Swot analysis of goat rearing towards its sustainability: Case study with Bravia goat breed

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Swot analysis of goat rearing towards its sustainability
Case study with Bravia goat breed

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Abstract. The objective of this paper is to make a SWOT analysis based on the evaluation of some important parameters of sustainability, focused on farms with goat livestock, especially with the Bravia goat breed. The identification of mechanisms/actions/innovations developed by these farms, for their survival, as well as as the created opportunities that can sustain them, is also a main purpose of this paper. The methodology focuses on surveys to farmers who hold different levels of livestock headage. This study is still under development and started with a small sample of farmers. The high mortality rate, the need for constant labour and the dependence of farmers on the farmers' cooperative for most purposes are the main weaknesses found in these production systems. Effective responses to these situations are revealed as the main opportunities of the activity under study.

Keywords. Farming system – Sustainable agriculture – SWOT analysis.

Analyse SWOT de l'élevage de chèvres vers leur durabilité. Étude de cas avec des chèvres de race Bravia

Résumé. *L'objectif de ce travail est de développer une analyse SWOT basée sur l'évaluation de certains paramètres importants de la durabilité, axée sur les fermes avec chèvres, en particulier avec chèvres de la race Bravia. L'identification des mécanismes/actions/innovations développés pour ces exploitations, en vue de leur survie ainsi que les possibilités offertes qui peuvent les soutenir, est également un objectif principal de cet article. La méthodologie met l'accent sur des enquêtes auprès d'agriculteurs qui détiennent différents niveaux de têtes de bétail. Cette étude est encore en développement et a commencé avec un petit échantillon d'agriculteurs. Le taux de mortalité élevé, la nécessité du travail continu et la dépendance des agriculteurs d'une coopérative sont les principales carences de ces systèmes de production. Des réponses efficaces à ces situations se révèlent être les principales possibilités de l'activité sous étude.*

Mots-clés. *Système d'élevage – Agriculture durable – Analyse SWOT.*

I – Introduction

At the present global context, agriculture and food sector is facing an uncertain future. They have to confirm to be capable of dealing with sustainability in order to play a key role in ensuring food sufficiency and well-being of rural populations, present economic viability, prevent social exclusion, promote social equity and preserve natural resources by preventing environmental degradation. In this context, the main objective of this work is to identify problems and opportunities as well as the weaknesses and strengths found and developed by the farmers in order to identify the conditions/factors/situations/practices that can enable the sustainability of farms.

The study on this theme is based, on some very specific cases. It begins with the goat livestock,

especially with the autochthonous Bravia goat breed, which is reared mainly in mountainous areas of the northern of Portugal (Marão, Alvão and Peneda mountains) (Afonso, 2004). The breed is dispersed into mountainous zones above 500 meters of altitude, which are demarcated by a sharp topography, dense shrub and hard agro-climatic conditions (Lourenço, 1999). The main land use of these areas is livestock farming, and economic viability of farmers substantially relies on incomes from agriculture subsidies, specially the agri-environmental payments. The systems under study were also selected due to their contribution to fight human desertification on mountain areas, by providing added value in economic and socio-environmental terms. However, these systems need revitalization, by improving their profitability and promoting the rejuvenation of the farming population, but also by dealing with a goat breed of high rusticity, transformer of intrinsic natural resources of the mountain zones where a significant regression of herds has been registered (to the current point, where they reached "risk of extinction" status) which can lead to loss of genetic assets.

II – Methodology

The main methodology is focused on surveys to farmers that hold different levels of headage of the goat Bravia breed, located in the production area, during 2010. Approximately 10% of the registered producers in the national association of producers of Bravia goat (ANCABRA) were contacted. There were distinguished three headage levels: less than 50 heads (little-sized farms); 50 to 150 heads (middle-sized farms); and more than 150 heads (large-sized farms).

The collected information was used to assess the evolution of specific parameters of the sustainability of the farms, in the last five years approximately, and based on those indicators was carried out a SWOT analysis of the systems.

The SWOT analysis is an approach used in the analysis of a company's strategic position, thorough the analysis of the company's internal and external environment (Hill and Westbrook, 1997; G. Houben *et al.*, 1999). The external environment consists of variables existing outside the company, which in the short-term are not under the control of the company. These variables form the context in which the company exists and labours. The internal environment of the company consists of variables within the company itself. These variables form the enterprise context in which work takes place (G. Houben *et al.*, 1999).

SWOT stands for "strengths, weaknesses, opportunities and threats". Here, the SWOT analysis identifies the strengths and weaknesses of the farms, in support of the identification to future actions, able to achieve the optimal use of the opportunities and the control of the threats.

III – SWOT analysis of the studied farms

Table 1 contains some general indicators that can characterize the surveyed farms. Depending on geographical location, the size of the herd varies significantly. This fact was already noticed by other authors (Lourenço, 1999), that showed that in the mountainous area of Alvão and Marão, the goats herds are well above of the average found for the Peneda mountain.

The information collected from the surveys allowed to assess some aspects of sustainability and to analyse the evolution of some economic, environmental and social indicators of the farms, in the last five years. Despite the null or reduced evolution of the systems, it is worth to note the increase in the stocking numbers towards the diversification of animal production (cattle rearing), mainly for self-consumption. Also noteworthy, it is the inclusion of this activity on farmers' projects for their youngsters, as an answer to high unemployment rates. Based on this information it was developed the SWOT analysis for the Bravia goat system in the studied farms, presented in Tables 2, 3 and 4. The strengths and weaknesses are internal to the system. The opportunities and threats correspond to the external environment of the farms. The aim of this analysis is to identify the key internal and external factors that are significant to achieve the sustainability of the goat farms.

Table 1. General indicators of the studied farms

	Small farms	Middle farms	Large farms
Localization	Peneda	Alvão	Alvão-Marão
Adult goat heads	24.67	87.5	202.5
Total Livestock Unit (LU)	8.753	30.88	38.72
Farm area (ha)	3.5	33.5	21.25
Community pasture area (ha)	3.9	25	27.5

Table 2. Economic SWOT analysis of the Bravia goat production system

Strengths	Weaknesses	Opportunities	Threats
• Final products of the farm are, in some cases, the main source of income of farm families, by selling the kids increased with monetary support • In other cases, animal products consist of an additional source of income • Production of a kid with unique flavour, benefiting of the combination of the breed with the soil, the climatic conditions, the flora and the extensive rearing system • Low production costs • Minimal or no additional expenditure in feeds • Low dependence on external inputs • Low initial investment • Breed supported by Community measures • No difficulty in outflow of animal products	• Low profitability of the system • Low income/ productivity/production efficiency • High mortality rate of goat kids • System financial support -dependent • Absence of a fixed monthly salary • High prices of inputs • Lack of accounting records • Low productivity of land (low land quality) • Non-regular out-flow of goat kids, but concentrated in 2/3 times on year	• Contributes to the maintenance and valorisation of abandoned areas • Collection of food for own-farm households • Low production costs compared to other breeds and animal species (food, veterinary) • Low initial investment per animal compared with other breeds and animals species (buildings and equipment) • Single portuguese goat breed with exclusive production of meat (marketing opportunity) • Existence of a National Association (ANCABRA) giving technical support • Production area near to Galicia, where the portuguese products are highly valued • Goats of Bravia breed are 'almost' wild - opportunity for wild agritourism	• Weak role of the association of producers of Bravia goat meat in outflow this product a good price, ensuring sanitary conditions of food safety • Farmers dependence of a cooperative whose operation is ineffective • Lack of competitiveness of products in the markets • Higher product price (Bravio kid) than other competitors breeds and species • Unfair competition (sale of lamb per kid) • Inability to certify the wild kid, affect trust in the product

Table 3. Environmental SWOT analysis of the Bravia goat production system

Strengths	Weaknesses	Opportunities	Threats
• Preservation of an autochthonous animal breed at risk of extinction • Extraordinary hardiness and ability to adapt to the most harsh regions and facility of movement in rugged and harsher terrains • High use of available resources by goats • Control of weeds through grazing animal • Low animal stocking • Agro-forestry system is a carbon sink	• Villages soiled with animal droppings • No paths or inaccessible paths to the shepherd • Behaviours few environmentally responsible, due to the lack of livestock husbandry (sleeves, tanks, pediluviums)	• Contributes to the maintenance and valorisation of abandoned areas • Rational agricultural and livestock planning • Natural clean of woods and fallow land by grazing animals, reducing fire risk • Conservation of biodiversity, ecosystem and landscape • Opening paths by the implantation of wind turbines • Single portuguese goat breed with exclusive production of meat • Less demanding in terms of energy	• Increase of newly forested areas • Grazing areas of difficult access to the shepherd • Problems relating to the commons management • Existence of roads on grazing course • Lack of monitoring of the measures applied to the conservation of wild species (wolf)

Table 4. Social SWOT analysis of the Bravia goat production system

Strengths	Weaknesses	Opportunities	Threats
• Enables the creation of self-employment • Allows to produce food for own consumption • With the adoption of vezeira (collective herd-keeper system) there is greater willingness of farmers to other tasks/products • The adoption of vezeira contributes to the social cohesion • Farmers motivated to continue goat activity, even without financial support	• Lack of manpower in the traditional system • Requirement of manpower everyday • Hard work as a result of steep slopes and the degraded or inaccessible paths • High degree of aging of farmers • Low levels of schooling • Poor land structure (small areas with high fragmentation and steep slopes) • Poor conditions of animal welfare	• Combating human depopulation • Increased consumer confidence in the final product • Lack of alternatives to agricultural activity • High unemployment rate • "Healthy" way of life	• Absence of descendants to the goat activity • Low social value of farming activity • Social discrimination of the shepherd • Negative perception of agricultural sector by farmers • High abandonment of the activity in recent decades • Poor conditions of quality of life for farmers families

IV – Final considerations

This paper developed a brief SWOT analysis of the system under study, with the identification of its strengths and weaknesses and its opportunities and threats. Based on these aspects, there are enumerated some actions/innovations that can be developed to improve the sustainability of surveyed farms.

(i) *Activity and region revitalization* – According to Miranda (2000), to preserve mountain areas it is not sufficient to solve only the problems of accessibility of villages, its infrastructure or its homes. Actions in terms of other aspects are considered essential to revitalization. For example, the creation of conditions for fixation of the population, by socio-economic activities that can generate jobs and income; by agricultural rejuvenation of the sector, and by promoting improved standards of living.

(ii) *To bet on agro-forestry systems* – The focus on development of mountain areas should be pointing to their differentiator's strengths in relation to the remaining (Miranda, 2000). It should be based on the main economic system, which is agro-forestry – the livestock of local breeds in extensive manner – betting on the quality of its products, imparting activity and reducing its heavy work.

(iii) *System diversification* – These systems must diversify its production and its economic activities. In the case of goats, not just the kid should be the target of a market transaction, but, for example, the manure could be sold in local markets. Other economic activities should be deployed to keep the local population, as indicated by Pacheco (2000), such as ecotourism, at various levels, and crafts. The food may have a leading role in the development of the systems under consideration.

(iv) *To increase herds' size* – Another aspect that deserves attention is the increasing of the size of herds, keeping manpower and land assets. This strategy was already identified by Pacheco (2000), in order to allow improvement of economic performance and to compensate the time spent in driving and guarding the cattle grazing.

(v) *Vezeira practices* – To reduce working hours, keeping or increasing activities by adopting vezeira practices could be another strategy for economic and social development.

(vi) *To implement better management practices* – The decrease of mortality rate of goat kids will, likewise, improve the economic performance of the practiced systems. To do this it will be needed to implement management practices on the farm with effective hygienic, sanitary and health standards.

(vii) *Activity organization* – However, it cannot fail to mention that for the sustainability of the activity of farming Bravia goats to be effective, certain measures concerning the organization of activity and its relationship with the organization of producers will have to be started up, for an effective technical support, an adequate flow of product, and availability of inputs at a good price.

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