ASSESSING NEW FOREIGN VARIETIES OF *FESTUCA ARUNDINACEA* IN HAY MEADOW MANAGEMENT REGIME

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Abstract: *The yield of cultivars varies largely from their genetic productive potential, in relation to the environmental conditions and to their adaptability or tolerance to the main limiting factors (diseases, pests, unfavourable climatic conditions, genetic vulnerability. (SAVATTI, 2004). This paper aims at finding the productive potential of three foreign varieties of Festuca arundinacea, under Banat Plain conditions. In order to reach this goal, we studied three varieties of Festuca arundinacea in the experimental cycle 2008-2010 from the point of view of their dry matter y From the analysis of the synthesis of dry matter yields obtained in* ***hay meadow management regime****, by varieties of* ***Festuca arundinacea****, studied under the conditions in Timişoara, we notice that the best yields were recorded by variety Arid III (116.43 q.ha^{-1}), being followed by Durango (average yield 2008-2010 of 108.37 q.ha^{-1}) and variety Eminent (average yield 2008-2010, of 100.13 q.ha^{-1}). Because the dry matter yields obtained by the three varieties of Festuca arundinacea are close, the yield differences are not ensured statistically. All three varieties of Festuca arundinacea obtained in the third year, 2010, their best yields, presenting great genetic homeostasis, which gives them the chance to adapt easily to the climatic conditions in Timişoara.ield in hay meadow management regime. The results show that all three varieties of Festuca arundinacea under study display high genetic homeostasis, which allows them to adapt very quickly to the climatic conditions in Timişoara, giving very good dry matter yields.*

Key words: ***Festuca arundinacea, variety, yield***

INTRODUCTION

The landowner must be very well informed about the varieties that can be grown on his plots; another important factor is for him to have the capacity to separate scientific information from advertisements (VARGA, 1998).

Crop stability is another feature of plants that shows the adaptability level of a variety (cultivar). The yield of cultivars varies largely from their genetic productive potential, in relation to the environmental conditions and to their adaptability or tolerance to the main limiting factors (diseases, pest attacks, unfavourable climatic conditions, genetic vulnerability). Crop stability defines the capacity of a cultivar to give high yields, in different environmental conditions; these yields must be as close to the value of its genetic potential as possible, and they must also be constant (SAVATTI, 2004).

The study of these cultivars focuses on getting information on their yield capacity and its quality, as well as on some morphological, physiological, biochemical, etc features, and their variability in different environment conditions (CIULCA, 2006).

MATERIAL AND METHOD

The aim of this paper is to assess the productive potential of three varieties of *Festuca arundinacea,* under the conditions in Banat Plain.

The research was carried out in the experimental fields of Culture of grasslands and fodder plants Discipline from the Didactic Station of USAMVB Timisoara, the experience being placed on a cambic weakly gleyed chernozem, with in depth salinization.

The study was made in the experimental cycle 2008-2010.

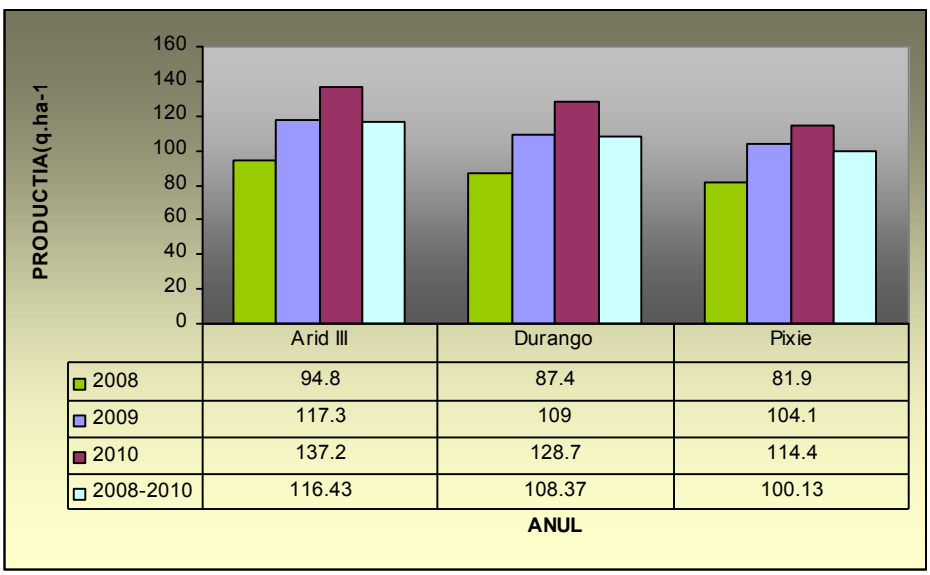
The biological material studied is represented by foreign varieties, namely Arid III, Durango and Pixie of *Festuca arundinacea.*

The experience is placed according to the randomized blocks method, in three repetitions, a parcel surface is 20 m^2 (5m x 4m). Sowing was made on 15.09.2007, with a 12.5 cm distance between rows. Seeding density is 1280 germinative seeds/m2 and sowing depth is 2.5 cm.

The calculations and interpretation of the data obtained from the above-mentioned measurements and determinations were made with the help of STATISTICA 8 (COJOCARIU, LALESCU, 2010).

RESULTS AND DISCUSSION

Figure 1 presents the yield of each variety of *Festuca arundinacea,* in hay meadow regime, throughout the three years of study 2008, 2009, 2010, as well as the average production in 2008-2010. All three varieties of *Festuca arundinacea* gave their best yields in the third year, 2010.



	Arid III	Durango	Pixie
2008	94.8	87.4	81.9
2009	117.3	109	104.1
2010	137.2	128.7	114.4
2008-2010	116.43	108.37	100.13

Figure 1. Dry matter yields (q.ha^{-1}) of the researched varieties of *Festuca arundinacea* in hay meadow management regime

This fact is caused by the favourable weather conditions in the period of vegetation, and by the acclimatization process of the varieties of *Festuca arundinacea* to new conditions, namely the ones in Timişoara. Variety Arid III gave the best yields in each experimental year (average yield 2008-2010 is 116.43 q.ha^{-1}), being followed by Durango (average yield 2008-2010 is 108.37 q.ha^{-1}) and variety Pixie (average yield 2008-2010 is 100.13 q.ha^{-1}).

From the analysis of the synthesis of dry matter yields obtained in hay meadow management regime, by varieties of *Festuca arundinacea*, studied under the conditions in Timişoara, we notice that the best yields were recorded by variety Arid III (116.43 q.ha^{-1}).

Table 2.

Average dry matter yield (q.ha^{-1}) of varieties of *Festuca arundinacea* in hay meadow management regime (2008 - 2010)

Variety	*n*	*Average*	*Standard deviation*	*Standard Error*	*CI (95%)*		*Minimum value*	*Maximum value*
					Lower limit	*Upper limit*		
Arid III	9	116.43	19.52	6.51	101.43	131.44	90.30	148.76
Durango	9	108.37	19.46	6.49	93.40	123.33	78.80	140.15
Pixie	9	100.13	16.92	5.64	87.13	113.14	72.80	127.23

Note n= number of repetitions

The productions of the other two varieties under research are not to be overlooked, either: variety Durango gave 108.37 q.ha^{-1} and Pixie 100.13 q.ha^{-1}.

Because the dry matter yields obtained by the three varieties of *Festuca arundinacea* are close, the yield differences are not ensured statistically.

Table 3.

Analysis of variance (ANOVA) of the average dry matter yield (q.ha^{-1}) of varieties of *Festuca arundinacea* in hay meadow management regime (2008-2010)

Specification	***Arid III/ Durango***	***Durango/ Pixie***	***Arid III /Pixie***
Intercluster sum of squares	292.82	305.04	1195.60
Intracluster sum of squares	6079.25	5322.10	5339.42
Intercluster mean of squares	292.82	305.04	1195.60
Intracluster sum of squares	379.95	332.63	333.71
F	0.771	0.917	3.583
P	**0.393**	**0.352**	**0.077**

F = ANOVA factor (intercluster mean squares/intracluster mean squares),
p = significance of F factor (significant for $p<0.05$)

CONCLUSIONS

Analysing the synthesis of dry matter yields obtained in hay meadow management regime, by varieties of *Festuca arundinacea*, studied under the conditions in Timişoara, we can state that all three varieties of *Festuca arundinacea* gave their best yields in the third experimental year, 2010. The cause for this must be attributed to the favourable weather conditions in the period of vegetation, and to the process of acclimatization of the varieties of *Festuca arundinacea* to new conditions, namely the ones in Timişoara.

We can conclude that all three varieties of *Festuca arundinacea* have high genetic homeostasis, which gives them the opportunity to adapt easily to the climatic conditions in Timişoara.

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