Response of maize genotypes to soil stress on strong k-fixing soils

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Maize hybrids were grown under field condition of river Sava valley area on drained soils characterizing nutritional unbalances (K-deficiency/Mg-oversupply alone or in combination with P-deficiency). Growing 14 hybrids on Mikanovci K-deficient gleysol resulted by yield differences among the hybrids from 2.83 to 7.20 t/ha, as well as stalk lodging at maturity (SL) from 0.7% to 95.6%. Seven maize hybrids of Os1-48 inbred line were more tolerant because their mean yield (5.64 t/ha) was for 36% higher in comparison with seven hybrids of the Os87-24 inbred line. Also, the Os1-48 could be used as source of property characterizing resistance to SL under conditions of K deficiency (means 4.9% and 59.1% SL for the hybrids of Os1-48 and Os87-24, respectively). Growing these hybrids under conditions low both K and P supplies (Crnac polje gleysol) resulted by yield differences among the hybrids from 2.49 to 4.99 t/ha (means 4.02 and 3.61 t/ha, as well 4.7% and 15.1% SL, for the hybrids of the Os1-48 and the Os87-24 inbred line, respectively). Under conditions of Babina Greda K-deficient soil, four of ten hybrids (OsSK568exp, OsSK602, OsSK444 and OsSK458exp.) could be designated as a more tolerant (yield 8.01 t/ha and 15.3% SL) and four hybrids (OsSK552, OsSK554, OsSK558 and OsSK497exp.) less tolerant (mean yield 4.55 t/ha and 43% SL). Under normal conditions of the Stitar soil (4 km air-distance from K-deficient soil), growing of these ten maize hybrids resulted by 62% higher yield in comparison with Babina Greda K-deficient soil. Low and high yielding group of the hybrids on the K-deficient soil had on Stitar soil similar yields and absence of SL.