

NitroShield

Preparing for new guidance

From 2024, in England, applications of UAN liquid fertiliser made after 31st March must include an effective urease inhibitor, such as NitroShield, unless agronomic justification is provided by a FACTS qualified advisor.

OMEX has developed **NitroShield** to reduce ammonia emissions. The innovative new inhibitor reduces emissions by over 70% and meets the requirements of the Red Tractor Farm Assurance standard.



NitroShield - Key Facts For Your Farm



NitroShield contains NBPT and works by delaying the urease hydrolysis of urea, reducing the risk of ammonia losses. OMEX trials have consistently demonstrated **reductions of over 70%** in ammonia emissions.

- Reduces emissions by over 70%
- NIAB trials show a 0.3t/ha increase in yield
- Meets international standards
- Safe for all agricultural crops
- Long shelf life before mixing
- Improved Nitrogen Use Efficiency

NitroShield has been rigorously tested both independently and by the OMEX R&D team, establishing the most efficient inhibitor at the most effective rates. The average of all tests with liquid nitrogen + NitroShield, versus untreated liquid nitrogen, show the inhibitor gives a greater than 70% reduction in ammonia emissions, matching the UK government target.

What You Need To Know

- The government has agreed with industry partners that a farming industry self-regulation approach to reduce ammonia emissions will work best for the environment and food production ("Option 4" Defra definition). This will be applied through a new Red Tractor standard.
- Defra's expectation is that mitigation from urease inhibitors will be a 70%+ reduction in ammonia emissions.
- Liquid urea fertilisers applied any time from 1st April to 15th January each year must use effective protection to reduce ammonia emissions.
- Reducing the emissions of the fertiliser you apply helps ensure your application is efficient as possible, improving Nitrogen Use Efficiency (NUE)

Have a question?
Contact our team

Trials Results
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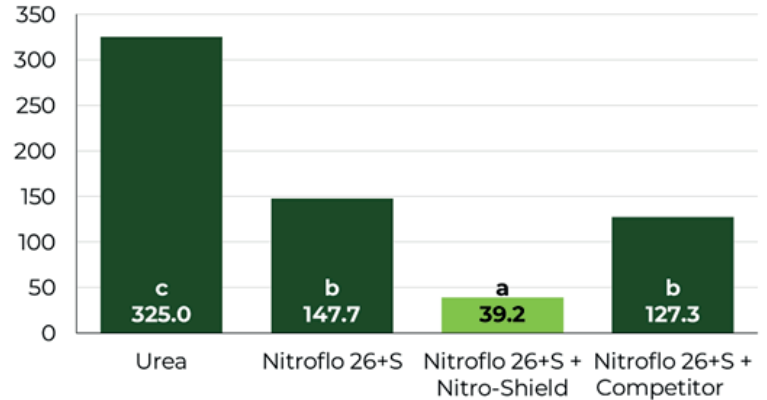


NitroShield Trials Results

During the intensive trials period for NitroShield, the OMEX R&D facility not only looked at how effectively NitroShield reduces emissions, but what the most efficient rate to use is. Alongside field trials OMEX continuously tested the product in the lab, capturing gas emissions which meet international standards with NitroShield consistently reducing ammonia losses by more than 70%.

The trial to the right demonstrated how effectively emissions were reduced when using NitroShield compared to a competitor product. The axis on the left represents ammonia emissions in ppm.

OMEX experiment #5: Ammonia concentration (ppm)

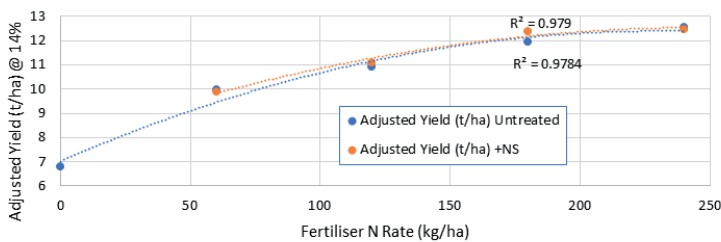


The below independent NitroShield plot trial demonstrated the NUE was 62% for the untreated application and this increased to 72% with the addition of NitroShield (NS) to the second application.

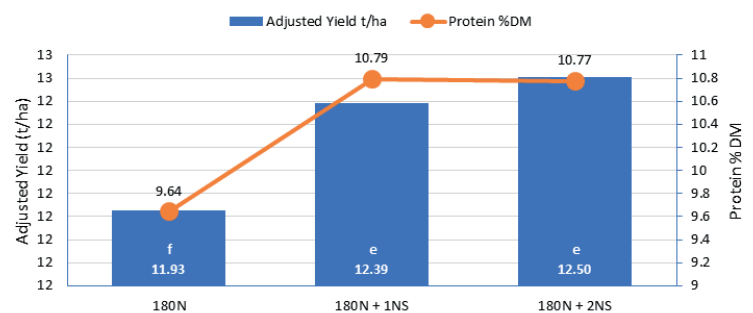
At current feed wheat prices, the yield increase of 0.46 tonnes/ha is worth £78/ha against a cost of around £5.50/ha, a return on investment of over 14 to 1.

The use of OMEX NitroShield at the recommended rate with the optimum application rate of Nitroflo as required by Red Tractor protocols for applications after the 1st of April was both effective and beneficial in this trial.

Site Nitrogen Dose Response



Adjusted Yield and Grain Protein at Optimum N



Farmer Benefits Of Using NitroShield

Grain yield in wheat trials from 30N + NitroShield v. 30N alone:

- 2016, NIABTAG Morley, UK +400 kg/ha
- 2017, NIABTAG Morley, UK +300 kg/ha
- Mean of trials in UK, CZ, PL +330 kg/ha
- 10 trials in France 2014-15 +0.2% Protein

Higher grain yield and protein = improved Nitrogen Use Efficiency



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NitroShield When To Use

1. Use NitroShield in tank mix with OMEX Nitroflo or Multiflo liquid fertiliser or other grades of UAN based liquid N, to reduce the risk of ammonia losses. Situations where the risk is greatest are:
 - (a) On alkaline soils
 - (b) In warm dry conditions
 - (c) Where there is no crop canopy

2. In England from 2024 applications of Nitroflo (or other grades of UAN based liquid N) made after 31st March must include an effective urease inhibitor such as NitroShield unless agronomic justification is provided by a FACTS qualified adviser specific to the crop, e.g. losses are mitigated by rapid incorporation.

3. **Use the full rate of 1.25 L of NitroShield per m³ of Nitroflo** if the following conditions apply:
 - Soils are alkaline (pH >7.0)
 - The crop canopy does not provide full coverage of the soil
 - Ambient temperature is expected to exceed 15°C within 24 hours of application

4. **Use the reduced rate of 1.0 L of NitroShield per m³ of Nitroflo** if the following conditions apply:
 - Soils are neutral or slightly acidic
 - The crop canopy provides full coverage of the soil
 - Ambient temperature is not expected to be more than 15°C within 24 hours of application

NitroShield How To Apply

Sprayer Tank Capacity	Amount of NitroShield at reduced rate of 1.0 L/m ³	Amount of NitroShield at full rate of 1.25 L/m ³
1800 L	1.80 L	2.25 L
2000 L	2.00 L	2.50 L
2500 L	2.50 L	3.13 L
3000 L	3.00 L	3.75 L
4000 L	4.00 L	5.00 L
5000 L	5.00 L	6.25 L

Nitroflo Loads Ready Reckoner

- Full rate: 27.5L NitroShield per load of Nitroflo
- Reduced rate: 22L NitroShield per load of Nitroflo
- **Ready Reckoner: 25L NitroShield per load of Nitroflo**

Number of Lorry Loads per Season	Lorry Loads with NitroShield (est. 50%)	Ready Reckoner L	Number of Packs
2	1	25L	3 x 10L
5	2.5	63L	7 x 10L
7	3.5	88L	9 x 10L
8	4	100L	10 x 10L