If you are serious about achieving high levels of animal production, lucerne is one of the most potent options to power your pastures.

Lucerne, the “King of Fodder”, is a deep-rooted, temperate, perennial pasture legume which is well adapted to mixed farming systems.

Ideal as a pasture, or cutting for silage, hay or chaff, an established lucerne stand provides an alternative source of forage for animal production, especially outside the growing season of annual crops and pastures.

It is extremely versatile and can be sown alone, in mixed pastures or sown with crops, and once established is often more productive than many annuals.

With its deep root system, it has an uncanny ability to deal with most types of plant stress including drought conditions yet has a large capacity for production under irrigation and in favourable seasons.

These features mean lucerne is relatively independent of the main rainfall season and that it will thrive in the northern as well as southern regions of Australia if other conditions are satisfactory.

Our lucerne range is not only having great success in Australia but is also in high demand throughout our international markets. We are proud that our Australian bred material is recognised around the world. Australia has a lucrative lucerne seed production industry, with many internationally bred and imported varieties being produced for seed in Australia for export back to those markets.

Some of these internationally developed varieties are beginning to be sold here in Australia. These varieties have not been bred for our adverse local conditions, and farmers are being disappointed with the inferior performance of these varieties.

When you purchase a Pasture Genetics variety, you can be assured that the variety is bred in Australia, to handle our specific farming systems, within our local environmental conditions. Please be mindful when looking into purchasing a new lucerne variety, that you enquire as to the origin of the variety and don’t settle for imported “look-alikes”.

Our entire range of premium proprietary lucerne comes standard with the Goldstrike LongLife® XLR8™ seed treatment, read more about the benefits of this on page 2.

We are also so confident in the ability of our lucerne to establish, that we offer our Establishment Guarantee™ programme*, which guarantees that we will replace seed at half the original purchase price if it fails to establish satisfactorily.

On a final note, Pasture Genetics is a 100 percent Australian owned family business, committed to research, select, breed, market and distribute the most innovative and exciting lucerne seed technology.

Planting Pasture Genetics lucerne is a direct investment in the continuation of Australia’s largest and most successful lucerne breeding programme, focused specifically on breeding lucerne for Australian farmers.

Your specific choice of cultivar is determined by your climate and soil type. Please consult your local agronomist or Pasture Genetics Territory Manager to identify the most suitable variety for your requirements.

Robert Damion
Managing Director
Pasture Genetics

On the cover:
Research & Technical Services Manager, Tom Damion with Territory Manager, Rehn Freebairn in GTL®60 Lucerne.
**Glossary**

| E = ESTABLISHMENT GUARANTEE™ | At Pasture Genetics we are so confident in our seed genetics and the quality of our proprietary products, we will replace seed at half the original purchase price if it fails to establish satisfactorily. Unfortunately establishment failures can occur. Pasture Genetics’ Establishment Guarantee™ programme is available for the initial 30 day period after planting, and provides growers with substantial savings should they need to replant their paddocks. Pasture Genetics is the only forage company in Australia to offer Establishment Guarantee™. Plant with peace of mind and the support of Pasture Genetics. Register at www.pasturegenetics.com within 30 days of planting to be participate in the programme. *Terms & Conditions apply. |
| L = XTRALEAF® | XtraLeaf® forage cereals are purpose bred, premium species for forage production and optimum forage quality. XtraLeaf® assists you in filling the winter feed gap. |
| ARI = AR1 | AR1 is a novel endophyte producing Peramine. AR1 is safe for livestock, whilst offering some protection against insect attack. AR1 does not produce Ergovaline or Lolitrem B, found in standard endophyte options, which can be harmful to livestock. |
| P = PROTEK™ | Protek™ is a novel endophyte that produces lolines for above and below the ground insect protection, in particular, against African Black Beetle. Protek™ improves pasture performance by increasing resistance to insect damage, therefore reducing stand thinning, as well as assisting tall fescue to persist through environmental stresses. Protek™ is only available for tall fescue. Protek™ is safe for use with cattle and sheep, but is not suitable for horses. |
| D = EDGE | Edge is a novel endophyte producing Peramine, it is safe for livestock and offers protection against insects such as Argentine Stem Weevil, African Black Beetle, Root Aphid and Pasture Mealbug. Edge does not cause ryegrass staggers or heat stress. Edge is easy to use, request Edge when ordering your seed and let it do the work. You will enjoy the improved persistence of the pasture, and your animals will enjoy the palatability. Edge is safe for use with cattle and sheep, but is not suitable for horses. |
| H = HAPPE | Happe is the benchmark pasture endophyte. Happe was originally discovered in meadow fescue and has since been naturally transferred into a range of other grass species. Happe does not produce Ergovaline or Lolitrem B, found in standard endophyte options, which can be harmful to livestock. Happe is safe for use with cattle and sheep, but is not suitable for horses. |
| G = GOLDSTRIKE | Goldstrike includes rhizobia inoculation, micronutrient package and Apron® XL fungicide (where available on label). Goldstrike® is comprised of the highest quality seed and coating technology, and is the best establishment package for pasture legumes. |
| GL = GOLDSTRIKE LongLife® | Goldstrike LongLife® includes rhizobia inoculation, micronutrient package and Apron® XL fungicide (where available on label). Goldstrike LongLife® is comprised of the highest quality seed and coating technology, and is the best establishment package for pasture legumes. Goldstrike LongLife® offers extended rhizobia storage life on a range of species. Goldstrike LongLife® can provide up to six months storage life on medic and sub clover, and up to 12 months storage life on lucerne. |
| GLX = GOLDSTRIKE LongLife® XLR8™ | Goldstrike LongLife® XLR8™ includes rhizobia inoculation, micronutrient package and Apron® XL fungicide (where available on label). Goldstrike LongLife® XLR8™ is comprised of the highest quality seed and coating technology, and is the best establishment package for pasture legumes. Goldstrike LongLife® XLR8™ offers extended rhizobia storage life on a range of species. Goldstrike LongLife® XLR8™ can provide up to six months storage life on medic and sub clover, and up to 12 months storage life on lucerne. Goldstrike LongLife® XLR8™ is also treated with Poncho® Plus insecticide. Poncho® Plus is an innovative insecticidal seed treatment that has registration across a range of pasture species and forage crops. Poncho® Plus combines two robust compounds, imidacloprid and clothianidin, which increase the insect control spectrum above other seed treatment options. Poncho® Plus provides protection during establishment against a range of pests including Redlegged Earth Mite, Cutworm and Lucerne Flea. Poncho® Plus also offers added establishment vigour in the early growth stage of the plant. |
| GX = GOLDSTRIKE XLR8® | Goldstrike XLR8® includes rhizobia inoculation, micronutrient package and Apron® XL fungicide (where available on label). Goldstrike XLR8® is comprised of the highest quality seed and coating technology, and is the best establishment package for pasture legumes. Goldstrike XLR8® is also treated with Poncho® Plus insecticide. Poncho® Plus is an innovative insecticidal seed treatment that has registration across a range of pasture species and forage crops. Poncho® Plus combines two robust compounds, imidacloprid and clothianidin, which increase the insect control spectrum above other seed treatment options. Poncho® Plus provides protection during establishment against a range of pests including Redlegged Earth Mite, Cutworm and Lucerne Flea. Poncho® Plus also offers added establishment vigour in the early growth stage of the plant. |
| X = XLR8™ | XLR8™ treatment is a film coat application of Poncho® Plus insecticide. Poncho® Plus is an innovative insecticidal seed treatment that has registration across a range of pasture species and forage crops. Poncho® Plus combines two robust compounds, imidacloprid and clothianidin, which increase the insect control spectrum above other seed treatment options. Poncho® Plus provides protection during establishment against a range of pests including Redlegged Earth Mite, Cutworm and Lucerne Flea. Poncho® Plus also offers added establishment vigour in the early growth stage of the plant. |
| GA = GAUCHO® | A film coat of Gaucho® insecticide. Gauchox provides protection during establishment against a range of pests including Redlegged Earth Mite and Aphid, which can reduce the transmission of diseases such as Barley Yellow Dwarf in oats. Gauchox® also offers added establishment vigour in the early growth stage of the plant. |

*SowSmart® blends are Pasture Genetics’ ready-to-sow proven pasture blends. They are the product of our ongoing research and development, specifically our Forage Crop Programme. SowSmart® aims to fulfil the requirements of farming, providing agronomically accurate blends for high production pastures based within environmental and managerial constraints. The SowSmart® range of blends offer weed control, high dry matter production, nitrogen fixation, and good seed regeneration. It is important to select the most suitable blend for your operation. SowSmart® blends are the product of our ongoing research and development, specifically our Forage Crop Programme. SowSmart® aims to fulfil the requirements of farming, providing agronomically accurate blends for high production pastures based within environmental and managerial constraints. The SowSmart® range of blends offer weed control, high dry matter production, nitrogen fixation, and good seed regeneration. It is important to select the most suitable blend for your operation.*

*Observe withholding periods when utilising Poncho® Plus or Gaucho® products.*
1. Paddock Selection & Preparation

Lucerne can be grown on a range of soils from deep sands to heavy clays. For best yield and persistence select paddocks with:

- Optimal range soil pH (CaCl₂) 5.0 - 7.5
- Good natural slopes (for good drainage within the paddock)
- Adequate fertility (nutrient levels)

A surface and subsoil test is recommended to determine the suitability for lucerne. Soil acidity affects every stage of lucerne production from seedling establishment to stand survival. Incorpore lime three to six months before sowing where topsoil pH (CaCl₂) is below 5.0. Avoid soils with acid subsoils or high levels of subsoil exchangeable aluminium (above five percent). Apply gypsum to sodic soils (exchangeable sodium levels above six percent) to overcome surface crust forming problems.

Gypsum needs to be applied several months before sowing. Use deep ripping to break hard layers in the subsoil and to increase gypsum penetration to depth. Plan for weed control prior to and during the cropping phase to reduce the density and seed set of major weeds. Lucerne is sensitive to herbicide residue problems. The main carryover problems are associated with the triazines (e.g. simazine and atrazine), imidazolines (e.g. Midos, OnDuty, Spinaker), following dry seasons) and sulfonylurea herbicides (e.g. Clean, Ally, Logran) on high pH soils.

Test the soil using a soil test over summer or delay planting lucerne for at least one year after application of these residual herbicide groups.

2. Before Sowing

If weeds are present before sowing use knockdown herbicides. At sowing pre-emergent herbicides such as Trifluralin should be applied in autumn, between four weeks and seven days, and in spring, between four week and three days, prior to sowing taking place.

These herbicides are a cheap option to control winter weeds (including annual ryegrass, wild oats, fumitory, annual phalaris and wireweed).

Maintain adequate stubble cover over summer but slash or late burn stubble before sowing. Use an appropriate cropping phase and/or sprays to reduce egg-laying mite populations in the growing season before lucerne establishment. Monitor paddocks for soil dwelling pests such as false wireworm and pink cutworm. Look for adequate soil moisture to 20 centimetres at time of sowing.

Pre-irrigation (where possible) and sowing into moisture is best practice for lucerne establishment.

3. Fertiliser

Phosphorus is vital for early seedling growth and strong root development for better plant survival. Sow lucerne with a minimum of 15 - 20 units per hectare (dryland) and 20 - 40 units per hectare (irrigation). Banding fertiliser two to three centimetres below the seed is best. Molybdenum added to the fertiliser ensures good nodulation for greater nitrogen fixation by the lucerne. Lookout for adequate levels of sulphur, potassium, boron and zinc.

At sowing pre-emergent herbicides such as Trifluralin should be applied before lucerne establishment to stand survival. Incorporate lime three to six months before sowing taking place.

Four week and three days, prior to seven days, and in spring, between four weeks and a month before sowing use knockdown herbicides. Treatment should be adequate and uniform in the paddock.

4. Weed Control

Management practices that maximise lucerne growth will normally suppress weeds. The aim of post-emergent weed control in established lucerne is to suppress the weeds from excessive competition or setting seed and not necessarily eradicate all the weeds. Removing grasses and other weeds in mid winter with a selective herbicide (winter cleaning) improves spring production and quality, extends the useful life of the stand and increases the benefit for the following grain crop.

5. Sowing Technique

Lucerne should be sown into a level, firm and slightly cloddy seedbed. A separate small seeds box and narrow points allow accurate seed placement with reduced soil disturbance.
Plant lucerne paddocks first in your cropping programme. If stand density is patchy and below 10 plants (dryland) or 40 plants (irrigation), consider stand removal and re-seeding.

Lucerne is suited to under-sowing with winter crops or direct drilling into crop stubble after the grain harvest. Seeding rate of the cover crop should be reduced by 50 percent and sown in skip (alternate) rows. A cover crop can help defray the costs of establishment and reduce soil erosion or wind sandblasting of lucerne seedlings on sand hills and sandy flats.

6. EARLY MANAGEMENT

Seed treatment or bare earth emergence spray for Redlegged Earth Mites will pay dividends in the long run. Monitor seedlings carefully for aphids and use aphid resistant varieties. Graze leniently the first time when the young stand is at least 20 centimetres high and well anchored. Lucerne established under cover crops should be allowed to flower before first cut or grazing.

7. GRAZING MANAGEMENT

Rotational grazing is the preferred management system for lucerne. Grazing periods should be no longer than two weeks, followed by a three to six week rest period. This practice allows the plants to re-grow and replenish root reserves.

Larger mowers that fit the grazing unit (paddock size) allow quicker grazing. Alternatively, the use of high stocking rates is greatly assisted with strip grazing and electric fencing. Changing to August lambing gives better utilisation of lucerne in pastures.

For production of lucerne, irrigation management should aim to avoid any moisture stress. When water is in short supply, it is possible to extend the irrigation interval more than shallow rooted pasture to maintain lower levels of production.

IRRIGATION

Irrigation layout and practice should ensure water penetrates at least 80 to 100 centimetres and permit drainage within eight hours to minimise waterlogging. Do not irrigate immediately after hay is harvested to reduce the risk of scalding, particularly during summer. The final irrigation to allow adequate dry-down of the soil surface to prevent soil compaction by harvesting machinery.

SUB-SURFACE DRIP IRRIGATION

Low volume emitters, moulded onto the internal wall of a polyethylene tube and buried 200 millimetres to 300 millimetres below the soil surface, is recognised as the most efficient means of irrigating lucerne (95 percent WUE) and is becoming increasingly popular as water availability declines and the cost of water increases.

These sub-surface drip irrigation laterals are spaced across the paddock at distances from 0.8 to 2.0 metres apart, depending on soil and crop requirements. As the water (and fertiliser) is delivered right to the root zone (where it is needed) in measurable and adjustable quantities it not only saves water but has a positive effect on plant productivity, longevity and health.

As opposed to flood and spray irrigation, excess water does not collect on the surface and hence growers can manage their cutting times more effectively, there is less weed growth and no compaction is caused by harvesting equipment.

Sub-surface drip irrigation also requires very little labour to operate and maintain.

8. LIVESTOCK HEALTH

Cattle grazing lucerne pastures during the bloat season (winter and spring) are susceptible to bloat. Frequent observation of stock on lucerne is essential. To manage bloat use high stocking rates and avoid placing hungry stock on immature lucerne.

Allowing stock access to grass, stubble or hay while they are grazing lucerne and the use of oil and/or rumen capsules will effectively reduce the incidence of bloat. Vaccinate stock with “5 in 1” to prevent pulpy kidney, which is sometimes confused with bloat. Red gut can affect sheep and lambs that are grazing pure stands of lucerne. The first sign of red gut (sudden death) is the most common way you would bloat for cattle.

BOAT REDUCTION OPTION

Pasture Genetics’ SOWSmart® Bloat Fighter Blend has been especially designed as a pasture blend option to reduce the incidence of bloat on straight lucerne based pastures. This mix has incorporated two lucerne companion species, Zuluman Arrowleaf Clover and Balance Chicory that have proven anti-bloating properties.

10. HAYMAKING

Before adopting a haymaking enterprise, organise a market in advance and consistently meet market requirements. Generally, aim for high quality as well as high yields to optimise animal performance and long-term profitability.

Mechanical field losses during haymaking can be large (20 - 40 percent). Aim to mow early in the day and minimise handling during the curing process.

11. CHAFF VARIETAL SELECTION

The traditional chalk market has been based around the horse feed industry. Lucerne has been a sought-after product to meet the market requirements. When selecting a lucerne variety to target chalk quality we look for material that has a high leaf to stem ratio.

It is important to maximise the softness of the leaf but still maintain the functional fibre. There are four Pasture Genetics’ lucerne varieties that can be utilised, ML99 MultiLeaf® Lucerne and Q75 Lucerne - winter active lines, or L56 Lucerne and Q31 Lucerne - semi-winter dormant lines. The management of each line is very important to achieve the desirable quality. With highly winter active lines it is important to cut in the earlier stage of maturity to maintain maximum leaf compared to stem. The window of opportunity with varieties such as L56 Lucerne and Q31 Lucerne is quite wide due to the higher leaf trait of these lines. This in turn allows for high quality across a high percentage of cuts.

12. NUTRIENT REMOVAL

To maintain the health of lucerne stands replace soil nutrients removed in hay. Soil and leaf tissue tests annually in early spring help ensure other nutrients are adequate.

13. RE-SOWING & CROP ROTATION

High producing lucerne will generally require re-sowing after four to seven years. Winter active stands will often decline sooner than winter dormant ones. Thickening up an old and thinning lucerne stand fails more than it succeeds. It is best practice to completely remove the old lucerne plants and allow at least three weeks between herbicide application and re-sowing. There are significant benefits in rotating lucerne paddocks with winter cereal or canola crops to control weeds, use soil nitrogen, break disease and insect cycles, manage in-crop herbicide resistance as well as increase whole farm profits.

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**BEST MANAGEMENT PRACTICES**

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LUCERNE

- WINTER DORMANT, SEMI-WINTER DORMANT & WINTER ACTIVE -

LUCERNE VARIETAL SELECTION CHART

Selecting the right variety for your paddocks

1. What is the purpose for sowing?
   Grazing, hay or dual-purpose?

2. When is the feed required?
   Summer only, autumn and summer etc.

3. How long do I want the stand to last? Three year rotation, permanent pasture etc.

<table>
<thead>
<tr>
<th>VARIETY</th>
<th>WINTER DORMANT</th>
<th>SEMI-WINTER DORMANT</th>
<th>WINTER ACTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment Vigour</td>
<td>Good, Best sown alone - not recommended for winter sowing</td>
<td>Very good - suitable for cover cropping and pasture mixes with perennial grasses</td>
<td>Excellent - suitable for cover cropping and pasture mixes with annual pastures</td>
</tr>
<tr>
<td>Growth</td>
<td>95 percent summer, five percent winter</td>
<td>90 percent summer, 10 percent winter</td>
<td>80 percent summer, 20 percent winter</td>
</tr>
<tr>
<td>Winter-Hardiness</td>
<td>Very high</td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>Maturity</td>
<td>Shorter growth, Delayed maturity for maximum cutting and grazing flexibility</td>
<td>Similar regrowth rates to most winter actives. Extended cutting schedule and grazing period</td>
<td>Fast regrowth, early maturity</td>
</tr>
<tr>
<td>Crown</td>
<td>Below ground and broad - excellent grazing tolerance</td>
<td>Low and broader - good grazing tolerance</td>
<td>High and erect - strict rotational grazing</td>
</tr>
<tr>
<td>Forage Quality</td>
<td>Premium grade hay, chaff and silage</td>
<td>Very good quality hay, chaff and silage</td>
<td>Good quality hay and silage if given the best cutting management</td>
</tr>
<tr>
<td>Adaptation</td>
<td>Irrigation/coastal/cold climates. Best suited to medium and heavy soils</td>
<td>Dryland and irrigation. Suitable for soils ranging from deep sands to heavy clays</td>
<td>Dryland and irrigation. Suitable for most soil types</td>
</tr>
</tbody>
</table>

Having a complete range of lucerne varieties for all applications, is the hallmark of the Pasture Genetics lucerne breeding programme.

With combined germplasm from our long-term local breeding programme and the New South Wales Department of Primary Industries, we are continually developing new and improved varieties with a strong Australian pedigree – providing pastures for the Australian farmer. Variety selection is key, but our options make your choice easy.

Tom Damin
Research & Technical Services Manager
The ability for green cut lucerne to hold its leaf into the bale is critical when making premium quality hay. Mechanical losses at time of baling range from eight to 45 percent. When targeting high quality lucerne hay, it is paramount to select varieties with such leaf holding traits. Q31 Lucerne demonstrates excellent leaf retention in the bale.

### The Selection of Lucerne Cultivars with High Leaf Holding Capacity Such as Q31 Lucerne, Allows for Higher Relative Feed Value Results, as Demonstrated in this Trial

The relative feed value (RFV) of each variety was calculated. The RFV is an index value that ranks feed based on the potential digestible dry matter intake. The RFV value is calculated by comparing the digestible dry matter of the variety; using the percentage of acid detergent fibre (ADF) with the dry matter intake estimate of the variety, using the percentage of neutral detergent fibre (NDF).

The equation used for RFV calculation is as follows:

\[ RFV = \frac{(88.9 - (0.779 \times ADF) \times ((120/NDF)/1.29))}{(88.9 - (0.779 \times ADF))} \]

The RFV does not consider the percentage of CP or other nutrient factors, but does give a good indication of the quality of the forage in regard to its value to the grazing animal in terms of digestibility, and allows for an indexed value to be used when comparing different forage quality results of a number of varieties.

Varieties such as Q31 Lucerne and Q75 Lucerne have shown their characteristic quality traits clearly in this trial; both varieties were developed to produce high quality forage.

The samples were taken from fresh cut forage prior to cutting for forage yield; there would be greater differences again if the varieties were tested after going through a mechanical hay making process, as varieties such as Q31 Lucerne and Q75 Lucerne, maintain higher RFV values due to their high leaf holding traits. A typical lucerne hay or silage feed sample would have a lower RFV rating, and lower percentage of CP and ME values than shown on this chart, as these were fresh cut pasture with very little leaf loss, compared to what would normally be, after mechanical harvesting.

<table>
<thead>
<tr>
<th>VARIETY</th>
<th>DORMANCY</th>
<th>CP%</th>
<th>ADF%</th>
<th>NDF%</th>
<th>DMD%</th>
<th>ME</th>
<th>RFV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q31 Lucerne</td>
<td>3</td>
<td>30.8</td>
<td>21.4</td>
<td>26.2</td>
<td>78.0</td>
<td>11.8</td>
<td>256.5</td>
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<tr>
<td>SARDI Five</td>
<td>5</td>
<td>28.7</td>
<td>24.3</td>
<td>28.6</td>
<td>79.6</td>
<td>12.6</td>
<td>276.6</td>
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<tr>
<td>L56 Lucerne</td>
<td>5</td>
<td>28.4</td>
<td>23.0</td>
<td>28.9</td>
<td>75.3</td>
<td>13.3</td>
<td>288.5</td>
</tr>
<tr>
<td>SF Force 5</td>
<td>5</td>
<td>28.3</td>
<td>23.7</td>
<td>29.5</td>
<td>75.6</td>
<td>11.4</td>
<td>222.1</td>
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<tr>
<td>Stamina 5</td>
<td>6</td>
<td>274</td>
<td>24.3</td>
<td>31.5</td>
<td>72.5</td>
<td>10.9</td>
<td>208.0</td>
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<tr>
<td>Stamina GT6</td>
<td>6</td>
<td>270</td>
<td>26.2</td>
<td>30.8</td>
<td>73.0</td>
<td>10.9</td>
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<td>GTL®60 Lucerne</td>
<td>6</td>
<td>28.7</td>
<td>22.2</td>
<td>29.6</td>
<td>75.3</td>
<td>11.3</td>
<td>225.0</td>
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<tr>
<td>Aurora</td>
<td>6</td>
<td>25.6</td>
<td>25.6</td>
<td>32.5</td>
<td>71.5</td>
<td>10.7</td>
<td>197.4</td>
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<tr>
<td>SARDI Grazer</td>
<td>6</td>
<td>27.5</td>
<td>25.2</td>
<td>30.5</td>
<td>74.5</td>
<td>11.2</td>
<td>213.3</td>
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<tr>
<td>Genesis</td>
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<td>26.7</td>
<td>21.3</td>
<td>31.1</td>
<td>76.3</td>
<td>11.5</td>
<td>216.3</td>
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<tr>
<td>SARDI Seven Series 2</td>
<td>7</td>
<td>26.3</td>
<td>24.8</td>
<td>30.8</td>
<td>70.3</td>
<td>10.5</td>
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<td>Titan 7</td>
<td>7</td>
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<td>25.6</td>
<td>33.0</td>
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<td>7</td>
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<td>Q75 Lucerne</td>
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<td>28.9</td>
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<td>L70 Lucerne</td>
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<td>L71 Lucerne</td>
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<td>34.2</td>
<td>69.9</td>
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<td>Sequel</td>
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<td>25.7</td>
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<tr>
<td>Q75 Lucerne</td>
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<td>26.5</td>
<td>27.4</td>
<td>32.0</td>
<td>71.5</td>
<td>10.7</td>
<td>196.4</td>
</tr>
<tr>
<td>L91 Lucerne</td>
<td>9</td>
<td>25.1</td>
<td>25.4</td>
<td>32.7</td>
<td>70.0</td>
<td>10.4</td>
<td>196.6</td>
</tr>
<tr>
<td>L92 Lucerne</td>
<td>9</td>
<td>26.5</td>
<td>26.7</td>
<td>31.5</td>
<td>71.4</td>
<td>10.7</td>
<td>201.1</td>
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<tr>
<td>SARDI Ten Series 2</td>
<td>10</td>
<td>26.8</td>
<td>27.6</td>
<td>33.9</td>
<td>69.9</td>
<td>10.4</td>
<td>184.9</td>
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<tr>
<td>SF Force 10</td>
<td>10</td>
<td>25.8</td>
<td>27.0</td>
<td>34.6</td>
<td>70.3</td>
<td>10.5</td>
<td>182.5</td>
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<tr>
<td>ML99 MultiLeaf Lucerne</td>
<td>10</td>
<td>28.6</td>
<td>24.4</td>
<td>30.8</td>
<td>74.9</td>
<td>11.3</td>
<td>211.1</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>27.4</td>
<td>24.7</td>
<td>30.9</td>
<td>73.4</td>
<td>11.0</td>
<td>210.5</td>
</tr>
</tbody>
</table>
Q31 LUCERNE

Winter dormant
Medicago sativa
E, GLX

Min Rainfall (mm) 450
SEEDING RATE kg/ha
Dryland 4 - 8
High Rainfall/Irrigation 10 - 20
Hay Production 25 - 30

• Quickly been adopted as the leading hay and chaffing variety for premium markets.
• A superior leaf retention trait, and the highest nutritive value in retained leaf in feed and hay. High yields and excellent quality for grazing, silage, hay and chaff.
• Demonstrates greater persistence than winter active varieties, when persistence is more important than winter growth.
• Bred for specialist irrigated haymaking, silage or chaff, where premium quality is required and where hay cannot be made in winter.
• Ideally suited to leaders in forage quality.

EXTREME DENSITY & HIGHER LEAF CONTENT WITH Q31 LUCERNE

“I have grown Pasture Genetics’ Q31 Lucerne for about three years now, and it continues to produce the highest quality, leafy hay,” said Kyle Ropa.

On his White Falls property in Singleton, New South Wales, Kyle is in the business of producing quality hay for his clients.

The latest stand of Q31 Lucerne that has been established was sown in mid-September 2017, at a rate of 25 kilograms per hectare, and fertilized according to prior soil testing with SSP+Mo at 250 kilograms per hectare and Cal-S at 400 kilograms per hectare, along with lime at 1,000 kilograms per hectare.

“By mid-December I had taken the first cut off the Q31 Lucerne which produced over 4.5 tonnes per hectare.

“The bales had impressive weight and packed in really well due to the high leaf and fine stem attributes of Q31 Lucerne.

“When mowing the paddock, I have had to mow it in a lower gear due to the extreme density and higher leaf content.

“Q31 Lucerne is a winter dormant variety, which does take some management and is not for your first-time hay grower. It is slower to establish than the more winter active varieties, so weed control is paramount prior to sowing and the use of a pre-emergent herbicide spray is vital,” Kyle said.

However, Q31 Lucerne has many advantages to a specialist hay grower. As a winter dormant variety, Q31 Lucerne is a prostrate type, with a very low-set crown, whereby the crown is under the ground. This low-set crown not only protects the lucerne from vehicle traffic and livestock damage but ensures the lucerne has longevity in the paddock due to the minimal damage throughout the year.

One of the many advantages of growing Q31 Lucerne is that it is winter dormant and only grows during the hay and silage season. Another advantage is that it has a cutting cycle of 40-42 days, so there is plenty of time between cuts. This allows for flexible management when dealing with incumbent weather.

“My clients are extremely happy with both the quality and fine stem, as well as the bale density that Q31 Lucerne hay provides,” Kyle concluded.

CUTTING Q31 LUCERNE AT WHITE FALLS
LOCAL FOCUS WITH MICHAEL CHRISTENSEN

MORE ADVANCED VARIETIES ARE IN HIGH DEMAND, WITH PASTURE GENETICS’ L56, L71, L75, L92 AND ML99 MultiLeaf® LUCERNE VARIETIES CONTINUING TO STAND OUT. THESE VARIETIES PROVIDE SUPERIOR PEST AND DISEASE RESISTANCE, RESULTING IN LONGER PERSISTENCE AND MORE PRODUCTIVITY.

Higher leaf retention traits are features of these varieties, which provides further advantages by minimising leaf drop before cutting and during the baling process. Effectively, they are more forgiving in adverse conditions. These attributes contribute to superior, high quality and high yielding hay production. The advanced winter active/highly winter active varieties will continue to grow more consistently into late autumn/winter and will provide growth earlier in spring than the dormant varieties. Generally, they are sown throughout Queensland for high quality hay production stands, across short, two to four year rotations.

Pasture Genetics continue to be active in developing new varieties best suited to the Australian environment, and currently have numerous lucerne demonstration and evaluation sites situated throughout many regions of Queensland e.g. Kalbar, Gatton, Burnett, Biloela and Monto.

For further information on hay production or grazing tolerant varieties, contact your local Pasture Genetics Territory Manager to discuss your particular lucerne requirements.

Michael Christensen
Territory Manager - QLD

LUCERNE PRODUCTION IN QUEENSLAND

Most lucerne production throughout the regions of Queensland has traditionally been focussed around intensive, irrigated hay production.

Many of the dominant lucerne growing regions such as the Darling Downs, Lockyer Valley, Fassifern Valley, Burnett and Biloela regions, have considerable access to reliable, quality irrigation water with a number of these regions situated along creeks or river systems where the soil types range from deep sandy loams, to alluvial soils or heavy black clays.

Major advancements in many regional irrigation schemes across Queensland, and improved irrigation delivery technologies has also contributed to the increase in demand for high yielding, quality lucerne varieties. In recent times, strong lucerne inquiries hailing from from Central and Northern Queensland is evidence of this irrigation development.

Selecting the correct variety to suit your chosen farming enterprise is extremely important and will contribute greatly to the success of your lucerne stand. Put simply, “what are you trying to achieve?”

Traditionally in Queensland, well known highly winter active and winter active varieties such as Sequel and Trifecta have been grown extensively. These varieties are now 30-plus years old, and the demand for them is decreasing.

HAY PRODUCTION GENERALLY REMAINS THE ULTIMATE FOCUS FOR MANY BUT IN RECENT YEARS WE HAVE ALSO SEEN A DRAMATIC INCREASE IN THE DEMAND FOR LUCERNE IN BEEF AND DAIRY GRAZING SYSTEMS, UNDER BOTH IRRIGATED AND DRYLAND SITUATIONS.
**L56 LUCERNE PROVIDING FEED FOR THE YORKE PENINSULA**

Brenton McRae farms a dual enterprise on the outskirts of Kadina on South Australia’s Yorke Peninsula.

With the ability to store water on his property in two separate dams, Brenton saw a fantastic opportunity to capitalise during a dry season and sowed Pasture Genetics’ L56 Lucerne with the intention of grazing his Lowline Angus cattle, before cutting for hay to supply the local horse market.

Since the stands establishment in 2016, Brenton has seen some promising results. Averaging three cuts per year along with some grazing, he has been very happy with the L56 Lucerne’s performance.

The summer just passed, Kadina has had little to no rainfall, which has resulted in the L56 Lucerne “just plugging along”. Hopeful for some rain, Brenton will aim to reap four cuts for the year.

“This is what I love about L56 Lucerne, it has such a deep tap root that pushes down into the moisture below, and one little splash of rain just sparks it up and it goes green overnight.

“The L56 Lucerne has required a decent amount of water but living in an area with annual average rainfall of around 300 millimetres, what do you expect?” Brenton said.

Due to his success with L56 Lucerne, Brenton has also sown Pasture Genetics’ Moby Forage Barley and Jaguar Strand Medic, which provided great early feed.

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**L56 LUCERNE SUITS THE OPERATION**

After growing Pasture Genetics’ L56 Lucerne several years ago with very pleasing results, Martin Joosen decided to plant it again in April 2017. Unfortunately, paddock failed due to less than ideal weather conditions. Martin was able to replant the paddock under Pasture Genetics’ exclusive Establishment Guarantee™ programme, and the new stand has thrived.

Martin has been producing fine hay of excellent quality around Woolamin in New South Wales for many years, often under some challenging conditions.

Being an experienced hay producer, he knows how to achieve the best possible results from his lucerne.

He also understands the impact that careful variety selection can have.

Martin said he finds L56 Lucerne to be much more persistent than other varieties, while at the same time, producing a softer and finer product in the bale.

He has been pleased with the yields he is reaping, nearly 60 small square bales to the acre. However, the hot and dry weather experienced over summer has had an impact, with yields back to around 40-50 small square bales to the acre.

Traditionally, Martin has grown more winter active varieties, but was looking for something more persistent.

L56 Lucerne has proved to handle the heavier soil type well. Martin has noticed leaf diseases such as Stemphylium are less prevalent on L56 Lucerne, particularly after watering.

In addition, Martin noted that the L56 Lucerne is producing higher quality hay than the other winter active types.

Martin concluded by saying that he will be sowing more L56 Lucerne in future blocks.
LUCERNE & CHICORY BLEND PROVES SUCCESSFUL ON KONGORONG DAIRY

When Brenton Ham was looking for a productive option to grow on a sandy paddock out the back of the farm, it was recommended that he consider a lucerne and chicory blend to feed his Jersey heifers. Brenton, along with his wife Sam, milk up to 600 Jersey cows on their farm in South Australia and have expanded their herd considerably over the last five years. While rearing good heifers has always been a priority, the expanding herd has required extra heifers to boost the milking herd. Feeding them well is always a challenge. The blend of semi-winter dormant GTL®60 Lucerne and Balance Chicory at 15 kilograms per hectare has helped flatten out the feed curve and produce high quality feed when the grass paddocks have gone off, Brenton said.

GTL®60 Lucerne was selected to provide excellent grazing tolerance with a low-set crown which assists the variety to perform well under heavy grazing conditions. Balance Chicory is proving to be a great combination for the heifers, providing high quality feed out of season.

GTL®60 Lucerne was selected to support the system “pretty hard” but has been incredibly happy with how GTL®60 Lucerne has handled the pressure. Brenton is eager to plant another paddock of this blend for the coming season.
At Pasture Genetics, we have Australia’s most comprehensive lucerne breeding programme. For the last five years, we have trialled GtL®60 Lucerne under the most extreme grazing conditions. It has been grazed over 50 times in the last five years.

GtL®60 Lucerne continues to exhibit elevated levels of residual plants and the ‘high relative feed value’ trait that Pasture Genetics’ varieties are known for. You can have high levels of grazing tolerance, long-term persistence and the ability to cut high quality hay.

Our lucerne growers tell us that their key requirements for a lucerne variety are ‘productivity, persistence and quality’ – and with GtL®60 Lucerne, we can tick all those boxes. Our lucerne varieties are bred in Australia, for Australian growing conditions. They also come with our unique Establishment Guarantee™, which reduces the risk when establishing a new stand.”

Tom Damin
Research & Technical Services Manager

* Terms & Conditions apply.
Pasture Genetics has taken the term ‘grazing tolerant’ very seriously with its selection of new lucerne material. The ability to select plant germplasm through a five year intensive grazing trial, has proven critical to give farmers confidence in new lines coming through the Pasture Genetics lucerne breeding programme. The strength of this trialling model will be replicated in the future with more selections being made with this key grazing tolerance trait.

**GRAZING TOLERANT LUCERNE SELECTION TRIAL 2016**

**Penfield Research Station Trial Sown 14/09/2011**

The trial protocol was established in conjunction with NSW DPI and IP Australia to give a measure of true grazing tolerance. After the lucerne was established it was grazed every three weeks (or when grazing was required) to a residual height of about 30 millimetres.

Approximately 20 Merino wethers were used to graze the trial each time, this was the number of animals adequate to graze the trial down within at least a three to four day period so we could manage frequent grazing events but not expose the lucerne to extended periods of set stocking.

The basis of this grazing management was to make sure the lucerne was put under frequent grazing pressure, but not deliberately set stocked. In the first three year period the trial was grazed 32 times, and in the recent two year period was grazed 18 times.

Plant counts were taken initially and results have been measured based on the percentage of residual plant counts remaining after the three and five year periods.

Originally the trial was established at a dryland sowing rate of four kilograms per hectare resulting in an average starting plant count of 37 plants per metre square, which suited our target of 30 - 40 plants per metre square based on our average annual 420 millimetres rainfall.

The results shown in the graph on this page now indicate the updated results after five years of the trial period which has shown some significant differences in the performance of varieties, and quite a variation in the results that were seen after the three year period was measured, in particular some of the Highly Winter Active material has distinctly dropped off in the recent two years.
“tREATmENt thRivEs really good strike,” he continued.

“...just got away.” Andrew marvelled.

“We got a good cut off it and the pasture really comes away in the spring. We want to put in more. I’ll be putting in another 150 hectares next year. It is an awesome variety, with almost no moisture it still grows. L70 Lucerne is a long-term option for us,” he concluded.

“tREATmENt thRivEs really good strike,” he continued.

“We really need to manage our pest package accordingly to get the best result,” Peter concluded.

“We know L70 Lucerne works in this environment, we get what we want out of it, and as far as I am concerned, it has done the job for us,” Peter said.

“Every two to three weeks we rotate the cows out and sure they’ll go stand at the gate waiting to get back into the L70 Lucerne,” Andrew said.

“We want to put in more. I’ll be putting in another 150 hectares next year. It is an awesome variety, with almost no moisture it still grows. L70 Lucerne is a long-term option for us,” he concluded.

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“tREATmENt thRivEs really good strike,” he continued.

“We...
L70 V AURORA

- L70 Lucerne offers higher disease and pest package compared to Aurora.
- Superior forage genetics - higher leaf to stem ratio.
- Minimum 90 percent germination standards exceeds current minimum certified standard for Aurora of only 60 percent.
- L70 Lucerne seed production is derived from dryland seed production stands only. This ensures the dryland integrity and performance of L70 Lucerne is maintained when utilised in dryland grazing enterprises.
- These attributes, combined with superior plant genetics, makes L70 Lucerne an excellent new alternative to Aurora.
- L70 Lucerne offers producers higher returns and allows them to plant with confidence knowing they are covered by the Establishment Guarantee™ programme.

LEAF TRAIT COMPARISON

L70 Lucerne (left) exhibiting higher leaf carrying trait compared to older plant genetics exhibited in Aurora (right).

GERMINATION STANDARDS COMPARISON

<table>
<thead>
<tr>
<th></th>
<th>GOLDSTRIKE®</th>
<th>COATED AURORA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds/kg</td>
<td>300,000</td>
<td>300,000</td>
</tr>
<tr>
<td>Seeds sown/m² at 4kg/ha</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Minimum germination %</td>
<td>90%</td>
<td>65%</td>
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<tr>
<td>Variable seeds/m² sown</td>
<td>108</td>
<td>78</td>
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<tr>
<td>Established rate 50%</td>
<td>54</td>
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</table>

▲ 38 PERCENT INCREASE IN PLANT ESTABLISHMENT PER SQUARE METRE

DISEASE RATING COMPARISON

<table>
<thead>
<tr>
<th>Disease</th>
<th>L70</th>
<th>AURORA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spotted Alfalfa Aphid</td>
<td>HR</td>
<td>HR</td>
</tr>
<tr>
<td>Bluegreen Aphid</td>
<td>HR</td>
<td>HR</td>
</tr>
<tr>
<td>Phytophthora Root Rot</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Anthracnose</td>
<td>R</td>
<td>MR</td>
</tr>
<tr>
<td>Bacterial Wilt</td>
<td>R</td>
<td>LR</td>
</tr>
<tr>
<td>Stem Nematode</td>
<td>R</td>
<td>R</td>
</tr>
</tbody>
</table>

L70 V AURORA

YIELD RESULTS & PRICING COMPARISON

L70 Lucerne offers very competitive pricing to Aurora and therefore similar per hectare input seed costs.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield (t/ha)</th>
<th>Hay returns/ha at $200t</th>
</tr>
</thead>
<tbody>
<tr>
<td>L70 Lucerne</td>
<td>18.5</td>
<td>$3,700/ha</td>
</tr>
<tr>
<td>Aurora</td>
<td>17.0</td>
<td>$3,400/ha</td>
</tr>
</tbody>
</table>

▲ EXTRA HAY RETURNS $300 PER HECTARE, PER YEAR

Source: Pasture Genetics, L70 Lucerne Grazing Trial, 2011, Penfield Research Station Five years. Four irrigated sites, 46 cuts. Locations: Virginia SA, Struan SA, Forbes NSW & Wagga Wagga NSW

TRIAL RESULTS

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield (t/ha)</th>
<th>Hay returns/ha at $200t</th>
</tr>
</thead>
<tbody>
<tr>
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ESTABLISHMENT GUARANTEE

L70 Lucerne comes with the reassurance of Pasture Genetics’ Establishment Guarantee™ programme. Plant with peace of mind.
L71 LUCERNE

**L71 LUCERNE**

Winter active Medicago sativa E, GLX

Winter Activity 7

Min Rainfall (mm) 350

SEEDING RATE kg/ha

Dryland 4 - 8

High Rainfall/Irrigation 10 - 20

Hay Production 25 - 30

- L71 Lucerne was formed from the partnership between the New South Wales Department of Primary Industries lucerne breeding programme and Pasture Genetics.
- L71 Lucerne out performs its predecessor Genesis by four percent on average in both dryland and irrigated conditions.
- Tested for all three races of anthracnose.
- Dryland specialist targeting grazing and hay production.
- L71 Lucerne has demonstrated excellent grazing tolerance with 65 percent residual plants after three years of grazing.
- Excellent persistence in low rainfall dryland conditions.
- High forage quality and leaf retention.

**L71 LUCERNE V GENESIS - YIELD RESULTS & HAY RETURN COMPARISON**

L71 Lucerne is the premium dryland specialist and compares favourably to Genesis and Aurora.

**TRIAL RESULTS**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield (t/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L71</td>
<td>7.31 t/ha</td>
</tr>
<tr>
<td>Genesis</td>
<td>7.04 t/ha</td>
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</table>

**FOUR PERCENT YIELD INCREASE**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield Increase</th>
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<tbody>
<tr>
<td>L71</td>
<td>7.31%</td>
</tr>
<tr>
<td>Genesis</td>
<td>7.04%</td>
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</tbody>
</table>

**NEW DPI 21 sites three years (2007-2010)**

**HAY RETURNS/ha at $200t**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Hay Returns/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>L71</td>
<td>$1462/ha</td>
</tr>
<tr>
<td>Genesis</td>
<td>$1408/ha</td>
</tr>
</tbody>
</table>

**EXTRA HAY RETURNS $54 PER HECTARE, PER YEAR**

**PERCENTAGE OF RESIDUAL PLANTS AFTER THREE & FIVE YEARS OF GRAZING**

Lucerne stands are grazed to restrict flowering over a three year period to increase pressure on plants.

<table>
<thead>
<tr>
<th>Variety</th>
<th>3 Year Count</th>
<th>5 Year Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>L71</td>
<td>November, 2014 - Av. 5% LSD = 22.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>November, 2016 - Av. 5% LSD = 18.7</td>
<td></td>
</tr>
</tbody>
</table>

**L71 LUCERNE PERFORMS IN A DRY SEASON**

As an experienced lucerne grower, Darren Williams of Scotts Flat Lucerne in Scotts Flat, New South Wales, decided to put a new lucerne to the test, as he is always looking to improve quality in the bale.

Sown under irrigation at a rate of 35 kilograms per hectare into prepared ground, Pasture Genetics’ L71 Lucerne germinated quickly and was up and out of the ground.

“L71 Lucerne is certainly living up to my expectations, with four cuts off the paddock so far.

“In its first year, it is proving itself as a real quality lucerne with a fine stem,” Darren said.

L71 Lucerne was bred in partnership between Pasture Genetics and the New South Wales Department of Primary Industries, to replace its predecessor Genesis. L71 Lucerne is a quality hay maker with high relative feed value results in recent trial work, as well as being a top performer in long-term grazing tolerance trials.

Helping the L71 Lucerne bounce out of the ground is Pasture Genetics’ Goldstrike XLR8® seed treatment with Poncho® Plus for added protection against insect damage.

The combination of the Goldstrike XLR8® seed treatment as well as the genetic package within L71 Lucerne, provides solid pest and disease resistance, that includes resistance to all three races of Anthracnose. This makes L71 Lucerne a wise choice for growers wanting a versatile grazing or hay option in their operations.

“We are rapt with how it is performing in the dry conditions that we are experiencing in the Hunter this season.

“To date the L71 Lucerne has held its leaf well and is producing solid bales that the customers are very happy with. We will be expanding our planting of L71 Lucerne soon,” Darren concluded.
As such, it is paramount that advisors and producers carefully match lucerne varieties to the specific needs of an enterprise to ensure the production potential of the lucerne is maximised, in turn having a direct influence on the quality of the commodity produced.

Hunterfield and Aurora are household names among lucerne growers within Southern New South Wales. Although excellent varieties when first released, lucerne breeding has advanced significantly since the 1970’s and 80’s. Modern lucerne varieties are selected and bred to serve a specific purpose or to exhibit a certain trait, in order to meet producer requirements. Hence, it is simply no longer a case of “one variety fits all”.

To best match a variety with an enterprise, the following factors must be considered. The purpose of the stand (grazing, silage, hay or all), whether grazing tolerance is a requirement, dryland or irrigation, how long the stand is to last, pests and diseases that may be present, whether winter production is required, and time of sowing.

At Pasture Genetics, we pride ourselves on having the most extensive lucerne range of any pasture seed company in the Australian market; meaning we have a lucerne variety to match your specific requirements. The diversity of our product range is notable.

Q31 Lucerne is a winter dormant variety that was bred with a mix of Australian and North American dormant germplasm. A prostrate growing, leafy, fine stemmed variety that was bred specifically for producers wanting a variety that would give them all their production over the southern hay making season (late spring, summer and early autumn), retain maximum leaf during the curing and baling process, remain green in the bale, and return excellent feed test values. Q31 Lucerne successfully ticks all the boxes and is proving to be the premium hay variety on the Australian market.

GTL®60 Lucerne, a direct result of the Pasture Genetics lucerne breeding programme, is a semi-winter dormant variety.

The grazing tolerance trial protocol was a collaboration between Pasture Genetics, Meat & Livestock Australia (MLA) and the New South Wales Department of Primary Industries, which saw over 15 commercial varieties, alongside 15 breeding lines trialled. All were grazed every three weeks, over an initial three-year period, with the lucerne never being allowed to flower. Plant counts after both three and five years revealed that GTL®60 Lucerne had the highest residual plant populations over any other variety in the trial. Since it’s commercial release, the above traits are being exhibited on a paddock scale. The low-set plant crown, allows for constant stock traffic, whilst minimizing damage to the new growing points of the plant, resulting in reduced plant losses. An exceptional product when long-term persistence in an intensive grazing system is required.

L92 Lucerne is the ideal variety for a short-term, three to four year, pasture phase within a cropping rotation, or where winter production is required within a grazing system.

The prominent level of winter activity from L92 Lucerne also ensures that adequate biomass is available for that first silage cut or early hay cut during spring. Excellent regrowth post grazing or cutting also ensures that you are back on your paddock quicker for another grazing or cutting.

As these three varieties demonstrate, matching a lucerne variety to an enterprise ensures elite lucerne performance over the required period.

When planning your next lucerne rotation, contact your local Pasture Genetics Territory Manager to discuss your individual requirements.

Tom Robertson
Territory Manager
– Southern NSW
Throughout the duration of the trial, all varieties were exposed to the same environmental conditions and assessed equally by being grazed simultaneously by three grazing groups of steers; one group on each variety at any time. With each cattle group grazing each different variety for a four week rotation, this allowed us to exclude the differences in the grazing performance of the different cattle groups from being a variable factor.

**LIVESTOCK GAIN TRIAL 2014**

**Penfield Research Station**

**Trial Sown 23/05/2014**

- An irrigated six hectare paddock was divided into 12 half-hectare sections. On the May 23, four of these sections were each sown with L71 Lucerne, Aurora, and SARDI 7 Series 2.
- Sowing rate was 15 kilograms per hectare.
- 24 Hereford steers were split into three grazing groups of eight steers, with an average starting weight of 299 kilograms.
- The groups simultaneously grazed each of the varieties throughout the duration of the trial.
- The trial ran for 12 weeks, in which each variety at least would be grazed for a four week duration by each of the four grazing groups.
- No other sources of feed or supplements were given to the animals.

**Discussion**

Throughout the duration of the trial, all varieties were exposed to the same environmental conditions and assessed equally by being grazed simultaneously by three grazing groups of steers; one group on each variety at any time. With each cattle group grazing each different variety for a four week rotation, this allowed us to exclude the differences in the grazing performance of the different cattle groups from being a variable factor.

The trial focused on the true variable being the variety of lucerne that was being grazed. During the trial measurements on dry matter production of the varieties were also taken, as well as samples taken for feed quality analysis. All varieties established well, and the cattle performance in the first four week rotation was good all round. Prior to the trial commencing there was a very dry early spring period, without much natural rainfall. The trial was irrigated, but there was still a lack of soil moisture deep in the soil profile and this caused some periods of moisture stress between watering.

This resulted in particularly the second rotation showing a drop off in dry matter production from all varieties, but also daily weight gain in the Aurora and SARDI 7 Series 2. However, dry matter production and weight gain began to increase again in the third rotation across all varieties.

The results indicate that the L71 Lucerne was able to maintain quality and resulted in higher levels of intake during these times. The feed analysis shows a lower percentage of ADL and NDF values, this could likely account for the higher levels of kilograms per day weight gain achieved by the L71 Lucerne throughout the trial. The results are consistent with the key features of L71 Lucerne, which is a highly persistent and high quality variety, able to perform in both irrigated and dryland conditions that are less than ideal.

### Average results from feed test taken prior to grazing throughout the trial (three tests).

<table>
<thead>
<tr>
<th>Feed Test</th>
<th>L71</th>
<th>Aurora</th>
<th>SARDI 7 Series 2</th>
</tr>
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<tbody>
<tr>
<td>% Dry Matter</td>
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<tr>
<td>ME (MJ/kg)</td>
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<tr>
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<td>32.00</td>
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<tr>
<td>% ADF</td>
<td>24.9</td>
<td>26.5</td>
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</tr>
<tr>
<td>% NDF</td>
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</tr>
<tr>
<td>RFV</td>
<td>212</td>
<td>199.7</td>
<td>208.7</td>
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### LUCERNE AVERAGE KG DM/HA/DAY

<table>
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<tr>
<th>Variety</th>
<th>First Rotation</th>
<th>Second Rotation</th>
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</tr>
<tr>
<td>SARDI 7 Series 2</td>
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### Average KG/DAY Weight Gain

<table>
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<th>First Rotation</th>
<th>Second Rotation</th>
<th>Third Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>L71</td>
<td>1.40</td>
<td>1.35</td>
<td>1.25</td>
</tr>
<tr>
<td>Aurora</td>
<td>1.25</td>
<td>1.20</td>
<td>1.10</td>
</tr>
<tr>
<td>SARDI 7 Series 2</td>
<td>1.30</td>
<td>1.25</td>
<td>1.10</td>
</tr>
</tbody>
</table>
**Q75 Lucerne**

**Winter active**

*Medicago sativa* E, GLX

**Winter Activity**

7

**Min Rainfall (mm)**

350

**SEEdiNG RAtE kg/ha**

Dryland 4 - 8

High Rainfall/Irrigation 10 - 20

**Hay Production**

25 - 30

- The “Q” in Q75 Lucerne signifies the variety has demonstrated superior quality characteristics in laboratory tests and animal feeding trials.
- Q75 Lucerne has set a new benchmark in forage quality for the Australian lucerne industry with the highest forage quality, Relative Feed Value (RFV) and protein in the winter active group.
- Highest forage quality in the winter active group.
- Dual purpose grazing and hay option.
- High resistance to multiple pests and diseases.
- Better persistence than most winter active varieties.
- Excellent leaf holding capacity.

**A BALE THAT'S FULL OF LEAF**

Rob Haling has been successfully producing high quality hay for many years.

Most of Rob’s customers are long-term buyers, some having dealt with Rob for over 25 years.

Rob’s customers seek hay that is soft and green, with plenty of leaf and not a lot of stalk. Rob says that he grows Pasture Genetics’ Q75 Lucerne because he knows it can produce what his customers are after.

With the range of soil types on his property at Loomberah near Tamworth in New South Wales, Q75 Lucerne has been tested across both light and heavy soil types, performing extremely well where other varieties grown in the past have not performed.

Along with his successful lucerne hay business, Rob has a mixed farming enterprise, including fat lambs and a Hereford cattle stud that utilise the spoils from the Q75 Lucerne paddocks.

Generally, Rob plants Q75 Lucerne at 12-15 kilograms per hectare, under irrigation, with a base of manure laid prior to planting.

The block is then top dressed after the first cut and each subsequent year.

Rob said Q75 Lucerne performs very well in dryland conditions, where he cuts the planting rate back and grazes with fat lambs. With sufficient rainfall, Rob can achieve an additional hay cut.

Rob has been very happy with the yield of Q75 Lucerne.

“If you keep the water up to it, it will yield well,” Rob said.

In spring, he cut a small paddock and made 750 bales off 12 acres, 62.5 bales to the acre is an excellent result.

“Compared to older varieties such as Aurora, Q75 Lucerne holds onto its leaf much better allowing me greater flexibility at cutting time. With Aurora, if you let it go too long before cutting it would just drop its leaf.

“Q75 Lucerne has fine stems and doesn’t get stalkly, it holds onto its leaf so well that when you see it in the bale it’s just full of leaf,” Rob concluded.

**Q75 Lucerne consistently produces hay at Mundubbera**

Russell Zahnow of Zahnderra in the North Burnett region of Queensland, operates an intensive hay production enterprise providing high quality lucerne and cereal hay to both cattle and horse markets.

Russell said that he has successfully grown Pasture Genetics’ Q75 Lucerne for many years, across numerous locations throughout South East Queensland, and it’s still his first choice when selecting a lucerne variety.

In late May 2017, a 30 hectare paddock was sown down under irrigation at 45 kilograms per hectare. “We push the variety hard and aim for eight to nine cuts throughout the year.

“When the conditions are good, we can be cutting every 25-30 days. Q75 Lucerne displays very strong leaf retention traits, that enables us to make high quality hay under harsh conditions.

“Q75 Lucerne consistently produces great hay, which I put into small square bales targeting the premium horse market. Large square bales are also produced and tend to be utilised in the beef or dairy cattle hay market.

“Q75 Lucerne consistently produces great yields of excellent quality,” Russell concluded.
L91 LUCERNE PROVIDES FAST FEED IN A DRY SPELL

Jefferson Pastoral is comprised of two properties, River View, a 1,800 hectare, 600 head Black Angus stud in O’Connell, and Bell River, a 900 hectare, lucerne hay and cattle operation in Wellington, New South Wales. With the property at O’Connell suffering from a prolonged dry spell Alan Pasco, Manager of Bell River, sought out a fast establishing lucerne variety to produce as much hay or silage as possible. After conversations with his local agronomist Alan decided to plant Pasture Genetics’ L91 Lucerne.

Alan was pleased with the fast establishment and time to first cut. “I’m very impressed with the cut time and the bulk of hay, especially for a first year lucerne stand,” he said.

L91 Lucerne is fast to establish

• The easy-grow winter active lucerne.
• Extended grazing and hay in autumn and winter.
• Best in cropping rotations and dairy pastures.
• Preferred variety for winter sowing.
• Outstanding seedling vigour for quicker establishment.
• Suitable for all areas, with exceptional productivity on red brown earth and other light soils that are tolerant of saline conditions.
• High resistance to Alfalfa Aphid, Colletotrichum crown rot, Fusarium wilt combined, and high resistance to Phytophthora root rot.
• Price competitive option to Sequel.

L91 LUCERNE IDEAL FOR MILKING GOATS

Roland Pell and his family have recently made the move from share farming a local dairy property, to establishing their own dairy at Undera in Northern Victoria.

There is twist, Roland made the change from dairy cows to dairy goats, in a bid to escape the constant fluctuation and volatility of the dairy market.

“The hay that we have been getting from the 91 Lucerne is a really leafy hay,” Roland noted.

Roland strives to maintain his farm as productively as possible. The goats eat a mixed diet of fresh lucerne pasture, hay in a feedlot situation, and pellets in the bale.

In October 2017, Roland sowed Pasture Genetics’ L91 Lucerne to maintain summer production through to mid-February. By January 2018, Roland had achieved three grazings and a hay cut. The L91 Lucerne showed off its early vigour, and its high dry matter production capabilities.

“The goats don’t chew the lucerne down too far and leave a good amount of residual on the paddocks, this has allowed me to tighten up the rotation and let the L91 Lucerne recover more quickly,” Roland added.

This autumn, Roland plans to sow forage oats with clover to graze through winter. This will ease the demand of his L91 Lucerne and allow it to recover, storing carbohydrates in its root reserves ready for the spring flush.

L91 LUCERNE IS FAST TO ESTABLISH

• High resistance to Alfalfa Aphid, Colletotrichum crown rot, Fusarium wilt combined, and high resistance to Phytophthora root rot.
• Price competitive option to Sequel.
L92 Lucerne

Highly winter active Medicago sativa

Medicago sativa, GLX

Winter Activity 9
Min Rainfall (mm) 350
SEEDING RATE kg/ha
Dryland 4 - 8
High Rainfall/Irrigation 10 - 20
Hay Production 25 - 30

• L92 Lucerne is set to become the leading winter active variety for the dual purpose hay and grazing markets.
• Selected for triple-race anthracnose resistance.
• Highest forage yield in the highly winter active group.
• Excellent seedling vigour to aid in quick establishment.
• High resistance to multiple pests and diseases.
• Increased persistence for a highly winter active lucerne.
• Very quick regrowth after cutting or grazing.
• Ideally suited to wide range of soil types.

L91 & L92 LUCERNE

5 PERCENT YIELD INCREASE OVER SEQUEL
> New South Wales Department of Primary Industries, 21 sites over three years (2007 - 2010).

L91 Lucerne Assists in the Management of Salt Scald

Fourteen kilometres south-east of Borden in Western Australia, Tim O’Meehan owns and operates a 4,000 hectare property. Consisting of around 70 percent cropping and 30 percent livestock, Tim must ensure his pastures are producing as much forage as possible, as efficiently as possible.

Tim runs around 4,600 head of sheep from lambing in June, through to sale in April. It is in this period that feed production is vital.

The combination of both annual regenerative pastures, as well as perennial pasture is key for Tim’s success.

“We have roughly a five-year cropping rotation in which one in five years, half the farm is down to sub clover. We have around 140 hectares of lucerne as well, that we leave in for five years,” Tim explained.

Sown on April 18, 2017, Tim sowed Pasture Genetics’ L91 Lucerne at five kilograms per hectare into a 75 hectare paddock.

“We had a dry start, but we had reasonable moisture from the summer rains. We got a good strike, it all came up evenly and pretty quickly.

“I’m very happy with the establishment.

“We put stock in for a light graze on June 22, about nine weeks post sowing,” Tim explained.

After removing the stock, the paddock was spelled until August when ewes were sent into lamb.

“We stocked it firmly from then onwards, it gets a good flush on after a rain and the sheep get stuck in no worries. It got grazed constantly and the lambs did well,” Tim said.

Other than the livestock side of his business, Tim has recognised the importance lucerne plays with his cropping enterprise.

Previously he used a number of different lucerne varieties including Flairdale, Sequel, and SARDI 10.

“We have grown lucerne for a while now and we are looking for the variety that suits our needs best. We have some salt scald in a few paddocks, so we put the lucerne in to reduce the water table in it.

“On average we leave the lucerne in for up to five years or until we go back into crop,” he said.

The impact lucerne has on water table management is critical.

“It allows us to have our full cropping rotation, after the lucerne we had wheat crops going 4.8 tonnes per hectare on a paddock that had salt scald. We need the lucerne because it just lowers that table, otherwise the salt would get worse,” Tim explained.

The future on Tim’s property sees further use of L91 Lucerne.

“It’s pretty good, we get feed off it early, it suits our conditions and does what we need it to,” Tim concluded.
LIVESTOCK GAIN TRIAL
2016
PENFIELD RESEARCH STATION
TRIAL SOWN 05/08/2016
• An irrigated six hectare paddock was divided into 12 half-hectare sections. On August 5, four of these sections were each sown with L92 Lucerne, Sequel and SARDI 10 Series 2.
• Sowing rate was kilograms per hectare.
• 24 Santa Gertrudis steers were split into three grazing groups of eight steers, with an average starting weight of 325 kilograms.
• The three groups simultaneously grazed each of the varieties throughout the duration of the trial.
• The trial ran for 12 weeks, in which each variety at least would be grazed for a four week duration by each group of cattle.
• No other sources of feed or supplements were given to the animals.

DISCUSSION
The trial protocol dictated that all three varieties would be grazed equally by each cattle group. Also all of the varieties would be simultaneously grazed by the three cattle groups. Throughout the 12 week period, each group of cattle spent four weeks on each variety, with the three groups moving through the paddock on a different variety each. Each cattle group was weighed initially and then weighed again after spending four weeks on a variety. Over the 12 week period all three lucerne varieties were exposed to the same grazing conditions and all cattle groups had grazed each lucerne variety equally.

By running the trial this way, the only changing variable throughout the 12 week period is which of the lucerne varieties that the cattle would be grazing, eliminating other factors that might influence the weight gain results.

Conditions were favourable for establishment in the middle of August and as soon as the lucerne was established enough to be grazed the cattle were sent in. The first four week grazing period showed quite similar results to between the three varieties. As the trial progressed however the both the L92 Lucerne and SARDI10 Series 2 both exceeded the Sequel in dry matter production per day as well as live weight gain increase per day. There was significant summer rainfall throughout the trial period and high temperatures and the lucerne thrived. It was the improved varieties that maximised this natural rainfall however and performed much better than the Sequel in terms of both overall dry matter production as well as resulting live weight gain on the cattle. With better growth and regrowth from the L92 Lucerne compared with the Sequel, the result was also better quality feed in terms of digestibility and in the last two grazing rotations the L92 Lucerne showed improved weight gain alongside the improved forage production where the Sequel did not increase its rate of weight gain.

TOTAL AVERAGE KG/DAY WEIGHT GAIN

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<thead>
<tr>
<th>Varieties</th>
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<th>Second Rotation</th>
<th>Third Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>L92</td>
<td>1.10</td>
<td>1.30</td>
<td>1.55</td>
</tr>
<tr>
<td>Sequel</td>
<td>0.92</td>
<td>0.95</td>
<td>0.97</td>
</tr>
<tr>
<td>SARDI 10 Series 2</td>
<td>1.05</td>
<td>1.28</td>
<td>1.41</td>
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AVERAGE KG DM/HA/DAY

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<thead>
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<th>Varieties</th>
<th>First Rotation</th>
<th>Second Rotation</th>
<th>Third Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>L92</td>
<td>73</td>
<td>93</td>
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</tr>
<tr>
<td>Sequel</td>
<td>65</td>
<td>82</td>
<td>91</td>
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<tr>
<td>SARDI 10 Series 2</td>
<td>69</td>
<td>90</td>
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FEED TESTS

<table>
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<tr>
<th></th>
<th>L92</th>
<th>Sequel</th>
<th>SARDI 10 SERIES 2</th>
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</thead>
<tbody>
<tr>
<td>ME (MJ/kg)</td>
<td>11.20</td>
<td>11.10</td>
<td>11.40</td>
</tr>
<tr>
<td>% Crude Protein</td>
<td>25.70</td>
<td>26.10</td>
<td>26.10</td>
</tr>
<tr>
<td>% ADF</td>
<td>21.2</td>
<td>27.3</td>
<td>21.8</td>
</tr>
<tr>
<td>% NDF</td>
<td>31.7</td>
<td>33.8</td>
<td>32.2</td>
</tr>
<tr>
<td>RFV</td>
<td>212.4</td>
<td>186.1</td>
<td>207.5</td>
</tr>
</tbody>
</table>

Average results from feed test taken prior to grazing throughout the trial (three tests).

FIRST, SECOND, THIRD & FOURTH ROTATION

FIRST ROTATION 02/12/2016 - 30/12/2016
SECOND ROTATION 31/12/2016 - 27/01/2017
THIRD ROTATION 28/01/2017 - 24/02/2017
ML99 MultiLeaf® LUCERNE

Highly winter active Medicago sativa E. GLX
Winter Activity 10
Min Rainfall (mm) 250
SEEDING RATE kg/ha
Dryland 4 - 8
High Rainfall/Irrigation 10 - 20
Hay Production 25 - 30

• ML99 MultiLeaf® Lucerne has been developed to incorporate a new level of quality and production in winter active lucerne. This increase in production is driven by high expression of multi-foliate leaves, plus all the qualities currently required by lucerne growers.

• Growers looking for winter grazing with options to cut quality hay.

• Very highly winter active cultivar.

• Near to 100 percent true to type multifoliate expression.

• 40 percent more leaflets than conventional lucerne.

• Superior stand life based on broad disease and nematode resistance.

• Frost tolerant to protect cold season production.

ML99 MultiLeaf® LUCERNE GROWS LIKE WILDFIRE ON THE EYRE PENINSULA

In the autumn of 2016, Will Pip located at Tumby Bay on the Eyre Peninsula of South Australia sowed down a paddock of Pasture Genetics’ ML99 MultiLeaf® Lucerne.

The mixed enterprise producer with 1,500 sheep, consisting of self-replacing Merinos and a Dohne flock, was looking for a feed solution to alleviate seasonal pressures.

The fast establishing ML99 MultiLeaf® Lucerne wasted no time in thickening up for a graze in early spring.

“From about August/September we had some young ewes in there to lightly graze it, there were plenty of plants. We let it come back again before putting on our wether lambs who mowed it all down,” Will explained.

Other than the fast-establishing nature of ML99 MultiLeaf® Lucerne, its ability to re-grow and persist following a grazing is invaluable Will explains.

In summertime it flies, we have the lambs in there every couple of weeks and they can barely keep up, they had trouble keeping it down. All throughout the summer the lambs stayed fat and kicked along well,” he said.

ML99 MultiLeaf® Lucerne was adopted to bolster summer feed and improve the capacity to finish lambs more suitably for market. The feed production was an attractive feature which encouraged Will to plant this variety.

“All through summer we graze the life out of it, the lucerne just keeps coming back. We planted it to make use of our patchy summer rainfall, you don’t need much for it to put on some bulk.

“The growth is impressive, there is fresh growth all over.

“We sowed it for perennial feed,” Will explained, “It grows all year round and now we can leave our rams on it when they aren’t working. We know that they will be in top condition, it gives us another grazing option, and grows like wildfire.”

ML99 MultiLeaf® LUCERNE PROVIDES EXCELLENT WEIGHT GAINS UNDER DRYLAND GRAZING CONDITIONS

Jeff Elder of the Dalby Region on the Western Downs of Queensland, runs a mixed beef cattle operation and relies heavily on Pasture Genetics’ ML99 MultiLeaf® Lucerne to provide high quality feed.

In May 2015, 75 hectares of ML99 MultiLeaf® Lucerne was sown into a dryland paddock at six kilograms per hectare.

“The ML99 MultiLeaf® Lucerne established very successfully under testing conditions and has continued to provide substantial feed since being introduced into the grazing system,” Jeff said.

Targeting high weight gains, weaner steers typically graze the lucerne from October/November, through to May/June, depending on the season.

“A recent mob of steers gained an average of 1.56 kilograms per day over a 72 day period, which was impressive considering the hot conditions,” Jeff said.

When necessary, first calf heifers are also grazed on the ML99 MultiLeaf® Lucerne to maintain body condition.

Through the chilly winter months, the lucerne is spelled and cattle go on to graze forage oats and forage barley.

“Grazing the ML99 MultiLeaf® Lucerne has been an enormous success and I have planned to sow a further 75 hectares in 2018,” Jeff concluded.

JEFF ELDER OF DALBY IN HIS ML99 MultiLeaf® LUCERNE
lUCERNE oVERSOw TRIAl

MANY oLDER lUCERNE sTANDS SUFFER FROM THINNING AND LACK OF wINTER FEED. The following trial assessed seven different species with known excellent winter forage production oversown into a thinning lucerne stand to see which could provide a solution to both problems.

lUCERNE oVERSOw TRIAl

2015 PEnFIELD RESEARCH STATION TRIAl SOWN 14/09/2011

- A small block of ML99 Multileaf® Lucerne was sown at 15 kilograms per hectare on September 14, 2011 to be a grazing block for sheep.
- The block was winter cleaned each year, and grazed frequently for three and a half years, resulting in significant thinning of the stand.
- After a heavy grazing event, sheep were removed in early May 2015, and then an early winter clean with Sprayseed was applied around May 15.
- On May 25, the block was oversown using a disc seeder with seven different winter active forages in two replications.
- The varieties trialed were: Ryecorn, Moby Forage Barley, Outback Forage Oats, Jivet Tetraploid Annual Italian Ryegrass, Icon Diploid Italian Ryegrass, Perun Tetraploid Festulolium and Cavalier Spineless Burr Medic.

- The winter cereals were sown at 50 kilograms per hectare, the grasses at 15 kilograms per hectare, and the medics were sown at 10 kilograms per hectare.
- After eight weeks the trial was grazed, as well as three other grazing events throughout the late winter and spring; each grazing event consisted of three days of hard grazing to achieve a very low residual, following by up to four weeks of recovery time.
- Dry matter production was measured prior to each grazing.

DISCUSSION

The practice of oversowing thinning lucerne stands with a winter forage is a good way to get some continued life out of the stand, as well as the potential to control weeds. Winter weeds are a problem of the year for weed control in lucerne. All species in the trial were chosen for their strong winter growth and establishment vigour. A lighter sowing rate than normal in these species was used to oversow the lucerne. All the varieties in the trial were compared in dry matter production to a section of lucerne that had no winter forage sown. This allowed for the additional dry matter production from the winter forages to be adequately compared with what lucerne would have achieved by itself. The highest dry matter production during the trial was from the Moby Forage Barley, the vigorous early growth of Moby Forage Barley had the barley well established before the first grazing, as well as being able to recover from that grazing quickly.

The ryecorn was also quick to establish, but the Outback Forage Oats did not fare well from a later sowing, ideally the Outback Forage Oats needed longer to establish or needed to be sown earlier in the year in better conditions.

The dry matter production of lucerne however all began to suffer from their short season nature, and before the third and final grazing most of the Moby Forage Barley and ryecorn was out to head, and looked to recover very poorly from grazing. The Jivet Tetraploid Annual Italian Ryegrass and Icon Diploid Italian Ryegrass both produced reasonably well but were a little behind the cereals in the early cuts, however both of these varieties started to produce more dry matter than the cereals in the final cut. If the trial continued, the Jivet Tetraploid Annual Italian Ryegrass and Icon Diploid Italian Ryegrass could have at least had another grazing or two and recovered well, unlike the forage cereals which were well past their prime. The Perun Tetraploid Festulolium did poorly in comparison to the other grass species and this is probably due to the original sowing time of the trial.

Perun Tetraploid Festulolium needs to be sown at the earlier end of the sowing window in Autumn or it can be sluggish and in this trial situation where the winter forages were sown quite late in the window it did not perform well in this trial. The Cavalier Spineless Burr Medic was the least successful variety in the trial, and this is probably due to the management. Eight weeks was much too early for grazing the Cavalier Spineless Burr Medic, and the variety never recovered well after the first grazing.

If the Cavalier Spineless Burr Medic was managed correctly, the ideal situation would be to let the Cavalier Spineless Burr Medic establish well, then graze it only a few times, and finally let it seed down for following years of production, however in this trial it never had a chance to seed and was only assessed as an annual.

Feed quality tests were also taken throughout the trial of the mix of winter forage and lucerne, and the results indicate that all of the material from the winter forages was very high quality.

The lucerne component resulted in all the mixed pasture having very high levels of Crude Protein, good levels of ME and also low levels of ADF and NDF across all species. All of the species in this trial could be used in high performance pasture situations to improve winter production of a lucerne stand while maintaining elite levels of animal production.

### RESULTS FROM FEED TEST TAKEN PRIOR TO FIRST GRAZING

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<th>NDF</th>
<th>Digestibility (DMD)</th>
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<table>
<thead>
<tr>
<th>+ DM/ha</th>
<th>RYECORN</th>
<th>MOBY</th>
<th>OUTBACK</th>
<th>JIVET</th>
<th>ICON</th>
<th>PERUN</th>
<th>CAVALIER</th>
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<td>2.8</td>
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<td>2.7</td>
<td>3.2</td>
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<td>2.7</td>
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</tr>
<tr>
<td>TOTAL</td>
<td>12.5</td>
<td>13.4</td>
<td>10.3</td>
<td>11.3</td>
<td>11.4</td>
<td>10.3</td>
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<tr>
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<td>6.7</td>
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<td>3.9</td>
<td>4.9</td>
<td>5.0</td>
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<table>
<thead>
<tr>
<th>ME (MJ/kg)</th>
<th>% Crude Protein</th>
<th>ADF</th>
<th>NDF</th>
<th>Digestibility (DMD)</th>
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<tr>
<td>1st Cut</td>
<td>11.2</td>
<td>27.7</td>
<td>21.8</td>
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<td>11.3</td>
<td>25.6</td>
<td>18.15</td>
<td>75.1</td>
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<tr>
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<td>11.3</td>
<td>25.6</td>
<td>17.95</td>
<td>72.7</td>
</tr>
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</table>
**Phytophthora Root Rot**

**Phytophthora Medicago**

**DESCRIPTION.** Plants turn yellow, wilt and die. Areas of light brown discolouration up to five centimetres long occur on the taproot up to 30 centimetres below the crown. The taproot below the discoloured area will not rot completely.

**INCIDENCE.** Occurs throughout Australia, particularly in heavy and/or poorly drained soils, and in wet conditions. The disease can be severe, killing large numbers of seedlings or scattered plants or large patches in mature stands. In irrigated stands plants can survive. The taproots immediately below the crown is kept alive by the availability of water but forage yields are reduced.

**SPREAD.** The fungus spreads rapidly in water over considerable distances.

**MANAGEMENT.** Use resistant varieties and spell the paddock from lucerne. Do not rotate with chickeas. Avoid waterlogging irrigated stands on heavy soils.

**Pea Aphid (PA)**

**Acyrthosiphon pisum**

**DESCRIPTION.** Green in colour, though some may be yellow or pink. They are four to five millimetres long with dark bands around the antennae and spine-like projections on both sides at the rear of their bodies. Adults may have wings. Nymphs are smaller and wingless.

**DAMAGE.** PA suck sap from the leaves causing wilting, stunting and curling, and odd-shaped plants. The top leaves often turn light green while the lower turn yellow and die. Honeydew excreted by PA makes foliage sticky, affecting hay and pasture quality. PA is a significant carrier of alfalfa mosaic virus.

**INCIDENCE.** Common in southern Australia, Western Australia and New South Wales during dry conditions in spring and autumn. Although, economic levels of damage are rare.

**MANAGEMENT.** Monitor beneficial insects. Irrigate or graze the stand to reduce PA numbers. In irrigated hay stands, use insecticides if the infestation is heavy.

**Cotlototrichum Crown Rot or Stem Anthracnose**

**Colletotrichum trifolii**

**DESCRIPTION.** Brown-black spots on the stems develop into well defined boat-shaped lesions that are up to 25 millimetres long, dark around the edges with pale centres, and covered in raised dark spots. The fungus can be enter the crown causing a blue-black discolouration, five to eight centimetres into the taproot. In mature stands, the dead stems are white or straw coloured with a sheppard’s crook appearance. Plant death occurs gradually.

**INCIDENCE.** Occurs throughout Australia in warm environments with high humidity. It is more severe during late summer to autumn. It is less likely in drier and cooler climates.

**SPREAD.** Spores spread in warm, wet weather from plant debris and harvesting equipment.

**MANAGEMENT.** Use disease resistant varieties. Monitor beneficial insects. Irrigate or graze the stand to reduce SAA numbers. In irrigated hay stands, use insecticides if the infestation is heavy.

**Spotted Alfalfa Aphid (SAA)**

**Theroaphis trifolii**

**DESCRIPTION.** Adults are pale yellowish-green, two millimetres long, with six or more rows of black spots along their backs. Adults may have wings. Nymphs are smaller and wingless.

**DAMAGE.** Adults and nymphs suck sap from the stems or the undersides of lower leaves. SAA inject a toxin that can kill seedlings and mature plants. Prior to that, leaf veins become yellow or white and the leaves curl and drop off. Honeydew excreted by SAA causes foliage to become sticky and develop a black, sooty mould.

**INCIDENCE.** Occurs throughout Australia in dry conditions, mainly in the spring and autumn.

**MANAGEMENT.** Plant resistant varieties. Monitor beneficial insects. Irrigate or graze the stand to reduce SAA numbers. In irrigated hay stands, use insecticides if the infestation is heavy.

**Bluegreen Aphid (BGA)**

**Acyrthosiphon kondoi**

**DESCRIPTION.** Adults vary from pale green-grey to dark green-blue and are three millimetres long and have tube-like projections on either side at the rear of their bodies. Adults may have wings. Nymphs are smaller and wingless.

**DAMAGE.** Adults and nymphs suck sap from the leaves and stems at the growing points, causing shortened internodes between the leaves at the top of each stem, stunted plants, leaf curling and leaf yellowing. Honeydew excreted by BGA make the foliage sticky and affects hay and pasture quality. BGA do not kill mature plants.

**INCIDENCE.** Occur throughout Australia & most active during the cooler months, particularly dry conditions.

**MANAGEMENT.** Plant resistant varieties. Monitor beneficial insects. Irrigate or graze the stand to reduce BGA numbers. In irrigated hay stands, use insecticides if the infestation is heavy.

**Stem Nematode**

**Ditylenchus dipsaci**

**DESCRIPTION.** Microscopic soil-worms that are individually difficult to see with the naked eye. Sometimes they mass on or just below the surface to form visible “eel-worm rings”. These can survive desiccation and can be transported in hay to start new infestations.

**DAMAGE.** Plants are dwarfed and distorted, with swollen shoots. Leaves are distorted and clustered towards the ends of stems. Plants die in patches.

**INCIDENCE.** Occur in southern Australia, common in irrigated stands on river flats, with greatest severity in the spring.

**MANAGEMENT.** Sow resistant varieties, plough out badly infested stands and practice crop rotation.

**Bacterial Wilt**

**Clavibacter michiganensis ssp. insidiosus**

**DESCRIPTION.** Yellow and stunted plants with small leaves are scattered through the stand. The inner bark of the taproot is white while the exposed root centre is yellowish.

**INCIDENCE.** Common in southern Australia, but has not been reported in the southeast of South Australia. It often occurs in autumn in irrigated stands. It is not found in the dry inland sub-tropics of Queensland and northern New South Wales.

**SPREAD.** The bacteria persist in soil for more than 10 years. The disease is spread by stem nematodes and through hay and machinery.

**MANAGEMENT.** Sow certified seed of resistant varieties.

**Fusarium Wilt**

**Fusarium oxysporum**

**DESCRIPTION.** Initially, plants are stunted with wilted shoots and yellow leaves. The infection then bleaches the leaves and stems, eventually causing plant death. Dark red-brown streaks develop in a layer under the bark at the base of the stem forming a reddish-brown ring in the centre of the root.

**INCIDENCE.** Fusarium wilt is not common. The Fusarium fungus is widespread, but rarely causes wilt. Fusarium wilt has not been identified in New South Wales.

**SPREAD.** The fungus survives for long periods in decaying plants. It invades small roots or wounds in the taproot during warm, wet weather.

**MANAGEMENT.** Controlled by crop rotation and resistant varieties.
### MEASURING THE RESISTANCE OF MAJOR PESTS

<table>
<thead>
<tr>
<th>RESISTANCE LEVEL</th>
<th>HIGH RESISTANCE (HR)</th>
<th>RESISTANCE (R)</th>
<th>MODERATE RESISTANCE (MR)</th>
<th>LOW RESISTANCE (LR)</th>
<th>SUSCEPTIBLE (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant Resistance</td>
<td>= &gt; 50%</td>
<td>= 31 - 50%</td>
<td>= 15 - 30%</td>
<td>= 7 - 14%</td>
<td>= 0 - 6%</td>
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</tbody>
</table>

### MULTIPLE PEST & DISEASE CHART

Pasture Genetics lucerne varieties stand out in the Australian marketplace with superior pest and disease ratings. L56 Lucerne has the highest resistance to Phytophthora Root Rot available and is the only variety to have high resistance to each of the nine significant pests and diseases listed in the multiple pest and disease chart below.

<table>
<thead>
<tr>
<th>VARIETY</th>
<th>WINTER ACTIVITY</th>
<th>SPOTTED ALFALFA APHID</th>
<th>BLUE GREEN APHID</th>
<th>PEA APHID</th>
<th>PHYTOPHORA ROOT ROT</th>
<th>ANTHRACNOSE</th>
<th>BACTERIAL WILT</th>
<th>FUSARIUM WILT</th>
<th>STEM NEMATODE</th>
<th>ROOT KNOT NEMATODE</th>
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<tr>
<td><strong>HIGHERLY WINTER ACTIVE</strong></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>ML99 MultiLeaf® Lucerne</td>
<td>10</td>
<td>HR</td>
<td>HR</td>
<td>ND</td>
<td>HR</td>
<td>HR</td>
<td>ND</td>
<td>ND</td>
<td>MR</td>
<td>HR</td>
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<tr>
<td>Sardi 10</td>
<td>10</td>
<td>HR</td>
<td>HR</td>
<td>ND</td>
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<tr>
<td>L92 Lucerne</td>
<td>9</td>
<td>R</td>
<td>MR</td>
<td>ND</td>
<td>R</td>
<td>R/HR</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
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<tr>
<td>L91 Lucerne</td>
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<td>HR</td>
<td>HR</td>
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<td>R</td>
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<td>R</td>
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<td>MR</td>
<td>ND</td>
<td>HR</td>
<td>HR</td>
<td>ND</td>
<td>ND</td>
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<td>Pegasus</td>
<td>9</td>
<td>HR</td>
<td>LR</td>
<td>ND</td>
<td>R</td>
<td>MR</td>
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<td>SARDI 7</td>
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<td>L70 Lucerne</td>
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<td>R</td>
<td>R</td>
<td>ND</td>
<td>R</td>
<td>ND</td>
<td>ND</td>
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<td>Aurora</td>
<td>6</td>
<td>HR</td>
<td>HR</td>
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<td>R</td>
<td>MR</td>
<td>LR</td>
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<tr>
<td>G TL®60 Lucerne</td>
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<td>HR</td>
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<td>R</td>
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<td>HR</td>
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<td>Hunterfield</td>
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<td><strong>SEMI-WINTER DORMANT</strong></td>
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<td>R</td>
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<td>MR</td>
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<td>R</td>
<td>ND</td>
<td>HR</td>
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<td>R</td>
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### Chemical Chart

#### Pre-Sowing Post Emergent, Seedling and Established Lucerne

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<thead>
<tr>
<th>HERBICIDE</th>
<th>TRIFLURALIN TRIFLURX®</th>
<th>FUSILADEC®, VERDICT®</th>
<th>SELECT®, FACTOR®</th>
<th>BROADSTRIKE™ BROADSWORD®</th>
<th>SPINNAKER® KYTE®</th>
<th>RAPTOR®, CLAW®</th>
<th>BROMOXYNIL BROMOCIDE 200®</th>
<th>JAGUAR®, BENTLEY®</th>
<th>2,4D-B BUTTRESS®</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP</td>
<td>D</td>
<td>A (FOP’S)</td>
<td>A (DIMS)</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>C &amp; F</td>
<td>I</td>
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#### Grass Weeds

<table>
<thead>
<tr>
<th>Weed Type</th>
<th>Control of Named Weeds</th>
<th>Crop Stage</th>
<th>Weed Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryegrass</td>
<td>-</td>
<td>PS</td>
<td>PE</td>
</tr>
<tr>
<td>Barley Grass</td>
<td>-</td>
<td>1+ Leaf</td>
<td>-</td>
</tr>
<tr>
<td>Brome Grass</td>
<td>-</td>
<td>1+ Leaf</td>
<td>-</td>
</tr>
<tr>
<td>Wild Oats</td>
<td>-</td>
<td>2+ Leaf</td>
<td>-</td>
</tr>
<tr>
<td>Silver Grass</td>
<td>-</td>
<td>1+ Leaf</td>
<td>-</td>
</tr>
</tbody>
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#### Broadleaf Weeds

<table>
<thead>
<tr>
<th>Weed Type</th>
<th>Control of Named Weeds</th>
<th>Crop Stage</th>
<th>Weed Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capeweed</td>
<td>-</td>
<td>1+ Leaf</td>
<td>PE - 3 Leaf</td>
</tr>
<tr>
<td>Wild Radish</td>
<td>-</td>
<td>2 - 6 Leaf</td>
<td>PE - 3 Leaf</td>
</tr>
<tr>
<td>Wireweed</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wild Mustard</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wild Turnip</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Doublegee</td>
<td>-</td>
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#### Established Lucerne Only

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>BROADSTRIKE™ BROADSWORD®</th>
<th>DIURON - DIUREX®</th>
<th>SIMAZINE - GESATOP®</th>
<th>SPRAY.SEED® REVOLVE®</th>
<th>PARAQUAT - GRAMOXONE®</th>
<th>SHARPEN®</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>L</td>
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#### Grass Weeds

<table>
<thead>
<tr>
<th>Weed Type</th>
<th>Control of Named Weeds</th>
<th>Crop Stage</th>
<th>Weed Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryegrass</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Barley Grass</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Brome Grass</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wild Oats</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Silver Grass</td>
<td>-</td>
<td>-</td>
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#### Broadleaf Weeds

<table>
<thead>
<tr>
<th>Weed Type</th>
<th>Control of Named Weeds</th>
<th>Crop Stage</th>
<th>Weed Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capeweed</td>
<td>Suppression</td>
<td>1+ Leaf</td>
<td>PE - 3 Leaf</td>
</tr>
<tr>
<td>Wild Radish</td>
<td>Suppression</td>
<td>-</td>
<td>PE - 3 Leaf</td>
</tr>
<tr>
<td>Wireweed</td>
<td>Suppression</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wild Mustard</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wild Turnip</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Doublegee</td>
<td>Suppression</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Before using any herbicide consult your agronomist and the product label regarding safe and effective use**

Table adapted from The Back Pocket Guide WA.

- Sharpen may impact activity of Paraquat - Gramoxone® on grasses.
- Broadstrike™ herbicide will control Capeweed, Wild radish, Wireweed and Doublegee/Spiny emex when used in conjunction with a mixing partner.
- Control of named weeds; Leaf = true leaf; PS = pre-sowing; PE = pre-emergent; A = Aryloxyphenoxy propionates; Cyclohexanediones B = Imidazolinones C = Nitrates, Urea, Triazines D = Dinitroanilines; Benzoic acids, Pyridines F = Nicotinamides L = Bipyridyls. Herbicides for weed control in lucerne as indicated by shading.

- Sharpener may impact activity of Paraquat - Gramoxone® on grasses.
Establishment Guarantee™

At Pasture Genetics we are so confident in our seed genetics and the quality of our proprietary products, we will replace seed at half the original purchase price if it fails to establish satisfactorily.

Unfortunately establishment failures can occur, Pasture Genetics’ Establishment Guarantee™ programme is available for the vital 30 day period after planting, and provides growers with substantial savings should they need to replant their paddocks. Pasture Genetics is the only forage company in Australia to offer Establishment Guarantee™.

Plant with peace of mind and the support of Pasture Genetics. Register at www.pasturegenetics.com within 30 days of planting to be participate in the programme.

*Terms & Conditions apply.

- FOR FURTHER TECHNICAL INFORMATION -

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| NORTHERN REGION COMMERCIAL MANAGER & TERRITORY MANAGER – COASTAL NSW | Adam Little | 0499 022 554 |
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PASTURE GENETICS WAREHOUSE DEPOTS ARE LOCATED IN:
Toowoomba, Brisbane, Tamworth, Dubbo, Wagga Wagga, Nowra, Canberra, Tatura, Warragul, Ballarat, Launceston, Adelaide and Perth.

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