Case study

Transforming the cotton industry for competitive results

Australia has the highest cotton yields in the world, exporting $2.7 billion of cotton each year. We've contributed to this success through plant breeding and improvements in crop, pest and post-harvest management.

The challenge

Cotton crops face regular threats

The cotton industry is one of Australia's most significant contributors to the agricultural sector, with exports in 2012–13 worth $2.7 billion. Australia is one of the world's top four cotton exporters, competing in a heavily subsidised international market. Cotton crops are regularly threatened by weather extremes, disease, and can be devastated by insect pests. To remain competitive and thrive, Australian cotton farmers need higher yields and lower production costs.

Our response

A breed for every challenge

Our research has been vital to a profitable cotton industry. Our expertise in plant breeding, biotechnology, farming systems, assessments for disease resistance and post-harvest processing aims to optimise yield and quality.

For example, we introduced insect resistant traits, developed by Monsanto, into our cotton varieties bred especially for Australian conditions, revolutionising disease and pest resistance, yield and fibre quality. The result was top quality cotton that is highly sought after in the global market.

The results

A sustainable, profitable cotton industry

The engagement

CSIRO works collaboratively and co-invests with the cotton industry and its peak bodies. Cotton Breeding Australia is a joint venture between CSIRO and Cotton Seed Distributors which funds research and markets CSIRO cotton varieties globally.

For every dollar CSIRO invests in breeding research, there is an $80 benefit to industry.

Agreements with CSIRO with global agricultural biotechnology companies, such as Monsanto and Bayer, ensure Australian farmers have access to valuable new traits delivered through CSIRO varieties. It is highly likely that today's Australian cotton industry would not have existed without this combination of investment, expertise, collaboration and widespread deployment of new cotton varieties.

The impact

Today, all Australian cotton, half the dryland cotton in the United States and about one-third of the cotton in Brazil, Turkey and Greece, benefits from CSIRO-bred varieties.

Australia's cotton growing productivity, measured by kilograms of lint yield per hectare, is now the world's highest. Economic assessments[1] of CSIRO's cotton breeding program show an estimated 80:1 return on investment and more than $5 billion[2] net present value from increased yield and regional adaptation in Australia. Benefits of over $379.5 million over the next decade are expected, through further increases in yield productivity.

CSIRO's cotton varieties improve environmental sustainability and profitability, through increased water efficiency and reduced use of insecticidal sprays.

Australian cotton farming is the most water efficient in the world.

Widespread adoption of CSIRO varieties in Australian reduced insecticide use by 85 per cent and cut herbicide use by 52 per cent, improving soil health and reducing waterway contamination.

Download **Transforming the cotton industry for competitive results impact case study [pdf · 1mb]**.

1. ACIL Allen Consulting, 2014. *CSIRO's Impact and Value – An Independent Assessment.*
2. CIE, 2002, *Cotton breeding & decision support: A benefit-cost analysis of CSIRO's research programs.*

Find out more

Cotton research

Interactive map of CSIRO projects around the world