STUDY CONCERNING THE BEHAVIOUR IN WINTER OF SOME TURF MIXTURES IN THE CONDITIONS OF WESTERN ROMANIA

STUDIUL COMPORTĂRII LA IERNARE AL UNOR AMESTECURI PENTRU GAZON ÎN CONDIȚIILE ZONEI DE VEST A ROMÂNIEI

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Abstract: *In this paper, we have studied the behaviour of some turf mixtures during winter. The vegetal carpet's ability to remain "green" is very appreciated under the influence of the negative temperatures, ice and snow, lack of light, and some possible latent periods, or the presence of a certain disease. Because the use of turf mixtures is so divers, the species of grasses are evaluated from the point of view of some features common to all the turf species and make proof of the utilisation value to which is more suitable.*

Rezumat: *În această lucrare este studiată comportarea la iernare a unor amestecuri pentru gazon. Este apreciată abilitatea covorului vegetal de a rămâne "verde" sub efectul temperaturilor negative, a gheții și zăpezii, a lipsei luminii, ale unor eventuale perioade de latență sau a prezenței unor boli. Întrucât destinația gazonului este atât de diversă, speciile de graminee sunt evaluate prin prisma unor indici de caracterizare, comuni tuturor speciilor, și care fac dovada valorii de utilizare la care se pretează.*

Key words**:** *turf, mixtures, evaluation, behaviour*
Cuvinte cheie: *gazon, amestecuri, evaluare, comportament.*

INTRODUCTION

Turf plays a very important role in the substantial improvement of the quality of life, because grass functions in the habitat fated for recreative activities and leisure, working as a safety buffer in case of an involuntary impact between people and soil (ANNE VERTEIUL, V. BOURTON, 1993).

The aesthetic value of turf is also very important, being the ideal setting for landscapes.

Ornament, pleasure, games, sport, vegetation re-composition, adaptation to unfavourable environments, the exigencies are many, and also in contradictory, the turf that has generalized in almost all the countries, is specialized according to the usage and the conditions of the environment.

As time passed, the finicalities grew, and turf became a luxury of modern life. For some decades, the surfaces covered with turf grew considerably, thus the meadows that gave the charm to our villages have the tendency to rediscover themselves in a more studied manner, adapted to the demands of the modern human being (CAMELIA GIUCHICI, 2004).

The turf appearance remains a very important quality, but not decisive, because other exigencies appear, such as the facility of installation, the resistance to traffic, good aestival and hibernal behaviour; additionally the grass must to be well adapted to climate and soil (most of the time anthropic), and the upkeep to be not very sensitive (AL. MOISUC et al., 2001).

MATERIALS AND METHOD

Studied material is represented by seven turf different mixtures and a *Lolium perenne* variety. These are represented by:

1. *Lolium perenne* – Boulevard variety

2. Belvedere – for sunny places
- 55 % *Lolium perenne* – Boulevard variety
- 33 % *Festuca rubra* – Herald variety
- 10 % *Poa pratensis* – Evora variety
- 2 % *Agrostis capilaris* – Kromi variety

3. Sport – for sport fields
- 30 % *Lolium perenne* – Boulevard variety
- 30 % *Festuca rubra commutata* – Tatjana variety
- 20 % *Poa pratensis* – Evora variety
- 20 % *Festuca rubra* – Herald variety

4. Sunshine – for sunny and dry places
- 65 % *Festuca arundinacea* – Southern Comfort variety
- 25 % *Lolium perenne* – Boulevard variety
- 10 % *Poa pratensis* – Evora variety

5. Turf with flowers
- 60 % *Festuca rubra* – Herald variety
- 30 % *Lolium perenne* – Boulevard variety
- 10 % *Poa pratensis* – Evora variety
- 1 g – flower seeds

6. Ornamental turf – for parks and gardens
- 45 % *Festuca rubra* – Herald variety
- 30 % *Lolium perenne* – Boulevard variety
- 15 % *Poa pratensis* – Evora variety
- 10 % *Festuca rubra commutata* – Tatjana variety

7. Turf mixture
- 25 % *Lolium repens*
- 23 % *Lolium perenne*
- 19 % *Festuca rubra*
- 8 % *Festuca arundinacea*
- 8 % *Festuca rubra commutata*
- 8 % *Festuca rubra rubra*
- 4 % *Poa pratensis*
- 2 % *Festuca rubra meadow*
- 1 % *Agrostis capilaris*
- 1 % *Festuca ovina duriuscula*
- 1 % *Festuca rubra trychophylla*

8. Shadow – for shadowy places
- 25 % *Lolium perenne* – Boulevard variety
- 25 % *Festuca rubra commutata* – Tatjana variety

- 20 % *Lolium perenne* – Juventus variety
- 20 % *Festuca rubra* – Herald variety
- 10 % *Poa pratensis* – Evora variety

The experiences were carried out in the experimental field of the Agriculture Faculty of Banat's University of Agricultural Sciences and Veterinary Medicine from Timisoara. The experimental plots have four replicates.

The parameters of appreciation for winter resistance are evaluated with marks from 1 to 9, according to NTEP (National Turf-grass Evaluation Program) (DATTE, D'AMONVILLE, 1999).

RESULTS AND DISCUSSION

Researches are made on seven turf mixtures and a *Lolium perenne* turf variety.

For the varieties from the same species the value of parameters is relative, whereas between the species the differences are obvious, every variety, manifesting more or less obvious the qualities and limits of the species that they belong to. Generally, the turf mixture of which parameters are superior to the value of 6 is considered acceptable. In fact, the quality of the turf mixture is the result of the interaction between the specie or species used, the culture technology, season and the moment when the observations are made.

Table 1

The behaviour of turf mixtures during winter

Nr. crt.	Variants	Replicates				The average of marks
		I	II	III	IV	
1.	*Lolium perenne*	7	6	7	7	6.75
2.	Belvedere	7	7	8	7	7.25
3.	Sport	8	8	9	8	8.25
4.	Sunshine	6	7	6	7	6.50
5.	Turf with flower	8	7	8	8	7.75
6.	Ornamental turf	8	7	7	8	7.50
7.	Turf mixture	8	9	8	7	8.00
8.	Shadow	7	8	6	7	7.00

The parameters of appreciation for turf winter resistance are evaluated according to NTEP (National Turf-grass Evaluation Program) with marks from 1 to 9, as follows:

- 9 – for a perfect turf mixture;
- 1 – for entirely degraded turf mixture.

Climatic conditions during research period:

- Climate – temperatures are between – 13^0 C and + 26^0 C, thus:

+ 6^0 C → + 26^0 C (September, 2007);
- 2^0 C → + 25^0 C (October, 2007);
- 6^0 C → + 18^0 C (November, 2007);
- 9^0 C → + 11^0 C (December, 2007);
- 12^0 C → + 11^0 C (January, 2008);
- 13^0 C → + 18^0 C (February, 2008);
- 4^0 C → + 19^0 C (March, 2008).

- Rainfall amount – in 24 hours are among 0 – 28 mm/m^2;
  – relative air humidity are between 23 – 98 %;
- Wind speed – is among 0 – 10 m/s.

The best winter resistance can be noticed in the case of the turf mixtures: **Sport** (30 % *Lolium perenne* – Boulevard variety, 30 % *Festuca rubra commutata* – Tatjana variety, 20 % *Poa pratensis* – Evora variety, 20 % *Festuca rubra* – Herald variety), **Turf mixture** (25 % *Lolium repens*, 23 % *Lolium perenne,*19 % *Festuca rubra*, 8 % *Festuca arundinacea*, 8 % *Festuca rubra commutate*, 8 % *Festuca rubra rubra*, 4 % *Poa pratensis*, 2 % *Festuca rubra meadow*, 1 % *Agrostis capilaris*, 1 % *Festuca ovina duriuscula*, 1 % *Festuca rubra trychophylla*), **Turf with flowers** (60 % *Festuca rubra* – Herald variety, 30 % *Lolium perenne* – Boulevard variety, 10 % *Poa pratensis* – Evora variety) and **Ornamental turf** (45 % *Festuca rubra* – Herald variety, 30 % *Lolium perenne* – Boulevard variety, 15 % *Poa pratensis* – Evora variety, 10 % *Festuca rubra commutata* – Tatjana variety).

The lowest winter resistance can be noticed in the case of the turf mixtures: **Sunshine** (65 % *Festuca arundinacea* – Southern Comfort variety**,** 25 % *Lolium perenne* – Boulevard variety, 10 % *Poa pratensis* – Evora variety), ***Lolium perenne*** – Boulevard variety, **Shadow** (25 % *Lolium perenne* – Boulevard variety, 25 % *Festuca rubra commutata* – Tatjana variety, 20 % *Lolium perenne* – Juventus variety, 20 % *Festuca rubra* – Herald variety, 10 % *Poa pratensis* – Evora variety), and **Belvedere** (55 % *Lolium perenne* – Boulevard variety, 33 % *Festuca rubra* – Herald variety, 10 % *Poa pratensis* – Evora variety, 2 % *Agrostis capilaris* – Kromi variety).

CONCLUSIONS

Analysing the obtained data, we can conclude:

- the greatest winter resistance is found in the case of the turf mixtures **Sport**, **Turf mixture** and **Turf with flowers**;

- the lowest winter resistance is found in the case of the turf mixtures **Sunshine**, **Shadow** and ***Lolium perenne*** – Boulevard variety.

LITERATURE

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