



Expression of Interest EOI 2018-19

Part 1- General Details

		EOI ID	1819-EOI-0132	
EOI Title: (max 80 char)	Improving the nitrogen use efficiency of cotton crops through better understanding the role of dissolved organic N			
Type of Research	Fundamental			
Proposed Start Date:	01/07/2018	Proposed Cease Date:	30/06/2021	
<i>Please refer to CRDC's Strategic R&D Plan 2013-2018 for the following.</i>				
CRDC Program	1. Farmers			
CRDC Theme	1.2 Productive Resource Efficiencies			
CRDC Strategy	1.2.3 Developing new systems and tools to support farm decisionmaking processes.			
<i>Please identify the relevant Measure of Success as outlined in the CRDC Strategic R&D Plan.</i>				
CRDC Measure of Success:	Farmers are able to improve their productivity per hectare of land			
Science and Research Priorities	Resources (4) technologies to optimise yield through effective and efficient resource extraction, processing and waste management.	75 %	Soil and Water(2) better understanding of sustainable limits for productive use of soil, freshwater, river flows and water rights, terrestrial and marine ecosystems.	25 %
Rural R&D Priorities	Soil, water and managing natural resources, to manage soil health, improve water use efficiency and certainty of supply, sustainably develop new production areas and improve resilience to climate events and impacts;			
R&D Manager:	Allan Williams	EOI Date:	18 August 2017	

Part 2 –Expression of Interest Requirements

<p>Issue: On-going research into the uptake of nitrogen by cotton crops has emphasised the relatively minor contribution of fertiliser N to the total N taken up by the plant (generally in the range of 25-30%). Traditionally, it has been assumed that N is only available for uptake when in the mineral (i.e. ammonium or nitrate form); accordingly organic N has not been considered an important source of N. In light of continued results from work done in cotton that demonstrate the importance of soil mineralisation to total plant N uptake, and recent research in other areas that highlights that dissolved organic N is an important source for plants, it is important to develop a better understanding of the role of organic N in cotton farming systems, and how to potentially manage it better. This is especially as 1) assessments of N availability that focus on the nitrate pool will underestimate N availability; 2) the type and application rate of inorganic fertilisers will likely affect the organic N pool, which in turn could influence NFUE; 3) the organic N is soluble, and represents a significant proportion of leaching losses</p>
<p>Outcomes: An improved understanding of the importance of DON to plant nutrition, and (ultimately) improved NFUE Proven science supports best practice nitrogen management by cotton growers.</p>
<p>Project description: This project will establish the importance of the dissolved organic nitrogen (DON) pool for cotton. It will then seek to quantify the uptake of DON in high-yielding cotton crops, and establish the relative importance of DON compared to nitrate and ammonium for cotton crop nutrition. The effect of soil type on DON uptake will also be investigated, as would the influence of DON on NFUE. Finally, varietal differences in N uptake will be looked at.</p>
<p>Project Investment: Budget indicated is maximum available. Where the FRP only seeks to address some of the outcomes, the budget will need to reflect this. Overseas travel is not to be included in FRP budgets unless it directly relates</p>

to a project output and is an explicit milestone. Otherwise overseas travel must be made as a separate travel application.

Year	2018-19	2019-20	2020-21	
Indicative budget (up to)	\$ 150,000	\$ 180,000	\$ 180,000	

Part 3 – Selection Criteria

The following selection criteria will be used by the CRDC to assess the full research proposals (FRPs) received for each Expression of Interest.

73. A sound understanding of the nature and importance of the outcome to the Australian cotton industry:

The research applicant must address the Issue, Outcome and Project Description in terms of the CRDC Strategic Plan and demonstrate understanding of the impact on the Australian cotton industry.

74. Soundness and clarity of the proposed R&D methods to address project deliverable outcomes:

The research applicant must describe how the research methodology employed will enable the project outcomes to be delivered

75. Demonstrated capacity of the nominated researcher/s to provide project coordination, management, monitoring and evaluation for the timely delivery of high quality outputs:

The research applicant must describe the research team's project management skills and experience and may include a recent example of a completed project. They must detail the monitoring and evaluation strategy which should include any steering committees to co-ordinate collaborative research, links with CottonInfo, CGAs, Cotton Australia, etc and any additional reporting outside the 6 monthly Progress Reports.

76. Demonstrated track record, technical knowledge and experience of all key personnel in the research area:

The research applicant must describe the project research team's technical skill and experience relevant to the project and methodologies proposed.

77. A demonstrated capacity to effectively communicate project outcomes to diverse stakeholders within the Australian cotton industry:

The research applicant must describe the communication skills and existing communication channels that the research team use to communicate project outcomes to the Australian cotton industry. The new applicants to the cotton industry should provide an example of industry communication from a recent project.

78. Demonstrated ability of the project team to form productive networks and links to build on national and international research already undertaken in related areas:

The research applicant must describe existing networks that the research team use for collaboration with other researchers and an ability to develop new networks as research knowledge increases.

79. The cost effectiveness of this project including cash and in-kind commitments from the applicants and leverage through domestic or international linkages that are useful if not essential to progress the project:

The research applicant should demonstrate market value and market fairness for the proposed budget and comment on the leverage achieved through collaboration and in-kind support.

80. Project demonstrates collaboration between organisations or research groups:

The research applicant must describe the existing or proposed collaboration with other researchers, research groups or committees and the Australian cotton industry.