

**Project Title:** DNA Assay to Quantify Barley Roots

S0406R Final Report

**Project No:** S0406R (with GRDC)

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### **Executive Summary**

The project has developed quantitative DNA assays for barley, wheat and canola for use as research tools to study root distribution in field trials.

Advantages of using DNS assays instead of root washing techniques include: no loss of fine roots, ability to detect target plant in mixed communities, old roots not detected, and relatively high throughput. The assays were evaluated in barley and wheat drought tolerance trials, and barley and canola farm systems trials.

The assays were able to detect significant effects of variety, site and farming system on root distribution. A key finding was that root architecture is a strongly inheritable trait.