POSSIBILITIES TO IMPROVE THE MANAGEMENT OF THE EXPLOITATION OF CATTLE MEAT IN EXTENSIVE SYSTEM

VÎRTOSU DAN[1], PANDURU ELISABETA BIANCA[1], VĂDUVA LOREDANA[1], MARIN DIANA[1], PETROMAN CORNELIA[1], PETROMAN IOAN*[1]

[1]Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Faculty of Management and Rural Tourism, Romania

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

Abstract: *In order to express their productive capacity, the cattle highly exploited in the pasture system must be assessed from the point of view of health, which is a management tool that allows the assessment of productive skills. The dependence on extensive production based on natural resources requires that the first level of management to deal with this issue and to establish the constant trends in raising and exploitation of cattle in order to support meat production and the economic sustainability of the exploitation system. In risk management, the variation in profit caused by the production system is reduced, but it can ensure long-term economic sustainability of extensive breeding systems of cattle meat if management strategies are effective in fattening cattle on pasture.*

Key words*: cattle, management, pasture*

INTRODUCTION

To express at the maximum capacity of production attributes, cattle's health assessment is a management tool that allows assessment of the skills of a dairy or meat animal. The assessment of the health status of cattle must be made before each season when extensive farming is carried out on the pasture because production may be affected if the animal was or is ill and measures are needed to improve the management of the farm: [1,3,9,10,11].

- the use of healthy biological material;
- providing sufficient grassland areas;
- possibilities for a well-managed grazing;
- ensuring the well-being of animals that are fattened
- the use of live animals that are resistant to exploitation conditions in poultry;
- providing a nutrition appropriate to the intended purpose;
- avoiding the degradation of pasture;
- reducing parasite contamination and preventing diseases
- environmental protection measures.

Extensive cattle production systems are suitable for use on land resources that cannot be used efficiently through plant production and are usually near farms. In areas where rainfall is rare, feed production is limited and, finally, beef production of meat per unit area. Instead, it limits the number of interventions that are expensive in the production system. In addition to the limited production capacity of natural resources used mainly in extensive production systems, both the quantity and quality of feed produced tend to be very variable and sometimes difficult to be predicted in time and space. This variation in feed resources encourages the inclusion of various risk management strategies in the design of successful management systems to be used in the extensive milk production or, in particular, of bovine meat. [2,5,7,14,15]

The exploitation of heterosis and other differences between cattle obtained through cross-breeds of bulls facilitates:

- the use of valuable biological material adapted to extensive exploitation;
- efficient use of plant resources;

- obtaining high daily average increases with minimum consumptions;
- achieving an optimal level of production.

Associating the type of biological cow with the appropriate environment is important in risk management and in ensuring optimal animal performance levels due to constraints imposed by natural resources [4,6,8,12].

MATERIALS AND METHODS

Within this scientific approach, considering that grazing on improved indigenous pastures is considered to be the most sustainable of all production systems, are proposed managerial measures in order to improve the economic efficiency of the exploitation. By increasing on the long-term the capacity to support the economic sustainability of the production system, we propose combining economic and environmental principles with the best exploitation management system.

RESEARCH RESULTS

The dependence of intensive production based on resources requires that the first level of management to address this issue and to determine the constant trends in long-term growth and exploitation regarding:

- the ability to sustain production steadily;
- the economic sustainability of the production system.

The attention paid to the increase of the number of animals, grazing systems, the breed and hybrids of cattle and season confers critical control points that individually and collectively affect this trend. The increase of the number of animals fattened over a certain period of time is the main factor affecting the relative success of any grazing management strategy because the increase of livestock number determines the amount of feed required per head.

In extensive production systems, the managerial challenge of optimizing the production in a very variable environment involves a degree of risk. Grazing systems serve to alter grazing intensities in time and space. Reducing grazing pressure on plants in vegetative stage allows them to accumulate energy reserves and increase vitality in this way. On the contrary, increasing the grazing pressure on vegetative plants leaves them less likely to accumulate energy sources, decreasing their vitality, but the nutritive value of the perennial plants is highest in the vegetative stage, therefore a grazing system must allow a maximum benefit.

We believe that a grazing system must meet the following principles to be effective:

- satisfying the physiological requirements of the category of bulls;
- improve the proportion of highly nutritious plant species;
- not to degrade the soil;
- to increase the efficiency of feed;
- not to damage the performance of cattle;
- to match operational constraints;
- to match managerial capabilities.

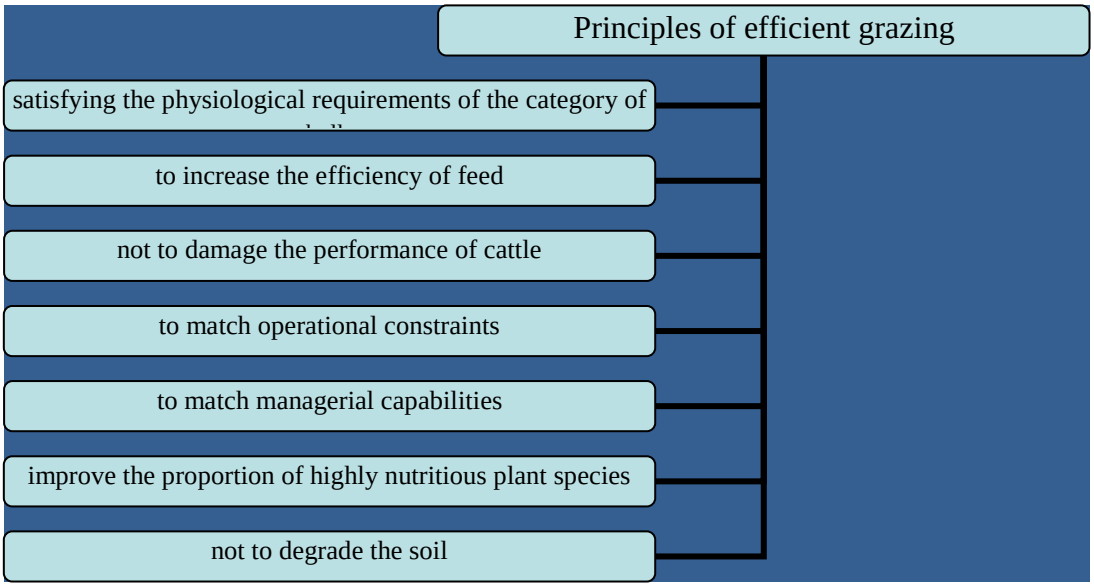

Figure 1. Basic principles of efficient grazing

Grazing grassland with live or electric fences facilitates the grazing management in many production systems, but investment should be evaluated according to the financial profits obtained from the use of a particular grazing system. We propose to improve the grazing management and increasing the efficiency of pasture with several alternative interventions:

- choosing technologies that use biological material resulted through crossing;
- development of additional watering points;
- strategic placement of salt bins;
- the establishment of uniform flocks.

Extensive production systems lack the energy fodder used in finishing cattle meat, so managers of extensive cattle production systems can choose to market their animals by setting competitive prices at the farm door. This approach requires less managerial input and may reduce the relative risk of alternatives in which the property change occurs closer to selling animals.

The profitability/loss variability is given in the exploitation of cattle on pasture by:

- variation of weather conditions;
- production of feed;
- performance of cattle;
- price variation;
- economic risk.

In risk management, the variation of profit caused by the production system is reduced, with a simultaneous reduction of average profit over time, but the risk reduction does not correspond with the increase of profit. However, risk management can ensure long-term economic sustainability of extensive breeding systems of cattle meat.

We consider that the risk management strategies used for fattening cattle in extensive pasture systems, for their medium and long term efficiency, should include: Figure 2.

- conservative scaling of production systems used for cattle fattening;
- using the most effective management practices;
- storage of feed;
- the choice of resources for animals of high genetic value;
- the use of marketing strategies;
- capitalization of the products;

- development of farm brands.

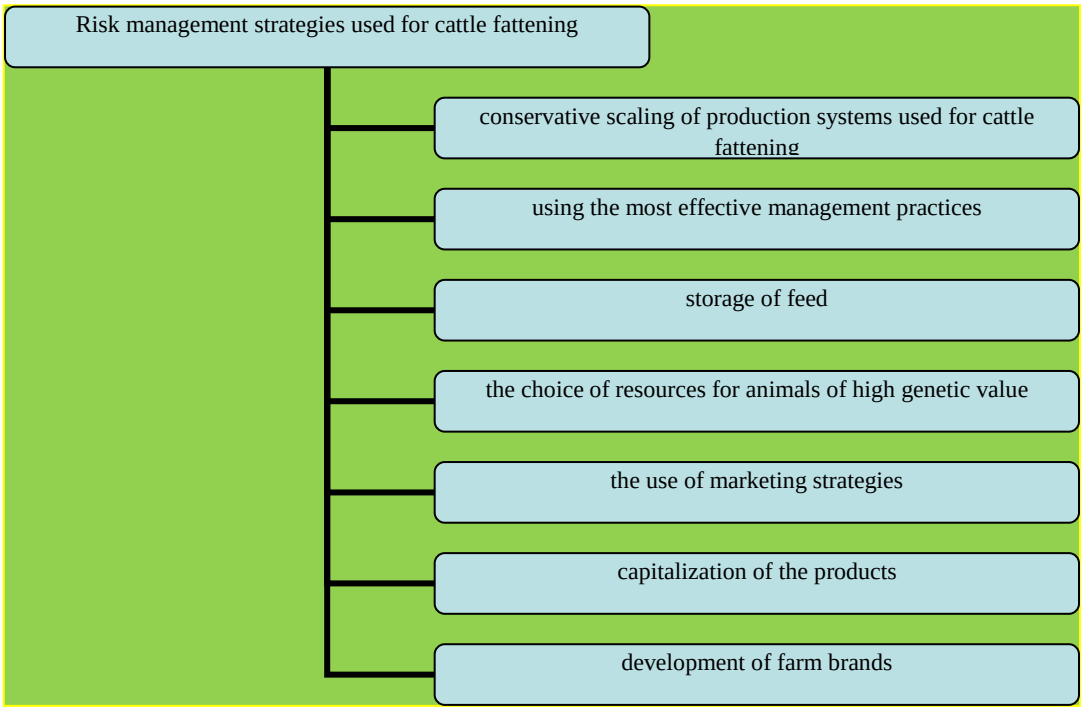

Figure 2. Risk management strategies used for cattle fattening

CONCLUSIONS

The increase of cattle livestock fattened in a given period of time is the main factor affecting the relative success of any grazing management strategy, being determined by the quantity and quality of the feed required to produce the individual production. In the extensive production systems, the managerial challenge of optimizing the production in a very variable environment implies a degree of risk, grazing systems serving to modifying grazing intensities. In order to improve the management of pasture and increasing the efficiency of pasture, we propose some alternative interventions such as choosing the technologies, improving watering systems and providing mineral supplements and building flocks according to the genetic value of individuals and the degree of support of pasture.

In risk management, the variation of profit generated by the production system is reduced, with simultaneous reduction in average profit over time, but risk reduction does not correspond to profit growth, risk management can ensure economic sustainability on long-term of extensive cattle meat exploitation systems, if management strategies for cattle fattening are effective.

REFERENCES

[1]. ARVANITOYANNIS, I. S., VARZAKAS, T. H., & TSERKEZOU, P., 2009, Meat and Meat Products. In Ioannis S. Arvanitoyannis (Ed.), HACCP and ISO 22000. Application to Foods of Animal Origin (pp. 181-276). Oxford: Wiley-Blackwell.

[2]. BIDIREAC CRISTINA, CORNELIA PETROMAN, 2014, Study concerning dairy cattle numbers and cow milk production in the Timis county, Romania, Lucrari Stiintifice Seria I, Management Agricol, Vol. 16 Issue 2, p198-201. 4p

[3]. DIMA, D., DIACONESCU, I., PAMFILIE, R., PROCOPIE, R., BOBE, M., PĂUNESCU, C., CHIRU, L., 2005, Fundamentele ştiinţei mărfurilor. Mărfuri alimentare. Bucureşti: Editura ASE.

[4]. HILTON, W. M., 2010, Beef Quality Assurance Injection Sites and Techniques. Purdue Extension. Retrieved from http://www.extension.purdue.edu/extmedia/VY/VY-60-W.pdf

[5]. KANALY, R. A., MANZANERO, L. I. O., MACER, D., & PANNEERSELVAM, S., 2009, Energy Flow, Environment and Ethical Implications for Meat Production. Ethics and Climate Change in Asia and the Pacific (ECCAP) Project, RUSHSAP, UNESCO, Bangkok.

[6]. KOSHKOIH, A. E., PITCHFORD, W. S., KRUK, Z. A., MORRIS, XC. A., CULLEN, N. G., CRAWFORD, A. M., & BOTTEMA, C. D. K., 2005, QTL for meat colour and pH in Bos taurus cattle, Application of New Genetic Technologies to Animal Breeeding: Proceedings of the 16th Conference. Noosa Lakes, Queensland, Australia.

[7]. MAHESH, B., & PRABHUSWAMY, M., 2010, Process variability reduction through statistical process control for quality improvement. International Journal for Quality Research, 4(3), 193-203.

[8]. MARIN DIANA, 2015, Research Regarding the Purchase Decision Process of Consumer of Food Products, Scientific Papers: Animal Science and Biotechnologies, 48 (1), pg. 328-332

[9]. MARIN DIANA, PĂCALĂ N., PETROMAN I., PETROMAN CORNELIA, UNTARU RAMONA, CIOLAC RAMONA, 2012, Influence of age and weight at slaughter over meat quality in conditions of optimum ambient temperature, Lucrări ştiinţifice Management Agricol, Seria 1, vol. XIV (4) „Dezvoltarea rurală durabilă", Facultatea de Management Agricol, Timişoara, pg. 453-458;

[10]. RAGHU, H. V., MANJU, G., MANJUNATHA, B. M., MISHRA, S., & SAWALE, P., 2012, Beneficial face of bacteriophages: applications in food processing. International Journal for Quality research, 6(2), 101-108.

[11]. TRIFU C., PETROMAN, I., PETROMAN, C., MARIN, D., IVU, M., PEŢ, I.,PÎRVU, M., 2011, Evolution and current situation of cattle breeding in our country. Lucrări Ştiinţifice, 13(2), 311-318.

[12]. PETROMAN, C., BĂLAN, I., PETROMAN, I., ORBOI, M. D., BĂNEŞ, A., TRIFU, C., & MARIN, D., 2009, National grading of quality of beef and veal carcasses in Romania according to "EUROP" system. Journal of Food, Agriculture & Environment, 7 (3, 4).

[13]. PETROMAN I., 2007, Managementul sistemelor de creştere şi exploatare a animalelor, Editura Eurostampa;

[14]. PETROMAN CORNELIA, PETROMAN I., IVAŞCU GABRIELA, MARIN DIANA, PÂRVU M., POPOVICI C., 2011, Features of the Agroalimentary Market of the Timis County (Romania), Lucrări Ştiinţifice Zootehnie şi Biotehnologii, 44 (2), pp. 482-486;

[15].*** http://www.madr.ro/pages/raport/agriculturaromaniei-feb2010.pdf.