



Dr Vic Galea demonstrates drilling a hole in the trunk of the weed tree to take the bioherbicide capsule then sealing it with silicon.

ARMING THE COMMUNITY WITH KNOWLEDGE TO TACKLE WOODY WEEDS

Weeds reduce the quantity and quality of Australia's agricultural, horticultural and forestry products. Australian farmers spend an estimated \$1.5 billion a year on weed control – and miss out on approximately \$2.5 billion a year in lost agricultural production caused by weed infestations.

Woody weeds such as Parkinsonia, Prickly Acacia (*Acacia nilotica*) and Chinese Apple (*Ziziphus mauritiana*) are a particular problem in Queensland's agricultural areas, and in recent years, they have been spreading on the Burdekin coast. They cause major issues for grazing and farming enterprises in the Burdekin region, and reduce habitat for native plants and animals.

They are difficult to control, reduce the amount of land that can carry pasture and crops, and make it hard for graziers to efficiently muster cattle.

Landholders and environmental managers, including Steve Holmes, President of the recently-formed Bowen and Collinsville Landcare group, have become increasingly concerned about this spread of weeds.

"I have observed that Prickly Acacia has become more widespread through the Bowen District. Woody weeds are certainly a major issue," he said.

This local need prompted Peter Arthofer, NQ Dry Tropics' Regional Landcare Facilitator (RLF) to organise a field day in Bowen called The War on Western Weeds visits the coast. The event, held in October 2015, supported local farmers by giving them the skills and knowledge to control these pest plants.

Peter's role, funded by the Australian Government's National Landcare Programme, aims to support landholders and community groups in the Burdekin Dry Tropics region by helping to increase their skills and knowledge around sustainable agriculture.

"As Bowen and Collinsville Landcare is a new group, we are supporting them by delivering these type of events, which have the added benefit of building community interest in landcare," he said.

Peter invited Dr Vic Galea, from the University of Queensland, to speak at the event. Dr Galea has developed an innovative biological herbicide (bioherbicide) method to control woody weed infestations without using chemicals. The bioherbicide uses naturally occurring native fungi to give target trees a superdose, that eventually kills them. This biological control is administered by drilling a hole into the trunk of the woody weed and sealing a dissolvable capsule of the bioherbicide inside.

Dr. Galea developed the bioherbicide technique after being asked to investigate the cause of a natural die-back occurrence of Parkinsonia in the Northern Territory. He discovered that native fungi were responsible, and this led to a project that isolated the fungi and began trialling it on Parkinsonia and Prickly Acacia in Western Queensland.

Other key speakers at the event included Nathan March, project leader for the War on Western Weeds initiative funded by the Department of Agriculture and Fisheries; Dr Wayne Vogler, Senior Weed Scientist, Biosecurity Queensland; and a range of other presenters and weed management contractors.

The field day was very successful, with many landholders attending after hearing about the event through word of mouth – including some who'd had no previous involvement with NQ Dry Tropics. One landholder from Collinsville said:

“Thank you all very much for the field day, it really lifted my spirits, I have been wondering if it is worth the struggle. I am really interested in doing some work with chonkies (Chinee Apple) here using the bio pellets.”

Johno Rich from Mt Ravenswood Station said. “I reckon you (NQ Dry Tropics staff) are on the right track. This is the type of thing that we want. I appreciate you organising this event. I see value in what you are doing. I think you play an important role connecting landholders with scientists.”

In the weeks following the event, many attendees shared information on weed control and continued to discuss what they had learned on the day. In fact, the huge level of interest in Dr Galea's approach led to more than 35 local landholders becoming 'Citizen Scientists' and joining a regional project to trial the bioherbicide on their properties across the Burdekin.

Dr Galea and NQ Dry Tropics are leading the trial, which is testing the bioherbicide on Prickly Acacia, Chinee Apple, Parkinsonia, Lantana, Neem Tree (*Azadirachta indica*), Leucaena (*Leucaena leucocephala*) and Rubber Vine (*Cryptostegia grandiflora*).

Initial results have revealed promising signs, particularly with Chinee Apple, that could boost local woody weed control efforts in the region. Steve Holmes has been trialling the method on his Nyoola property, and welcomes other landholders who'd like to see how it works.

“I have a demonstration site for the bioherbicide methodology on my property, and anyone who is interested has the opportunity to stop, take a look and check the progress,” he said.

Peter said: “It's been great getting local landowners participating in science. I've received phone calls out of the blue from farmers who have heard about the trial from a neighbour and want to find out more. This project is appealing because it uses an innovative, cost-effective approach to deal with a major issue.”

“This is exactly the kind of cutting-edge practice that NQ Dry Tropics will continue to make available to the Burdekin Dry Tropics community. NQ Dry Tropics is proud to connect landholders with scientists, locally-based biosecurity experts, and local government to deliver innovative weed control projects and research,” he said.

This project is supported by NQ Dry Tropics through funding from the Australian Government National Landcare Programme.



The penetration of the fungi into a trial on Chinee Apple after one month.



Dr Galea demonstrating the impact of the bioherbicide treatment to landholders at the Bowen field day.



Dr Galea, addressing the crowd.

