Limus®
Urease Inhibitor

BASF
We create chemistry

LET SMART SCIENCE GROW YOUR PROFITS

With independently proven science at your side, maximise your profit with Limus®

Developed with our BASF formulation expertise, and available for both liquid (Limus® Perform) and solid fertiliser users (Limus® protected urea), Limus® is an innovative, dual-active urease inhibitor that improves the nitrogen use efficiency of urea-based fertilisers. And rigorous ADAS Agronomics tramline trials prove it's an innovation that works.

Limus® protected urea

By reducing nitrogen losses, Limus® protected urea delivers 5% greater yield than standard urea* and independent, ADAS managed Agronomics trials, confirm that it also delivers equivalent yield and protein levels to ammonium nitrate (AN).**

+5% YIELD

Source: BASF, range of crops, 84 trials*

EQUIVALENT YIELD & PROTEIN TO AN

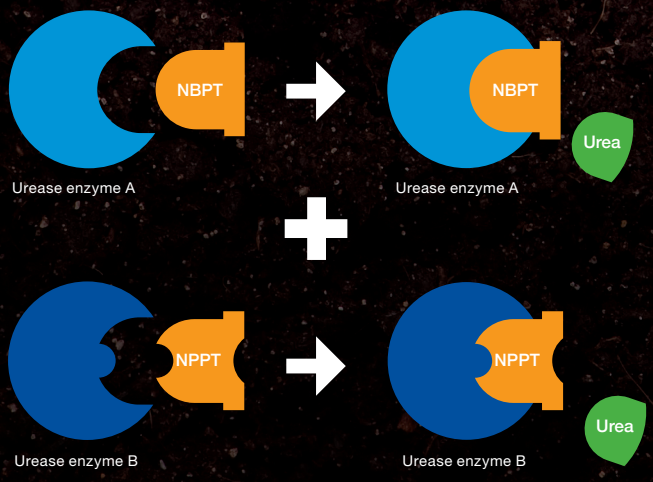
Source: ADAS, wheat & barley, 9 trials**

Urease inhibitors

In March 2022 DEFRA published its response to the consultation on reducing ammonia emissions, in which it supports the industry led proposal "option 4" which will utilise the use of urease inhibitors to protect urea fertilisers, along with farm assurance schemes from 2023 onwards.

Globally, growers have benefited from the use of urease inhibitor technology for over 30 years. A third of urea in New Zealand is treated with a urease inhibitor, whilst closer to home, the Irish government has set targets to switch 65% of straight Calcium Ammonium Nitrate (CAN) into protected urea/nitrogen by 2030, to reduce their environmental footprint.

Rigorous, independent and manufacturer testing, as well as peer reviewed, scientific papers have proven the efficacy of registered urease inhibitor active ingredients, of which there are currently only three: NBPT, NPPT and 2-NPT.***



What makes Limus® unique?

Urea is not readily plant available and first needs to be converted into ammonium. This is done by urease enzymes in the soil that bind to the urea. Without sufficient rainfall post application, the ammonium concentration around the urea granules increases, leading to a localised increase in soil pH. This converts the ammonium to ammonia gas.

Urease enzymes are extracellular and ubiquitous in the soil. Urease inhibitors temporarily bind to these enzymes, preventing the localised pH spike and reducing the losses of ammonia. However, different urease enzymes require different urease inhibitors. Limus® is the only urease inhibitor available with two active ingredients (NBPT and NPPT), enabling it to bind to a wider variety of urease enzymes and more effectively minimise losses.

Limus®
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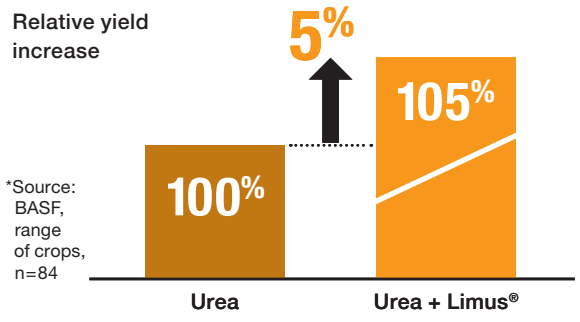
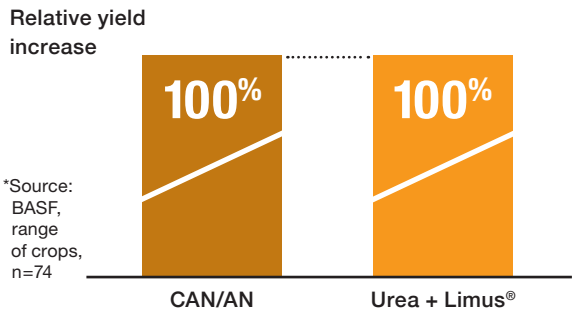
Limus® increases yield by 5% compared to standard urea*



Limus® protected urea delivers equivalent yields to ammonium nitrate



ADAS Agronomics confirm that Limus® protected urea delivers equivalent yields to AN

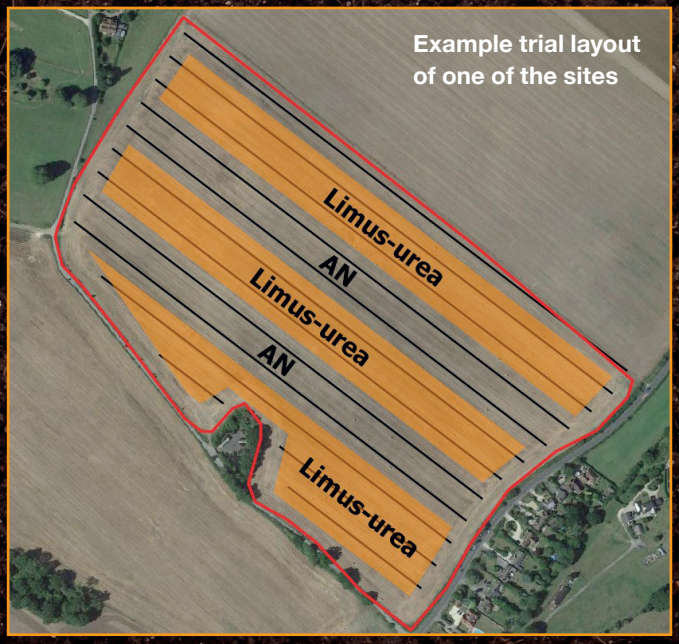
Using bespoke software for data processing and statistical analysis, ADAS Agronomics is a scientifically robust approach to tramline trials.

The rigorous methodology consists of several steps:

Raw yield mapping
- Typically 10,000 - 15,000 data points per trial

Cleaning the data by excluding
- Headlands
- End of combine runs
- Areas of the field which are not relevant
- Scattered data points identified as 'locally extreme'

Applying a statistical model
- To identify the statistically significant trials.



We asked ADAS and nine UK growers to help us put Limus® protected urea to the test – on their own farms, with their own equipment, and their standard nitrogen split timings and rates – to see if Limus® protected urea delivered equivalent yields and protein to ammonium nitrate.

The results spoke for themselves. Across the nine sites, Limus® protected urea did indeed deliver an equivalent yield (+0.06 t/ha) and protein performance to ammonium nitrate.**

Typically, this would provide better profitability than AN.

Site	Crop	Relative yield (t/ha) of Limus®
N. Yorkshire	Winter barley	+0.72
Berkshire	Winter wheat	+0.28
Kent	Winter wheat	+0.24
Hampshire	Winter wheat	+0.19
Berkshire	Winter barley	+0.13
Cambridgeshire	Winter wheat	-0.11
Nottinghamshire	Winter wheat	-0.32
Yorkshire	Winter wheat	-0.35
Coventry	Winter wheat	-0.44
Cross-site analysis		**+0.06**

For more information, visit agricentre.basf.co.uk/limus

*Compared to standard urea (N=84, range of crops, BASF). **ADAS Agronomics trials with farm standard N rates & splits (BASF funded): Average yield benefit of +0.06t/ha of Limus® protected urea vs ammonium nitrate (AN) (N=9, winter wheat & winter barley, 2020). ***Registered as a urease inhibitor on the 2003/2003 Fertiliser Directive. Limus contains NBPT + NPPT. Limus is a registered Trade Mark of BASF.