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## More Profit from Nitrogen (MPfN) Program NSW DPI Nitrogen Trials – 17/18 season results and future research direction

CottonInfo invites you to hear the latest results from the NSW DPI Nitrogen trials conducted at Norwood and ACRI over the 17/18 season. Details overleaf.

Have your say on future N research in the Gwydir. NSW DPI are looking for input and co-operators for Nitrogen research trials in cotton 2018/19.

**Date:** Tuesday 12th June 2018

**Time:** 1pm – 3pm (light lunch provided)

**Place:** Gwydir Valley Irrigators Assoc. Board Room, 100 Balo St Moree

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is a joint initiative of



The MPfN Program is a four year research collaboration between the industries of cotton, sugar, dairy and horticulture to increase profitable nitrogen use efficiency.

Best Practice

## More Profit from Nitrogen



### Project: "More profit from nitrogen - enhancing nutrient use efficiency in cotton"

**Project aims:** Enhancing nutrient use efficiency in irrigated cotton through irrigation and fertiliser management practice.

**Funding:** Australian Department of Agriculture and Water Resources as part of its Rural R&D for Profit program, Cotton Research and Development Corporation and NSW DPI.

**Leader:** Dr Graeme Schwenke (Senior Research Scientist, NSW DPI, Tamworth)  
*Soils, nitrogen losses, nitrogen and phosphorus fertiliser, irrigation runoff.*

**Researchers:** Mr Jon Baird (Research and Development Agronomist, NSW DPI, Narrabri)  
*Plant physiology, cotton nitrogen and irrigation interaction, farming systems*

Dr Gunasekhar Nachimuthu (Research Scientist, NSW DPI, Narrabri)  
*Soils, cotton farming systems, phosphorus, and carbon balance.*

Dr Ben Macdonald (Principal Research Scientist, CSIRO, Canberra)  
*Nitrogen losses, irrigated cotton, fertiliser, nitrogen balance*

### ACRI Trials (2017/18):

#### Research Question:

What are the relationships between soil and N (& P) supply, placement, timing and irrigation strategy?

#### Experiments (plots = 8 m x 130 m, all treatments had 3 replicates):

1. Irrigation deficit x +/-N fertiliser x +/-P fertiliser,
2. Irrigation deficit x N application timing (100:0, 70:30, 30:70, 0:100),
3. Irrigation deficit x N rate (0, 112, 292 kg N/ha),
4. Pre-plant ENTEC urea vs urea (70:30 split)
5. Pre-plant polymer-coated urea vs urea (100:0),
6. In-crop product and application method (30:70 split, 70 = 10, 20, 40% with irrigations 2, 3, 4)
  - a. Broadcast urea
  - b. Broadcast NV-urea (urease inhibitor coating)
  - c. Sidedress urea (70% prior to irrigation<sup>2</sup>)
  - d. Water-run urea
  - e. Water-run UAN
  - f. Water-run ammonia

### On-farm trials: "Norwood", Moree and "Sunningdale Park", Gunnedah (2017/18):

#### Research Question:

Can a nitrification inhibitor mixed with anhydrous ammonia during the pre-plant N fertiliser application reduce the optimum fertiliser N requirement for irrigated cotton at Moree and Gunnedah?

#### Treatments (plots = 12 m x 690 m at Moree, 12 m x 50 m at Gunnedah):

- 2 x N fertiliser products (anhydrous ammonia, anhydrous ammonia + nitrification inhibitor)
- 5 x rates of pre-plant N fertiliser (0, 75, 113, 150, 188 kg N/ha) applied in early July 2017.
- 3 x replicates of each of the above (randomised within blocks)