

Enhanced Nitrogen Products

Differences in Performance Aspects

Trade name	Type	Mode of action	Practical effect	Basic Producer	Additive or Total Product	Dry, Liquid, Gas	Reduces Losses by:			Benefits documented by research	Pros	Cons
							Volatilization	Leaching	Denitrification			
ESN	Polymer-coated urea	Diffusion through coating	Delays exposure/ availability of N for 60-90 days	Agrium	T	D	x	x	x	Y	Effective for all N loss mechanisms, easy to store and handle; no additional products to add; best agronomic performance among all other enhanced efficiency fertilizers	No liquid form, less effective in dry conditions with surface application
Agrotain®	Stabilizer	Inhibits urease enzyme	Slows conversion of urea to ammonia for 7-14 days	Agrotain Int.	A	D/L	x			Y	Buys insurance time for incorporation or rain; available in both dry and liquid treatments	Short period of efficacy; must add to fertilizer
N-Serve®	Stabilizer	Blocks Cu from active sites on enzyme	Slows conversion of ammonium to nitrate for a week to several weeks	Dow Chemical	A	G/L		x	x	Y	Only available treatment for ammonia	Corrosive, no dry application; short period of efficacy; must add to fertilizer; volatile - must be injected into soil; safety; high application cost
INSTINCT®	Stabilizer	Blocks Cu from active sites on enzyme	Slows conversion of ammonium to nitrate for a week to several weeks	Dow Chemical	A	L		x	x	Y	Only labeled for treatment with Liquid Nitrogens	No dry application; shorter period of efficacy; must be added to fertilizer
Nutrisphere N®	Stabilizer	Unknown, but theorized to be sequestration of enzyme metal cofactors (Cu, Ni)	Slows conversion of urea to ammonia and ammonium to nitrate; claimed to be effective for entire growing season	SFP	A	D/L	x	x	x	Not much data available	Combines two inhibitory actions; available for both dry and liquid treatments; small volume of product to handle	Unproven; science still unknown; must add to fertilizer
DCD	Stabilizer	Inhibits nitrification	Slows conversion of ammonium to nitrate for a week to several weeks		A	L/D		x	x	Y	Nitrification inhibitor available for dry products that may be surface applied	Requires mixing with fertilizer
Agrotain Plus®	Stabilizer	Inhibits urease enzyme and nitrification (Agrotain + DCD)	Slows conversion of urea to ammonia (7-14 days) and ammonium to nitrate (1 to several weeks)	Agrotain Int.	A	D/L	x	x	x	Y	Combines two inhibitory actions; available for both dry and liquid treatments; small volume of product to handle	Requires mixing with fertilizer
Super U®	Urea treated with stabilizer	Inhibits urease enzyme and nitrification (Agrotain + DCD)	Slows conversion of urea to ammonia (7-14 days) and ammonium to nitrate (1 to several weeks)	Agrotain Int.	T	D	x	x	x	Y	Combines two inhibitory actions	Product reportedly soft and somewhat difficult to handle
Ca, NH ₄ , or K thiosulfate	Stabilizer	Mild urease/nitrification inhibitor	<i>Not available</i>	Tessenderlo-Kerley	T	L		x	x	Y	<i>Not available</i>	<i>Not available</i>

How can we help? To make ESN a part of your nitrogen program, contact an authorized retailer or Agrium Advanced Technologies representative.

For technical information, our agronomists can be reached during business hours.

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