

Project details

Impact Area

YCS

Project name

Biological factors driving YCS

Project number

2014/090

Principal provider

Sugar Research Australia

Project end date

June 2015

YCS: A look inside the cane plant

Sugarcane growers dealing with Yellow Canopy Syndrome (YCS) have seen for themselves the severe impact the as-yet undiagnosed condition is having upon yield and CCS.

SRA research is looking closely at the science behind this yield and CCS loss, with a just-concluded SRA research project having looked at what is occurring within the metabolism of the plant.

Project leader Dr Frikkie Botha, Executive Manager – Research with SRA, said the project *Biological Factors Driving YCS* looked at factors including the productivity of affected plants and their ability to recover.

“We now know that YCS is about more than just yellow leaves,” Dr Botha said. “Even in green leaves in YCS-affected plants there are internal processes happening that negatively impact yield.

“For example, we know that affected plants are accumulating sugars in the leaves, which is having a negative impact on the plant.

“We have observed that photosynthesis – where the plant converts sunlight into energy – is compromised, throughout the canopy which will result in a reduced yield.”

With this project now concluded, its results will form a useful base to steer and inform four other SRA-funded research projects that are now underway looking at YCS.

Dr Botha said that finding answers to YCS was a challenge, but the new information on sugarcane plant metabolism could help contribute toward management options.

He added that there was also the possibility of some silver lining from SRA’s extensive work on YCS as part of the new information that was being learnt about the cane plant.

For example, SRA now has a comprehensive database of many of the metabolites and changes in gene expression in the sugarcane leaf – something that was not available before and is expected to be valuable for future research.

“Our work is yielding such a wealth of information that there is the possibility of unearthing new information that could help the industry break out of the yield plateau that we are facing,” Dr Botha said.

Nigrospora fungus not the cause of YCS

Sugar Research Australia has eliminated a suspected cause of Yellow Canopy Syndrome, as part of its research investment into the troublesome problem.

SRA Executive Manager for Research, Frikkie Botha, said that the fungus *Nigrospora* was not the cause of YCS. The fungus has been used as a biological agent for controlling some grass weeds, and had been implicated as a potential agent for the development of YCS.

“We have analysed our database for the presence of signature metabolites for *Nigrospora*. Based on the results, this fungus can be ruled out as the cause of YCS,” Dr Botha said.

“Every time we rule out something as being a cause of YCS, this brings us one step closer to determining what is causing YCS, and also determining an appropriate response to combat it.

“SRA researchers – and partners with other leading scientific research organisations in Australia and around the world – are working on this problem to find a solution as quickly as possible.”