Typology of Peri-urban Agricultural Farms in Tahoua Region, Niger Republic

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Abstract

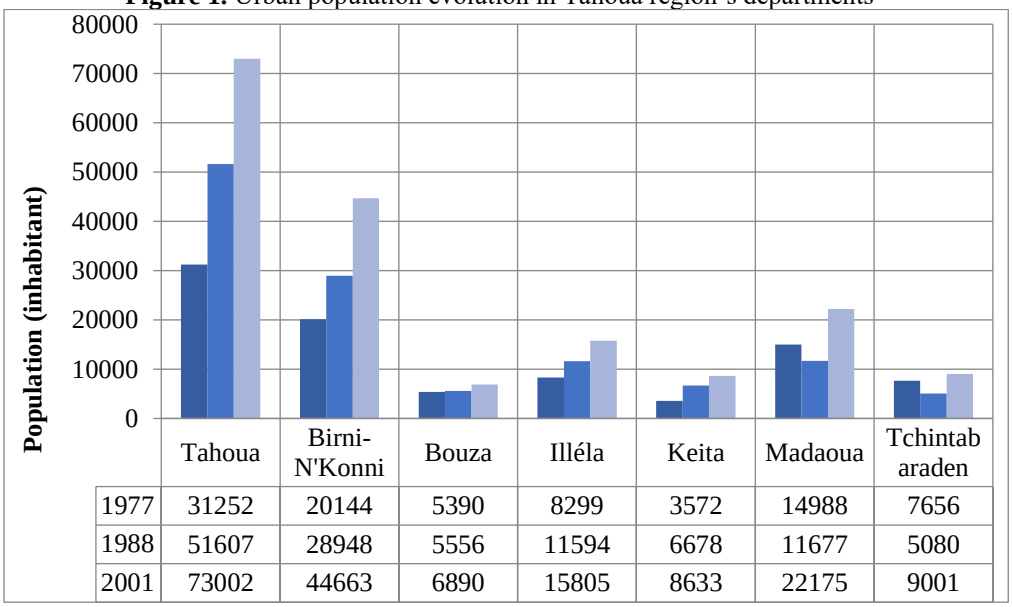
This article presents a typology of peri-urban farms in Tahoua region in Niger. It concerns also peri-urban households distributed according to the agro-ecological zones of this region. The results were obtained investigations carried out in five villages with 21 heads of household per village, which gives 105 heads of households located in urban communes of the Tahoua region. From the analysis of the results, the issues of urbanization in the rural sector, marital status, level of education, the capacity of granaries, the different food productions, the workforce and the composition in TBU per peri-urban areas emerge and agroecological. The Study will establish a diagnosis of these areas present around the secondary cities of Tahoua. The tests of normality and equality of variances allowed us to establish an ANOVA between peri-urban agro-ecological zones.

Keywords: Household, Farm, Tahoua, Niger

Introduction

Niger's urbanization rate rised from 13% in 1977 to 26% in 2010. However, Tahoua has the lowest urbanization rates with the region of Tillabéri and Dosso (2; 5). The main urbanized sites are mainly located in the department of Tahoua followed by Birni N'Konni and Madaoua (Figure 1).

Figure 1. Urban population evolution in Tahoua region's departments



	Tahoua	Birni-N'Konni	Bouza	Illéla	Keita	Madaoua	Tchintabaraden
1977	31252	20144	5390	8299	3572	14988	7656
1988	51607	28948	5556	11594	6678	11677	5080
2001	73002	44663	6890	15805	8633	22175	9001

This brief description of the urbanization of Tahoua underlines the low importance of this environment compared to the rural sector. But in view of the last population census in 2012, the average annual population growth is even greater than before with a rate of 4.6%. It will probably induce a massive exodus to urban centers (4). This increase in the urban population will engender an anarchic and "spontaneous" development of the towns located in the region as well as pressure on the food supply (1). In order to be able to develop and mobilize the agricultural potential of these areas and allow them to adapt to an increased food demand from the secondary towns of Tahoua, it is imperative to characterize peri-urban households from a "socio-agro economic" point of view (7). . The present study will establish a diagnosis of the peri-urban areas present on the outskirts of the secondary towns of Tahoua.

Material and method

The article is based on a semi-open survey of heads of sedentary households carried out during the rainy season in 2010. Stratified sampling is

based on a first stratum (enumeration area) and a second (type of environment). This article focuses on peri-urban households in Tahoua region. The first stratum (enumeration area) is calculated on the national sampling frame of the National Institute of Statistics of Niger (INS-Niger) and is defined as "a part of the territory, perfectly delimited, comprising approximately a constant number of inhabitants, close to a thousand people ”(6). The survey was carried out in five villages with 21 heads of household per village (Table 1), touching a total number of 105 heads of households located in peri-urban municipalities.

Table 1. Summary table of households from the survey in peri-urban agricultural, agro-pastoral and pastoral areas

Departments	Urban municipalities	Villages	Number of householdes	Production systems
Abalak	Tabalak	Saouna	21	Pastoral
Illéla	Illéla	Doulounfou	21	Agricultural
Kéita	Kéita	Kirari	21	Agro-pastoral
Madaoua	Madaoua	Nguiji	21	Agricultural
Tahoua	2ème Arondissement	Amadouk	21	Agro-pastoral

The study analysis is based on peri-urban villages located in production systems in the departments of Tahoua. This region presents three major agro-ecological zones determined by the type of crop (cowpea, rain-fed crops, rice, market gardening) and livestock present in these production systems. If the agricultural areas are greater than 70% then the department is defined as agricultural. If the department is located above the northern limit and has agricultural areas of less than 30%, the department is considered pastoral. And finally, the agro-pastoral departments have agricultural areas between 30% and 70% and also practice agro-pastoral farming (3).

Results and discussion

The sample shows very few female heads of households or not at all in the pastoral zone. From a marital status perspective, the majority of samples are monogamous. While the number of polygamous heads of households is more important in the agro-pastoral zone. The average age of these heads of household is 50 years. The level of educated heads of households is very low. Very few heads of households have gone beyond Koranic school. So, a high percentage of heads of household are illiterate. It rises for peri-urban agricultural, agro-pastoral and pastoral areas to respectively 55%, 45%, 43%.

The agro-pastoral zone has the highest production averages for the cultivation of millet, sorghum and cowpea. While groundnut and onion productions are more important in agricultural areas. In addition, the high production of onions in the pastoral zone comes from the location of the

peri-urban village located north of the Tarka valley and presenting surface and underground water resources allowing the cultivation of onions and peanuts (Figure 2).

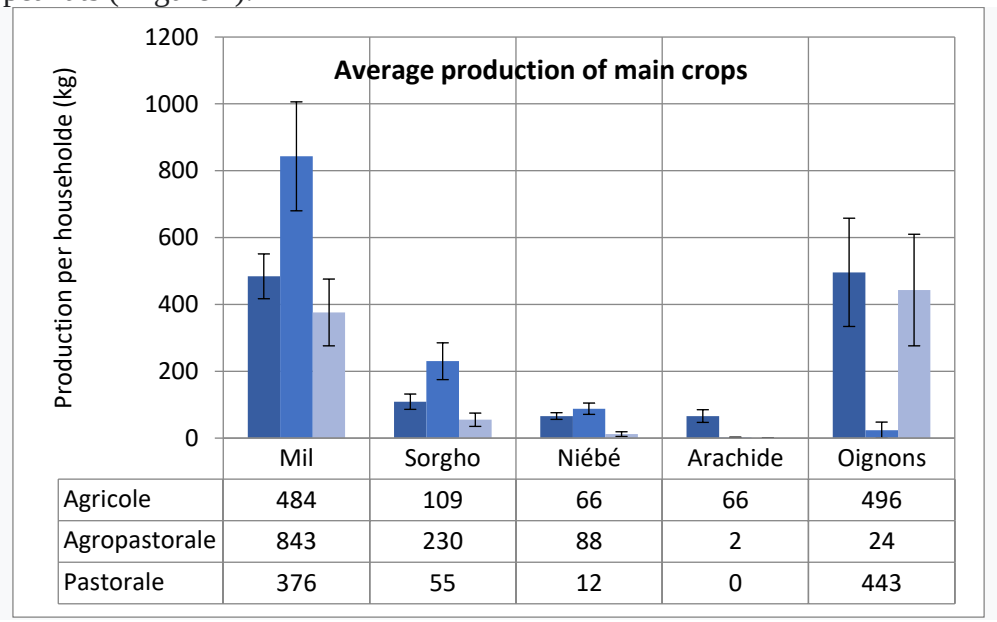


Figure 2. Three-year average of the main agricultural productions in the peri-urban area of Tahoua region

The peri-urban agricultural zone has an average granary capacity much greater than that of the other two peri-urban zones. Finally, the demographic pressure of the peri-urban agropastoral zone leads to a reduction in the average surface areas of the plots (Table 2).

Table 2. Descriptive statistics of variables in peri-urban agro-ecological zones

Variables	Agricultural	Agro-pastoral	Pastoral
Average number of plots per householde	2,2	2,2	1,7
Average area per householde (ha)	3,0	2,4	3,2
Average distance of the field from the house (km)	3,7	4,0	4,1
Average number of attics	1	1	1
Average storage capacity of attics (kg)	702	460	381
Self-consumption of millet (month)	1,8	2,1	1,1
Self-consumption of sorghum (month)	0,1	0,7	0,0
Self-consumption of beans (month)	0,1	0,1	0,1

Figure 3 shows the number of Tropical Bovine Units (TBU) per household, the peri-pastoral area has the highest number of TBUs followed by the agro-pastoral zone. Regarding the TBU composition, peri-urban agro-pastoral

households have a greater number of asins than the other areas studied. While peri-urban pastoral households have a higher number of sheep and goats (Figure 3).

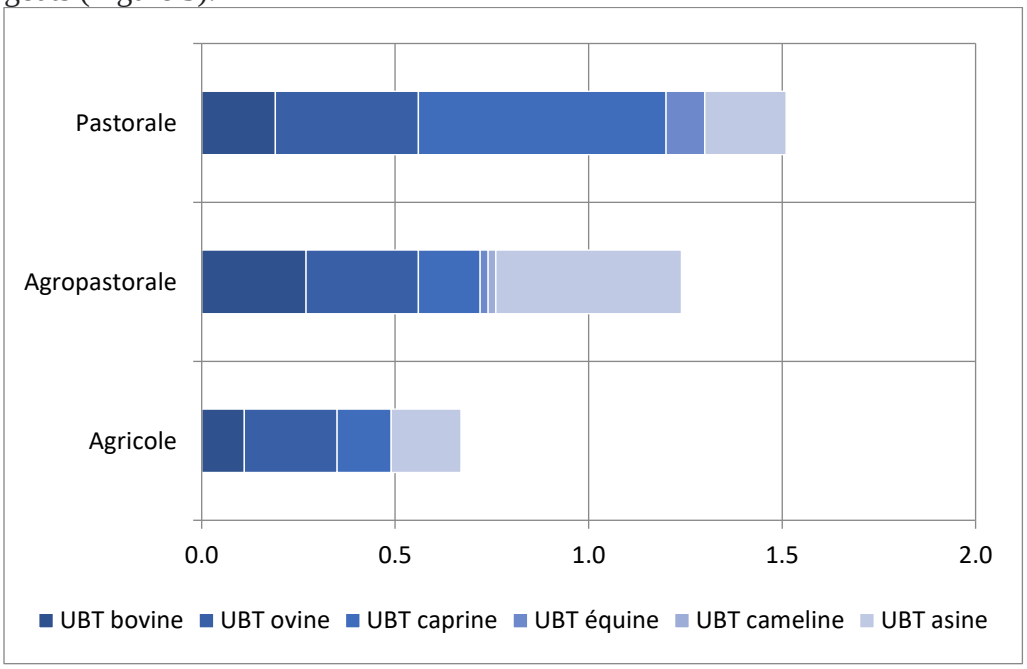


Figure 3. Tropical Bovine Unit present in peri-urban agroecological zones

The tests of normality and equality of variances allowed us to establish an ANOVA between peri-urban agro-ecological zones. It emerges that the variables linked to livestock (Number of UBTs) and agriculture (production of millet, sorghum, cowpeas, peanuts, onions) differ significantly depending on the agro-ecological zones.

Conclusion

In conclusion, peri-urban areas have similarities in terms of means of production (number of granaries, area, distance to be covered) but have different productions and TBUs. The differentiation of crops is obviously due to variable climatic conditions depending on the three zones studied. In addition, statistics for the three self-consumption variables reflect the vulnerability of peri-urban areas. If nothing is done to improve production and the population continues to grow, especially in peri-urban areas, the risk of reducing the resilience and supply capacity of households and urban centers will lead to acute chronic crisis situations. Finally, we stress the importance of setting up production systems to limit the effects of the climate as well as the recovery of land. This will generate an increase in production in a sustainable manner.

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