AMMI model in evaluation of planting date x hybrid interaction for sunflower grain yield

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Abstract
The research was carried out to determine planting dates effects on grain yield, using three sunflower hybrids (Miro, Rimi, Pobednik), eight planting dates (in 10-days interval from 20th of March to 1st of June) and two vegetation periods. The experiment was RCBD with four replications. AMMI (additive main effects and multiplicative interactions) model was applied to investigate the major interaction effects. It was computed using GenStat 8.0. The AMMI model with a biplot display of the model, helps to visualize the overall pattern of the data set as specific planting date/hybrid interactions. AMMI partitioned the SS of planting date/hybrid interaction into two interaction principle component axis (PCA1 and PCA2) of which both were highly significant. In its first interaction PCA axis, this model recovers 55%, and in the second PCA axis 45% of the interaction SS, taking into account both examined vegetation periods. Values of close to zero characterize planting dates and hybrids that have low contribution to the interaction, being considered stable. The most stable in grain yield across planting dates was hybrid Miro, although it has lower grain yield. The highest grain yield gave Rimi, but this hybrid showed more interaction effect than Miro. The planting date IV (20th of April) was identified as the best and least interactive in this experiment.

Key words: AMMI, grain yield, planting dates, sunflower hybrids