

MAJOR FERTILIZER PRODUCTS (NITROGEN AVAILABILITY)

Type:

Soluble nitrogen	Coated soluble nitrogen	Natural organic nitrogen	Reacted (synthetic) organic nitrogen
	Sulfur coated urea (37 to 39% N)	Activated sewage sludge (6% N)	Ureaform (38% N)
Ammonium sulfate (21% N)	Polymer coated urea (38 to 44% N)	Digested sewage sludge (2% N)	Methyleneurea (40% N)
Urea (46% N)	Polymer coated sulfur coated urea (38 to 39% N)	Fish meal (10% N) Dried blood meal (12% N) Composted turkey manure (10% N)	Liquid methyleneurea (15 to 21% N) Isobutylidenediurea (31% N)

CHARACTERISTICS OF NITROGEN

Quick-release sources	Coated slow-release sources	Reacted slow-release sources
Soluble in water	Slowly soluble in water	Controlled solubility in water
Can be used immediately by plants, which show rapid response	Can be used less frequently	Supplies N gradually
High potential for foliar burn	Reduced fertilizer losses from leaching	Little fertilizer losses from leaching
Require applications at low rates, frequent intervals to sustain growth	Produce more uniform growth response	Low salt index, little burning
Leach readily	Economically sound for general turf applications Susceptible to breaking/damage with handling	Performance not affected by coating



COMPARISON OF MAJOR NITROGEN SOURCES

Characteristics	Methyleneurea	Ureaform	IB**	SCU	Polymer Coated	Urea
Release characteristics	12-16 weeks	12-16 months	12-16 weeks	Varies	Varies	1-4 weeks
Hydrolysis releasable	*		*	*		*
Microbial releasable	*	*				
Not dependent on coating or particle size for release	*	*				*
Nonburning	*	*	*	☆☆	☆☆	
Low salt	*	*	*	*	*	
Minimal leaching/volatilization	*	*	*	*	*	
Temperature response	*	*			*	

* Can cause mottling if coating is broken

** IB is a registered trademark of Lebanon Seaboard Corp.

**U.S. MANUFACTURERS AND PRIMARY DISTRIBUTORS
1998 CONSUMPTION (DOLLARS)**

Estimated wholesale of the U.S. CRF market by product type, 1998

Product	% share	\$ Dollars (Millions)
UF fertilizers	43	\$142.2
IBDU*	2	8.3
Sulfur coated & polymer coated	16	52.5
Polymer coated	22	74.4
Other slowly soluble products	5	16.4
Processes natural organic	12	40.6
Total	100	\$334.3

SOURCE: CONTROLLED RELEASE FERTILIZERS, JUNE 1999, AGINDUSTRIES RESEARCH & CONSULTING, INC., SAN MATEO, CA.