

MIGRATION AND TRANSHUMANCE IN SHEEP

CSIZMADIA BIANCA¹, ISDRARIU IONUȚ BOGDAN ALEXANDRU¹,
ȚÎRLEA IOANA CRISTINA¹, PETROMAN IOAN¹, PETROMAN CORNELIA^{1*}

¹University of Life Sciences "King Mihai I" from Timișoara,
Faculty of Management and Rural Tourism, Timișoara, Romania

*Corresponding author's e-mail: c_petroman@yahoo.com

Abstract: *The existence and efficient use of natural food resources is a permanent concern of sheep breeders, who move their flocks through migration and transhumance over shorter or longer distances, a phenomenon that can be used as a resource for the practice of pastoral and transhumance tourism, diversifying animal production systems, moving from old migration systems to systems of collective transhumance and diversification of pastoral activities in order to preserve the biodiversity of transhumance routes among tourist routes through the good practices of practicing sustainable pastoral tourism, because both static herding without herd migration as well as transhumance with its forms are matters of cultural importance given the fact that they have a multi-millenary tradition being ineffective for rural areas. Transhumance and pastoral tourism are territorial identity factors, with the aim of preserving migration paths and routes, improving ecosystem services thanks to environmental risk measures regarding the use of resources and the protection of environmental factors.*

Key words: *sheep, resources, migration, transhumance*

INTRODUCTION

The problem of natural resources [1,16] of food for sheep has been a concern since time immemorial, when the extensive exploitation of sheep and classic transhumance or semi-transhumance was practiced, researchers drawing attention [3,5,10] to the fact that the establishment of farms of sheep operated in extensive, semi-intensive or alternative intensive production systems is only suitable in areas with food resources for longer periods, where:

- better grazing can be ensured:
 - a. areas with marginal precipitation;
 - b. high rainfall areas;
- the lands taken out of fallow from the rainfed areas can be replaced with forage leguminous crops;
- fodder can be produced through irrigation by introducing fodder crops in rotation with food crops;
- agricultural and agro-industrial by-products for feeding sheep are available in large quantities.

Other research shows [4,7,11] that sometimes-historical challenges can change the type of animal production system, finding that nomadic sheep in different areas of the globe, which practiced, at the beginning, a system of horizontal and vertical migration, they were forced with the reduction of pasture areas to stabilize their homes and farms and to switch to new production systems, with the reduction of associative transhumance migration. The use of pastoral activities as resources for pastoral tourism constitutes an economic-social activity related to agritourism, country tourism, farm tourism, cultural, educational-sustainable tourism due to its many implications related to the attitude:

- farmers/shepherds, regarding the processing of productions obtained from sheep;
- utilization of production surplus;
- tourists' desire for recreational-entertaining and gastronomic activities at the farm.

The specialized literature abounds in a multitude of terms related to pastoralism, sheep farm tourism and transhumance, which shows the multiple potential of these farm activities and which involve a multi-millenary practice of growing, exploiting, processing and valorizing the production obtained from sheep. With all these advantages there are also multiple constraints that obstruct the activities of: [6,8,9]

- grazed in protected areas, nature reserves and parks;
- transhumance due to the reduction of pastures and their transformation into agricultural land;
- reducing the classic herd migration paths;
- pastoral tourism in hard-to-reach areas and without transport infrastructure.

However, the migration of herds and transhumance, pastoralism, the activity of driving sheep to areas with resources, grazing, farm activities, can constitute for tourists' niche forms among the most diversified ones related to the breeding and exploitation of sheep, meaning the following forms of agropastoralism: [12,15]

1. the mobile shepherd accompanying the flocks on the old touristic migration routes;
2. herders moving towards grazing areas depending on the abundance of floristic resources;
3. transhumant herding, classic transhumance from the wintering area to the alpine meadow area;
4. transhumant shepherding, semi-classical transhumance from the hill area to the mountain area;
5. pastoral activities or practices: pastoral agriculture, herding and pastoral movement from mountain to delta;
6. pastoral systems: collective transhumance with mechanized movement of herds with trailers to grazing areas;
7. agro-silvo-pastoral practices;
8. pastoralism on organic pastures and obtaining organically certified products.

Other researchers have carried out an agro-silvoecological characterization of the landscape of transhumance sheep paths and roads and obtained the selection and location on the map of those portions of the network characterized by the highest value for pastoral tourism activities, an activity considered essential, from the perspective of integrated farm management, pastures and rural development [2,17]. However, in order to preserve the biodiversity of the areas for transhumance and herd migration [18], the most effective types of transhumances must be chosen depending on the quality of the fodder resources and the efficiency of the transhumance production system, as well as the ratio between the own lands and the flocks per shepherd and the distance to food resources. [13,14].

MATERIALS AND METHODS

The vertical and horizontal migration of sheep flocks and transhumance with its forms, as an action or practice of moving flocks from wintering areas with fixed or non-fixed dwellings to those with abundant local resources, in the hill or mountain area, is a form of agropastoralism, which can be used by breeders and tourism tour operators to improve the economic results of their units. For these reasons, in this scientific approach we looked for solutions to introduce the old sheep transhumance routes in Arad County among the tourist routes. The proposed goal is the development of new forms of tourism and the diversification of agricultural activities, for a better exploitation of the products obtained from the breeding and exploitation of sheep in areas with a vocation, which have

cheap local fodder resources and infrastructure for the practice of new forms of niche tourism. We consider that both agricultural production, processing, utilization, consumption and transhumance. sheep activities are matters of socio-cultural importance with a millennial tradition and can become examples that can help tour operators understand the novelty of such beneficial concerns for both the countryside and tourists.

RESEARCH RESULTS

Transhumance, the act of migrating, moving flocks of sheep, from one grazing area to another depending on season and resources, usually to lowlands in winter and highlands in summer," is the oldest form of herding or "a form of mobile herding" or a migration system, the transhumance movement distinguishing the following types of transhumance systems:

1. altitudinal transhumance;
2. reverse transhumance;
3. normal transhumance;
4. seasonal transhumance;
5. vertical transhumance;
6. transhumant farming system;
7. transhumant grazing system;
8. breeding of transhumance sheep;
9. transhumant pastoralism;
10. collective transhumance system;
11. the migration management system.

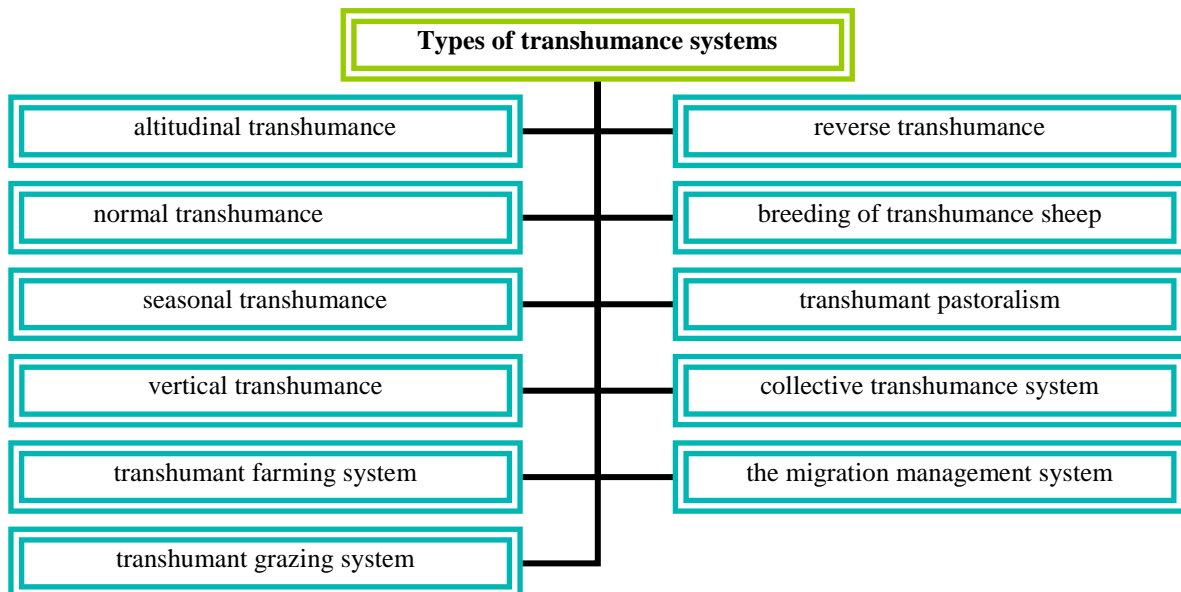


Figure 1. Types of transhumance systems

Source: own creation

This enumeration of pastoralism, sheep herding in its evolution and transhumance is intended to be an argument in favor of introducing "good practices in the diversification of sheep exploitation activity" in what has begun to be niche pastoral tourism as a subtype of sustainable tourism of cultural agrotourism, through the evolution of transhumance

systems. Transhumance is today a collective system that consists for the researched area of the following periods of:

- settlement of herds in winter camps on the plateau, or delta, classic transhumance or under the forest area, semi-classical transhumance and they are fed with additional food from November - until April;
- spring migration to the summer pasture above the tree zone, alpine pastures;
- stationing in the pasture at the beginning of summer (June - July);
- migration to the summer pasture (high) in the months of July and September;
- slow migration to the improved autumn pasture until mid-October;
- rapid migration back to winter camps.

The migration period includes the following farm actions in which pastoral tourism seekers can also participate:

- accompanying herds to grazing;
- weaning of lambs, pastoral celebrations, measuring sheep;
- participation in sheep shearing;
- the slow migration of flocks on old sheep paths and roads;
- breakfast at the barn, participation in milk processing actions;
- spending the stay in the fold, watching the behavior of the sheep;
- accompanying the herds to the wintering areas;

Collective transhumance includes the following recreational and educational activities for tourists:

Transhumance Large collective herds → Spend spring in valleys and foothills → Accompany travel by trailer or on foot to high areas → Spend summer in mountains → Return by trailer or foot to lowlands → Return by trailer to wintering areas

The involvement of farmers, product organizations and tour operators in the migration and transhumance activities of sheep to the resource areas depending on the season provides multiple possibilities regarding:

- sustainable development of isolated areas that have food resources for sheep;
- population access to new extension services, by promoting products obtained from sheep;
- the development of new forms of pastoralism with economic influence on isolated areas;
- conservation of the agro-silvo-pastoral landscape and its introduction on the classic tourist routes;
- modification of the floristic composition and nutritional value of meadows, as well as the propagation of agricultural and social forestry by avoiding the reforestation of alpine gaps;
- maintaining sheep paths and roads and ecotourism services as well as preserving the floristic biodiversity of the area;
- obtaining cheap and quality food from resources that are not used by other animal species
- maintaining a sustainable complex socio-cultural system related to the types of transhumance;
- promoting the work of farmers, through a better exploitation of sheep production, sheep shearing, gastronomy, pastoral traditions, promoting the shepherd trade.
- challenging transhumance with its types of herd migration and ensuring the continuity of pastoralism activities by:
 - a. increasing the population's awareness of the multifunctional role of the transhumance system;

- b. environmental, economic, social and cultural benefits;
- c. the cost of losing the transhumance production system.

CONCLUSIONS

By practicing transhumance with its forms of horizontal or vertical migration of sheep flocks, cyclical depending on resources, the economic activity of farms can be improved, if they are willing to diversify their farm activities and practice pastoral tourism as alternative activities farm, with its niche forms. The diversification of activities in order to preserve the biodiversity of transhumance routes among tourist routes through good practices contributes, the improvement of ecosystem services due to environmental risk measures regarding the use of resources and the protection of environmental factors.

The involvement of farmers, product organizations and tour operators in the activities of cyclical seasonal migration and transhumance of sheep to areas with resources, ensures multiple possibilities for the sustainable development of isolated areas, the population's access to new services, the development of new forms of pastoralism, the conservation of the agro-silvo-pastoral landscape and maintaining sheep paths and roads by preserving the biodiversity of the natural environment.

REFERENCES

- [1]. **ADZIG P., VÎRTOSU D., BABA F., PETROMAN I., BRAD I., VĂDUVA LOREDANA, DUMITRESCU CARMEN, PETROMAN CORNELIA**, 2018, Judicious placement of small professional farms of cattle in order to avoid the environment pollution. *Journal of Biotechnology*, Volume 280
- [2]. **AVRAMESCU DANIELA, PETROMAN I., AVRAM E., PETROMAN CORNELIA, BĂLAN IOANA, IOSIM IASMINA, ORBOI DORA MANUELA, MARIN DIANA**, 2013, Quality of raw milk from different dairy farms, *Journal of Food, Agriculture and Environment*, 11(2)
- [3]. **CĂPEȚ V. A., VĂDUVA LOREDANA, PETROMAN CORNELIA**, 2021, Business improvement in swine meat processing units. *Lucrări Științifice Management Agricol*, 23(3)
- [4]. **CSIZMADIA ANDREA ȘTEFANA, VĂDUVA LOREDANA, PETROMAN CORNELIA**, 2023, Proposing measures to improve grazing management at sheep, *Lucrări Științifice Management Agricol*, 24(3)
- [5]. **CSIZMADIA ANDREA ȘTEFANA, ARMAȘ ANA GINA, PETROMAN CORNELIA**, 2021, Possibilities for choosing optimal sheep holdings systems for milk production, *Lucrări Științifice Management Agricol*, 23(3), 36-40
- [6]. **GRUIA, R.**, 2006, Integronic management and informational connections, *HAICTA – International Conference on Information Systems in Sustainable Agriculture. Agroenvironment and Food Technology*, University of Thessaly, Volos, Grecia
- [7]. **HEBER LOREDANA, PETROMAN CORNELIA, PETROMAN I., BĂLAN IOANA, MARIN DIANA, IVAȘCU GABRIELA, POPOVICI C.**, 2010, Pork and carcasses quality in swine exploited in family farms. *Animal Science and Biotechnologies*, 43(2)
- [8]. **NEAGU IULIANA, CULEA C., PETROMAN CORNELIA**, 2002, *Zootehnie Generală*, Editura Mirton, Timișoara
- [9]. **NEAGU IULIANA, CULEA C., PETROMAN I.**, 2007, *Creșterea animalelor*, Editura Eurostampa, Timișoara

- [10]. **NICHOLSON R.J.**, 1994, System of storage and disposal of livestock wastes. CAB international
- [11]. **NUTHAL P. L.**, 2010, Farm Business Management: The Human Factor. Wallingford- Cambridge: CABI
- [12]. **PETROMAN CORNELIA, PALADE S., PETROMAN I., POPA DANIELA, ORBOI MANUELA DORA, PAICU D., HEBER LOREDANA**, 2010, Managerial strategies for the conservation of rurality in rural tourism. Animal Science and Biotechnologies, 43(2)
- [13]. **PETROMAN CORNELIA, PANICI G., PANDURU E., MARIN DIANA, VĂDUVA LOREDANA, PETROMAN I.**, 2019, New possibilities for improving the environmental management risk in swine farms. Journal of Biotechnology, 305, S74
- [14]. **PETROMAN CORNELIA**, 2016, Procesarea materiilor prime agricole, Editura Eurostampa, Timișoara
- [15]. **PETROMAN I.**, 2007, Managementul sistemelor de creștere și exploatare a animalelor, Editura Eurostampa, Timișoara
- [16]. **RISTEA I., BOLOCAN RODICA, PETROMAN CORNELIA, IANCU T., MARIN DIANA, PETROMAN I.**, 2018, Implementing measure for the safety of product obtained in agrotourist farms. European Biotechnology Congress, Athens, Greece
- [17]. **VÎRTOSU D., PANDURU ELISABETA BIANCA, VĂDUVA LOREDANA, MARIN DIANA, PETROMAN CORNELIA, PETROMAN I.**, 2019, Possibilities to improve the management of the exploitation of cattle meat in extensive system, Lucrări Științifice Management Agricol, 20(3)
- [18]. **ZOICAN E. C., MARIN SORIN, BOLD MARINELA LIDIA, PETROMAN I., VADUVA LOREDANA, PETROMAN CORNELIA**, 2019, The role and place of agro-food products in human consumption, Lucrări Științifice Management Agricol, 20(3)