

## **Evolution of leaf area in maize canopies growing on cover crop and clean fallow under contrasting soil water availability**

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Revista Argentina de Agrometeorología RADA, v. X (2019): 25-34

### **Summary**

Canopy development influences the radiation interception, assimilation and partitioning of photosynthetic products and final crop yield. The objectives of the present work were: a) to describe the evolution of leaf area in maize canopy growing under contrasting soil water availability and soil surface cover with plant; and b) to characterize the morphologic attributes of individual leaves by the maximum attained size. One field experiment was conducted in southern of Buenos Aires province (Balcarce, Argentina) during the 2016-2017 growing season. An intermediate maize hybrid (DK692 VT3P RR) was sown on 15 November with a plant density of 8 plants m<sup>-2</sup>. Treatments included the combination of (i) two water regimes (irrigated, R and rainfed, S) and (ii) two soil covers (without soil cover, conv, and soil with a previous cover crop of vicia (*Vicia villosa* Roth) and oat (*Avena sativa* L.), CC). The leaf area per plant was reduced in canopies with cover crop (CC) prior to maize under water-limiting conditions. Without water limitations, the morphological attributes of maize leaves growing in sequence to a cover crop (CC) were not significantly modified with respect to canopy that did develop after a clean fallow (conv). In rainfed conditions, the most significant size differences were detected in the larger leaves, in which both the width and length were modified. A delay and a reduction of the duration of period of maximum rates in the leaf expansion was observed at the growing season for SCC treatment.

**Key words:** relative leaf area; thermal time; leaf expansion