

ARC Centre of Excellence for Plant Energy Biology & Grains Research and Development Scholarships

The ARC Centre of Excellence in Plant Energy Biology (PEB) at The Australian National University (ANU) is seeking PhD project applications from highly qualified and motivated students with a strong background in plant physiology and/or plant molecular biology, and a keen interest in working with stakeholders in the agricultural industry. Two PhD projects in Crop Physiology are available. The projects are embedded within a program that will provide mentorship and opportunities for the students to engage with a wide range of research organisations, as well as exposure to the Australian grains industry from the ground up. The projects are supported by the Grains Research & Development Corporation (GRDC), which will provide PhD stipend (\$25k p.a.) and research funding for each project.

PhD Project 1: Respiratory energy use efficiency in wheat: whole-plant perspective

This project will support the research training of one postgraduate student (domestic or international) to undertake research with potential to increase efficiency of energy use by grain crops to future-proof food production. Our initial screening of 138 Australian commercial wheat cultivars has revealed a two-fold variation in rates of leaf respiration, and similar variation in the ratio of respiration to whole-plant growth rate during early development. These findings point to untapped genetic variation in respiratory energy use efficiency (EUE) amenable to fine-tuning, with concomitant positive knock-on effects on yield. Given this, an opportunity exists for a PhD student to explore the extent to which there is genotypic variation in whole-plant respiratory EUE in wheat, and to understand the mechanistic basis of such variation.

PhD Project 2: Mechanisms of heat tolerance in wheat – Identifying processes underlying heat-induced changes in night respiration

This project will support the research training of one domestic postgraduate student to undertake a project that will examine genetic variation in respiratory metabolism in germplasm known to differ in high temperature tolerance in the field. The student will identify mechanisms involved in reducing net CO₂ assimilation efficiency, and through biochemical and molecular analyses quantify the relationship between respiratory metabolism and plant production. Research will be based in the southern region of Australia, with field trials located with the Birchip Cropping Group in Victoria and controlled environment research at ANU. PhD Project 2 is a GRDC scholarship open only to Australian citizens or permanent residents. International students are not eligible for PhD Project 2.

To apply, send your CV and cover letter to:

Professor Owen Atkin, owen.atkin@anu.edu.au, phone (02) 6125 5046
