

BEHAVIOR OF MAIZE HYBRIDS TO CREATE THE COMPANY LIMAGRAIN CLIMATIC CONDITIONS IN THE WESTERN PLAIN

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Abstract. Corn detains, in Romania, the first place among culture plants. Good favourableness towards this culture and large possibilities of valorising this product will make it keep the first place among cultures. Maize grew in culture and because of special features and biological phyto better resist drought and falling, is attacked by few diseases and pests, can be grown on land vary widely and in different climatic conditions, supports monoculture. The hoes leave the land clean of weeds is a good pre for many plants, even for winter wheat, recover very organic and mineral fertilizers, react very strongly to irrigation, may be sown for fodder grain and even the second culture. Of grain endosperm by milling, to obtain flour (maize) which can be used in human food as such or is used to obtain corn flakes, biscuits, baby foods, confectionery. From the maize embryos to obtain oil, used directly to prepare food or margarine industry. Of maize have made many superabsorbent products that can be used in soil erosion control and fixing sands, biodegradable materials, dialdehyde starch (highly resistant to moisture) used in paper industry. The researches have been carried out during 2007-2009 in specific pedo-climatic area the Didactic Station in Timisoara (District of Timis). From the point of view of the climate, the Timisoara area has an average multi-annual temperature of 10.8°. As for rainfalls, their average multi-annual amount is of 631 mm, of which 255 mm during vegetation period. Air relative moisture is, on the whole, favourable to crop productions, with an annual value of 74,7%. The frequency of dry years is 20-30.0%, and that of extreme rainfall is up to 11-12.0%. The experimental field in the Timisoara area was set on a cambic moist chernozem (weakly gleyed), weakly decarbonated, on loess-like deposits, argyle dusty/clayish-argyllous clay. The results of the present study are financed by the Limagrain Company.

Key words: maize, production, protein content

INTRODUCTION

Maize is, due to the cultivated areas and to its multiple uses, the most important crop in Romania. If we take into account the climate conditions favourable to this crop, we have a full image of the value of this crop, for both the entire agricultural land of Romania and the Western Plain, where we have conducted out study.

MATERIAL AND METHODS

The study was carried out on a cambic chernozem with low acid reaction at the Didactic Station of the Banat University of Agricultural Science and Veterinary Medicine in Timișoara. Climate interpretation was done using climate data supplied by the Meteorological Station in Timișoara; it showed that, though there were abatements from the point of view of temperatures and air moisture during the experimental period, the area is favourable for maize cropping.

Experiments were set in the field after the comparative crop method, and the cultivation technology applied consisted of preparing the land by tillage 25 cm deep in the soil and preparing the germination bed in spring before sowing by passing the combinatory (when

we incorporated 200 kg N:P:K – 15:15:15) to retain as much water as possible in the soil. During vegetation, we applied, upon the first tillage, 150 kg of ammonia nitrate. Weed control was done by treating with herbicide during vegetation, using Titus Plus 370 g/ha and two mechanical tillage. Upon maturity, we sampled and then we determined mean yield per ha, moisture upon harvesting, starch percentage, and protein percentage.

RESULTS AND DISCUSSIONS

Table 1 shows yield results in maize hybrids and field average. We can see that the average of the field for the three experimental years reached about 9,636 kg/ha; of the eight experimental maize hybrids, two yielded over 10,000 kg/ha (LG3395 – 10259 kg/ha and LG3562 – 10328 kg/ha), five yielded over 9,000 kg/ha and a single maize hybrid, Ademio, yielded 8,866 kg/ha.

Table 1.

Maize yield in the experimental field of Timișoara

No.	Maize hybrid	Yield kg/ha	%	Difference	Significance
1	Average	9,636	100		
2	LG2306	9,124	95	-512	00
3	LG3330	9,512	99	-124	
4	LG3362	9,502	99	-134	
5	LG3395	10,259	108	624	xxx
6	Ademio	8,866	92	-770	000
7	LG3475	9,642	100	7	
8	LG3535	9,851	102	216	
9	LG3562	10,328	107	693	xxx

DL 5.0% = 285 kg/ha;
DL 1.0% = 392 kg/ha;
DL 0.1% = 540 kg/ha.

Figure 1 shows harvesting moisture in maize, a very important indicator for mechanised harvesting.

Data analysis shows that, of the eight experimental maize hybrids, four had less than 14.0% harvesting moisture (LG 3330 -13.5%; LG3362 – 13.9%; LG 3395 – 13.7% and Ademio – 13.5%), two maize hybrids had a harvesting moisture between 14.0% and 15.0% (LG 2306 – 14.7% and LG 3475 – 14.7%), one maize hybrid, LG 3562, had a harvesting moisture of 15.3% and the maize hybrid LG 3535 had a harvesting moisture of 16.1%.

The conclusion is that the maize hybrids of the Limagrains Company are fit for mechanised harvesting, even as grains, and can be included in the maize – winter wheat crop rotation.

Figure 2 shows protein percentage determined in the eight experimental maize hybrids. Determining protein maize hybrids was done in the Laboratory for Seed quality and vegetal material testing of the Department of Cultivation technologies.

Analysing data presented in Figure 2, we can see that three of the maize hybrids contained over 9.0% protein (LG 3475 – 9.0%, LG 3362 – 9.0% and LG 3330 – 9.5%), three maize hybrids had a protein content between 8 and 9.0% (Ademio – 8.0%, LG3395 – 8.5% and LG 2306 – 8.8%), and two maize hybrids had below 8.0% protein (LG 3535 – 7.5% and LG3562 – 7.6%).

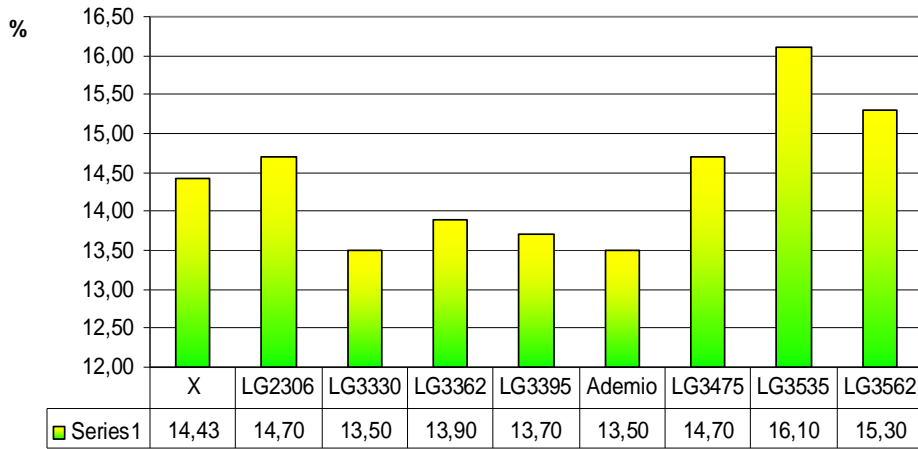


Fig. 1 Harvesting moisture (%)

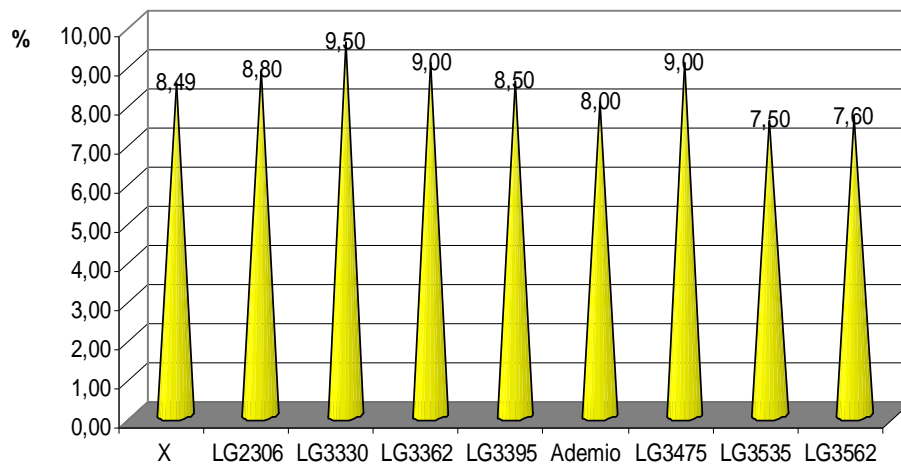


Fig. 2 Protein percentage

CONCLUSIONS

1. The maize hybrids developed by the Limagrain Company have a high yielding caapcity: even in conditions of climate stress and with moderate mineral fertilisation, it yield very good productions, the average of the field for the three experimental years in eight maize hybrids reaching about 9,636 kg/ha.

2. Harvesting moisture between 13.5% and 16.1% recommends these maize hybrids for mechanical harvesting and for inclusion in the maize – winter wheat crop rotation.

3. Protein percentage on the average for the eight maize hybrids was between 7.5% in the maize hybrid LG 3535 and 9.5% in the hybrid LG 3330.

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