THE STUDY REGARDING FEATURES IMPLIED IN CROP POTENTIAL AND CAPABILITY OF SOME MAIZE HYBRIDS FROM ZEMUN POLJE

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Abstract: *The research was conducted in experimental field from SDE Timisoara in 2009 on mold bill soil and implied 20 maize hybrids (FAO 300 - 400) from Maize Research Station Zemun Polje Beograd. The features implied were crop per plant, MMB and the number of grains rows per cob. After 2000, the number of firms marketing hybrid seed increased very much and thus one can find nowadays a lot of hybrids that do not always answer in a satisfactorily manner from an economic point of view. The research method used was the comparative culture with three replications. The elements of micro plot trial are as follows: Number of experimental hybrids 20; * Number of check hybrids 2; Total number of hybrids in trial 24; Number of replications 3; Number of locations 1; Number of micro plots per trial 72; Total number of micro plots in locations 72; Inter row distance 70 cm; Distance between plants 21 cm; Number of plants per micro plot 20; One row micro plot size/hybrid 2.94 m^2. * The seed for two check hybrids (the most popular commercial hybrids at the market from FAO 300-400 maturity range).Hybrids under study belong to different precocity groups, starting with semi-early ones up to late ones, according to FAO classification. The maximization of biologically production potential in the case of hybrids taken under study implies their research in high densities and under optimum technological conditions in order to do not interfere with their capacity of production. Higher densities per area unit can create optimum condition in order to obtain appropriate features for top production potential. On this purpose, 20 plants per each row of subdivided parcel were harvested in order to determine the features taken under study. Keeping in mind the importance of correct technology use in maize crop, farmers should obtain an optimal density and a homogeneous crop.*

Key words**:** *maize, hybrid, crop, yield*

INTRODUCTION

The maximization of biologically production potential in the case of hybrids taken under study implies their research in high densities and under optimum technological conditions in order to do not interfere with their capacity of production.

MATERIAL AND METHODS

The research was conducted in experimental field from SDE Timisoara in 2009 on mold bill soil and implied 24 maize hybrids (FAO 300 - 400) from Maize Research Station Zemun Polje Beograd, one hybrid Occitan and one hybrid DK 3511. All, 24 hybrids were cultivated in 3 replications, with sub-divided plots. The subdivided plot consists in a row of 2.94 m^2 with 70 cm distances between rows. The distance between plants from one row was 21 cm; we assured 20 plant/ m^2. All plants from each row of parcel were harvested, in order to determine production per plant, MMB and the number of grain per cob.

RESULTS AND DISCUSSIONS

The crop quality and quantity depends not only of the choice of an optimal ratio between the elements in soil and of the fertilizers doses quantity. Up to a certain point, the yield increase with the increase of the doses, behind this point any raise of the dose has no effect or a negative one.

Table 1

The features implied in crop potential for some maize hybrids

Plot	Hybrid	Name of hybrid	MMB	Row plot weight kg	Number of grains rows per cob
1	1	ZP 422	360	4.8	14-16
2	2	ZP 423	360	4.5	14-16
3	3	ZP 300/7	350	4.1	14-16
4	4	ZP 440	345	4.8	14-16
5	5	ZP 463	355	5	14-16
6	6	ZP 461	345	4.9	14-16
7	7	ZP 445	350	4.7	14-16
8	8	ZP 468	330	5	14-16
9	9	ZP 548	365	5.1	14-16
10	10	ZP 377/7	345	4.4	14-16
11	11	ZP 388	350	4.9	14-16
12	12	ZP 444/7	345	5	14-16
13	13	ZP 484/7	350	5.1	14-16
14	14	ZP 301/8	340	4.1	14-16
15	15	ZP 305/8	340	4.3	14-16
16	16	ZP 374/8	355	4.5	14-16
17	17	ZP 392/8	355	4.9	14-16
18	18	ZP 434/9	355	4.8	14-16
19	19	ZP 488	365	5.1	14-16
20	20	ZP 499	360	4.7	14-16
21	21	ZP 341	350	4.6	14-16
22	22	ZP 434	350	5	14-16
23	23	OCCITAN	320	4.1	14-16
24	24	DK3511	325	4.3	14-18

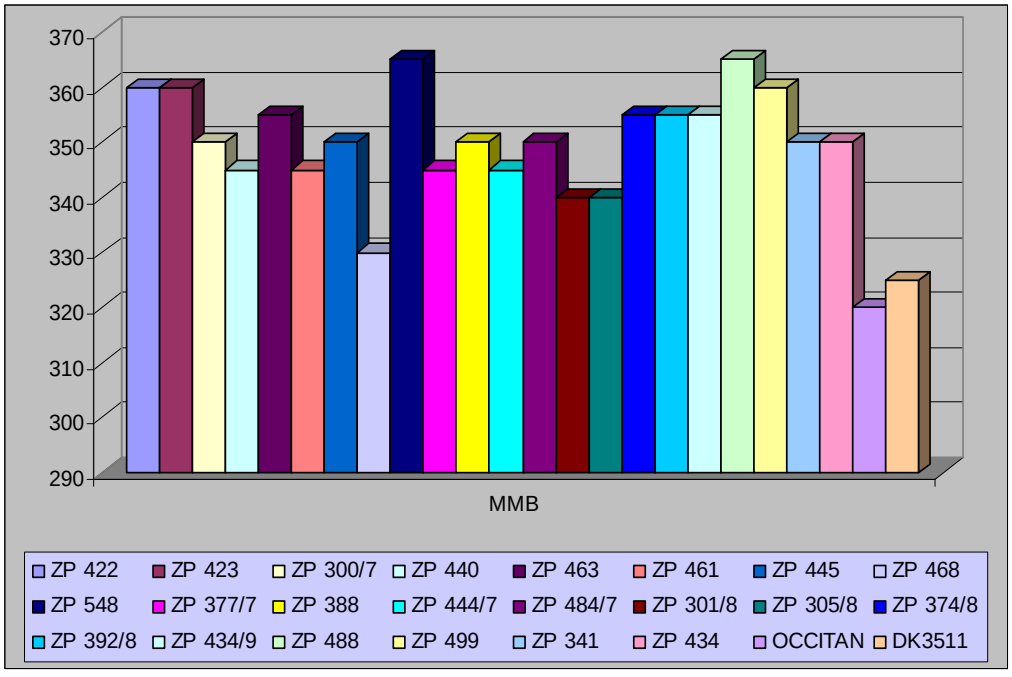

Figure 1: The variation of MMB parameter in the case of some maize hybrids

The amount of nutritive substances required by plants and soil fertility are two measures very constructive in order to obtain high qualitative crop.

Table 2

The features implied in crop potential for some maize hybrids

Plot	Hybrid	Name of hybrid	MMB	Row plot weight kg	Number of grains rows per cob
25	5	ZP 463	355	4.8	14-16
26	14	ZP 301/8	340	4.3	14-16
27	17	ZP 392/8	350	5	14-16
28	6	ZP 461	345	4.9	14-16
29	10	ZP 377/7	340	4.5	14-16
30	20	ZP 499	360	4.6	14-16
31	1	ZP 422	355	4.4	14-16
32	11	ZP 388	350	4.8	14-16
33	16	ZP 374/8	355	4.7	14-16
34	7	ZP 445	350	4.9	14-16
35	2	ZP 423	360	4.8	14-16
36	12	ZP 444/7	345	5	14-16
37	19	ZP 488	365	49	14-16
38	21	ZP 341	355	4.8	14-16
39	23	DK3511	320	4.2	14-16
40	13	ZP 484/7	350	5.2	14-16
41	8	ZP 468	330	4.8	14-16
42	22	ZP 434	350	5.1	14-16
43	18	ZP 434/9	355	4.9	14-16
44	15	ZP 305/8	340	4.2	14-16
45	24	OCCITAN	320	4.3	14-16
46	3	ZP 300/7	350	4	14-16
47	9	ZP 548	365	5	14-16
48	4	ZP 440	340	4.8	14-18

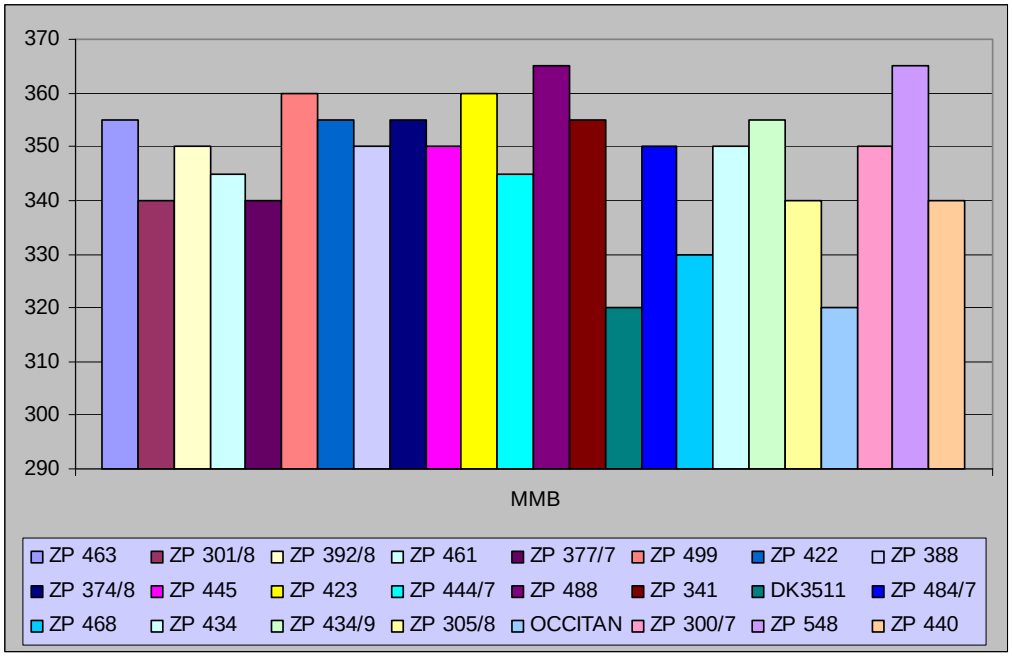

Figure 2: The variation of MMB parameter in the case of some maize hybrids

During the vegetation period the process of growth and development are significant.

Generally, we can observe small differences for analyzed features of maize hybrids.

The comparison of the 24 hybrids is relevant, showing that all hybrids seem to have similar crops when the optimal density per hectare is accomplished.

Table 3

The features implied in crop potential for some maize hybrids

Plot	Hybrid	Name of hybrid	MMB	Row plot weight kg	Number of grains rows per cob
49	11	ZP 388	350	5.1	14-16
50	21	ZP 341	355	4.9	14-16
51	4	ZP 440	340	4.3	14-16
52	24	DK3511	320	4.2	14-16
53	6	ZP 461	345	5	14-16
54	16	ZP 374/8	355	4.6	14-16
55	22	ZP 434	350	4.9	14-16
56	3	ZP 300/7	350	4.2	14-16
57	9	ZP 548	365	4.9	14-16
58	17	ZP 392/8	355	4.8	14-16
59	12	ZP 444/7	345	4.8	14-16
60	1	ZP 422	355	4.6	14-16
61	19	ZP 488	365	4.5	14-16
62	2	ZP 423	360	4.3	14-16
63	15	ZP 305/8	340	4.4	14-16
64	18	ZP 434/9	355	5	14-16
65	7	ZP 445	350	4.8	14-16
66	13	ZP 484/7	350	5.1	14-16
67	23	OCCITAN	325	4.3	14-16
68	10	ZP 377/7	340	4.6	14-16
69	20	ZP 499	355	4.7	14-16
70	5	ZP 463	355	4.9	14-16
71	14	ZP 301/8	340	4.6	14-16
72	8	ZP 468	330	4.9	14-18

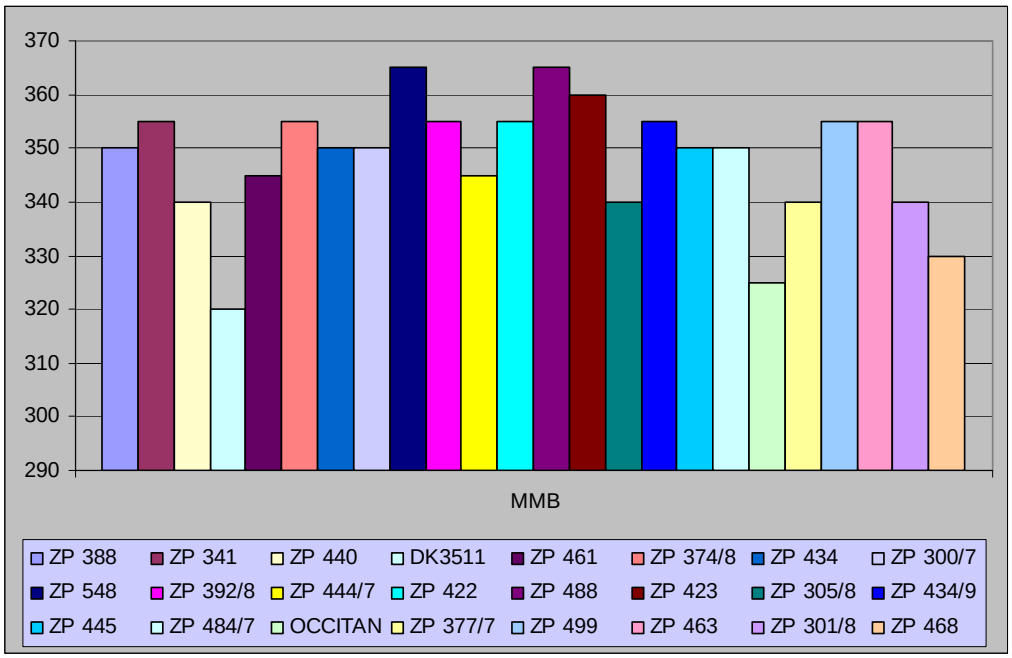

Figure 3: The variation of MMB parameter in the case of some maize hybrids

The features taken under study, MMB, number of grains rows per cob and row plot weight are important from the agrochemical point of view. These features have a great influence on the increase ratio.

In order to assure a proper growth and development for maize, all the life condition in the natural environment, light, heat, water and nutritive elements, must be satisfied.

CONCLUSIONS

The purpose of this paper consists in finding the optimal density, the proper quantity per plant row, MMB and in obtaining maximum yield per hectare.

When a correct technology is used for maize crop, farmers will obtain a good density, a homogenous crop and an adequate optimal yield.

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