UNIVERSITY OF LIFE SCIENCES ”KING MIHAI I” FROM TIMISOARA
”YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN APPLIED LIFE SCIENCES”

05-06 November, 2026



”Young people and multidisciplinary research in applied life sciences”

Comparative assessment of hay yield in sown and permanent grasslands in the Banat Mountains

Mihaela TĂRTĂREANU (TOTH)[1], Gina ARMAȘ[1], Iulia MUNTEANU[1], Ioan PEȚ[2]*

[1] Research and Development Station for Sheep and Goat Breeding Caransebeș

[2] University of Life Sciences “King Mihai I” from Timișoara, Faculty of Animal Resources Bioengineering

* Correspondence: ioanpet@usvt.ro; tartareanumihaela6@gmail.com

Abstract

This study compared estimated hay production in one sown and one permanent grassland at the Research and Development Station for Sheep and Goat Breeding Caransebeș, in the Banat Mountains, Romania. Data from a single cut in 2026 indicated mean yields of 2.25 and 1.095 t/ha, respectively. Proportional estimates for a 2 ha reference area were 4.50 and 2.19 t. The difference of 2.31 t corresponds to a relative increase of 105.5% in the sown grassland. These descriptive estimates provide a local comparison, subject to the limitations of nominal bale mass and the absence of independent field replication.

• Introduction and objective

The study compared two grassland types at the same research station: a sown grassland established with a defined grass–legume mixture and a permanent grassland containing several botanical families.

The objective was to compare estimated hay yields on a common area basis and describe the available botanical information.

• Materials and methods

Study site and design. Research and Development Station for Sheep and Goat Breeding Caransebeș, Caraș-Severin County, Romania. The study covered one sown and one permanent grassland and a single cut harvested in 2026.

Yield calculation. Estimated total hay mass = number of bales × 300 kg. The nominal mass followed the baler settings, without direct weighing. Estimated total mass divided by harvested area gave mean yield per hectare.

Reference area. Multiplying mean yield by 2 ha gave the comparable hay quantities. These are area-based averages, without separate measurements on the 2 ha areas or means across experimental replicates.

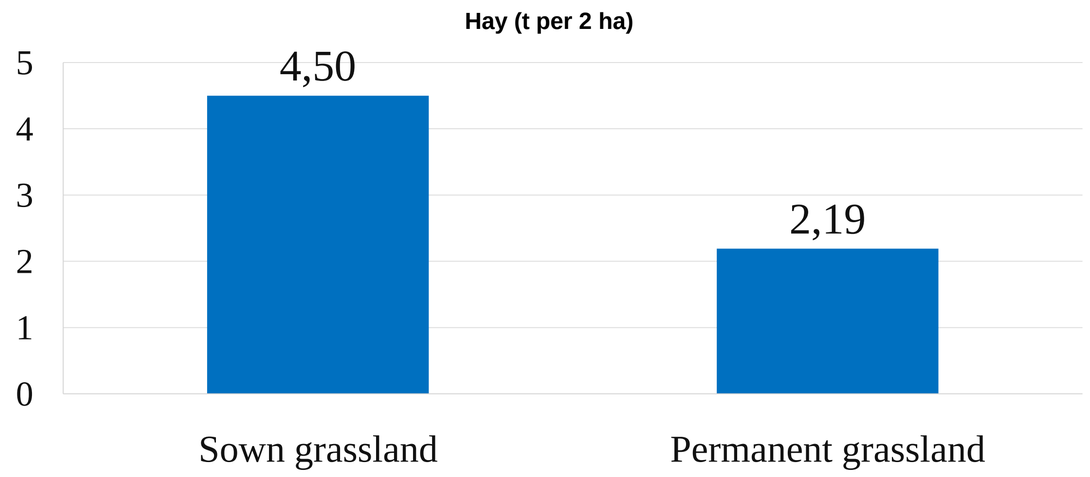
Seed mixture at establishment

Medicago sativa 20%
Dactylis glomerata 25%
Lolium hybridum 10%
Festuca arundinacea 30%
Festuca rubra 15%

The mixture comprised 80% grasses and 20% legumes. These are seed-mixture proportions, not measured botanical cover at harvest.

• Results and discussion

Estimated hay quantity for a 2 ha reference area



+2.31 t per 2 ha +105.5%

Productivity. Estimated mean yield reached 2.25 t/ha in the sown grassland and 1.095 t/ha in the permanent grassland. The sown grassland therefore produced approximately 2.05 times the estimated hay quantity on the same reference area.

Botanical description. Nine species were identified in the permanent grassland: six Poaceae, two Fabaceae and one Asteraceae. These counts describe species richness by family. They do not quantify botanical cover or biomass contribution.

Interpretation. The seed-mixture proportions and the species counts describe different botanical attributes. The results do not establish a causal link between botanical composition and the observed yield difference.

• Conclusions

The sown grassland showed a higher estimated hay yield at the Caransebeș research station for the cut assessed in 2026.

The single cut, nominal bale mass and lack of independent replication limit generalisation and attribution to grassland type. Direct weighing, repeated harvests and replicated plots would strengthen future comparisons.

Acknowledgements

The authors thank the Research and Development Station for Sheep and Goat Breeding Caransebeș for the institutional support provided for this study.