

# Knowledge bank building on yellow canopy syndrome

SRA continues to invest in research to unravel the yellow canopy syndrome (YCS) mystery through an integrated research program. This program spanned four major projects in 2017/18, which have made the following observations and progress.

## 1. YCS CAN NOW BE DIAGNOSED WITH (A HIGH LEVEL OF) CERTAINTY.

There are many causes of leaf yellowing in sugarcane. YCS is a specific pattern of leaf yellowing accompanied by abnormal and lethal accumulation of sucrose and starch in leaves.

## 2. ADDITIONAL MAGNESIUM APPLICATION ABOVE LEVELS RECOMMENDED FOR GOOD CROP MANAGEMENT HAS NO IMPACT ON YCS EXPRESSION.

Magnesium deficiency in sugarcane can lead to yellowing of leaves. Experiments now confirm that addition of magnesium does not prevent or alleviate YCS symptoms. Plants with YCS usually have adequate levels of magnesium so magnesium deficiency is not a cause of YCS.

## 3. THE ROLE OF INSECTS, PHYTOPLASMAS, OTHER BACTERIA IN COMBINATION WITH ENVIRONMENTAL TRIGGERS ARE BEING INVESTIGATED.

Experimental work does not support a single cause of YCS. A number of factors need to be present for YCS to be

expressed. Experimental work is focused on identifying the key factors so that management options can be progressed.

## 4. AN INDICATOR TOOL KIT FOR SRA, PRODUCTIVITY SERVICE ORGANISATIONS AND INDUSTRY ADVISORS FOR IDENTIFYING YCS IS AT AN ADVANCED STAGE OF DEVELOPMENT.

This is a significant step as any approach, experimental or commercial, needs to correctly identify the problem so that researchers and industry can respond appropriately.

## 5. A CHEMICAL OPTION IS UNDER INVESTIGATION WHICH IN MOST CASES PREVENTS YCS SYMPTOM EXPRESSION UNDER EXPERIMENTAL CONDITIONS.

This is a vital step if researchers are to develop management options for industry. These trials have used a broad-spectrum insecticide at high doses as an experimental tool to confirm or eliminate the role of an insect in YCS. This is not a test of the suitability of these chemicals as a management option.

## 6. THIS OPTION IS ENABLING US TO QUANTIFY THE IMPACT OF YCS ON YIELD AND IDENTIFY POTENTIAL CAUSES.

This means that researchers now have the capacity to manipulate YCS symptoms. ■

If you have questions in relation to the above, contact the SRA YCS Strategic Initiative Program Leader, Dr Frikkie Botha at [FBotha@sugarresearch.com.au](mailto:FBotha@sugarresearch.com.au).

SRA acknowledges the funding contribution of the Queensland Department of Agriculture and Fisheries towards this research activity.