

Original Research

The family farming in the Ouargla region of Algerian Sahara

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ABSTRACT:

Family animal husbandry occupies a predominant part in the daily life of the Saharan populations, because of its symbolic activity anchored in their conscience. This type of animal husbandry and its fundamental traits provide information that is played on small scale since the animals are supposed to live within the family, at home or in the farm. The present study seeks to establish an inventory related to the system of animal husbandry. The experiment was conducted across four zones representative of the big region of Ouargla viz., Ksar of Ouargla, Rouissat, Sidi Khouiled and N'goussa. 20 homes by zone were the object of field investigations based on the inquiries among a total number of 80 households chosen randomly. The woman-stockbreeder represented about 67.5 % of households and the farmer-stockbreeders were about (32.5 %); they were two main players, who piloted and governed two systems of family animal husbandry; one is the domestic type and the second is of farm type; both anchor in the daily life of the local community. Moreover, it raised the existence of a true domestic industry which could be promoted to the industrial ladder by promoting organic produce.

Keywords:

Algeria, Family animal husbandry, Oasian farms, Sahara, Typology.

Article Citation:

**Boumadda Abdelbasset, Senoussi Abdelhakim, Dadda Moussa Mohamed Lakhdar,
Slim Roqaya, Merabet Aziza and Belaaroussi Med Hafed**
The family farming in the Ouargla region of Algerian Sahara
Journal of Research in Ecology (2018) 6(1): 1437-1444

Dates:

Received: 06 Jan 2018 **Accepted:** 14 Feb 2018 **Published:** 11 Mar 2018

Web Address:

[http://ecologyresearch.info/
documents/EC0527.pdf](http://ecologyresearch.info/documents/EC0527.pdf)

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INTRODUCTION

Livestock products account for 40% of world agricultural production. Milk, meat and other animal products are one of the main sources of human food of the present day world. Livestock is one of the segments of agriculture, which is experiencing the fast growth, fueled by rising incomes with technological and structural changes in addition to population growth and increase of urban population in many countries. Traditional livestock systems based on local resources and animal species are the main source of livelihood for 200 million families, providing food and income to some 70% of the rural population of the world (FAO, 2009). In Algeria, the last General Agricultural Census (RGA), conducted in 2001 by the Ministry of Agriculture and Rural Development (MARD) attended by FAO, highlighted the following figures for the national herd:

- 85.9% of cattle farmers hold 57.4% of breeding cows with an average size of 02 cows per farmer.
- 68.6% of sheep farmers hold 19.6% of sheep with an average size of less than 20 heads per breeder.
- 80.3% of goat farmers hold 42.5% of goats with an average size of less than 10 heads per breeder.

These figures illustrate a concrete situation and reflect the important role of family farming in the agricultural and rural economy.

Livestock has a major role in Saharan agriculture and is a symbolic activity rooted in the consciousness of the rural population, whatever the nature of the assets they have. Besides the family farm, it occupies a primary place in the lives of Ksouriennes companies. Moreover, for economic reasons, family farming allows aboriginal people to live and to benefit in the binding conditions. It is a source of livelihood for over 30% of this population (Bedda, 2014). However, the presence of goat is a tradition in animal husbandry in the Saharan regions as indicated by Senoussi (2004).

Indeed, goat farming is distributed in all areas; north is stationed in mountainous areas, but the bulk of

the workforce is left in the steppe and semi-desert areas (Moustari, 2008).

The small ruminants are a stabilizing activity in the economy of the family production systems in arid areas because it is less volatile than the crops and subject to weather conditions (Abaab *et al.*, 1992). The development of the economy of southern areas where livestock is one of the main activities of the people and the encouragement of investment in this type of farming today are key elements in Algeria's development policy through rural renewal and implementation since 2000.

The place of the family farm system in the Ouargla region and diagnosis of the family farm's activity in the Saharan environment are much needed for the development and understanding, thus forms the main goal of this study. It is imperative to keep in mind that the agricultural sector is heterogeneous. Agricultural assets (men and women) find themselves involved in the practice of this type of farming and is why, in this study, we adopted the concepts " household " and " farmer ".

MATERIALS AND METHODS

Ouargla is one of the oldest cities of Sahara and is a capital found at the center of an oasis. It is animates and controls, consisting mainly of small centers such as N'Goussa, Umm Erraneb, Hassi Ben Abdellah, Hassi Mouilah, Hassi Berkaoui; farther to the southeast is Hassi Messaoud and to the north is El Hadjira. At the Saharan environment many elements are in interaction and multiplicity, with diversity and complexity of factors that influence in addition to the number of socio-economic agents involved there. We opted for a systemic approach which is suitable for such a study and which involves four distinct phases:

Phase 1: Literature survey

The study area (Ouargla region) was the subject of our literature search through various sources and at first manuscripts, books, essays, articles etc., were surveyed. Secondly resource persons from different

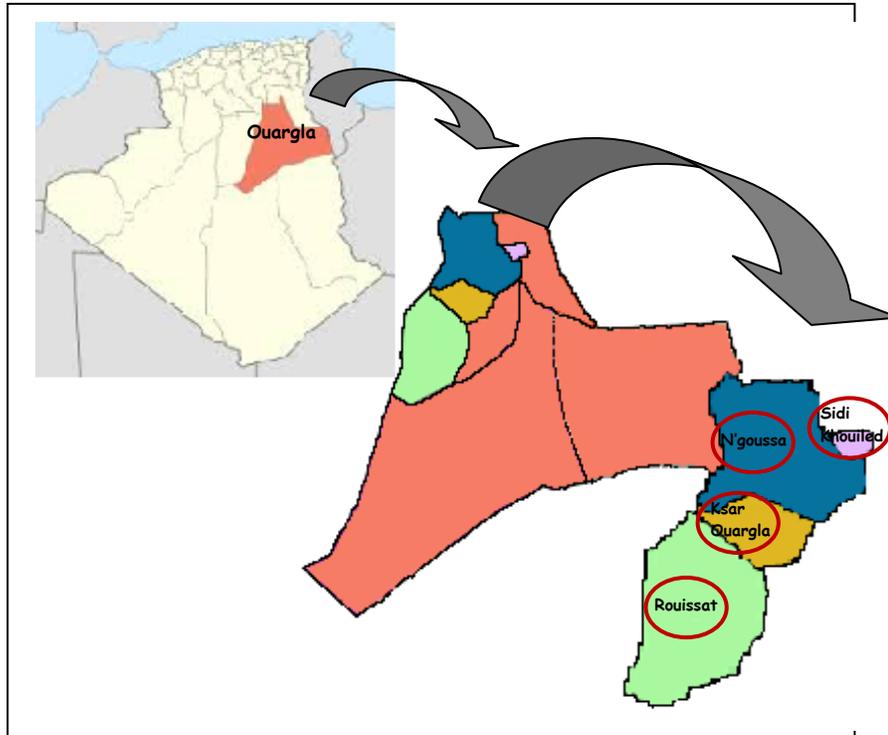


Figure 1. Overview of the survey areas.

technical and administrative bodies were enquired for the details. Ouargla is a part of the various Saharan regions with significant rainfall deficits. Rainfall is low everywhere and shows a very high annual variability. High temperatures are also recorded. The climate is arid with large temperature variations (Figure 1).

Phase 2 : Selecting areas

The survey focused on four representative areas of Greater Ouargla. This is namely the Ksar Ouargla (zone 1: Ancient oasis), Rouissat (zone 2: extension of the Oued valley), and Sidi Khouiled N'Goussa (zones 3 and 4 all two alleged as rural areas). The choice of these four areas are chosen by representative criteria such as

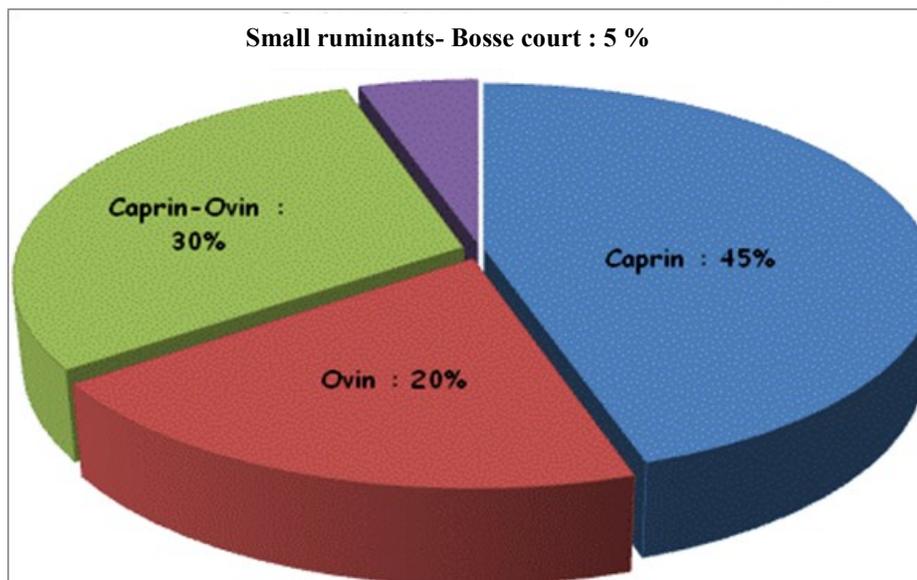


Figure 2. Structure of livestock and investigated samples

geographical positioning, physical diversity and driving mode of domesticated animals. However, the common point between these zones is the tradition in terms of family breeding.

Phase 3: Questionnaire development

A survey guide, semi-structured standard questionnaire were developed and tested prior to some households. This preliminary stage, is crucial in order to proceed to possible adjustments in the maintenance frame. In other words, the test phase allowed us to judge the appropriateness of the questions, the reality of the field and the degree of assimilation issues by our interlocutors. In short, a guide has been structured so as to allow a logical sequence in the data collection.

Phase 4: Sequence of the actual surveys

Having established a global list of 80 participants (households and farmers), it was fixed on a sample of 20 households per area. The actors were approached randomly chosen according to the availability.

RESULTS AND DISCUSSION

Like any production system, the farming system, whatever its type, is born of a human project that defines the extension by linking the elements that compose it. To this end, the man must be considered both as a decision maker and as an participant intervening on reality. It is therefore important to emphasize the inclusion of the project, the logic of the farmer and the family organization. In addition to humans, livestock system is represented by two other poles, animals and resources. The analysis of this triangle is the study of specific components in each of these poles while highlighting the characteristics of their interfaces. To achieve this goal, we adopted an approach based on the classic concept of culture system defined by Alzerreca and Genin (1992), as a set of practices and techniques used by man to obtain products, services or satisfactions from domestic animals and ecological, cultural and socio-economic in concern.

Field investigations have led initially to draw certain lessons that make the family farm system still marks its existence in a region that has undergone profound socio-economic changes. The family farm in Ouargla region is an essential component of the oasis agro-system, while its role is undeniable in the household economy. Moreover, two types of family farming systems have been identified whose logic is identical but the foundations prove different, so that two categories of farmers should be considered.

Structure of livestock

Hardiness, adaptation to the most hostile conditions and the ease of breeding, combined with the unquestionable quality of its milk made goat, the main component of family farming in the Ouargla region. As the goat ensures direct satisfaction of the immediate needs of the family milk, dairy products and meat, 45% of households approached practice only goat breeding. In addition, the results of the study highlighted that the sheep and goat association is a practice currently in the region, indeed, 30% of households recommend this association. 5% expounded about an association with small barnyard-ruminant animals represented by the poultry and rabbits (Figure 2).

Typology of family farming system

In the oases, livestock stands as a servitude to the farm. The over arching goal is agronomic because a significant proportion of organic amendments were laid



Figure 3. Domestic livestock: sheep-goat association

Table 1. Distribution of farmers according to the survey areas

S. No	Areas	Women approached breeders		Approached breeders operators	
		Number	Percentage	Number	Percentage
1	Rouissat	9	45%	11	55%
2	Ksar Ouargla	15	75%	5	25%
3	N'Goussa	13	65%	7	35%
4	Sidi Khouiled	17	85%	3	15%
Total		54	67.5%	26	32.5%

down due to the fecal manure from livestock operations. The second objective is the supply of food of animal origin (milk, meat, etc.) for home consumption (Bouaboub *et al.*, 2008). Owing pets of agricultural interest is a tradition in the local community among both the types of family farming systems because they consider it as a fundamental trait.

Type 1: Family domestic type breeding system

Local tradition of the recent past was that the animals are kept at home where there are only a few goat heads (usually 2 to 5 heads) often associated with 1 foal sheep or not and sometimes the presence of barnyard birds. They reserved a small courtyard (the home team) with rudimentary equipment while the power source is none other than kitchen scraps. Pets are local breeds, known for their hardiness while their products (meat, milk, eggs) and by-products are intended solely to cover the needs of the household (home consumption).



Figure 4. Family aging on usage: association of small ruminants / palm

Type 2: Oasis and family breeding operation

Small ruminants are relatively high in number with respect to the domestic type (5 to 10 heads), conducted in an enclosure (stable type) within the operating oasis. The latter is the main source of daily diet (forage and scrap dates), while the manure from livestock is used to fertilize the planting. This is an activity attached to the date palm, whose products (like the traditional butter "D'Hane" in addition to the traditional tapestry) developed at the family home, are self-consumed a part and the rest is sold in the same way. Also the sheeps were sold before being dead.

The main feature of this type lies in the income that constitute a source of funding for the family (Figure 3 and 4). From this survey the fundamental features of the two types in question are identified in the region of Ouargla which can be summarized mainly in:

- The sheep-goat association is a strategy undertaken by the local community with a view to meet the daily requirement of milk and fattening before slaughter and consumption. Location that is associated with the study undertaken by Boubekeur and Benyoucef (2012) showing that this mixed farming method is a local supply source to oasis homes;
- The oasis community of the study area amounted small ruminants for subsistence like the other Saharan regions and as reported by Thomas and Dubeuf (1996), like the oases of the Maghreb countries;
- The family home-type system is intended to exclusive consumption which animals are raised before

slaughter in the festive seasons (religious festivals and weddings), something that is consistent with that reported by Alary and Boutonnet (2006) who revealed that slaughters are intended to socio-religious especially for the sacrifice of Eid el-Kebir, if observed throughout the North African territory.

Participants of family farming system

Two main participants - farmers - have been identified as the animals are reared at home or on the farm.

Category 1: Female farmer

Leading a home farming is in the hands of a housewife. Suites of field investigations throughout the four survey areas, revealed that the woman have burden of the animals and they take care of the cattles. The traditional ideology of these tasks are inherent in the status of women. Livestock activities are carried out as a part of the domestic production and are assimilated to domestic duties. They takes care of animals, from small ruminants, sheep and goats to barnyard livestock (poultry and others) and also have a check on the valuation of products by livestock.

Table 1 shows the category of farmers met at different areas approached. Table 1 shows that more than half (67.5%) of the households approached throughout the region, have household women who support all of the tasks related to the business of breeding. This rate is higher (75%) in Ksar Ouargla and Sidi Khouiled (85%) where the woman remains faithful to these customs for livestock rearing, but it does not exceed 45% in the Rouissat area that begins to suffer the consequences of urbanization.

The maintenance of the animal and the local areas, leading to pastures everyday for goats, egg collection and distribution of food are all the responsibility of the woman who shares and also its role in the operation which is limited to non-exacting operations such as irrigation, hoeing, weeding, crop maintenance and collection of dates that fall on the ground for picking grapes.

Processing of animal products, including milk derivatives (traditional butter "D'Hane"), textile weaving through the traditional addition of products, by-products and co-products of the palm are valued at fair way (falling within the fields culinary and straw among others) are a real housewife industry inherited from mother to daughter. It's like the other oasis areas that this situation is encountered, even beyond the borders where Ferchiou (1978) had highlighted the undeniable role of women oasis in southern Tunisia. Something that reveals the extension of databases and traditional oasis in the Maghreb in general. Thus breeding plays a fairly important role in the family's financial security through diversification of resources and enhancement of women's status. In these production systems, women are economic actors in their own right.

Category 2: Operator breeder

In the region, where the strong attachment to the labour floor and palm is traditional, breeding is a practice associated with agriculture. This is another activity to date palm which only meets the needs of the household. Indeed, the breeder operator is both the head of household, farm manager of breeder farm where the oases are housed and bred animals. The majority of agricultural work is carried out by the manager, aided by his children, to ensure the succession but mostly fit into the family momentum through local customs and agrarian traditions.

From Table 1 we see that 32.5% of farmers approached in the region are pastoralists farmers. In the area of Sidi Khouiled only three breeders of the 20 approached breeders are farmers (15%). Although, agricultural activity in this area, is very intense, there is a dominance of crop production compared to the farming practices.

Development prospects

Now, we have to give a new dimension to this type of farming to be more efficient through a rational and intensive farming. For this purpose and for hygienic

considerations it is recommended that this type of farming is positioned in operating oasis. Certainly the development of family farming in the Ouargla region depend on the combination of many actions including intrinsic nature and other factors related to its technical-economic environment that should be considered essential.

Intrinsic factors

These internal factors at the family farm system itself, it is primarily for its conduct that underpin its promotion. Indeed, for the mastery of its conduct in terms of supply; there should be:

- A favourable host environment; a sheep or goat, within the palm, normalized with appropriate equipment (local materials);
- Ensured an establishment of prophylactically taking into account on the high animal requirements: a healthy animal must evolve in an appropriate environment for healthy breeding;
- Good master rationing of animals, taking into consideration of the species, its vocation, the animal's age, physiological condition, sex, etc. respecting the moments of distribution and ensuring both the quality and quantity of the food distributed.

Extrinsic factors

The cattle rearing will in no case be removed from the technical environment (Agricultural Services and Development) and economic factors (Units collection and processing of milk, Insurance and Banking). Its promotion depends mainly on.

- Reliable extension device
- Ongoing technical assistance;
- Regular monitoring by veterinary services, through a systematic health coverage;
- Facilitation of subsidized bank loans;
- A passage of a housewife industry towards a semi-industrial set up;
- Organization of courses;

- Certified products processed (regional products).

Promotion of family farming products

The family or home economy was once the biggest component of the Exchequer of various production activities. Moreover, the characteristics general to the investigations conducted in the Ouargla region through rural communities, appeared that they remain at potential areas for the maintenance and promotion of certain practices. Indeed, the promotion of family farming and its products is synonymous with promoting organic terroir products (typical character and quality of a natural product). By way of illustration, the local goat, called the cow of the poor, very rustic has a higher productivity than the hybrid sheep. This allows particularly to family farmers, who own some heads, to dispose of kid meat in abundance, for domestic consumption, especially in summer. Although milk yield of these goats is small (110 liters per goat per year on average), milk provides in part the diet of small children and provides raw milk, curd and fermented milk to all the family. Revenues and income provided by goats are far from negligible. Indeed tanned hides are used as carpet and they are used to make the addition to churning milk "Chekoua" and "Guerba" (also keeping fresh water in summer). In addition, the rennet is used for curdle milk, which will be then refined and converted in to cheese "Djben" or clarified butter "D'Hane ", both consumed or sol; while goat hair is used to make tents and ropes.

CONCLUSION

From this study, it appeared that, like other Saharan regions in Algeria, the family farm in Ouargla region, also persists and mark its presence with the traditional membership but it is reinforced by the household considerations. It is present in the daily routine of the community old practices are conducted rudimentarily due to the presence of aboriginal practitioners. The existence of two types of family farming system must focus through a new dimension in terms of development by mainly relying

on improved practices and more rational techniques, while the ground-breeding work association is but a fruitful symbiosis that would be measured by profitability performance. Moreover, the presence of women in the oasis environment revealed that its agricultural work is usually closely involved in their housework. This undeniable role in the transforming part of the production, after the oasis environment, to meet the needs of the family and a part to be sold on the local market. The products are proven as organic under the non-use of chemicals, however the organization of marketing channels through their certification and traceability prove imperative.

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