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SOCIO-ECONOMIC CHARACTERISTICS OF FULANI'S HOUSEHOLDS IN NORTHEASTERN BENIN

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Abstract

Fulani belong to a socio-cultural group predominantly met in western Africa and usually raises cattle. Known as a nomadic group, Fulani have become increasingly more settled and combine crop farming with livestock husbandry. In Benin Fulani are predominant in the two eastern departments of the north. This community plays a key role in meat and milk supply in the country. But deep information on their household characteristics is scarce so that specific development actions concerning their activities are scarce. This study was carried out to characterize their household and highlight their livelihood strategies in the three agro-ecological conditions of the study area. 150 Fulani livestock keepers randomly selected were interviewed in 2013. The results show that the average household size is 18 people of which 22% are directly involved in cattle farming. The land is mostly inherited and the average size for a household is about 10.5 ha. Half of the land size is devoted to crops farming mainly 80% for home consumption and 17% to cotton production. Their livestock includes cattle, sheep, goats and poultry (chickens and Guinea fowl). Cattle represent 50% of the household livestock size. Cattle provide daily milk consumed at 51%; the rest is sold. Fulani also sell in average one cattle per month. In less favorable ecological conditions, they derive their income mainly from livestock. While in the regions where it rains more, they diversify their incomes by investing in food crops and cash crop (cotton mainly) farming.

Keywords: *Fulani, Cattle farming, household economy, Benin.*

Introduction

Fulani populations are scattered over the vast West African savannah belt of wooded grasslands, from Senegambia in the west to French Equatorial Africa in the east (Stenning, 1959). In these countries and especially in Benin, the name of Fulani is synonym of cattle ownership. Traditionally, they have been known as nomadic people moving from one area to another with all their family looking for a better grazing land. But facing some problems related to their mobility like land tenure, drought and the household size which will not allow them to exchange cattle with cereals, more settle down. So in addition to cattle breeding, they are involved in farming, primarily for home consumption. According to Iro (1994), they are usually concentrated in the savannahs and semi-arid zone of countries to escape humid zone infested by tsetse fly. In Benin, Fulani population is concentrated in the North. Livestock production in this part of the country represents 85% of the national cattle herd. *Borgou* and *Alibori* departments concentrated 63% of this national herd (FAO, 2013). Nearly 95 % of national cattle herd is hold by Fulani (Dehoux & Hounsou-Vè, 1993) who represent an important group practicing livestock husbandry (Alkoiret et al., 2009; IIED & SOS Sahel, 2010). More, people in the country and especially in rural areas of the north depend mostly on Fulani for meat, milk, cheese, butter, skin and manure so that they are key actors in the country for protein supply. Most of the literature dealing with Benin Fulani (Bierschenk & Foster, 2004; Schareika, 1998; Bierschenk & Le Meur, 1997; Boesen et al., 1998) is written

by anthropologists, historians and sociologists. These authors have tried to describe Fulani society, complexity and relations with the neighbor socio-cultural groups. Recent works on Fulani focus on their cattle farming systems (Alkoiret et al., 2009; Alkoiret et al., 2010; Youssao et al., 2013) and also their impact on environment (Djenontin, 2010). Most of these studies focus on Fulani as cattle owners forgetting that most are settled. In addition to livestock farming, Fulani households share cropping activities common to the others socio-cultural groups. So, the present study tries to characterize Fulani's household and highlight their livelihood strategies in the three agro-ecological conditions of *Alibori* and *Borgou* departments in Republic of Benin.

Materials and methods

The study was carried out in *Alibori* and *Borgou* departments located in northeastern Benin, within sudano-sahelian and sudanian climate. The area is lying between 02° 04' and 03° 33' of longitude east and 09 ° 24' and 12 ° 08' of latitude north. The average annual rainfall varies between 1200 mm in the south and 900 mm in the north of the departments. The dry season lasts from November to April while the wet season starts from May and ends in October. *Alibori* and *Borgou* departments are divided in three agro-ecological zones corresponding to the climatic zones of the area. Data were collected in *Kalalé*, *Banikoara* and *Malanville* districts selected in the three agro-ecological zones of the study area. *Malanville* belongs to the first agro-ecological zone characterize by a sudano-sahelian climate. This district is located in the northern part of the departments with an annual rainfall between 700 and 900 mm. Land use system is mainly based on millet, sorghum, cowpea and peanut. Despite the limited rainfall, there is a great potential for agricultural development linked to the existence of fertile and irrigated land along the Niger River. *Banikoara* district is situated in the second zone with a sudanian climate. Rainfall varies between 800 and 1200 mm a year. Cotton, sorghum, maize, cowpea and peanut are the main crops in the land use system. *Kalalé* is located in the third agro-ecological zone also characterized by a sudanian climate with rainfall ranging between 900 and 1300 mm. Land use system is based on sorghum and yam, with a high concentration of maize and cotton. Fifty household heads were selected by district. This give a total of 150 Fulani heads of household for the study. District of each agro-ecological zone and the three villages inside each district have been selected according to the importance of Fulani population and the size of cattle herd. In each village, respondents randomly selected were interviewed. Detailed information about household composition, information on livestock (species, number) and other assets such as land (size and crop produced) were also collected. Main sources of income for the household members were recorded: livestock income and crop income. Data were recorded from May to June 2013. Descriptive statistics design was run to show household socio-economic characteristics. To determine to what extend livelihood strategies of the households are local specific, Chi square test and ANOVA have been used to compare data between the three districts.

Results and discussion

The results show that all the heads of households are married and predominantly (63%) polygamous. Table 1 shows that they are 46 years old in average. The median age (47 years) as well as the modal value (40 years) support the fact that cattle farming attract more young than older people. The educational status is found to be very low. Predominantly (78%), had received non-formal education and only 19% had koranic education. But 27% of them have been alphabetized in *Fulfulde*. Nevertheless, 46% of the households enroll their junior sons to school when 37% of the households do it for their junior daughters. In 15% of the second group's households, only girls benefit this enrollment to school (Table 1). It derives from this table that schooling decision for children follows the same statistic trend and provides an equal chance to male and female. The median household size is 15 people whereas the average value is 18 people of which 22% are directly involved in cattle farming.

The modal value of 10 people which also represents only 25% of the households size distribution shows that majority of Fulani have a big household size. Table 1 also reveals that people involved in cattle farming is independent of household size. Four people can be indicated as the optimum size needed for cattle farming. Polygamy and sons married who stayed inside the household of their parents can explain the high size of the household. The average household size is higher than that recorded by Olorunnisomo et al., (2010), Oladeji (2009), Adisa and Badmos (2009) in Nigeria which is around 9 people. Data are also recorded among Fulani agro pastoralists living in cattle farming areas. Households are mainly polygamous but the high difference in household size can be the nonexistence of sub-household phenomenon compared to Benin Fulani's households.

Table 1. Socio-economic profile of Fulani's households

Characteristics	Mode	Percentiles			Mean
		25	50	75	
Age of household head (years)	40	35	47	55	46
Household size	10	10	15	23	18
People involved in cattle farming	4	3	4	5	4
Boys' schooling	1	1	1	2	1.6
Girls' schooling	1	1	1	2	1.8
Family pattern					
Monogamy (%)			37		
Polygamy (%)			63		
Level of education (%)					
Non-formal education			78.0		
Primary			2.7		
Secondary			0.7		
Koranic			18.7		
Alphabetization (%)			27		

The results also reveal that land is mostly inherited and the average size owned by a household is about 10.5 ha. The modal value (7 ha) and median land size (9 ha) show that majority of the households have enough land. It is one of the factors that indicate their settlement degree. Half of the land size is devoted to crops farming mainly for home consumption (80%) and 17% to cotton production. The main crops produced are sorghum, maize, yam, soybean and peanut. The land size for farming (6.9 ha) corroborates the finding of Alkoiret et al., (2009) of 6.7 ha for cattle farmers who are predominantly Fulani in Gogounou district (north eastern of Benin).

The livestock in a Fulani household includes cattle, sheep, goats and poultry (chickens and Guinea fowl). Cattle is dominant and represents 50% of the household livestock size as shown in table 2. Cattle represents an important part of Fulani cultural identity and it constitutes one of the properties they leave to their children. The cattle size dominance is in agreement with the finding of Oladeji (2009) and Iyayi et al. (2003). These authors revealed that cattle is dominant and the most important livestock among Fulani agro pastoralists in south-west Nigeria. The average cattle herd size (66 heads) found for all the study area is more than that revealed by Akpa et al. (2012) for Fulani household in Zaria which is about 42 cattle. But the herd size distribution shows that only 32% have more than 66 heads and reveals that most of the households have a relatively medium cattle herd size.

Table 2. Livestock pattern (number of heads) among Fulani's households

Livestock	Mode	Percentile			Mean	Minimum	Maximum
		25	50	75			
Cattle herd	30	30	48	78	66	20	748
Sheep herd	15	8	15	20	19	0	120
Goat herd	10	5	10	18	15	0	350
Chicken herd	10	10	15	25	19	0	100
Guinea fowl herd	0	0	7	11	9	0	69

Cattle production is composed of meat (which is sold as live animals), milk, manure and draught. The household consume most (51%) of the milk daily recorded. The rest is mainly sold as fresh milk. Milk consumption is higher than that found by Somda et al. (2004) by revealing that milk consumed in smallholders' dairy households represent 35% of daily milk recorded. But in western province of Zambia, nearly 75% of milk is consumed by the household or exchanged in the community (Moll et al., 2007). Sixty-two percent of Fulani households sell cattle to solve money problem. The median size of cattle sold is one cattle per two months when in average one is sold per month in the household. The distribution of cattle sold shows that majority (67%) of households sell from one to four cattle in half a year. So, Fulani are not contemplative of their cattle herd and the number of cattle sold is in agreement with their wish to leave something to their children and to bring a well-being to the household's members.

Results in table 3 show Fulani's households' strategies according to their agro-ecological conditions. In high rainfall region (third agro-ecological zone), more households produce cotton with cotton area representing the double of the one in the two others agro-ecological zones. Moreover, all the households in this zone sell 36% of the crops produced. Milk sold and income derived from cattle selling is the least of the three regions. In less favorable ecological conditions (first agro-ecological zone), Fulani households derive their income mainly from livestock (milk and cattle selling). Crops harvested are mainly for home consumption. Households located in the second agro-ecological zone have their incomes mostly from livestock but less than in the first zone. In addition, majority (80%) of them sells their crop, a bit less than in the third zone with regard to the part sold (26%).

This could be explained by the fact that when conditions are hard, Fulani dedicate more time to their traditional pastoral activities, compared to favorable conditions. Given the high fluctuation of food crop market price in Benin within a year, Fulani develop risk avoidance strategy by producing crops to maintain their household's food security. In favorable conditions, Fulani have access to the market with milk and meat in addition to food crop. It is a kind of survival strategy developed according to the agro-ecological context which made Fulani people more resilient.

Moreover, Fulani household economy is diversified according to the conditions of their environment. It is a kind of specialization of agricultural producers that should be experimented to organize all the other producers in the country. This will help Benin to improve its regions' productivity and have a better agricultural production. Agricultural population could therefore earn more money and improve its livelihood conditions.

Table 3. Fulani's household strategies according to the three agro-ecological condition of the study area

		<i>Kalalé</i>	<i>Banikoara</i>	<i>Malanville</i>	
Half-yearly income derived from cattle selling (F CFA ¹)	Mean	418,927 _a	691,176 _a	6,141,666 _b	
	Mode	80,000 ²	200,000 ^b	2,600,000	
	Percentile	25	110,000	270,000	2,075,000
		50	240,000	537,500	2,650,000

	75	430,000	845,000	4,575,000
Households harvesting cotton (%)	58 _a		56 _a	20 _b
Cotton farming (ha)	4.8 _a		1.8 _a	2.6 _a
Households selling crop (%)	100 _a		80 _b	30 _c
Part of crop sold (%)	36 _a		26 _{a,b}	23 _b
Households selling milk (%)	52 _a		94 _b	80 _c
Part of milk sold (%) ³	45 _a		56 _b	60 _b

¹: 1 €= 656 F CFA; ²: Multiple modes exist. The smallest value is shown; ³: part of daily milk recorded in the household. Values followed by different letters are significantly different (p<0.05).

Conclusion

Results from the study reveal that Fulani households are not only contributing to livestock production but are also involve in food crop and in cash crop production. Their high household size is also contributing to supply enough labor force for farming activities. This proves that Fulani households are enough settled but cattle is still very important for them. From less favorable agro-ecological zone to favorable, Fulani households diversify their income sources mainly from livestock by adding staple and cash crop farming. It is therefore the proof that Fulani are crop producers as well as cattle herders. Climate decides to what extent they specialize. More attention should be given to Fulani people by agricultural policies of the country in order to improve agricultural production, accumulate enough food for export and help the country's economy to reach a better level.

References

- Adisa R. S. & Badmos A. H. A. (2009). Socioeconomic correlates of perceptions of sustainability of pastoral livelihood among cattle herders in Kwara state, Nigeria. *Agrosearch (2008 & 2009) 10 No. 1&2: 21 - 30*
- Akpa G. N., Alphonsus C. and Abdulkareem A. (2012). Evaluation of herd structure of white Fulani cattle holdings in Zaria-Nigeria. *Afri. J. Anim. Biomed. Sci.*, 7(1): 128-131.
- Alkoiret I.T., Awohouedji D.Y.G., Akossou A.Y.J. & Bosma R.H. (2009). Typologie des systèmes d'élevage bovin de la commune de Gogounou au Nord-Est du Bénin. *Ann. Sci. Agro. Bénin*, 2(12): 77-98.
- Alkoiret I.T., Awohouedji D. Y. G., Gbangboche A.B. & Bosma R. H. (2010). Productivité des systèmes d'élevage bovin de la commune de Gogounou au nord-est du Bénin. *Annales des Sciences Agronomiques 14 (2) 145-163.*
- Bierschenk T. & Foster R. (2004). *L'organisation sociale des Peuls dans l'est de l'Atacora (République du Bénin, communes de Kouandé, Péhonco et Kérou)*. Working Papers N°46. Johannes Gutenberg Universität Mainz, <http://www.ifeas.uni-mainz.de/workingpapers/Peuls.pdf>. Accessed on 25/11/12.
- Bierschenk T. & Le Meur P-Y. (1997). *Trajectoires peules au Bénin. Six études anthropologiques*. Karthala, Paris.
- Boesen E., Hardung C., Kuba R. (eds.) (1998). *Regards sur le Borgou. Pouvoir et altérité dans une région ouest-africaine*. L'Harmattan, Paris.
- Dehoux J. P. & Hounsou-Vè G. (1993). Productivité de la race bovine Borgou selon les systèmes d'élevage traditionnels au nord-est du Benin. *Revue mondiale de zootechnie*, FAO, 74-75 : 36-48. <http://www.fao.org/ag/aGa/agap/frg/feedback/war/u9550b/u9550b0g.htm>. Accessed on 19/09/2013.
- Djenontin J.A. (2010). *Dynamique des stratégies et des pratiques d'utilisation des parcours naturels pour l'alimentation des troupeaux bovins au Nord-Est du Bénin*. Thèse de doctorat, FSA, UAC (Bénin). <http://tel.archives->

ouvertes.fr/docs/00/59/52/77/PDF/Impression_ThA_se_Djenjoan-C-_A5_.pdf.

Accessed on 25/11/2013.

FAO (2013). Country stat.

<http://www.countrystat.org/home.aspx?c=ben&ta=053SPD135&tr=21>. Accessed on 19/09/2013.

IIED & SOS Sahel (2010). *Modern and mobile. The future of livestock production in Africa's drylands*. International Institute for Environment and Development and SOS Sahel International, London, UK. <http://pubs.iied.org/pdfs/12565IIED.pdf>. Accessed on 05/02/13.

Iro I. (1994). *The Fulani Herding System*. Washington, African Development Foundation, 6-12.

Iyayi E.A., Okoruwa V.O., Babayemi O.J., Busari A.A. and Peters O.F. (2003). Livestock production pattern of Agropastoralist in peri-urban centres of South- West Nigeria. *Nigerian Journal of Animal Production*, 30 (1): 87-92.

Moll H.A.J., Staal S. J. and Ibrahim M.N.M. (2007). Smallholder dairy production and markets: A comparison of production systems in Zambia, Kenya and Sri Lanka. *Agricultural Systems* 94, 593–603.

Oladeji J.O. (2009). Effect of sedentarization on the economic, social and cultural activities of

Fulani agro-pastoralists in Oyo state. *African Journal of Livestock Extension – Vol. 7*, 7-14.

Olorunnisomo O.A., Olubowale A.O. and Adesina, M.A. (2010). Socio-economic characteristics of cattle farmers and their perception of commercial milk production in three agricultural zones of Oyo state. *Journal of Agriculture, Forestry and the Social Sciences (JOAFSS)*, Vol.8, No.2, 1-9.

Schareika N. (1998). Elevage bovin et économie familiale chez le *fulbe* au Nord-Bénin. In: Boesen E., Hardung C. & Kuba R. édés. *Regards sur le Borgou. Pouvoir et altérité dans une région ouest-africaine*. Paris, L'Harmattan, 311-328.

Somda J., Kamuanga M., Mendes A. & Gomes J. (2004). *Caractéristiques socioéconomiques et performances économiques des élevages laitiers en Guinée Bissau : cas des régions de Bafata et Gabu*. Socio-economic Research Working Paper No 4, ITC (International Trypanotolerance Centre), Banjul, The Gambia, http://www.itc.gm/Downloads/jacqueswp_socioeconomic4.pdf. Accessed on 21/09/2013.

Stenning D. J. (1959). *Savannah Nomads: A study of the Wodaabe Pastoral Fulani of Western Bornu Province, Northern Region, Nigeria*. Oxford University Press, London.

Youssao A. K. I., Dahouda M., Attakpa E. Y., Koutinhoun G.B., Ahounou G.S., Toleba S.S. & Balogoun B.S. (2013). Diversité des systèmes d'élevages de bovins de race bovine Borgou dans la zone soudanienne du Bénin. *Int. J. Biol. Chem. Sci.* 7(1): 125-146.