‘Weed Wipeout’: A computer game about weed management, suited to the changing learning environment

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Summary Scientists, land managers, industry members and others involved with weed management need to be aware of the changing environment associated with managing weeds. Just as importantly, those involved with the development of resources to educate others about weed management need to adapt to the changing learning environment of their audience. ‘Weed Wipeout’ is a resource developed to suit the younger generation in schools.

‘Weed Wipeout’ is an interactive computer game developed by the Cooperative Research Centre for Australian Weed Management (CRCAWM). In this game the player is required to make decisions regarding the most appropriate weed management techniques for different weeds on a farm. The feedback offered by school students and teachers who have played the game and the number of hits to the schools link of the CRCAWM’s website where the game has been placed, indicate that this has been a successful development of a resource about weed management in a changing climate. This paper describes the impetus for this resource development, its developmental process, the game play and how the game has been received.

Keywords Weed Wipeout, school resources, computer games.

INTRODUCTION
Developing greater awareness of weeds in the wider community will be more achievable if we start with the younger generation in schools. Working to extend research and education about weeds at all levels in the Australian community, the CRCAWM includes a major focus on education in schools. ‘Weed Wipeout’, an interactive computer game, is one of the outputs developed by the CRCAWM for use in schools nationwide. The interests and habits of school students change over time. Today, computers and computer games drive the younger generation. It was for this reason, that the ‘Weed Wipeout’ computer game was developed. The game captures the interests of school students and it is also an effective tool for developing greater awareness about weeds and weed management.

Developmental process After designing the game, a brief describing the game was written. Computer programmers developed the game using this brief. Development involved two main stages. The first step was to build the game engine. This was the working version, enabling a check of the game play. The second version included images and graphics.

While the game has a beginner and an advanced version, it is important that the game is suitable for the target audience. The game was tested at this second stage, before finalising development. Testing involved organising groups of school students and teachers to play the game and provide feedback. With comments like ‘Can we play this game at home?’ and ‘How soon will the game be available?’ it was clear the game was a hit with the target audience. We launched ‘Weed Wipeout’ at the ‘Science in the Bush’ activity day on August 17, 2005, at the University of New England, Armidale. Many school groups visited UNE and played the game.

Game play Players of ‘Weed Wipeout’ are managing a farm ravaged by weeds. Decisions regarding the best strategy to manage these weeds are required. Players then observe the results of their decisions through an increase or decrease in the number and size of the weed infestations. The game provides advice describing the weed management options, which enables players to make informed decisions. The unexpected and humorous events included in the game keep it challenging and entertaining. The game simulates a real life situation with the player managing a farm, monitoring a bank balance, making decisions to manage weeds and observing the results of their decisions.

The game offers many important messages about the basic principles of weed management. Students confirmed this at the testing stage when they played the game and provided feedback through a survey. Students discovered that using more than one strategy to manage weeds offered a longer lasting and effective approach. Students mentioned that physically removing a single weed before it spreads is helpful and that the best management option depends on the type of weed.
and the size of the infestation. Students found repeated herbicide use might result in herbicide resistance. In addition, a clear message the game offers is that weed management takes time and is potentially expensive. Figure 1 presents user interfaces of the game.

**How are students using the game?** The hits to the schools link of the CRCAWM website, where the game sits, increased considerably from 5000 to over 18500 in the month after its launch. This indicated a high level of initial interest. This interest in the game has continued with over 12500 hits to the schools link of the website in March 2006, eight months after the launch of the game.

The target audience for ‘Weed Wipeout’ is junior secondary students. However, ‘Weed Wipeout’ suits a wider audience group. Upper primary students involved with the ‘Ghastly Guests’ unit of work, another CRCAWM schools resource, have utilised the game. In addition, the game has been popular with adult TAFE students, university students and has attracted attention at various student activity days and expos.

‘Weed Wipeout’ has become a valuable addition to the portfolio of resources related to weed issues that the CRCAWM has to offer schools. Following its release, ‘Weed Wipeout’ is a suggested activity in the teacher resources for the ‘Lord of the Weeds’ competition and is a lesson suggestion in the ‘Ghastly Guests’ unit of work for upper primary students. Linking ‘Weed Wipeout’ to other resources developed by the CRCAWM for schools will further extend the number of students encouraged to play the game.

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**ADDITIONAL NOTES**

Please note the ‘Weed Wipeout’ interactive computer game can be played and accessed free of charge from the CRCAWM’s website at http://www.weeds.crc.org.au/for_schools/weedwipeout_flash.html.