

BOOK OF ABSTRACTS



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VARIABILITY OF MAIZE LINES IN ABILITY TO USE NITROGEN

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Nitrogen is important macro-nutrient that influences various physiological processes in plants. Nevertheless, nitrogen could be loosed from the soil by leaching and evaporation. Thus, low nitrogen inputs are required together with strategy to improve its utilization by crops. Maize genotypes exhibit various susceptibility to low soil nitrogen. From that reason, variability in reaction of 32 maize lines to growing in conditions with optimal (fertilization with urea), and with low nitrogen (without fertilization) was examined during 2017 and 2018. All other growing measures and fertilization with other elements was applied at the same manner on whole experimental plot. 2017 was drier season, with higher average temperatures, particularly during anthesis and grain filling period.

High variability among genotypes and seasons was present. The values of maize grain yield and 1000 grain weight were slightly lower in the field without nitrogen fertilization. Some lines under the low nitrogen conditions reached even higher grain yields (efficacy of yielding was 139.7% and 156.7% respectively, for 2017 and 2018), than in conditions with optimal nitrogen in soil, declaring them as genotypes with high nitrogen using efficiency. However, these lines achieved moderate yields (in both fields and years) in regard to other lines. Among tested lines, two had relatively higher grain yields indicating them as prominent for further research, i.e. breeding of maize hybrids with better nitrogen usage from soil, even in the conditions with low nitrogen.

MAIZE LINES, NITROGEN USING EFFICIENCY, GRAIN YIELD

