THE BEHAVIOUR OF THE PIONEER MAIZE HYBRIDS IN THE REGION OF THE CAMBIC CHERNOZEM FROM VALEA LUI MIHAI AND OF THE MOLLIC PROLUVIAL SOIL OF THE BIHAIA TERRITORY

COMPORTAREA HIBRIZILOR DE PORUMB MARCA PIONEER ÎN ZONA CERNOZIOMULUI CAMBIC DE LA VALEA LUI MIHAI ŞI A PRELUVISOLULUI MOLIC DIN TERITORIUL BIHARIA

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Rezumat: *În lucrare sunt prezentate rezultatele obținute în ciclul experimental 2003-2006, într-o cultură comparativă cu 14 hibrizi în zona cernoziomului cambic, de la Valea lui Mihai şi o cultură comparativă cu 13 hibrizi în zona Biharia, pe un preluvisol molic, levigat, moderat. Nivelul recoltelor, în medie pe 4 ani, a oscilat între 9400 kg/ha şi 11.465 kg/ha la Valea lui Mihai şi între 7586 kg/ha şi 10.687 kg/ha la Biharia.*

Abstract: *The paper resents the results obtained during the experimental cycle 2003-2006 with a comparative crop of 14 hybrids in the region of the cambic chernozem from Valea lui Mihai and a comparative crop with 13 hybrids in the Bihaia area, obtained on a mollic proluvial soil, leached, moderated. The average yields' level during the 4 years oscillated between 9400 kg/ha and 11,465 kg/ha in Valea lui Mihai and between 7586 kg/ha and 10,687 kg/ha in Biharia.*

Key words: *Maize grains – comparative cultures with Pioneer hybrids.*
Cuvinte cheie: *Porumb boabe – culturi comparative cu hibrizi Pioneer.*

INTRODUCTION

The Pioneer maize hybrids are cultivated on large areas because of their high production capacity, of their characteristic of rapidly loosing water at the maturity, of their good resistance against drought, of the uniform corncob insertion, of the elasticity of their stem etc. The company has hybrids belonging to all precocity groups. In the areas in which the researches have been carried out the maize benefits by favourable pedoclimatic conditions, so that the studied hybrids were able to fully demonstrate their productive capacity.

The researches carried out are necessary for the division on micro-zones of the researched hybrids.

MATERIAL AND METHOD

The hybrids analyzed on the experimental field from Valea lui Mihai were Monalisa, Lipesa, Clarica, PR38F10, PR39D81, PR38A24, Danellam Stira, Evelina, Ribera, PR36R10, Colomba, and Florencia.

The precursory cultivated plant was the winter wheat.

The fertilization has been done with $N_{200}P_{100}K_{100}$.

The used plant densities according to the hybrid precocity groups were of 60.000 plants/ha for the early and semi early hybrids and of 55.000 plants/ha for the semi late hybrids.

The experiments have been organized according to the strip method with three repetitions.

RESULTS AND DISCUSSIONS

In Table 1 and fig. 1 there are given the results obtained in the region Valea lui Mihai. These show that the average yield for the four experimental years was of 10.739 kg/ha.

The yields of the early and semi early hybrids were of between 9400 kg/ha (Helga) and 10.700 kg/ha (Monalisa and PR38F10).

The semi early hybrids had a very good behaviour, their yields oscillating between 10.500 kg/ha (Danella) and 11.500 kg/ha (Ribera).

The semi late hybrids had yield levels of between 11.000 and 11.700 kg/ha.

As crops with very significant differences as compared to the average of the filed are the hybrids: PR38A24, Ribera, PR36R10, Colomba and Florencia.

Very significant negative differences have been encountered in the case of Helga and Lipesa hybrids. However, in the case of those two hybrids the yield has also been of more than 9000 kg/ha. According to their vegetation period, these hybrids belong to the extra early and early hybrids.

Table 1

The synthesis of the yield results measured for the comparative crops from Valea lui Mihai, Bihor County during the experimental cycle 2003-2006

Hybrid	Yield Kg/ha	%	Difference Kg/ha	Significance
Field average	10739	100		
Monalisa	10724	100	-15	
Helga	9400	87	-1339	000
Lipesa	10213	95	-526	000
Clarica	10493	97	-226	0
PR38F10	10707	100	-32	
PR39D81	9940	92	-799	000
PR38A24	11127	104	388	XXX
Danella	10579	98	-160	
Stira	10611	99	-128	
Evelina	10962	102	223	X
Ribera	11465	107	726	XXX
PR36R10	11405	106	666	XXX
Colomba	11629	108	890	XXX
Florencia	11095	103	356	XX

DL 5% = 205kg/ha, DL 1% = 276 kg/ha, DL 0.1% = 365 kg /ha.

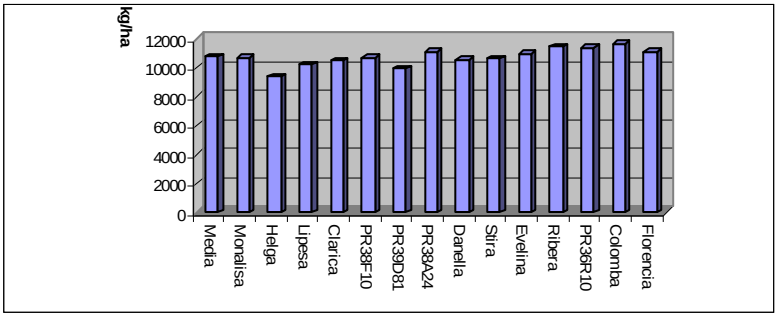

Fig.1. The synthesis of the maize yield obtained in Valea lui Mihai during the experimental cycle 2003-2006

The results obtained on the Biharia experimental field are presented in Table 2 and fig. 2.

Table 2

The synthesis of the yield results of the comparative cultures from Biharia, Bihor County, during the experimental cycle 2003-2005

Hybrid	Yield Kg/ha	%	Difference Kg/ha	Signification
Filed average	9157	100		
PR39D81	8319	91	-838	000
Helga	7586	83	-1571	000
Lipesa	7968	87	-1189	000
Clarica	8075	88	-1082	000
PR38F10	8218	89	-939	000
Stira	9993	109	836	XXX
PRD3X/X0970N	9789	107	632	XXX
PR38H67	10234	112	1077	XXX
Evelina	9363	102	206	
PR36R10	10176	111	1019	XXX
Colomba	9470	103	313	
Vasilica	9151	100	-6	
Florencia	10687	117	1530	XXX

DL 5% = 316 kg/ha, DL 1% = 427 kg/ha, DL 0.1% = 569 kg/ha

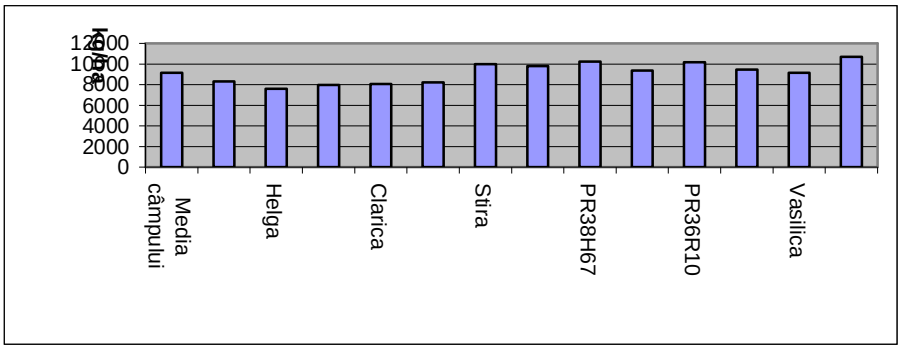

Fig. 2. The maize yield obtained in Biharia during the experimental cycle 2003-2005

It results that on the researched field exist very favourable conditions for the tested hybrids, which results from the field average yield of 9000 kg/ha.

With the extra early and early tested hybrids have been obtained yields of between 7500 kg/ha (Helga) and 8300 kg/ha (PR39D81).

For the semi early hybrids the yields' levels were of between 8200 kg/ha (PR38F10) and 10.234 kg/ha (PR38H67).

For the same late hybrids the obtained yields were of between 9100 kg/ha (Vasilica) and 10.600 kg/ha (Florencia).

The results obtained for the comparative culture with 13 maize hybrids in Biharia lead to the conclusion that in this area we can find the hybrids that obtain the most economically motivated yields of all precocity groups. Most used should be the semi early and semi late hybrids. The early

hybrids should be used as precursory cultivated plants for the winter cultures, mostly for the maize - wheat crop rotation.

CONCLUSIONS

The Pioneer hybrids tested in the two areas, Valea lui Mihai on a cambic chernozem and Biharia on a mollic proluvial soil, are proved to be adapted to the pedoclimatic conditions from those regions.

Helga, Monalisa and PR39D81 hybrids distinguished themselves among the early hybrids the.

Among the semi early hybrids there have been evidentiated Danella and Ribera hybrids in Valea lui Mihai and PR38F10 and PR38H65 in the Biharia region and among the semi late hybrids Florencia and Colomba hybrids gave the best results.

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