

**Carpici EB, Celik N (2010) Determining Possible Relationships between Yield and Yield-Related Components in Forage Maize (*Zea mays* L.) Using Correlation and Path Analyses. Notulae Botanicae Horti Agrobotanici Cluj-Napoca 38 (3): 280-285.**

#### Abstract

This study was carried out to determine the optimum plant density and nitrogen rate in maize (*Zea mays* L.) under the ecological conditions of the Southern Marmara Region. For this purpose, maize was grown at different plant densities and was fertilized with different rates of nitrogen during 2006 and 2007. The dry forage yield, plant height, first ear height, stem diameter, leaf number plant<sup>-1</sup>, ear number plant<sup>-1</sup>, leaf ratio, stem ratio, ear ratio, ear diameter, leaf area index, and light interception were measured for all the treatments applied. The values of each parameter mentioned above were reorganized without regard to treatments or with regard to the highest and lowest values of plant density and nitrogen rates and were evaluated to determine the relationships between the dry forage yield and yield-related components. For this purpose the direct and indirect effects of the corresponding components on dry forage yield were determined by using correlation and path analyses methods. The data averaged over two years, regardless of the treatment effects indicated that the relationship between the dry forage yield and each yield component except for stem ratio was positively significant. Path analysis revealed that most of the yield components had direct effects on the dry forage yield. According to this study, greater priority must be given to first ear height, leaf ratio and light interception to optimize silage maize yield. When the highest and the lowest plant densities and nitrogen rates were considered, nitrogen application had a greater effect on the dry forage yield than the plant density did.