

## POSTER SUMMARY

**USE OF GENOMICS DATA TO UNCOVER HERBIVORE-INDUCED RESISTANCE MECHANISMS IN SUGARCANE**JACOB RM<sup>1</sup>, POTIER BAM<sup>2</sup>, KEEPING MG<sup>3</sup> AND RUTHERFORD RS<sup>4</sup>

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The sugarcane industry is a substantial agricultural activity in South Africa. Economic loss due to the stem borer *Eldana saccharina* Walker (Lepidoptera: Pyralidae) (eldana), is estimated to be R1 billion per annum. Commercial sugarcane cultivars (*Saccharum* spp. hybrids), have different susceptibility ratings to eldana, varying from low to high risk of economically damaging infestations. A better understanding of the molecular mechanisms involved in defence responses and resistance against eldana would be an important step towards targeted breeding of resistant sugarcane varieties. The South African Sugarcane Research Institute has utilised an approach involving RNA sequencing (RNA-seq) and differential expression to identify the early and late response differentially expressed (DE) genes of two sugarcane cultivars by comparison of unchallenged and eldana-challenged samples. These DE gene lists and associated gene expression patterns have enabled the comparison of the early and late response mechanisms between susceptible (N11) and resistant (N33) sugarcane cultivars. This will allow the identification of candidate genes most likely to improve resistance against eldana and possibly other lepidopteran borers. The technology, along with the potential resistance mechanisms, is presented in this poster.

**Keywords:** RNA-seq, eldana, resistance mechanisms, plant defence