B-55: The influence of increasing rhizospheric calcium on the ability to control water status

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The need for large amounts of calcium for structural and other purposes has long been recognized, but during the last decade evidence has accumulated that calcium ions also function as second messengers in the signal transduction sequence that leads to an efflux of K^+ and stomatal closure.

Therefore this research was carried out to study the influence of rhizospheric calcium on stomatal movement of *Commelina communis* and *Zea mays*. These plants were grown in three different calcium regimes, 1,10 and 20 $molm^{-3}$ Ca. After an establishment period, measurements were made of the rate of leaf extension and the final length of the 3rd leaf. In both species, leaf length reduced as a consequence of reduced leaf extension rate. Transpiration in excised leaves, analysed gravimetrically was significantly reduced in plants grown in high Calcium. This shows that high Calcium can cause significant reduction in leaf conductivity, transpiration rate and assimilation rate.