Crop nutrient budgeting is critical to improve production efficiency and to reduce environmental impacts. SLTEC®’s range of quality fluid fertilizers and microbial stimulants are supported by our comprehensive in-field agronomy service.

Our team of specialist agronomists can assist you to maximise the factors that are within your control and help you to achieve your production goals, while saving time and money.

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.

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

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

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG00019</td>
<td>QuadSHOT®</td>
<td>Soil and plant biological stimulant - improves moisture retention and encourages a healthy rhizosphere.</td>
</tr>
<tr>
<td>SG00027</td>
<td>BiologiCAL® PLUS</td>
<td>An ideal source of plant available calcium with plant and soil biological stimulants.</td>
</tr>
<tr>
<td>SG00029</td>
<td>SS 10:14:0 + Zn™</td>
<td>SS 11:16:0™ with the added benefit of 1% zinc chelate</td>
</tr>
<tr>
<td>SG00035</td>
<td>SS 8:8:16 + Zn™</td>
<td>A well balanced NPK with added zinc, ideal in high pH soils where zinc may be limiting.</td>
</tr>
<tr>
<td>SNPK0022</td>
<td>Crop Booster PLUS™</td>
<td>A high phosphorus NPK plus calcium and additional micronutrients.</td>
</tr>
<tr>
<td>SNPK0023</td>
<td>Lucerne Top Dress™</td>
<td>NPK with boron and molybdenum New and improved</td>
</tr>
<tr>
<td>GG0078</td>
<td>Carbo K™</td>
<td>A very high analysis (44%) easy to use, potassium source.</td>
</tr>
<tr>
<td>GG0079</td>
<td>High K P™</td>
<td>A high potassium and phosphorus fertilizer where additional nitrogen is not required.</td>
</tr>
<tr>
<td>SNPK0032</td>
<td>TE 8 PLUS™</td>
<td>A cost effective blend of trace elements with fulvic acid and nitrate nitrogen to assist uptake.</td>
</tr>
<tr>
<td>SNPK0041</td>
<td>Nitro Combi TE™</td>
<td>High analysis trace element blend with iron, zinc and manganese, plus fulvic acid to maximise uptake.</td>
</tr>
<tr>
<td>SNPK0051</td>
<td>Mo 250™</td>
<td>Combination of phosphorus for root growth and molybdenum to aid rhizobium establishment and function.</td>
</tr>
<tr>
<td>SNPK0052</td>
<td>MoBo Complex™</td>
<td>A convenient blend of the two key micronutrients required by lucerne, molybdenum and boron.</td>
</tr>
<tr>
<td>SNPK0053</td>
<td>Boron Complex™</td>
<td>A convenient source of boron where this is the only nutrient required.</td>
</tr>
<tr>
<td>GG0077</td>
<td>Nitro Z™</td>
<td>A very high analysis zinc fertilizer with a spike of nitrate to aid uptake.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Please enquire about our wider range - particularly our new trace elements for rapid plant uptake.</strong></td>
</tr>
</tbody>
</table>

**SOIL TEST** | **PRE-PLANT, LIME, GYPSUM OR DOLOMITE APPLICATIONS**

**Tissue Test**

<table>
<thead>
<tr>
<th>Description</th>
<th>Suggested Application Timings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foliar</td>
<td>Fertigation</td>
</tr>
<tr>
<td>Planting</td>
<td>Early Spring Flush (Root Extension)</td>
</tr>
<tr>
<td></td>
<td>Flower Buds Present (Early Reproductive Phase)</td>
</tr>
<tr>
<td></td>
<td>Fully Flowered (once per summer)</td>
</tr>
</tbody>
</table>

**Product Code**

- SG00019
- SG00027
- SG00029
- SG00035
- SG00036
- SNPK0022
- SNPK0023
- GG0078
- GG0079
- SNPK0032
- SNPK0041
- SNPK0051
- SNPK0052
- SNPK0053
- GG0077

Our aim is to take away the hassle of mixing fertiliser and to make fertigation easier for you.
**Nitrogen Fixation**
Having lucerne in your pasture rotation not only provides a high protein forage for milk production but also provides a cheap nitrogen source to the soil through nitrogen fixation.

**MoBo Complex™**
Supplies molybdenum and boron together in the correct ratios for lucerne. Boron is associated with molybdenum in the synthesis and movement of sugars, the production of carbohydrates and nitrate reduction.

**Mag K PLUS™**
10% potassium for increasing lucerne growth coupled with 5% magnesium. This maintains K : Mg ratios in situations where low magnesium or application of potassium alone may induce grass tetany.

**Baseline PLUS™**
This product contains 12 plant-available nutrients, including chelated trace elements and organic stimulants. Baseline Plus is perfect for a general foliar boost for lucerne where a balanced NPK option is required.

**Benefits of Baseline Plus**
- Chelated trace elements for rapid plant uptake and to drive the NPK metabolism.
- Contains SL TEC's QuadSHOT® - These ingredients stimulate soil biological activity; improving the cycling and availability of plant nutrients, plant uptake efficiencies and soil fertility and health.
- Baseline Plus has a high analysis compared to other liquid products, provides an economic and efficient supply of nutrients and the capacity to reduce rates compared to common prilled complete fertilizers on the market.
- Efficiencies 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.

**Crop Booster PLUS™**
15% phosphorus, 4% calcium with trace elements ideal for general foliar use on pasture and in particular pasture establishment when high phosphorus and calcium is required for good root development.

**Benefits of Crop Booster PLUS**
- Designed to improve yield and protein in pasture.
- Potassium promotes; sugar transportation, protein formation, water movement, fruit sizing and improves shelf life and disease tolerance.
- Essential secondary and trace elements such as; magnesium, manganese, zinc, copper and molybdenum drive enzyme pathways essential for chlorophyll and pigment production, protein synthesis, respiration and growth.
- Boron assists in; calcium metabolism and synergism with molybdenum and enhances plant metabolism, nitrogen assimilation and sugar transport.

**TE 8 PLUS™**
Provides a compliment of key trace elements for pasture growth activated with fulvic acid for increased foliar uptake.

**Benefits of TE 8 PLUS**
- A focus on magnesium, manganese, zinc and copper – the key drivers of photosynthesis, healthy leaves & plants; resulting in reduced disease pressure.
- Molybdenum and boron to enhance assimilation and transport in the plant.
- Physically compatible with a wide range of herbicides, insecticides and fungicides.
- Trace elements work in synergy with your macro applications ensuring full utilisation of fertilizer input.

**Foliar Nutrition**

**BiologiCAL® PLUS**
BiologiCAL® PLUS has been specifically formulated to provide a highly available and activated calcium source that is complimented with potassium and QuadSHOT® biological stimulant. Plants require calcium in relatively large amounts for many functions including cell division & strength, root system and leaf development.

**QuadSHOT®**
Contains a carefully selected range of organic additives and biological stimulants. These ingredients stimulate soil microbial activity, thereby improving the cycling and availability of plant nutrients and subsequent soil fertility and health. When combined with management practices that enhance organic matter and soil structure development, this product can assist in mobilising available nutrients and improving plant uptake efficiencies.
<table>
<thead>
<tr>
<th>Product Code</th>
<th>Name</th>
<th>N% (w/v)</th>
<th>P% (w/v)</th>
<th>K% (w/v)</th>
<th>Ca% (w/v)</th>
<th>Specific Gravity (kg/L)</th>
<th>pH Range</th>
<th>Typical Application Rates</th>
<th>Follar (for a least 100 L/ha water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG0039</td>
<td>QuadSHOT®</td>
<td>0.3</td>
<td>0.1</td>
<td>3.4</td>
<td>0.2</td>
<td>0.2</td>
<td>1.154</td>
<td>10.0 - 11.0</td>
<td>20 - 60 L/ha as a Directed Soil Spray, 4 - 7 L/ha as a Liquid Injection in Furrow (at planting)</td>
</tr>
<tr>
<td>SG0017</td>
<td>BiologICAL® PLUS N as NO₃ 0.3%, P as PO₄ 0.1%, Fulvic Acid 0.01%, Fish Emulsion 0.3%, Humic Acid 0.2%, Kelp 0.3%, Molasses 41.9%</td>
<td>0.3</td>
<td>0.1</td>
<td>2.0</td>
<td>6.3</td>
<td>6.3</td>
<td>1.27 - 1.30</td>
<td>8.0 - 10.0</td>
<td>20 - 60 L/ha as a Directed Soil Spray, 4 - 7 L/ha as a Liquid Injection in Furrow (at planting)</td>
</tr>
<tr>
<td>SS9004</td>
<td>SS 6:9:15™ N as NH₄, 6.2%, P as PO₄ 8.8%</td>
<td>6.2</td>
<td>8.8</td>
<td>14.9</td>
<td>12.4</td>
<td>1.39 - 1.40</td>
<td>6.5 - 7.5</td>
<td>20 - 100 L/ha as a Directed Soil Spray</td>
<td>20 - 60 L/ha as a Directed Soil Spray prior to planting with 50 - 100 L/ha water</td>
</tr>
<tr>
<td>SS9008</td>
<td>SS 14:21:0™ N as NH₄ 0.3%, P as PO₄ 0.1%, Fulvic Acid 0.01%, Fish Emulsion 0.3%, Humic Acid 0.2%, Kelp 0.3%, Molasses 8.0%</td>
<td>14.0</td>
<td>20.8</td>
<td>-</td>
<td>-</td>
<td>1.40 - 1.41</td>
<td>6.2 - 7.0</td>
<td>20 - 100 L/ha as a Directed Soil Spray</td>
<td>50 - 200 L/ha as a directed soil spray prior to planting with 50 - 100 L/ha water</td>
</tr>
<tr>
<td>SS9005</td>
<td>SS 8:8:16 + Zn™ N as NH₄, 3.5%, P as PO₄ 6.2%, Fe 0.006%, C 5.2%, Fulvic Acid 0.3%, Fish Emulsion 8.0%, Humic Acid 6.6%, Kelp 0.8%, Molasses 8.0%</td>
<td>7.8</td>
<td>7.9</td>
<td>16.0</td>
<td>4.1</td>
<td>1.29 - 1.31</td>
<td>6.0 - 9.0</td>
<td>20 - 100 L/ha as a Directed Soil Spray</td>
<td>50 - 200 L/ha as a directed soil spray prior to planting with 50 - 100 L/ha water</td>
</tr>
<tr>
<td>SNPK0040</td>
<td>Crop Booster PLUS™ N as NO₃ 2.1%, N as NH₄, 2.9%, P as PO₄ 15.2%, Mg 0.2%, Mn 0.4%, Zn 0.4%, Cu 0.5%, Mo 0.01%, B 0.05%, Fulvic Acid 0.5%</td>
<td>5.0</td>
<td>15.2</td>
<td>2.1</td>
<td>4.0</td>
<td>1.30 - 1.32</td>
<td>&lt;2.0</td>
<td>10 - 80 L/ha as a directed soil spray prior to planting with 50 - 100 L/ha water</td>
<td>20 - 200 L/ha as a directed soil spray prior to planting or banded under canopy with 50 - 100 L/ha water</td>
</tr>
<tr>
<td>SNPK0023</td>
<td>Lucerne Top Dress™ N as NH₄, 2.7%, N as Urea, 4.3%, P as PO₄, 7.9%, Zn 1%, Fulvic Acid 0.5%</td>
<td>4.3</td>
<td>5.9</td>
<td>11.7</td>
<td>4.6</td>
<td>1.29 - 1.30</td>
<td>6.0 - 7.0</td>
<td>10 - 80 L/ha as a directed soil spray, following lucerne cut, with 100 - 300 L/ha water</td>
<td>40 - 60 L/ha as a directed soil spray</td>
</tr>
<tr>
<td>GG0069</td>
<td>K 250-S™</td>
<td>-</td>
<td>24.9</td>
<td>5.0</td>
<td>-</td>
<td>1.29 - 1.30</td>
<td>6.5 - 8.0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>GG0072</td>
<td>Carbo K™</td>
<td>-</td>
<td>43.9</td>
<td>-</td>
<td>-</td>
<td>1.54 - 1.55</td>
<td>13 - 14</td>
<td>10 - 80 L/ha as a directed soil spray</td>
<td>10 - 80 L/ha as a directed soil spray, prior to planting or banded under canopy, with 50 - 100 L/ha water</td>
</tr>
<tr>
<td>GG0068</td>
<td>High KP™</td>
<td>-</td>
<td>12.0</td>
<td>36.5</td>
<td>-</td>
<td>1.55 - 1.57</td>
<td>12.0 - 13.0</td>
<td>10 - 80 L/ha as a directed soil spray prior to planting with 50 - 100 L/ha water</td>
<td>20 - 80 L/ha as a directed soil spray</td>
</tr>
<tr>
<td>SNPK0046</td>
<td>TE 8 PLUS™</td>
<td>2.6</td>
<td>0.1</td>
<td>4.2</td>
<td>-</td>
<td>1.28 - 1.29</td>
<td>1.0 - 2.0</td>
<td>10 - 25 L/ha as a directed soil spray, prior to planting or banded under canopy, with 100 - 400 L/ha water</td>
<td>20 - 30 L/ha as a directed soil spray prior to planting or banded under canopy, with 50 - 100 L/ha water</td>
</tr>
<tr>
<td>SNPK0054</td>
<td>Mo 250™</td>
<td>-</td>
<td>11.0</td>
<td>-</td>
<td>-</td>
<td>1.57 - 1.58</td>
<td>3.5 - 4.5</td>
<td>Up - 150 mL/ha</td>
<td>50 - 100 mL/ha as a directed soil spray, prior to planting or banded under canopy, with 100 - 400 L/ha water</td>
</tr>
<tr>
<td>SNPK0053</td>
<td>MoBo Complex™ N as amine, 6%, Mo 0.3%, B 15%</td>
<td>6.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.34 - 1.39</td>
<td>7.0 - 8.0</td>
<td>5 - 10 L/ha as a directed soil spray, prior to planting or banded under canopy, with 100 - 400 L/ha water</td>
<td>2 - 5 L/ha as a directed soil spray, prior to planting or banded under canopy, with 100 - 400 L/ha water</td>
</tr>
<tr>
<td>SNPK0050</td>
<td>Boron Complex™ N as amine, 6%, B 15%</td>
<td>6.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.34 - 1.38</td>
<td>7.5 - 8.5</td>
<td>2 - 5 L/ha as a directed soil spray, prior to planting or banded under canopy, with 100 - 400 L/ha water</td>
<td>2 - 5 L/ha as a directed soil spray, prior to planting or banded under canopy, with 100 - 400 L/ha water</td>
</tr>
<tr>
<td>SNPK0059</td>
<td>Nitro Z™</td>
<td>8.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.45 - 1.47</td>
<td>&lt; 2.0</td>
<td>1 - 4 L/ha as a directed soil spray, prior to planting or banded under canopy, with 100 - 400 L/ha water</td>
<td>2 - 10 L/ha as a directed soil spray, prior to planting or banded under canopy, with 100 - 400 L/ha water</td>
</tr>
</tbody>
</table>
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 product.

To assist in developing a greater understanding of the nutrients required to grow healthy, profitable and sustainable lucerne, we have put together a summary of some of the key issues involved.

The harvesting of high yields of lucerne through either cutting hay (table 1) or grazing (table 2), removes large quantities of these nutrients; these need to be replaced for continued production.

| Table 1: Estimated Annual Nutrient Removal from Lucerne Hay (kg/ha at different yields) |
|---------------------------------|---|---|---|---|---|---|---|---|---|
| Yield | N  | P  | K  | S  | Ca | Mg | Mn | Zn | Cu | Mo | B  |
| 5 t/ha (dryland) | 100-150 | 10-15 | 75-100 | 10-20 | 65-85 | 0.3 | 0.1 | 0.25 | 0.005 | 0.2 |
| 10 t/ha (irrigated) | 200-300 | 20-30 | 150-200 | 20-40 | 130-170 | 0.6 | 0.2 | 0.5 | 0.009 | 0.4 |
| 30 t/ha (irrigated) | 600-900 | 60-90 | 450-600 | 60-120 | 390-510 | 1.8 | 0.6 | 1.5 | 0.027 | 1.2 |

| Table 2: Typical nutrient removal rates (kg of nutrient per tonne or kilolitre of product) |
|---------------------------------|---|---|---|---|---|
| Product          | N  | P  | K  | S  | Ca |
| Whole milk (cow)  | 5.3 | 0.93 | 1.6 | 0.3 | 1.2 |
| Merino greasy fleece | 119 | 0.3 | 15 | 22 | 1.8 |
| Cattle, live      | 26 | 7.2 | 2.0 | 1.4 | 12 |
| Sheep (shorn), live | 23 | 5.9 | 2.1 | 1.4 | 11 |

The above tables can be used along with local knowledge of carrying capacity or milk production to estimate the nutrient removal rate per hectare per annum.

The removal rate of nutrients along with results from soil tests can be used to calculate fertilizer inputs required to maintain long-term production. The calculated requirement from this process should be regarded as a minimum, to allow for losses due to other factors, such as leaching, microbial uses, nutrient tie-up and root / crown growth.

While soil tests can detect major nutrient deficiencies, they may not be reliable for identifying deficiencies in trace elements. The best way to monitor the macro and trace elements once a plant is growing is through the use of well-timed tissue testing.

Establishment

Soil nutrient deficiencies or imbalances should be remedied prior to planting. Specific problems such as soil acidity (pH CaCl < 5.2) or sodicity (ESP > 6), should be corrected using Lime or Gypsum respectively, well before planting (3 to 6 months prior, depending on product quality, seasonal rainfall and planting system). A nutritional plan/budget should be established before planting based on yield removal targets and the nutrient removal factors discussed above.

Key Nutrients

Nitrogen is an important nutrient for all crops. Lucerne being a legume, has the ability to manufacture nitrogen in a symbiotic relationship with rhizobia. For this process to operate efficiently, the plant and rhizobia require many minerals, with an important trace element being molybdenum. Two possible products which can be used just prior to, or immediately post, planting are, Mo 250P and MoBo Complex.

Depending on paddock history, some Nitrogen is still advisable at planting to increase seedling growth and vigour. Consider the use of one of the SpringSTART® range of products at sowing, to provide that nitrogen boost.

Phosphorus is a critical nutrient for rapid early growth of seedlings. It is best supplied by one of the SpringSTART® products.
Macronutrients
To maintain productivity, especially in high yielding irrigated lucerne stands, a sound approach is to apply nutrients after every cut as soon as bales are removed.

The most uniform way to do this is using a calibrated boom spray, but it may be more practical to apply nutrients using fertigation (through the irrigation system) depending on your specific circumstance.

Potassium is removed at the highest rate of all nutrients, after nitrogen. SL TEC® has a wide range of high analysis potassium fertilizers to suit specific requirements. For example, High KP is suitable when both potassium and phosphorus are required. If only potassium is required, then Carbo K may be more cost-effective due to its high potassium analysis. Potassium is best applied after each cut or heavy grazing, to assist with plant recovery and regrowth. Consider replacing up to 10 - 20 kg/ha potassium per tonne of dry matter removed.

Calcium removal rates are also very high where large quantities of hay are produced. The addition of lime at a rate of 70 kg/ha for every tonne of hay removed to maintain soil pH and calcium levels is good practice for sustainable production, especially on acidic soils.

Remember, lime is a slow-release form of calcium. For a plant-available form of calcium, applications of BiologiCAL® PLUS during the growing season will provide useful quantities of calcium directly to new roots and shoots, as well as promoting soil biology and plant health. BiologiCAL® PLUS can be applied as a direct soil spray, in a fertigated application or as a foliar applied fertilizer.

Phosphorus removal rates are lower than the other major nutrients but are still significant. Rates required are dependent on initial soil phosphorus levels, rate of removal, phosphate buffering capacity of the soil and rainfall. High KP and Crop Booster PLUS are two high analysis phosphorus fertilizer options that are frequently used to boost phosphate levels. They are commonly used in fertigated and foliar applications.

Sulphur can be supplied by K 250-S, a high-analysis potassium and sulphur product.

Micronutrients
Molybdenum applied at planting is usually sufficient for 3 to 5 years and is essential where the soil pH (CaCl) is less than 5.0. More frequent applications may be required in higher rainfall areas or where pH is difficult or expensive to maintain above 5.0 throughout the root zone.

Boron is required for germination of pollen grains, growth of pollen tubes, and seed and cell wall development. The most cost-effective method of applying boron is usually as a foliar spray such as Boron Complex or MoBo Complex. Alternatively Crop Booster PLUS may provide sufficient boron if applied regularly.

Zinc deficiency may occur on high pH soils or in some light-textured soils. Nitro Z may be used either as a foliar spray or by fertigation to improve zinc levels. Applications of zinc can increase dry matter yield and nodulation, reduce leaf drop and assist in the prevention of crop injury in water stress situations.

Contact your local SL TEC® agronomist for further information on soil & plant testing and correct nutrient budgeting for your lucerne investment.

Sources:
McDonald, W. et.al. (2003) - Lucerne for Pasture and Profit NSW AgricultureAgfact, P2.2.25
Rural Industries Research and Development Corporation (2008) - Producing Quality Lucerne Hay. Publication No. 08/101
Apply a simple one pass application of Lucerne Top Dress after each cut to increase crop health, encourage growth and increase yield potential.

Benefits of Lucerne Top Dress
- Adequate phosphorus can increase water use efficiency and is involved in plant cell division and enlargement.
- High potassium product. Potassium is the nutrient that is removed in the highest quantity for lucerne hay at up to 21 kg per tonne and is essential to protein synthesis.
- Sulphur may leach from the soil quickly on intensive irrigation; hence regular top-ups are required, promoting nodule formulation on legumes.
- Zinc is needed to encourage root growth and reduce crop losses in water stress environments. Zinc is required in carbohydrate formulation. Crops with zinc applications have shown lower incidents of root rot, leaf disease and premature leaf drop.
- Molybdenum aids in ensuring healthy root rhizobia and nodulation.
- Boron assists with the development of cell walls.

Guaranteed Analysis
- Nitrogen (N) 4.3%
- N as ammonium 2.6%
- N as urea 1.6%
- Phosphorus (P) 5.9%
- Potassium (K) 11.6%
- Sulphur (S) 4.1%
- Zinc (Zn) EDTA 1.0%
- Molybdenum (Mo) 0.02%
- Boron (B) 0.2%
- Specific Gravity 1.31 kg/L
- pH 6.0 - 7.0

Typical Application Rates
- Foliar: 20 - 30 L/ha with at least 80 L of water
- Fertigation: 20 - 40 L/ha

Physical Compatibility Testing
Foliar fertilizer on pasture and lucerne

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Active Ingredient</th>
<th>L/ha</th>
<th>Compatible?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha Scud Elide</td>
<td>Alpha Cypermethrin</td>
<td>0.16</td>
<td>Yes</td>
</tr>
<tr>
<td>NuFarm Dimethoate</td>
<td>Dimethoate</td>
<td>0.35</td>
<td>Yes</td>
</tr>
<tr>
<td>Strike Out</td>
<td>Chlorpyriphos</td>
<td>0.70</td>
<td>Yes</td>
</tr>
<tr>
<td>Le-mat</td>
<td>Omethoate</td>
<td>0.20</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Mixed with Lucerne Top Dress at 15 L/ha
Total applied volume was 70 L/ha
Compatibility test was over 1 hour

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

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

*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%
**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.

---

**THE SOIL FOOD WEB**

[Diagram of the soil food web showing various organisms and their interactions, such as plants, nematodes, insects, fungi, bacteria, and birds.]
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
Applying lime to a soil reduces its acidity by raising the pH. It also supplies calcium. Increasing soil acidity affects plant nutrient availability, reduces the activity of beneficial bacteria that decompose organic matter and heavy metals such as aluminium and iron become more soluble, tying 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 are 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 three 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 vineyard is generally 5.5 to 6.8 depending on the soil type. Sandy or lighter soils tend to require pH toward the higher end. As a rule of thumb - apply lime to established vineyards when the pH falls below 5.5.

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

<table>
<thead>
<tr>
<th>Element</th>
<th>Balance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>60 - 70</td>
</tr>
<tr>
<td>Magnesium</td>
<td>12 - 15</td>
</tr>
<tr>
<td>Potassium</td>
<td>3 - 5</td>
</tr>
<tr>
<td>ESP</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>&lt; 20</td>
</tr>
<tr>
<td>Ca : Mg ratio</td>
<td>2 - 4</td>
</tr>
</tbody>
</table>

### Typical Cation Exchange Values for Various Soil Textures

<table>
<thead>
<tr>
<th>Texture</th>
<th>Typical CEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>&lt; 5 meq / 100g</td>
</tr>
<tr>
<td>Sandy Loam</td>
<td>5 - 10 meq / 100g</td>
</tr>
<tr>
<td>Clay Loam</td>
<td>10 - 25 meq / 100g</td>
</tr>
<tr>
<td>Light Clay</td>
<td>25 - 30 meq / 100g</td>
</tr>
<tr>
<td>Medium Clay</td>
<td>30 - 35 meq / 100g</td>
</tr>
<tr>
<td>Heavy Clay</td>
<td>&gt; 35 meq / 100g</td>
</tr>
</tbody>
</table>

(Based on Clay content only - eg: a high organic matter clay may have a CEC over 50 meq/100g)
The team at SL TEC® 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.

**SL TEC 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