

POSTER SUMMARY

**MYCANESIM® LITE:
A SIMPLE WEB-BASED SUGARCANE SIMULATION TOOL**PARASKEVOPOULOS A¹, MASHABELA ML¹, SINGELS A^{1,2,3}¹South African Sugarcane Research Institute, P/Bag X02, Mount Edgecombe, 4300, South Africa²Department of Plant Production and Soil Science, University of Pretoria, Pretoria, 0028, South Africa³School of Agricultural, Earth and Environmental Sciences, University of Kwazulu-Natal, P/Bag X01, Scottsville, 3209; South AfricaAresti.Paraskevopoulos@sugar.org.za,
London.Mashabela@sugar.org.za, Abraham.Singels@sugar.org.za**Abstract**

Accurate estimates of sugarcane yield, water use and irrigation requirements are important information for efficient sugarcane production. Crop models can provide this information but utilization remains low due to model complexity. The objective of this study was to develop a simple and easy-to-use web tool to access the Canesim® model for quick and easy simulation of sugarcane growth for sites in South Africa, Swaziland and Malawi.

The web interface (viewed in Google Chrome) was written in the PHP programming language and interacts with the MyCanesim® database and the Canesim® model to execute simulations and display results. It allows users to specify the weather station, crop start and harvest dates, crop class, residue layer type, soil water holding capacity, irrigation option, and expected rainfall category. Other inputs are derived from these basic inputs, or set to default values. The system outputs seasonal water balance totals, canopy cover and cane yield at harvest for a single season, or for multiple seasons. Daily data for more variables can be downloaded or viewed in graphs. Extension staff and researchers tested a prototype and provided suggestions for improvement.

A test showed that default inputs had little impact on simulation accuracy, and crop water use and cane yield estimates matched well with that obtained from the full MyCanesim® system ($R^2=0.99$, $n=20$).

The tool is useful for obtaining quick estimates of past and future crop water use, irrigation requirements and cane yield to support the planning and management of sugarcane production. Its ease of use should promote the adoption of crop modelling for research and management of sugarcane production.

Keywords: Canesim, cane yield, crop model, weather, simulation, water use