

## Perennial pastures for WA

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### Abstract

'Perennial pastures for WA' is a comprehensive, user friendly publication with a target audience of producers, farm advisers, agribusiness and students. The editorial team has brought in more than 20 leading pasture agronomists and scientists from related disciplines.

The publication covers all of the perennial pasture options for WA: herbaceous perennial legumes, temperate grasses, sub-tropical grasses, herbs, fodder shrubs and saltland pastures. It includes species which are commercially available and those which are currently under development. The comprehensive species descriptions cover their main features, current and potential use in WA, morphological description with colour photos, seasonal growth pattern, establishment, soil and climate requirements, management and variety details.

The first two chapters cover both benefits and potential negative effects of perennial pastures, the economics of perennial pastures, grazing management, animal requirements, animal disorders and the potential of perennial plants acting as a green bridge for crop diseases and insect pests. A perennial zones map has been developed to provide a spatial framework for showing where the various perennial pasture species can be successfully grown. The map is based on a range of climatic and soil-landscape factors which affect the performance of perennial pastures.

Chapters 3 to 9 cover the perennial pasture options; herbaceous perennial legumes; temperate perennial grasses; sub-tropical grasses, herbs; native pastures; fodder shrubs and saltland pastures respectively.

### Key words

establishment, grazing, lucerne, sub-tropical grasses, saltbush, tagasaste,

### Introduction

There is a strong and growing interest in perennial pastures due to realisation that farming systems based solely on annual crops and pastures are not sustainable in many regions of south-western Australia. Environmental and management issues facing agriculture include: rising groundwater and the spread of salinity; herbicide resistant weeds; soil acidity and; wind erosion. Perennial pastures offer a sustainable and profitable alternative in many areas.

Potential production benefits from perennial species include: out-of-season green feed; increased carrying capacity due to improved seasonal distribution of feed and pasture use; ability to reduce or replace supplementary feeding in autumn; ability to increase production from land with a low carrying capacity; ability to turn-off animals at target live weights all year round; reduced wool faults and maintenance of wool fibre diameter and staple strength; reduced fodder conservation and opportunity to defer grazing on annual pasture paddocks after the break of the season.

Resource management benefits include: increased water use and reduced deep drainage to groundwater; maintenance of plant cover in summer to reduce wind erosion, increased perennial cover for waterways and reduced soil acidification.

The impetus for the increased interest in perennial pastures in WA has largely come from innovative farmers and farmer groups such as Evergreen Farming, the WA Saltland Pastures Association, the Western Australian Lucerne Growers and regional grower groups. These groups have played a major role in the promotion and the widespread, on-farm testing of perennial pastures. Initially it was dynamic individuals largely from within these groups who demonstrated the emerging potential of perennial pastures. It is now moving to the next stage where strong partnerships are evolving between farmers, grower groups and extension and scientific staff.

A new resource, 'Perennial pastures for WA' a Department of Agriculture and Food Western Australia Bulletin brings together the agronomic and management information on perennial pastures for WA. It will help to empower farmers and their advisers with the information they require to integrate perennial pastures into farming systems with confidence. The book is an output from a joint project between the Department of Agriculture and Food WA and the CRC for Plant-based Management of Dryland Salinity with funding from GRDC.

## Discussion

'Perennial pastures for WA' is a comprehensive, user friendly publication with a target audience of producers, farm advisers, agribusiness and students. The editorial team has brought in more than 20 leading pasture agronomists and scientists from related disciplines to contribute to this publication. It includes a comprehensive reference list.

There are nine chapters in Perennial pastures for WA. The first two chapters cover both the benefits and potential negative effects of perennial pastures, the economics of perennial pastures (F. ?Flugge), grazing management (P. ?Sanford), animal production from extensive grazing systems (H. ?Norman and D. ?Masters), animal toxicity (J. ?Allen), internal parasites of animals (B. ?Besier) and the plant disease implications (R. ?Jones and D. ?Wright).

The section on integrating perennial pastures into a farming system outlines some principles that underlie the value and role of perennial pastures in a farming system and uses two case studies as illustrations. A few key points from the case studies are that:

- Lucerne improved farm profitability under all the scenarios examined, however under some scenarios (e.g. a wool-only flock with May lambing) the small increase in profit is unlikely to warrant the time and risk of establishing lucerne.
- The value and optimal area of lucerne increases as the production focus shifts towards meat production.
- There is a range where profit is relatively insensitive to the area of lucerne, which means other objectives (e.g. water management) can be taken into account with little or no penalty.
- A mix of perennial pastures types provides a range of feed availabilities due to their different seasonal growth patterns and results in the optimal area under perennial pastures greatly increasing.

In chapter 1 there is a summary of the perennial pasture options for each region. A perennial zones map has been developed to provide a spatial framework for showing where the various perennial pasture species can be successfully grown. The zones are based on a range of climatic and soil-landscape factors which affect the persistence and productivity of perennial pastures.

The publication covers all of the perennial pasture options for WA, including both species which are currently available and those which are under development. The perennial pasture options are described in chapters 3 to 9 which cover herbaceous perennial legumes; temperate perennial grasses; sub-tropical grasses, herbs; native pastures; fodder shrubs and saltland pastures respectively.

For example, chapter 3 on herbaceous perennial legumes covers: *Lotus corniculatus*, *L. uliginosus* and *L. ?glaber* (G. ?Sandral, D. ?Real and J. ?Warden); *Lotononis bainesii* (D. ?Real and R. ?Yates); *Medicago sativa* (Lucerne Group DAFWA); *Macroptilium atropurpureum* (D. ?Real and G. ?Moore); *Trifolium fragiferum*, *T. ?repens* (K. ?Davies); *Hedysarum coronarium* (K. ?Foster); and other perennial legumes

(G. Moore). There is a comprehensive coverage of lucerne (*Medicago sativa*) which is by far the most important herbaceous perennial legume option in WA in terms of both current and potential area.

Overall, there are more than 45 perennial species described in detail. The species descriptions cover: the main features, current and potential use in WA, morphological description with colour photos, seasonal growth pattern, soil and climate adaptation, nutritive value, establishment, livestock disorders, management, companion species and cultivars. There are also cautionary notes on where not to grow species that have the potential to become environmental weeds, if grown in the wrong place.