

## EFFECT OF K SUPPLY ON GROWTH AND DEVELOPMENT OF MAIZE (ZEA MAYS L.)

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### ABSTRACT

*The objective of this study was to quantitatively determine and to separate the effects of potassium deficiency on growth and development of a maize plant. Maize varieties V<sub>1</sub> (Sadaf) and V<sub>2</sub> (Sultan) were grown in a sand culture. When the coleoptile leaf was fully expanded, three level of K supply i-e K<sub>0</sub> = 8 mM; K<sub>M</sub> = 4 mM and K<sub>ZERO</sub> = 0 mM were established by varying K concentration in the Long Ashton nutrient solution. The supply of respective nutrient media was maintained from coleoptile leaf stage through silking. A thermal time in growing degree days (GDD) was calculated to characterize the thermal environment of the corn plants. The leaf area was estimated daily non-destructively as a measure of growth of a maize plant. Number of leaves per plant, irrespective of a leaf size and the number of leaves per plant in Haun scale were used as a measure of development of a plant and were also recorded on daily basis. There was straight-line linear relationship between the number of leaves of V<sub>1</sub> and V<sub>2</sub> and the thermal time since sowing for each level of K supply. The development rate of V<sub>1</sub> and V<sub>2</sub> in K<sub>ZERO</sub> level was 10 and 15%, respectively slower than that in K<sub>0</sub> level. At leaf stage II, the leaf area in K<sub>ZERO</sub> was about 46% less than the leaf area in K<sub>0</sub>; and the leaf area in K<sub>M</sub> was about 25% less than the leaf area in K<sub>0</sub> supply. At the stage of tasseling, the leaf area in K<sub>ZERO</sub> was about 37% less compared to K<sub>0</sub> and 26% less than the leaf area in K<sub>M</sub>. The differences established in the size of leaf area by the differential supply of K at the tasseling stage were maintained at the silking stage.*