Evaluation of Ammonia Volatilization Potential

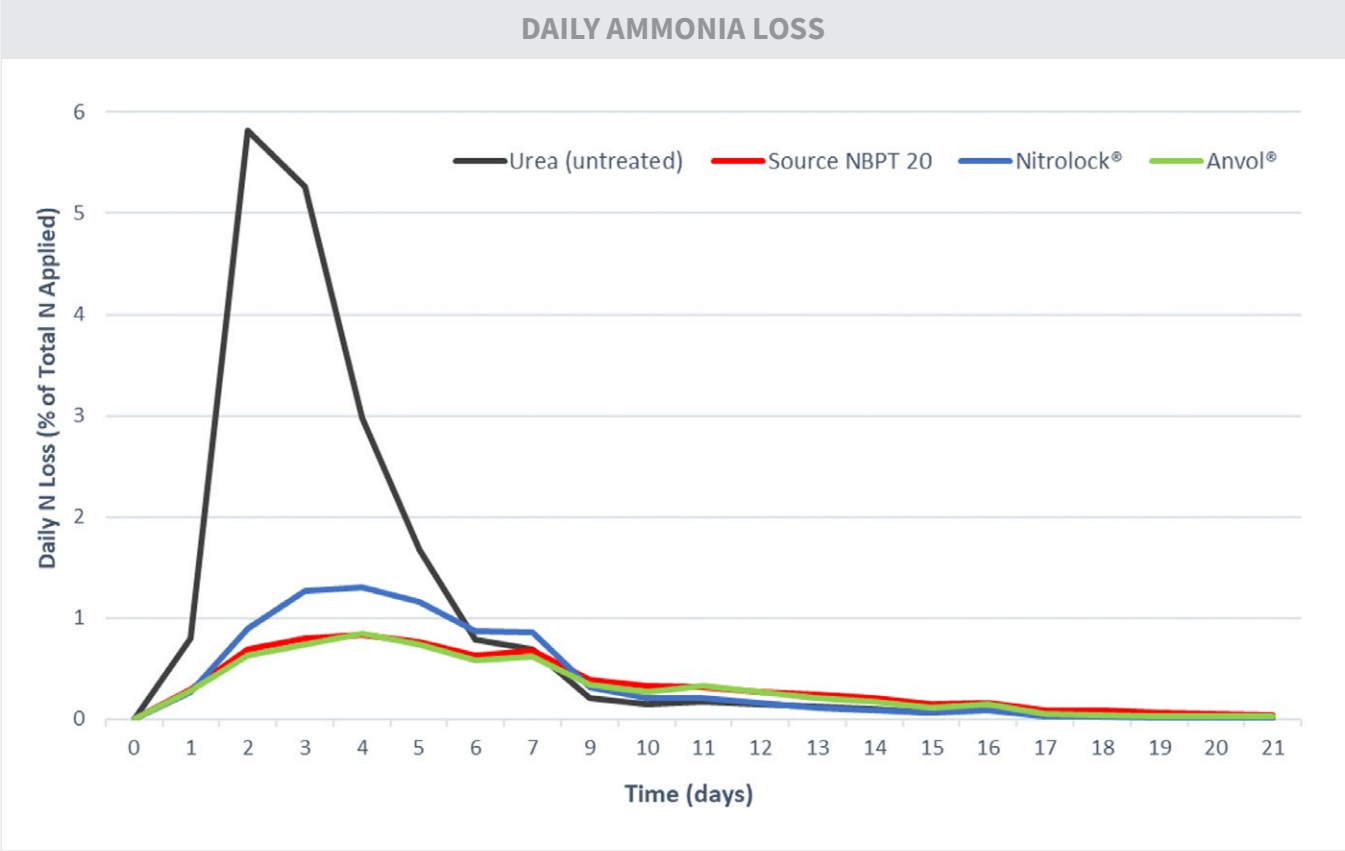
Objective

Quantify daily and cumulative ammonia losses from urea-based N fertilizers in a controlled laboratory environment. This research was carried out by the LSU AgCenter H. Rouse Caffey Rice Research Station in Crowley, LA. 2020

Methods

- Cabinet Temperature: 79°F
- Crowley Silt Loam soil
- Nitrogen Rate: 120 lbs N/A equivalent surface applied

Treatments		
Product	**Rate**	**Active Ingredients**
Urea (untreated)	-	-
Urea + Source NBPT 20™	1.5 qts / ton	20% NBPT
Urea + Nitrolock®	2 qts / ton	10% NBPT + DCD
Urea + Anvol®	1.5 qts / ton	16% NBPT, 27% Duromide



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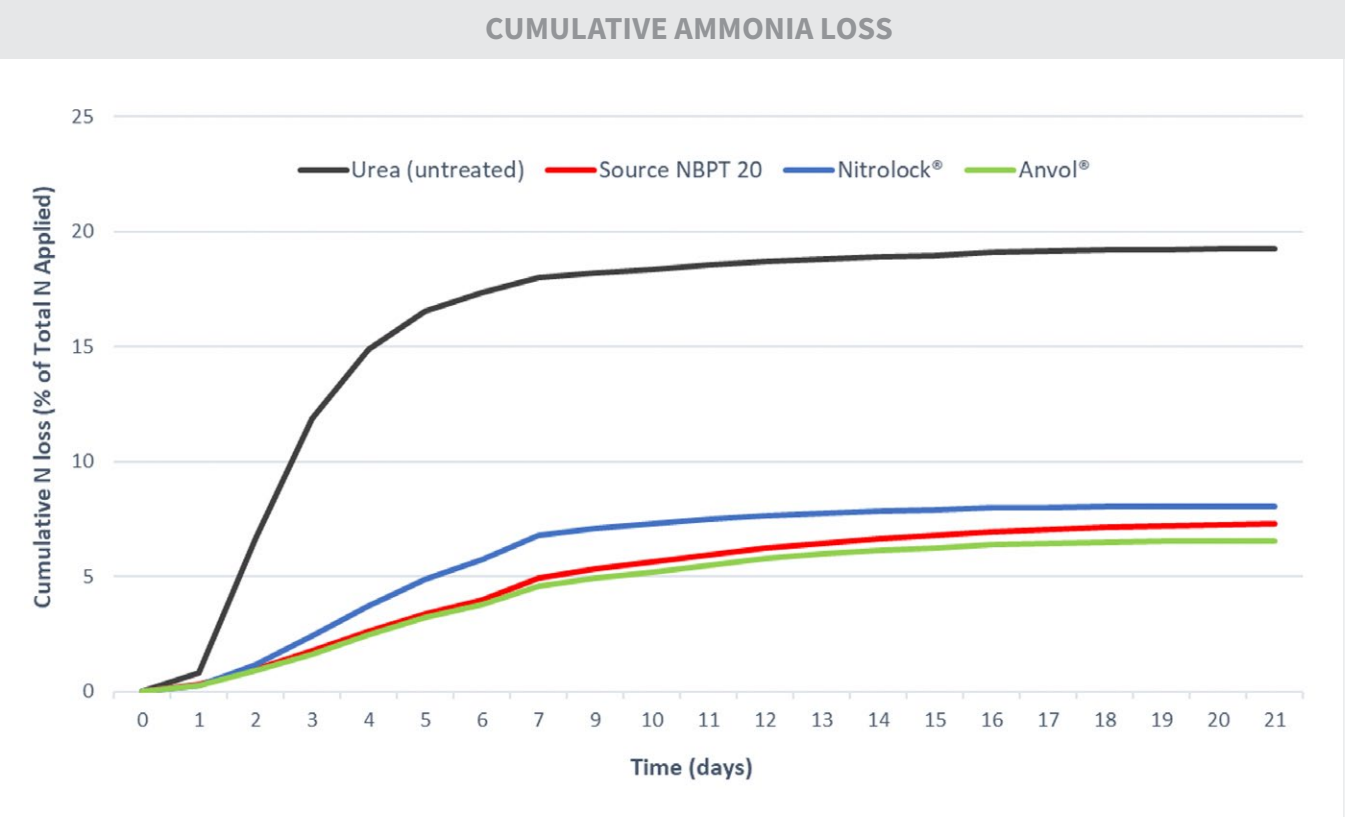

Key Results

- Daily Loss: nearly all ammonia loss occurred in first 10 days. Untreated urea experienced 95% of loss by day 10.
- Cumulative Loss: ammonia losses significantly higher for untreated urea. Curve flattens beyond 10 days; the cumulative loss from Day 10-21 is less than 1%.
- Nitrogen stabilizer treatments reduced ammonia volatilization
- Total cumulative ammonia-N losses from treatments were not significantly different from each other. Difference in total cumulative N losses at the conclusion for Source NBPT 20™, Nitrolock®, and Anvol® was less than 2%.
- Nitrolock® was effective and performed similar to urease inhibitor only products Source NBPT 20™ and Anvol®. In addition, Nitrolock® contains dicyandiamide (DCD), a nitrification inhibitor to prevent further nitrogen loss below ground from leaching and denitrification.

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