Original Research Article

Production Characteristics of Local Guinea Fowl (*Numida Meleagris*) in the Urban Commune of Tessaoua.

UNDER PEER REVIEW

ABSTRACT

Guinea fowl breeding is an important source of animal protein and income for populations in Niger. Improving this activity requires better knowledge of production practices. Thus, a survey was carried out in August 2023 in the urban commune of Tessaoua (Maradi/Niger) in order to provide the necessary information on the practice of guinea fowl breeding. For this purpose, sixty (60) producers distributed in 6 villages (10 producers / villages) within a radius of 15km around the urban commune of Tessaoua were interviewed using a structured questionnaire. The results of this study show that guinea fowl breeding is an activity mainly carried out by men (86%). Guinea fowl (28.47%) are raised at the same time with chickens (60.08%), pigeons (6.74%), ducks (4.52%) and Turkey (0.20%). The predominant breeding system for local guinea fowl in the urban commune of Tessaoua is scavenging (77%). The guinea fowl most preferred by producers are respectively those with gray plumage (44%), gray plumage with white breast (23%), and those with ash plumage (21%). Guinea fowl breeding products are mainly intended for sale (45%), for self-consumption (36%) and donation (14%). Sixty-eight percent (68%) of producers do not vaccinate their poultry. This is why Newcastle disease is the most catastrophic for 52% of producers. The main constraints in guinea fowl breeding in the urban commune of Tessaoua are diseases (67%) and lack of resources (18%). It is clear that the development of the sector necessarily involves strengthening the surveillance of avian diseases, coupled with veterinary monitoring and supervision of producers.

Key words: constraints, guinea fowl, local poultry, Tessaoua.

1. INTRODUCTION

Niger is a Sahelian country with an agro-pastoral vocation. Livestock farming occupies more than 87% of the population [1]. The livestock sector for which Niger has an undeniable comparative advantage in the West African sub-region [1], contributes more than 11% to the constitution of the national GDP (Gross Domestic Product) and more than 25% of the budget of households [2]. This strong contribution makes this sub-sector an effective weapon in the tireless fight against poverty and food insecurity, not only because of its contribution of animal products of high nutritional value but also and above all through the creation of jobs and substantial income in rural areas ([3,1]). In this sector, the poultry sector, represented by traditional poultry farming (around 98% of poultry numbers) and modern poultry farming [4], occupies a very important place in the household economy, food security and nutrition and the fight against poverty.

Guinea fowl breeding occupies a special place in Niger, given its socio-economic and nutritional importance in the lives of the populations. The promotion of mixed agriculture requires knowledge of its practice as well as knowledge of the zootechnical and genetic characteristics of guinea fowl. This work was undertaken to characterize the local guinea fowl production system in order to better identify the constraints linked to traditional guinea fowl breeding in the urban commune of Tessaoua.

2. MATERIAL AND METHODS

2.1 Study area

The study was carried out in the Urban Commune of Tessaoua (Maradi/Niger region). This Municipality was created in 2003 by Law No. 2003-010 of October 1, 2003 creating Municipalities and setting the names of their capitals. It is one of the seven (7) communes in the department. The Urban Commune of Tessaoua is limited to the East by the Rural Commune of Maijirgui, to the North by the Rural Commune of Kanan Bakaché. The population of the municipality of Tessaoua is estimated at 161,517 inhabitants, the Municipality of Tessaoua covers an area of 824 km2. It is made up of Hausa who live alongside Fulani, this population has an increase rate of around 3.6% and an average density of 196.01 inhabitants/km^2.

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2.2 Investigations

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The survey was carried out in 6 villages in the urban commune of Tessaoua during the month of August 2023. The choice of villages was made on the basis of the large number of guinea fowl producers at the village level. The municipal livestock service helped in the choice of villages.

The choice of producers is based on two criteria: i) Knowledge of the species by the person to be interviewed; ii) Availability and willingness to answer questions asked. The village chief helped in the choice of producers.

In each village 10 guinea fowl producers were chosen. A total of 60 producers were questioned as part of this work. The producers were questioned individually in the village. The way of sampling farmers was the same from one village to another, the aim of which is to collect different information.

The Data collection in the field was carried out using a questionnaire which made it possible to collect information on the guinea fowl production system.

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2.3 Data analysis

All collected data were processed with Excel 2019 and subjected to descriptive analysis with SPSS (Statistical Package for Social Sciences.) Version 26 software.

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3. RESULT AND DISCUSSION

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3.1 Characteristics of guinea fowl producers

Men represented 87% of guinea fowl producers in the urban commune of Tessaoua (Figure 1). This result corroborates that of Francis et al. [5] in Cameroon, that of Kongue [6] in Togo and that of Floribert et al. [7] in the Democratic Republic of Congo. However, in Burkina Faso poultry farming in general is a women's activity [8]. Figure 2 showed that 45% of producers are in the age group of 30 to 50 years. Similar results were found by Issa et al. [9] in Chad and by Mbengue [10] in Senegal. Figure 3 showed that 71% of guinea fowl producers are householder. Agriculture and livestock breeding represented the main activities of guinea fowl producers in the urban commune of Tessaoua with 47% and 27% respectively (Figure 4). 87% of the producers met in the urban commune of Tessaoua are married (Figure 5). This result is similar to that found by Fall et al. [11] in Senegal.

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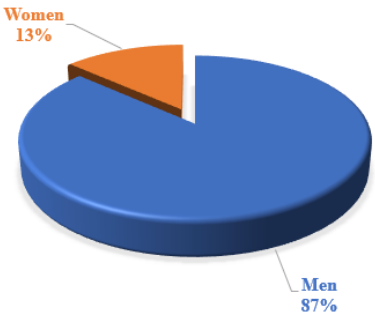

Figure 1. Distribution of producers by gender

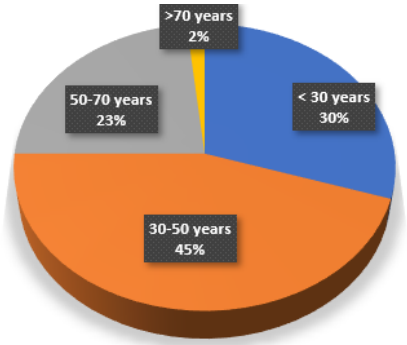

Figure 2. Age of respondents

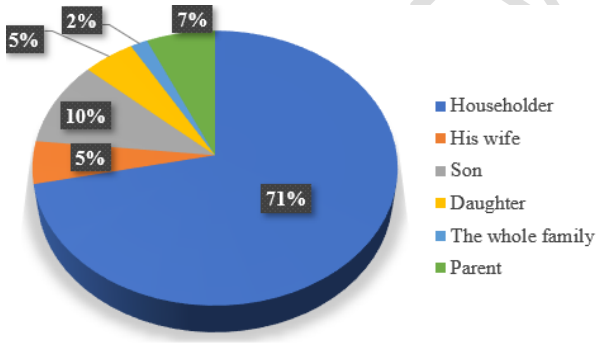

Figure 3. The position in the family of the producers surveyed

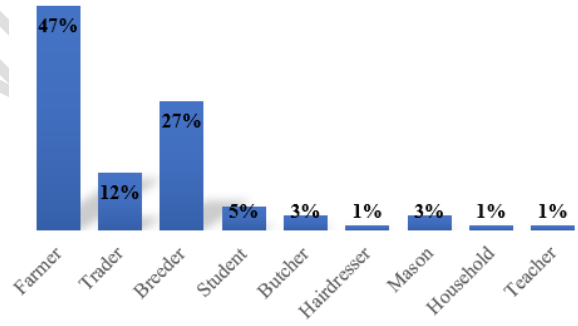

Figure 4. The main activities of producers

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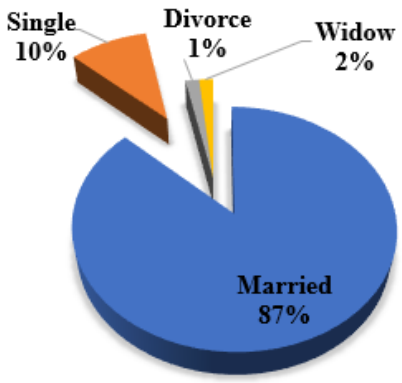

Figure 5. marital status of producers

3.2 Technical characteristics of guinea fowl production

3.2.1 Structure of the poultry herd of guinea fowl producers

The poultry stock of guinea fowl producers consists of chicken (60.08%), guinea fowl (28.47%), pigeon (6.74%), duck (4.52%) and turkey (0.20%) (Table 1). The predominance of chicken can be explained by the fact that the hen is used by producers as an incubator for guinea fowl eggs.

Table 1. Composition of the poultry herd of guinea fowl producers

Poultry	Effective	Frequency
Chicken	918	60.08%
Guinea fowl	435	28.47%
Pigeon	103	6.74%
Duck	69	4.52%
Turkey	3	0.20%

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3.2.2 Experience in breeding guinea fowl

This study shows that 80% of guinea fowl producers have more than 5 years of experience in breeding guinea fowl (Figure 6). This result corroborates that found by Tellah et al. [12] in Chad. However, no producer has received training in breeding guinea fowl.

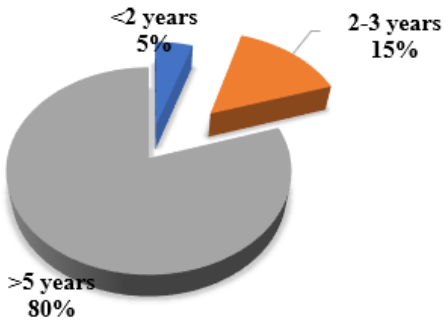

Figure 6. Experience of producers in breeding guinea fowl

3.2.3 Guinea fowl breeding system

Figure 7 presented the different breeding systems among producers. Thus, scavenging is the main breeding method for 77% of producers. This free-range breeding method is found in the majority of regions of sub-Saharan Africa [13, 14, 15].

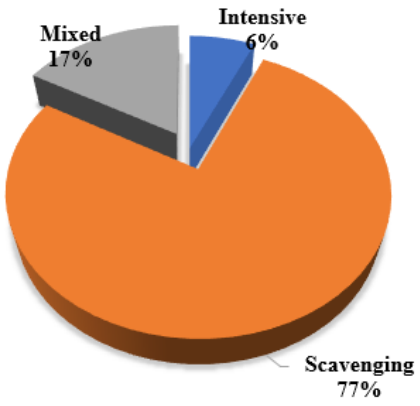

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Figure 7. The different breeding systems among producers

3.2.4 Objectives of guinea fowl breeding

The objectives of producers in breeding guinea fowl have been varied. However, the most common are sale and self-consumption with 45 and 36% respectively (Figure 8). Other similar studies [16, 17] show that poultry farming is essentially a practice linked to economic reasons because of the income that can be obtained but also for consumption (Ossebi , 2011).

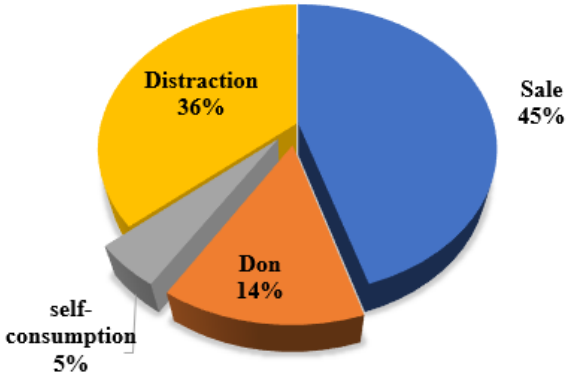

Figure 8. The objectives of producers in breeding guinea fowl

3.2.5 Favorite guinea fowl colors

Figure 9 shows guinea fowl plumage colors based on producer preferences. Guinea fowl with gray plumage were mainly higher with 44%. Then there are the white-breasted grays with 23%, then comes the ashes and whites with 21% and 12% respectively.

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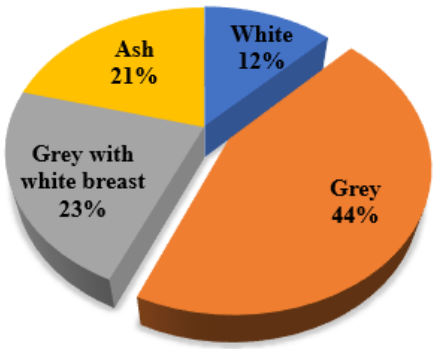

Figure 9. Guinea fowl colors preferred by producers

3.2.6 Guinea fowl egg management policy

Guinea fowl eggs are mainly intended for hatching (40%), sale (38%) and consumption (22%) (Figure 10).

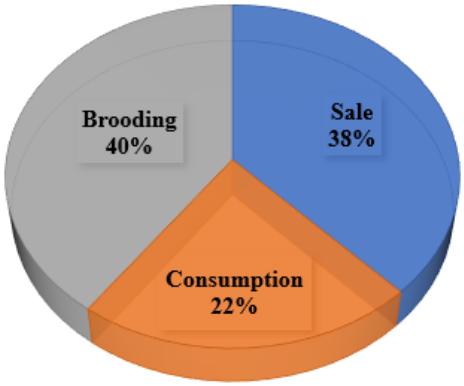

Figure 10. Use of guinea fowl eggs

3.2.8 Causes of guinea fowl production stopping

The causes of cessation of guinea fowl breeding are mainly avian diseases and lack of resources with 67 and 18% respectively (Figure 11). The result of this study shows that 68% of producers do not vaccinate their animals

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(Figure 12). Poultry production cannot be done without appropriate veterinary monitoring. Unfortunately Figure 13 shows that 93% of guinea fowl producers do not receive visits from veterinary agents for their poultry.

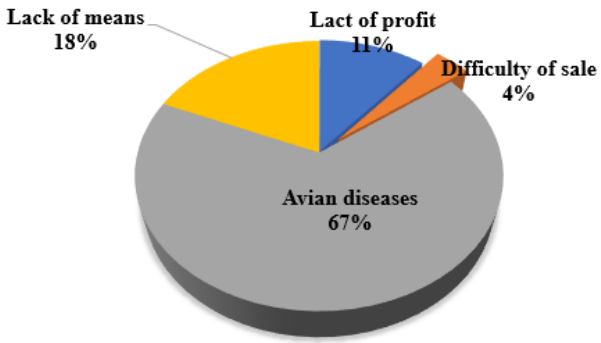

Figure 11. Causes of guinea fowl production stopping

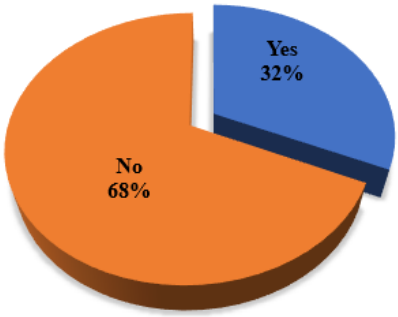

Figure 12. Proportion of producers who vaccinate

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Figure 13. Receipt of visits from veterinary agents

3.2.9 Common guinea fowl diseases

Several diseases affect guinea fowl (Table 2). Newcastle disease is the most common with a rate of 52%.

Table 2. Common guinea fowl diseases in the urban commune of Tessaoua

Newcastle disease	Avian influenza	Avian smallpox	Marek disease	Parasite disease	Breathing disease	E. Coli infection
52%	7%	2%	8%	13%	15%	3%

3.3 Constraints linked to guinea fowl production in the urban commune of Tessaoua

Several constraints constitute an obstacle to the development of guinea fowl production in the urban commune of Tessaoua. The major constraints of guinea fowl breeding are zootechnical and health-related (Table 3). They are comparable to those recorded by Huart et al. [19] in Benin. The lack of health monitoring causes enormous damage for producers, especially when it comes to Newcastle disease. The lack of training or adequate breeding equipment contributes to a drop in production in this poultry sub-sector. It is therefore important to strengthen technical and health support for producers in order to promote food security and the fight against poverty in rural areas.

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Table 3. Constraints of guinea fowl production

Diseases	Stolen	Lack of nutrition	Lack of housing	Lack of funding	Lack of training
38%	11%	10%	6%	10%	25%

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5. CONCLUSION

This study is carried out to characterize the local guinea fowl production system in order to better identify the constraints linked to traditional guinea fowl breeding in the urban commune of Tessaoua. Thus, the guinea fowl is raised in the presence of other poultry and mainly with the chicken. The majority of guinea fowl producers have continued in guinea fowl breeding with unfortunately no training experience in poultry farming. It also emerges from this study that very few producers receive visits from veterinary agents. This explains the reason why guinea fowl breeding has stopped for many producers due to disease. This study made it possible to understand the constraints in the production of local guinea fowl (*N. meleagris*) raised in rural areas. For any program to improve guinea fowl breeding, it is necessary to take into account the training aspect of producers, the poultry feeding aspect and above all take into account adequate health monitoring of the flock by veterinary agents.

CONSENT

All the producers who participated in this survey were first informed about the main purpose of the study and their participation was voluntary and anonymous. A verbal agreement was obtained from each producer at the beginning of his interview.

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