

Researches Regarding the Influence of Some Technological Elements on Seed Yield in *Festuca Rubra L.*

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Abstract

The distance between rows and the amount of seeds used for planting exert a decisive influence on the fructification degree in perennial gramineae. To determine the influence of these factors on seed yield, we used four planting norms (5, 10, 15, 20 kg/ha) and three distances between rows (12.5, 25 and 50 cm).

Keywords: distance between rows, *Festuca rubra*, planting norms, seed yield

1. Introduction

The availability of high-quality seeds, in enough amounts, of the varieties with high-biological value requires the development of yield production and the maintenance of the biological value in the existent varieties [1-3].

This work aims at the presentation of the effect exerted by some elements from the seed-production technology of the species *Festuca rubra* in terms of seed yield enhancement, from a quantitative and a qualitative viewpoint as well.

2. Materials and methods

The researches were carried out at Grass Research-Development Station Timișoara, during 2004-2007, on a brown eumesobasic soil, moderately gleyed, with pH = 5.6.

The experience was bifactorial by type, displayed in field according to the method of subdivided parcels.

The experimental factors were:

A. Distance between rows

A1- 12.5 cm between rows

A2 – 25 cm between rows

A3 – 50 cm between rows

B. Planting norm

B1 – 5 kg/ha

B2 – 10 kg/ha

B3 – 15 kg/ha

B4 – 20 kg/ha

The planting was performed in the spring of 2004, with the *Festuca rubra* variety – Pastoral.

The fertilization was applied at the preparation of the germination bed, with 150 kg/ha N and after that we applied 60 kg/ha NPK in the autumn and 80 kg/ha N in the spring.

3. Results and discussion

The biggest seed yields were achieved in the second year of production. In the first and the third years, yields were smaller because of the low rainfall level recorded during the vegetation period.

The planting with 50 cm between rows assures the achievement of the biggest yield in red fescue (393 Kg/ha). At 25-cm distance between rows, we obtained very significant differences compared

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with the control variant (12.5 cm), with a yield growth of 132 Kg/ha (Table 1).

The planting norm exerts a strong influence on seed yield. We observed very significant differences between the planting norms of 10, 15 and 20 Kg/ha and the control variant (5 Kg/ha). The biggest seed quantity was obtained in the variant planted with 20 Kg/ha (30% more than in the control variant) (table 2).

Table 3 presents the interaction of all the factors studied. On the average for the three years of production, the maximal seed yield (508 Kg/ha, respectively 219%) was obtained in the variant

planted with 50 cm distance between rows and a planting norm of 10 Kg/ha.

In the same variant, the yields distributed per experimentation years are: 500 Kg/ha in the first year, 513 Kg/ha in the second and respectively 488 Kg/ha in the third year.

The biggest yields obtained in this variant (50cm x 10 Kg/ha) may be explained by the fact that plants, by having a larger nutrition area, develop a bigger number of flowering sprigs.

Table 1. The influence of distance between rows on seed yield in *Festuca rubra*

Distance between rows (cm)	2005	2006	2007	Mean			Signif.
				Kg/ha	%	Difference	
12.5	257	270	167	231	100	mt	
25	366	391	332	363	157	132	***
50	405	430	344	393	170	162	***
DL 5%	10.5	17.8	9.5	7.7			
DL 1%	17.5	29.6	15.8	12.8			
DL 0.1%	32.6	55.1	29.4	23.8			

Table 2. Influence exerted by planting norm on seed yield in *Festuca rubra*

Planting norm (kg/ha)	2005	2006	2007	Mean			Signif.
				Kg/ha	%	Difference	
5	278	300	228	228	100	mt	
10	335	360	291	291	127	63	***
15	384	403	296	296	130	68	***
20	373	392	309	309	136	81	***
DL 5%	9.2	10.9	12.8	6.0			
DL 1%	12.6	14.9	17.5	8.3			
DL 0.1%	17.1	20.4	3.9	11.3			

Table 3. Influence exerted by distance between rows and planting norm on seed yield in *Festuca rubra*

Distance between rows (cm)	Planting norm (kg/ha)	2005	2006	2007	Mean			Signif.
					Kg/ha	%	Difference	
12.5	5	292	302	202	265	100	mt	
	10	280	296	184	253	95	-12	000
	15	253	260	147	220	83	-45	000
	20	203	222	134	186	70	-79	000
25	5	300	328	297	308	100	mt	
	10	225	248	200	224	73	-84	000
	15	455	480	381	439	143	130	***
	20	485	509	451	482	156	173	***
50	5	242	270	184	232	100	mt	
	10	500	535	488	508	219	276	***
	15	445	469	360	425	183	193	***
	20	432	446	342	407	175	175	***
DL 5%		7.9	9.4	11.1	5.2			
DL 1%		10.9	12.9	15.2	7.2			
DL 0.1%		14.8	17.6	20.7	9.8			

4. Conclusions

For seed production in *Festuca rubra*, the planting with 50 cm distance between rows and the 10 kg/ha planting norm lead to the best results, namely a yield of 508 Kg/ha.

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