TCPSL's Jordan Villaruz and Tully grower Mario Raccanello discuss tissue culture. Mr Raccanello observed that he planted this year at relatively short notice, and that in the future greater preparation would help minimise weed problems.

Project details

Key Focus Area: 1

Optimally adapted varieties, plant breeding and release

Project name

Tissue culture – managing impediments to adoption in Tully

Project number

2014/093

Principal provider

Tully Cane Productivity Services Limited

Project end date

January 2017

RESEARCH

Tully growers see tissue culture benefits

A project underway by the productivity services at Tully is helping growers to adopt tissue culture technology, allowing them access to varieties sooner. ***By Brad Pfeffer***

The number of growers using tissue culture to bulk up new and clean varieties for their farms is accelerating in the Tully region, thanks to an extension project being led by Tully Cane Productivity Services Limited (TCPSL).

The project, which is funded by SRA, is focused on helping inform local growers about the benefits of using tissue culture, as well as working one-on-one to help them resolve challenges they face in greater use of tissue culture.

According to Jordan Villaruz with TCPSL, there are a number of benefits that growers are seeing when using tissue culture when compared with the traditional stick planting method.

He said that by using tissue culture, many growers could access new varieties up to a year sooner than they would be able to otherwise.

For example, when a new variety was approved for the region, the traditional process has been that TCPSL would get 300 sticks of a new variety from SRA at Meringa to bulk up in a mother plot before putting into a distribution plot, and then growers would be able to access an allocation of the variety depending on the area of their farm.

Smaller growers may only have been able to access 50 or 100 sticks, which would then require further bulking up at their farm before they would have a sufficient amount for commercial planting.

"But with tissue culture, growers are saving at least one year when propagating a new variety to have it on a commercial scale at their farm," Mr Villaruz said. "We are seeing a strong interest from growers and at this stage our focus is on demonstrating to them the advantages and how to maximise the potential."

"It can help us get varieties from other regions more quickly. If varieties are performing well down south or in the Burdekin for example, we can order them through tissue culture. A good example is Q240(1), which was released in the Central Region and only released here at Tully last year."

He said that one of the key lessons with using tissue culture was that the young plants need to be "pampered".

"When it is young, you have to treat it like a baby. In a short period of a couple of weeks, you can then treat them like normal plants," he said.

This means that growers need to have a plan in place for key management practices including weed control and irrigation.

"We know through this project that the situation is different for different growers and they use methods that work best for them. That might mean irrigation with a tank on a tractor, from a drain, or just from a tap if they have a small block near a farm shed."

The current costs for tissue culture are $1.80 for a small plant and $2.20 for a large plant. According to TCPSL, these costs are expected to decrease if there is greater adoption and the supplier at Mission Beach is able to supply 10,000 or more plants.

Faster access to varieties:

David Marsilio

David Marsilio farms south of Tully and has been using tissue culture for the last three years.

With experience growing watermelons from seedlings, he was already familiar with looking after the young plants, and he says that the step into using tissue culture for sugarcane was an easy one to make.

For Mr Marsilio, it has huge appeal as he is an enthusiastic early adopter of new varieties and is frequently on the lookout across the industry for varieties that might have potential at his farm.

He then works with TCPSL to ensure the biosecurity permits are in place for new varieties and uses tissue culture to bulk up his access to these varieties quickly.

"Of course you don't just pluck varieties out of the sky and I spend a lot of time talking to other farmers and keeping an eye on what is performing well elsewhere," he said.

"Using tissue culture means I don't have to go and get a trailer-load of sticks and it is amazing what 200 plants will plant."

He has used tissue culture to get earlier access to varieties such as Q250^{Φ} and Q253^{Φ}, and he said that both were looking good at his farm in their early stages.

He plants the tissue culture at 60 cm apart and ensures the paddock is clean by treating it with a pre-emergent herbicide. He then waters by hand specifically on the plants and chips the weeds if necessary.

He jokes that chipping is a good exercise and past time. "Some people like aerobics, but I like walking and chipping. It's good for me, and it is only a small area," he said.

"When the plants are small you really do have to treat them like a baby."

Positive first-time experience with tissue culture:

Gerard Dore

Riversdale cane grower Gerard Dore has used tissue culture for the first time this year and believes that it has potential for his farm.

As a former banana grower, he was familiar with using tissue culture, but in recent years he had wanted to see how it was used by other cane growers before trying it himself.

After hearing positive feedback from other farmers, this year he used it to plant Q252^{Φ} and Q253^{Φ}, which TCPSL had informed him may be in relatively short supply as seed material.

Using tissue culture ensured he was able to access these varieties for his farm.

Mr Dore sees that biosecurity is one of the important advantages that comes with the use of tissue culture.

"We have seen here locally with Panama Tropical Race Four the impact this has on the banana industry, and we know that all industries are going to face similar challenges at some stage, and tissue culture is one of the ways we can handle that," Mr Dore said.

"With the old system of having a common seed plot where vehicles come in from everywhere, that makes it hard to keep the area clean. Then there is the extra logistics and labour of doing all that by hand."

Mr Dore said that his future use of the tissue culture would depend on achieving higher stalk numbers than using stick cane. The evidence from TCPSL is that tissue culture generates much more planting material than stick cane.

"If we can achieve the stalk numbers that Jordan says we can then it will be very good," Mr Dore said. "I know it is more expensive to buy the tissue culture, but I am impressed with how simple it was. The stalk numbers will be the critical issue."