MEASURES TO IMPROVE THE MANAGEMENT OF SHEEP MEAT PRODUCTION

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Abstract: *The constant supply of meat and sheep products involves finding relevant solutions that use at optimal parameters the existing resources in the area, without major impact on environmental factors, by increasing production. Proper location of farms is the best way to preserve the quality of the environment, if best operating practices are developed for meat production. Sustainable management practices can reduce the effects on grazing through the efficient use of alternative feeds, breeds and hybrids with a high degree of adaptability and good conversion rates.*

Key words*: sheep, management, meat production, grazing*

INTRODUCTION

The distinct contribution of domestic animals contributes to the social and economic development of the rural masses in many countries, many rural households earn their living from raising animals and consider keeping animals as a real asset, given that they are one of the mainstays of of agriculture, providing 50% of the value of global agricultural production and 33% of the value of agricultural production in developing countries [15, 16].

Over the years, some researchers have found that there are several factors that influence animal production [7, 8, 9]: first of all, it is the increase in red meat consumption caused by the rise of the middle class, the availability of jobs, national policies; fast growing economy; the interaction between ecology, economics and sociology; urbanization policy and last but not least investment policies and practices. At the same time, certain internal or external environmental factors have contributed over time both positively and negatively to the numerical change of sheep herds. These factors include genetic improvements; increasing demand for animal products; rapid population growth; economic development and income growth; scientific advances in reproduction, nutrition and animal health [4]; technological innovations; changes in climatic conditions; and last but not least, changing food preferences. Genetic factors (breed, individuality, sex, type of calving and conformation) also have a major impact on influencing sheep meat production.

Laugha. The linkage of the breed of sheep to be exploited for a certain production depends on: environmental conditions; suitability of the breed for a certain production; the intensity of operation desired by the manufacturer; the breeder's tradition in this occupation; the economic power of the farmer; requirements of the consumer of animal products. Sheep breeds are classified according to their production and quality: fine wool sheep breeds (Debouillet, Rambouillet), mixed sheep breeds (Columbia, Corriedale, Targhee), meat sheep breeds (Texel, Ile de France, Hampshire , Shropshire, Southdown, Suffolk) and prolific sheep breeds (Finnish Landrace, Polypay), dairy sheep breeds (Awassi) [11, 12, 13].

Individuality. Within each sheep breed, regardless of its lateness or precocity, there are a number of individuals with superior traits in the production of meat, milk, wool, which selected can form nuclei subject to selection and improvement of productive traits [7, 14]. Each individual in a breed has variations in productivity and quality, genetic differences being a multi-causal factor because the differences in learning ability, milk storage capacity, behavior, metabolism, calving, social rank or sensitivity compared to

stress can be presented separately or as additional factors that increase the variation of texture compression, especially in the early stages of life.

Another genetic factor is **sex**. Male products and those from single calves have a higher growth and fattening energy, respectively a higher weight, compared to twin or triple products even if the metabolism of the latter is much more intense during the period of growth and fattening. Certainly the sex of the sheep (male, female, neutered) determines the following productive parameters: the amount of stored fat (higher in females due to their precocity); the color of the meat; the degree of physiological maturity in animals of the same age; the place where the fat is stored; the pH of the meat; carcass yield (most affected by the sex of the animal) and growth rate.

The type of calving is another genetic factor, with different production systems for obtaining meat, which differ depending on the season. The first type is the production of autumn lambs, in which the existence of reserves of autumn and winter fodder, pastures, alfalfa stubble is necessary, and the lambs born in autumn are occasionally weak and small due to the heat stress of the period. gestation (summer). Under the winter lamb production system, sheep must be mated in late July, August and early September and their ovulation rate must be increased, and the lambs may be weaned, if properly fed, at the age of hatching. 60 days. The production of spring lambs is the most used system in the western part of Romania, the calving coinciding with the mating and the season of natural calving, and the sheep are mated from the end of September to November and the calving takes place from the end of February to the end of April, a production of lambs of 150-160% is expected. Accelerated lamb production is the production system in which sheep do not breed only once [5, 6, 11] and has the advantages of increased lamb production, with lambs ready to be marketed, regardless of the season, with jobs and facilities on throughout the year. Certainly this system can only be implemented with excellent management, intensive care and exact nutritional requirements. Accelerated lamb production is the production system in which sheep do not breed only once [5, 6, 11] and has the advantages of increased lamb production, with lambs ready to be marketed, regardless of the season, with jobs and facilities on throughout the year. Certainly this system can only be implemented with excellent management, intensive care and exact nutritional requirements. Accelerated lamb production is the production system in which sheep do not breed only once [5, 6, 11] and has the advantages of increased lamb production, with lambs ready to be marketed, regardless of the season, with jobs and facilities on throughout the year. Certainly this system can only be implemented with excellent management, intensive care and exact nutritional requirements.

The last genetic factor that influences production is **conformation**. The analysis of the biometric traits [14] of Kajali Indian sheep to provide an explanation of their body conformation for the purpose of predicting body weight in adulthood it resulted that they are large and good meat producers. Research shows that, the change in conformation in Dorper sheep significantly influences the growth rate and carcass composition [10]. Three major components explain body biometrics:

- body size explains about 36% of the total variation (chest circumference, abdomen circumference and body weight);
- tail length and height and ear length explain about 21% of the total variation;
- face and ear length explain only about 43% of body conformation.

MATERIALS AND METHODS

The research was carried out in a farm, properly located, to avoid pollution, by degrading environmental factors, soil, air and water, on sheep herds of the Țurcana breed and Țigae breed, using modern scientific methods. Given the fact that watering and resting areas, storage of materials and feed are sources of pollution, we have taken timely, organizational measures to reduce soil compaction and groundwater pollution, respectively to make the impact on the environment as harmless as possible. Within this scientific approach, we set out to develop good practices for pasture exploitation, improving production management with real chances of implementation in any farm.

RESEARCH RESULTS

As a way of carrying out this scientific approach, we started several activities regarding the organization of the farm and the exploitation on pasture for meat production, so that the environment does not suffer a major negative impact: the pasture was fenced and parceled out on the ground; location of gutters for food supplemented at a distance from the watercourse; the resting places were provided with water sources; the waterers were moved periodically to prevent the accumulation of waste, the destruction of the vegetation and the groundwater table and the compaction of the soil, and the crosses were made in separate, properly placed boxes.

Due to the fact that the facilities cannot be located far from areas sensitive to environmental pollution, we applied techniques that do not allow contact of waste and feed with water, using biological filters, it is essential to restore natural flow patterns and reconnect drains to recreate natural hydrology.

Certainly, both sheep grazed on pasture and pollution and some human activities (workroad maintenance, grassland restoration, forage crop cultivation) are the causes of soil erosion, and to reduce this erosion at the ground level, it is necessary that the vegetation is not cut below 5 centimeters near the banks of watercourses on pastures.

Depending on several parameters (soil type, slope inclination, land drainage, feed management and pasture maintenance) the risk of sheep manure infecting groundwater quality may vary, which is why a proper farm location is imperative. Due to these considerations we have taken into account certain operating practices for meat production, which reduces the degree of water quality degradation: grazing and fencing with electric fence; avoiding grazing near drains and outflows; planting protective vegetable curtains around the pasture; use of mobile drinkers; moving additional feed places with concentrates; pasture rotation to restore the vegetation and avoid soil compaction; moving sheep from compact soils during rains to more permeable soils; and the implementation of an environmental risk management system.

In order to obtain high sheep meat production, we must consider efficient grazing management:

- ensuring in the floristic composition of the pasture some plant species with a high degree of digestibility, as well as with a good resistance to ironing;
- ensuring an optimal load of animals on the grazed area, depending on its productivity;
- the beginning of the grazing on the vegetal carpet to be done at a certain height of it, where the plants have a high degree of digestibility, at the same time the natural sterilization of the pasture is carried out, under the action of the sun rays, as later for a faster recovery of the vegetation mat, the sheep to leave the grazed plots, at a height high enough to allow an efficient and complete regeneration of the land.
- fertilization and irrigation of plots at rest to increase mass production.

In this sense, sustainable grazing management practices can reduce the effects of overgrazing (figure 1.)

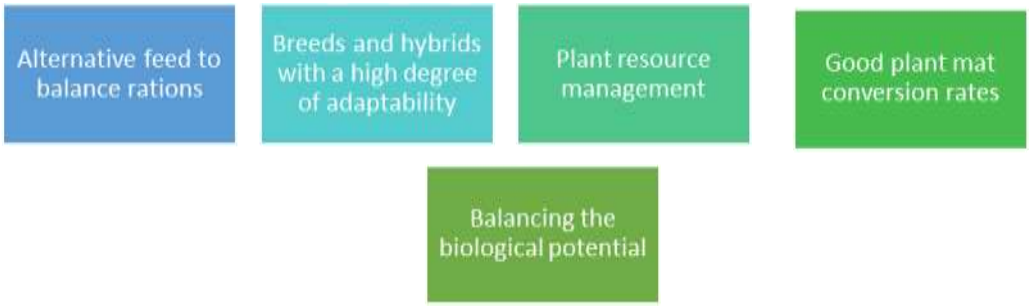

Figure 1. Sustainable grazing management practices for sheep farmed for meat

We first undertook research on the knowledge of the skills for meat production of the existing breeds on the farm, namely the native breeds Țigae and Țurcană (Table 1).

Table 1.

Production of native breeds

Breed	Average daily gain (g)	Feed conversion rate (UN)	Carcass Yield (%)
Țigae	181	6.2	52.8
Țurcană	170	6.3	50.3

In order to obtain hybrids with meat production clearly superior to the local breeds, we made the necessary steps for crossbreeding between the local breeds, found mainly in the western part of Romania, respectively Țurcană and Țigae breeds, with different specialized breeds for meat production: Texel, Ile de France, Southdown and Suffolk. Following these, we identified variations of certain parameters (average daily increase, yield and specific consumption) (Table 2.).

Table 2.

Native breed crosses with meat hybrids

Maternal Race	Paternal Race	Average daily increase (+ / -%)	Carcass Yield (+ / -%)	Feed conversion rate (+ / -%)
Țigae	Texel	+12.5	+3.47	-8.97
	Ile de France	+8.03	+3.12	-10.55
	Suffolk	+9.39	+4.62	-12.91
Țurcană	Texel	+9.83	+8.76	-15.90
	Ile de France	+17.3	+8.30	-9.43
	Southdown	+4.70	+0.59	-9.53
	Suffolk	+12.35	+3.58	-12.70

The local breeds, such as Țurcana and Țigaia, represent an important reserve for meat production in our country, they have a large share of the entire sheep population in Romania and have good meat skills, which according to the table above, by crossing with Meat breeds can be substantially amplified.

The sustainability of the resources in the riparian areas of the pasture has economic effects by reducing the costs of restoring the environment while keeping it unaltered. We believe that there are the following ways to improve the uptake of vegetable fodder:

- the use of ruminal symbionts which break down feed and make it easily digestible;
- selective breeding of sheep (with good feed assimilation capacity; the use in pasture composition of fodder plants with high digestibility);
- the use of single chopped fodder in fattening in large batches.

Good feeding of sheep by grazing sheep contributes to reducing the area of pasture or area cultivated for cereal production and reorganizing them for other uses. When the exploitation is done in a semi-intensive or intensive system, the most efficient managerial strategy is the use of microorganisms that favor the fermentation of the ingested food and ensure a better digestibility. This strategy results in the achievement of good average daily increases and can be an incentive in the adoption and implementation of new managerial practices: the use of feed with a high degree of assimilation; the use of breeds and hybrids with high feed conversion capacity; the use of microorganisms that promote the fermentation of feed before ingestion.

CONCLUSIONS

In order to ensure a constant market with sheep meat and meat products, it is necessary to implement in sheep farms managerial measures to use at optimal parameters the existing plant resources in the area, without major impact on environmental factors by increasing production. Good pasture farming practices for meat production should help to reduce the pollution of water, soil and air quality, using the most efficient methods of grazing control, and several types of grazing are proposed: intensively managed, by rotation for the efficient management of plant resources or using alternative feed to balance feed rations.

Sustainable grazing management practices can reduce the effects of overgrazing, efficiently using alternative fodder in rations by using as biological material breeds and hybrids with a high degree of adaptability to the operating system, good plant mass conversion indices, high capacity of assimilation of food and producing smaller amounts of manure. Grazing can be efficiently managed only on fenced plots, to preserve vegetation and reduce the speed of rainwater that erodes the soil and only when the vegetation has the appropriate size and optimal nutritional value to achieve average daily weight gain. Sustainable management of resources in the riparian areas of the pasture has economic effects on the areas.

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