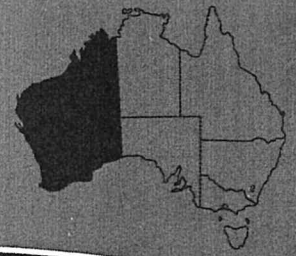




CRC FOR  
PLANT ~ BASED  
MANAGEMENT  
OF DRYLAND  
SALINITY



# Salinity Update WA

November 2005

- National policies for salinity management
- Innovation award to UWA PhD student
- Senate Salinity Committee in WA
- Drainage research building
- Low key PUR\$L meeting
- Raised beds
- Summer cropping on the South Coast
- The search for salt-tolerant native perennials
- Sustainable Grazing of Saline Lands (SGSL)
- Drivers to fix saltland?
- Water management in a modern nutshell
- SGSL photo competition

**W**elcome to the November 2005 edition of **Salinity Update** - the first electronic-only edition.

Of the 180-odd who responded to the survey enclosed with the September printed edition, about 85% said that they found it "A useful source of general news about salinity in Australia", 68% "Have referred an issue raised in Salinity Update on to a colleague", and 59% "Have passed Salinity Update on to a colleague or suggested that they subscribe."

It would be great if you would alert/remind your friends/colleagues that this edition is now available and point out to them that they can subscribe to a reminder of each new edition at: [www.crcsalinity.com/pages/saltmagazine.aspx](http://www.crcsalinity.com/pages/saltmagazine.aspx)

**N**ational policies for salinity management were in danger of losing contact with on-ground realities, the State Natural Resource Management Conference heard recently.

Professor David Pannell from The University of Western Australia and CRC Salinity said that greater understanding was changing perceptions and creating tensions in salinity funding. Money was beginning to flow to regional bodies through the National Action Plan for Salinity and Water Quality (NAP) but since the program was announced five years ago further research has revealed that it needed some re-shaping. He said a stronger scientific and economic basis was needed to choose which assets to protect from salinity, and how best to do it. In WA a Salinity Investment Framework (SIF) has been developed to target salinity funds so that they generate the biggest bang for the buck. The CRC Salinity has recently enhanced SIF, and was working closely with SCRIPT and the North-Central Catchment Management Authority in Victoria to test and further refine it. This aims to provide governments and the community with a more effective and streamlined way to target salinity investments consistent with the latest science.

While governments are keen to establish salinity management tools over large areas, he noted problems with some available tools. For example, planting perennials that use more water and can contain salinity was often emphasised, but for many areas there were too few perennial plants options profitable enough to ensure their use at a sufficiently large scale to make a difference. In many areas proven, effective, economically viable management tools are still not sufficiently available, and research to develop them was not being funded by the National Action Plan.

- Contact David Pannell at [dpannell@cyllene.uwa.edu.au](mailto:dpannell@cyllene.uwa.edu.au)

**Innovation award to UWA PhD student.** A project to examine why saltbush causes sheep to lose weight and condition has won CRC Salinity PhD student Dianne Mayberry the Western Australian prize in the 2005 Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry.

Di, who is studying at the University of WA, will receive up to \$10,000 to complete a project looking at how the saltbush eaten by sheep influences microbial population diversity and activity in the rumen. During her honours research she found in the laboratory that rumen microbes from sheep fed saltbush produced more than four times as much methane as those from sheep fed a standard diet. With her award, she aims now to establish the amount of methane produced by sheep grazing in saltbush pastures. This will enable her to calculate if the amount of methane produced is a major factor in poor animal production from saline land.

- *Further information at [www.daff.gov.au/scienceawards](http://www.daff.gov.au/scienceawards)*

**Senate Salinity Committee in WA.** The committee studying the extent and economic impact of salinity is due to visit WA on 17-18 November to see problems first-hand and hold discussions with groups who made submissions. Of 42 submissions received, eight were from WA representing WAFF, PGA, Saltland Pastures Association, CRC Salinity, Conservation Council, Avon Catchment Council, SCRIPT and NACC.

The committee is assessing the long-term success of federal programs that seek to reduce the impact of salinity on the Australian environment, including whether the goals of national programs such as the NAP, NHT and National Landcare Program have been attained. It will also look at the role catchment management authorities (or regional catchment councils as we know them in this State) are required to play, and what action has been taken as a result of recommendations made by the House of Representatives inquiry into 'Science overcoming salinity'. Their report is due by the second sitting day of 2006.

A regional field trip has been organised by the CRC Salinity for 17 November. Flying from Perth, they will do a broad sweep around the wheatbelt as far as Lake Grace, Merredin and Naremben, including an hour on the ground to view the Trayning drain. The group then heads east by road where points of call include Toolibin Lake, Yealering and Quairading. Technical experts including Richard George from the Department of Agriculture and Mike Ewing from the CRC will

be present so that the Senators and their support staff gain a clearer picture before they start the real talking the following day.

- *Website: [www.aph.gov.au/senate\\_environment](http://www.aph.gov.au/senate_environment)*

**Drainage research building.** From a slow start, the research effort devoted to engineering and drainage to manage salinity is now building steadily. In October a feasibility study of regional-scale drainage worth \$2.84 million and funded through the NAP, was launched by Federal and State Ministers. A major part will be to increase understanding of how drainage affects local ecosystems including wetland. Meanwhile, under the \$4 million Engineering Evaluation Initiative (EEI) physical measurements are underway at sites at Beacon, Morawa, Pithara and Dumbleyung (which has three years of data) plus separate studies of downstream impacts, acid groundwater, soils and crops. Pumping-related evaluations are occurring at Bodallin, Tammin and Dumbleyung, and catchment scale modelling of impacts in the Avon Catchment. An additional GRDC project worth about \$240,000 is combining research on crop responses and hydrological impacts.

- *More details from Richard George on (08) 9780 6296 or [rgeorge@agric.wa.gov.au](mailto:rgeorge@agric.wa.gov.au)*

**Low key PURSL meeting.** Seven WA delegates attended the 2005 PURSL (Productive Use and Rehabilitation of Saline Lands) workshop in Wellington and Cowra, NSW from 25-27 October, hosted by the Lachlan and Central West Catchment Management Authorities. Funding for fares and registration for six came from proceeds of the successful 2002 PURSL Conference in Fremantle. Delegates found 2005 very different to Fremantle, concentrating mainly on local issues and drawing 100 to 140 people on each of its three days. Despite this, it was an excellent general education and networking experience. Major impressions were the growing popularity of holistic management and set-stocking with perennials, and good community engagement. The WA contingent comprised CLCs Linda Vernon from Trayning, Glenice Batchelor from Kellerberrin, Cyndi Mulder from Quairading and Vanessa Malcolm Dowerin/Goomalling, John-Paul Collins from the Department of Agriculture in Katanning, and Neil Ballard from Tincurrin. Retired saltbush guru Clive Malcolm also made the trip. Victoria will host the next PURSL conference/workshop, probably in 2007.

- *<http://www1.crcsalinity.com/pursl/index.htm>*

**A**pplying a small amount of a polymaleic acid in powder form to raised beds has reduced salinity by more than a third in the first year of trials conducted by Greg Hamilton's team, here in WA. The polymer was applied to raised beds with fertiliser at 10 kg/ha at Woodanilling in the Great Southern. Compared to untreated soil in the beds it cut E<sub>Ce</sub> from 25 to 15 mS/cm in the top 5 cm of sown rows and from 27 to 16 mS/cm in the inter-row area on the beds. At a slightly deeper level of 5-10 cm below the surface EC levels in sown rows declined from 17.5 to 9.5 mS/cm and 17.5 to 10.5 mS/cm between the rows. Greg describes the results as "a very significant effect on salinity and sodicity" while cautioning that it is only one year of results – in a year that was too waterlogged and saline for germination of most of Tim Colmer's salt-tolerant wheat on the same site.

Amounts of exchangeable calcium were also increased by the presence of the polymer, magnesium was reduced and sodium reduced significantly. Soil pH rose slightly from 6.5 to 6.8. The polymer is biodegradable and will need to be provided annually with fertiliser. The cost is about \$10/ha. Further monitoring and evaluation is planned.

In other number-crunching recently related to the cropped area on the Woodanilling site in 2004 Greg has shown that loosened raised beds are leaching more salt from the surface layer (0-20 cm) and constraining more of the capillary rise in spring and early summer than occurs in the other treatments – a no-till control and no-till raised beds. Further analyses from other sites and years are underway.

➤ *Contact Greg Hamilton on (08) 9368 3276 or [gghamilton@agric.wa.gov.au](mailto:gghamilton@agric.wa.gov.au)*

**S**ummer cropping on the South Coast may be profitable after a failed winter crop or instead of fallow, but prospects are less reliable for planting between winter crops. This was a major conclusion of analysis, funded by the GRDC, and prompted by several wet years in the late 1990s. The modelling work involved CSIRO in Queensland and local Department of Agriculture staff. Rainfall is very variable on the South Coast, and declines dramatically with distance inland. Analysis of long-term rainfall records indicated that planting for forage was likely to be economic, but grain yields in most seasons would be comparatively low. Grain yields of at least a tonne per hectare were regarded as the break-even point. Summer crops were also likely to result in considerable yield penalties for following wheat crops.

Mike Robertson, now based at CSIRO in Perth, noted that roots of annual summer crops were no deeper than annual winter crops so that if drying the soil was a motive for sowing sorghums and millets, which were the best bets, farmers would be better to go for a perennial plant such as lucerne. Lucerne was able to dry the soil to 78 cm in one year and 139 cm in two years compared with only 72 and 71 cm for sorghum.

➤ *Michael Robertson: [michael.robertson@csiro.au](mailto:michael.robertson@csiro.au)*

**T**he search for salt-tolerant native perennials continues in WA, with a CRC Salinity team recently checking out pastoral areas.

Richard Bennett from UWA and Ben Cohen from DAWA covered 38 stations and five nature reserves in eight days, collecting seed. Most collections were made around granite outcrops, along water courses and near to saline areas. Over 40 accessions were collected from the Swainsona genus (relatives of Sturt's desert pea), some others were Glycine species (a wild relative of soyabean) generally found on river banks, and some Cullen species (scurf peas). The next stage is growing out the seed in a glasshouse over the next few months and then further seed increase at the DAWA Medina field station until the seed is fed into GRDC funded national field trials in 2007. Richard said that many of the Swainsona species were very palatable, and only a few contained toxins. He is hoping that some of the plants collected could eventually be suitable for growing in recharge or discharge areas with acid soils and low rainfall as profitable, environmentally friendly alternatives to lucerne.

➤ *Richard Bennett: (08) 6488 1936, [bennettr@cyllene.uwa.edu.au](mailto:bennettr@cyllene.uwa.edu.au)*

**T**he Sustainable Grazing of Saline Lands (SGSL) Producer Network Committee in WA hosted a forum in late October, bringing together host farmers from its 60-odd sites plus researchers and others. It appears that while individuals are finding good strategies to manage salt, use saltland profitably and gain confidence, there is much overall variability resulting in "collective confusion". SGSL winds up in 2006, but it's hoped that funding may be provided for a second program, building on the gains from the first.

➤ *Further details from Justin Hardy: (08) 9892 8408, [jhardy@agric.wa.gov.au](mailto:jhardy@agric.wa.gov.au)*



**D**rivers to fix saltland? The Department of Agriculture in Narrogin has been funded to do a pilot study to ascertain the benefits, costs, barriers and enablers to adoption of saltland grazing. A consultant helped organise three focus groups in the wheatbelt in October and this will be followed by a wider survey over the next couple of months. Impressions from the focus groups was that all participants had profit as a driver to action, but it was not necessarily at the top of the list. Aesthetics was likely to a significant factor for some, depending on location, while being seen as a "good manager" was an influence for others. Similarly, obtaining seed grant money was important for some, but not all. A significant barrier appeared to be knowing how to get started, amid a proliferation of information. The project is due to report by early March 2006, and its findings are likely to be incorporated into plans for a second program if this eventuates.

- *Contact David Bicknell: dbicknell@agric.wa.gov.au*

**W**ater management in a modern nutshell. For those who like resource information to take minimum space, grabbing a copy of the Department of Agriculture's CD-ROM on Water Management for Dryland Agriculture might be the answer. The CD combines information from hard copy kits 1, 2 and 3 published earlier plus water supply evaluation software and is free.

- *Email: farmwaterinfo@agric.wa.gov.au*

**S**GSL photo competition - The overall winning entry, taken by Peter Garside from Alcoa, was entered by members of the South Yoting Catchment Group. A. Peter subsequently donated the \$6000 in prize money to the catchment group to help contribute to on-ground salinity management.

Other major winners included Dr Ed Barrett-Lennard from WA, and State winners Justin Hardy. Winners of the 'Saltland Rescue' prize (where the SGSL Producer Network will help develop a management plan and on-ground works to the value of \$1000) included Margie Ward, WA.

- *Further information from Kim Mitchell: 02 6859 2396; kim@curriecom.com.au*

## Coming events

### Annual Forum & AGM of Association of Landcare Professionals

*Begins with a night bush stalk in the Karakamia Sanctuary, Chidlow at 6.30 pm followed by the forum the next day at Muresk Thursday-Friday 1-2 December 2005*

**Contact: kjelliott@inet.net.au**

### Salty Business goes south

*Learn how complicated it can be to manage dryland salinity on a farm by playing the new computer game that covers 25 years in a day. No charge, but numbers limited.*

Department of Agriculture  
444 Albany Highway, Albany

Friday 9 December 2005, 9 am — 4.30 pm

**Contact: Amir Abadi on email aabadi@agric.wa.gov.au or 0407 487 688 by 2 December**

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