A STUDY REGARDING TO THE INFLUENCE OF THE PLANT POPULATION ON FEW YIELD PARAMETERS AT SINGLE CROSS MAIZE HYBRIDS AT ARDS TURDA

Campean Sorin, Voichita Has, I.Has, Ana Copandean

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca
Str. Mănăştur nr.3-5, sorincampean83@yahoo.fr

Key words: yield potential, yield per plant, density, stress conditions;

SUMMARY

A generally the maize yield per unit area responds to density changes. Optimum plant density for maximum grain yield per unit area may differ from hybrid to hybrid on account of significant interactions between hybrids and densities (VOICHITA HAS et al., 2007). Tolerance to various stresses has been played a crucial role in the improvements in maize yields (TOLLENAAR and WU, 1999). Objective of the study was to estimate the optimum density for maximum grain yield per unit area to seven hybrids, the density impact on stand uniformity was evaluated as well as to assess how some hybrids, important yield parameters (yield per plant and ear length) respond to density changes. Experimentation was conducted under natural conditions, without irrigation, at the Agricultural Research Station, Turda, Romania, during the 2006 and 2007 seasons. Seven single-cross hybrids (FAO 320 - 450) were grown at three densities. The experimental design was a split-plot, with different densities as main plots, randomized in three complete blocks, and the hybrids as subplots. Subplots consisted of four rows, 5 m long with 70 cm between rows. Distances among plants within rows were 57, 34 and 17 cm, to obtain the densities of D1=2.5, D2=4.2 and D3=8.4 plants/m², respectively. Comparison of means was conducted by least significance difference (LSD) after analysis of variance for a two-factor split-plot design (SAULESCU and SAULESCU, 1967).

In conclusion, the hybrid H4 gave the highest yield per plant at the densities D1 and D2. The first season (2006) was significantly higher yielding compared with the second (2007). The reaction of hybrid H7 for ear length was positively at high density. The optimum density varied for grain yield per plant from 2.5 until 4.2 plants/m² with significant differences between the hybrids. In maize breeding the producers should take the necessary measures to achieve the optimum density for the choosen hybrids and the most uniform stand possible.

REFERENCES

HAS VOICHITA, I.TOKATLIDIS, I.HAS, I.MYLONAS, ANA COPANDEAN, 2007, Optimum density and stand uniformity as determinant parameters of crop yield potential and productivity in maize hybrids, Agricultural Field Trials, Today and Tomorrow, 1-xx;
SAULESCU, N.A. and N.N.SAULESCU, 1967, Campul de experiența, Ed.Agro-Silvica, București
TOLLENAAR, M. AND J.WU, 1999, Yield improvement in temperate maize is attributable to greater stress tolerance, Crop Science 39:1597-1604.