

# Amino-Form\*

A unique amino acid based supplement that gives turf maximum protection and recovery from stress. Available as a root-acting and a foliar-acting product

Contains L-form amino acids



Improves stress resistance to drought, heat, cold, frost, wear, excessive salinity, waterlogging, phytotoxicity, disease, excessive shade etc

Enhances recovery from stress

Increases photosynthesis and chlorophyll content

Improves turf quality

Increases root growth of stressed turf

Enhances germination

Chelating properties gives improved absorption of nutrients

Unique tank mixing compatibilities

Environmental factors can cause a great deal of stress to turfgrass swards. Unfortunately the turfgrass manager has little or no control over such problems as drought, heat, cold, frost, too much rainfall, anaerobic soil conditions/compaction and salinity.

However, some stress factors can be alleviated by careful management. Extremely close mowing, abrasion caused by triplex mowers on the perimeter cut of golf greens, deep verticutting, too little or too much irrigation, excessive shade, chemical misapplication, the amount of play and the conditions under which play occurs, all subject the turf to physiological pressure to varying degrees throughout the year. Generally adverse environmental conditions result in several common plant responses:

- Stomatal closure
- Decrease in photosynthesis
- Slow down of plant metabolism
- High demand for amino acids that the plant cannot provide.

The biologically active L-form amino acids present in Mascot Amino-Form F and Amino-Form R combat these reactions to stress by:

- Preventing stomatal closure
- Increasing photosynthesis
- Increasing chlorophyll synthesis
- Increasing nutrient absorption
- Regulating osmotic pressure.

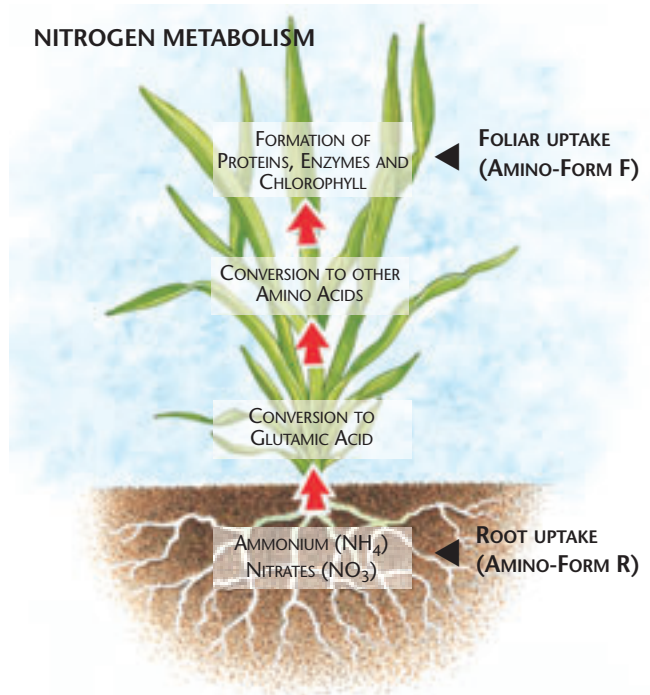
## How does Amino-Form work?

Amino acids, the structural units of all proteins whether they are plant or animal, are natural organic molecules that take part in all physiological processes. In all there are 18 different amino acids that link together in various sequences to form proteins.

Both Amino-Form F and Amino-Form R contain these 18 amino acids all of which are involved in turf health.

Plants store nutrients, especially Nitrogen, as amino acids or proteins (chains of amino acids). All the nitrogen which is absorbed by turf, either from fertilizers or soil organic matter is incorporated in the form of amino acids.

## NITROGEN METABOLISM



When ammonium and nitrates are absorbed by roots or leaves, they are first converted into Glutamic acid, one of the most important L-form amino acids. All the other amino acids are then formed by the reaction of organic molecules with Glutamic acid. A percentage of these amino acids will combine to form proteins.

Under optimal growing conditions plants synthesize their own amino acids but at a significant expense in terms of energy. However, when stress situations occur, there is a greater demand for amino acids than the plant is able to meet.

The direct application of supplemental amino acids via Amino-Form F and Amino-Form R during stress periods allows considerable savings in energy to be made which can then be channelled into essential physiological processes such as photosynthesis and protein formation (new growth).



The result is a healthy more vigorous turf, more able to withstand the rigours of stress.

Amino acids also have important chelating properties, chelates being formed by combining with elements, such as Iron, Manganese, Calcium, Magnesium and Copper which are important (nutrients) to the plant. As a result, nutrients applied at the same time as Amino-Form will be more readily absorbed by roots and leaves.

Only L-form amino acids can be assimilated by plants to form proteins. Amino-Form F and Amino-Form R are L-form amino acid based products for use on turf and are produced by enzymatic hydrolysis.

## Where to use Amino-Form

Amino-Form F and Amino-Form R are suitable for use on all types of sports and amenity turf which are subject to stress conditions, whether they be of an environmental or a mechanical nature. Typical use situations include golf course greens, tees, approaches and fairways, bowling greens, cricket square, tennis courts and soccer pitches.

## How to use Amino-Form

Amino-Form R contains higher levels of amino acids involved in seed germination and root development. Amino-Form F contains higher levels of amino acids involved in photosynthesis and osmotic regulation. They are therefore designed to be used in a programmed manner. Amino-Form is particularly beneficial during or prior to stress situations.

	J	F	M	A	M	J	J	A	S	O	N	D
Amino-Form R												
Amino-Form F												

## Amino-Form R

Apply in spring and autumn when the turf roots are more actively growing and the turf needs nutritional and physiological stimulation e.g. after aeration, top dressing, seed germination, root development, excessive salinity and stress periods.

Apply at 10–15 litres per hectare in spring and autumn ideally at 2–4 week intervals to stimulate root growth and at overseeding. Apply in a minimum of 500 litres of water per hectare and irrigate into the rootzone within six hours after application. Cut grass before application.

Apply through conventional hydraulic spraying equipment fitted with coarse jets, or apply through irrigation systems.

### Rate of Application

Area of use	Amino-Form R	Min. Water Volume	Area
Golf and bowling greens	500–750 mls	25 litres	500m <sup>2</sup>
Tees and fairways	10–15 litres	Min. 500 litres	1 ha
Sportsfields	10–15 litres	Min. 500 litres	1 ha

## Amino-Form F

Amino-Form F is recommended for use during the growing season in stress situations where turf has difficulty absorbing nutrients from the soil. It reduces the effects of such stress factors as drought, frost, cold, heat, phytotoxicity, soil compaction, waterlogging/anaerobic conditions, excessive salinity or excessive shade.

Apply mid-March to September ideally at 2–4 week intervals when turf is likely to suffer or is suffering from stress conditions. Cut grass before application.

A rain-free period of at least two hours after application is recommended.

Note: Increase the number of applications rather than the rate of use during periods of prolonged stress. Apply through conventional spraying equipment with fan jets fitted to produce a medium to fine spray quality.

## Rate of Application

Area of use	Amino-Form F	Min. Water Volume	Area
Golf and bowling greens	250 mls	25 litres	500m <sup>2</sup>
Tees and fairways	5 litres	500 litres	1 ha
Sportsfields	5 litres	500 litres	1 ha

## Walkover Sprayers for Amino-Form R and Amino-Form F

Groundsman Quantity per 25 litre fill to treat 525m <sup>2</sup> (476l/ha)	Professional Quantity per 25 litre fill to treat 668m <sup>2</sup> (374l/ha)
Amino-Form R: 262-394mls x 2 fills*	334-500 mls x 2 fills*
Amino-Form F: 262 mls	343 mls

\* Apply Amino-Form R at half strength and cover area twice.

### Amino-Form F:

#### Recommended Nozzles e.g. Hypro, Hardi (guide only)

Equipment	Spray Quality	Hypro (formerly Lurmark) Nozzle		
		Type	Colour	Code
Power Sprayer	Medium	Flat fan	Brown	F110-05
Knapsack (Boom)	Medium	Flat fan	Red	F80-04
Knapsack (Single jet)	Medium/Coarse	Flood jet	White	DT 4.0

Equipment	Spray Quality	Hardi Nozzle		
		Type	Colour	Code
Power Sprayer	Medium	Flat fan	Brown	FF 05 110
Knapsack (Boom)	Medium	Flat fan	Red	04 E80
Knapsack (Single jet)	Medium/Coarse	Flood jet	Red	AN 2.4

### Amino-Form R:

#### Recommended Nozzles e.g. Hypro, Hardi (guide only)

Equipment	Spray Quality	Hypro (formerly Lurmark) Nozzle		
		Type	Colour	Code
Power Sprayer	Coarse	Flat fan	White	F110-08
Knapsack (Boom)	Coarse	Flat fan	Brown	F80-05

Equipment	Spray Quality	Hardi Nozzle		
		Type	Colour	Code
Power Sprayer	Coarse	Flat fan	White	FF 08 110

## Compatibility Recommendations

Mascot Amino-Form F and Amino-Form R are compatible for tank mixing with the following products in the Mascot Specialities range: Mascot Magnet Rapide, Activate-XL, Activate R-ERD liquid, Breaker Advance, Cal-Form, K-Form, Mag-Form and Integrate Plus.

Do not mix more than two products together in any one application. If making a tank mix for the first time apply to a small area first to establish safety and desired effects. When tank mixing always follow the highest water rates indicated on the labels of the products concerned. Read product label before use.

## Pack details of Amino-Form

Pack size: 5 litres F:(0113151/05) R:(0113161/05)  
 Pack coverage: Amino-Form R: 3,333–5,000m<sup>2</sup>  
 Amino-Form F: 10,000m<sup>2</sup>

Amino-Form and Mascot are trademarks of Rigby Taylor Limited.