

# Future Farm Industries CRC

Profitable Perennials™ for Australian Landscapes

## P4 Farming Saline Landscapes

- Production from saline land
- Commercialisation of products
- Knowledge delivery to agriculture

## P4 Farming Saline Landscapes

### CRC Headlines 2014...

- “...100,000 ha of saline land now profitably used by farmers”
- “...Three new shrubs, grasses & legumes commercialised by CRC FFI”
- “...New saltbush cultivar doubles biomass production on saline land”
- “...Lambs programmed for lifetime performance on salt land”
- “...National Saltland Service completes 6th year of business”
- “...Saline land prevented from degrading Murray-Darling Rivers”
- “...Farmer reports highest profits from revegetation of saline land.”

### Key deliverables:

- 25% of salt affected producers managing newly re-vegetated saline land pastures to generate increased farm productivity (researched, demonstrated and economically analysed results from SGSL and HIGH PAK) delivered through Saltland Services - 150,000ha by 2020
- 3 new salt and waterlogging tolerant pasture cultivars and an elite saltbush cultivar commercialised (enhanced productivity and feed quality) – 200,000 ha by 2020
- SALTCAP (Land capability assessment tool) - 500 users trained in its application
- SALT Decide (hydrological modelling tool to integrate plant and engineering options) in the hands of 60 trained and accredited users

## P4 Farming Saline Landscapes



0.5 t/ha. of inedible barley grass



7.6 t/ha of diverse, salt land pastures

**In the drought of 2006, WA Yearling farmer, Chris Walton grazed 12 sheep / ha on his new pastures – long after the barley grass had gone**

## P4 Farming Saline Landscapes



3.1 t/ha/yr sea barley grass



5.8 t/ha/yr of puccinellia and balansa clover

**Farmers in the Upper South East of South Australia are able to lift their production from 2 to 6-7 DSE/ha by transforming grass dominant pastures to puccinellia and balansa clover systems**

# Future Farm Industries CRC

Profitable Perennials™ for Australian Landscapes

Farmers integrate deep drainage, salt tolerant crops and perennials to recover production from saline land and reduce downstream impact



## P4 Farming Saline Landscapes

### Research focus

- Selecting 4 new plant cultivars for salt land – herbaceous species and saltbush
- Increasing animal tolerance to and performance from high salt diets
- Developing site selection tool to define target planting areas
- Predict risk for farmer of salinity at paddock scale
- Integrate engineering & plant options to recover or prevent salt
- Modelling tools to forecast impact on-site and of-site from works.

### Commercialisation and Utilisation

- Cultivars delivered through seed companies
- High productivity systems (identified through SGSL2 and HIGHPak) and delivered to producers through Saltland Services.
  - Delivery enhanced by participation of CMAs and Landmark
- SALTCAP training modules developed with P7 for delivery to producers and their advisors
- SALTDecide training modules developed with P7 collaboration for delivery to managers of high vale assets

## Key Scientists

<b>Name Dr Richard George</b>	Time Committed: 0.8	Organisation: DAFWA
<p>Skills and expertise: Richard is a hydrologist by training specialising in dryland salinity. Responsible for research coordination and major projects in hydrology, regolith science and salinity management. He currently coordinates and leads R&amp;D projects in catchment hydrology, engineering salinity management and geochemical risk assessment in WA and nationally. He is a past winner of the WE Wood award for dryland salinity research.</p>		
Refereed Journal: 42	Conference papers: 50	Industry publications: >50
<b>Name Dr Edward Barrett-Lennard</b>	Time Committed: 0.6	Organisation: DAFWA
<p>Skills and expertise: Ed is a plant physiologist with a strong focus on plant adaptation to saline environments. He has concentrated on field research and developing operational uses of saline land through re-vegetation both in Australia and internationally. He has conceived and lead a large number of projects and has been an outstanding communicator and advocate in the written and spoken word. He is a past winner of the WE Wood award for dryland salinity research.</p>		
Refereed Journal: 30	Conference papers: 31	:
<b>Name Dr Nicholas Edwards</b>	Time Committed: 0.25	Organisation: SARDI
<p>Skills and expertise: Nick is an animal scientist with research interests in lamb meat quality, grazing management and pasture utilisation and has previously worked in ruminant nutrition, rumen microbiology and beef and dairy cattle production in shrub and pasture-based systems in Western Australia and New Zealand. In recent times he has been National Research Leader for the Sustainable Grazing on Saline Lands (SGSL) project within the CRC for Plant-based Management of Dryland Salinity with responsibility for coordinating the scientific programs of the 5 separate major research projects across Australia.</p>		
Refereed Journal: 6	Conference papers: 38	
<b>Name Professor Zed Rengel</b>	Time Committed: 0.3	Organisation: UWA
<p>Skills and expertise: Zed's scientific focus and experience is in the physiological, molecular and genetic basis of nutrient uptake and utilisation, tolerance to ion toxicity, genotype-soil interactions in micronutrient uptake, nutrient loading into developing grains, plant-microbe interactions in the rhizosphere, modelling root growth and nutrient uptake, and ecology of ecosystems in saline and waterlogged environments. He has a high international profile including editor of 2 USA journals and on the Advisory Editorial Board of 5 international journals.</p>		
Refereed Journal: 223	Conference papers:46	

# Future Farm Industries CRC

Profitable Perennials™ for Australian Landscapes

<b>Name Dr Andrew Craig</b>	Time Committed: 0.5	Organisation: SARDI
Skills and expertise: Andy has experience in evaluating and developing temperate fodder species, and has been directly involved in the development of 15 new pasture legume cultivars. He has led Australian research efforts to develop and promote the adoption of balansa clover, the outcome being that species has been used on over 2 million hectares since its introduction into Australian agriculture. He uses his experience to influence research activities that improve salt-affected land and leads the CRC for the Plant-Based Management of Dryland Salinity efforts' to develop new fodder species for saline environments.		
Refereed Journal: 18	Conference papers: 17	Industry publications: 11

<b>Name Mr. Greg Hamilton</b>	Time Committed: 0.4	Organisation: DAFWA
Skills and expertise: Greg is a soils scientist with a focus directed towards reversing land degradation. He has developed and lead projects that have identified practical and profitable solutions to land degradation, the most recent efforts being to overcome the combined effect of waterlogging and mild salinity using bedding technologies. His efforts have always been multi-disciplinary and undertaken in partnership with key scientists, land managers and commercial machinery manufacturers. Successful has been measured by widespread adoption.		
Refereed Journal: 29	Conference papers: 30	

<b>Name Dr Phillip Nichols</b>	Time Committed: 0.3	Organisation: DAFWA
Skills and expertise: Philip's research interests are focused on annual and perennial pasture plant breeding, pasture ecology and saltland pastures. His major research role has been as a pasture legume breeder, having released 11 subterranean clover and 2 lucerne cultivars. He is currently leading a national project through the Salinity CRC investigating novel means for improving establishment of saltbush, native pastures and warm season perennial grasses and legumes.		
Refereed Journal: 28	Conference papers: 28	Industry publications: 11

# Future Farm Industries CRC

Profitable Perennials™ for Australian Landscapes

## Resource Summary

Program	Farming Saline Landscapes	Notes
<b>Cash resources</b>	\$3.185m – FFI CRC investors \$1.275m – CRC Program	
<b>Inkind FTE</b>	9.3 FTE per annum	
<b>Inkind \$ resources</b>	\$7.4	12.6% of total
<b>Total Resources</b>	\$11.8m	10.4% of total
<b>Key Industry Investors</b>	AWI \$1.4m MLA \$0.525m GRDC - \$0.525m	