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Department of Agriculture, Fisheries and Forestry
Submitted online

Agriculture and Land Sectoral Plan

Introduction

Cotton Australia is the peak body representing Australia's 1,500 cotton growers and the ginning businesses who process the harvested lint. Notably, 90% of cotton operations are family farms that also grow other crops like sorghum, soybeans, wheat, and they have livestock.

While the industry's production varies enormously due to seasonal conditions, annual farm gate production of cotton lint and cotton seed can exceed \$4 billion. In addition, the industry estimates that at least 10,000 Australian's rely directly on the cotton industry for employment¹, with many more indirect jobs servicing the industry.

Australian cotton growers have been quietly and collaboratively working to improve their sustainability performance for decades. In 1991 cotton became the first Australian agricultural industry to benchmark its environmental performance, and more recently we have been working towards developing sustainability targets.

The result is **PLANET. PEOPLE. Paddock.** the Australian cotton industry's sustainability framework. Aligned with 11 of the 17 United Nations Sustainable Development Goals² the framework is targeted at on-farm cotton production and has nine indicators:

¹ <https://www.ibisworld.com/au/industry/cotton-growing/30/#IndustryStatisticsAndTrends>

² <https://cottonaustralia.com.au/assets/general/Publications/Sustainability-Reports/Australian-Cotton-and-the-Sustainable-Development-Goals.pdf>

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PLANET:

Water, Greenhouse Gases³, Biodiversity⁴ (native vegetation), Soil Health⁵, Pesticides

PEOPLE:

Workplace and Working Conditions, Wellbeing

PADDOCK:

Productivity, Profitability

Our industry's first sustainability report in 2014, set in train a five-year cycle of detailed reports with annual progress snapshots⁶. These reports along with the supporting data pack can be viewed at:
<https://cottonaustralia.com.au/sustainability-reports>

Cotton Australia is an active member of the National Farmers Federation, and Queensland Farmers Federation, and endorses the submissions made by these organisations, as well as that submitted by our industry's research and development entity, Cotton Research & Development Corporation. Our submission is therefore brief, focusing on questions in two sections of the discussion paper:

3.42. Opportunities to reduce emissions

Question 6 - What are the practical solutions to increase uptake?

5.3.5 Supporting and enabling change

8) How can the Australian Government better support agriculture and the land sectors to:

- a) drive innovation,
- b) build capacity,
- c) ensure the system enables emissions reduction?

Key Issues

3.42. OPPORTUNITIES TO REDUCE EMISSIONS

Question 6 - What are the practical solutions to increase uptake?

Irrigation plays a critical role in our production, with many irrigators selecting cotton as their crop of choice because of its relatively high return per megalitre, and because it is an annual crop it can adjust readily to varying levels of available water.

As an industry we are very proud of our record in water use efficiency. Today we use 52% less water to grow a bale of cotton than we did in 1997.⁷

The use of powered irrigation systems and pumps has created a water and energy nexus influenced by input costs, crop yield and also greenhouse gases, be that emissions from the source of energy or fertiliser used. Faced with unsustainable electricity costs Cotton Australia partnered with The Queensland Farmers' Federation, Reaqua and Constructive Energy to consider whether microgrids could offer benefits to agricultural electricity consumers as well as networks.

³ https://cottonaustralia.com.au/assets/general/Publications/Sustainability-Reports/Background_Greenhouse-gases.pdf

⁴ https://cottonaustralia.com.au/assets/general/Publications/Sustainability-Reports/Background_Biodiversity.pdf

⁵ https://cottonaustralia.com.au/assets/general/Publications/Sustainability-Reports/Background_Soil-Health.pdf

⁶ https://cottonaustralia.com.au/assets/general/Documents/Summary-Sustainability-Update_WEB.pdf

⁷ For more details about *Less Drops per Crop* see https://cottonaustralia.com.au/assets/general/Publications/Sustainability-Reports/Background_water.pdf

Securing an Australian Government grant via the Regional and Remote Communities Reliability Fund Microgrids Program enabled the creation of four demonstration virtual microgrids in New South Wales and Queensland. These consisted of more than 60 real-time electricity meters that were monitored on a single dashboard to determine feasibility of actual microgrids.

Four case studies were conducted to test the concept in different scenarios:

- Archetype 1: Single Enterprise, Pokolbin NSW, winery
- Archetype 2: Edge of Grid, St George QLD, cotton farm
- Archetype 3: Large Microgrid, Mackay QLD, cane farmer cluster
- Archetype 4: Anchor/Hybrid, Wee Waa NSW, mixed commodity farm

“The flow on benefits of microgrids for irrigated agriculture” did indeed find that microgrids can offer benefits to electricity consumers and networks, such as more stable network energy flows, increased network utilisation, as well as providing low carbon energy within a geographical boundary. The project also found considerable under utilisation of substations at each case study location, demonstrating the opportunity agriculture microgrids can present to regional grids if appropriately integrated into network revenue models and strategic planning.

However, a systemic barrier to wider adoption remains, the National Energy Law rules are yet to catch up to the existence of distributed energy systems. In the absence of being able to receive income from exporting energy to the local community, an additional barrier is cost, be that the microgrid and/or in combination with a battery.

More details about this feasibility study are available from the Queensland Farmers’ Federation website (<https://www.qff.org.au/projects/microgrids/>) and the final report can be obtained from the Grant Administrator care of the Department of Industry Science and Resources.⁸

5.3.5 SUPPORTING AND ENABLING CHANGE

- 8) How can the Australian Government better support agriculture and the land sectors to:
- a) drive innovation,
 - b) build capacity,
 - c) ensure the system enables emissions reduction?

Cotton Australia offers the following observations in response to Question 8 and Section 3.2’s (cropping and horticulture) discussion of fertiliser emissions and good soils management practices.

For over 20 years the Australian cotton industry has operated a voluntary cotton Best Management Practices production certification standard - myBMP. It is a comprehensive farm and environmental management system designed to improve all aspects of on-farm cotton production. It includes modules on soil health, energy and chemical management encouraging practices such as precision agriculture and soil testing.

The program includes online self-assessment mechanisms and practical tools plus auditing processes to ensure that Australian cotton is produced according to best practice. Importantly myBMP is aligned with internationally recognised quality assurance programs and marketing initiatives for sustainable cotton production.

Over time myBMP has been updated to reflect the research findings of the Cotton Research and Development Corporation. This research in combination with the industry grower extension service “CottonInfo” has driven on-farm practice change.

⁸ See <https://business.gov.au/grants-and-programs/regional-and-remote-communities-reliability-fund-microgrids>

However, nitrogen and carbon cycling are essential for plant growth and development, and crop productivity. This means that there are relatively few low carbon pathway options available at farm level in comparison to the gains that can be made by initiatives from a broader industry level.

It is for that reason Cotton Australia gives in-principle support to the following recommendations made in Fertilizer Australia's "Nitrogen Fertiliser Use and Greenhouse Gases - An Australian Assessment: Challenges and Opportunities" white paper. (Fertilizer Australia commissioned a White Paper about the nitrogen use in Australia, to "provide an understanding of N losses in the Australian context, focussing on GHG emissions, and provide some recommendations on future policy options that could be considered."⁹)

- Consider policies encouraging the widespread use of nitrification inhibitors to improve NUE [nutrient use efficiency] and reduce N₂O emissions.
- Formally assess the effectiveness and risks of N inhibitors and slow-release technologies.
- Encourage greater adoption of objective tools like soil and plant testing, which follows Fertcare® stewardship principles, to guide fertiliser use.
- Encourage greater adoption of precision agriculture tools that assist in spatially and temporally targeting inputs where and when they are most needed.
- Incentivise the Australian manufacture of N fertilisers with a low carbon footprint and N inhibitors.
- Engagement of industry bodies, research organisations and state and federal governments in sharing of data on inputs, NUE and N₂O emissions.
- Avoidance of free market disruption with taxes, levies or quotas on N fertilisers.

Conclusion

Cotton Australia appreciates the opportunity to make this submission and would be delighted to discuss any matters raised. You can contact Michael Murray, General Manager, Cotton Australia – 0427 707868 or michaelm@cotton.org.au.

Yours sincerely



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⁹ The paper was authored by: Robert Norton, Norton Agronomic P/L, & School of Agriculture, Food and Ecosystem Sciences, The University of Melbourne; Cameron Gourley, Soil Water and Nutrients Consulting, & School of Agriculture and Food Sciences, The University of Queensland; and Peter Grace, School of Biology and Environmental Science, Queensland University of Technology. Its recommendations were developed in collaboration with Fertilizer Australia's Program Manager, Jeff Kraak, with input from its members.