

Family Poultry Farming in the Mekhe Area of Senegal

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Abstract— The study focuses on family poultry farming in the Mékhé area of Senegal. The objective is to understand the current situation of family poultry farming in the context of the development of family farms. The study was conducted among 110 farmers. Poultry farming is practiced by more women (60.91%) than men (39.09%). They are mainly married (79.09%) and have an average age of 39.95 ± 15.53 years. Professionally, they are breeders (35.46%), craftsmen (34.55%), traders (17.27%) and farmers (8.18%). The motivation is economic (84.55%) and passionate (15.45%). Local chickens represent 57.17% of the total poultry population followed by ducks (17.28%). They mainly raise local chickens and ducks (23.64%), local chickens (20.91%), broilers (15.45%), local chickens and pigeons (14.55%), local chickens, ducks and pigeons (9.09). The percentage of poultry kept in the wild is 69.09%. 89.09% of poultry farmers have shelters for their poultry. Pathologies, marketing and lack of supervision are the main constraints encountered.

Keywords— Family poultry farming, occupation, characteristics, typology, constraints.

I. INTRODUCTION

World poultry meat production in 2020 increased by 1.3% to 133.3 million tonnes¹. In most developing countries, family poultry farming is found in rural areas but also in peri-urban and urban areas. Industrial poultry farming is practiced in and around urban centres (Fotsa, 2008).

The poultry population in 2018 was 81,418,550 of which industrial poultry accounted for 65.18%. This increase is attributable to the 11.0% increase in industrial poultry between 2016 and 2018. Traditional poultry increased by only 3.5% (ANSD, 2019). Poultry farming offers employment opportunities and helps meet the population's ever-increasing need for animal protein (Traoré, 2006).

Family poultry farming occupies an important place in development and poverty alleviation strategies in most developing countries (Sonaiya and Swan, 2004). It is characterized by a family farming mode, with a strong involvement of women (Fall et al., 2017). Local poultry farming is a primary activity in rural areas where it represents an important source of animal protein and income (Zaman et al., 2004).

This study aims to characterize family poultry farming. It highlights the socio-economic and professional players in family poultry farming, identifies the different types of poultry

farming and their management methods, identifies the various constraints, and analyses and discusses the results. It concludes with suggestions on how to better manage family poultry farming in this area.

II. MATERIALS AND METHODS

2.1 Study Environment

The study is conducted in the commune of Mékhé (figure 1). It is located in the department of Tivaouane of the region of Thiès of 15°06'34" north latitude and 16°37'18" west longitude. The altitude with respect to the sea level is 43 m. The UTM coordinates for Mékhé are: UTM zone: 28P; X: 325713.34721886; Y: 1671102.4618642. It covers an area of 4 km². The projected population in 2021 is 30,024 (ANSD, 2013).



Fig. 1. Map of Senegal

2.2 Data Collection and Analysis

A minimum of 20 farmers with at least 5 birds in each of the four peripheral sites in the commune were selected in addition to the 30 farmers in the commune. There were a total of 110 farmers in the entire study area.

The data collection is mainly based on formal surveys through a questionnaire. The collected data were processed with Excel 2013 and SPHINX (tabulation matrix) before being analyzed by SPSS software, IBM SPSS Statistic 20 version (descriptive analysis, dynamic cross-tabulation, mean,

¹ <https://www.agrimaroc.ma/2020-production-mondiale-volaille/>

standard deviation, frequency, minima, maxima, X² test of independence on cross-tabulation).

III. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Socio-professional characteristics

The elements of socio-professional characterization of the breeders are gender, marital status, ethnicity, age, main activity, secondary activity and motivations. All these elements make it possible to identify and type the herders and the farms.

Family poultry farming is carried out by women (60.91%) and men (39.09%) who are mainly married (79.09%) and single (19.09%). The average age is 39.95 ± 15.53 years. The farmers have secondary education (22.82%), Koranic education (17.27%), elementary education (7.27%) and university education (10.00%). However, 42.64% of the respondents have never been to school. They are artisans (34.55%), farmers (35.46%), shopkeepers (17.27%), farmers (8.18%), workers (2.73%), while civil servants make up 0.91%.

The motivation of the poultry farmers is economic (84.55%) and passionate (15.45%). More than 46.37% of the

farmers have more than 5 years of experience while 93.64% of the farmers have no training in poultry farming.

3.1.2 Technical data

The technical characteristics concern the species raised in the area, the typology of the farms, the suppliers of chicks and feed, the habitat and equipment of the poultry, the technical and feeding management, the sanitary characteristics, the professional organization of the breeders, the marketing of the breeding products and the various constraints.

3.1.2.1 Poultry species raised

Table I shows that local chickens predominate, accounting for 57.17% of the total poultry population, followed by ducks (17.28%), pigeons (14.42%) and guinea fowl (2.84%). Exotic chickens represent 6.65% of the total poultry population.

3.1.2.2 Typologie of poultry species raised

The typology shows 9 different groups (figure 2) of poultry farmers according to the dominant productions. They raise only local chickens and ducks (23.64%), local chickens (20.91%), meat (15.45%), local chickens and pigeons (14.55%), local chickens, ducks and pigeons (9.09%), meat and exotic chickens (5.45%), meat and local chickens (4.55%), local chickens and guinea fowl (2.73%), local chickens and geese (1.81%), and local chickens and geese (1.82%).

TABLE I. Poultry species found in the study area

Site	Local Chickens	Exotic Chickens	Duck	Pigeon	Guinea Fowl	Goose	Peacock	Turkey	Total	Average
Mékhé	125	75	39	24	2	7	6	0	278	61,78
Yeumeu	253	25	194	108	3	9	0	8	600	133,33
Sine Kane	340	30	95	73	30	0	0	0	568	126,22
Ndoukoura	328	10	38	68	0	0	0	0	444	98,67
Mékhé village	261	12	29	59	30	5	0	0	396	88,00
Total	1307	152	395	332	65	21	6	8	2286	508,00
Pourcentage	57,17	6,65	17,28	14,52	2,84	0,92	0,26	0,35	100	

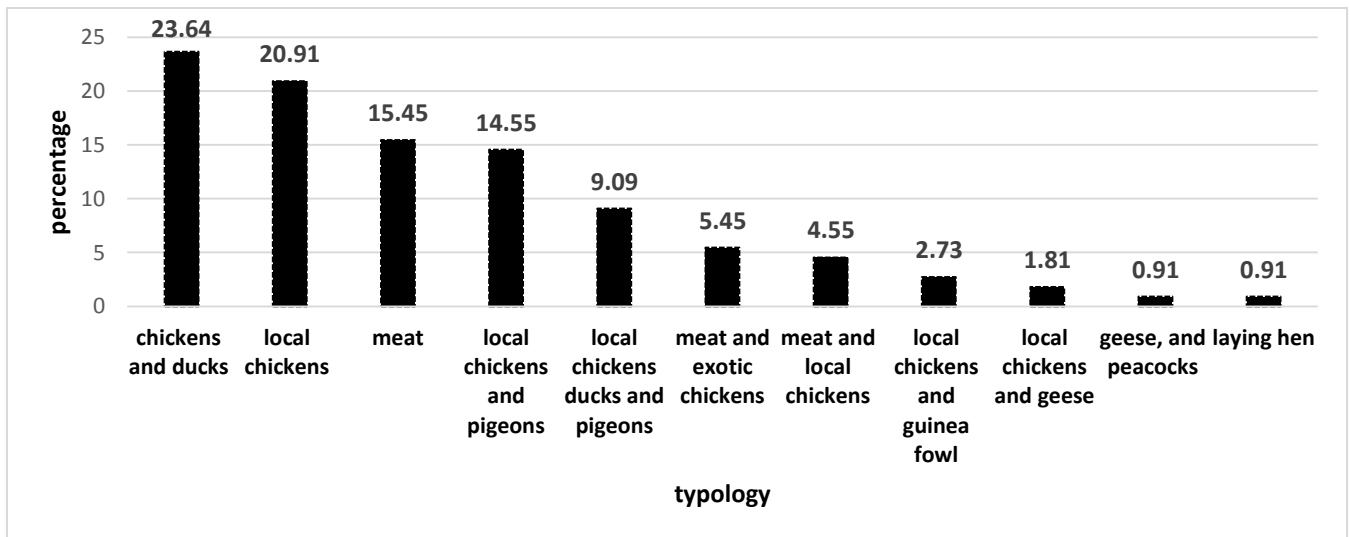


Fig. 2. typology of species raised

The batches of broilers vary from 50 to 200 birds per flock. The breeds of exotic chickens used are: Brahman, Dutch Blue, Isa Brown and Sussex. The number of pairs of pigeons varies from 3 to 16 per farmer.

3.1.2.3 Housing and equipment for poultry

The majority of the farmers (89.09%) have shelters for their poultry. The type of housing is made up of wire mesh, iron, wood and zinc huts. Those who raise poultry have solid hen houses, most often located on the terraces of the houses.

The number of farmers who do not have equipment for their poultry is 65.45%. Those who do (34.55%) have equipment that consists of artisanal and modern feeders, modern watering troughs or salvaged objects. The troughs are made up of bowls, tomato pots, cut oil cans, and recovered mineral water bottles. The feeders are made of abandoned dishes, bowls, pot lids, buckets and plate lids.

3.1.2.4 Technical and food control

Poultry are more likely to roam (69.09%). They feed their poultry at least once a day. Farmers who use local cereals (millet, wheat, groundnut cake, maize, cowpea, sorghum, industrial food) mixed or not with kitchen scraps represent 71.82%. The others (28.18%) produce only broilers. 84.55% of respondents water their chickens as much as they want, while the rest (15.45%) give them water at least once a day.

Feed is distributed twice (morning and evening) by 70.00% of the farmers, followed by distribution in the morning, noon and evening, and this distribution is about 23.64%. A distribution is noted in the morning with a frequency that is equal to 2.73%. The lowest frequency is 1.82% and is noted at the following times: noon and morning/midday.

3.1.2.5 Health characteristics

The study showed that 80.00% of the respondents do not have any prophylactic measures and 69.09% do not disinfect their poultry houses (Figure 3). They carry out vaccination (64.55%) against Newcastle disease, Gumboro, fowl pox, prevention of coccidiosis and treat some wounds and scabs. The disease that was vaccinated during the period December-February 2021 is Newcastle disease (ITANEW). The diseases encountered by 91.74% of the farmers are: Newcastle disease (47.83%), gumboro disease (34.78%), coccidiosis (13.04%), and fowl pox (4.35%). Mortality is observed during all periods of the year for 97.27% of the respondents. The farmers say that the rainy season is the period when viral, microbial and parasitic diseases occur in the farms. The mortality rate among broiler farmers varies from 5 to 8 birds with an average of 6.5 per flock (flocks of 100 birds). Almost all the farmers (77.27%) treat their poultry, 51.16% by veterinarians. They treat their poultry themselves (48.84%) and use traditional treatments based on green leaves of *Cassia occidentalis*, purchased antibiotic powder and bark of *Ziziphuz mauritiana*.

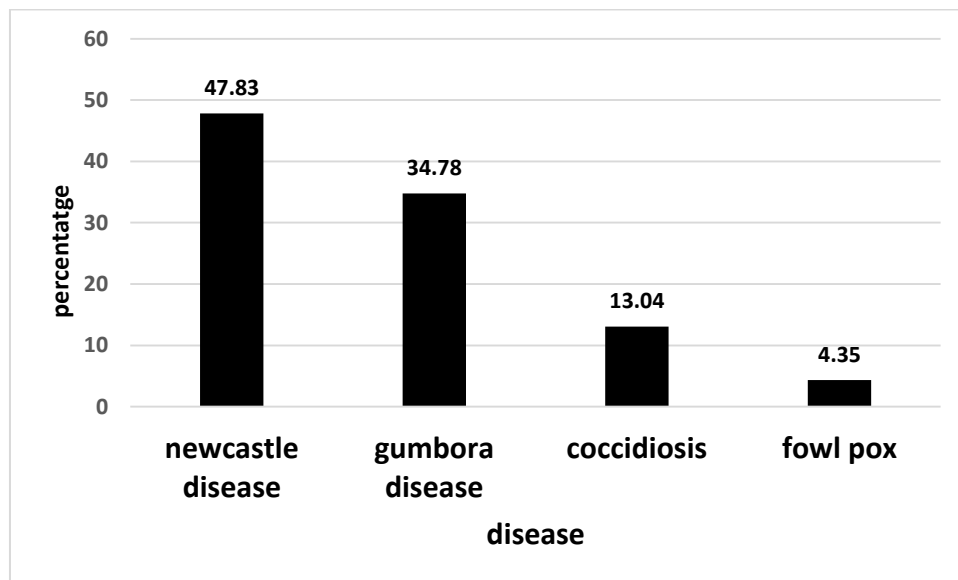


Fig. 3. Main pathologies encountered

Pathologies are more present during the rainy season (28.18%), the hot season (20.00%) and the cold season (15.45%). Some of them (11.82%) record more mortality during the dry season.

3.2. Discussion

The discussion focuses on the socio-professional characteristics of the farmers, the technical characteristics and systems of breeding, and the constraints on the farms.

3.2.1. Socio-professional characteristics

The study revealed that the majority of the owners of the poultry farms monitored were women (60.91%) in family poultry farming. The female predominance could be related to the fact that women are mainly involved in household

activities and look after the most in the care and management of poultry which require little investment compared to larger livestock (Coplard and Alders, 2005). This confirms the finding of (Moula et al., 2012) whose work in Bas-Congo in DRC revealed that in 42.9% of the families visited, chicken keeping was exclusively the responsibility of women as opposed to only 15.6% of men who owned ruminants. This is in line with the results found by (Fotsa et al., 2007) who concluded that 56.6% of this activity was carried out by women. According to (Fotsa, 2008), this is due to the fact that local chicken keeping is a traditionally female activity in most African countries. Despite this predominance of women, the intrusion of men in the decision of sale remains considerable and according to (Gueye, 1988), it would be due to socio-

cultural considerations which give to men this right of responsible and manager of the family to the detriment of women. Contrary to the work of BROU et al (2000), their results showed that 59% of poultry farmers were men and illiterate, most of whom had no poultry training. The majority of poultry farmers are married (79.09%). Their ages ranged from 12 to 75 years. The average age of poultry farmers 39.95 ±15.53 years is similar to that observed in Thiès (Mbengue, 2019). The high illiteracy rate (43.64%) is due to the fact that in rural areas, the level of education is low. This finding is in agreement with the work of N'Djaména in Chad (Mopaté, 2009), the illiteracy rate among egg sellers is 52% among women and 64% among men.

Despite its importance, family poultry farming is associated with other activities. It is associated with agriculture, trade and handicrafts. This could be due to the lack of employment opportunities in the country. This finding is in line with the results reported by Moula *et al.*, (2012) and (Djitie *et al.*, 2015). According to these authors, the combination of family poultry farming with other.

Agricultural activities especially food and cash crops within the household enables the heads of households to meet the various daily needs both food and cash.

3.2.2. Technical characteristics

The majority of the farmers (89.09%) have shelters for their poultry (henhouse, housing) because they are in a commercial logic. These results are in line with that of Ayssiwede *et al.* (2013). Because almost all poultry are roaming, the construction of farm buildings and fences remains a headache. Notwithstanding this rambling, some poultry farmers build shelters using locally available materials (wire mesh, zinc, wood...) to protect their animals from theft and predation. And this type of construction has been reported (Fotsa *et al.*, 2007), (Moula *et al.*, 2012) and (Djitie *et al.*, 2015) by different authors. The high rate of poultry wandering is explained by the fact that the care reserved for local poultry is less contradictory to the work of Arbelot *et al.* (1997).

Poultry are fed with cereals (millet, maize, sorghum, groundnuts, wheat, etc.), kitchen scraps, but also with industrial feeds that are mainly distributed at the chick stage to ensure their survival (Brou *et al.*, 2000).

Chicken is the highest species within the so-called family poultry farming (Traoré, 2006). The high rate of local chickens (57.17%) compared to other poultry species is in line (Raach- Moujahed, 2011; Moula *et al.*, 2012; Djitie *et al.*, 2015). Poultry farmers have several species of poultry (duck, pigeon, goose, guinea fowl...) of local and exotic breeds (Fall *et al.*, 2017) contrary to the de works of Gnahimana *et al.* (2019) in Salémata Department in Senegal. Diseases are the main cause of poultry mortality as everywhere in Senegal (Traoré, 2014; Savané, 2006). The repeated occurrence of diseases in their farms can be explained according to (Raach-Moujahed *et al.*, 2011) by the fact that animals of different ages and species live together and this favors a great contamination.

For a large number of respondents (73.64%), this activity does not meet all the family's needs, and this is due to the fact that family poultry farming is an activity that is carried out

without much investment. The sale of poultry enables rural households to generate additional income. The sale of zootechnical products (eggs, hens, roosters, pigeons, ducks, etc.) is done on the basis of occasional financial needs. Poultry farmers market their poultry at all times of the year, but marketing is much more pronounced during religious festivities and end-of-year celebrations.

IV. CONCLUSION

Family poultry farming plays an unprecedented socio-economic and cultural role within the family. This study shows that family poultry farming is essentially a female activity. Poultry farmers are mainly married and multi-talented people who work as traders, craftsmen, farmers and breeders. Their motivation is more economic than passionate. Poultry farming is practised in a system of divagation whose resulting products are largely intended for sale but also for consumption. A strong predominance of local chickens has been observed in the numbers.

The permanent presence of diseases in their farms causes enormous losses. Losses due to pathologies such as Newcastle disease as well as predation are a great handicap. Poultry diseases are the main constraints faced by poultry farmers. There is a need to have a minimum of knowledge in the management of the breeding. The supervision of farmers through regular monitoring combined with prophylactic measures (diagnosis, prevention, treatment and eradication of diseases) can be an alternative. This supervision by the public authorities will certainly help improve the productivity of family poultry farming and thus contribute to improving the living conditions of the often very poor population.

The recommendations can be as follows: (i) strengthening the technical capacities of poultry farmers in the area to enable them to face production challenges and many difficulties, (ii) supporting farmers through funding to improve the conditions and modalities of breeding, (iii) implementing a vaccination program and coaching poultry farmers in health management and poultry feeding.

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