

RESEARCHES ON THE VEGETATION PERIOD OF SOME MAIZE HYBRIDS ASSESSED BY THE NUMBER OF LEAVES

CERCETĂRI PRIVIND PERIOADA DE VEGETAȚIE A UNOR HIBRIZI DE PORUMB APRECIATĂ DUPĂ NUMĂRUL DE FRUNZE

DAVID IVONA *, FRĂȘIN LOREDANA BEATRICE*

*Valahia University of Targoviste
Faculty of Environmental Engineering and Biotechnologies, Romania

For to define more accurately the precocity group of some maize hybrids depending on vegetation conditions from maize growing area, different researches analyzed the number of leaves as invariable factor dependent on hybrid. In this writing we offer dates about number of leaves for ten maize hybrids cultivated in experimental field from Varieties Testing Centre, Targoviste. Differences between hybrids were clearly and for this reason we can classify these hybrids in two precocity groups (medium early or late).

Key word: maize, hybrids, number of leaves, precocity

Introduction

The expression for maize period of vegetation by number of leaves, defines more accurately the precocity of hybrid. Number of leaves is an invariable factor specific for each hybrid, without temperature's influence from year to year.

Near by temperature and number of days from sowing to maturity, number of leaves is one of the most important criterions for determination the maize period of vegetation.

Early maize forms have a small number of leaves by comparison with medium early or late forms.

At each hybrid, number of leaves is invariable in very large latitude limits (4 - 7⁰). Our country is situate at 43 - 48⁰ latitude and for this reason, one hybrid developing the same number of leaves irrespective of growing zone and it's period of vegetation (the precocity group) being well defined in this way.

Materials and Methods

The research was made in 2006 in the experimental field from Varieties Testing Centre, Targoviste.

The material for this research was composed from two precocity groups with ten maize hybrids: Olt, Olimp, Campion, Milcov, Fundulea 376, Turda 165, Turda Mold 188, Turda Super, Turda 201 and Turda Favorit.

First five hybrids were created at ICDA Fundulea and last five hybrids at SCDA Turda, hybrids were acclimatized at growing areas from south and west from waterside and plateau zones.

For to analyze the number of leaves at these hybrids, in 2006 we counted up all leaves from seed lobe cotyledon stage considered as first leaf of maize.

We counted up leaves at three plants for each variant beginning from incipient sprouting stage of plants. The maize at the same time as advance in vegetation loses the leaves from the base of plant and for this reason we cut the half of limb (at the fifth, tenth, etc leaf) .

We had repeated counting from five to five days, until complete formation of leaves for maize plant (complete appearance of male inflorescence).

Very useful in this problem was research made by Nozzolini (1963) in Italy at Bergamo.

Results and Discussions

The number of leaves and average number of leaves from one maize plant are reproduced in Table 1.

Table 1
Number of leaves at maize hybrids from experiment, Targoviste, 2006

No. crt	Hybrids	Plant 1	Plant 2	Plant 3	Average number of leaves
1	Olt	20	19	21	20
2	Olimp	19	19	19	19
3	Campion	21	20	20	20.3
4	Milcov	19	19	18	18.6
5	F 376	20	19	21	20
6	Group's average	19.8	19.2	19.8	19.6
7	Turda 165	15	17	17	16.3
8	Turda Mold 188	16	17	16	16.3
9	Turda Super	18	15	17	16.6
10	Turda 201	16	16	17	16.3
11	Turda Favorit	17	17	16	16.6
12	Group's average	16.4	16.4	16.6	16.4

From these results we observed that number of leaves from one plant is variable from one hybrid to other and it was from 20.3 at Campion hybrid to 16.3 at Turda 165 and Turda 201 hybrid.

Counting up the average for number of leaves from hybrids created at Fundulea and from hybrids create dat Turda, we observed that Fundulea hybrids

forms on an average 19.6 leaves, according to this criterion and according to Nozzolini (1963) classification, these hybrids were classified in the precocity group medium late, number of leaves 18.1 – 20.0.

Hybrids create at Turda forme don an average 16.4 leaves and these were classified in medium early precocity group according to Nozzolini (14.1 – 16.0 leaves).

The difference between groups of hybrids were observed in fact that hybrids from Turda group realized only 84% from average number of leaves of Fundulea group hybrids.

Fundulea hybrids formed characteristic leaves on an average in 70 deys, while Turda hybrids on an average in 57.5 days and the difference between two groups is 12.5 days. This difference in days is possible to be changed in our country from year to year depending by temperature not by photoperiod. Number of leaves remain the same.

Conclusions

Fundulea hybrids offer an average number of leaves per plant between 18.6 and 20.3, and for this reason we can affirm that these are medium late hybrids from view point of vegetation period;

Turda hybrids offer an average number of leaves per plant between 16.3 and 16.6 being classified in medium early hybrids category;

The experimental material can be generalized for hybrids which were created in the south of country and for hybrids which were created in Transylvania at Turda the single breeding centre for maize from this area.

Bibliography

1. **Bîlteanu, Ghe., Roman Gh. V.** (1981) – Cu privire la perioada de vegetație a porumbului, Revista Cereale și Plante tehnice, nr.3;
2. **Bîlteanu, Ghe.** (2003) – Fitotehnie vol I, Editura Ceres, București;
3. **Desiderio, E., Monotti, M.** (1979) – La definizione della precocita degli ibridi, L'Italia agricola – maiscoltura degli anni 80, ottobre-dicembre;
4. **Nozzolini, V.** (1963) – Il numero delle foglie quale indice della lunghezza del periodo vegetativo del mais, Maydica (quaderno 1).