

Limus[®] Clear



BASF
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Available exclusively from Frontier Agriculture, Limus[®] Clear is a dual active, innovative urease inhibitor for use with liquid fertiliser (UAN). By reducing ammonia losses, Limus[®] Clear increases nitrogen use efficiency (NUE), yield & quality.

Liquid fertiliser (UAN) nitrogen losses and the use of urease inhibitors

Nitrogen can be lost as ammonia following the application of liquid fertiliser (UAN).

Factors that increase risk of ammonia losses

Warm temperatures

Dry soils

Less than 10mm of rainfall within 48 hours

Alkaline soils

DEFRA is currently consulting on ways to reduce ammonia emissions from urea-based fertilisers. One of the options under consideration is the use of urease inhibitors, like Limus[®].

Benefits of Limus[®] Clear

- Improves NUE by reducing ammonia emissions by up to 98%
- Increases yield & quality compared to untreated liquid fertiliser (UAN)
- Contains two actives (NBPT + NPPT) for optimal efficacy
- Fully compatible with all liquid fertiliser (Straight N and NS grades)
- Offers the flexibility to only include when high risk of ammonia losses
- Evaluated for safety on soil health and no negative impact

**+
4%
yield***

*Source: BASF, range of crops, n=21

ADAS Agronomics trials confirm that Limus[®] Clear increases yield



ADAS Agronomics is a scientifically robust approach to tramline trials.

We asked ADAS and six growers to help us put Limus[®] Clear to the test – on their own farms, with their own equipment, and their standard nitrogen split timings and rates.

The results spoke for themselves. Across the six sites, Limus[®] Clear delivered an average yield increase of +0.23t/ha and a MOIC of +£39/ha.

	Yield increase (t/ha)	Statistically Significant	MOIC (£/ha)
Cross-site analysis	0.23	Y	+ £39

*Source: ADAS/BASF, Limus Clear applied in 2 or 3 of the fertiliser applications (as needed), n = 6, wheat, MOIC (Margin Over Input Cost) based on wheat at £195/T

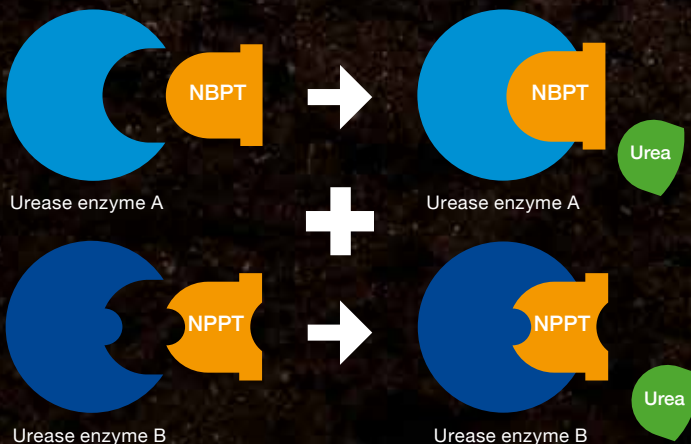
Frontier & grower trials confirm Limus[®] Clear increases yield and quality

Trial	Yield increase (t/ha)	Grain Protein/ Grain N(%)	NUE (%)
2020 Winter Wheat (220kg N)	+0.40	+0.28	+7.3
2021 Winter Wheat (220kg N)	+0.23	+0.56	+7.0
2021 Spring Wheat (150kg N)	+0.36	-0.03	+4.0
2021 Spring Barley (110kg N)	+0.36	+0.08	+6.6

Source: Frontier replicated small plot trials – Bleasby & Haywold

2021 Maize (79kg N)	Fresh Yield (adjusted to 32% moisture)
UAN	52 t/ha
UAN + Limus [®] Clear	58 t/ha

Source: Grower trial - Essex



What makes Limus[®] Clear 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 site of application increases, leading to a localised increase in soil pH. This converts the ammonium to ammonia gas.

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.

How to use Limus® Clear

1. Fill spray tank with half the desired amount of fertiliser
2. Add the correct rate of Limus® Clear and mix thoroughly
3. Continue mixing while adding remaining fertiliser
4. Use tank mix within 5 days

Always read the appropriate Safety Data Sheets and wear appropriate PPE to ensure good operator safety when handling UAN / Limus® Clear.

Application Guide

Omex Products

Product Name	Analysis % (w/w)		Analysis % (w/v)		Limus® Rate (lt/m ²)
Nitroflo 30	30%N		39%N		1.00
Nitroflo 28N + 2.5SO ₃	28%N	2.5%SO ₃	36%N	3.2%SO ₃	0.90
Nitroflo 26N + 5SO ₃	26%N	5%SO ₃	33.5%N	6.4%SO ₃	0.80
Nitroflo 24N + 7.5SO ₃	24%N	7.5%SO ₃	30%N	9.5%SO ₃	0.70
Nitroflo 22N + 10SO ₃	22%N	10%SO ₃	28%N	13%SO ₃	0.60
Nitroflo 20N + 12.5SO ₃	20%N	12.5%SO ₃	25%N	15.5%SO ₃	0.50
Nitroflo 15N + 15SO ₃	15%N	15%SO ₃	18%N	18%SO ₃	0.35

NitraSol Products

Product Name	Analysis % (w/w)		Analysis % (w/v)		Limus® Rate (lt/m ²)
NitraSol N30	30%N		39%N		1.00
NitraSol N28	28%N		36%N		0.90
NitraSol N30 + 10SO ₃	30%N	10%SO ₃	39%N	13%SO ₃	1.00
NitraSol N30 + 6SO ₃	30%N	6%SO ₃	39.2%N	7.8%SO ₃	1.00
NitraSol N27 + 5SO ₃	27%N	5%SO ₃	35%N	6.5%SO ₃	0.85
NitraSol N24 + 8SO ₃	24%N	8%SO ₃	30%N	10%SO ₃	0.70
NitraSol N22 + 12SO ₃	22%N	12%SO ₃	28%N	15%SO ₃	0.60
NitraSol N15 + 15SO ₃	15%N	15%SO ₃	18%N	18%SO ₃	0.35

BFS Products

Product Name	Analysis % (w/w)		Analysis % (w/v)		Limus® Rate (lt/m ²)
UAN N30	30%N		38.7%N		1.00
UAN N28	28%N		35%N		0.95
BFS 26 + 5SO ₃	26%N	5%SO ₃	32.3%N	6.2%SO ₃	0.80
BFS 22 + 12SO ₃	22%N	12%SO ₃	27%N	14.8%SO ₃	0.60
BFS 18 + 15SO ₃	18%N	15%SO ₃	22%N	18.3%SO ₃	0.45
BFS 17 + 17SO ₃	17%N	17%SO ₃	20.3%N	20.3%SO ₃	0.40
NitroSulph 30 + 6SO ₃	30%N	6%SO ₃	39.2%N	7.8%SO ₃	1.00
NitroSulph 30 + 8SO ₃	30%N	8%SO ₃	39.3%N	10.5%SO ₃	1.00
NitroSulph 30 + 10SO ₃	30%N	10%SO ₃	39.5%N	13.2%SO ₃	0.95
NitroSulph 28 + 4SO ₃	28%N	4%SO ₃	35.7%N	5.1%SO ₃	0.90
NitroSulph 28 + 10SO ₃	28%N	10%SO ₃	36.3%N	13%SO ₃	0.90
NitroSulph 26 + 10SO ₃	26%N	10%SO ₃	33.1%N	12.7%SO ₃	0.80
NitroSulph 26 + 12SO ₃	26%N	12%SO ₃	33.5%N	15.5%SO ₃	0.80
NitroSulph 26 + 13SO ₃	26%N	13%SO ₃	33.6%N	16.8%SO ₃	0.80
NitroSulph 26 + 18SO ₃	26%N	18%SO ₃	34.3%N	23.7%SO ₃	0.80
NitroSulph 24 + 10SO ₃	24%N	10%SO ₃	29.6%N	12.3%SO ₃	0.75
NitroSulph 24 + 24SO ₃	24%N	24%SO ₃	31.7%N	31.7%SO ₃	0.70

Other Liquid Fertiliser Products

Product Name	Analysis % (w/w)		Analysis % (w/v)		Limus® Rate (lt/m ²)
37N			37%N		0.95
35N + 7SO ₃			35%N	7%SO ₃	0.85
32N + 9.4SO ₃			32%N	9.4%SO ₃	0.75
30.3N + 10.8SO ₃			30.3%N	10.8%SO ₃	0.70
29N + 11.9SO ₃			29%N	11.9%SO ₃	0.65
25N + 14.3SO ₃			25%N	14.3%SO ₃	0.50
19N + 19SO ₃			19%N	19%SO ₃	0.30

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