs in most part of the year, since the eggs are laid in the bush. This problem of insufficient quality hatching eggs was also reported by Nwagu & Alawa (1995) while studying indigenous Guinea fowls in Nigeria. It is envisaged that the provision of suitable laying nest can improve egg production and collection.

Loss of keets to predators. Some of the respondents (20 %) indicated that loss of keets through picking by hawks and other predators is another factor affecting increased production. The loss may be high such that more than 50 per cent of the surviving keets could vanish within a day or two. The farmers, however, agreed that the free range system being practised is mostly responsible for these losses.

Poor housing. Inadequate or poor housing was indicated by about 31per cent of the farmers as another hinderance to improved production. Exposure of the keets to bad weather, especially during the rainy season, increases keet mortality. Poor housing of the adults enhances their wild characteristics, and thus tend to lay far away from home. This leads to poor monitoring of the stock and consequently high loss rates.

Other problems. Other problems such as worm infestation (5.7 %), leg paralysis (8.6 %), and taming (14.3 %) were reported by few farmers. It was realized that some farmers assume that worms are part of the anatomy of Guinea fowls, and hence do not regard this as a serious health problem to production. Nwagu & Alawa (1995) listed the most important intestinal parasites to include *Eimeria* spp., *Ascaridia galli*, *Heterakis* spp., and *Capillaria caudiflata*. If the helminths are not controlled, keet mortality and loss in productivity of the adult can be colossal.

Leg paralysis was identified as another major cause of mortality and stunted growth. Inadequate nutrition of the layers and the absence of Marek's vaccination may be responsible for the incidence of leg paralysis. The provision of layer diet to breeding stock can avert this problem.

Farmers indicated that the keets and adult birds are tamed through regular hand feeding and interacting with the birds, and also by confining keets and their mothers for the first 2 weeks.

The provision of good housing and quality diet regularly will enhance taming of the birds.

Conclusion

There is a high potential for Guinea fowl production in Ghana and the prospects are bright. However, there is the urgent need to solve, if not all, the most important problems such as feeding, sexing, and keet mortality confronting the industry. The obvious advantages of Guinea fowl such as resistance to most poultry diseases at the adult stage, egg production ability, and selling rate of egg and meat when exploited, will improve the living standard of the peasant farmer.

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