Future Farm Industries CRC Ltd
Project Annual report due 30/06/12
1 July 2011 – 30 June 2012
P4 DP26 – Weed & genetic risk 2
Margaret Byrne

1. Achievements

Please include any key highlights, awards and special commendations; any key events, such as appointment of key staff or purchase of major equipment

- Development and publication of the genetic risk assessment (GRA) protocol and template
- Participation in a workshop for a RIRDC funded project to review and revise the Australian national post boarder weed risk management protocol. Participation reflects the respect for the project expertise in the risk assessment community and resulted in the contribution, for the first time, of information on genetic risk assessment for national consideration.
- Abstract accepted for 18th Australasian Weed Conference, Oct. 2012 on the application of the innovative weed and genetic risk assessment protocols.

2. Communication of success (recent results)

Please briefly detail project progress/achievements for 2011/12, including the extent to which your project is on target to achieve FFI CRC Business Plan milestones (see attached list), Project milestones and research outputs and the strategies in place to address any issues as well as key research achievements and evidence of the research quality

The project has achieved all milestones to date (see below), and is on target to achieve the FFI CRC Business Plan milestone: Environmental risk assessment completed for key species promoted by the CRC (due June 2014).

During this year five new weed risk assessments (WRA) have been published on the FFI CRC website, bringing the number to 29, with another two close to completion. There is a continuing process of information gathering and prioritisation of further species for assessment. The leaders of projects involved with the promotion of species will be approached to ensure that appropriate assessments are completed. The WRA protocol has been revised to better address the issue of the potential distribution of native species.

The FFI CRC WRA of Tall wheatgrass for Victoria as very high was, this year, supported by the species being declared (gazetted) as a threatening process under the Victorian Flora and Fauna Guarantee Act, 1988**.**

An important component of the project is raising awareness, inside and outside the CRC, of the environmental risk strategy and the concepts of weed and genetic risk. Risk assessment is a dynamic process and new assessments may be instigated or existing assessments may need to be reviewed and updated as additional information becomes available. Some WRAs are now being completed at the instigation of researchers and others are under review as new data becomes available.

The development and publication of the genetic risk assessment protocol has been a key research achievement of this project and the completed case study will be followed up with further assessments as appropriate FFI CRC trial or plantation sites are identified.

Three new species management guides (SMG) have been completed and published. These aim to provide information for landmanagers and their advisors to help minimise the risk of an agriculturally useful species becoming a weed of the native environment.

3. Achievement of CRC milestones

The following whole of CRC (Business Plan) milestones were due for your project in this financial year. Please provide details as to whether (yes/no) this milestone has been met, how and when (month-year). NB. The numbering provided below may be different to that used in your Project Proposal.

Milestone 1 Sept. 2011 Contracts signed.

Milestone 2 Dec. 2011 Genetic risk case study completed: Case study on *Cullen australasicum* completed.

Milestone 3 June 2012 five weed risk assessments completed and three management guides produced.

4. Risks and impediments

Please briefly detail project risks and impediments for 2011/12 including key risks, issues and strategies in place to address the risks and any unmet milestones; any issues, including technical or scientific impediments; any changes proposed to future research directions.

As the environmental risk strategy, policy and protocols have been developed and are in place we do not perceive any technical risk to the planned outcomes.

However, work continues increase awareness and acceptance of the need for risk assessment in the areas of weed and genetic risk to the native environment from agriculturally useful species. This cultural change must be developed at every level of the research, promotion and provision of material and information for farming systems from the FFI CRC. The audience includes FFI CRC personnel, researchers from other organizations, postgraduates, landmanagers and the general public who maybe accessing the website and other media output. This is being addressed by promotion of the FFI CRC Environmental Risk Strategy and the provision of information at scientific meetings, on the website, in E-news, Future Farm and in species management guides and will encourage the adoption of practices that minimise weed and genetic risk to the natural environment.

5. End-user engagement

Please briefly detail the level of any end-user involvement; evidence the research is meeting end-user needs for 2011/12; the strategies for ensuring uptake by end-users of the research outputs and the current levels of uptake; specific benefits to end-users (including SMEs), their nature and scale; any risks in relation to end-users and the strategies adopted to mitigate these risks; any opportunities for the CRC and the strategies adopted to exploit these opportunities; and any opportunities for the CRC and the strategies adopted to exploit these opportunities.

Environmental risk strategy – This strategy includes the policy, WRA, GRA, SMG and field trial guidelines. Although directly engaging all members of the CRC it is published on the website and demonstrates to a wider audience the commitment of the CRC to fulfill its duty of care to minimise and manage risk to the native environment. A general information sheet about the strategy and its components is in prepatration.

Weed risk assessment - End user group is currently FFI CRC research personnel and engagement ranges from provision of specialized information at the request of project personnel; requests from researchers initiating WRA; preparation of WRA by researchers and WRA preparation being included in project proposals. Enquiries have also come from groups outside the CRC for information about the process. The results of the published WRAs have been quoted by FFI researchers and stakeholders, in CRC publications and by outside organizations in other publications

Genetic risk assessment - End user group will generally be FFI CRC research personnel. The protocol has been published on the website and information about GRA is being disseminated at scientific meetings, in E-news and in Future Farm to a wide audience.

Species management guides – These provide information for land managers and their advisors. They are published on the website, announced in Enews and have been produced in hard copy for distribution

Field trial guidelines – Specifically developed for use by CRC research personnel and students in the planning and design of field trials. However, the information presented could be used in project development and trial planning by a wider audience and the guidelines have been published on the website. A presentation was given to CRC students in 2010 but no opportunity was available for this more recently.

6. End-user training courses

Please complete the following table including details of any training courses for end-users including end-users attending structured professional training courses, regular seminar series, conferences etc. conducted with the aim of transferring expertise or practical information arising from the CRC's work.
Exclude: End-users attending casual seminars that are not part of a structured series, and 'open days', etc., which publicise the CRC itself; End-users attending conferences and activities not hosted by the CRC or its Participants; End-users attending activities with a duration of less than one day.

Number of people from an end-user (headcount) taking part in structured professional training courses arising from the CRC's work and conducted with the aim of transferring know-how or practical information during the reporting period	0
Number of people from an end-user (headcount) taking part in conferences, symposia, seminar series or workshops hosted by the CRC and conducted with the aim of transferring know-how or practical information during the reporting	0

7. Collaboration - National

Please add to or update the table as reported in 2011.

	Project/Collaborator/Institution	**Nature of collaboration**
i. With other FFI CRC projects	Enrich Dr Jason Emms SARDI	Prepares weed risk assessments and technical reviews and assistance
	EverCrop Dr Daniel Real DAFWA	Collaborating on the WRA of Tedera ssp.
	EverCrop Dr Phil Nichols DAFWA	Information on species for WRA
	Dr Richard Bennet (Formally EverCrop – currently Woody Crops, CSIRO)	Collaboration in the Cullen genetic risk assessment case study
	EverGraze Dr Geoff Moore DAFWA	WRA Technical committee member who provides advice and information on species under assessment
	Jill Griffiths and Jean Burton FFI CRC communication managers	Project personnel provide weed risk advice on material being prepared for publication
	Woody Crops Mr Richard Mazanec, Mr Gary Brennan DEC WA	Preparation and collaboration in the WRA of mallee species
ii. With other groups in Australia	DAFWA Inc. Dr Richard Snowball, Dr Ed Barrett-Lennard, Dr Kevin Foster	Interaction with agricultural and weed science research personnel including the provision of WRA advice to R Safstrom
	Weed Risk Management Forum Collaborators from various institutions with an interest in risk management	Forum for discussion on best practice and risk assessment issues. Input to revision the of National post-border weed risk management protocol

	Depart. Environment and Conservation, WA	Presentation on innovative weed and genetic risk protocols to Science Division meeting. Consultation with taxonomists, weed scientists and other research personnel
	Biosecurity Australia and WA Quarantine and Inspection Service (Rod Randall)	Liaison about species introduced from outside Australia or moved between jurisdictions
	University of WA	Participation in Seed Persistence workshop
	Dr John Virtue South Australian Department of Water, Land and Biodiversity Conservation	WRA Technical committee member who provides advice and information on species under assessment
	Cat Nichols Kondinin Group	Advice on and collaboration about material for publication

8. Collaboration - International

Please add to or update the table as reported in 2011 and mark the text using tracked changes or red text.

	Project/Collaborator/Institution	**Nature of collaboration**

9. Formal Publications

Please complete the list below

i. Books

ii. Book chapters

iii. Refereed Journal articles

Byrne M., Stone L. and Millar M.A. (2011) Assessing genetic risk in revegetation. Journal of Applied Ecology 48: 1365-1373.

Stone L.M. and Byrne M. (2011) Comparing the outputs of five weed risk assessment models implemented in Australia: are there consistencies across models? Plant Protection Quarterly 26: 29-35.

Millar M.A., Byrne M. and O'Sullivan W.O. (2011) Defining entities in the *Acacia saligna* (Fabaceae) species complex using a population genetics approach. Australian Journal of Botany 59: 137-148.
Le Roux J.J., Brown G.K., Byrne M., Ndlovu J., Richardson D.M., Thompson G.D. and Wilson J.R.U. (2011) Phylogeographic consequences of different introduction histories of invasive Australian Acacia species and Paraserianthes lophantha (Fabaceae) in South Africa. Diversity and Distributions 17: 861-871.
Gibson M.R., Richardson D.M., Marchante E., Marchante H., Rodger J.G., Stone G.N., Byrne M., Fuentes-Ramírez A., George N., Harris C., Johnson S.D., Le Roux J.J., Miller J.T., Murphy D.J., Pauw A., Prescott M.N. Wandrag E.M. and Wilsomn J.R.U. (2011) Reproductive biology of Australian Acacias: important mediator of invasiveness? Diversity and Distributions 17: 911-933.
Sampson J.F. and Byrne M. (2012) Genetic diversity and multiple origins of polyploid *Atriplex nummularia* Lindl. (Chenopodiaceae). Biological Journal of the Linnaean Society 105: 218-230.
Millar M.A., Byrne M., Nuberg I. and Sedgley M. (2012) High levels of genetic contamination in remnant populations of *Acacia saligna* from a genetically divergent planted stand. Restoration Ecology 20: 260–267.
Millar M.A. and Byrne M. (2012) Biogeographic origin and reproductive mode of naturalised South Australian populations of the *Acacia saligna* species complex. Australian Journal of Botany in press.
Thompson G.D., Bellstedt D.U., Byrne M., Millar M.A., Richardson D.M., Wilson J.R.U. and Le Roux J.J. (2012) Cultivation shapes genetic novelty in a globally important invader. Molecular Ecology 21: 3187-3199.

iv. Refereed Conference proceedings

v. Non-refereed Conference proceedings

Byrne M., Yates C., Coates D., Elliott C., Gibson N., Sampson J. and Millar M.A. Restoring and maintaining genetic connections in a landscape context. Genetics Society of Australasia Conference, Melbourne, July 2011.

10. Publications and reports for end-users

Please include any reports, papers, newsletters, booklets, computer programs, videos, CD-ROMs, DVDs, web portals, blogs, websites etc. aimed at transferring know-how or practical information to end-users.
Include: Confidential publications.
Exclude: Any publication reported above, publicity brochures, web sites, etc. that provide only general information on the CRC's Activities.

Contribution to the review of the National post-border wed risk management protocol (HB 294:2006) (in the process of completion)
Publication and updating on the FFI CRC website of protocols for WRA and GRA
Species management guides (3)
Additional WRAs (5)

Enews:

Dec 2011 "New on Future Farm online" reporting the addition of three new species management guides
Feb 2012 "Weed risk on the national agenda" reporting the projects involvement with the review of the National post-border weed risk management protocol
April 2012 "Weed risk assessments" reporting the publication of new WRAs and a revision of the protocol

Future Farm:

In addition to reporting directly on the project achievements there is input into the wider editorial process to ensure that promotion of species by the CRC reflects an awareness of any weed risk and promotes good management to minimise this risk.
April 2012 Issue 10 p11 'Weed risk note' added and p16 "The final word" on Tall wheatgrass

Published this year on the FFI CRC website to be accessed by researchers, stakeholders, land managers and the general public:
Completed genetic risk assessment protocol
Revised and updated weed risk assessment protocol
5 new weed risk assessments bringing the number to 29
New management guides for Cocksfoot, Tall wheatgrass and Phalaris

Available for FFI CRC researchers: Genetic risk assessment template

11. Program Leaders Comments

Please forward to your Program Leader for comments prior to submission to the Research Manager.

1. Milestone report approved (Yes/No)?

2. If the milestone was not achieved, complete the following:

i. Do the Project Details need to be varied?

ii. Revised completion date or milestone payment

iii. Is there an impact on cash-flow of the project?

3. Future milestones at risk

i. Do the Project Details need to be varied?

ii. Revised completion date or milestone payment

4. Research Director's Approval

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Research Director

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Date