ACTIVE™ AgriScience

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TECHNOLOGY BEYOND the POINT of NUTRITION™

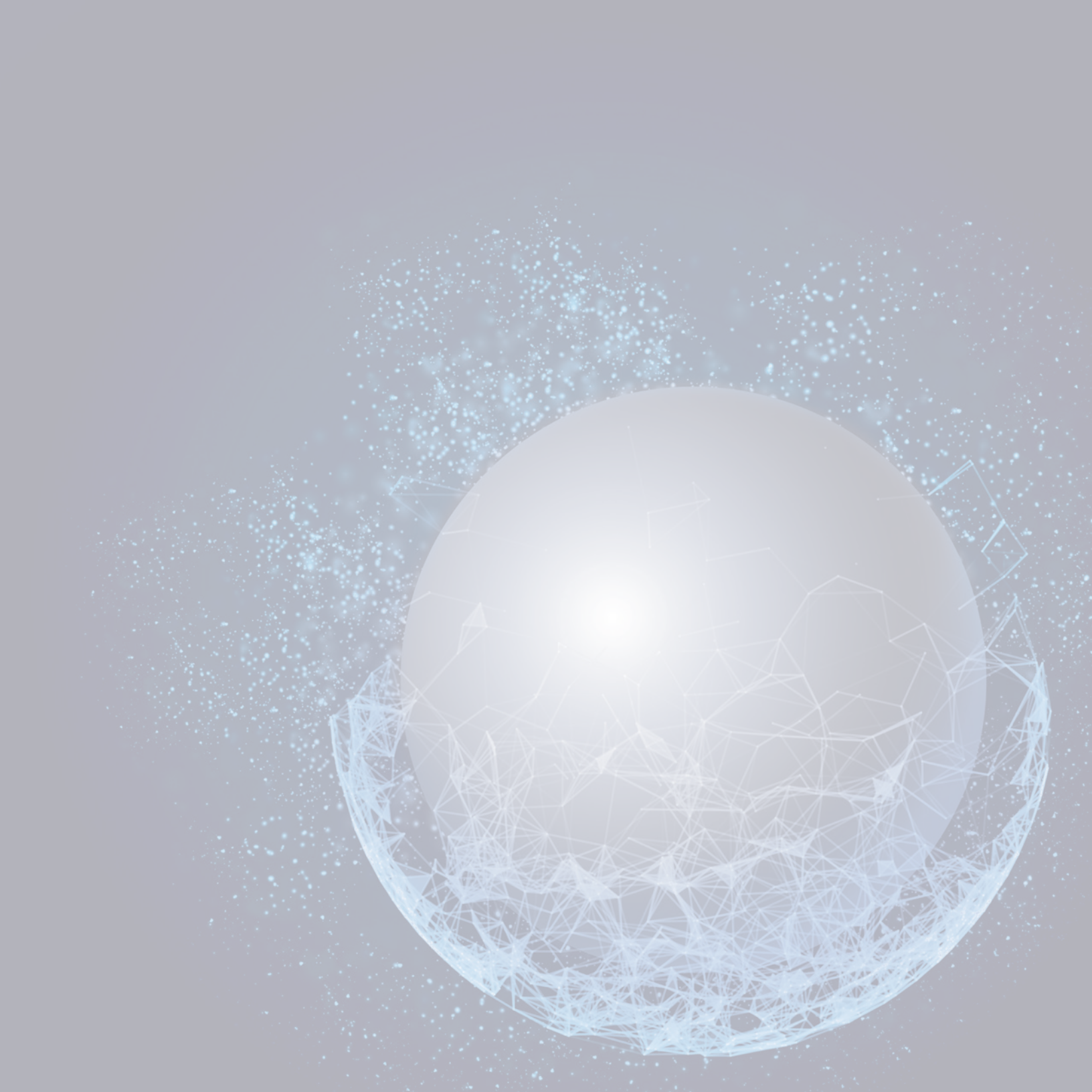
PRODUCT GUIDE

NITROGEN STABILISERS

ECONOMICAL

FLEXIBLE

SUSTAINABLE



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TECHNOLOGY BEYOND THE POINT OF NUTRITION™

Active AgriScience Inc. supports the farming community by providing innovative, effective and economical products. A leader in plant nutrient and bioactive compound research and technology, Active AgriScience uses rigorous scientific methods to develop full cycle fertiliser and nitrogen management solutions to help enhance crop potential while being mindful of environmental impacts.

INTRODUCTION

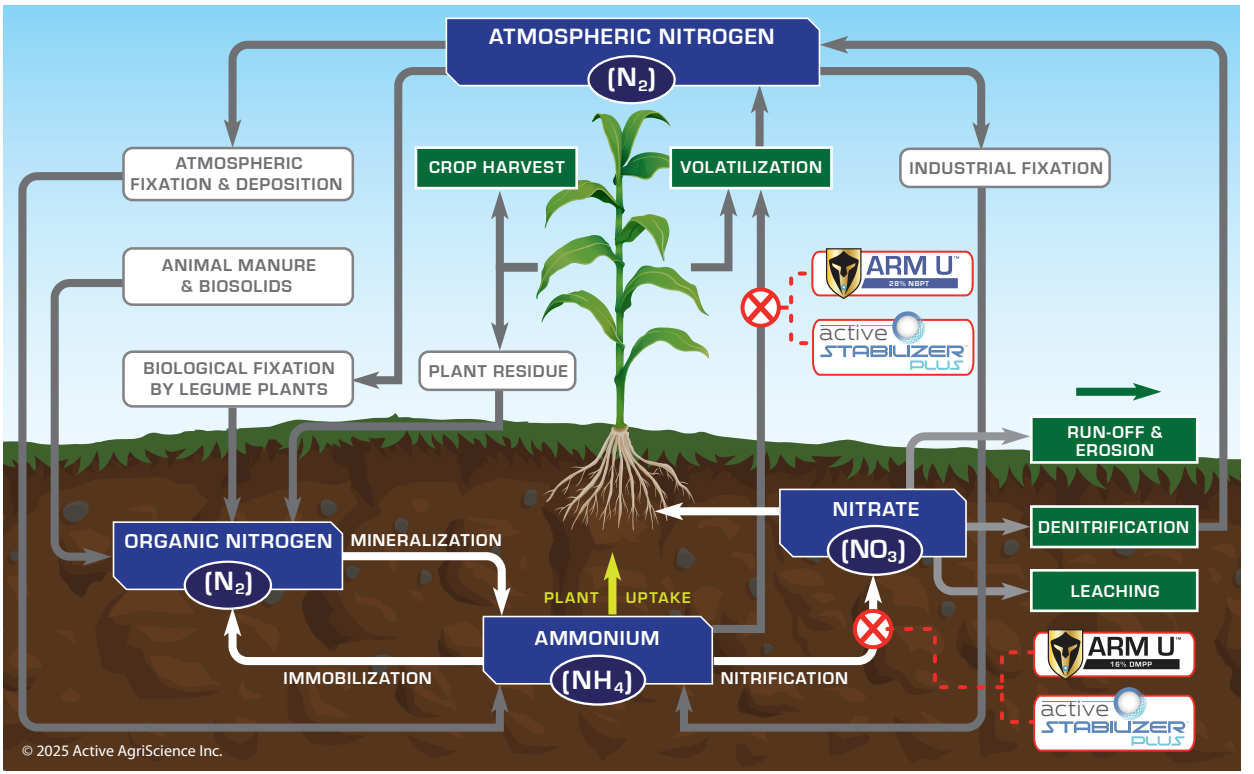
Nitrogen is essential for plant life and growth and is therefore a component of many fertilisers. Nitrogen loss is a challenge facing every grower when applying Urea or UAN in the spring or fall, regardless of the application method.

The risk of this nitrogen loss varies with:

- the type of nitrogen
- soil type
- temperature
- management practices

Without any protective coating up to 50% of soil-applied nitrogen is unavailable to the plant. Nitrogen can be converted quickly into ammonia gas through the process of ammonia volatilization and then released into the atmosphere. Nitrogen can also be lost in the soil through nitrification, the process of converting ammonium ions to less stable nitrate ions. Both of these mechanisms play a substantial role in the loss of valuable nitrogen.

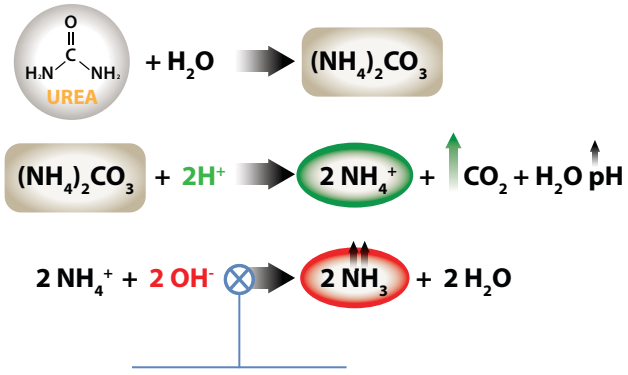
Understanding the nitrogen cycle and the factors that can result in nitrogen loss are crucial to finding the right solution to this problem



Volatilization and nitrification are two processes that are responsible for nitrogen loss.

VOLATILIZATION

Ammonia volatilization occurs during the hydrolysis of urea and is governed by the urease enzyme.



Coating urea with

Active STABILIZER™ PLUS
ARM U™ 28% NBPT

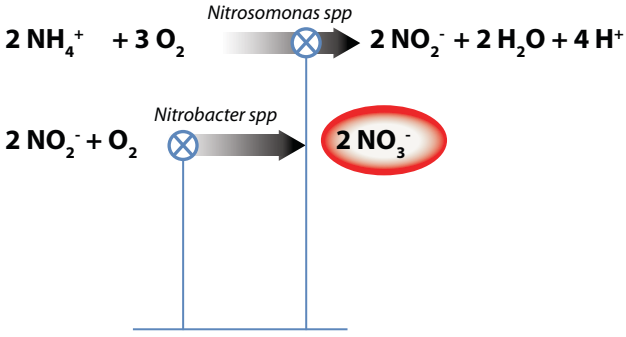
reduces ammonia volatilization
by inhibiting urease enzyme activity.

active STABILIZER PLUS

ARM U™ 28% NBPT

NITRIFICATION

Nitrate is formed by the oxidation of ammonium in the presence of *Nitrosomonas* & *Nitrobacter* bacteria.



Coating urea with

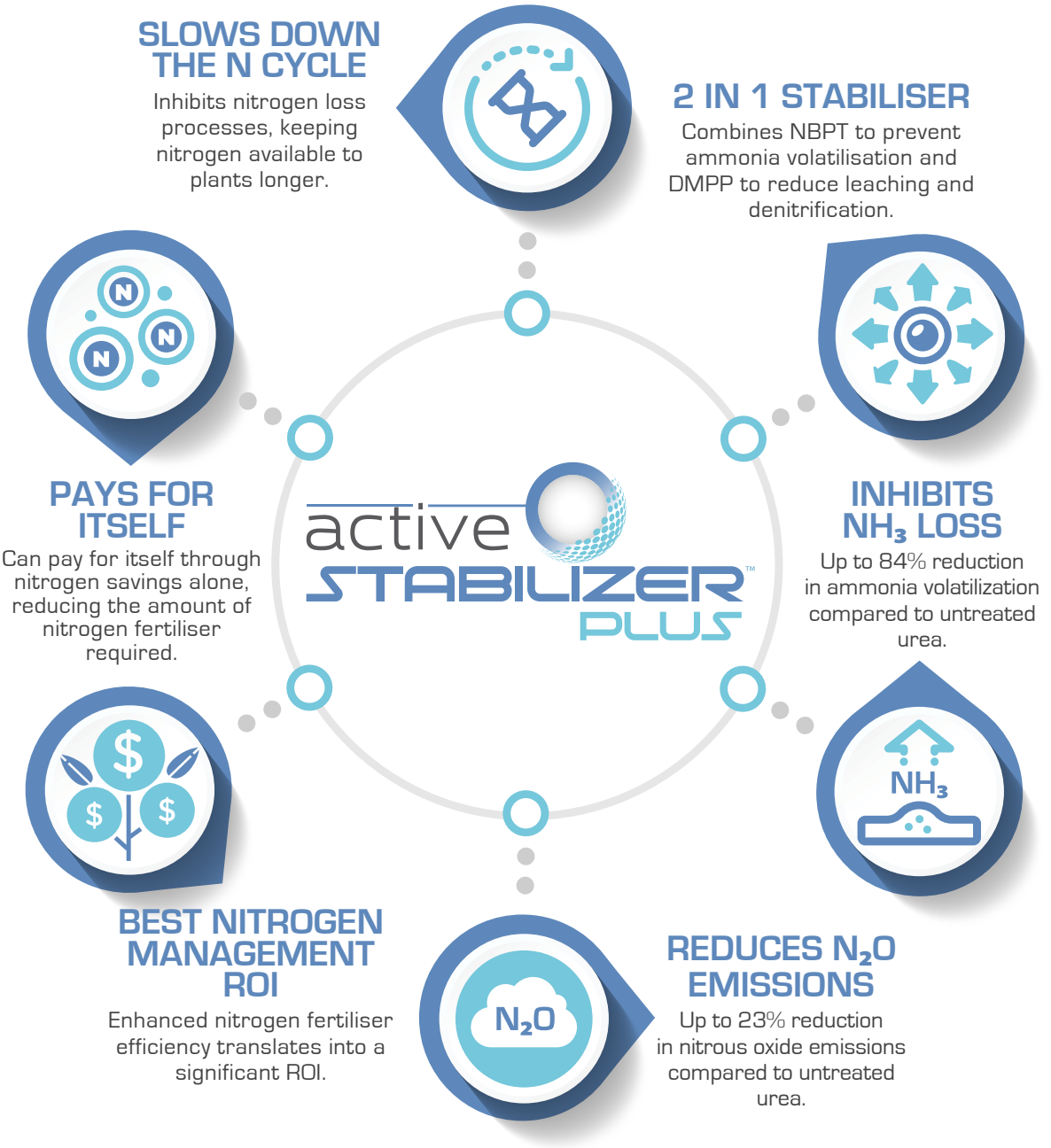
Active STABILIZER™ PLUS
ARM U 16% DMPP

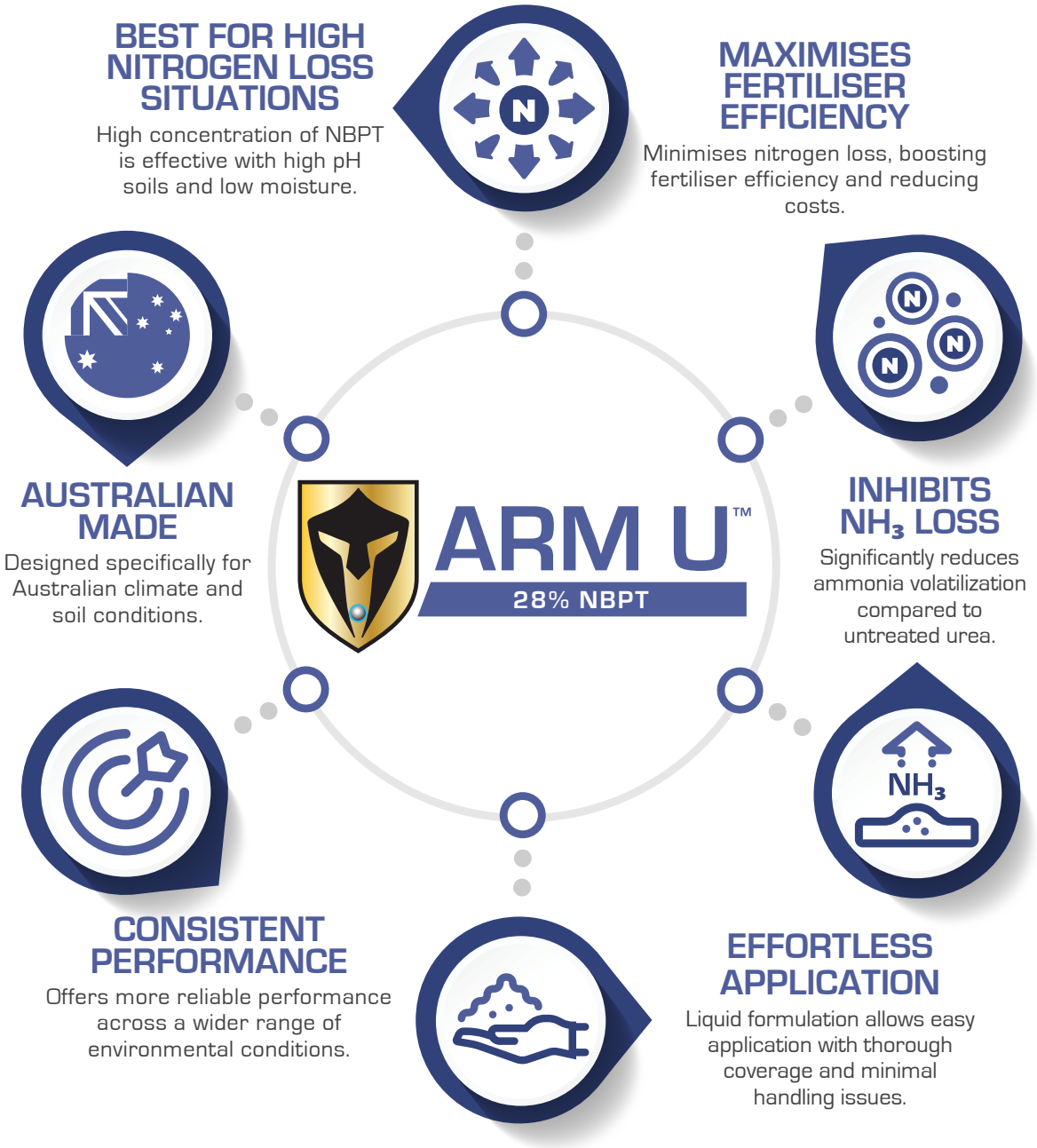
inhibits nitrification
by inhibiting *Nitrosomonas* and *Nitrobacter* bacterial activity.

active STABILIZER PLUS

ARM U™ 16% DMPP

BENEFITS of Active STABILIZER™ PLUS




BEST FOR HIGH NITROGEN LOSS SITUATIONS
High concentration of NBPT is effective with high pH soils and low moisture.
MAXIMISES FERTILISER EFFICIENCY
Minimises nitrogen loss, boosting fertiliser efficiency and reducing costs.
AUSTRALIAN MADE
Designed specifically for Australian climate and soil conditions.
ARM U™
28% NBPT
INHIBITS NH_3 LOSS
Significantly reduces ammonia volatilization compared to untreated urea.
CONSISTENT PERFORMANCE
Offers more reliable performance across a wider range of environmental conditions.
EFFORTLESS APPLICATION
Liquid formulation allows easy application with thorough coverage and minimal handling issues.

BENEFITS of ARM U™ 16% DMPP

SLOWS DOWN THE N CYCLE

Slows the conversion of ammonium to nitrate, enhancing the efficiency of nitrogen fertilisers.

IMPROVES NITROGEN-USE EFFICIENCY

Maximises fertiliser efficiency, lowering overall costs by reducing the amount needed.

AUSTRALIAN MADE

Designed specifically for Australian climate and soil conditions.

REDUCES N_2O EMISSIONS

DMPP inhibits nitrification which reduces nitrous oxide emissions.

ARM U™
16% DMPP

LESS PRODUCT, MORE IMPACT

Requires less product per metric tonne of fertiliser compared to competitor brands.

ADD NBPT FOR DUAL PROTECTION

Can be mixed with ARM U™ 28% NBPT to inhibit all forms of nitrogen loss.

N STABILISERS	Active STABILIZER PLUS	ARM U 28% NBPT	ARM U 16% DMPP
ROLE OF THE PRODUCT	Reduces ammonia volatilisation, nitrate leaching, and nitrous oxide emissions.	Reduces ammonia volatilisation.	Reduces nitrate leaching and nitrous oxide emissions.
PATENTED	Yes	Yes	Yes
ANALYSIS	13% NBPT + 2.2% DMPP	28.6% NBPT	16.1% DMPP
APPLICATION RATE (UREA)	2 L/MT	2 L/MT	0.6 L/MT
APPLICATION RATE (UAN)	1.5 L/MT	1.5 L/MT	0.35 L/MT
COMPATIBILITY	Can be mixed with other Active AgriScience stabilisers	Designed to allow ARM U NBPT and DMPP products to be easily mixed together as required for maximum flexibility to suit your needs.	Designed to allow ARM U NBPT and DMPP products to be easily mixed together as required for maximum flexibility to suit your needs.

READ THE ENTIRE LABEL BEFORE USING THESE PRODUCTS.

ACTIVE STABILIZER™ PLUS BLENDING INSTRUCTIONS

Blending into UREA: Use 2 L Active STABILIZER™ PLUS / 1000 kg Urea. For uniform blending, use a blender with impregnation equipment. Weigh the urea and transfer to blender. Add the required amount of Active STABILIZER™ PLUS to the urea in the blender. Blend until the Active STABILIZER™ PLUS is uniformly mixed into the urea. Do not add any other fertilizer materials until Active STABILIZER™ PLUS is thoroughly distributed. If mixture appears wet or sticky, a drying agent may be added at this time. **Blending into UAN:** Use 1.5 L of Active STABILIZER™ PLUS / 1000 kg UAN solution. Fill spray tank with half the desired amount of UAN, Measure the recommended quantity of Active STABILIZER™ PLUS and add to the tank. Mix well. Add other products at this stage, if needed. Add the second half of the UAN solution. Continue mixing until well blended. Keep agitator running while mixing.

ARM U™ 28% NBPT BLENDING INSTRUCTIONS

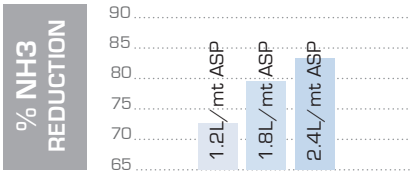
Blending into UREA: Use 2 L ARM U™ 28% NBPT/1000 kg Urea. For uniform blending, use a blender with impregnation equipment. Weigh the urea and transfer to blender. Add the required amount of ARM U™ 28% NBPT to the urea in the blender. Blend until the ARM U™ 28% NBPT is uniformly mixed into the urea. Do not add any other fertiliser materials until ARM U™ 28% NBPT is thoroughly distributed. If mixture appears wet or sticky, a drying agent may be added at this time. **Blending into UAN:** Use 1.2 L ARM U™ 28% NBPT/ 1000 kg UAN solution. Fill spray tank with half the desired amount of UAN, Measure the recommended quantity of ARM U™ 28% NBPT and add to the tank. Mix well. Add other products at this stage, if needed. Add the second half of the UAN solution. Continue mixing until well blended. Keep agitator running while mixing.

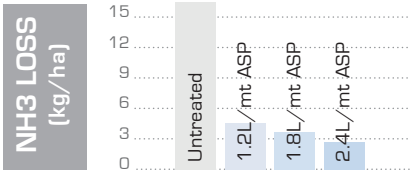
ARM U™ 16% DMPP BLENDING INSTRUCTIONS

Blending into UREA: Use 0.6 L ARM U™ 16% DMPP/1000 kg Urea. For uniform blending, use a blender with impregnation equipment. Weigh the urea and transfer to blender. Add the required amount of ARM U™ 16% DMPP to the urea in the blender. Blend until the ARM U™ 16% DMPP is uniformly mixed into the urea. Do not add any other fertiliser materials until ARM U™ 16% DMPP is thoroughly distributed. If mixture appears wet or sticky, a drying agent may be added at this time. **Blending into UAN:** Use 0.35 L ARM U™ 16% DMPP/ 1000 kg UAN solution. Fill spray tank with half the desired amount of UAN, Measure the recommended quantity of ARM U™ 16% DMPP and add to the tank. Mix well. Add other products at this stage, if needed. Add the second half of the UAN solution. Continue mixing until well blended. Keep agitator running while mixing.

active STABILIZER PLUS

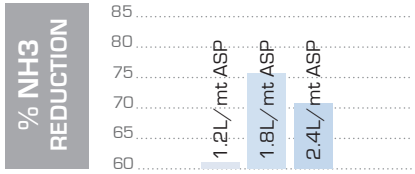
BANDED UREA • 3rd Party Research by the University of Manitoba

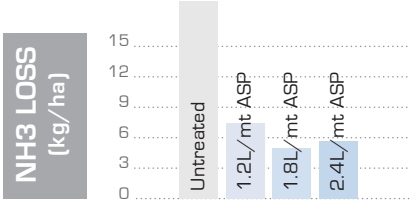




TREATMENTS	BANDED	
	NH3 loss (kg/ha)	% NH3 reduction
Untreated Urea	16.6	0.0
1.2L/mt Active STABILIZER PLUS (12% NBPT, 2% DMPP)	4.6	72.5
1.8L/mt Active STABILIZER PLUS (12% NBPT, 2% DMPP)	3.4	79.4
2.4L/mt Active STABILIZER PLUS (12% NBPT, 2% DMPP)	2.7	83.8

BROADCASTED UREA • 3rd Party Research by the University of Manitoba

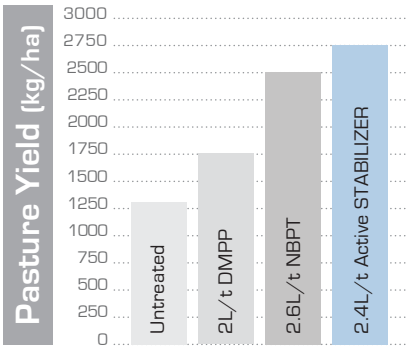




TREATMENTS	BROADCAST	
	NH3 loss (kg/ha)	% NH3 reduction
Untreated Urea	19.2	0.0
1.2L/mt Active STABILIZER PLUS (12% NBPT, 2% DMPP)	7.4	61.5
1.8L/mt Active STABILIZER PLUS (12% NBPT, 2% DMPP)	4.8	75.2
2.4L/mt Active STABILIZER PLUS (12% NBPT, 2% DMPP)	5.7	70.3

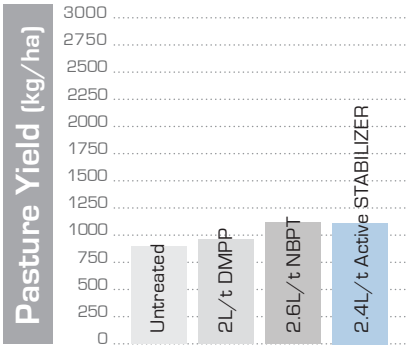
active STABILIZER PLUS

PASTURE YIELD WITH UREA APPLIED AT 400 kg/ha



TREATMENTS	1ST CUT (kg/ha)	2ND CUT (kg/ha)	3RD CUT (kg/ha)	TOTAL	% CHANGE
Untreated urea - 400 kg/ha	250	750	300	1300	
DMPP urea - 400 kg/ha (2)	400	1000	350	1750	34.62
NBPT urea - 400 kg/ha (2.6)	500	1500	500	2500	92.31
Active Stabilizer - 400 kg/ha (2.4)	550	1800	400	2750	111.5

PASTURE YIELD WITH UREA APPLIED AT 100 kg/ha

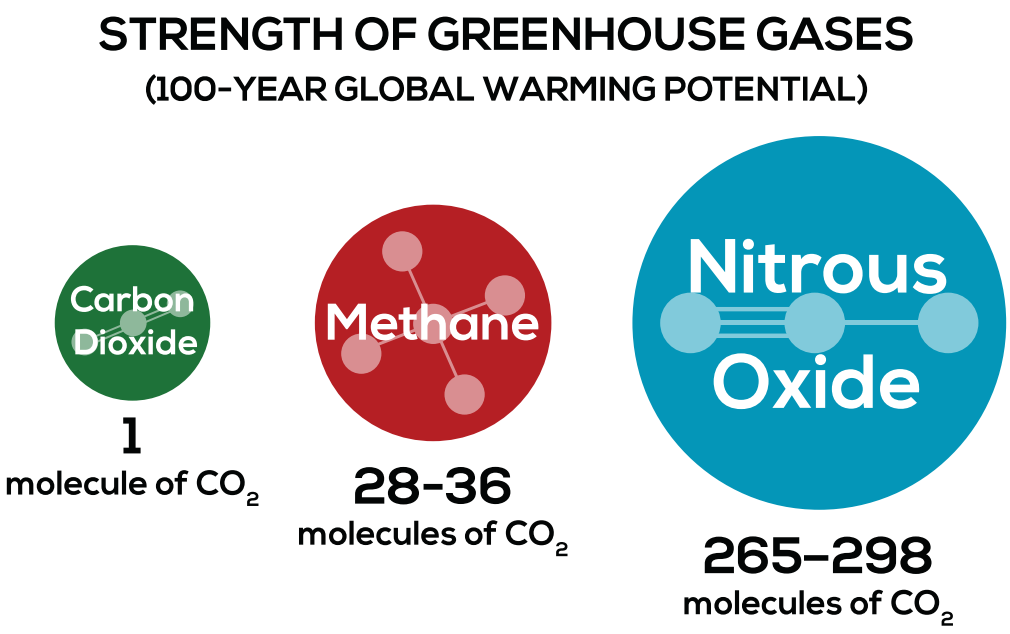


TREATMENTS	1ST CUT (kg/ha)	2ND CUT (kg/ha)	3RD CUT (kg/ha)	TOTAL	% CHANGE
Untreated urea - 100 kg/ha	100	600	200	900	
DMPP urea - 100 kg/ha (2)	150	600	175	925	2.778
NBPT urea - 100 kg/ha (2.6)	175	675	250	1100	22.22
Active Stabilizer - 100 kg/ha (2.4)	175	700	250	1100	22.22

In today's world, the pressing issue of global warming demands innovative solutions. Nitrogen fertilisers are vital for agricultural productivity, yet they inadvertently contribute to global warming by releasing nitrous oxide, a greenhouse gas nearly 300 times more potent than carbon dioxide (CO2) and with an atmospheric lifespan exceeding a century.

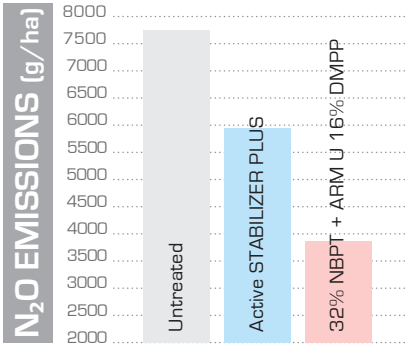
Active AgriScience nitrification inhibitors (Active STABILIZER PLUS, ARM U 16% DMPP) helps us combat global warming by reducing the amount of nitrous oxide nitrogen fertiliser releases into the atmosphere.

A 2023 nitrous oxide (N_2O) emissions study by the University of Manitoba compared N_2O emissions from urea treated with **Active STABILIZER PLUS** against untreated. **The study showed N_2O emissions were reduced by 23% over 14 days.**



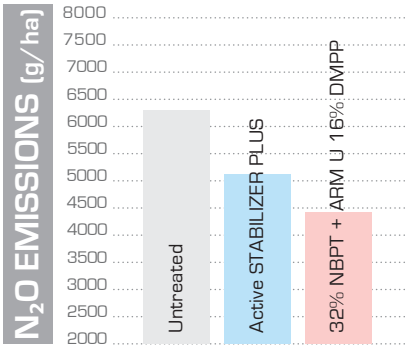
Global warming potential based on 100 year time horizon, Source: IPCC AR5

N_2O EMISSIONS from BROADCASTED UREA • 3rd Party Research by the University of Manitoba



TREATMENT	N2O FLUX (g/ha)	DIFFERENCE	% REDUCTION
Untreated	7760		
Active STABILIZER PLUS	5965	1794	**23.1**
32% NBPT + ARM U 16% DMPP	3889	3871	**49.9**

N_2O EMISSIONS from SHALLOW BANDED UREA • 3rd Party Research by the University of Manitoba



TREATMENT	N2O FLUX (g/ha)	DIFFERENCE (g/ha)	% REDUCTION
Untreated	6301		
Active STABILIZER PLUS	5161	1141	**18.1**
32% NBPT + ARM U 16% DMPP	4462	1839	**29.2**

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CONTACT:

Phil Nixon

PO Box 573, Willetton, WA, 6955

+61 402 794 288

phil.nixon@activeagriscience.com

Greg Tapscott

0438.974.354

greg.tapscott@activeagriscience.com