BEHAVIOUR OF NEW RICE CULTIVARS AND LINES AT DIFFERENT SOWING TIMES

STUDIUL COMPORTĂRII NOILOR SOIURI ŞI LINII DE OREZ LA DIFERITE EPOCI DE SEMĂNAT

Oana Alina MARDARE, S. CÎMPEANU , I. JINGA, D. S. NIŢU , I. MANTU

Agricultural and Veterinary University, Bucureşti, România
Corresponding author: Oana Alina MARDARE, e-mail: oana_alina_mardare@yahoo.com

Abstract: *Rice, considered as tropical crop, is also cultivated in sub-tropical and continental areas due to its genetic diversity. The main climatic factors which influence this crop are temperature and light. Romania is located at the North limit of rice cultivation area. Rice could be cultivated in a narrow area from Turnu Severin to Braila as well as in South-east of Banat. So, for our country main importance has the sowing time, the vegetation period of new genotypes must allow the maturity stage. During 2003-2005, at Rice Experimental Center Chirnogi, 7 genotypes and 3 sowing times were tested.*

Rezumat: *Orezul deşi este considerat ca origine ,plantă tropicală datorită diversităţii genetice este cultivat şi în regiuni cu climat subtropical sau temperat-continental. Principalii factori climatici de care depinde cultura sunt temperatura şi lumina. România este situată la limita nordică a zonei de cultură a orezului , acesta putând fi cultivat pe o fâşie îngustă care se întinde de la Turnul Severin la Brăila ,precum şi în zona de S-V a Banatului. De aceea pentru ţara noastră o importanţă deosebită prezintă epoca de semănat ,asfel încât lungimea perioadei de vegetaţie a noilor genotipuri să permită ajungerea culturii la maturitate .De aceea în perioada 2003-2005 s-au experimentat la C.E.O.Chirnogi 7 genotipuri şi 3 epoci de semănat.*

Key words*: genotype, cultivar, rice line, rice fitting out, submersion, experiment, sowing time.*
Cuvinte cheie*: genotip, soi, linie de orez, amenajare orizicolă, submersie, experienţă, epoca de semănat.*

INTRODUCTION

During 1987-1990, the area cultivated with rice in Romania was 50,000 ha, ensuring almost whole human consumption. After ‘90s, the rice crop registers a pronounced decline till 500 ha in 2005.

After joining Romania to EU, the areas cultivated with rice must reach at 30,000 ha minimum to reduce the expenses for rice import. It must be used a crop technology adequate to achieve yields of 7-80,000 kg/ha.

Among the main crop technology sequences, there are genotype and sowing time.

MATERIAL AND METHOD

Seven rice cultivars considered as very perspective ones and three sowing times were used to perform a bifactorial experiment 3x7. The experimental variants were:

A factor: - Sowing time:

A_1 – sown on April 25;
A_2 – sown on May 5;
A_3 – sown on May 15.

B factor: Genotype:

B_1 – Dunarea;
B_2 – Polizesti 28;
B_3 – Elida;
B_4 – Zefir;
B_5 – Magic;
B_6 – F40 (f18 x I.R.28);
B_7 – F42 (Sesilla x Timis53).

The applied irrigation regime was by intermittent submersion with variable water level.

RESULTS AND DISCUSSION

The synthesis of results regarding the sowing time and genotype during 2003-2005 is presented in table and figure 1. One can ascertain that at the sowing time April 25, the average yield was 72.2 q/ha. The sowing delay with 10 days determined the obtainment of 70.4 q/ha and a sowing delay till May 15 determined a diminished yield of 66.6 q/ha. The rice sowing on May 15 vs. first sowing time determined the obtainment of a very significant diminution of 5.5 q/ha. Regarding the cultivated genotypes, the highest yield were obtained by F40 (74.5 q/ha) and Magic (73.4 q/ha).

Table 1

Synthesis of results regarding the sowing time and genotype in rice during 2003-2005

Variant	**b1 Dunărea**	**b2 Polizeşti 28**	**b3 Zefir**	**b4 Elida**	**b5 Magic**	**b6 F40**	**b7 F42**	**Average**
a_1 sown on April 25	70.0	68.7	75.0	75.9	75.9	77.5	68.0	72.2
a_2 sown on May 5	67.0	67.0	73.0	71.0	74.0	75.0	66.0	70.4
a_3 sown on May 15	64.0	63.0	68.0	68.7	70.3	71.0	62.0	66.7
Average	67.0	66.2	72.0	70.0	73.4	74.5	65.3	69.8

LSD value	**Dl 5 %**	**Dl 1 %**	**Dl 0.1 %**
For comparison between variants of sowing time	2.28	3.11	4.25
For comparison between variants of genotypes	2.90	3.69	5.08
For comparison between genotypes at the same sowing time	4.63	6.40	8.76
For comparison between sowing time at the same genotype	2.47	3.49	4.70

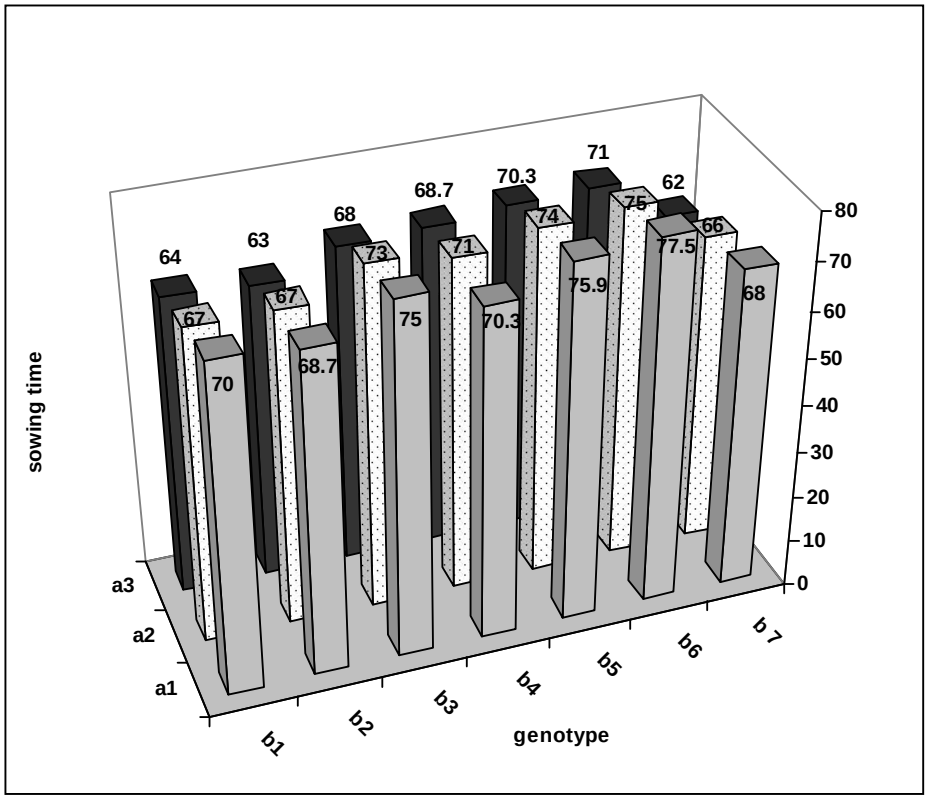

Fig. 1 Synthesis of results regarding the sowing time and genotype in rice during 2003 - 2005

Table 2

Synthesis of the results regarding the influence of sowing time on yield cost and gross benefit in rice during 2003-2005

Variant		Yield cost E/q			Gross benefit E/ha		
		a_1 – sown on April 25	a_2 – sown on May 5	a_3 – sown on May 15	a_1 – sown on April 25	a_2 – sown on May 5	a_3 – sown on May 15
b1	Dunărea Mt.1	28.80	30.09	31.50	1133.6	998.6	863.6
b2	Polizeşti 28 Mt.2	29.36	30.09	32.00	1073.7	998.6	818.6
b3	Zefir	26.88	27.62	29.65	1358.6	1268.6	1043.6
b4	Elida	28.67	28.40	29.36	1148.4	1178.6	1073.7
b5	Magic	26.55	27.24	28.67	1400.0	1313.6	1148.4
b6	F40 (F18 x I.R.28)	26.01	26.88	28.40	1471.1	1358.6	1178.6
b7	F42 (Sesilla x Timiş 53)	29.65	30.55	32.52	1043.6	953.6	773.6
	Average	27.92	28.62	30.22	1232.6	1152.9	985.5

Synthesis of the results regarding the influence of sowing time on yield cost and gross benefit in rice during 2003-2005 is presented in 1 .

As regards the yield cost, the smallest values were obtained by genotypes F40 (26. 01 EUR/q) and Magic (26.55 EUR/q) sown on April 25.

At the same sowing time and same genotypes, the highest values of gross benefit were achieved: 1471.1 EUR/ha at F40 and 1400 EUR/ha at Magic cultivar.

CONCLUSIONS

The researches performed in long-term experiments at REC Chirnogi allowed the following conclusions and recommendations:

- The adequate sowing time is April 25, with sowing into water and irrigation regime by intermittent submersion with variable water level;
- The genotypes F40 and Magic achieve an yield of about 72 q/ha;
- The sowing delay till May 15 determines the yield diminution till 66 q/ha, no matter of used genotype.

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