

Background

The economic and environmental viability of farming enterprises depends on good decision making. However, seasonal conditions and weather events can play a major role in determining the outcome of such decisions. Ready access to targeted climate information at time scales appropriate to on-farm decision making and knowing how best to use this information is of growing importance, particularly in regions subject to increasing climatic variability and risk.

'Discussion support' systems in agriculture are designed to foster topical discussion between stakeholders to enhance knowledge and awareness, skills development and improved decision making; they are effectively the basis for participatory workshops and field days common to agricultural extension programs. However, declining funding and policy support for face-to-face extension is driving a search for alternative tools and information delivery modes. Digital technologies now provide a viable and cost-effective option with potential to complement and expand the reach of conventional extension services.

Virtual worlds & sugar farming

This project is developing and evaluating an innovative web-based discussion-support system, accessible by a range of mobile digital devices, aimed at:

- (i) enhancing access to targeted agri-climate information and
- (ii) building capacity to integrate this information into practical farming operations in the Queensland sugarcane farming industry.

It uses cutting-edge educational web-based tools, including 'machinima' (virtual world animations) created in Second Life™. These present lifelike avatar actors and scripted conversations about real-world climate-based scenarios relevant to the lives and practices of sugarcane farmers (Fig. 1). They are designed to stimulate discussion amongst farmers around how to better incorporate an understanding of climate risk into their decision making.

The project will also create contextualised virtual group discussion environments in which to host on-line climate risk management events (e.g. virtual field days/workshops). This initiative has the potential to transform the delivery of extension services. It will eliminate some of the constraints (e.g. distance, time, cost) often associated with real-world meetings. It will also provide increased opportunity for sugarcane farming groups to initiate and organise their own meetings with expert advisors, thus enhancing rapid and effective needs-based knowledge exchange regardless of location.

Potential for global application

These platforms provide engaging technology-rich learning environments. They are able to be readily adapted for different farming systems and situations by using appropriate clothing, language and settings to ensure their relevance and acceptance to target communities (e.g. Fig. 2).

With increasing access to and adoption of mobile technologies, such tools can be readily disseminated both widely and cost-effectively. As such, they also have the potential to reach millions of farmers in developing regions and to provide valuable opportunities for learning and skills development.

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Second Life



Second Life is a sophisticated online 3D virtual world which provides a popular medium for creating movies (*machinima*) using gaming software. Second Life avatars (characters or 'actors') and settings can be readily contextualised by creating custom content or reusing items made by other users. Users retain copyright for any content they create and the Second Life internal currency, the Linden dollar (L\$), can be used to purchase items from other users.

Second Life is currently used by a wide range of educational institutions, including universities, libraries and government agencies. For example, Virginia Tech Biomedical Imaging Division uses Second Life as a virtual training environment for the use of CT scanners; University of San Martin de Porres of Peru has developed Second Life prototypes of Peruvian archaeological buildings; and a number of countries (e.g. Sweden, Serbia, the Maldives) have Second Life virtual embassies.

In the context of this project, Second Life characters and machinima will be created to deliver consistent scripted conversations designed to stimulate discussion about using climate information to address climate risk. Once created, these can be readily adapted for different farming systems and locations by using culturally appropriate clothing, language and settings. As such, this platform has significant potential to provide relevant engaging technology rich learning environments which can be readily adapted to different situations and disseminated both widely and cost-effectively.



Fig. 1: Sugar cane harvesting discussion machinima screenshots



Fig. 2: Indian agri-climate discussion machinima screenshots

Challenges

Key questions addressed in this project include:

- (i) whether this system is acceptable to Australian and/or broader international farming communities; and
- (ii) whether such discussion support systems influence decision-making and make measurable changes in terms of on-ground outcomes.