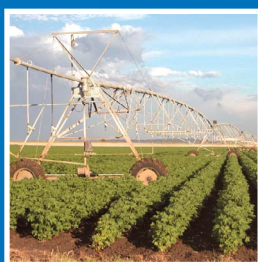
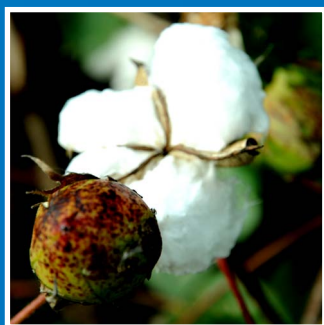


WATERpak

*a guide for
irrigation
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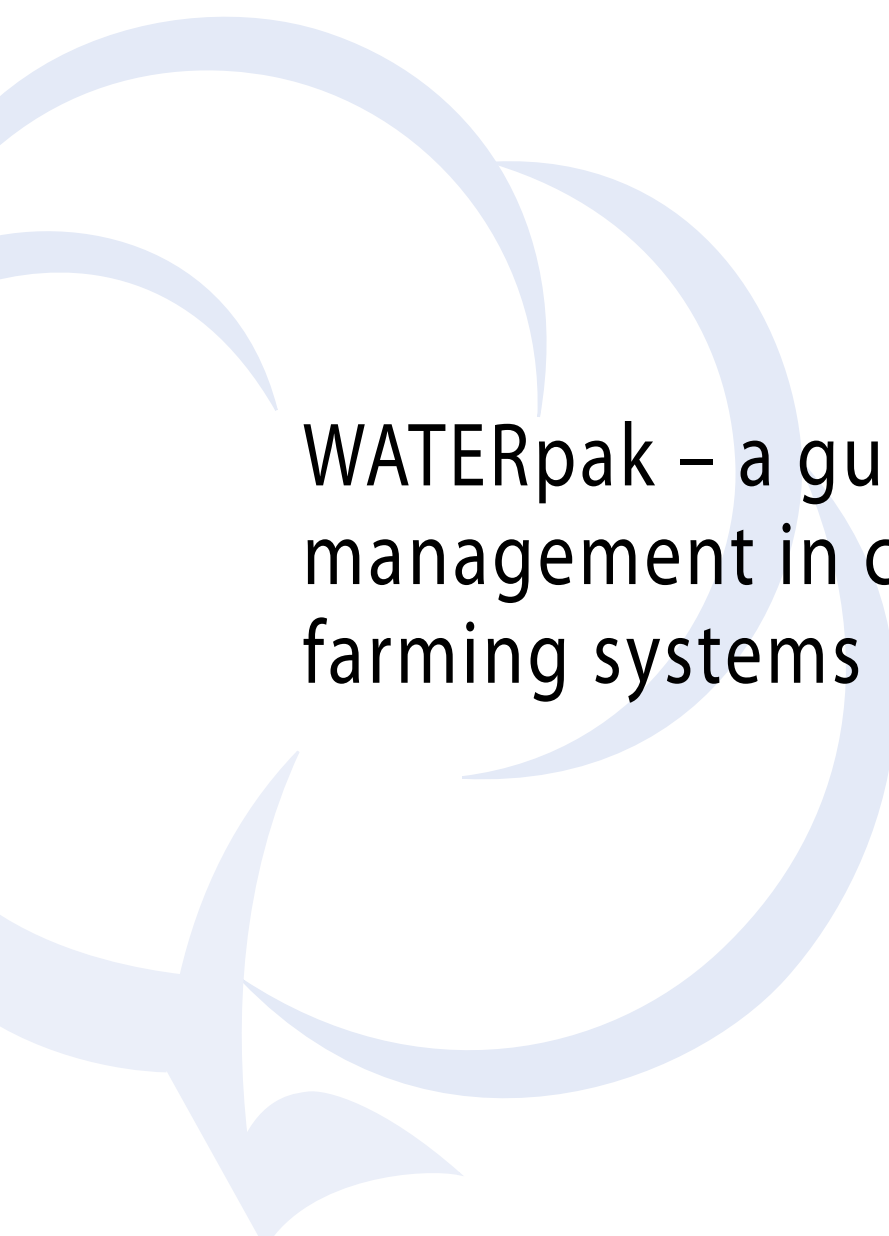


Australian Government
Cotton Research and
Development Corporation

Brought to you by
**The Australian Cotton Industry
Development & Delivery Team**

Best Practice





WATERpak – a guide for irrigation management in cotton and grain farming systems



Australian Government

**Cotton Research and
Development Corporation**

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Edited by Helen Dugdale, Graham Harris, James Neilsen, Dirk Richards, David Wigginton and David Williams for the Cotton Research and Development Corporation.

Second edition edited by Peter Smith and Elizabeth Madden, NSW DPI.

Third Edition edited by David Wigginton, DW Consulting Services

ISBN 1 921025 16 6

First edition: August 2004

Second edition: April 2008

Third edition: December 2012

Please contact the Cotton Research & Development Corporation with any feedback that can be incorporated in the next edition.

Disclaimer and warnings

The information in this publication is designed as an information source to improve the sustainable use of water on irrigation farms in eastern Australia growing cotton and grains.

The information has been prepared from research studies and grower trials with specialist input from researchers, extension staff and irrigators. While these authors provide comprehensive coverage of on-farm water-related issues, they do not purport to address every eventuality that may arise on irrigation farms.

The Cotton Research and Development Corporation, the Australian Cotton Cooperative Research Centre and the Cotton Catchment Communities CRC (or their participants), the Grains Research and Development corporation, the National Program for Sustainable irrigation, the CRC for Irrigation Futures and the topic authors (or their organisations) accept no responsibility or liability for any loss or damage caused by reliance on the information, management approaches or recommendations in this publication. Users of information contained in this publication must form their own judgements about appropriateness to local conditions. New research information, industry experiences, unpredictable weather and variations between individual growers and farms may have an impact on the crop and farm response to management.

Users are warned that, by law, the implementation of some of the management approaches and recommendations in this publication require prior authorisation from government and environmental agencies. Any appropriate government and environmental authorisations from the relevant state or territory agencies must be obtained before implementing a management approach or recommendation in the manual. If the user is uncertain about what authorisations are required, he/she should consult the relevant government department or legal adviser.

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Design & layout: Belinda Gersbach and Barry Jensen for NSW Department of Primary Industries

Cover design: CRDC

Illustrations: Belinda Gersbach and topic authors

Photography: Topic authors

Cover photograph: Graham Harris and SKW Photography



Foreword

The 2013 edition of WaterPAK is a compilation of the latest best practice management information for water management on Australian cotton farms.

Water is the major limiting factor for cotton production in Australia and efficient water management is paramount for cotton growers to achieve high yields and profits in a sustainable way. Making good water management decisions is no simple task for growers who operate in a complex environment of unpredictable climate, variable soil type and evolving water policy.

In the face of these challenges the cotton industry has improved its efficiency of turning water into bales of cotton by 40 per cent over the last 10 years and growers are equally ambitious for future improvements. This edition of WATERpak provides growers and consultants with the best available information from research to assist them make further improvements in water use efficiency and water management more broadly. WATERpak is a supporting information resource for the cotton industry's Best Management Practice program myBMP.

CRDC and the industry have long recognised the connection between more efficient water use and improvements in environmental outcomes on farms. New goals for both are guiding cotton industry investment in research and development concerning water and water use. These goals will be facilitated through the turning of knowledge into practise on every farm where growers reap the value every season from improvements to system design and management, the selection and adoption of new technologies, a management focus on the water needs of cotton plants and a better understanding of how to respond to a variable climate.

Keeping step with research, included in this edition are new chapters looking at tools and information for decision making, irrigation system selection, storages and channels, pumps, fertigation, and management decisions in limited water use situations as well as a new section dedicated to irrigation management of grain crops.

WATERpak has now been designed to be read electronically on tablets and notebooks, with links to other on-line information sources so further information can be readily accessed. As new research comes to hand, this is further developed by the Cotton Industry Development and Delivery Program and its team of specialists. WATERpak will be regularly updated and distributed electronically to growers and their advisors.

Like its predecessor, this publication of WATERpak demonstrates that the Australian cotton industry is taking its responsibility for wisely managing the use of water resources seriously. Equally it demonstrates the capacity of our world leading industry researchers, development and delivery personnel. Well done.

Bruce Finney

Executive Director, CRDC

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About this publication

Water is the major limiting factor of cotton and grain production in Australia and efficient water management is paramount for cotton and grain growers to achieve high yields and profits. An unpredictable climate coupled with a range of soil types forces farmers to make management decisions in a complex and variable environment.

The challenge for irrigators is to find the balance between the higher costs of improved water use efficiency and environmental stewardship and the maintenance of farm profits.

WATERpak provides technical information and practical advice to help irrigators improve irrigation practices, minimise environmental impacts and increase farm profits from irrigated cotton crops.

For the first time, WATERpak brings together in one place the many years of irrigation research conducted by a variety of organisations in the Australian cotton and grains industries.

The easiest gains to improve farm water use efficiency are within the field: minimisation of tailwater losses, drainage and the potential improvement in yield through the reduction of waterlogging effects. Put simplistically, by 'applying the right amount of water at the right time in the right place'.

Harder to achieve but very significant in terms of water use efficiency, gains exist in the control of evaporative and seepage losses from storages and channels. This is where most water is lost on broadacre irrigation farms and it is essential that researchers and growers combine forces to address evaporation, seepage and drainage losses.

This third edition of WATERpak brings together best practice for irrigation management in the cotton and grains industries, whether as part of an integrated farming system or as separate enterprises.

WATERpak and myBMP

The Cotton Industry's myBMP Program prioritises issues for attention, provides a process of identifying the potential management risks and provides action plans to help manage those risks and improve farm performance.

WATERpak provides detailed technical and practical advice that supports the practices covered in the water module of myBMP. Individual myBMP practices provide links directly to the relevant WATERpak resources and a more detailed explanation of these links is included in WATERpak Chapter 1.1.

Another companion resource is *SOILpak for cotton growers*, generally referred to simply as SOILpak in this publication.



Acknowledgements

Thanks to the WATERpak update committee that worked on the third edition in 2012:

David Wigginton, DW Consulting Services

Rose Brodrick, CSIRO

Graham Harris, DAFF Queensland

Mike Bange, CSIRO

Janelle Montgomery, NSW DPI

Rod Jackson, NSW DPI

Jim Wark, Cotton Australia

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Jane Trindall, CRDC

Thanks to the original WATERpak committee:

Helen Dugdale, Cotton Research and Development Corporation

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James Neilsen, CSIRO Plant Industry

Dirk Richards, CSIRO Plant Industry

Guy Roth, Australian Cotton CRC

David Wigginton, formerly of Queensland Department of Primary Industries and Fisheries

David Williams, NSW Department of Primary Industries

Thanks too for the other contributors to this publication:

All topic authors for their input and expertise.

The partners of the Australian Cotton CRC, specifically, the Cotton Research and Development Corporation for funding its compilation and printing.

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