

eNtrench Nitrogen Stabiliser

Nitrapyrin with nitrogen can improve yield or quality of wheat, grass pasture, canola or sugarcane in Australia. (G.S. Wells, 2016)

INI2016 Conference – **Dan Dixon**, Market Manager - Dow AgroSciences



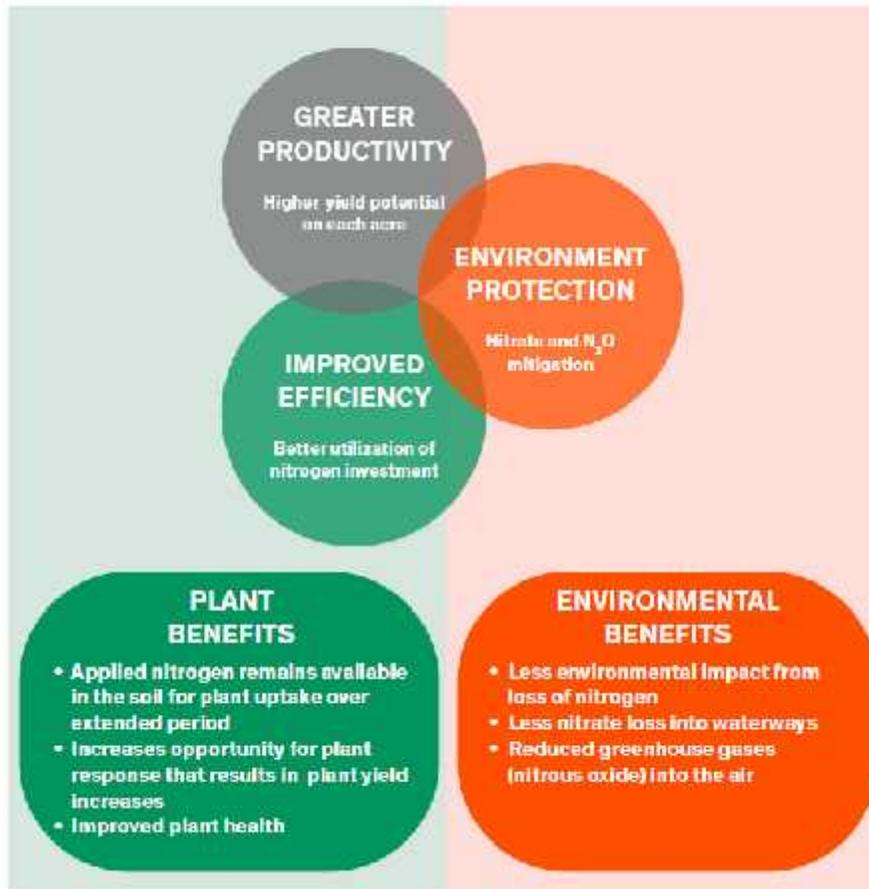
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Nitrapyrin Benefits and Meta analysis

Nitrapyrin Performance Summary

Allow farmers to increase profit potential while protecting the environment.



Summary of Qiao's Findings

	Minimum	AVERAGE	Maximum	Number of Observations
Greenhouse Gas Emissions	-39%	-44%	-48%	113
Nitrogen Leaching	-32%	-47%	-59%	20
Nitrogen Retention	+34%	+58%	+93%	64
Grain Yield	+6%	+9%	+13%	73

Summary of Wolt's Findings

	Minimum	AVERAGE	Maximum	Number of Observations
Greenhouse Gas Emissions Reduction	-20%	-51%	-69%	14
Nitrogen Leaching Reduction	+32%	-16%	-43%	24
Soil Nitrogen Retention	-40%	+28%	+135%	50
Grain Yield Response	-20%	+7%	+61%	186

Australian data – Can eNtrench work in Australia paper in proceedings (G.S.Wells)



Sugarcane Qld, 2015/16

- Consistent cane yield increases (7-9%) with no reduction in CCS value = more sugar/ha

Oaten Hay SA 2015

increased biomass yield of 10.5% (6.77 T cv 6.13 T)

Wheat Vic HRZ (2013 – dry finish)

- Yield increase 2-3%,
- Protein increase 0.2-0.8% (e.g. 7.9% to 8.7%)
- Equivalent test weights
- 20% Increased in retained N in root zone 8 weeks after application

Large increases observed in 0-30cm NH₄ retention

Urea only treatment similar to untreated N soil reserves

Ryegrass production, SA (Kangaroo Is)

- Increases in biomass production of 1.3-1.9 T/ha

Nitrapyrin formulations

Care needed when evaluating research papers

- Formulation type and application methods can influence results

Nitrapyrin active is highly volatile

N-Serve is also volatile on the soil surface

New generation formulations

- eNtrench (200g/L Nitrapyrin)
 - Microencapsulated Nitrapyrin
 - Increased stability on the soil surface
 - Increased inhibition period in the soil
- Other Geographies
 - Instinct II (USA)
 - N-Lock (EU)
 - ENTRENCH (China, Canada, Australia)

References

Wolt, J. D. 2004. A meta-evaluation of nitrapyrin agronomic and environmental effectiveness with emphasis on corn production in the Midwestern USA. *Nutrient Cycling in Agroecosystems* 69: 23–41.

Qiao, C., L. Liu, S. Hu, J. E. Compton, T. L. Greaver, and Q. Li. 2015. How inhibiting nitrification affects nitrogen cycle and reduces environmental impacts of anthropogenic nitrogen input. *Global Change Biology* 21: 1249–1257.