

Kangaroo Island Topoclimate pilot project: an update

Background

The Kangaroo Island Topoclimate Pilot Project was developed and promoted by the KI Development Board in partnership with local farmers, the KI Natural Resources Management Board and Rural solutions SA. Topoclimate Australia (TAPL) was contracted to undertake the project with nine local farmers over twelve properties.

What was done

Farmer Aims and Goals for each property were developed in discussion with each family. Farmer Aims and Goals varied according to the ages and stages in the farming career of each farmer but there was a common goal towards improving farm productivity on all properties. An accurate base aerial photograph of each property was produced at farm scale identifying all farm infrastructure (e.g. fences, tracks, buildings, irrigation).

Microclimate mapping commenced in late March 2009 with 97 temperature dataloggers recording, at 10 minute intervals, temperatures 24 hours a day for a whole year. Once a full year's data has been collected, a thirty year temperature record will be created for each site.

The temperature data appears to show far less seasonality and variation of temperature patterns between summer and winter. This results in less chilling hours to set fruit, less occurrence of frost and a much moderated maritime climate influenced by the waters and currents surrounding the Island.

Soil Mapping was undertaken with a Geophysics survey (Radiometrics, EM31 and EM38, GPS DTM mapping) of 7400 ha. Radiometric maps were ground-truthed and correlated with existing

DWLBC Conservation Soil descriptions to produce final soils maps. Between four and six samples per property were chemically analysed for a standard suite of factors. Surface and subsurface salinity maps and associated salinity management reports were prepared from the EM31 and EM38 surveys of each property. Low pH levels and low nutrient levels were identified as significant problems across most properties with sodicity a concern in some cases.

KI NRM Board staff are preparing environmental audits for each property which summarise all the environmental issues (including flora and fauna) and water resources relating to each property. Six training sessions were held on the topics related to the project. The differing skills, backgrounds and experience of participants made it difficult to develop course material that was suitable for all participants. This was overcome by one to one discussions that addressed the information in a way that was more relevant to each individual's needs.

Thanks are due to Geoff Nutt of 'Wedgewood' for permission to reproduce the property maps and information in this report to illustrate the quality of information being provided by the project to each of the nine farmers. A more detailed report on the project is available on request from the Kingscote PIRSA Office.

For further information contact

G.K.Hutchinson, Topoclimate Australia Pty Ltd (TAPL)

www.topoclimate.com



IMAGE 1 Mitch and Ros Wilson test the pH of their soils while Graeme Branford (TAPL) watches



IMAGE 2 Geoff Nutt (KI farmer) assembles logger screens inside protective mesh cages

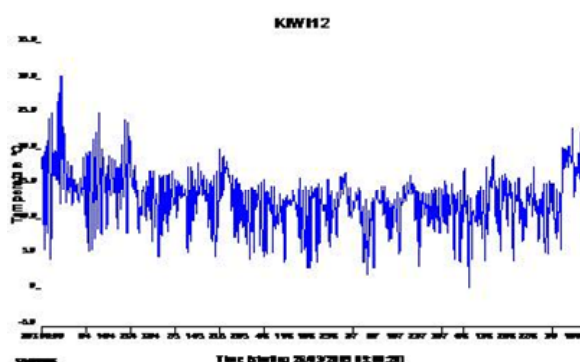


IMAGE 3 Temperature pattern for Mar - Sept 2009 on KI Topoclimate pilot project property on eastern end of Kangaroo island. Note unique evenness and moderation of temperature pattern due to maritime influence



IMAGE 4 TAPL staff take soil samples on a KI Topoclimate Pilot Project farmer's property



IMAGE 5 KI Farmers in 'clover' on 20 October 20 Farm Walk through the Tremaine pasture trial site on the Tremaine property at Parndana (photo: Lyn Dohle PIRSA)

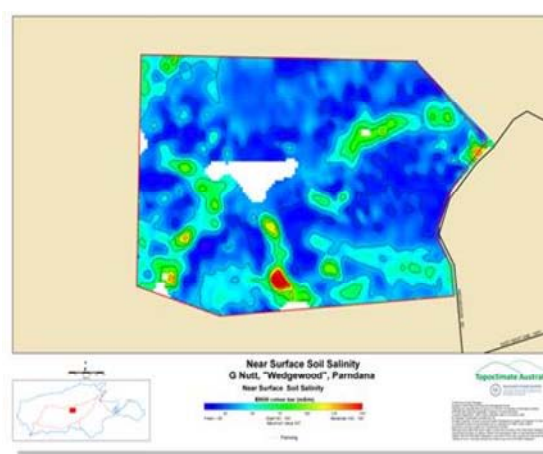


IMAGE 6 EM38 Map for 'Wedgewood', Parndana, showing near surface salinity and sodicity levels

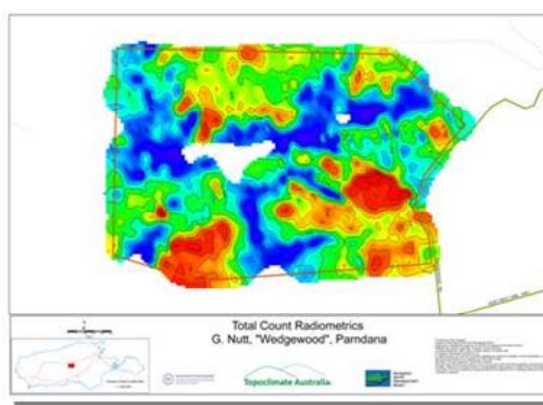


IMAGE 7 Total count Radiometrics map of 'Wedgewood', Parndana showing accurate identification of soils

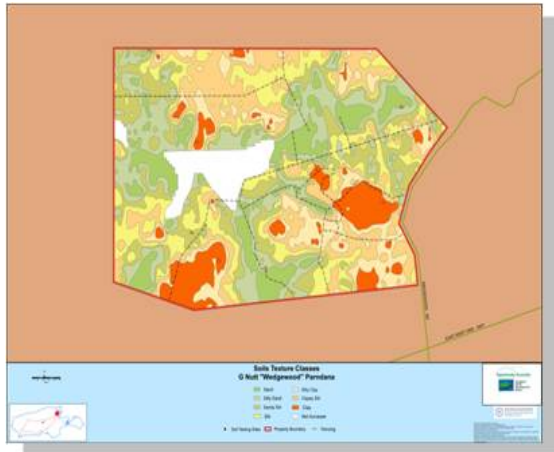


IMAGE 8 Soil textures map developed from the Radiometrics map and ground-truthing of data

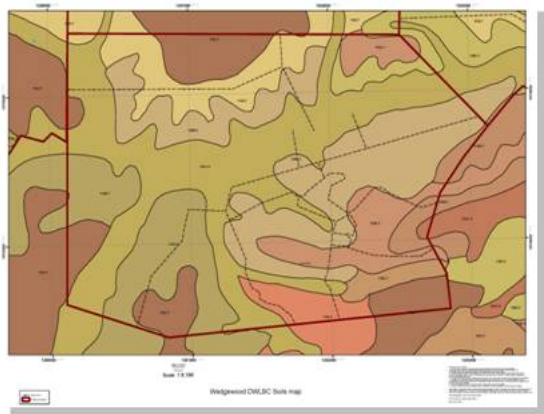


IMAGE 9DL WBC soils map for 'Wedgewood'

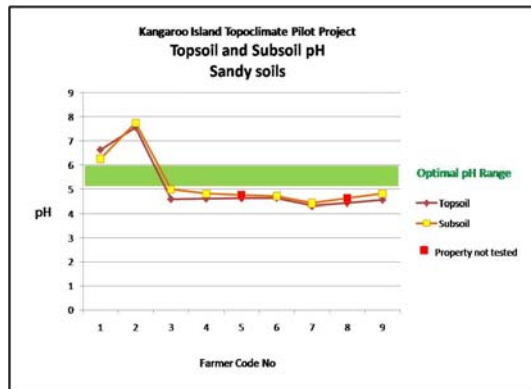


IMAGE 10 Soil pH, the sandy soils on all project properties. Optimal pH levels are shown in green, so most properties have acidic soils below desirable levels



IMAGE 11 Soil pit examined during the course 'Understand the Soils on your Farm', a comprehensive two days of training looking at the soils of KI and including a guest speaker Dr James Hall (DWLBC State Pedologist)



IMAGE 12 Gary Hutchinson (Topoclimate Australia) talks to the farmers' group during another of the six training courses held so far as part of the project

Funding / Sponsors

- Department of Trade and Economic Development
- Kangaroo Island Development Board
- Kangaroo Island Natural Resources Management Board
- Rural Solutions SA
- The nine properties involved:
 - o 'Bellevista' (R. & J. Bell)
 - o 'Treville' (M. & M. Tremaine)
 - o 'Deep Dene' (L. & C. Berry)
 - o 'Wedgewood' (G. Nutt)
 - o G. Johnsson
 - o 'Muckra' (N. & P. Clark)
 - o 'Turkey Lane' (J. & J. Symons)
 - o 'Willson River' (M. & R. Willson)
 - o 'Toomore' (R. & N. Trethewey).