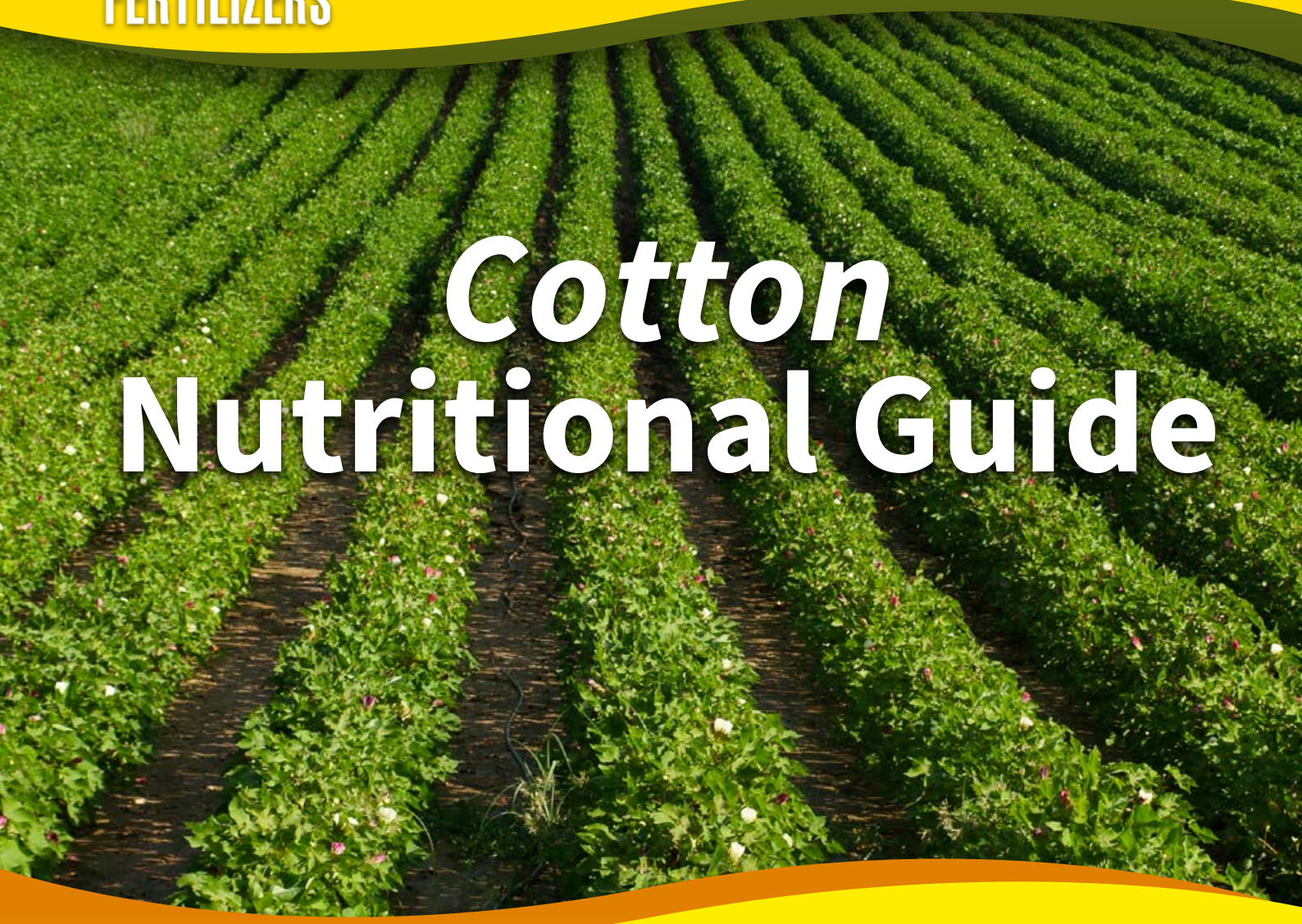
Quality Ingredients
Australian Made
Family Owned

SLTEC®

FERTILIZERS

Nutrient Solutions



Cotton Nutritional Guide

SLTEC®'s range of quality fluid fertilizers and microbial stimulants are supported by our comprehensive field agronomy service.

www.sltec.com.au

Why Choose SLTEC® Fertilizers?

SLTEC® Fertilizers is a leading manufacturer of fluid Fertilizers, based in Northern Victoria.

Our Promise

Quality

SLTEC® Fertilizers is committed to supplying consistently high quality products.

Investment

SLTEC® Fertilizers will ensure that your fertilizer inputs maximise the return on your investment.

Service

SLTEC® Fertilizers will provide professional, logistical and agronomic support to ensure a sustainable relationship.

Read our quality assurance policy online at **sltec.com.au/quality**

Why use Fluid Fertilizer?

- Efficient and highly plant available
- Can deliver many nutrients with a single application
- Small and frequent applications reduce leaching and runoff
- Foliar and Fertigation options allow flexible application timing unlike relying on broadcast application
- Consistency of product and uniform application across the soil
- Nutrients infiltrate to the root zone where maximum uptake is achieved
- Foliar application particularly of trace elements avoids tie up in the soil
- Can be mixed with a range of farm chemicals
- Labour savings and improved workplace safety

SLTEC's Commitment to Quality

Can your fertilizer supplier give you this sort of quality assurance?

SLTEC is committed to delivering quality products and services. We continue to put a tremendous effort into ensuring that our products meet the tightest quality parameters.

- We carefully select the ingredients we use in our formulations from suppliers all over the globe.
- We routinely seek independent laboratory testing to confirm the levels of all nutrients listed on our product labels. We also regularly test for heavy metals or other contamination.
- Our blends are developed by our formulation chemist, who has now developed over 400 different blends, some of which have been servicing very sensitive crops in hygienically clean glass house environments.
- We invest annually in formulation research and advanced chemistries for the fluid fertilizer and industrial water treatment sectors.
- Our team has specialized formulation software that aids the development of each blend, from basic chemistry building blocks into complex and sophisticated formulations for applications such as hydroponics, foliar fertilizer, fertigation, water treatment etc.
- Our batching and mixing systems are calibrated every 6 months by an external certifying body.
- Each batch must meet a variety of tests and quality specifications before being released for dispatch.
- Our labels state accurately the nutrient content of each blend and comply fully with state and federal legislation and the Fertilizer Australia Labelling Code of Practice.
- We retain samples of each and every blend made with a unique batch number, enabling traceability of batches.
- Our staff are qualified and thoroughly trained to ensure our products and services remain at the highest standards of excellence.

In summary, quality is an absolutely essential component of the culture and processes at SLTEC and we pride ourselves on it. Development, manufacture, storage, labelling and transport of our products is carried out in a manner that aims to provide our customers with the assurance that the products they receive are of the highest quality, ready to use and will deliver the outcomes desired.

Further information on our quality policy is available on our website.

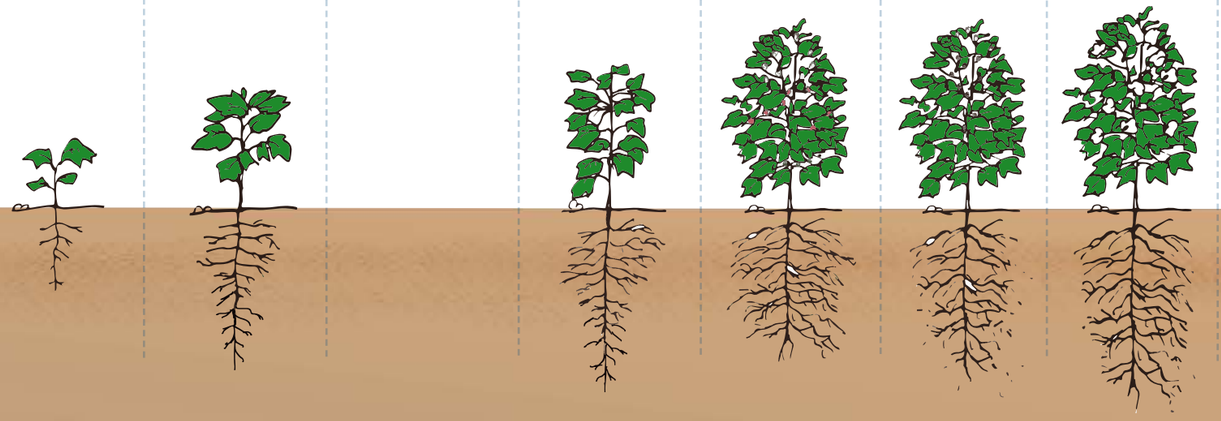
Cotton Fluid Fertilizer Options

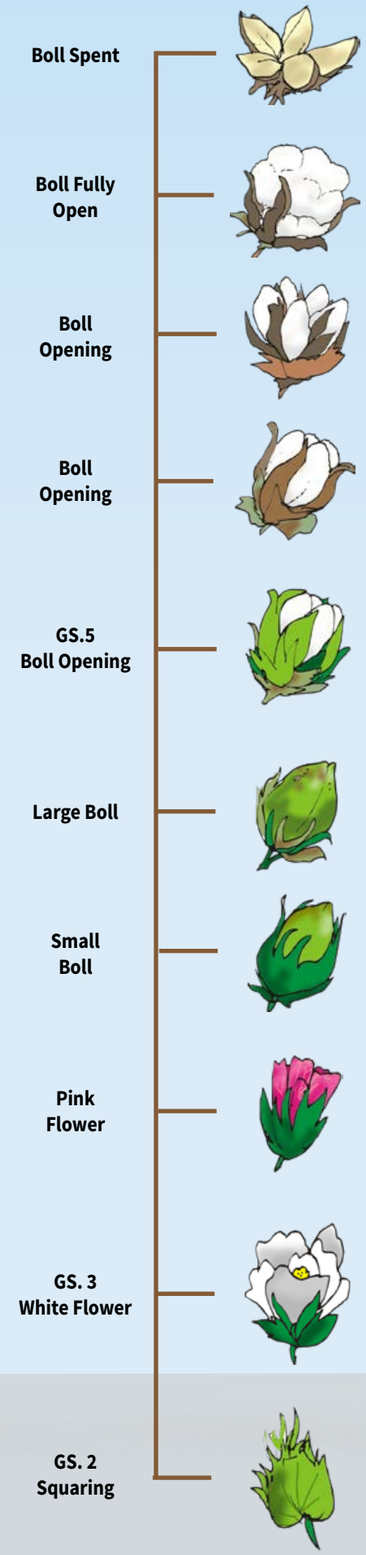
	Product Code	Product Name	GROWTH STAGES Pre Plant	 Sowing	GS 1 Emergence	GS 2 First Square	GS 3 First Flower	GS 4 Peak Flower	GS 5 1st Boll Opens	 90% of Bolls Open
At Sowing	SG0017	BiologiCAL® PLUS	✓	✓	✓					
	SI0024	PAM (Liquid Polyacrylamide)	✓	✓	✓	✓	✓	✓	✓	
	SG0037	AquaLIME 38™	✓	✓						
	SG0039	QuadSHOT®	✓	✓						
Starters	SS9003	SS 10:14:0 + Zn™		✓						
	GG0071	Cotton Starter™		✓						
	CB0047	Cotton QUAD™		✓						
Flood Irrigation / Fertigation	GG0032	Urea 26™			✓	✓	✓	✓		
		Urea 26 + PAM			✓	✓	✓	✓		
	GG0062	NitrologiCAL PLUS TE™				✓	✓			
	GG0017	UAN™				✓	✓	✓		
Foliar	SNPK0080	High PZ™			✓	✓	✓			
	SNPKCB0078	Foliar KPB™				✓	✓	✓		
	SNPK0033	Z Chel™				✓	✓	✓		
	SNPK0072	Cotton Boost™			✓	✓	✓	✓		
	GG0009	Baseline Plus™			✓	✓	✓	✓		
			Soil Testing			Tissue Testing				

Further technical information and application rates, on these products, is given in the product tables on the following pages.

Why Tissue Test?

Plant tissue analysis acts as an early warning system to highlight any nutrients that may become deficient before they display any visible symptoms, or which may affect crop yield and quality. Monitoring plants' uptake of nutrients and understanding soil nutrition provides growers with management tools that are likely to improve profitability and the long-term viability of their enterprise.





Product Technical Information

At Sowing

Product Code	Name	N% (w/v)	P% (w/v)	K% (w/v)	S% (w/v)	Ca% (w/v)	Bio Stimulant	Chel. Agent	Specific Gravity (kg/L)	pH Range	Typical Application Rates
											At Sowing
SG0017	**BiologiCAL® PLUS** N as NO_3 0.3%, P as PO_4 0.1%, Fulvic Acid 0.01%, Fish Emulsion 0.3%, Humic Acid 0.2%, Kelp 0.3%, Molasses 41.9%	0.3	0.1	2.0	1.8	6.3	Y	Y	1.27 - 1.31	6.0 - 7.0	20 to 30 L/ha, at planting (when banded > 25mm to the side or below the seed), with 10 to 100 L/ha of water (depending on crop)
SI0024	**PAM (Liquid Polyacrylamide)** 3% Polyacrylamide Solution	-	-	-	-	-	-	-	1.01 - 1.02	3.0 - 5.0	20 L/ha applied directly into head ditch at commencement of irrigation cycle. Recommended three applications during Irrigation program
SG0037	**AquaLIME 38™**	-	-	-	-	38.0	-	-	1.60 - 1.61	9.0 - 10.0	Speak to your SLTEC® representative for specific application rates
SG0039	**QuadSHOT®** Fe 0.006%, C 5.2%, Fulvic Acid 0.3%, Fish Emulsion 8.0%, Humic Acid 6.6%, Kelp 8.0%, Molasses 8.0%	0.3	0.1	3.4	0.2	0.2	Y	Y	1.10 - 1.20	2.5 to 3.5	Banded with Seed: 4 to 7 L/ha Banded to the Side: 5 to 15 L/ha with 10 to 100 L/ha of water 20 to 60 L/ha as a directed soil spray, prior to planting with 40-80 L/ha of water

Starters

Product Code	Name	N% (w/v)	N% (w/v)	K% (w/v)	S% (w/v)	Ca% (w/v)	Bio Stimulant	Chel. Agent	Specific Gravity (kg/L)	pH Range	Typical Application Rates	
											Banded with Seed	Banded to the Side
											with 10 to 100 L/ha of water	
SS9003	**SS 10:14:0 + Zn™** N as NH_4 10.1%, P as PO_4 14.0%, Zn 0.8%	10.1	14.0	-	-	-	-	-	1.27 - 1.28	6.5 - 7.0	10 to 40 L/ha	10 to 50 L/ha
GG0071	**Cotton Starter™** N as NH_4 1.8%, P as PO_4 22.0%, Zn 1.0%	1.8	22.0	7.5	-	-	-	-	1.42 - 1.43	0.5 - 1.5	10 to 40 L/ha	10 to 50 L/ha
SSCB0015	**Cotton QUAD™** N as NH_4 0.9%, P as PO_4 12.3%, Zn 0.5%, Fe 0.01%, Fulvic Acid 0.1%, Humic Acid 3.3%, Fish Emulsion 4.0%, Kelp 4.0%, Molasses 4.0%	1.1	12.3	5.2	-	-	-	-	1.30 - 1.31	2.0 - 3.0	10 to 40 L/ha	10 to 50 L/ha

Flood Irrigation / Fertigation

Product Code	Name	N% (w/v)	P% (w/v)	K% (w/v)	S% (w/v)	Ca% (w/v)	Bio Stimulant	Chel. Agent	Specific Gravity (kg/L)	pH Range	Typical Application Rates
											Fertigation
GG0032	**Urea 26** N as urea 26.0%	26.0	-	-	-	-	-	-	1.13 - 1.14	6.0 - 8.0	Water Run
SG0031	**NitrologiCAL PLUS TE** N as NO_3 9.0%, N as NH_4 8.9%, N as urea 17.9%, Mn 0.1%, Zn 0.16%, Cu 0.04%, B 0.2%, Fulvic Acid 0.001%, Humic Acid 0.03%, Fish Emulsion 0.04%, Kelp 0.04%, Molasses 6.1%	36.0	-	0.3	0.3	1.0	Y	-	1.30 - 1.32	5.0 - 6.0	Sub Surface Drip or Overhead Spray Application
GG0017	**UAN** N as NO_3 10.6%, N as NH_4 10.6%, N as urea 21.3%	42.5	-	-	-	-	-	-	1.32 - 1.33	6.0 - 7.0	Sub Surface Drip or Overhead Spray Application
GG0072	**Carbo K**	-	-	43.8	-	-	-	-	1.54 - 1.56	13.0 - 14.0	Sub Surface Drip or Overhead Spray Application

Foliar

Product Code	Name	N% (w/v)	P% (w/v)	K% (w/v)	S% (w/v)	Ca% (w/v)	Bio Stimulant	Chel. Agent	Specific Gravity (kg/L)	pH Range	Typical Application Rates	
											Foliar *Ground Applied*	Foliar *Aerial Applied*
SNPK0080	**High PZ** P as PO_4 18.0%, Zn 14.1%	-	18.0	2.0	-	-	-	-	1.44 - 1.45	1.0 - 2.0	3 - 5 L/ha with at least 80 L/ha of water	3 - 5 L/ha with at least 40 L/ha of water
SNPKCB0078	**Foliar KPB** P as PO_4 12.3%, B 1.5%	0.6	12.3	26.8	-	-	-	-	1.47 - 1.48	-	1 - 10 L/ha with at least 100 L/ha water	N/A
SNPK0033	**Z Chel** N as NH_4 3.0%, Zn 6.5%	3.0	-	-	-	-	-	-	1.17 - 1.18	7.0 - 8.0	5 - 10 L/ha with at least 100 L/ha of water	5 - 10 L/ha with at least 100 L/ha of water
SNPK0072	**Cotton Boost** N as NO_3 3.9%, N as urea 13.5%, P as PO_4 0.1%, Zn 0.5%, Cu 0.05%, Fe 1.0%, Fulvic Acid 0.01%, Humic Acid 0.3%, Fish Emulsion 0.4%, Kelp 0.4%, Molasses 0.4%	17.4	0.1	0.1	5.0	-	Y	-	1.21 - 1.22	3.5 - 5.5	10 - 20 L/ha with at least 50 L/ha of water	10 - 20 L/ha with at least 20 L/ha of water
GG0009	**Baseline Plus** N as urea 11.7%, P as PO_4 4.9%, C 0.3%, Mg 0.2%, Mn 0.006%, Zn 0.01%, Cu 0.005%, Mo 0.005%, B 0.02%, Fe 0.01%, Fulvic Acid 0.01%, Humic Acid 0.3%, Fish Emulsion 0.4%, Kelp 0.4%, Molasses 0.4%	11.7	4.9	13.6	2.0	-	Y	-	1.30 - 1.31	7.5 - 8.5	2 - 15 L/ha with at least 60 - 100 L/ha of water	N/A

Additional products including custom blends are available, contact a SLTEC® Agronomist for further details

Crop Nutritional Information

To assist in developing a greater understanding of the nutrients required to grow healthy, profitable and sustainable crops, we have put together a summary of some of the functions and interactions that occur.

To maximise yield and profit, we are constantly reminded of Liebig's Law, which states, "Growth is not controlled by the total amount of resources available to a plant, but rather, the most limiting resource required, at any one time".

The nutrients that you invest in to maximise yield, quality and profit, do not work in isolation, but in many complex chemical interactions, that together, convert light energy into a valuable seed and fiber source, for mankind.

The cotton plant, having an indeterminate flowering habit, with its origins being perennial, and now being farmed as an annual, has a unique set of management functions that should be met if you are aiming to grow a high yielding, high quality crop.

Critical Growth Stages and Nutrient Requirements

Emergence (GS. 1)

This is the start of the cotton plant's nutrient demand. The minerals, nitrogen, phosphorus, potassium, calcium, magnesium, manganese, zinc and boron are all required by germinating seeds and seedling growth.

The big three - nitrogen, phosphorus and potassium - are required for protein production, internal energy, chemical processes, and to direct enzymes to the apical meristem (growing point). Calcium and boron are required for new cell production and in conjunction with phosphorus, zinc and manganese, are required for rapid root and shoot extension.

While balanced nutrition is required throughout the crop's life, the correct balance of these minerals is essential to getting the crop off to a healthy start. Cotton plants have a vigorous root system that can already be 30cm deep two weeks after Emergence, and up to 1 metre deep at Squaring. Therefore, correct early nutrition is essential in setting up the plant for maximum production.

In situations where available calcium is low or out of balance with other cations, we recommend the use of BiologiCAL® PLUS as a pre-plant application either with nitrogen or alone, or as a pop-up at sowing with the seed. BiologiCAL® PLUS has a unique blend of plant available calcium with plant and biological stimulants that drive early growth.

Another key product is SS 14:21:0™. The balance of nitrogen, phosphorus, is an ideal choice as a pop-up especially where pre-plant nitrogen has been used. The product's chemistry allows the plant both up front available phosphorus plus slow release.

SS 10:14:0 + Zn™ is an alternative to use as a pop-up especially where available potassium levels are adequate.

First Square (GS. 2)

At this stage the cotton plant is starting its reproductive phase. The plant is beginning to rapidly grow both roots and fruiting branches. This is the ideal time to start monitoring crop performance through tissue testing. As the plant is now developing quickly, deficiencies in nutrition can lead to reductions in flower numbers and boll set.

As the plant grows, so does the daily water use, along with the uptake of nitrogen. Remember, nitrogen and sulphur are driving protein production and nitrogen is a component of chlorophyll.

Other minerals required at this stage are magnesium, manganese, zinc, copper and boron, all having a vital role to play in the production of chlorophyll, along with sugar and enzyme functions essential for the development of reproductive structures. Calcium and boron are still required for cell wall integrity and along with copper and sulphur help the plant to fight disease.

Products of choice at this stage would be NitrologiCAL PLUS™ and NitrologiCAL PLUS TE™. These products deliver a balance of plant available nitrogen and calcium coupled with plant and biological stimulants, assisting with uptake efficiency, stimulation of root and shoot growth, and reducing leaf burn in foliar situations. These products can also be applied through fertigation.

Super Z Foliar™ and TE 8 PLUS™ are also useful products at this stage. They contain essential trace elements that all plants require for a healthy metabolism and can be foliar applied.

First Flower (GS. 3)

Now the Cotton plant is growing rapidly. Daily water use is almost at its highest level, approximately 1/3 of the total nitrogen uptake has taken place and the plant is extracting its peak daily nitrogen demand. Potassium uptake is increasing rapidly as the plant starts to set flowers and immature bolls.

This is often an ideal time to apply nitrogen through irrigation or by side-dress. NitrologiCAL PLUS™ and NitrologiCAL PLUS TE™ are ideal products for this job.

Foliar applications of TE 8 PLUS™ or Super Z Foliar™ would help to boost plant levels of magnesium, manganese, zinc, copper and boron, if found to be low in tissue tests.

At this time of the season, when daily water use is at a maximum, there is an increased chance of waterlogging which results in a reduced uptake of nitrogen, potassium and iron. While these are the main minerals affected, the uptake of all nutrients may be reduced.

Peak Flower (GS. 4)

The cotton crop has now achieved maximum 'leaf area index' and maximum root extension. The plant is now under peak potassium demand as it blooms and sets bolls. Nitrogen demand is very high and phosphorus is still required to drive enzyme production and movement.

From this stage onwards the cotton plant's carbohydrate sink changes from the roots to bolls and fiber production. This is a critical stage, as the roots senesce, the uptake of minerals from the soil decreases, and the cotton plant starts to rely on what has been stored earlier in the plant's life.

If nutrient shortages were apparent in the first tissue test, ideally they should be corrected by this stage. Particularly nitrogen, phosphorus, potassium, sulphur, calcium, boron and molybdenum. These minerals are all required for flower and fiber production.

Crop Booster PLUS™ as a foliar application is the ideal product of choice with its unique combination of phosphorus and calcium with potassium and trace elements to boost plant energy and reproductive potential.

1st Boll Opens (GS. 5)

It is at this stage that the second tissue test should be conducted. Plant growth should be slowing down, 'cut out' is approaching, and most carbohydrates are being directed to the fruit.

In the first 21 days after pollination the fibers in the boll elongate. During the next 21 days, the fiber thickens to fill the internal boll cavity. It is during these stages the fiber is very sensitive to extremes in temperature, low water availability and nutrient deficiencies especially potassium.

Daily water use has dropped considerably and yet nitrogen and potassium demand is still taking place. As the roots further senesce, nutrients translocate from the root structure to the filling bolls.

Crop Booster PLUS™, applied as a foliar, with its phosphorus and potassium mix, along with trace elements and calcium is useful to boost plant nutrient levels at this stage.

If potassium is low, to avoid premature senescence that results in reduced lint yield and fiber quality, consider the foliar application of Carbo K™ or High KP™, to boost those critical potassium levels.

The selection of specific products and the rate and timing of applications should be based on target yield, soil and plant analysis and cropping history. Extreme seasonal events should also be considered during the development of a flexible fertilizer plan.

Fertilizer use is a significant factor in farm profitability and also impacts on the environment. It is important to develop a flexible, balanced fertilizer program that is based on industry best practice.

The nutritional specialists at SLTEC® are available to work with you or your consulting agronomist to ensure that fertilizer is an investment, not a cost!

Product Technical Information

The growth of the Cotton plant is quite predictable and it is well documented that the best way to identify the growth stages of the plant is by counting the 'Day Degrees'. This method is used to identify the five main growth stages.

This is more accurate than using the average number of days, especially due to the geographic spread of the crop within Australia.

Cotton Growth Stages

Number of Days Post Sowing	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
Average Growing Day Degrees (cumulative)		70 - 80				400 - 500			775 - 850			1250 - 1400		1550-1600		1975-2050		2100-2200	
Major Cotton Growth Stages		GS 1. Emergence				GS 2. First Square			GS 3. First Flower			GS 4. Peak Flower		GS 5. 1st Boll Opens		50% of Bolls Open		90% of Bolls Open	Harvest Period
Peak N Uptake (12 Bales/ha) (kg/ha/day)					0.7		3.5	4	5	5	3	2.5	1.5		0.5				
Cumulative N Uptake (kg//ha)					14	35	70	110	155	205	235	260	275		285			300	
Peak K Uptake (12 Bales/ha) (kg/ha/day)					0.5		1		2	4	4	3	2	1					
Cumulative K Uptake (kg//ha)					10		30	45	65	105	145	175	195	205	215				

Cotton Physiological Development

		Leaf Development			Initiation of Fruiting Branches	Squaring			Flowering			Boll Filling - Fiber Development			Maturity				
			4 True Leaves		5 - 7 Nodes			Peak Nitrogen and Potassium Demand				Max Leaf Area Index	Max Root Growth	Carbohydrates directed to Bolls not Roots (Roots begin to senses)					
	Roots grow to 30cm		Carbohydrates directed to Roots			Roots may be 1m long							5 nodes above White flower (Start of cut out)						

The chart above describes the physiological development of the Cotton plant, and how the critical growth stages match up with average growing day degrees. To easily visualize the major Cotton crop demands, we have shown daily water use and the peak demands of Nitrogen and Potassium.

Estimated Nutrients Removed From High Yielding Cotton Crops

Description	N	P	K	S	Ca	Mg	Mn	Zn	Cu	Mo	B	Fe
Up-Take (kg/ha)												
7.5 Bales/ha	230	45	170									
12 Bales/ha	320	60	225									
Removal (kg/ha)												
7.5 Bales/ha	90	20	35	9	5	12	0.013	0.095	0.021	0.045	0.045	0.12
12 Bales/ha	155	30	44	12	7	17	0.018	0.129	0.028	0.07	0.07	0.19
Peak Demand (kg/ha/day)												
7.5 Bales/ha	3.5	0.8	3									
12 Bales/ha	4.8	1	4									

Tissue Testing

Why Tissue Test?

Plant tissue analysis acts as an early warning system to highlight any nutrients that may become either deficient, toxic, or which may affect crop yield and quality before the plant displays any visible symptoms. Monitoring plants' uptake of nutrients and understanding soil nutrition provides growers with management tools that are likely to improve profitability and the long-term viability of their enterprise.

The Increasing Need

Modern agriculture demands both high volume and quality yields. Additionally, you demand profitable yields. In satisfying these demands, plant tissue analysis has become a valuable crop production tool.

One of the more important factors affecting crop yields is the nutrient status of the plant or the flow of nutrients to plant tissues during the growing season. Nutrient status is an 'unseen' factor in plant growth, except when deficiencies become so acute that visual deficiency symptoms appear on the plant.

How Can a Tissue Test Help?

A plant tissue analysis will show the nutrient status of the plants during the growing season and detect unseen hidden deficiencies. Plant tissue analysis can also supply information to confirm visual deficiency symptoms.

Though usually used as a diagnostic tool for future correction of nutrient problems, a plant tissue analysis from young plants will allow for a corrective fertilizer application that same season. Combined with data from a soil analysis, a tissue analysis is an important tool in determining proper fertilizer applications to balance the nutrient availability in the soil and the nutrient requirements of the crop.

Trace Elements

Eight of the sixteen essential plant nutrients are known as trace elements or micro-nutrients. They include elements such as zinc, copper, boron, manganese and molybdenum.

Nitro Range

- Cost effective & high performance compared to other products on the market
- Compatible with a wide range of SLTEC® Fertilizers, notably high nitrogen blends
- High analysis allowing for low application rates

Nitro Cop™
22.7% Cu, 10.0% N

Nitro Z™
19.3% Zn, 8.3% N

Nitro Mag™
8.8% Mg, 9.8% Nitrate

Nitro ZC™ 4:1
15.9% Zn, 4.0% Cu, 8.6% N

Nitro Mang™
23.9% Mn, 12.2% N

Chelate Range

A premium range of EDTA chelated trace elements.

- Highly compatible with a broad range of liquid fertilizers and agricultural chemicals as a tank mix

Z Chel™
6.5% Zn

Copper Chel™
6.0% Cu

Complex Range

A high analysis, cost effective range of trace elements.

- Rapid plant uptake due to high plant availability

Boron Complex™
14.7% B, 6.0% N

Moly Complex™
23.7% Mo

Copper Complex™
6.7% Cu, 3.4% S

Zinc Complex™
16.4% Zn, 8.1% S

Mag Complex™
6.3% Mg, 8.3% S

ZC Complex™ 4:1
12.0% Zn, 3.0% Cu, 7.4% S

Manganese Complex™
17.7% Mn, 10.6% S

MoBo Complex™
0.3% Mo, 14.7% B, 6.0% N

SLTEC® can add fulvic acid to a number of the Complex Range products, assisting in uptake by acting as an organic chelate.

Australian Organic Registered Farm Input
ALLOWED INPUT 11936

SL TEC FERTILIZERS

Four Key Plant & Soil Microbial Stimulants
Now Organically Certified

QuadSHOT®

Product Code: SG0039

QuadSHOT® contains a carefully selected range of organic additives and biological stimulants. These ingredients stimulate soil biological activity, thereby improving the cycling and availability of plant nutrients and soil fertility and health. Together with management practices that enhance organic matter and soil structure development, this product assists in mobilizing available nutrients and improving plant uptake efficiencies.

Humic acid – increases nutrient holding capacity of the soil
Kelp – enhances plant and root growth development
Fish Emulsion – stimulates nitrogen cycling
Molasses -promotes beneficial soil biology
Each of these stimulants are also available as individual products

Benefits of QuadSHOT®

- Improves saline and sodic soils
- Improves the moisture holding capacity of soils
- Enhances nutrient cycling and availability
- QuadSHOT® can be used to soften a range of foliar fertilizers, allowing higher use rates without the potential for phytotoxic burn - e.g. Nitro QUAD 3™ and UAS QUAD 3™
- QuadSHOT® is designed to aid in the soils mineralisation and nutrient availability. It also increases the plants uptake efficiency of essential minerals.
- Improves overall soil health and vitality.

Guaranteed Analysis

Fish Emulsion	**8.0%**
Kelp	**8.0%**
Molasses	**8.0%**
Humic Acid	**6.6%**
Fulvic Acid	0.3%
Nitrogen (N)	0.3%
Phosphorus (P)	0.1%
Potassium (K)	3.4%
Sulphur (S)	0.2%
Carbon (C)	5.2%
Calcium (Ca)	0.2%
Iron (Fe)	0.006%
Specific Gravity	1.154 kg/L
pH	10.0 - 11.0

Typical Application Rates

Foliar
1 to 5 L/ha
Broadacre use at least 100 L/ha water
Horticulture use 200 to 2,000 L/ha water

Fertigation
20 to 60 L/ha through sprinkler, traveller or drip systems

Pop-Up, At Planting, Directed Soil Spray
Banded with Seed: 4 to 7 L/ha
Banded to the Side: 5 to 15 L/ha
- with 10 to 100 L/ha of water

20 - 60 L/ha as a directed soil spray, prior to planting or banded under canopy, with 200 - 800 L/ha water

Dipping Rates

Tree Age	Young	Established
Fertigation	40 L/ha	80 L/ha
Pre-Plant Dip	10 - 30 L/ha (Per 100L Water)	

Contact:
T: 1800 768 224
E: enquiries@sltec.com.au
www.sltec.com.au

At last! A complete fluid nutrient solution

FERTILIZERS

Baseline Plus™

Product Code: GG0009

Baseline Plus has a complete and balanced NPK analysis suitable for fertigation and foliar application across a wide range of crops. The analysis is perfect for plant establishment and maintained growth where a N : K ratio near 1 : 1 or a mid-season nutrient boost is required.

Benefits of Baseline Plus

- Chelated trace elements for rapid plant uptake and to drive the NPK metabolism.
- Contains SLTEC's QuadSHOT® - The ingredients stimulate soil biological activity; improving the cycling and availability of plant nutrients, plant uptake efficencies and soil fertility and health.
- Baseline Plus has a high analysis compared to other liquid products and provides economic and efficient supply of nutrients and the capacity to reduce rates compared to common prilled complete fertilizers on the market.
- Efficencies can be made with Baseline Plus in fertigation applications by placing the nutrients at the root mass where they will be taken up by the plant; reducing loss or waste of nutrients.

Also available with phosphonic acid – Baseline Phos Plus™
Baseline Plus™ with the additional benefits of phosphonic acid. The addition of phosphonic acid gives 125g of phosphonic acid per 1 L or 1.25 kg per 10 L application.

Guaranteed Analysis

Nitrogen (N)	11.7%
N as urea	11.7%
Phosphorus (P)	4.9%
Potassium (K)	13.6%
Sulphur (S)	2.0%
Carbon (C)	0.3%
Magnesium (Mg)	0.2%
Manganese (Mn)	0.006%
Zinc (Zn)	0.01%
Copper (Cu)	0.005%
Molybdenum (Mo)	0.005%
Boron (B)	0.02%
Iron (Fe)	0.01%
Fulvic Acid	0.01%
Humic Acid	0.3%
Fish Emulsion	0.4%
Kelp	0.4%
Molasses	0.4%
Specific Gravity	1.29 - 1.32 kg/L
pH	7.5 - 8.5

Typical Application Rates

Foliar:
2 to 15 L/ha
Horticulture use 200 to 2,000 L/ha water
Broadacre use at least 100 L/ha water

Fertigation:
10 to 80 L/ha

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ph, Soil Acidity, Lime & Gypsum

Applying lime to a soil reduces its acidity by raising the pH. It also supplies calcium. Increasing soil acidity affects plant nutrient availability, reduces activity of beneficial bacteria that decompose organic matter and heavy metals such as aluminium and iron become more soluble, tieing up phosphorus into forms unavailable to plants, and may build up to toxic levels.

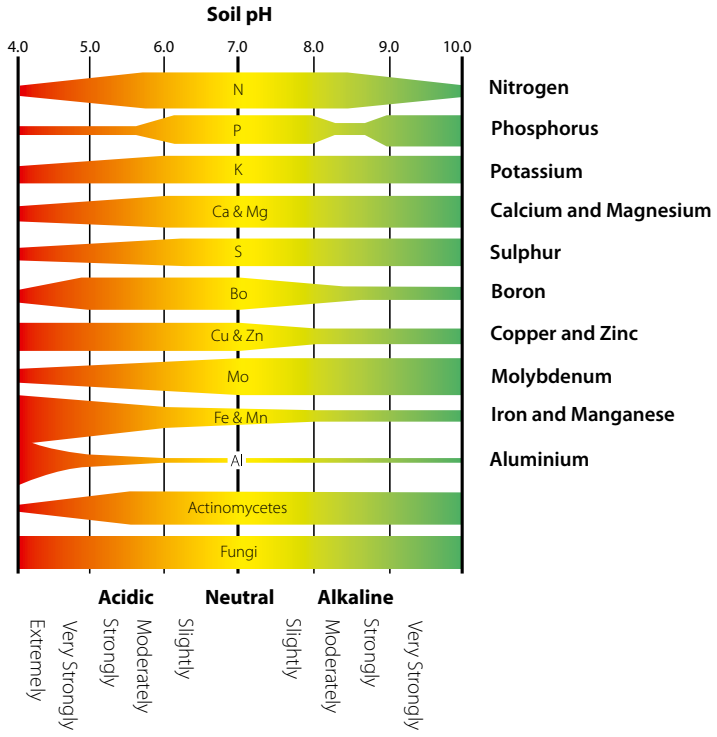
Soil should always be sampled before establishing a new planting. If lime and / or gypsum is required, incorporate it during soil preparation. It is often useful to dig a pit and to sample the subsoil to understand any potential limitations to tree growth further down the profile.

A soil sample every 3 years taken from the same locations within a block is recommended to monitor nutrient levels and to check that the pH remains satisfactory. This allows time for program changes to take effect. If lime is required apply in the Autumn.

The preferred pH before establishing a new crop is generally 6.0 to 6.5 depending on the soil type. Sandy or lighter soils tend to require pH toward the higher end.

Use dolomitic lime (high in magnesium) on soils that are low in magnesium.

Gypsum is usually recommended on sodic and magnesic soils when pH is high and exchangeable calcium is low. High magnesium soils are often massive and hard setting (when exchangeable magnesium is greater than 15%). High sodium soils tend to be dispersive when wet and form a crust when dry (when exchangeable Sodium is greater than 5%).



Desirable Soil Exchangeable Cation Balance

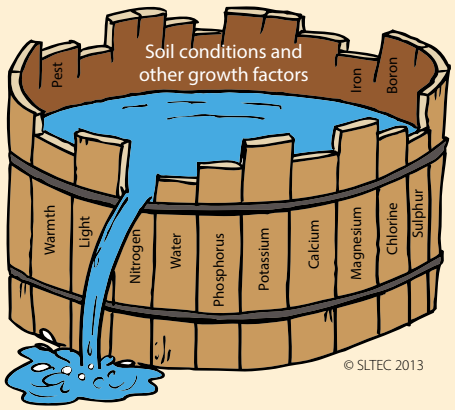
Element	Balance (%)
Calcium	60 - 70
Magnesium	12 - 15
Potassium	3 - 5
ESP	< 5
Hydrogen	< 20
Ca : Mg ratio	2 - 4

Typical Cation Exchange Values for Various Soil Textures

(preferred level >10 meq/100g)

Texture	Typical CEC
Sand	< 5 meq / 100g
Sandy Loam	5 - 10 meq / 100g
Clay Loam	10 - 25 meq / 100g
Light Clay	25 - 30 meq / 100g
Medium Clay	30 - 35 meq / 100g
Heavy Clay	> 35 meq / 100g

(Based on Clay content only - eg: a high organic matter clay may have a CEC over 50 meq/100g)



The Law of the Minimum

States that plant growth is determined by the scarcest, "limiting" nutrient; if even one of the many required nutrients is deficient, the plant will not grow and produce at its optimum.

Conventional fertilizer programs focus on macro-nutrients such as nitrogen, phosphorus and potassium (NPK), and occasionally sulphur. However, plants require a total of sixteen nutrient elements for optimal growth, with each required in different amounts. Therefore if one of the essential trace elements – zinc, copper, boron, manganese, molybdenum, etc – is deficient from the soil, the plant will not perform at its optimum capacity and yield, and reproduction and immune function will diminish.

At SLTEC® we have developed a range of trace elements that respond to the nutrient needs of your crops. Specific consideration is given to high plant availability and physical compatibility with a range of other fertilizers (please refer to compatibility chart above).

SLTEC® is providing you with innovation in Nutrient Solutions!

Inputs that Stimulate Soil Biology

Kelp

Bio Kelp (22% Kelp)

Kelp extracts contain amino acids such as glycine and plant hormones including auxins, betaines and cytokinins which in combination stimulate plant growth. They should not be regarded as fertilizers as the nutrient levels are typically too low to have any direct value. Kelp extracts do have strong effects on soil microbes and in particular stimulate the activity of photosynthetic bacteria and actinomycetes which can help provide protection against soil-borne pathogens.

Fish Emulsion

Fish Emulsion (100% Fish Emulsion)

Fish Emulsions are a source of readily available organic nitrogen and can be especially useful when this is needed to improve the C : N ratio in the soil. They are also beneficial in stimulating growth and activity of many micro-organisms. The net effect is an increase in the potential for nitrogen cycling and also a somewhat reduced requirement for nitrogen inputs to some crops and pasture. Lower application rates (2 L/ha) appear to stimulate fungi and cellulose utilisers that do not respond well to high Nitrogen. Higher rates (10 L/ha) appear to promote photosynthetic bacteria and actinomycetes and suppress lactic acid bacteria.

Humate

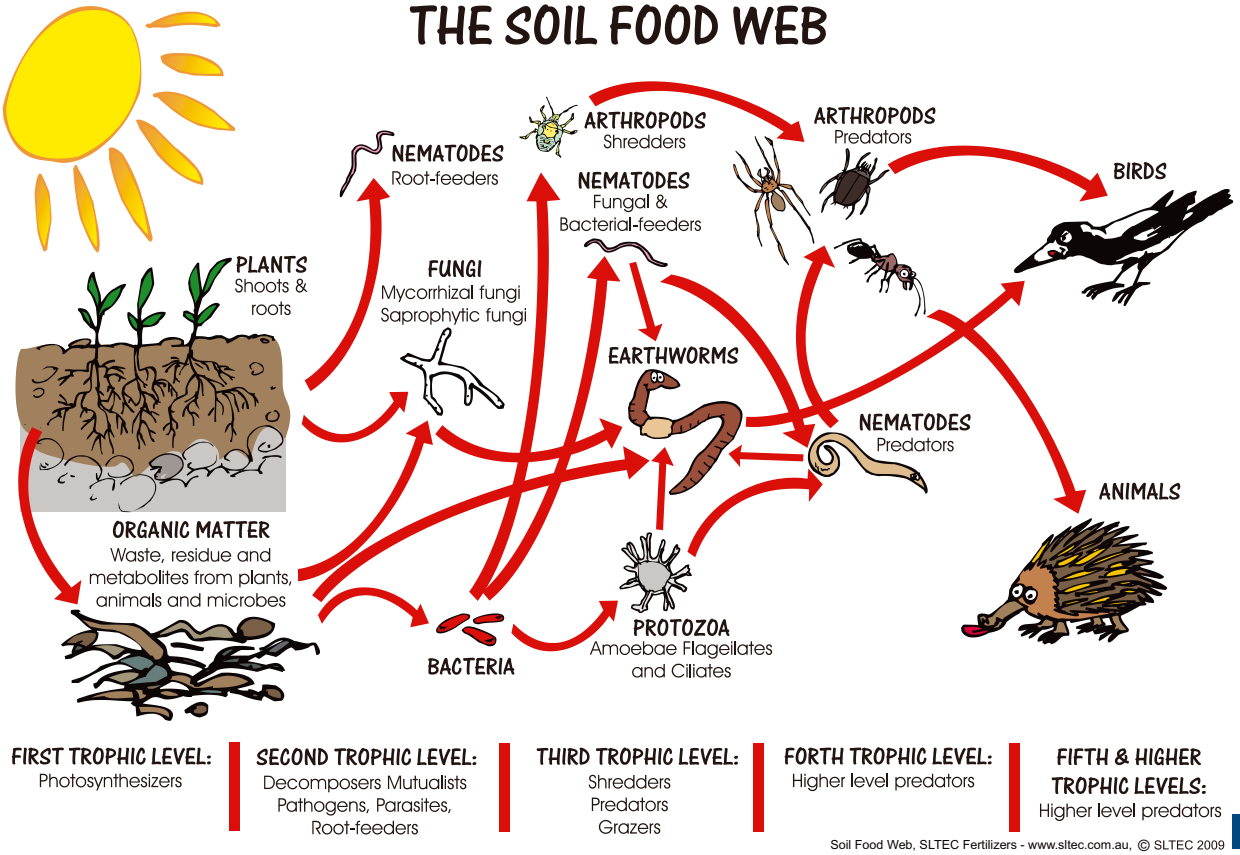
Humic K 26 (25% Humic Acid)

Humates are soil conditioners with high carbon content. They are useful materials where adjustment of the C : N ratio is required. Humates are also important in releasing bound nutrients into plant available forms and helping to improve soil structure at relatively low application rates. These materials produce significant biological effects with a strong suppression of lactic acid bacteria and stimulation of fungi, especially cellulose utilisers, which as the name suggests are important in the breakdown of cellulose and certain other resistant materials, thus increasing the formation of humus and helping to improve soil structure.

Molasses

Molasses (100% Molasses)

Molasses provides a readily metabolisable carbon and energy source that can be utilised by most organisms. Low rates (2 L/ha) can be effective in stimulating most groups of microbes and in particular fermenters like lactic acid bacteria and yeasts. However, being quickly utilised, it will provide only a short-term benefit unless other actions have been taken to improve the soil environment.



Soil Food Web, SLTEC Fertilizers - www.sltec.com.au, © SLTEC 2009

Highly Available, Activated Calcium + Organic Boost

FERTILIZERS

BiologiCAL® PLUS

Product Code: SG0017

Plants require calcium in relatively large amounts for many functions including cell division & strength, root system and leaf development. Calcium is also an essential element required for healthy soils, influencing both the physical, chemical and biological aspects.

Benefits of BiologiCAL® PLUS

- Aids in maintaining a high pH to control club root
- Improves nitrogen efficiency; compatible with a wide range of nitrogen-based products.
- Helps to displace sodium and magnesium in difficult soils
- Improves soil structure and friability
- Improving moisture penetration/infiltration
- A unique form of activated calcium that stimulates plant uptake
- Built-in soil and plant stimulants to enhance soil fertility and plant health
- Assists in the reduction of soil nematodes that inhibit root growth and plant productivity.
- Provides plant available calcium without extra nitrogen
- Improves plant resistance to disease and overall resilience
- Improves cell wall strength, plant durability and stress tolerance.

Guaranteed Analysis

Calcium (Ca)	6.5%
Nitrogen (N)	0.3%
Phosphorus (P)	0.1%
Potassium (K)	2.0%
Sulphur (S)	1.8%
Molasses	41.8%
Carbon (C)	12.5%
Boron (B)	0.1%
Fulvic Acid	0.009%
Fish Emulsion	0.3%
Kelp	0.3%
Humic Acid	0.2%
Specific Gravity	1.281 kg/L
pH	8.0 - 10.0*

*pH can vary

BiologiCAL® PLUS TE

All the Benefits of BiologiCAL® PLUS with an additional 5 trace Elements; Zn 0.6%, Mn 0.3%, Cu 0.15%, Mo 0.005% & B 0.05%

Contact:
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Formulated to Maximise Phosphorus Units up Front for Early Establishment

SL TEC FERTILIZERS

Cotton Starter™

Product Code: GG0071

Formulated high analysis of phosphorus units to ensure early and strong germination.

Benefits of Cotton Starter

- Cotton Starter can be banded below the seed in a variety of crops
- High analysis of plant available phosphorus (22%) to assist in early establishment
- Contains zinc for immediate plant availability
- Place nutrients right where your plant roots need them
- Low salt index and chloride free
- Compatible with a wide range of insecticides and fungicides used at cotton planting

Guaranteed Analysis

Nitrogen (N)	1.8%
N as ammonium	1.8%
Phosphorus (P)	22.0%
Potassium (K)	7.5%
Zinc (Zn)	1.0%
Specific Gravity	1.424 kg/L
pH	0.5 - 1.5

Typical Application Rates

Pop-up at planting:
20 to 30 L/ha, at planting (when banded > 25mm to the side or below the seed), with 10 to 100 L/ha of water (depending on crop).

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Water Logging in Cotton

Water logging in cotton can severely restrict crop growth and may kill plants in some extreme cases. The major and immediate effect of waterlogging is blocking transfer of O_2 between the Cotton roots and the soil atmosphere. Root growth and absorption of nutrients is decreased and the availability of nutrients in the soil is also reduced.

The availability of Nitrogen, Manganese Iron & Zinc are directly affected by waterlogging. In alkaline and calcareous soils the availability of both Zinc and Iron tend to be low, due to adsorption onto clay surfaces.

Waterlogging can also cause denitrification of soil mineral nitrogen. Therefore even after waterlogging has ceased there may be less nitrogen available for the crop.

In this case much of the yield loss caused by waterlogging can be recovered by supplying N directly to the leave as a foliar spray.

Combating Water Logging in Cotton

For best results in increasing yield In water logged cotton:

- Apply Nitrogen one day before irrigation under hot sunny conditions.
- If Iron and Zn have become unavailable apply 200g of Iron and 100g of Zinc per Ha can assist in crop recovery.

SLTEC's **Cotton Boost™** is a blend formulated from industry experts to assist in the recovery of water logged cotton crops. **Cotton Boost™** contains a blend of 6 nutrients & 5 Biostimulants in highly available forms. This product is designed not only to give the crop the nutrients it needs but also the natural bio-stimulants of **QuadSHOT®** to ensure the roots and leaves are activated to take up these nutrients.

20L per Ha of Cotton Boost will give your crop;

- 3.5Kg of Nitrogen
- 1kg of Sulphur
- 200g of Iron
- 100g of Zinc
- 50g of Copper
- + QuadSHOT®

This product is compatible with a wide range of SLTEC® Nitrogen products if your crop requires it.

Other Products available for consideration when stimulating a stressed crop include;
QuadSHOT® – A Blend of soil, plant and root stimulants
Nitro QUAD 20™ – 34% Nitrogen + 20% QuadSHOT®
Turbo Iron™ + Zinc Chelate™ – 10% Nitrogen with Iron, Sulphur & Zinc Chelate

For more information about these and other options, please contact SLTEC® to be put in touch with your closest agronomist.

The information in this fact sheet is from Australian Cotton Cooperative Research Centre's, Nutripak A Practical Guide to Cotton Nutrition .

Contact:

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Fluid Fertilizer Storage Systems

The team at SLTEC® have conducted extensive research into storage and handling systems and can assist you designing and implement your liquid nutritional program.

Well designed fluid fertilizer storage and injection systems are essential to ensuring your fluid inputs are effectively utilized, to maintain your workforce safety and to minimize environmental impacts.

SLTEC Fluid Fertilizer Tanks

(Rental Plans available)

Free Standing 32,000 L Tank

Poly Tank complete with:

- Manhole & safety lid
- Banjo fertilizer resistant fittings
- 3” camlock infill / outlet and air vent assemblies
- Stainless steel sight gauge assembly
- Bottom sump & 1” drain valve enabling 100% drainage
- Strong poly base to support and fittings

Free Standing 10,000 L Tank

Poly Tank complete with:

- Manhole & safety lid
- Banjo fertilizer resistant fittings
- Sight gauge ¾”
- Tank height is designed to fit under Centre Pivot centre

This tank is available for purchase.

Header Tanks for Liquid Run Fertilizer

- Poly tank and lid
- Stainless steel float assembly with poly ball float
- 1” fertilizer resistant camlock fittings with hose supplied

Fertilizer Injection Pumps

- Triangle Multifertic Electric Fertilizer Injection Pumps
- Standard pump 60MF-200 (200 ltr/hr single piston head)
- Standard motor 3 Phase
- Flow Rate adjusted manually from 0-100% via thumb wheel

1800 768 224

enquiries@sltec.com.au

@Sltecfert

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TONGALA VICTORIA 3621

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Organisation FERTCARE®

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