

## Comparing Urea efficiency when applied in Fine Particle and Granular forms.

---

This summary condenses the scientific paper titled “Urease inhibitor reduces N losses and improves plant-bioavailability of urea applied in fine particle and granular forms under field conditions” The original research was a collaboration between University of Canterbury, Massey University and Ballance Agri Nutrients.

**The Research:** Urea was applied in 3 different forms. Firstly, normal prilled urea, fine particle urea then both prilled and fine particle with a urease inhibitor (tradename Agrotain). The researchers used a measurement tool called a Lysimeter which enabled them to measure all liquids leaching through the soil sample, and also measure all Gaseous emissions. They then measured Herbage DM (dry matter) at day 21, 42 and 63.

**The Results:** Applying urea in Fine Particle (dissolved) form significantly increased nitrogen response efficiency. (measured in kg’s of DM produced per kg of Nitrogen applied)

Urea – Granular form                                   **10 kg DM / kg of applied N**

Urea – Fine Particle form                                   **19 kg DM / kg of applied N**

Urea – Fine Particle + Agrotain                                   **23 kg DM / kg of applied N**

Nitrate leaching events (rainfall) occurred three times during the 63 day trial. Urea applied in Fine Particle form significantly reduced nitrate leaching. (measured as a percentage of the total applied N)

Urea – Granular form                                   **2.1 % of applied N**

Urea – Fine Particle form                                   **0.92% of applied N**

Urea – Fine Particle + Agrotain                                   **0.04% of applied N**

This research was summarised by Metalform (Dannevirke) Ltd. Please see the following link for the full research paper;  
<http://www.sciencedirect.com/science/article/pii/S0167880911002866>