CRC FOR PLANT~BASED MANAGEMENT OF DRYLAND SALINITY

Salinity Update WA

March 2005

Welcome to the 2nd Salinity Update. This short newsletter is mailed out with *Focus on Salt* and (biannually) with *Salt* magazine to subscribers in Western Australia. While prepared by the CRC, it aims to provide items to the wider community that is interested in better management of dryland salinity.

The CRC is seeking to take up many of the roles in national salinity communication previously managed through the National Dryland Salinity Program (NDSP). Besides publishing *Focus on Salt* and *Salt* magazine, it is maintaining *Saltlist* and its online forum, helping ensure dialogue between its stakeholders at many different levels. To facilitate this, the communications staff has been expanded to include Georgina Wilson, former part-time NDSP communications coordinator in WA. Georgina will continue her communications role with the Department of Agriculture but work half-time for the CRC, including preparation of articles for *Focus on Salt, Salt* magazine and other publications of the CRC. This will allow Chris Twomey more opportunity to attend to internet and corporate communication matters.

If you have material for publication or know colleagues who would be interested in receiving salinity information, please contact:

- *Georgina Wilson: (08) 9368 3889, gwilson@agric.wa.gov.au.*

Royal visitor impresses. During a fleeting trip to Perth in early March, Prince Charles' visited the CRC for Plant-based Management of Dryland Salinity at the University of Western Australia. Among those visible on the day (besides the larger group beavering behind the scenes) were CEO Kevin Goss, salt-tolerant wheat breeder Tim Colmer, oil mallee researcher John Bartle, saltbush researcher Hayley Norman from CSIRO and landholder Tony York from Tammin. Those present were impressed with HRH's technical and agricultural knowledge, finding him very interested in their work and less aloof than expected.

- *Further details from Chris Twomey on (08) 6488 8553, or ctwomey@fnas.uwa.edu.au*

Drainage field days and workshops have been in full season, with one in January at Morawa, two organised by the Engineering Evaluation Initiative at Dumbleyung and Dalwallinu in February, and a fourth at Merredin in March organised by CSIRO. All events were well attended, particularly by those with strong views of drains' benefits, or seeking answers to questions.

Department of Agriculture senior research scientist, Richard George, who spoke at all of the workshops, said that at one level, all drains worked. They lowered watertables and removed salt, thus improving soil water and salt status. However, whether they worked over an extensive area, whether they worked in the longer term and whether their impact exceeded costs and off-site impacts, was yet to be confirmed. This is the subject of research at Narembeen, Morawa, Dumbleyung and Beacon.

"To determine drain impact, site characteristics need to be measured, soil chemistry understood and downstream assessments undertaken," he said. "In the Narembeen and Dumbleyung trials for example, watertable responses have been observed to at least 200 m, but the effect of drains on soil salt levels and crop productivity is still being untangled from site and seasonal impacts. Safe disposal of acid drainage water is another major issue. Work in this area has escalated to meet the needs of farmers and regulators. Over 80 drains have been sampled for detailed geochemistry and receiving area requirements are being determined."

Workshop material for use with land managers to help evaluate tools to manage salinity is now available. This is the result of a

GRDC and National Dryland Salinity Program-funded project called *A Million Hectares for the Future* undertaken in WA and SA. A free CD-ROM which includes facilitators and participants notes plus PowerPoint slides for different workshops, should be ready soon, but individual workshops can be downloaded in pdf format from the Department of Agriculture website:

- An introduction to salinity
- An introduction to STEP (Simulated Transitional Economic Planning)
- Perennial pastures – are they for me?
- Lucerne – is it for me?
- Surface water management – is it for me?

An additional workshop on deep drainage will join the set shortly. Team leader Trevor Lacey said the workshops had been pilot-tested with farmer groups and formatted so that individual facilitators or presenters could adapt them to their own needs. "We see these as living documents which will be amended to suit local conditions and audiences," he said. "We recommend that groups begin with the introduction and STEP workshop as these provide information on the causes of salinity, on-farm risks and management options to help participants assess the risk to their businesses. They can then move on to specific practices such as surface water management or perennial pastures."

Limited hard copy publications have been printed, mainly for libraries, as the web and CD-ROM will be the main methods of distribution.

➢ *Contact: Trevor Lacey on (08) 9690 2101, tlacey@agric.wa.gov.au or website www.agric.wa.gov.au and then search by title.*

The importance of surface water as a major contributor to 'salinity' effects has had major resurgence in the last couple of years, with problems in rural towns, for example, now being attributed to poor surface water management as much as accumulated recharge.

Department of Agriculture raised bed researcher Greg Hamilton has added some observations, noting that there are typically three types of water movement in a landscape: surface water flows; vertical profile drainage; and lateral groundwater flows. On low slope country, surface water flows are 10 million times faster and watertable rise is 10,000 times faster than lateral groundwater flows, he calculates. Hence, in cool wet winters when the soil profiles are wet, rains will generate run-off that will flow to and accumulate on flat valley floors millions of times faster than groundwater flows can drain laterally. In a Mediterranean climate this will be deleterious to all plant-based solutions to salinity because it will occur during the cool months when evaporation and transpiration are low. Hence, surface drainage will efficiently remove water that ponds every winter on valley floors and dramatically reduce the risk of prolonged shallow watertables and consequent evaporation and salt accumulation.

➢ *More debate from Greg Hamilton on (08) 9368 3276 or ghamilton@agric.wa.gov.au*

Computer modelling supports saltbush. New modelling in WA using the South Coast version of MIDAS (Model of Integrated Dryland System) is indicating that the more salt-affected land on a property, the greater the value of saltland pastures. CRC researcher Felicity Flugge said the modelling, being done for the national Sustainable Grazing on Saline Lands (SGSL) project was using farms with 10 to 40 per cent of land affected by salt. This contrasted with previous modelling of 'typical' farms which might have had much smaller proportions of salinity. "Not surprisingly, it appears that at current prices, the greater the proportion of saltland, the greater the value of at least partial revegetation with saltland pastures," she said. "Benefit was shown to be worth up to $70 per hectare of saltland pasture at high levels of salinity."

The modelling work is still in early stages but more details can be obtained from *Felicity at (08) 9368 3134 or email fflugge@agric.wa.gov.au*

Land resource and salinity risk mapping in WA could gain a powerful new tool over the next few years, if recent interest is an indication. In February more than 70 people from State agencies, CSIRO and universities attended a seminar about MRVBF software at the Department of Agriculture. MRVBF or Multi-Resolution Valley Bottom Flatness index uses digital elevation modelling (DEM) data to display flat valleys. Knowing the extent and nature of these valleys is important for soil and hydrology interpretation. MRVBF is becoming a major tool in NSW assisting in interpreting soil, water and salinity issues. However, it needs to be calibrated for WA landscapes to reduce artifacts that would result in misinterpretation.

➢ *Contact Ted Griffin on (08) 9368 3720, or tgriffin@agric.wa.gov.au*

help NRM / catchment managers decide whether airborne geophysics could be used in their region.

They will also be available on-line at www.dwlbc.sa.gov.au

➢ *Further information from Craig Liddicoat: 08 8303 9342; liddicoat.craig@saugov.sa.gov.au*

March edition of the MDBC e-newsletter covers the following topics:

- Community leads Darling initiative
- Sides ready for battle in Basin Property Planning Comp
- Young Rural Leaders' Course now open
- 2005 International River Health Conference to be 'biggest & best'
- Seminar gives overview of carp and how to control them
- Temporary drawdown of weir pools at Euston
- New Industries Development Program grants announced
- Study tour of the Lower Lakes and Coorong in South Australia
- Sustainable Development Conference looks at best practice
- Land & Water Australia's new Investment Plan issued

➢ *To subscribe online go to www.mdbc.gov.au/commcentre/elist/form.htm*

The CRC's online forum (*http://forum.crcsalinity.com/forum/*) is up and away – currently 113 subscribers, with some interesting stats behind that. The topic 'Drains – a flawed case?' has had only 4 posts (from 2 people) but has attracted 280 visits. Make what you will of that. The forum operates at two levels – a limited number of categories open to all comers, with a further set of categories available only to User Groups, mostly within the CRC Salinity.

➢ *Further information from Bruce Munday: 08 8538 7075; bruce@clearconnections.com.au*

Northern Catchment Drain in the State's Upper South East was opened on schedule last December by the Environment and Conservation Minister, John Hill.

The three arms of the drain – Mt Charles, Taunta Hut and Bunbury – total almost 150 km before emptying into Salt Creek. This section took 35 weeks to dig with the removal of 1.3 million cubic metres of material, and is of course only part of the overall system of approximately 650 km of drains.

➢ *Further information from Leonie Shearing: 08 8303 9653; shearing.leonie@saugov.sa.gov.au*

Ever wondered what water tables are doing? OBSWELL was an initiative of DWLBC, recognising the importance of gathering together all observation bore monitoring data and making it readily available. Observation bores have been drilled across the state at various times, for various purposes and across all regions, generally not as part of an overall strategic plan. Nonetheless, many of these bores have been monitored and cumulatively they represent an invaluable data set.

OBSWELL data is grouped into 'networks' that represent regions or aquifers and can be interrogated on this basis. The data includes water table level, salinity, elevation, well coordinates and basic construction details. It can be accessed at www.dwlbc.sa.gov.au/water/groundwater/obswell.html

Inland aquaculture has for some time been a fond ambition for farmers confronting rising water tables. However, this is still generally blue sky territory – 'domesticated' fish struggling to compete economically and environmentally with their wild counterparts. Researchers in the wheat belt town of Donald in north-central Victoria are exploring the relatively low risk–low cost avenue of seaweed farming. In case you are wondering what on earth seaweed might be used for, check out the number of products on the supermarket shelf that include alginates. A little more detail is available at http://www.farmersinfo.com.au/newsletter.htm

Australian Landcare (March 2005) carries an article on the CRC Salinity's blue-sky research project *FloraSearch.*

Salinity Impact Assessments for The Living Murray Environmental Works and Measures Program - Stage 1 Scoping study.

The MDBC is seeking consultant services for the first stage of a salinity impact assessment methodology for the Living Murray Environmental Works and Measures Program. This first stage scoping study will involve gathering information and learning from past practical experience to develop a conceptualisation of a salinity impact assessment methodology and a refined project plan for the subsequent stages of the whole project.

providers, policy advisers, farmers and educators. Subscribers seek and share information, progress debate and promote resources.

- *To subscribe, visit the home page at www.saltcontrolsa.com or www.ndsp.gov.au*

Additional copies of the any of the publications included with this newsletter are available from *Georgina Wilson: (08) 9368 3889, gwilson@agric.wa.gov.au*

Does this reach the right person at the correct address? If not, please notify *Georgina Wilson: (08) 9368 3889, gwilson@agric.wa.gov.au*

Coming events

Profit from Saltland

Wednesday 20 April
Sustainable Grazing on Saline Lands, Saltland Pastures Association & Kellerberrin Landcare
Contact Justin Hardy on 9892 8408 or Glenice Batchelor 9045 4006.

International Salinity Forum

Managing Saline Soils and Water:
Science, Technology, and Social Issues
Riverside, California
25-27 April 2005
http://www.waterresources.ucr.edu

9th International Conference on Salt Lake Research

Curtin University of Technology, Perth
26-30 September 2005
http://www.isslr.org/.

Inaugural WA State Conference on Natural Resources Management

Denmark Centre for Sustainable Living
October 2005
Sponsored by WA NRM Council, and incorporating State Landcare Awards
Contact Natalie Moore on (08) 9368 3166, or nhunt@agric.wa.gov.au

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www.crcsalinity.com

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