

# SMARTFARM LEARNING HUB: NEXT GENERATION PRECISION AGRICULTURE TECHNOLOGIES FOR AGRICULTURAL EDUCATION

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## Background

The industry demands on higher education of agricultural students are rapidly changing. New precision agriculture technologies are revolutionizing the farming industry but the education sector is failing to keep pace. We report on the development of the SMARTfarm Learning Hub that will increase the skill base of students using a range of new agricultural technologies and innovations. The Hub is a world first; it links real industry technologies with educator resources and student learning packages. This gives higher education providers and their student's online access to data and systems from commercial scale smart-farms across Australia and the world.

## Aims

The SMARTfarm Learning Hub project will integrate infrastructure (web site and industry tools) with the development of case study learning modules, methodologies and templates to enable project communication. This will be undertaken in an action research context providing both research outcomes and critical feedback to improve the learning modules, educator and student experience.

## Description of intervention

The SMARTfarm Learning Hub is based around a central landing page that provides links to cloud based technologies across Australia and the globe. Participating universities have farms with a diverse range of enterprises and environmental conditions from highly productive dairy systems in Tasmania to tropical beef production in North Queensland and the arid rangelands of New Mexico. This is real data from real agricultural landscapes, and is matched with learning materials developed to challenge student's critical thinking and problem solving skills.

## Design and methods

Selected learning modules will be evaluated under an action research methodology. Student engagement and attitudes will be assessed during delivery of learning modules in real classroom situations as they are integrated into teaching units through pre and post surveys and semi-structured interviews. A further study will be undertaken which determines employer perceptions of the value of certain skills gained by students through participation in SMARTfarm Learning Hub modules. This will involve quantitative assessment of employers' perceptions through ranking of student CV's (with and without various skills gained from the Hub) as well as qualitative assessment of the perceived value of these skills.

## Results

Utilization of the SMARTfarm Learning Hub is tracked using the Square Space metrics tools. SMARTfarm Learning Hub web site was launched in mid-December 2015 and since this time has reached 890 unique visitors an average of 127 per month.

## **Conclusions**

When fully developed, we expect the SMARTfarm Learning Hub will maximize transitions from secondary to tertiary study as it will become a point of commonality between different AQF levels with student familiarity providing confidence to move to the next level. In time, it is planned that specific learning packages will engage high school agriculture teachers in the development of their own landscape resources. Packages will be tailored so that schools are able to deploy some of the sensor platforms and technologies on their own school farms or on a local property to which they have ready access for field evaluation. There will be a strong focus on providing information regarding potential progression of study within the teaching materials developed.

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