Understanding grain deviations in wood

Presenter: Stephanie McRae
Date: Wednesday 25 November 2015
Time: 1:00 pm to 2:00 pm
Location: Room 208, Level 2, Te Ao Marama Building, UC Campus

Stephanie McRae (Ngāi Tahu) grew up in Invercargill, moving to Christchurch to complete a BSc in Biochemistry. As an MSc candidate, under the supervision of Dr David Collings, in the School of Biological Sciences, University of Canterbury, she has moved into the field of plant biology. Her project, supported by the Ngāi Tahu Research Centre, investigates the cellular mechanics behind the formation of spiral grain and other wood deviations, in radiata pine and native species. To achieve this novel methods have been developed, including the utilisation of a plant model system. This work is ongoing and will be expanded into a PhD in 2016.

Abstract:

Radiata pine (Pinus radiata) is the most important commercial tree species within New Zealand, with exports totalling $4.5 billion per year. However, despite decades of selective breeding, timber from commercial cultivars still can exhibit numerous problems that reduce wood quality. One such problem, a phenomenon called spiral grain, which involves twisting that can occur within the tree's trunk during growth. This effect can occur in most tree species but its causes remain poorly understood. Radiata pine's large size and slow growth make it a poor species in which to investigate cellular and molecular aspects of twisting. To overcome these problems, I am investigating spiral grain development in the model plant Arabidopsis thaliana, a weedy relative of rapeseed and cabbage which has previously been demonstrated to be a suitable model for wood formation. Studies have also shown that twisting in Arabidopsis roots and flowers occurs in mutants with disrupted microtubules. I am using several twisting mutants to compare normal growth and growth that might lead to spiral grain. Additionally, spiral grain and other grain deviations are being investigated in indigenous and non-indigenous species.

RSVP for this event by contacting: kirsty.ameriks@canterbury.ac.nz