

Managing dryland salinity with perennial vegetation

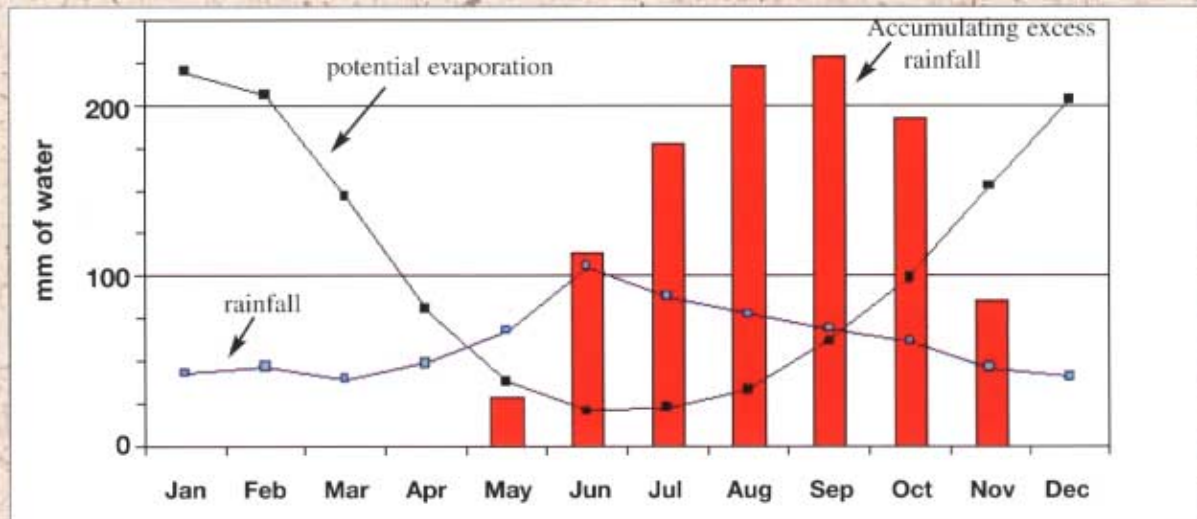


Farming systems suited to North East Victoria.

Past reliance on annual shallow rooted plants in agricultural systems has caused erosion, soil acidification, reduced water quality and dryland salinity.

Rural landscapes need perennial vegetation to remain healthy and viable in the long term.

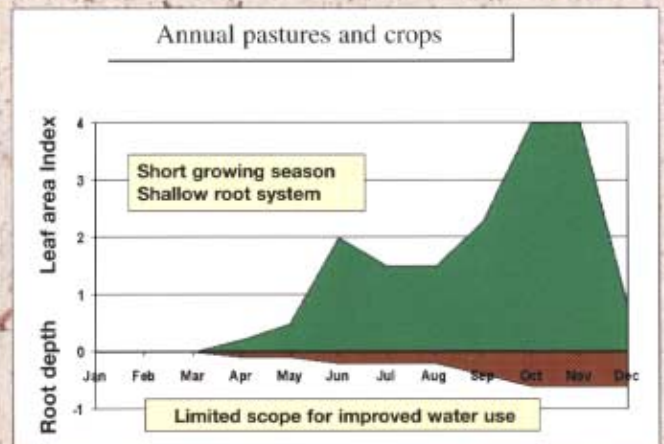
Water Balance for Wangaratta



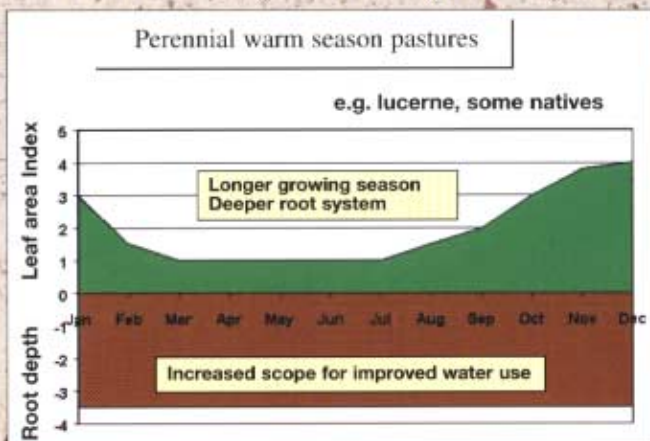
Most rain falls in the colder months when evaporation is low. This results in accumulating excess rainfall.

Excess rainfall either runs off to rivers or infiltrates the soil. When the soil becomes saturated water can leak through into the groundwater which is known as recharge. Higher levels of recharge can increase the risk of dryland salinity.

Groundwater recharge can be reduced if soil profiles are dry coming into winter. To achieve this plants must use as much water as possible during spring, summer and autumn.



Annual pastures and crops have a relatively short growing season. This growth occurs when evaporation is low and rainfall is high. After these plants die in spring, moisture often remains in the soil.



Some perennial plants, such as Lucerne and Weeping Grass (*Microlaena stipoides*), can grow over summer. The relatively long roots of many perennials access water deeper in the soil profile and dry it out.



The major aim of salinity management is to have persistent perennial vegetation systems dominating our landscapes

Perennial Grazing Systems

Pastures based on perennial grasses such as Phalaris and Cocksfoot can effectively reduce recharge to groundwater in areas which receive less than 600mm annual rainfall.



In higher rainfall areas perennial grass pasture alone is insufficient to prevent recharge to groundwater. However Lucerne is still effective.



Strategic tree planting can improve the water use in areas planted to perennial pastures. The exact position for tree planting is site specific, but hilltops and break of slope are often key areas for protecting or replanting trees and shrubs.



Planted trees and protected remnants on high recharge hilltops



Break of slope tree planting



Narrow belts of trees and shrubs



Salt Patch

Alley Farming

Alley farming uses a series of narrow (3-5 row) belts of shrubs and trees across the slope. Perennial pasture between the alleys increases landscape water use.



Perennial Cropping Systems

Perennials can also be introduced into winter cropping systems.

Phase farming involves the use of perennial plants (eg: Lucerne) for a number of years within a cropping rotation. Lucerne can use all the water stored in the soil profile and minimise recharge to groundwater in comparison to annual crop species.



Alley farming and intercropping are also options for cropping situations.

Farm Forestry

Farm forestry is an option in all parts of the landscape, and can improve the economics of including trees in grazing paddocks.

Products may be traditional ones such as sawlogs, pulp and firewood.

Potential products are currently under investigation, including Eucalyptus oil, tannin, gourmet wattle seeds, pharmaceuticals, and other high value products.



*Text by Catherine Allan, Ian Gamble and the North East Salinity Technical Group
Photographs by Catherine Allan, Philippa Noble, Peter Ockenden and NECMA
Water balance information and diagrams from Sinclair Knight Merz, Bendigo*

For further information contact

Peter Ockenden
DNRE WANGARATTA
Phone 03 5720 1750

Ian Gamble
DNRE WANGARATTA
Phone 03 5720 1750

Kylie Roberts
DNRE WODONGA
Phone 02 6055 6111

Denis Martin
Ovens Landcare Network
Phone 03 5728 2191

Website: www.nre.vic.gov.au

Disclaimer: This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.



NESSI - North East
Salinity Strategy
Implementation

