

Characteristics of village chicken production in farming system in Côte d'Ivoire: case of Korhogo area

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Abstract— A study on the local chicken production parameters has been undertaken in the area of Korhogo. The work was conducted by a survey focused on 110 small farms from 20 villages (Koulélékaha, Natyo- Kobadara, Bafimé, Paroginéka, Latakaha, Lénékaha, Lérikaha, Dyègbè, Pokaha, Torgokaha, Dokaha, Karakoro, Tyoronyaradougou, Nanbadyélékaha, Konborodougou, Dobyankaha, Lonakaha, Nalougovogo, Nalolokaha and Nanvikaha) in the department of Korhogo. The herd of the poultry farms varied from 10 to 105 chickens. The work shown that traditional poultry farming is practiced in majority by women and young with respective distributions of 60 % and 62.27 %. In 82 % of cases, breeding products are both for home consumption and marketing. Only 20 % of that product are solely for sale and marketing. The breeding system of that farm is extensive with a dietary and sanitary behavior which does not comply with the art standard. The housing of these animals are precarious henhouses which do not fit norms and good hygiene practice to guarantee the well-being of those birds. Three (3) types of chickens were defined on the basis of the tradition of the Sénoufo (people of the north of the Côte d'Ivoire) considerations. The age for chickens to start laying varied from 6 to 8 months for 39 ± 4 eggs in 3 ± 1.10 laying per year. The eggs per laying were 9.75 ± 4 eggs for an average weight of 35 ± 3.48 g. The average incubation duration was 21 ± 2 days with a hatching rate varying between 50 % and 90 %. The adulthood traditional chickens' weight in that farm varied from 1 to 1.5 kg.

Keywords— traditional poultry, farming, production, Côte d'Ivoire

I. INTRODUCTION

The traditional chicken makes 70 % of total of chicken farming in Côte d'Ivoire. But its breeding commonly called villager poultry breeding is done in rural environment where 75 % of active national population live. This traditional poultry farming contributes significantly to the food safe and to the incomes of that rural population. It is also an alternative to increase the consumption of protein and of saving for housewives in rural area (FAO, 1997; MIRAH-DPP, 2012). Moreover, in socio cultural view the traditional chicken is beneficial to Ivorian societies as well as in the almost of the West Africa countries (Savane *et al.*, 1999). The traditional chicken is used for religious ceremonies, weddings, for sacrifices to gods and used as gifts to guest.

For its docility and the ease to be kept, the traditional chicken is kept by all fringe of population (Bradley, 1992), notably, women and children in all the expanse of Ivorian territory.

Despite the many assets and also its important in economic and dietary point of views, it stays the most poor of breeding in Côte d'Ivoire. Being among the most bred species (MIRAH, 2009) ;FAO, 1997), the traditional chicken, has not yet sufficiently been taken into account by the breeding development policy in Côte d'Ivoire. In addition, the parameters of its breeding is not yet deeply studied, even less the field of production of this type of chicken to make that speculation an (agro-industry) in Côte d'Ivoire.

In the perspective of contributing to the improvement of that villager poultry farm, the present paper aims to characterize the socioeconomic statute and the production parameters of this activity in Côte d'Ivoire, through the case of the area of Korhogo.

II. MATERIAL AND METHOD

2.1 Study site

We conducted the study in the department of Korhogo situated between 5°16 and 6°16 of longitude West, and at latitude 8°32 and 10°20 North (Figure 1). The department of Korhogo is located in the northern Côte d'Ivoire it has a vegetation made up grassy and planted with threes savannah, it has a Sudanese and Guinean climate. That climate is characterized by a humid season of 4 to 5 months (June to September or October) and a dry season of 8 to 7 months for an annual pluviometry varying between 1200 mm and 1400 mm. Thus, the agriculture is the main economic activity of that department. The subsistence crops notably rice, maize, millet and sorghum ensure the local population subsistence and a large part of the monetary incomes; whereas the cotton, the cashew nut and tobacco are industrial crops strongly represented in this department. However, with 35 % of the national number in poultry farming in which 15% belong to the region of savannah and the department of Korhogo respectively (FAO, 2005), the poultry farm is representative in that part of Côte d'Ivoire.



FIGURE 1: DEPARTMENT OF KORHOGO(STUDIED SITE)

Source : www.googleearth.com

▼ : Villages that we visited

2.2 Study conducting and data collect

Study of traditional poultry breeding has been conducted within a radius of 50 km around the town of Korhogo. Farms were chosen on the basis of their objective, of the type of bred chicken and of the availability of breeders to partake in the study. The Present study was conducted in two (2) steps.

The first steps consisted of the characterization of production parameters. It was done by mean of survey in two times. The first said pre-survey, permitted to select farms and to elaborate the questionnaire. The second consisted of interviewing breeders selected for the need of data collection. The goal of the study is to characterize the traditional chicken farming, therefore the survey questionnaire targets were the socioeconomic characterizations of poultry breeding and its production parameters. It deals with the habitat, the breeding way, the socio technical statute of the breeders and the production performances of the traditional chicken.

The second step aimed at identifying the different type of chicken and to evaluate their performances of production. For that, 50 identified chickens were chosen in unpredictable way in 5 livestock farming. The age to start laying, the incubation duration, the number of laying and the number of eggs per laying per year were the estimated production parameters.

The identification of the traditional poultry was defined on the basis of the twos following considerations of the tradition of Sénoufo people of the north of the Côte d'Ivoire:

- i) The perception of the variability of traditional poultry;
- ii) The socio cultural interpretation of the feather colors of the traditional poultry.

These data were collected with helping to selected breeders.

2.3 Data analysis

The different data were submitted to elementary statistic description analysis (average, square deviation (SD), frequency ...). These analysis were done thanks to SPSS software (SPSS, 2002).

III. RESULTS

3.1 A.Socioeconomic statute and traditional poultry farm technique

One hundred and ten (110) farms of traditional chicken were identified in 20 visited villages in the department of Korhogo. Are they listed as following: Koulélékaha, Natyo- Kobadara, Bafimé, Paroginéka, Latakaha, Lénékaha, Lérika, Dyègbè, Pokaha, Torgokaha, Dokaha, Karakoro, Tyoronyaradougou, Nanbadyélékaha, Konborodougou, Dobyankaha, Lonakaha, Nalougovogo, Nalolokaha and Nanvikaha.

The structure of owners according to the sex and the age of that chicken breeding is represented in the figure 2.

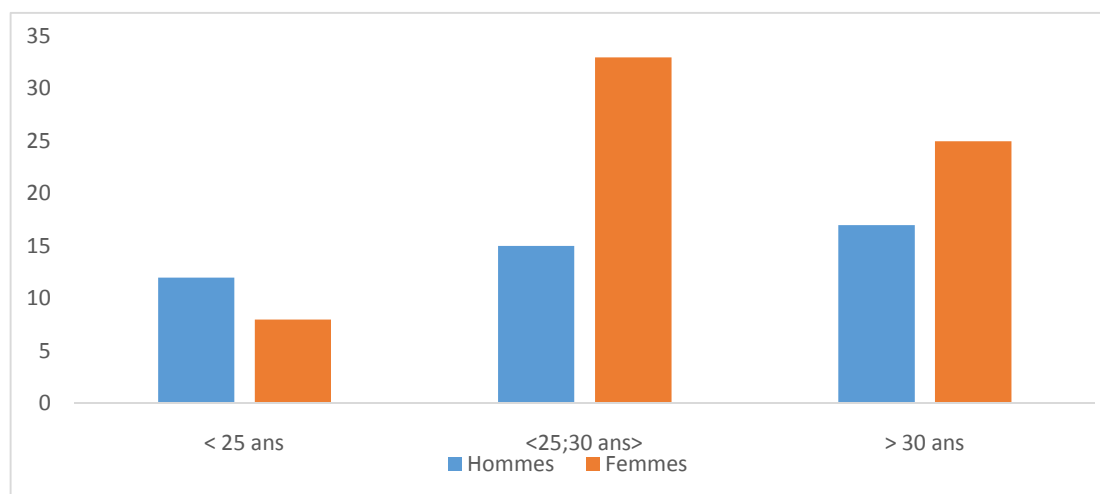


FIGURE 2: DISTRIBUTION OF LIVESTOCK FARMING OWNERS ACCORDING TO THE SEX AND THE AGE

These livestock farming are small farms with the livestock size varied between 10 and 105 chickens. The manpower is typically familial. However it stays a secondary activity and therefore, combined to other farm activities and/or to ruminants breeding

Sixty six (66) be it 60 % of the investigated farms belong to women with 37.27 % of young people and 22.73 % of adult respectively between 25 and 41 years old, as the average age. The men held 40 % of that chicken farms with 24 % of young of 20 years old, as average age. The adult men represent 16% of owners of that farm with an average age of 48 years old. In all the cases the works are divided according to the sex and the age of the owner. In 86.36 % of cases, the farming is done by the women and the children, even if it belongs to the father. For the staying 13.64 %, the men make the building of the henhouse whereas the women take care of it cleanup. All the breeders maintain that the poultry farming is for them a food supply and mean of complementary important incomes. Thus the majority of the interviewed breeders (82.72 %) maintain that they do that poultry farming for both marketing and home consumption. Only 7.28 % and 10 % of those breeders do it respectively for the home consumption and for the marketing.

The table 1 is about the distribution of breeders according to their level of education and training in poultry farming technique.

TABLE1
DISTRIBUTION OF BREEDERS ACCORDING TO THEIR SOCIOTECHNIQUE STATUTE

		Number	Distribution (%)
Education level	Coranicschool	15	13.64
	Primaryschool	8	7.27
	Secondaryschool	3	2.73
	Illiterate	84	76.36
Level of skills in poultry farming technique	trained	10	9.09
	Non trained	100	90.91

Among the breeders we notice a weak rate education and training in poultry farming technique.

3.2 B.Characteristic of traditional chicken systems of production

3.2.1 Habitat

Among the 110 questioned breeders, 54.55 % have summary henhouses (Figure 3A and 3B). Those henhouses are built with trodden earth and covered with straws or old roofs. For the very small size of their entrances, make it difficult to get to and the cleanup. In these henhouses which do not obey any building norms, the hygiene is precarious and the airing is not sufficient. Beside the henhouses, there are 6.35 % of chicken farms using night cages (Figure 3C and 3D) as the bird habitat. The birds are shut in those cages all the night to be free early in the morning. These cages are tidied in stores or kitchen. In addition, 39.1 % of farming do not have henhouses nor cages. In this case the chickens are perched on the walls of unfinished houses, on roofs in trees or anything can be used as a roosts.



(A)



(B)



(C)



(D)

FIGURE 2: THE TRADITIONAL CHICKENS DIFFERENT KIND OF HOUSINGS (A AND B : HENHOUSES, C AND D : CAGES)

3.2.2 Food conducting

None of the questioned breeders uses industrial food. Whereas 11.82 % of breeders make foods with crushed maize, bran of maize, fish waste and kitchen salt. These foods with different formulations are generally given twice per day (morning and evening). For the others 88.18 % of breeders, there is no proper way of feeding. The feeding comes down to kitchen and harvest waste, grass and insects that the birds find on their way. However, they are occasionally given handfuls of maize, millet, sorghum and some few time termites are given. That is done ones per day. In all the cases the given food is not according to the age or to the physiological state of the animals

For the drink, 40 % of investigated breeders say their only give water to their animals during dry season.

Only 5.5 % of breeders have poultry farming materials such as feeding trough and drinking bowl. These facilities are in majority made of broken pots, cans, old plates or any objet able to hold the food or the water. That material is rarely cleaned up

3.2.3 Health care

The health care of the chicken is done by the breeders themselves without any prophylaxis program. The prevention of the birds against some diseases like Newcastle disease (the pseudo- plagueavian) is done by the vaccinations through the national campaigns or projects. Among the investigated poultry farm, only 34.5 % make the vaccination of their chicken livestock; whereas 65.5 % do not do it for multiple raisons or excuses. The lack of knowledge of the existence of vaccination as a mean of prevention of traditional chicken pathologies, and the lack of financial mean are the recurrent reasons or pretexts.

Much pathology are indicated on the poultry farming, on which the recurrent are mentioned in the table II with their symptom. The appearance period and the corresponding treatments. On the whole farms, only 15.55 % seek for veterinary help for the health care; whereas the 85.45 % rely on their traditional knowledge.

TABLE 2
INDICATED PATHOLOGIES ON THE FARM AND THE LINKED TREATMENTS

Pathologies	Symptoms	Treatment
Pseudo-plagueavian	- Breathing trouble (cough, rail), - Digestive trouble (diarrhea), -Nervious disorder (stiff neck), -Fall of laying	Extract of chili, lemon, pile carbon
Fowlpox	Appearance of black nodules on the crest, the wattle and the feet	Palmoil, Sheabutter
Parasitical disease (internal and external)	-decline of zootechnical performance (lying, index of consumption and growth) -Lack of comfort caused by the itching	Ash of wood, tobacco powder

3.2.4 Identification and some zoo technical characteristics of traditional poultry

Three (3) types of traditional poultry were identified on the basis of the aspect and the color of the feather (Figure 4).

In the whole investigated farms, the age for chickens to start laying varied from 6 to 8 months for 39 ± 4 eggs in 3 ± 1.10 laying per year. The eggs per laying are 9.75 ± 4 eggs for an average weight of 35 ± 3.48 g. The average incubation duration is 21 ± 2 days with a hatching rate varying between 50 % and 90 %. The adulthood traditional poultry' weight in that breeding varied from 1 to 1.5 kg at 6 month of age.

3.2.5 Sociocultural importance of traditional chicken

The Sénoufo tradition interprets the feather aspect in two ways. The evenly arranged and uniformly shared feather expresses the normality so what is natural (chicken of type1). In the contrary any aspect different to it, is unnatural and is linked to evil spirit. The Sénoufo tradition associated to the two categories of chicken, the feather colour to defined the sociocultural and economic value. According to this tradition, the white symbolised the happiness, purity, joy and peace. These type of chicken have great sociocultural value, because they are used in every ceremonies aspirante the spirit of good. However the Sénoufo tradition does not give a particular meaning to the red colour of the feather. In opposition of the two (2) mentioned colour, the Sénoufo tradition associates the black to everything linked to evil. Thus the black feather above all, with unregular aspect, is used to plot misfortune and bad fate.

As though the Sénoufo tradition gives sociocultural value to this type of chicken . Because of that it is given it a good economic value. The sociocultural value of traditional chicken is link to their prices which are flexible. That price varies from 1250 to 4000 francs for adulthood chicken and from 100 to 250 for egg and that according to the sex and the weight of the chicken and to the period of feast and customary ceremonies.



A- Chicken of type 1: feather evenly arranged and uniformly shared out on the body



B- Chicken of type 2: ruffled feather and uniformly shared out on the body



C- Chicken of type 3: chicken like culture

FIGURE 4: DIFFERENT TYPES OF TRADITIONAL CHICKEN (A-TYPE1, B- TYPE2 AND C- TYPE3).

IV. DISCUSSION

The study allowed identifying 110 familial farms which belong in the majority to young people (67 %) and to the women (60 %). In addition 82.27 % of these farms are both for marketing and home consumption. With those socio-economic statutes, the traditional poultry breeding in the area of Korhogo can be an alternative to fight against poverty and contributes to the food safety. That is in perfect harmony with the socio-economic value of the traditional chicken as set out by Gueye (1998); FAO (1997) ; Savane *et al.* (1999) ; Sonaiya et Swan (2004) in Africa in the south Sahara in general and in the west Africa in particular. The traditional poultry breeding for its rural nature, could be a strategic sector of development because it regards a very large fringe (75 %) of Ivorian population. However, the traditional chicken has not yet sufficiently been taken into account in the policy of livestock development in Côte d'Ivoire.

Therefore, we must know that poultry breeding is done in inadequate conditions due to the feeding way and health care are not appropriate and the precariousness of the habitats which do not fit the demanded one for the animal well-being. These characteristics are same with those described elsewhere in West Africa by many authors among who are Kabatange et Katule and Talaki(2001)(1990;Bengaly(1997) and Talaki(2001).. Those situations can be explained by weak level of education of breeders and above all by the lack of their training in farm technique. Like in the case of dairy-farming, the lack breeders qualification (Yapi-Gnaoré *et al.*, 2009 ;N'Goran, 2010) should explain at least in part the weak production performance of traditional chicken. However, the production estimated performances stay near those observed elsewhere in Africa. Many authors among who are Kuit *et al.* (1986) in Mali, Mourad *et al.* (1997) in Guinea and Kondombo (2005) in Burkina Faso observed the following performances, number of eggs/laying which is in average respectively 9 ; 10 and 12. Although the three (3) types of traditional chickens are identified on the basis of a tradition perception, they still stay significant in marketing in the department of Korhogo. That permitted to associate a socio cultural and economic value to a given type of chicken. This approach should permit to better comprehend the strategies of development of traditional chicken in that department of Korhogo.

V. CONCLUSION

The traditional poultry farming in the department of Korhogo plays a socio cultural and economical role and it's a food supply. That activity in majority done by women and children constitutes a mean of development in rural community. However, it stays until then in the precariousness with precarious breeding facilities with a lack of mastery of feeding and sanitary way. The main reason of the weak productivity of traditional poultry lies in the level of education and the lack of training of breeders including precarious breeding facilities and an inadequate feeding and sanitary way. Also traditional poultry farming improvement must take into account the empowering of breeder's production capacity and the enhancing of the traditional poultry farming system production.

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