CHARACTERIZATION OF TRADITIONAL RABBIT BREEDING SYSTEM USED IN THE SOUTH OF TUNISIA

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ABSTRACT

This study consisted of an inventory of rabbit genetic resources at the governorates of the western South Tunisian. An inquiry was led in the regions of Tozeur and Gafsa concerning the various types of animals and their management systems.

A total of 199 rabbit farmers were touched by the inquiry. The survey conducted at each farm was performed by a questionnaire on animals and their behavior and an illustration with taking photos of the various animal phenotypes and the raising sites.

The extensive rabbit raising system with weak input and productivity is the most common system encountered in the region, while the semi-intensive system is practiced by only 5 farmers in the delegation of Dguech and 8 rabbit raisers in the region of Gafsa.

Key words: Rabbit, Management systems, Extensive system, Semi-intensive system.

INTRODUCTION

The knowledge of the origin and the evolution of domesticated rabbit species is not only an important question, but also a practical value for informed genetic diversity. The conservation of animal genetic resources to achieve and maintain sustainable production systems that are able to respond to human needs is essential for food security at national and international level.

In developing countries, traditional production systems are changing and the promotion of using exotic breeds leads to dilution or loss of adapted breeds to the environment (Bolet, 1999; Arnold and Rochambeau, 1983). Indigenous populations can contribute in food production, agricultural production and meet increasing human needs. Currently, there is few or no effective programs aiming to improve these populations (FAO, 2001).

For this purpose, it was implemented a program of inventory of the various breeding systems in the governorates of Tozeur and Gafsa, southwestern Tunisia, to characterize the various existing livestock breeding systems practiced in this region.

MATERIALS AND METHODS

Procedure of the inquire

An inventory on rabbit local resources was conducted in Tozeur and Gafsa area with the support of the Office of Livestock and Pastures regional agencies, in all Tozeur delegations and five delegations of Gafsa during the months October until December, 2005. The survey conducted at each farm was performed as follows:

1- A questionnaire on animals and their behavior. The data collected focused on:
- Environment interaction with management
- Livestock system
- The animal populations managed
- The number of males, females and young animals
- Animal housing
- Feeding system
- The reproduction system
- Health and sanitary status
- Management results
- Marketing systems.

2- Illustration with taking photos of the various animal phenotypes and the raising sites

Counted data

The survey covered 199 rabbit breeders. The classification of the breeding systems was based on housing, food and the animals' reproduction system.

RESULTS AND DISCUSSION

Breeders' distribution

The breeder's distribution was surveyed by delegation and recorded in Tables 1 and 2.

Table 1: Rabbit breeders' distribution among delegations in the governorate of Tozeur

Delegation	Number	%
Nefta	31	18.12
Hazoua	13	7.6
Tamarza	29	16.95
Dguech	65	38.01
Tozeur	33	19.29
Total	171	100

Table 2: Rabbit breeders' distribution among delegations in the governorate of Gafsa

Delegation	Number	%
Gafsa	7	25.0
El Guettar	6	21.4
El Ksar	5	17.85
Sidi Aïch	4	14.28
El Snad	6	21.4
Total	28	100

Livestock classification of various systems

The livestock systems encountered in the study area are divided into two types: the non improved livestock system and improved livestock system.

1- The non improved livestock system

a) Housing
According to the results, it was noticed that in this system of management breeding used is specially conducted in full colony. This system of management is intended to satisfy the family auto-consumption, the parents and their descendants are not separated, males and females are permanently mating in free open reproduction system. The females are more likely to be mated when they are in estrus.

Moreover, we noticed that breeders within this system rotate males among farmers, on borrowing base which will lead the livestock system to close small population with height inbreeding percentages.
The different housing systems met are as follows:
- Open free management housing: In this system of livestock, the performances cannot be measured because of the animals' mobility.
- Management under shade: In this system of livestock, equipment used could be self built or industrial deal.
- Management under ground: The breeding under ground is a rural tradition system of management with low-cost of production and least labor demand. The rabbit, displays the instinctive behavior of burrowing underground to create tunnels to escape from predators but also to avoid exposure to high ambient temperatures. (Finzi *et al*., 1988).

b) Reproduction management

In the non improved system, reproduction performances are affected by the season. Indeed, the reproduction started very slowly in autumn, reaches its peak in spring and usually stops in the summer. The table 3 illustrates some reproductions performance computed in the study area.

Table 3: Reproductions performance computed in the study area

Characteristic	Calculated average level
Age of first breeding	6 months for females 5 to 6 months for males
Number of pups live born by kindling	4 to 9
Average age at weaning	25 to 30 days
Average weight at weaning	150 to 300 g
Age at slaughter	45 to 60 days
Live weight at slaughter	750 to 1500 g

In the livestock where the reproduction system is totally free, in sprite of permanent activity of males most of them stop kindling in hottest months (July-August). Some does continue to reproduce but never reach to wean their pops. It was also observed the use of native animals because of their adaptation to the environment and local conditions.
In most farms, the breeding males and females are replaced by their own offspring. The only selection criteria are the shape and the health of animals which accentuates the risk of inbreeding.

c) Feeding systems

Food is very diversified and consists of cereals, fodder, hay, dates, bread and left over food. Concentrate does not figure in the feeding practice.

d) Health status

Concerning health status in the non improved system, there is no follow-up by veterinarians with the exception of some breeders who use the vaccines at the beginning of April and November. Is was observed the use of Vinegar, sodium hypochlorite and aspirin diluted with water as disinfectant. The most diseases encountered are galls ears and diarrhea. The stillbirth is not high except under the warmer periods.

e) Marketing system

Generally, production meat is devolved for the family own consumption, in addition to the direct sale of live animals.

2- The improved livestock system

a) Housing

The management is conducted under building with the equipments and accessories necessaries.

b) Reproduction management
In the improved livestock system, there is a good understanding of reproduction management, since there's a separation of breeding animals and their progeny. The does are introduced into the cage of the buck only at the time of the mating. The female age at the first kindly is four months, and five months in male. The number of pops by kindling varies from four to twelve born alive, the average age at weaning is 25 days and the weaning weight varies from 300 to 500 g. The most frequent reproduction system used is mating during the first week post-partum or the second week after weaning.

c) Feeding systems
Food is based on concentrate with a frequency of daily rations. In addition, the feed intake could be insured by the use of dry fodder.

d) Health state
Concerning health status in the improved system, there is a sanitary follow-up followed by the veterinarian and the use of disinfectants in the water.

e) Marketing system
The price of animals differs from the type of animals whether it intended for breeding or for consumption. The sale of the production is done directly to markets or direct sale of live animals.

CONCLUSIONS

The study showed the variability of the local livestock systems encountered in the south-west of Tunisia. These types of farms have no technical assistance, and there is no strategy for their development. To initiate a program of conservation and improvement of traditional livestock we recommend: completing the inventory through the Tunisian territory in order to ascertain the current situation in a way as accurate as possible; improving the productivity of this by improving the breeding techniques suitable for the environment; supervision of farmers in organized units such as associations and organizations ensuring products collection and services supply (feed and medicines).

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