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TULLY ASSAY LAB NOTCHES UP 10,000TH SAMPLE MILESTONE



If there's a problem with your cane above the ground, then most growers will identify the problem quickly.

But when problems are underground – in the soil and the roots – it is a whole different story. This is especially the case when the problem can only be seen through a microscope and properly understood with a laboratory assay, making the task of diagnosing and managing the problem even more difficult.

Soil borne pathogens such as Pachymetra root rot and nematodes fit this category of problems that are impossible to detect with a visual assessment, but can also create significant crop impacts.

"Soil borne disease is not spectacular above the ground. The consequence can be poorer yield but within each paddock and season that could be attributed to a range of factors such as climate," explained SRA Leader for Disease Management, Dr Rob Magarey.

"Therefore, getting a soil assay done helps you diagnose the problem and manage it.

"Without an assay – unless the problem gets very severe – you are just unaware of it, even though it's impacting your productivity and profitability."

Therefore, the recent achievement by the industry of achieving its 10,000th sample for Pachymetra root rot and nematodes is an occasion worth recognising.

Dr Magarey said this result, which occurred at the Tully laboratory a few months ago, represented decades of investment and dedication by industry and the research sector that supports it.

He congratulated all the growers and productivity services organisations who

have submitted samples for analysis over the years, and all the hard work that had occurred in improving management of one of the industry's serious productivity constraints.

He said that because Pachymetra was a soil-borne disease and didn't present startling visual symptoms, as described above, a soil assay was vital in understanding and managing the problem.

Pachymetra root rot was discovered in North Queensland in the early 1980s and is now found in all sugarcane-growing regions in Australia.

It is caused by a fungus-like organism known as an oomycete and the disease reduces yield, causes gappy ratoon crops and can lead to an increase of soil in the cane supply.

It attacks the large primary roots of the sugarcane plant, stunting its growth and reducing the anchorage of the plant in the soil.

Pachymetra root rot can be managed by planting resistant varieties. Growers are advised to plant only highly resistant varieties if spore counts exceed 50,000 spores/kg of soil. An assay service for the spores of the oomycete in the soil is available from SRA.

Cane Productivity and Development Manager with Tully Sugar, Greg Shannon, said that the Tully district had made significant improvements in reducing its Pachymetra problem by using productive Pachymetra-resistant varieties, which was improving productivity for growers and improving cane supply for the mill.

Greg recently worked with the SRA assay laboratory on a Pachymetra survey of the

Tully district, following a previous survey in 2013, and the results were presented to the Australian Society of Sugarcane Technologists (ASSCT) conference earlier this year.

Greg and his co-authors estimated that through the work of the district in managing the disease, its economic impact had reduced from about \$5.5 million per annum in 2013 to about \$3.5 million per annum as at 2018.

"Knowing the Pachymetra levels in each sub-district is important in assisting growers in making decisions for which variety to plant, and this has flow-on effects through the entire industry value chain," Greg and the authors said in their paper.

Pachymetra is one of the many factors assessed by the Tully Variety Management Group (TVMG) run by Greg, where growers, Tully Sugar, SRA and the local productivity services work together to optimise variety decisions by collecting information from different areas of the district.

Greg said that Pachymetra root rot required ongoing management and dedication.

"There will be a need to balance retaining sufficient resistance in commercial varieties with keeping as many high-yielding cultivars within the commercial production germplasm. If the balance shifts too far either way, productivity will be compromised. Surveys offer the ability to gauge the effectiveness of the disease control program," he said in the paper.

"We also highlight the importance for individual cane farmers to assay soils from their individual crops. Our surveys

highlight which sub-districts are more likely to have a Pachymetra issue, but even where the survey levels are low growers are encouraged to test their soil before planting, especially if planting one of the two intermediate-susceptible varieties we have available (Q237^b and SRA3^b). As a general rule though, most of our varieties are intermediate for Pachymetra and we are now getting more high yielding resistant ones which is a great result from SRA plant breeding." ■

(Bottom far left) SRA Technician Laura McGillicuddy with sample number 10,000 to make its way to the Tully assay laboratory. (Bottom middle) Symptoms of Pachymetra root rot. (Bottom far right) SRA Leader for Disease Management, Dr Rob Magarey, speaking to the ABC's Charlie McKillop at the time of the 10,000th milestone.

SYMPTOMS AND IMPACTS

Affected root systems typically exhibit a soft, flaccid rot of the larger roots, and are much smaller than healthy root systems. The fungus invades individual roots, usually near the root tip, and breaks down the internal root tissues. These roots either stop growing or are destroyed. This leads to a poorly developed root system and a loss of stool anchorage, which may give rise to excessive stool tipping. Root reddening may accompany the early stages of Pachymetra infection. Yield losses of up to 40 percent in susceptible varieties have been associated with the disease. ■

