

SUMMARY OF THESIS

Thesis title: Agronomic impact on crop yields

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Maize is the most sensitive agronomic grass species to changes in plant density. It is well-known that inputs such as improved varieties, irrigation, sowing time, plant population, and balanced fertilizer use all play an essential role in increasing crop yield. Maize has the highest grain yield potential of any cereal crop. To fully exploit its potential in grain production, it is crucial to comprehend how plants interact morphologically and physiologically in a community and identify management practices that allow them to use growth requirements in their environment. Plant population density is one of the most crucial cultural methods influencing grain yield and other critical agronomic attributes of maize.

This experiment was carried out to assess the effect of plant population density on the yield of maize. A Randomized Complete Block Design was used. The main treatments were 100, 75 and 50 per cent plant population densities with two replications. The experiment was carried out at the research farm of the Hungarian University of Agriculture and Life Sciences, Godollo during the summer of 2022. The maize variety used was margitta, FAO group 280. The parameters that were evaluated include plant height, number of leaves, stem girth, leaf area, photosynthetic activity, number of lines per cob of ten randomly selected plants, and number of seeds per line.

Data were subjected to Analysis of Variance (ANOVA) and Microsoft Excel 11. Treatment means were separated using the Least Significant Difference (LSD) at 5% level of probability.

It was observed at the end of the study that plant population density had a significant effect on plant height, number of leaves, stem girth, number of lines per cob of ten randomly selected plants, and number of seeds per. However, there were no significant differences on the effect of plant population density on leaf area and photosynthetic activity.