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FARMING OF RABBIT LOCAL BREED AS AN ALTERNATIVE ACTIVITY ON SMALL SCALE FARMS IN ALBANIA

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Abstract: Rabbit breeding on small scale family farms is carried on as an alternative production activity, in Albania. Extensive production system and breeding of local rabbit breed are most frequent. Albanian local rabbit can be classified in middle size breed group. It is a population with high morphological and biological variability, with variation in coat colour. Rabbit farming is a useful production activity on small scale family farms. Breeding 2-3 couples of reproducing rabbits could increase the gross annually income of family farm up to 22-28 percent.

Key words: rabbit, local breed, description, breeding, small scale farm

Introduction

Farming of rabbits is a limited activity in Albania, developed actually only on small- scale family farms. This production activity is most frequent in coastland and in the central and southern regions. It is carried out mainly to produce meat for self consumption and a small quantity of production is destined for market. There are farms where the young people grow rabbits and this is considered by them as a hobby. Considering rabbits' capacities to produce meat, its quality and increasing interest of farmers to grow rabbits will lead to grater number of farms with rabbits in near future in Albania. Local rabbit breed named as "house rabbit" is predominant rabbit population in Albania.". It is rather difficult to define the origin of this population. Three different thesis are discussed: (i) Actual population originates from domestic animals, during the last period of Medievalism, in the region of South-eastern Europe, France, Italy, Spain etc. which have been brought, during XIX century and later in Albania by travellers who have visited these part of Europe, (ii) domestic rabbit is a population created as a result of the spontaneous process of the domestication of the wild rabbit that lives in the different regions of

Albania and (iii) actual population originates from a casual mixture of the animals domesticated in Albania and those brought from other regions of Europe.

The aim of study is to estimate production, reproduction and morph-biologic traits of local rabbit as well as its economic value in extensive system conditions of small scale family farms.

Materials and Methods

The method of study is developed following the Guidelines of FAO for identification and characterization of the local animal breeds *(FAO, 1998)*. Four different regions and not less then 4-5 farms/region were included in the study. The first step were the field activities carried out for identification and information gathering during one year period, in order to realize: i) evaluation of size population and (ii) estimation of production, reproduction and morpho-biologic traits. Estimation of above traits was done in accordance with DAD-IS, FAO requests.

Study of economic value of rabbit farming was based on the information collected from 11 small scale family farms of Poshnja, Kutalli-located in central region of Albania, Luz- coastland region and Braçanj-east southern region. The mean values of litter size, live weight at weaning (5 weeks), weight at 14 weeks (age at slaughtering), the total meat production/year/farm and its respective income per farm, were estimated.

Results and Discussion

I. Size of population

Table 1. Evaluation of population size*

	Communities			
	Poshnje	Kutalli	Luz	Braçanj
Total number of farms	1230	1780	824	205
% of farms with rabbits	6.1	4.3	3.4	7.3
Population size (rabbits)	750	450	345	338
Number of females used for breeding	185	95	67	48
Number of males used for breeding	87	52	34	27

* Evaluation statistical data for Poshnje, Kutalli, Luz and Braçanj communites, only.

The evaluation of rabbit population size was done according to the statistical surveys. First, the farms with rabbits per each commune were identified. Estimation of average number of rabbits per farm, using the data collected in 30-35 percent of the total farms with rabbits per each respective commune was used to evaluate the population size. The data presented in Table 1. is evaluation of (indicate) the number of animals at the time moment of the survey. It can be noticed that rabbit farming does not make any important production activity. A bout 4,2 percent of farms with 2-3 does/farm in average use the rabbit breeding as an alternative production activity.

II. Description of local rabbit

Body conformation. The Albanian local rabbit might be classified in the group of middle size breeds *(Toro, 1981)*. It is an animal with a solid trunk. The skeleton is covered by compact muscles, flashy shoulders and ample pelvis, strong back with right shape, head with a prolix shape, convex profile, sharp and erect ears, with a length over 20 cm. Their colour fully coincides with the colour of coat (white, grey, dusty, brown, etc), dark big eyes, red or black, very long back feet, covered with thick and strong leather in the hoof side, where the nails are well distinguished from the pigment. The tail is right. The upper part is dark. The average values of some of body conformation indexes are provided in Table1.

Table 2. Average values of body measurement (cm) in adult animals.

Trait	Female	Male
Body length	41.2±1.9	45.4±1.8
Chest circumference.	30.1±1.2	32.7±1.3
Loin width	12.2±0.9	13.8±0.7
Thigh circumference	19.3±1.0	19.8±0.9
Head circumference	20.6±1.1	22.6±1.3

Coat and colour. The coat is soft and is characterized from an average thickness and length of the fluff, about 2.0 cm. The typical colour of the domestic rabbit is dusty to auburn. However, there are encountered dusty, dappled, totally white, or fur rabbits with a predomination of the maroon or mixed maroon with white. The high variability of coat colour, which is encountered also in the animals reared on the same farm, might be explained by casual crossing and the full absence of breeding program. In order to reduce the effect of inbreeding, the farmers use reproducers often bought at the market. In these cases they are interested only for the body size of the reproducer, its weight and price.

III. Estimation of reproduction, production and morph-biologic traits

Reproduction performances. The does reach sexual maturity at the age of 3-4,5 months. They mate 4-6 times per year. The litter size at birth (total born) is about 6-8 and rarely 10. In average 30-32 young rabbits are grown per doe. The greatest productivity is realized during May and June.

Table 3. Sexual maturity traits

Trait	Mean	CV%
Age of buck at first service(days)	157.3±6.1	23.6
Age of does at first mating(days)	129.6±2.3	20.3
Weight of buck at first service(g)	3102±34.5	6.7
Weight of does at first mating (g)	2396±32.4	15.7

Table 4. Estimation of fertility and fecundity traits

Trait	Mean	Range
Conception rate (%)	80±5.3	70-90
Kindling interval (days)	55±2.1	40-80
Litter size at birth (total born)	7.8±0.05	6-10
Litter size at weaning (5 weeks)	6.1±0.04	5-7
Litter weight at birth (g)	342±4.1	294-394
Prenatal mortality per litter (heads)	1.5±0.01	1-2
Number of litters per year	4.8±0.01	4-6
Does longevity (years)*	3.5±0.01	3-6

* According the declaration of farmers

Productive performances. Rabbits reared on small family farms are slaughtered at age of 12-14 weeks. The average data of live weight in different ages, from birth up to 14 weeks, are provided in Table 5.

Table 5. The average data of live weights and meat production (g)

Trait	Mean	Range
Weight at 14 days	223±2.3	192-247
Weight at 21 days	372±3.8	325-412
Weight at 28 days	581±6.2	525-713
Weight at weaning (5 weeks)	728±5.4	650-962
Weight at 8 weeks	1321±27.3	1289-1365
Weight at 12 weeks	1845±32.8	1823-1875
Weight at 14 weeks	2295±46.3	2175-2394
Daily gain 5-8 weeks	26.2±0.8	21.8-37.2
Daily gain 8– 14 weeks	21.0±1.0	21.1-21.07
Meat production-kg live weight/does/year	69.3	50-80

IV. Rearing system

The predominant rearing system is extensive system of the production, with limited inputs. Women and children (takes care) look after rabbits. To increase the rabbit meat production on small scale family farm, the genetics and selection, reproduction system, feeding system, housing conditions, hygiene, prophylaxis, and veterinarian service should be improved (*Daija et al. 2006*).

Genetic and selection. Rabbit local breed constitute actually the major rabbit population in Albania. The animals are very well adapted to the harsh conditions of extensive production system of family farm. To improve the hereditary production traits the crosses with exotic breeds as White New Zealand, Californian etc. breed are can be used.

Feeding system. A different feeds produced in farms like as pasture grass, alfalfa, clover, potatoes, sugar-beet, cucurbit, watermelon, carrots, apple, apricot, acacia, poplar and willow leaves are used for rabbits feeding. For young rabbits fresh nettles are often used. Cereals like as oat, barley, maize, their brains, and legumes like as peas pieces, beans, etc are used in a small quantity. Water is given without limitation.

Housing system. Simple shelters prepared by casual means as timber, furring, perches, rods are most frequently used. The rabbit cages are kept in the yards near the house, in places protected by the wind and rain. Usually cages with dimensions of: 70 cm of wideness, 90 cm of length and 50-60 cm of height are used. They are placed on 4 feet to stand up about 1-1.4 m over the ground level, the floor is made of a metallic net, with 1.25 x 1.25 mm squares. Uncontrolled microclimatic parameters make the critical problem in small family farms.

Hygiene, prophylaxis and veterinarian service. The hygienic-sanitary conditions in the mini farm of rabbits are pretty poor. No special care is shown about the cleaning and hygiene of the cages. The litter is rarely changed. The health problems depend on the stage of rabbit development and growth. Two-week period after weaning is most critical for rabbits. he. During this period the mortality rate has high value (*Nicodemus et al. 2002, Piu et al. 2005*). The type of feed used during this period is one of most influential factor. High energy diet with low fibre level augment the percentage of mortality and high fibre ration with low energy level reduce mortality rate (*Dimitrova et al. 2009*). The protocol of vaccination is not implemented rigorously and farm visits of the veterinary specialist are really scarce. As a quenches s, there are not rare the cases when the illnesses are the cause for the death of all rabbits at the small family farms. The routine illnesses are frequent and the charge with parasites is high. The young rabbits are often affected from illnesses of the digestive apparatus. The parasites are frequent in feet and ears.

V. Estimation of economic value of rabbit farming

Data presented in Table 6. shows the estimation of different indicators that give the information about the economic value of rabbit breeding in small scale family farm.

Table 6. Averages of economic indicators

Indicator	Commune			
	Poshnje	Kutalli	Luz	Braçanj
Litter size at weaning	6.7±0,02	5.9±0.01	6.1 ±0.02	6.8±0.01
Number of litters per year	4.9±0.01	4.3±0.01	4.6±0.02	5.0±0.01
Live weight at weaning (5 weeks) (g)	726±9.2	683± 5.8	673±8.4	751±9.8
Live weight at slaughtering time(14 weeks)(g)	2412±28.2	2304±31.3	2247±29.4	2589±32.5
Total meat production/farm/year (kg)	187	148	163	216
Total income (€)/farm/year	473	374	412	546

Approximately we can calculate annually income of the farm with rabbits making the assumption that all the rabbit meat produced during one year, is sold in the market with the actual price of 2,53 Euro/kg. The comparison of farm income from rabbit rearing with total income (gross income from sales of livestock production) underline the economic value of rabbit breeding in small scale family farm. (Table 7.)

Table 7. Comparison of the income form marketing of rabbit meat and from other livestock production

Indicator	Commune			
	Poshnje	Kutalli	Luz	Braçanj
Total income (€)/farm/year from marketing of all rabbit meat production	473	374	412	502
Total income from sales of livestock productions*	1930	1320	1850	1760
% of increasing of gross annual income by the rabbit farming	24.5	28.3	22.2	28.5

* Evaluation from data of Statistical Yearbook, Ministry of Agriculture, Food and Consumer Protection, 2008

Conclusion

Rabbit breeding in small scale family farms is carried on as an alternative production activity, in Albania. Extensive production system and breeding of local rabbit breed are most frequently. Albanian local rabbit can be classified in middle size breeds group. It is a population with high morphological and biological

variability, with h variation in coat colour. Rabbit farming is a useful production activity in small scale family farms. Breeding 2-3 couples of reproducing rabbits, could augment the gross annually income of family farm up to 22-28 percent.

Uzgoj lokalnih rasa zečeva kao alternativna aktivnost malih farmi u Albaniji

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Rezime

Uzgoj zečeva na malim porodičnim farmama se obavlja kao alternativna proizvodna aktivnost u Albaniji. Ekstenzivni sistem proizvodnje i gajenja zečeva lokalnih rasa su dominantni. Albanske lokalne rase zečeva se mogu klasifikovati u grupu rasa srednje veličine. To je populacija koja se odlikuje visokom morfološkom i biološkom varijabilnošću, sa varijacijama u boji krzna. Uzgoj zečeva je korisna proizvodna aktivnost-delatnost na malim farmama porodičnog tipa. Uzgoj 2 do 3 para priplodnih zečeva može povećati ukupni godišnji prihod porodične farme i do 22-28%.

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