Assessing controlled release and deep placement N fertilizer technologies in subtropical sugarcane

Lukas Van Zwieten
Snr Principal Research Scientist
Wollongbar

Adjunct Professor, Southern Cross University

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- Josh Rust
- Scott Petty
- Ken Lisha
- Stephen Morris
- Mick Davy

Southern Cross University

- Terry Rose
- Anders Claassens

THE UNIVERSITY OF NEW SOUTH WALES

- Stephen Joseph

NEWCASTLE

- Scott Donne

Sunshine Sugar

- Rick Beattie
- Roelf Venter

NSW Farming Systems Group and Growers

- Robert Quirk
- Alan Munro
- Wayne Rodgers
- Tom Walsh
- Geoff Pye

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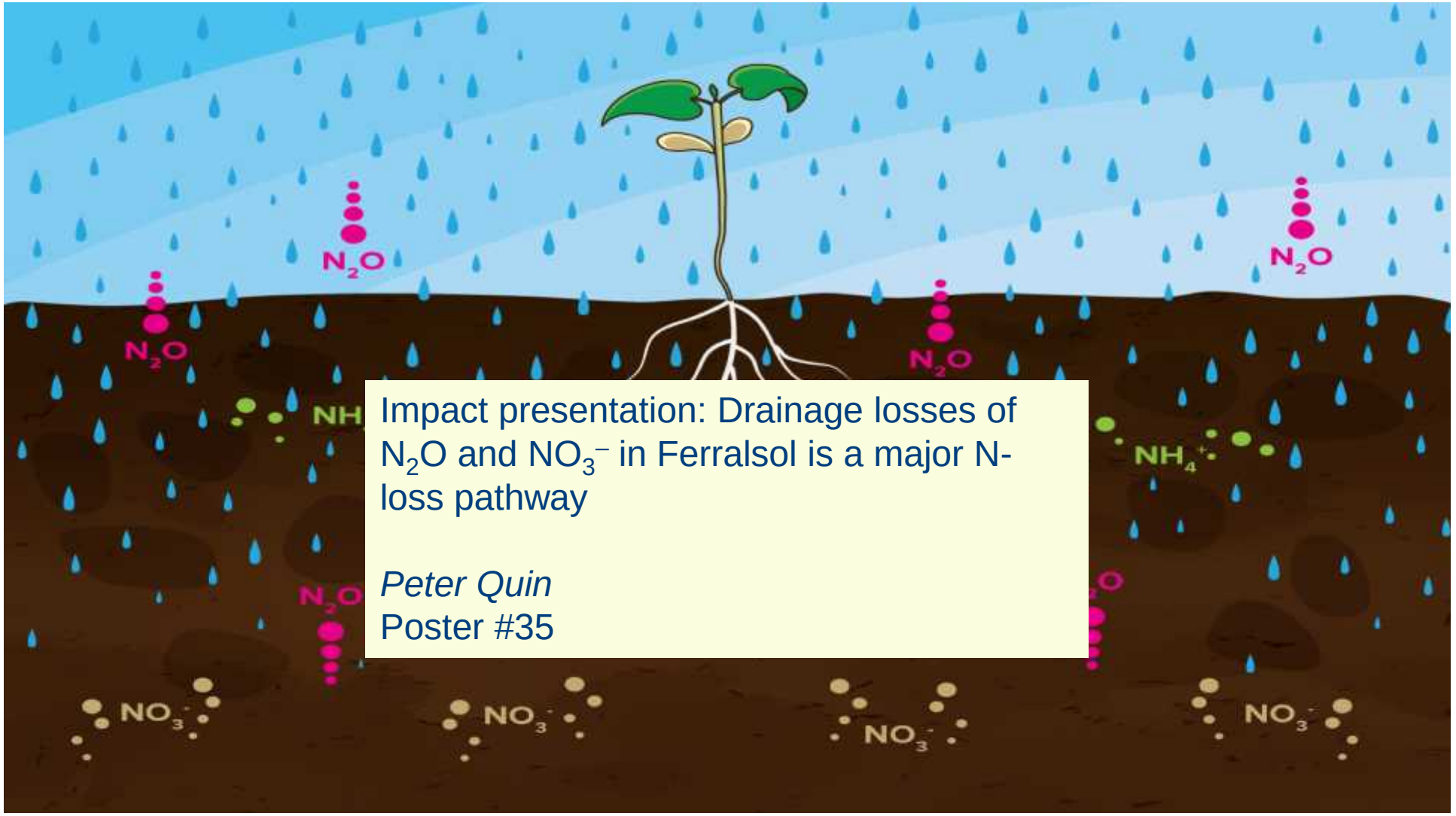
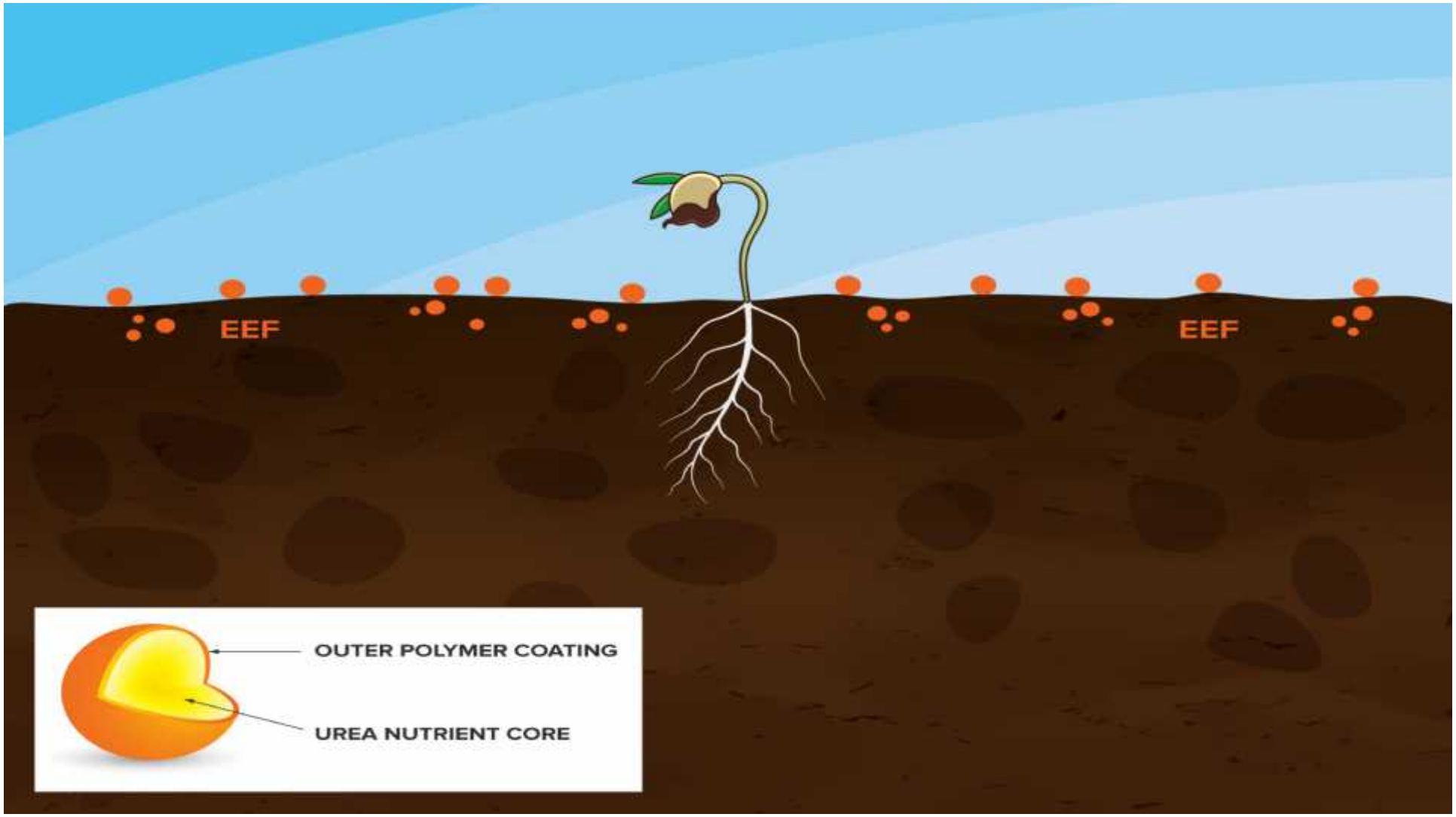
UREA
UREA

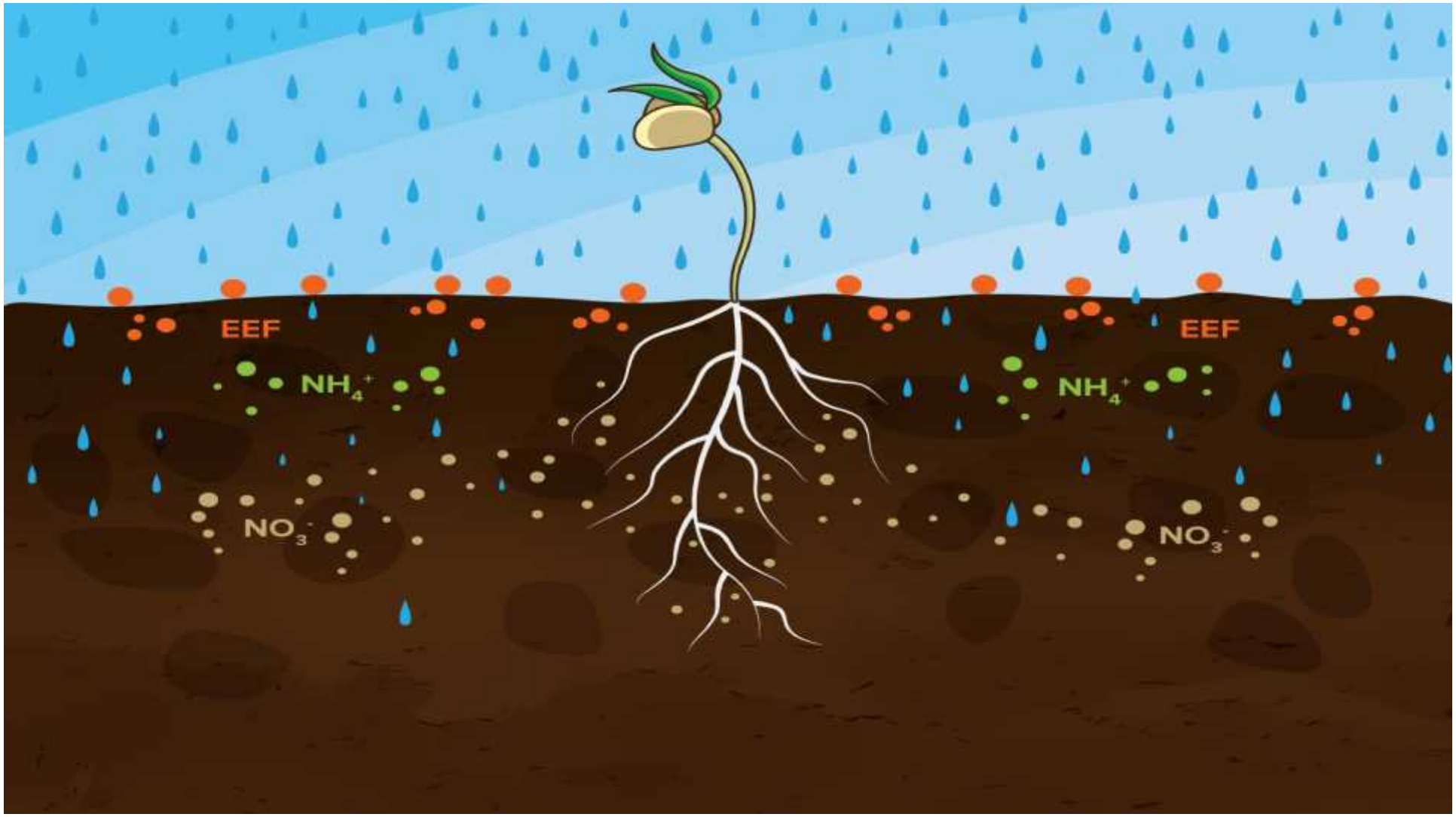

NH_4^+
NH_4^+
NH_4^+
NH_4^+
NO_3^-
NO_3^-
NO_3^-
NO_3^-

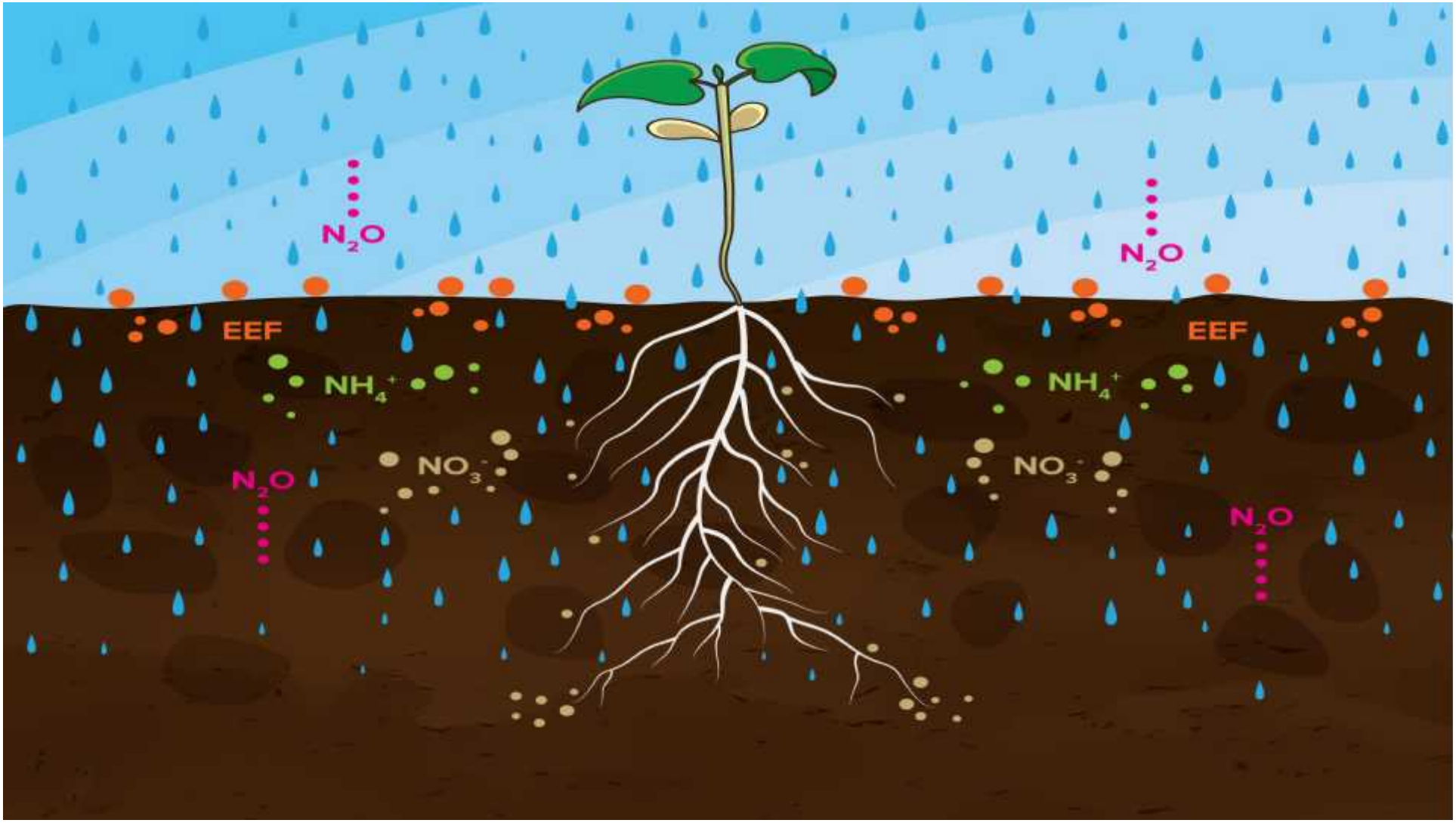


Impact presentation: Drainage losses of N_2O and NO_3^- in Ferralsol is a major N-loss pathway

Peter Quin
Poster #35


EEF
EEF
OUTER POLYMER COATING
UREA NUTRIENT CORE

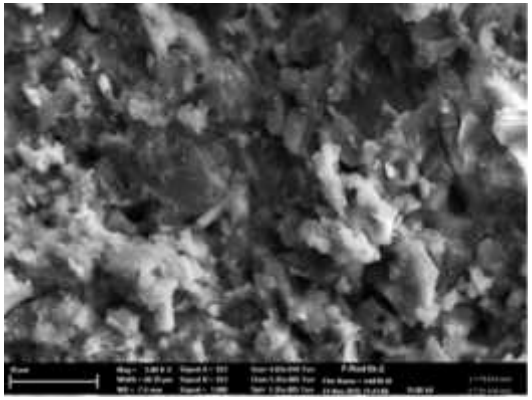

EEF
NH_4^+
NO_3^-
EEF
NH_4^+
NO_3^-


N_2O
N_2O
EEF
EEF
NH_4^+
NH_4^+
NO_3^-
NO_3^-
N_2O
N_2O

Three N-fertiliser technologies

Acknowledgement:
Charlie Walker, Incitec Pivot

Acknowledgement:
Greg Butler, SANTFA



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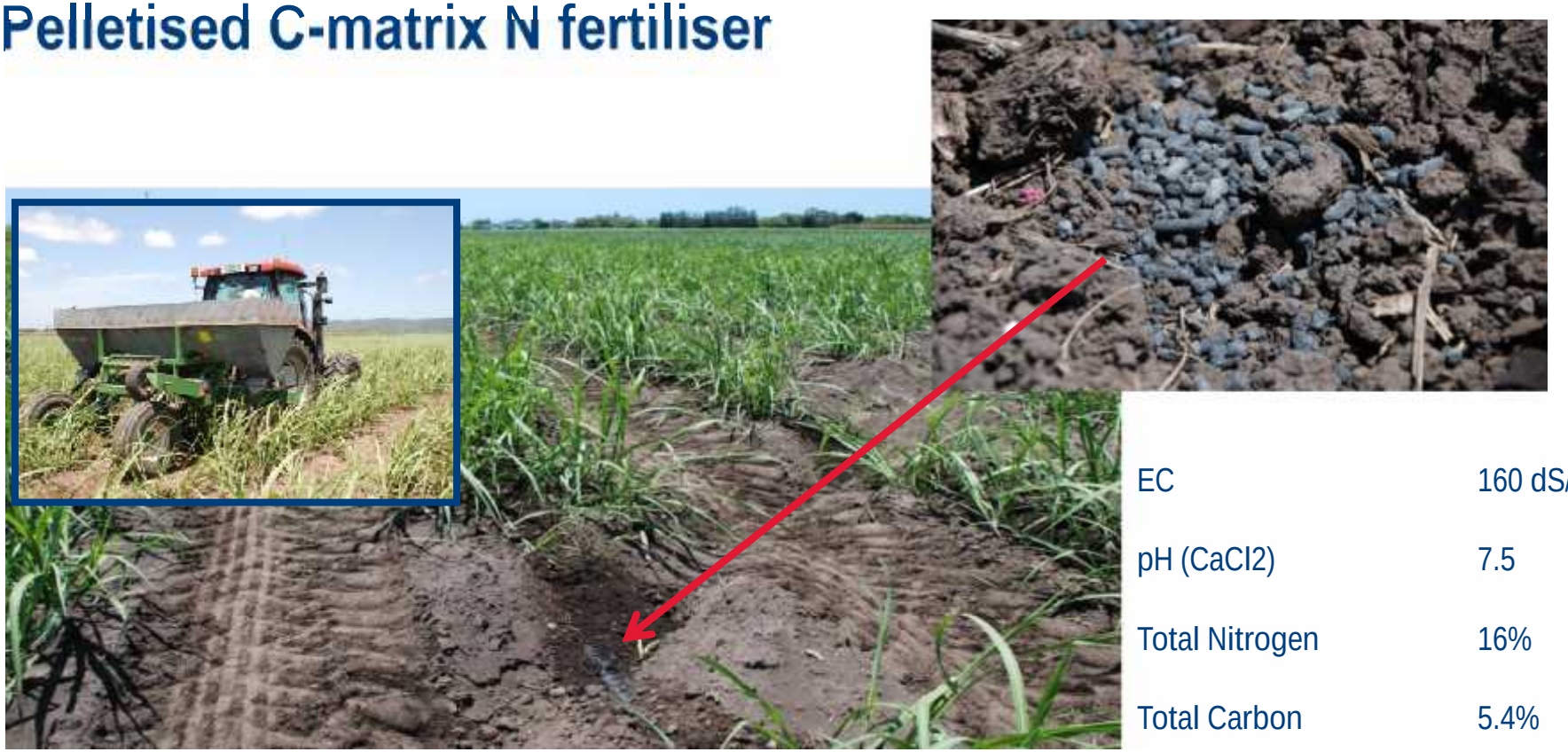
Pelletised C-matrix N fertiliser



EC	160 dS/m
pH (CaCl2)	7.5
Total Nitrogen	16%
Total Carbon	5.4%

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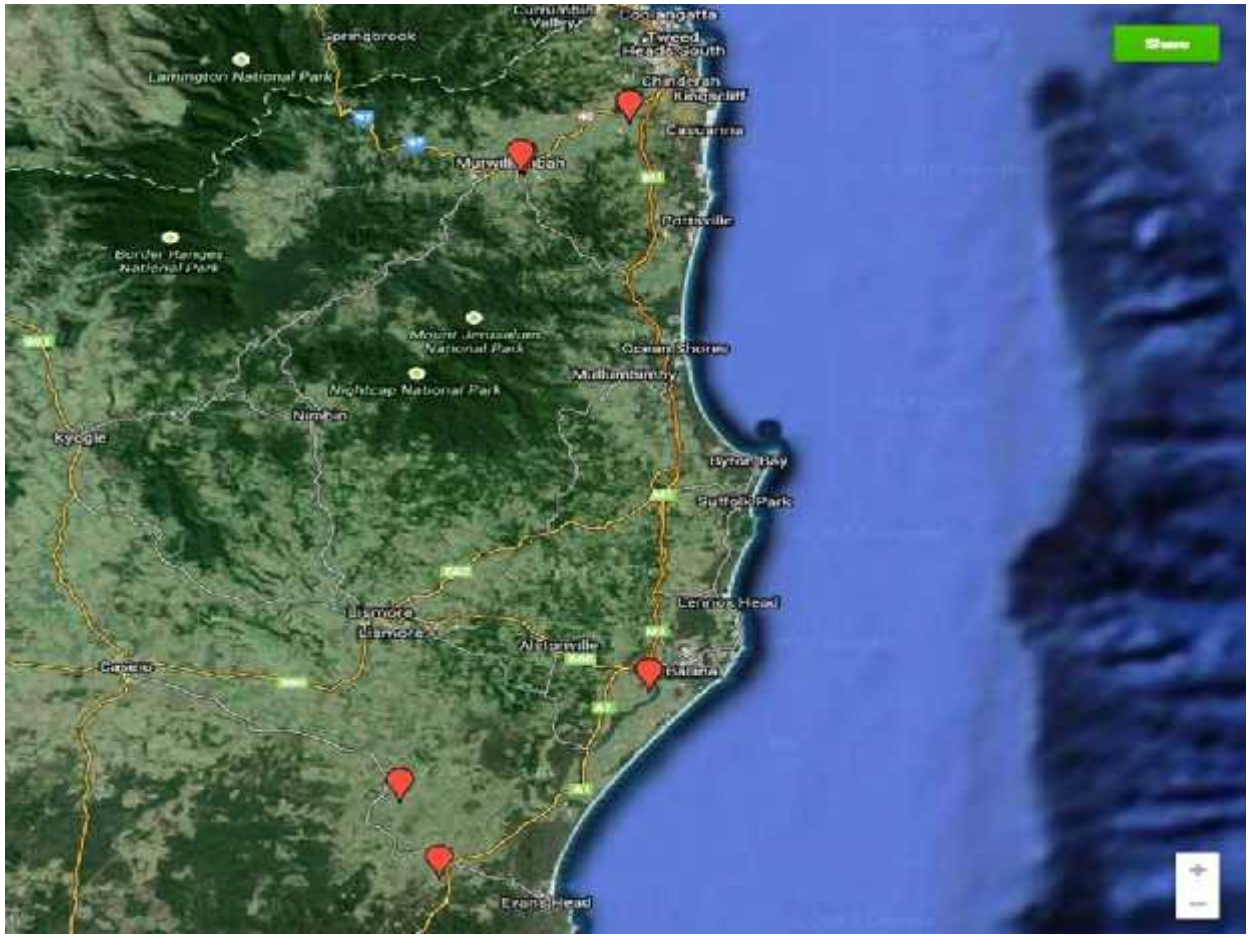
Location of the 6 field trial sites



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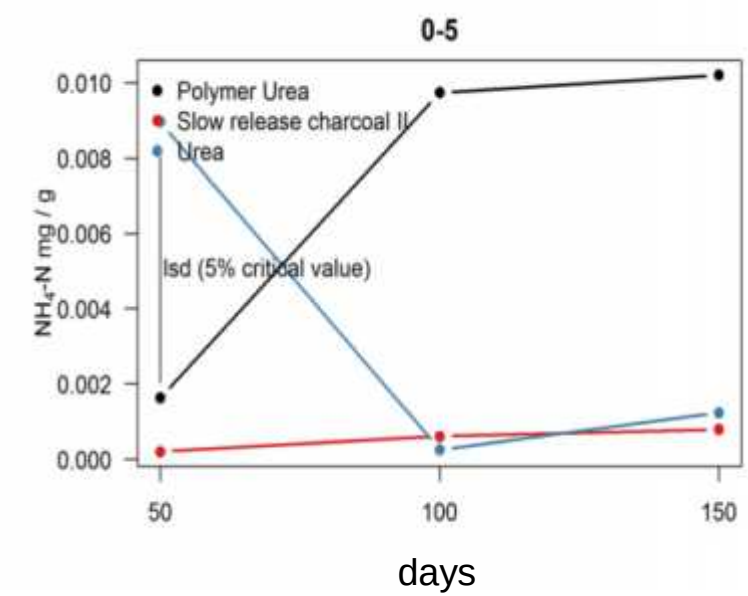
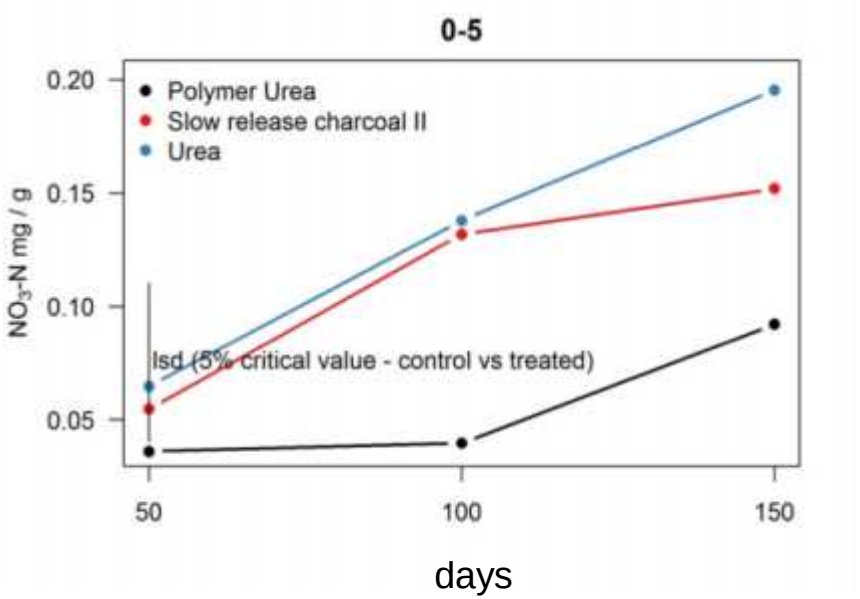
Assessing mineral N from PCU and C-matrix N fertiliser





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Harvesting a 2-year cane trial

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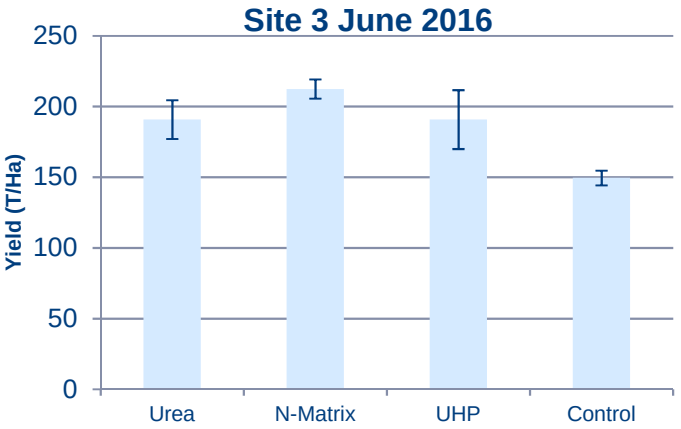
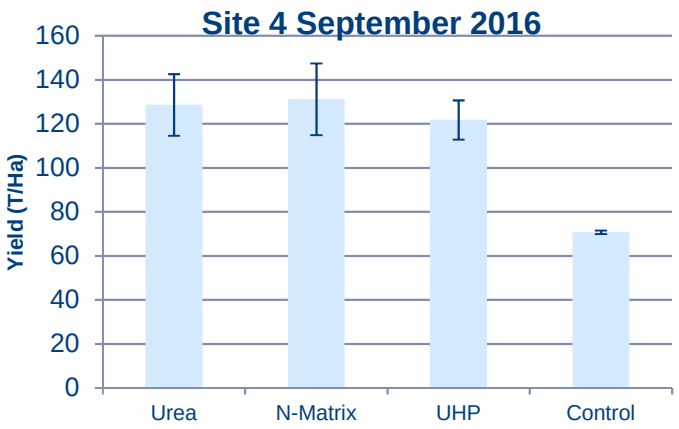
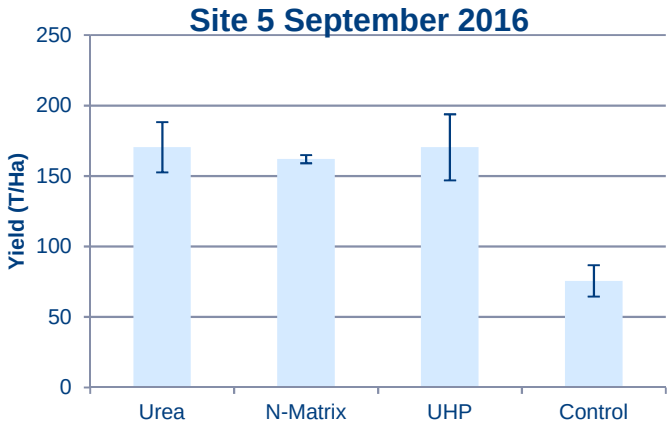
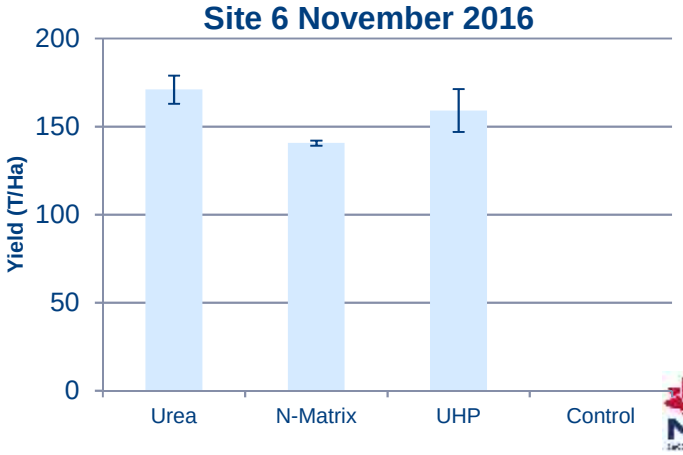
Yield from 2-year cane trials









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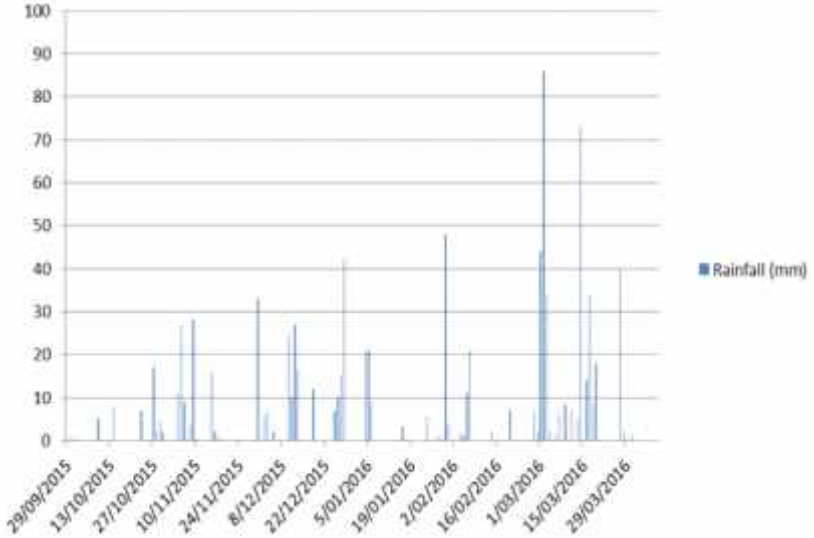
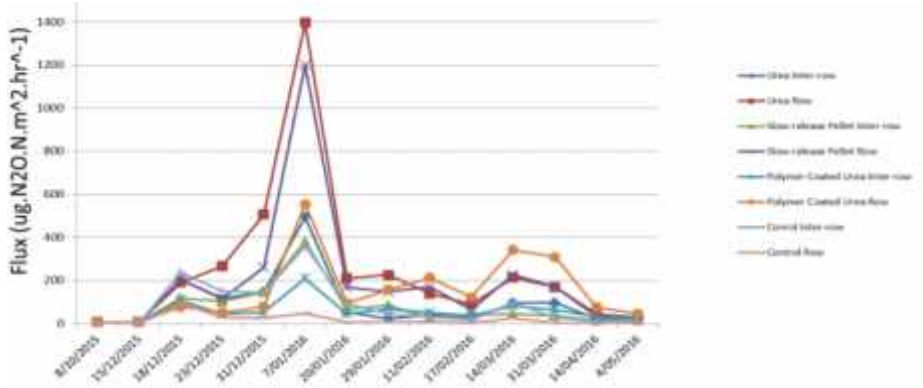
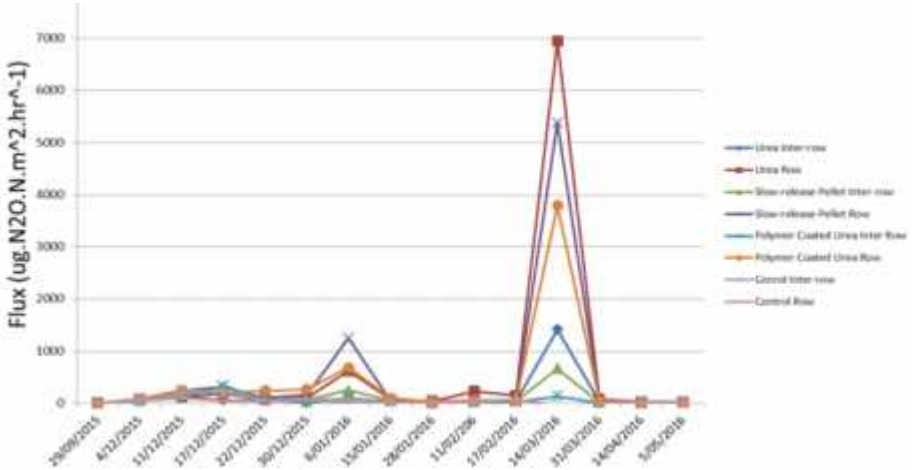
N_2O emissions







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Conclusions

- Release of mineral N is delayed with PCU and C- matrix pellets
- When N content is matched, yield of 2-year sugarcane was not different
- Need to develop N-response curves to PCU vs urea (currently underway)- benefit may be in lower N doses
- Emissions of N_2O are lowered due to restricted mineral N content during periods of heavy rain

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