



LUCERNE

A D V I S O R



PORTFOLIO

Full technical profiles
of our Autumn/Winter
collection

TESTIMONIALS

Experiences from farmers
around Australia

PRODUCT INFORMATION

Planting and growing guides
to help you get the best
results

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On the cover: Lambs grazing SW6330
Lucerne, Frances, South Australia



Who Is S&W?

S&W Seed Company is dedicated to providing the world's farmers with the very best seed varieties and hybrids to maximize their yields and profits, while providing products for peak performance, just as we have for over 40 years.

Our journey began in 1980 with a group of innovative farmers looking to optimise lucerne stock feeds. Over forty years on, S&W Seed Company is now a global leader in lucerne, wheat, pasture species, grain & forage sorghums, sunflower, and other key crops.

Since going public in 2010, S&W has dramatically opened new markets and expanded its research and development focus. Our R&D team collaborates with genetic providers and breeding organisations worldwide, using our proprietary germplasm to create market-leading products for modern cropping and forage systems.

Get in touch with us to learn more about how our Australian expert team can work with you and our premium range of seeds to achieve maximum returns – this season, and every season for your enterprise.



S&W Lucerne Breeding Program

S&W Seed Company Australia Pty Ltd has been producing world-leading lucerne varieties for over 40 years. The global lucerne breeding program is based right here in Australia, meaning that S&W are leaders in the industry, producing new lucerne varieties specific for the Australian environment.

Both our dormant and non-dormant lucerne breeding programs are focused on producing varieties that have high forage yield and quality, with a high level of resistance to pest and diseases. The lucerne program focuses on lucerne's that are persistent and are suitable for a range of environments, including areas with raised salt levels. This ensures that our varieties produce maximum yields in an array of environmental conditions.

Our lucerne breeding program works closely with the sales team, so we are up to date with our customer's needs. This close relationship ensures that the requirements of the end user's feedback into the breeding program and their needs are considered in all stages of the program, from plant selection through to seed build-up.

Plant selections are made across all major lucerne growing regions. These selections are then crossed to produce F1 seed, the first generation of seed of a new variety. This breeding line is then entered into all screening programs, including dormancy, forage, seed, salt, and pest and disease trials. Once a breeding line has shown to meet the high standards that all S&W lucernes must achieve to progress through the program, the breeding line is then advanced to the seed build-up stage and then onto commercialisation. This process can take up to seven years to ensure that all lucerne produced from the S&W breeding program go on to become leaders in the marketplace.

This thorough level of selection and testing guarantees that only the best new genetics are chosen for commercialisation and release.

There are exciting new products in the pipeline that will be available to domestic growers from the global breeding program. These include varieties with a range of dormancy from 3-10, catering for all domestic lucerne growing regions and end-use systems, be it cut and carry or grazing.

These varieties have been extensively screened through the forage and yield trials, as well as the pest and disease trials. You can be sure when you buy lucerne from S&W Seed Company, you're purchasing an elite, high quality lucerne seed.



Why Choose A S&W Lucerne?

- ✓ Range of winter activity, with dormancy available from 3-10
- ✓ Elite forage yields and quality
- ✓ Rapid regrowth after cutting or grazing
- ✓ High resistance to pests and diseases
- ✓ Suited to a variety of environmental conditions
- ✓ Increased grazing tolerance and persistence
- ✓ Flexibility in a mixed farming operation
- ✓ S&W Seed Company Establishment Guarantee Program



Dormant And Semi-Winter Dormant Portfolio

Winter dormant lucerne varieties have no growth in winter and semi winter dormant lucerne varieties have little winter growth over the winter months. These varieties are the perfect option in systems where winter growth is not critical. They have excellent persistence and outstanding hay and forage quality.



Q31® Lucerne

Medicago sativa

Premium quality, superior leaf retention trait, and the highest nutritive value in hay, silage and chaff

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife® XLR8™

Usage
Grazing, hay and silage

Features & Benefits
Winter dormant
Premium grade hay, chaff and silage
High quality option with increased flexibility in cutting times



L56® Lucerne

Medicago sativa

The benchmark dual purpose grazing and hay lucerne in Australia

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife® XLR8™

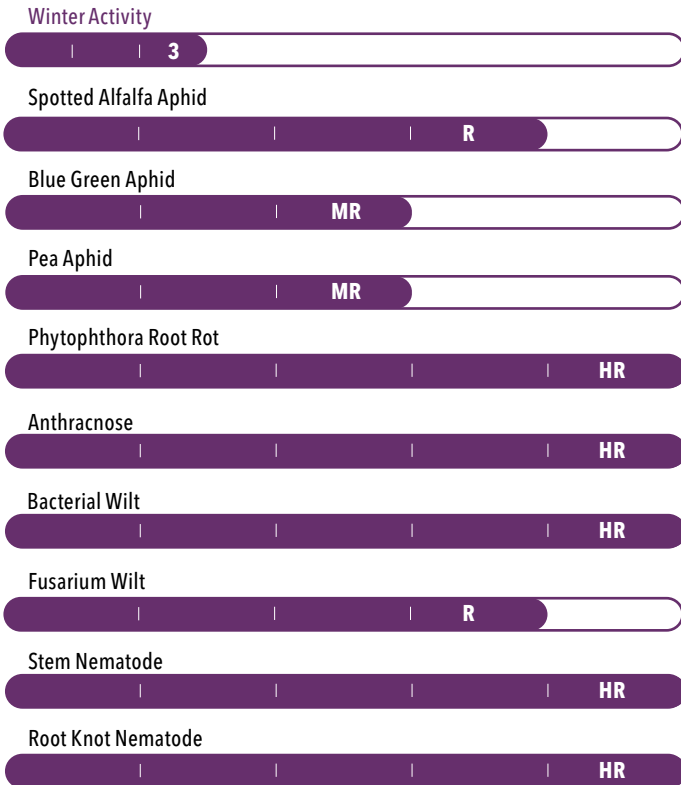
Usage
Grazing, hay and silage

Features & Benefits
Produces high quality and high yielding hay and forage
Semi winter dormant
Highly persistent



Q31[®] Premium Quality Hay Variety

Q31[®] is a winter dormant variety with excellent leaf retention and large leaf size. It is a high-quality option with increased cutting times. Its increased tillering ability and fine stems make it a perfect option in premium-grade hay, chaff, and silage systems.



Winter Activity rating scale:

Highly Winter Active = 8-10, Winter Active = 6-7, Semi-winter Dormant = 4-5, Winter Dormant = 0-3

Pest & Disease rating scale:

High Resistance (HR) = >50%, Resistance (R) = 31-50%, Moderate Resistance (MR) = 15-30%, Low Resistance (LR) = 7-14%, Susceptible (S) = 0-6%

Planting Guide



Autumn

Ideal sowing window in autumn is in April with warm soil temperature and available soil moisture



Spring

Ideal sowing window in spring with soil temperatures rising and available soil moisture

Features & Benefits



High pest and disease rating



Highly winter active



High leaf to stem ratio



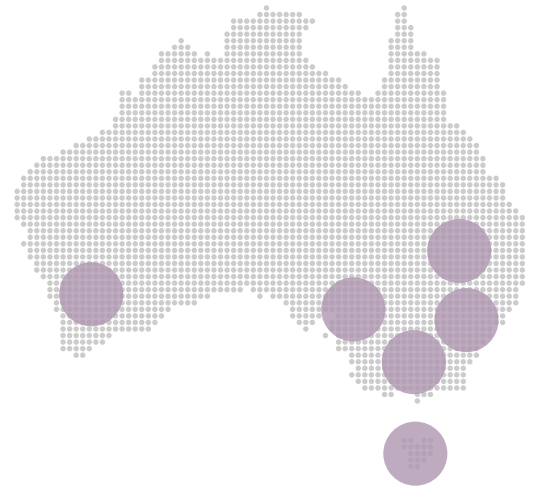
Produces high quality and exceptional yielding



Extended cutting and grazing opportunities in autumn and winter



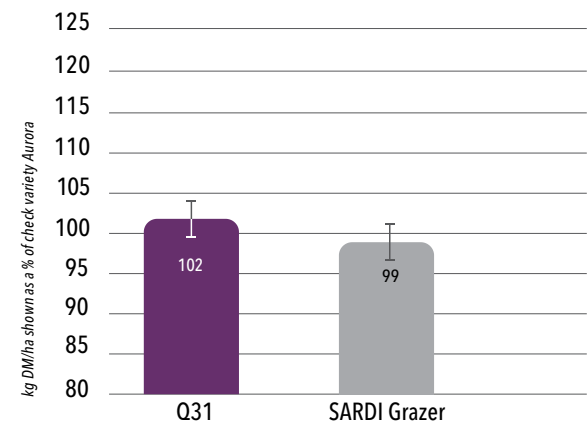
High leaf retention trait



Planting Guide

Queensland, New South Wales, Victoria, Tasmania, South Australia and Western Australia.

Multi year, multi site Q31 dry matter production, kg DM/ha expressed as % of check variety Aurora



No. Trials: 4 / No. Years: 4 / CV: 13.68 / LSD: 0.61



Above
A Q31® based multi-species paddock
Below
Q31® stand recovering after cutting

Q31® Produces Hay In A Difficult Season

Grazier and prime hay producer Warren Park, located in Hunter Valley, NSW, has found the 2021-2022 hay season difficult. But this year it's not because of a lack of rain.

"We've only probably made 20 percent of our usual amount of prime hay so far this season," remarked Warren. "It's been a fabulous season in terms of rain, but the weather has not been conducive to hay production. We've avoided cutting, looked for a forecast with a clear run, and still had rain once we've cut."

Targeting the small bale prime hay market, Warren uses a combination of Q31® and L56® Lucerne, growing about 105 hectares and 50 hectares respectively.

"I'm glad I've been using the Q31® for hay this season. If it had been a 7 (dormancy), it would be a purple stalky mess." Warren added. The features of Q31® that have most benefited him this season is the longer cutting interval and the characteristics of finer stems with more leaf being retained. "Like I said, we've tried to pick out windows of fine weather, so some cuts have been much later than ideal. While it may not be the best hay I've ever made, it's far better quality than if I was using another variety."



Warren also uses lucerne as a base component for many of his grazing pastures, sometimes extending the life of existing stands with the addition of pasture species or fodder production by direct drilling oats in autumn for cutting in spring.

“
We've benefited greatly this season from the longer cutting intervals of Q31®

**Warren Park
Hunter Valley, NSW**

Variety Characteristics For Lucerne Hay Producers



	DORMANT & SEMI-WINTER DORMANT	WINTER ACTIVE	HIGHLY WINTER ACTIVE
Growth	95% summer 5% winter	90% summer 10% winter	80% summer 20% winter
Cutting Schedule	38-42 Days	33-35 days	25-28 days
Number of cuts	4-5/season	5-7/Season	7-10/season
Crown type	Broad & Crown below ground	Broader & Lower Crown	Narrow & Higher Crown
Utilisation	Specialist (hay/silage/chaff) Long term hay or pasture mix High rainfall or Irrigation	Dual purpose (grazing/hay) Longer term pasture or hay Dryland and Irrigation	Dual purpose (grazing/hay) Short term cropping rotation Dryland and Irrigation
Stand Life	5 years + with good management	5-7 years with good management	3-4 years with good management
Recommended Variety	GTL60[®], SW6330, ML66 MultiLeaf[®], L56[®], Q31[®]	L70, L71, Q75[®]	SW9720, L91[®], L92



Using large square balers with lucerne saves time in the hay-making process. With forages going into either feedlot, on-farm usage or export operations, this handling reduction aids in time and labour savings.

Winter Active Portfolio

Winter active lucerne varieties are suited to areas where some winter feed is required and longer growing seasons occur. These varieties are the perfect option in a dual purpose system, where persistence and extended grazing potential are important.



GTL60® Lucerne

Medicago sativa

Broad and low set crown, high forage values, high ruminant palatability with high pest and disease ratings

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife® XLR8™

Usage
Grazing, hay and silage

Features & Benefits
Rapid regrowth after grazing or cutting
Very high grazing tolerance
Produces high quality forage
Increased grazing rotations



SW6330 Lucerne

Medicago sativa

Recovers rapidly from grazing and cutting and has shown excellent persistence

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife® XLR8™

Usage
Grazing, hay and silage

Features & Benefits
High pest and disease rating
Produces high quality and exceptional yields
Recovers rapidly after cutting and grazing
High stand persistence



ML66 MultiLeaf® Lucerne

Medicago sativa

Offers a new generation of MultiLeaf® lucerne with improved persistence and quality

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife® XLR8™

Usage
Grazing, hay and silage

Features & Benefits
Highly expressive MultiLeaf® trait
Low crown
Produces high quality hay and silage
Persistent under heavy traffic
Can be used in multi operation farming systems



L70 Lucerne

Medicago sativa

Cost effective, reliable and robust alternative to Aurora

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife®

Usage
Grazing, hay and silage

Features & Benefits
Economical option
Good pest and disease package
Reliable yields under wide conditions
Covered by S&W Seed Company Establishment Guarantee® program



L71 Lucerne

Medicago sativa

An economical option with strong growth in autumn and winter maximising year round production

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife® XLR8™

Usage
Grazing, hay and silage

Features & Benefits
Highly grazing tolerant
High pest and disease rating
Offers a high quality flexible option
Produces high quality hay



Q75® Lucerne

Medicago sativa

Demonstrated superior quality characteristics in laboratory tests and animal feeding trials

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

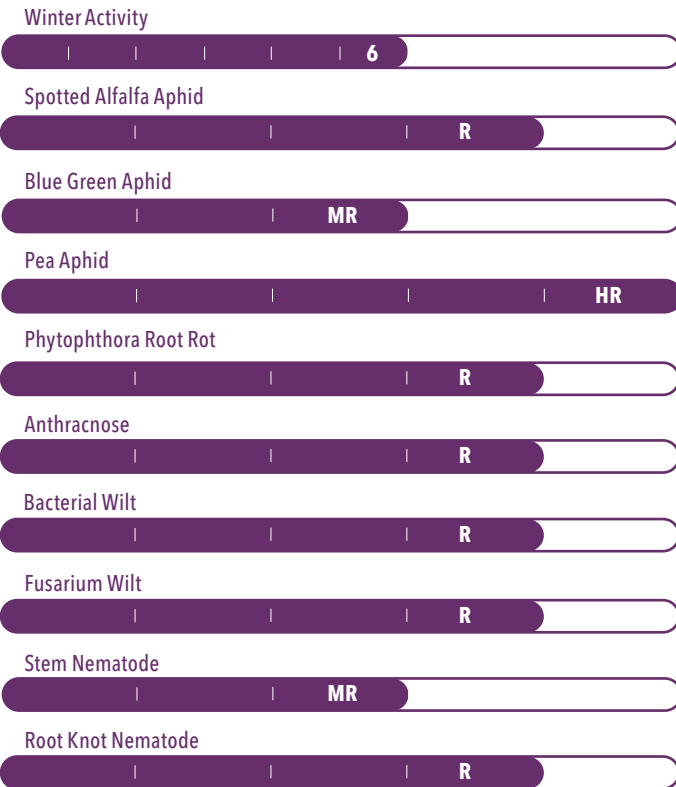
Seed Treatment
Goldstrike LongLife® XLR8™

Usage
Grazing, hay and silage

Features & Benefits
Excellent leaf retention with large leaf size
Increased greenness in the bale
Improved forage quality and winter production
Produces high quality feed

SW6330 Multi Purpose Hay & Grazing

SW6330 is a high-yielding and high quality, winter active lucerne. It recovers rapidly from grazing and cutting and has shown excellent persistence. SW6330 has an increased resistance level in its pest and disease profile compared to Aurora.



Winter Activity rating scale:

Highly Winter Active = 8-10, Winter Active = 6-7, Semi-winter Dormant = 4-5, Winter Dormant = 0-3

Pest & Disease rating scale:

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Low Resistance (LR) = 7-14%, Susceptible (S) = 0-6%

Planting Guide



Autumn

Ideal sowing window in autumn is in April with warm soil temperature and available soil moisture



Spring

Ideal sowing window in spring is in August with soil temperatures rising and available soil moisture

Features & Benefits



High pest and disease rating



Moderately winter active



High leaf to stem ratio



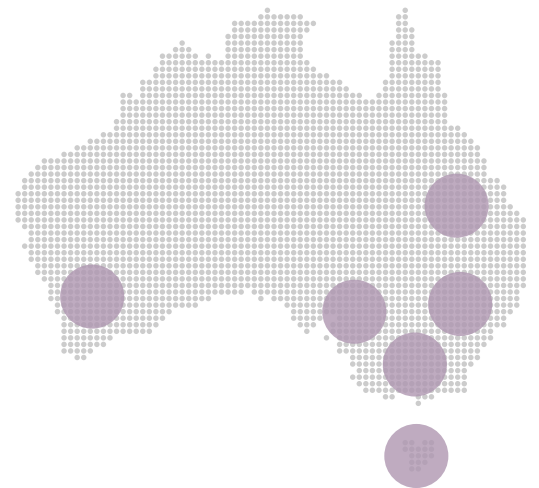
High yielding



Recovers rapidly after cutting and grazing



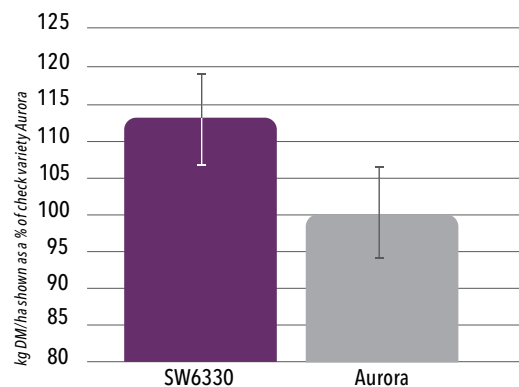
High stand persistence



Planting Guide

Queensland, New South Wales, Victoria, Tasmania, South Australia and Western Australia.

Multi year, multi site Lucerne dry matter production, kg DM/ha expressed as % of check variety Aurora



No. Trials: 4 / No. Years: 4 / CV: 13.68 / LSD: 0.61



SW6330 Withstands Tough Conditions

Above
Geoff Hose, Cressbrook Creek
Chaff, Toogoolawah, Qld
Below
Geoff & Angela Hose

Extreme weather conditions have put SW6330 Lucerne to the test, but the new variety has risen to the challenge.

Producing chaff for a Queensland-wide market means quality is at the top of the list for Geoff and Angela Hose of Cressbrook Creek Chaff at Toogoolawah and they have been successfully growing Q75® Lucerne for many years. "Growing high-quality Lucerne consistently is the key to making a premium lucerne chaff product that end users are happy with," Geoff said.

High leaf retention traits are a crucial factor in variety selection, ensuring lucerne quality is maintained during the frequent volatile weather conditions experienced in the northern regions of Australia. While Geoff has been pleased with the consistent and robust Q75®, he is committed to trialling new varieties with very high-quality traits, and in April 2021, the new SW6330 was sown at 25 kilograms per hectare under irrigation.

The crop experienced very dry conditions during establishment through to the first and second cuts, then extreme rainfall conditions through November and December. Despite the tough conditions, SW6330 is producing the premium product Geoff and Angela require. "With the dry start, it seemed to hang on and yield really



well considering the season," Geoff explained. "We're only on the third cut, but it's certainly starting to show its true colours and responds well after being cut, "When we are cutting it, we noticed heaps of leaf retention and it cuts really nice chaff."

With a high pest and disease rating and high leaf to stem ratio, SW6330 has ticked a few more boxes for Geoff. With more favourable conditions predicted and increased irrigation supply, Geoff is looking forward to continuing to evaluate SW6330 over the next two to three years.

“
We noticed heaps of leaf retention and it cuts really nice chaff

Geoff Hose
Toogoolawah, Qld



Above
Russell Zahnow Mundubbera, Qld
Below
ML66 MultiLeaf®

ML66 MultiLeaf® Providing Quality Hay

Russell Zahnow of Mundubbera, in the North Burnett region of Queensland, strives to produce high-quality hay to satisfy his loyal clients in South East Queensland.

Russell's products are in high demand throughout South East Queensland and beyond, and has a primary target market for small square premium horse hay. To meet the continuing demand of the beef cattle industry, large square bales are also produced.

"The challenge of producing a high-quality product for the premium horse market is an ongoing one and S&W Q75® Lucerne has historically proven itself both reliable and capable in terms of both quality and yield", said Russell. To fill his hay demand, Russell has always been interested in trying new varieties and evaluating their potential.

S&W ML66 MultiLeaf® Lucerne was sown in late April 2021 under pivot irrigation beside Q75® Lucerne and has been growing exceptionally well.

According to Russell, he was attracted to the fine stem and high leaf-to-stem ratio. Following multiple cuts since September, ML66 has displayed the multi-leaf trait significantly throughout the crop.



Russell stated that higher leaf content improves the quality of the hay. Russell has been impressed with ML66 Lucerne this season and plans to sow another significant paddock in April/May 2022.

“
The higher leaf content improves the quality of the hay

Russell Zahnow
Mundubbera, Qld



SW6330 Trials Producing High-Quality Hay

Wade Alexander of Mundubbera in the North Burnett Region of Queensland owns and operates a beef cattle and intensive lucerne hay production enterprise.

He produces very high-quality hay into large square 8x4x3 bales targeting the intensive beef feedlot market and dairy producers.

Wade has been an avid user of the L56® lucerne variety for many years and has been awarded several winning prizes for hay quality through the Feed Central National Hay Quality Awards in past years.

Wade said, "A consistently high-quality hay end product is the key to my enterprise success, and this ensures that long-term market relationships are maintained well into the future."

Besides existing varieties, trialling new varieties on the farm is essential in evaluating their suitability to specific regional climatic conditions.

SW6330 Lucerne was sown in early May 2021 under irrigation and has displayed many of the key quality characteristics Wade is looking for in a new variety.



SW6330 trials producing high-quality hay Wade said, "Key characteristics I look for are a fine stem with a lot of leaf present, high leaf retention, a prompt recovery after cutting is important, and a strong insect and disease tolerance is desired."

Wade said in its first year in production, "It looks great and has established very well, and it is currently producing a very high-quality bale with excellent yields."

**“
It looks great and has established very well, and it is currently producing a very high-quality bale with excellent yields.**

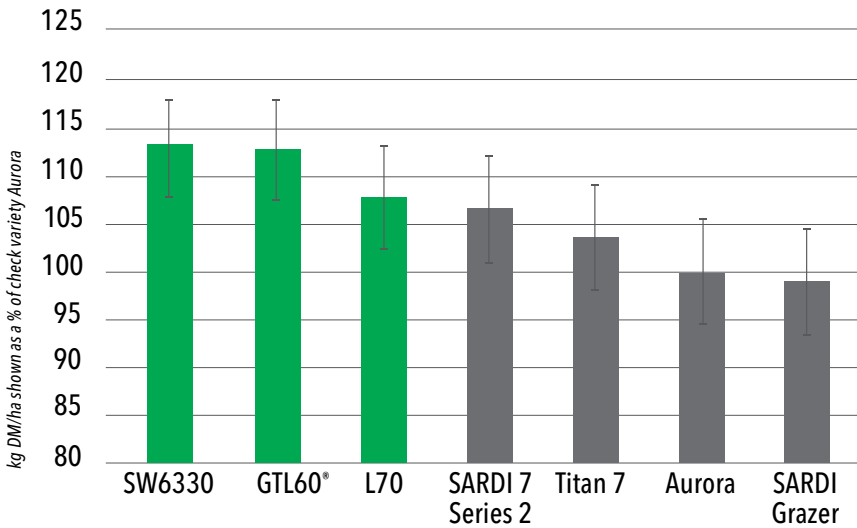
**Wade Alexander
Mundubbera, Qld**

New Winter Genetics Out Perform Current Varieties

The S&W Lucerne breeding program has a long history of developing winter active varieties with outstanding forage yields and quality, with robust pest and disease packages. The current commercial winter active portfolio available for customers is no exception.

Over the last five years, the S&W lucerne breeding team has developed new lucerne varieties in both the 6 and 7 dormancy ranges that consistently outperform the current commercial varieties. The graph below shows that customers can produce up to an extra 13% kg DM/ha per year, growing S&W elite varieties, based in the extensive multi-season and multi-site evaluation program.

Multi year, multi site Dorm 6/7 Lucerne dry matter production, kg DM/ha expressed as % of check variety Aurora



No. Trials: 5 / No. Years: 5 / CV: 12.99 / LSD: 0.57



Grazing Tolerant Lucerne Selection Trial

Penfield Research Station | Trial Sown 14/09/2011 | Grazed 24/11/2011 - 23/11/2016

S&W Seed company 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 giving farmers confidence in new lines coming through the S&W lucerne breeding program. The strength of this trialling model will be replicated in the future with more selections being made with this key grazing tolerance trait.

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.

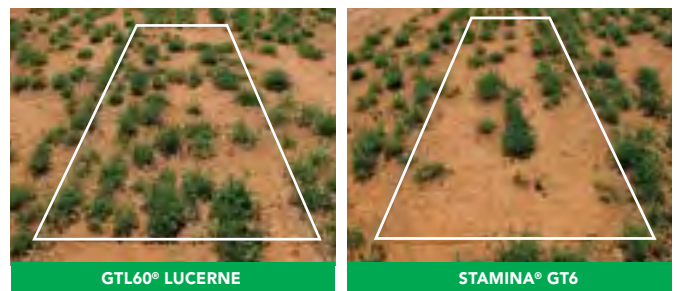
Approximately 20 Merino wethers were used for grazing the trial each time, this was the number of animals adequate to graze the trial down within at least a three to four day period so we could manage frequent grazing events but not expose the lucerne to extended periods of set stocking.

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.

Initially, 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.

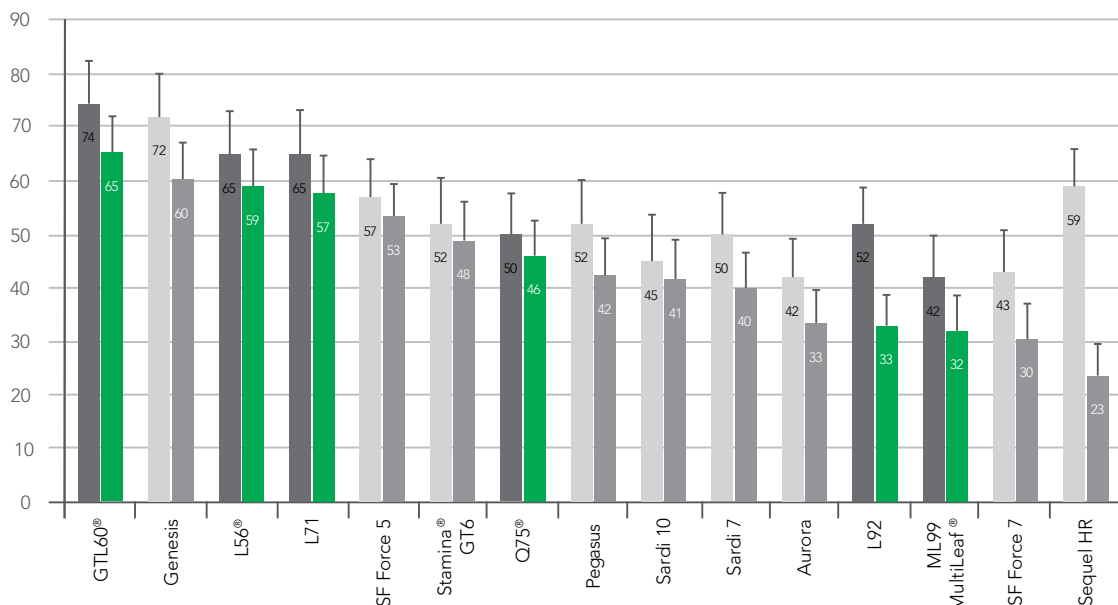
The results shown in the graph on this page now indicate the updated results after five years of the trial period, which have shown some significant differences in the performance of varieties, and quite a variation in the results that were seen after the three year period was measured. In particular,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



Percentage of residual plants after three and five years of grazing.

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

3 Year Count - November, 2014 - Av.5%LSD = 22.1
5 Year Count - November, 2016 - Av.5%LSD = 18.7



The L70 Advantage

- L70 Lucerne offer higher winter growth over Aurora
- Superior forage genetics - higher leaf to stem ratio.
- Minimum 85 per cent germination standards exceed the current minimum the certified standard for Aurora of only 65 percent.
- 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™ program, whereas common lucernes are not.

AGRONOMIC FEATURES

S&W Seed Company L70 Lucerne has become a leading winter active lucerne variety in the Australian market and an excellent fit for both grazing or forage production. The L70 Lucerne advantage compared to Aurora include the following agronomic characteristics:

Better establishment vigour
Consistently faster to establish, providing a competitive edge. Ideal for undersowing crops or in pasture mixes.

Higher winter production (activity rating of 7 vs. 6)
Faster to recover after cutting or grazing and extends growth to bridge late-autumn and early spring feed gaps.

High resistance to more pests and diseases
Improved persistence across all rainfall zones.

Very good forage quality
Fine stems and superior leaf retention compared to other winter active varieties.



LEAF TRAIT COMPARISON

L70 LUCERNE (LEFT) EXHIBITING HIGHER LEAF CARRYING TRAIT COMPARED TO OLDER PLANT GENETICS EXHIBITED IN AURORA (RIGHT)

DISEASE RATING COMPARISON

VARIETY	SPOTTED ALFALFA APHID	BLUE GREEN APHID	PHYTOPHTHORA ROOT ROT	ANTHRACNOSE	BACTERIAL WILT	STEM NEMATODE
L70 Lucerne	HR	HR	R	R	R	R
Aurora	HR	HR	R	MR	LR	R

L70 LUCERNE V AURORA

YIELD RESULTS & PRICING COMPARISON

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

	L70	AURORA
Total yield	18.5 t/ha	17.0 t/ha
Hay returns/ha at \$300t	\$5,550/ha	\$5,100/ha

▲ EXTRA HAY RETURNS **\$300 PER HECTARE, PER YEAR**

Source: S&W Seed Company, 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



▲ EIGHT PERCENT YIELD INCREASE

	L70	AURORA
Increased Forage Quality	✓	✗
Better Disease Profile	✓	✗
Higher DM Production	✓	✗
Increased Germination %	✓	✗
Establishment Guarantee®	✓	✗

Highly Winter Active Portfolio

Highly winter active lucerne varieties are suited to areas with a long growing season and systems where a high level of winter forage production is required. They are early maturing with rapid regrowth, producing high forage yields.



L91® Lucerne

Medicago sativa

An economical option with strong growth in autumn and winter maximising year round production

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife®

Usage
Grazing, hay and silage

Features & Benefits
Highly winter active
Outstanding seedling vigour
Extended grazing ability and hay in autumn and winter
Good for rotations in both dairy and cropping



L92 Lucerne

Medicago sativa

Multiple hay and silage opportunities throughout the season and in a range of environments

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife® XLR8™

Usage
Grazing, hay and silage

Features & Benefits
Highly winter active
Very quick regrowth after cutting or grazing
Persistent under a wide range of conditions
Suited to a wide range of soil types



SW9720 Lucerne

Medicago sativa

Outstanding yields and quality under salty conditions

Seeding Rate	kg/ha
Dryland	4-8
High Rainfall/Irrigation	10-20

Seed Treatment
Goldstrike LongLife® XLR8™

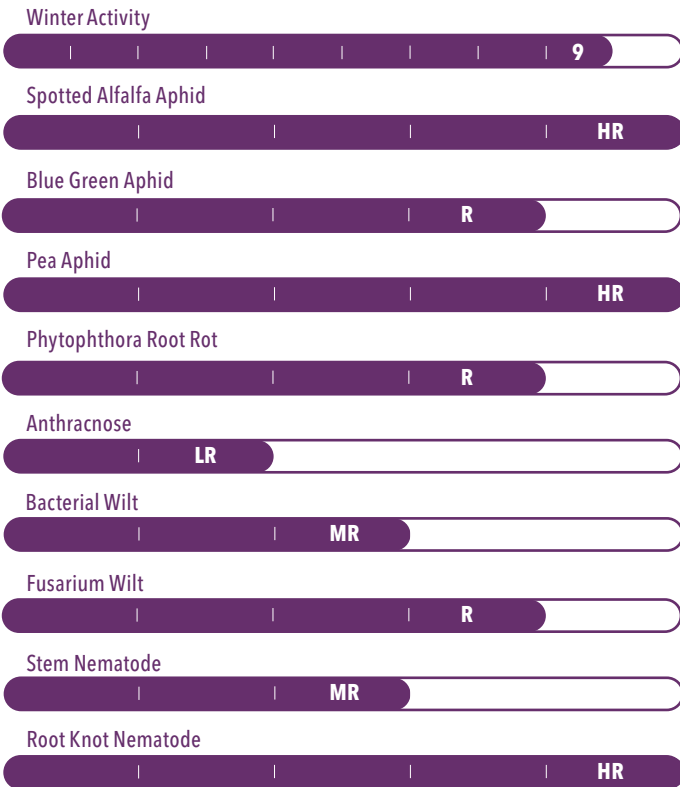
Usage
Grazing, hay and silage

Features & Benefits
Highly winter active
Developed in saline conditions
Extended cutting and grazing opportunities in autumn and winter
Produces high quality and exceptional yields



SW9720 High Yielding With Improved Salt Tolerance

SW9720 Lucerne is a new benchmark in the highly winter active Lucerne space with excellent forage yields while maintaining high quality. It has been selected in saline conditions extending the range of soils that lucerne can be grown in and, with exceptional winter growth, will provide more high-quality feed heading into winter for grazing or cutting.



Winter Activity rating scale:
 Highly Winter Active = 8-10, Winter Active = 6-7, Semi-winter Dormant = 4-5, Winter Dormant = 0-3
Pest & Disease rating scale:
 High Resistance (HR) = >50%, Resistance (R) = 31-50%, Moderate Resistance (MR) = 15-30%,
 Low Resistance (LR) = 7-14%, Susceptible (S) = 0-6%

Planting Guide

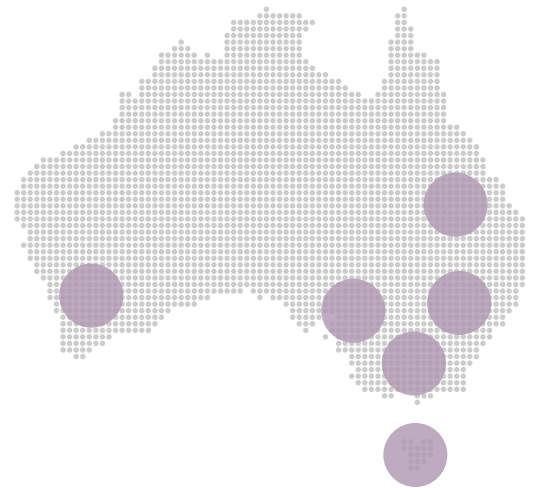
Autumn
 Ideal sowing window in autumn is in April with warm soil temperature and available soil moisture

Spring
 Ideal sowing window in spring is in August with soil temperatures rising and available soil moisture

Features & Benefits

- High pest and disease rating
- Highly winter active
- High leaf to stem ratio

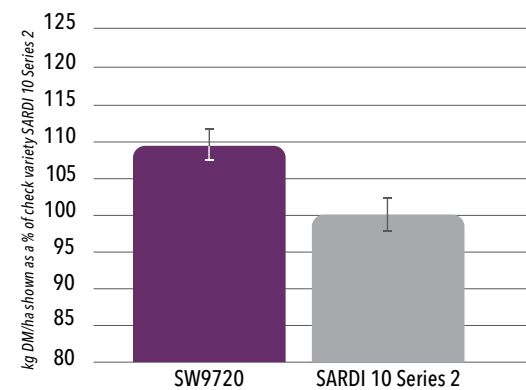
- Produces high quality and exceptional yielding
- Extended cutting and grazing opportunities in autumn and winter
- Developed in saline conditions



Planting Guide

Queensland, New South Wales, Victoria, Tasmania, South Australia and Western Australia.

Multi year, multi site Dorm 9 Lucerne dry matter production, kg DM/ha expressed as % of check variety SARDI 10 Series 2



No. Trials: 5 / No. Years: 5 / CV: 12.99 / LSD: 0.57



Above
Trevor Kelly in his paddock of
SW9720

SW9720 Exceeded All Expectations

When Trevor Kelly moved from Western Qld into the Eastern Downs area, he decided that he wanted to grow lucerne for the local hay market.

Trevor was racing the clock to plant in the desired window (August) with no prior experience in growing the crop and a paddock that he had to start from scratch.

With the hopes of a La Nina influence and the help of a recently installed centre pivot, Trevor rolled the dice and planted in early November at approximately 25 kilograms per hectare.

Combined with cooler temperatures and regular rainfall, the SW9720 Lucerne got up and going. The first cut was taken in January and the quality of lucerne, leaf retention, and fine stemmed characteristics in the hay of the first cut have been impressed.

"I'm also pleased with the regrowth and how it got growing again after the January cut." Indicated Trevor.

SW9720 was the preferred option when selecting a variety for Trevor as his irrigation water is a little "hard." It hasn't required much irrigation with the way the season has unfolded, but plenty of irrigation will need to be undertaken down the track with a traditional winter season in front of us.



The yield of the SW9720 out of the peak of its season has also been impressive.

"The SW9720 has produced 1825 small square bales off the 34-acre paddock, which I'm very happy with." commented Trevor.

With an extended cutting window in Autumn and Winter, it will be very interesting to see what numbers of bales Trevor will be producing off his pivot in the next few months. With a brilliant first few months under its belt, Trevor will evaluate SW9720 further and see where he is in another two to three years before developing a second lucerne paddock.



The yield out of the peak of its season has been impressive

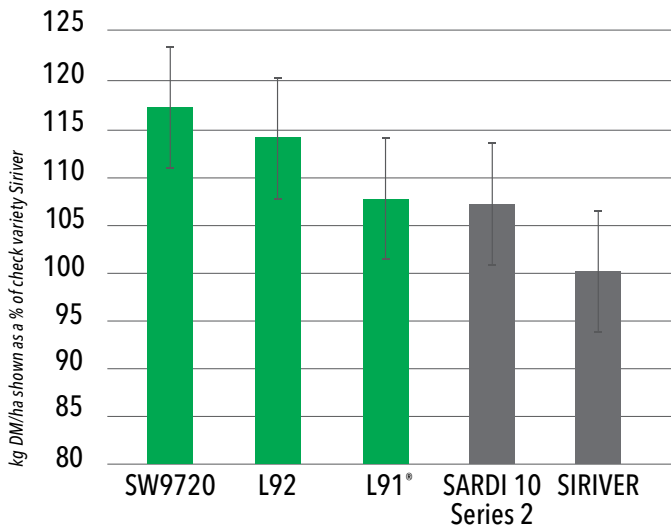
**Trevor Kelly
Eastern Downs, Qld**

New Highly Winter Active Genetics

The S&W Lucerne breeding program has a long history of developing highly winter active varieties with outstanding forage yields and quality, with robust pest and disease packages. The current commercial highly winter active portfolio available for customers is no exception.

Over the last five years, the S&W lucerne breeding team has developed new lucerne varieties in the 8 to 10 dormancy ranges that consistently outperform current commercial varieties. The graph below shows that customers can produce up to an extra 16% kg DM/ha per year, growing S&W elite varieties, based in the extensive multi-season and multi-site evaluation program.

Multi year, multi site Dorm 9 Lucerne dry matter production, kg DM/ha expressed as % of check variety Siriver



No. Trials: 5 / No. Years: 5 / CV: 12.99 / LSD: 0.57



SW9720 - The Ideal Salt Tolerant Option

SW9720 Lucerne was a clear leading variety in three salt evaluation trials, with assessment processes conducted in increasing levels of salt tolerance in the lab, greenhouse regrowth potential under non-saline and saline irrigation, and field production at a saline field site Pecos, TX, USA.

Table 1: Summary of soil and water quality parameters for field, lab and greenhouse methods (Scasta J. D., Trostle C. L., Foster M. A., 2012)

Quality Parameter	Field	Field	Lab	Greenhouse
Type	Soil	Water	Water	Water
Source	Hoban silty clay loam	Pecos River alluvium	NAAIC ³	NAAIC ³
Total Dissolved Salts	2131 ppm	2950 ppm	0-20 000 ppm	0 or 3840 ppm
Electrical Conductivity	3.33 dS/m	4.06 dS/m	0-31.25 dS/m	6.00 dS/m
pH	8.9	7.1		
Sodium Absorption Ratio	13.6	11.7		
Sodium (Na)	1491 ppm	702 ppm		
Classification/Rating	Sodic Soil ¹	Class 5: Unsuitable ²		

¹Sodic Soil if: EC > 4.0 dS/m, pH > 8.5, SAR > 13 (Waskom et al 2007; Havlin et al 1999)

²Class 5: Unsuitable if: TDS > 2100 ppm (Fipps 2003; Provin and Pitt 2022)

³Water solution prepared according to NAAIC protocols

From the 12 varieties screened, SW9720 has shown to be a solid performer across all experiments. Germinating well, up to 20 000ppm, producing high forage and good regrowth under the 3840ppm of irrigation water and producing outstanding forage production in the field experiment.

Table 2: Summary comparison of Lucerne cultivars across three experiments assessing germination under increasing levels of salt tolerance in the laboratory, greenhouse regrowth potential under non-saline and saline irrigation, and field production at a saline field site Pecos, TX, USA (Scasta J. D., Trostle C. L., Foster M. A., 2012) Scasta J. D., Trostle C. L., Foster M. A. Evaluating Alfalfa (*Medicago sativa* L.) Cultivars for Salt Tolerance Using Laboratory, Greenhouse and Field Methods. *Journal of Agricultural Science*, Vol. 4, No. 6; 2012

Cultivar	Laboratory			Greenhouse		Field		Final rank
	1.0%	1.5%	2.0%	MPa	grams	SCR value	kg/ha	
	Percent germination at three salinity levels (1.0%, 1.5% & 2.0%)			IC	Average	Salt control	Three year fresh forage	
				(50)	saline yields	ration (SCR)	average per cut	
Sala	98 ^a	82 ^{ab}	86 ^a	-3.40	2.87 ^{ab}	0.949 ^a	11 534 ^{abc}	1
SW97	98 ^a	96 ^a	32 ^{bcd}	-1.03	2.88 ^a	0.901 ^{abc}	12 008 ^a	2
CW59	98 ^a	96 ^a	34 ^{bcd}	-1.07	2.73 ^{abc}	0.805 ^{bcd}	11 312 ^{abc}	3
A801	100 ^a	90 ^{ab}	34 ^{bcd}	-1.02	2.97 ^{abc}	0.792 ^{cd}	11 668 ^{ab}	4
A802	98 ^a	88 ^{ab}	42 ^{bc}	-1.10	2.60 ^{bcd}	0.761 ^d	11 944 ^a	5
P58N	96 ^a	80 ^{ab}	26 ^{bcd}	-0.86	2.89 ^a	0.932 ^{ab}	9982 ^a	†6
CW39	100 ^a	88 ^{ab}	32 ^{bcd}	-0.99	2.59 ^{bcd}	0.744 ^d	10 794 ^{abcd}	†6
FGR1	90 ^a	84 ^{ab}	36 ^{bcd}	-1.01	2.56 ^{cd}	0.798 ^{cd}	10 962 ^{abcd}	8
TS80	84 ^a	76 ^b	38 ^{bcd}	-0.97	2.67 ^{abcd}	0.913 ^{abc}	10 063 ^{cd}	9
TS00	82 ^a	78 ^{ab}	24 ^{bcd}	-0.79	2.61 ^{bcd}	0.804 ^{bcd}	9620 ^d	†10
FG91	88 ^a	78 ^{ab}	8 ^{de}	-0.72	2.58 ^{bcd}	0.800 ^{cd}	10 771 ^{abcd}	†10
Bars	96 ^a	76 ^{ab}	6 ^{de}	-0.72	2.46 ^d	0.812 ^{bcd}	10 197 ^{bcd}	†10
†AZ90	NE	NE	NE	NE	2.48 ^d	0.984 ^a	NE	
†Mesa	90 ^a	78 ^{ab}	36 ^{bcd}	-0.94	NE	NE	NE	
†Malo	86 ^a	74 ^b	50 ^b	-1.17	NE	NE	NE	
‡AZ88	NE	NE	NE	NE	1.836 ^e	0.690 ^d	NE	
‡Sara	78 ^a	80 ^{ab}	10 ^{cde}	-0.71	NE	NE	NE	
‡Ramb	22 ^b	2 ^c	0 ^e	-0.31	NE	NE	NE	
Mean ± SE	88 ± 4.7	78 ± 5.3	31 ± 5.1	NE	2.607 ± 0.06	0.914 ± 0.02	10 904 ± 233	
P-value	0.005	0.000	0.009	NE	0.000	0.004	0.021	
LSD (0.05)	23	22	33	NE	0.250	0.132	919	

Means within columns followed by the same letter are not different according to Fisher's protected Least significant differences (LSD) at the 5% level of significance (α = 0.05).

NE - Indicates a check cultivar 'Not Evaluated' in that experiment or for significance

SE - Standard Error

† Tolerant check cultivar, ‡ Non-tolerant check cultivar; †tie

SW9720

Improved Salt Tolerance



In trials evaluating lucerne cultivars for salt tolerance assessing germination in the laboratory, greenhouse for regrowth potential and forage yields in field production, it was found that SW9720:

- ✔ Was the leading variety in the field evaluation, producing the highest yield (kg/ha) in salt conditions of 2131ppm in soil and 2950ppm in irrigation water
- ✔ Germinated in saline levels up to 20 000ppm
- ✔ Produced high forage and good regrowth under 3840ppm of irrigation water

Pests and Diseases



PHYTOPHTHORA ROOT ROT - *PHYTOPHTHORA MEDICAGINIS*

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 rot away completely.

INCIDENCE: Occurs in Australia, particularly in heavy and/or poorly drained soils and wet conditions. The disease can be severe, killing large numbers of seedlings, scattered plants or large patches in mature stands. In irrigated stands, plants can survive. Water availability keeps the taproots immediately below the crown alive, 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 chickpeas. Avoid waterlogging irrigated stands on heavy soils.



COLLETOTRICHUM CROWN ROT OR STEM ANTHRACNOSE - *COLLETOTICHUM 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 also enter the crown, causing a blue-black discolouration of five to eight centimetres into the taproot. In mature stands, the dead stems are white or straw coloured with a shepherd's crook appearance. Plant death occurs gradually.

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

SPREAD: Spores spread in warm, wet weather from plant debris and from the crown of infected plants by raindrop splash and harvesting equipment.

MANAGEMENT: Use disease resistant varieties and, if crown rot and anthracnose have been severe, rotate the crop every three years with non-host plants.



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 sucks 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 the 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.



FUSARIUM WILT - *FUSARIUM OXYSPORUM F.SP.MEDICAGINIS*

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.

Pests and Diseases



STEM NEMATODE - *DITYLENCHUS DIPSACI*

DESCRIPTION: Microscopic eelworms are individually difficult to see with the naked eye. Sometimes they mass on or just below the surface to form visible "eel-worm wool." These can survive desiccation and 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 the 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 subtropics of Queensland and northern New South Wales.

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

MANAGEMENT: Sow certified seed of resistant varieties.



SPOTTED ALFALFA APHID (SAA) - *THERIOAPHIS 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.

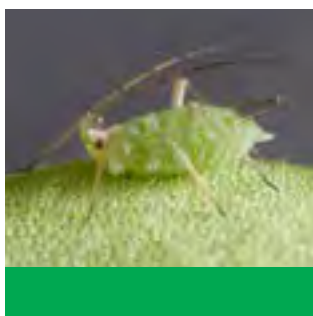
DAMAGE: Adults and nymphs suck sap from the stems or the undersides of lower leaves. Before that, leaf veins become yellow or white, and the leaves curl and drop off. SAA inject a toxin that can kill seedlings and mature plants.

INCIDENCE: Occur 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.

Photo supplied by Cesar Australia Pty Ltd. Photographer: Andrew Weeks

Honeydew excreted by SAA causes foliage to become sticky and develop a black, sooty mould.



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 makes the foliage sticky and affects hay and pasture quality. BGA does not kill mature plants.

INCIDENCE: Occur throughout Australia, and 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.

Photo supplied by Cesar Australia Pty Ltd. Photographer: Andrew Weeks

Pests and Diseases (continued)

Measuring the resistance of major pests

Resistance level	Ultra High Resistance HR+	High Resistance HR	Resistance R	Moderate Resistance MR	Low Resistance LR	Susceptible S	No Data ND
Plant Resistance	= 50 - 85%	= >50%	= 31 - 50%	= 15 - 30%	= 7 - 14%	= 0 - 6%	= No Data

Multiple pest and disease resistance chart

S&W Seed Company 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.

Variety	Winter Activity	Spotted Alfalfa Aphid	Blue Green Aphid	Pea Aphid	Phytophthora Root Rot	Anthracnose	Bacterial Wilt	Fusarium Wilt	Stem Nematode	Root Knot Nematode
Highly Winter Active										
SW9720	9	HR	R	R	R	LR	MR	R	MR	HR
L91 [®]	9	HR	HR	HR	HR	HR	R	HR	R	ND
L92	9	R	MR	ND	R	R/HR	ND	ND	ND	ND
Sequel	9	R	R	ND	MR	R	ND	ND	MR	ND
Winter Active										
L70	7	HR	HR	ND	R	R	R	ND	R	ND
L71	7	MR	MR	ND	R	R	ND	ND	ND	ND
Q75 [®]	7	HR	R	HR	HR	HR	MR	HR	R	R
Aurora	6	HR	HR	ND	R	MR	LR	ND	R	ND
Dormant & Semi-winter Dormant										
GTL60 [®]	6	HR	HR	ND	HR	HR	HR	ND	R	ND
SW6330	6	R	MR	HR	R	R	R	R	MR	R
ML66 MultiLeaf [®]	6	R	HR	ND	R	R	R	ND	ND	ND
L56 [®]	5	HR	HR	HR	HR+	HR	HR	HR	HR	HR
Q31 [®]	3	R	MR	MR	HR	HR	HR	R	HR	HR



Establishment Guarantee[®]

At S&W Seed Company Australia, 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, so S&W Seed Company Establishment Guarantee[®] program* is available for the vital 30-day period after planting, and provides growers with substantial savings should they need to replant their paddocks.

S&W is the only forage company in Australia to offer Establishment Guarantee[®]. Plant with peace of mind and the support of S&W Seed Company Australia.

Your partner in the paddock.

* Terms and Conditions apply.

Paddock Selection and 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 soil test is recommended to determine the suitability for lucerne. Soil acidity affects every stage of lucerne production, from seedling establishment to stand survival.

Incorporate 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 crusting 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), imidazolinones (e.g. Midas®, OnDuty®, Spinnaker® following dry seasons) and sulfonylurea herbicides (e.g. Glean®, Ally®, Logran® on high pH soils).

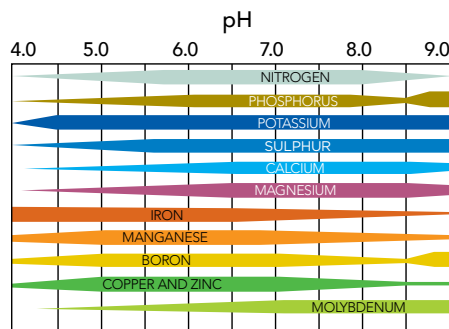
Test the soil using pots over summer or delay planting lucerne for at least one year after application of these residual herbicide groups.

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 weeks and three days, before sowing occurs. 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 the time of sowing. Pre-irrigation (where possible) and sowing into moisture is the best practice for lucerne establishment.

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.



Available nutrients in relation to pH

Top-dress with P and K

After the seeding year, annual applications of Phosphorus (P) and Potassium (K) helps maintain stands and boost yields. Lucerne is a heavy user of soil nutrients, especially K. The incidence of nutrient deficiencies of P and K is increasing, particularly in paddocks with a long-term history of cropping (without adequate fertiliser) or hay production. P deficient lucerne has fine, spindly stems; the leaves become narrow and often turn purple. A deficiency of K can reduce yield and is essential for efficient nodulation, plant health (especially leaf disease and retention under stress), stand persistence, and winter hardiness. White spotting of the leaf margins is a common characteristic of K deficiency in lucerne. A good fertiliser rule of thumb is to top-dress annually with 10 - 20 kilograms per hectare or after the first cutting (but before regrowth starts) with six kilograms of P and 25 kilograms of K per tonne of forage harvested during the season. Always remove weeds before top-dressing.

Use soil test results and strip tests to determine actual application rates needed for adequate fertility levels.

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.

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 program. If stand density is patchy and below ten 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. The seeding rate of the cover crop should be reduced by 50 percent and sown in skip (alternate) rows. A cover crop can help defray establishment costs and reduce soil erosion or wind sandblasting of lucerne seedlings on sand hills and sandy flats.

Seed Depth and Lucerne Emergence

Depth (cm)	Percentage Emergence		
	Sand	Loam	Clay
1.25cm (0.5 inches)	71	59	53
2.50cm (1.0 inches)	73	55	48
3.75cm (1.5 inches)	55	31	28
5.0cm (2.0 inches)	40	16	13

Seeding Rates (kg/ha and Timing)

Variety	Marginal dryland	Good dryland and Tablelands	Irrigation and coast	Seeding Time
L70, L71, Q75®, L91®, L92, SW9720 Lucerne	2 - 4	4 - 8	10 - 20	Autumn, winter, spring
L56®, GTL60®, SW6330, ML66 MultiLeaf® Lucerne	1 - 3	4 - 6	10 - 20	Autumn, spring
Q31®	1 - 3	4 - 6	10 - 20	Early autumn, spring

Guide to Seeding Rates of Cover Crops and Companion Species

Cover Crops	Companion Species		
Barley	20 - 30kg/ha	Sub clover and medics	2 - 3kg/ha
Lupins	40 - 50kg/ha	Phalaris	1kg/ha
Oats	25 - 35kg/ha	Cocksfoot	1 - 3kg/ha
Wheat	30 - 45kg/ha	Fescue	2 - 3kg/ha

Optimum Plant Populations per m²

Established Plants Per Square Metre (Minimum Density Highlighted)

Situation	Cover crops or pasture mixes	Sown alone
Marginal dryland (<400mm annual rainfall)	5 - 15	10 - 15
Good dryland (400 - 600mm annual rainfall)	10 - 15	15 - 25
Very good dryland / tablelands (over 600mm annual rainfall cold climate)	15 - 25	25 - 40
High rainfall / coastal (600mm annual rainfall warm climate)	25 - 40	40 - 60
Irrigation	Not recommended	60 - 130



Early Management

Seed treatment or bare earth emergence spray for Red-legged 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.

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

Maintain flexibility with stocking rates and grazing management. Conserve excess feed as hay or silage to fill feed gaps or provide additional income. Rotational grazing with all varieties during summer and autumn will maintain production and persistence at a high level.

Avoid grazing waterlogged paddocks because soil compaction and trampling will reduce yield and lead to poor persistence. Set stocking during spring in good years will not harm the stand and may reduce cattle bloat risk. To optimise stand longevity, allow lucerne to reach mid-flowering once during the year.

Too frequent cutting or set stocking for extended periods reduces overall yields, and reduces vigour, which allows weed invasion and ultimately results in the death of plants.

Irrigation

For high 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 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. Time 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 0.3 to 0.8 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.

Livestock Health

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

Allowing stock access to grass, stubble, or hay while grazing lucerne and using bloat 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 during similar weather conditions, resulting in bloat. At the first sign of red gut (sudden death) affected flocks should be removed immediately. Manage red gut the way you would bloat for cattle.

BLOAT REDUCTION OPTION

S&W Seed Company' SOWsmart® Bloat Fighter Blend has been specially designed as a pasture blend option to reduce the instance of bloat on straight lucerne-based pastures. This mix has incorporated two lucerne companion species, Zulumax Arrowleaf Clover and Balance Chicory have proven anti-bloating properties.

Haymaking

Before adopting a haymaking enterprise, organise a market in advance and consistently meet market requirements. Generally, aim for high quality and 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.

Chaff Varietal Selection

The traditional chaff 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 chaff quality, we look for material with a high leaf-to-stem ratio. Four S&W Seed Company lucerne varieties can be utilised, ML66 MultiLeaf®, SW6330, L56® or Q31® Lucerne - semi winter dormant lines. The management of each line is essential to achieving the desired quality. With winter active lines, it is important to cut in the earlier stage of maturity to maintain maximum leaf compared to the stem. As the lucerne plant approaches budding, the stem elongates and thickens, and the leaf-to-stem ratio drops. With winter active varieties, the cutting and regrowth cycle is much shorter; therefore, the window of opportunity to cut at the right time is much narrower. However, with semi-winter dormant varieties, the regrowth cycle and time to maturity are much longer, giving more flexibility in cutting time to achieve the highest quality across a high percentage of cuts.

LUCERNE BEST MANAGEMENT PRACTICES

Nutrient Removal

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

Nutrient Removal

Nutrients	Amount removed in 1 DM of hay	Seasonally in 15 DM t/ha or hay
Nitrogen (N)	20 - 30kg	375kg
Phosphorus (P)	2 - 3kg	37kg
Potassium (K)	15 - 20kg	262kg
Sulphur (S)	2 - 4kg	45kg
Calcium (Ca)	13 - 17kg	225kg
Magnesium (Mg)	3 - 4kg	52kg

Source: University of Nevada-Reno. All values on a dry-matter basis. Intake = % of body weight, CP = % Crude Protein, ADF = % Acid Detergent Fibre, DDM = % digestible dry matter.

Re-sowing and 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 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, and increase whole farm profits.

Measuring Forage Quality

Weight gain effect based on feed quality (180 to 275 Kilogram steer calves)

Nutrients	Pre-bud	Bud	Early	Full
CP	23	20	17	14
ADF	21	26	34	43
DDM	73	69	62	55
Intake	3.5	3	2.5	2
Daily Gain (kgs)	1	0.86	0.55	0.36

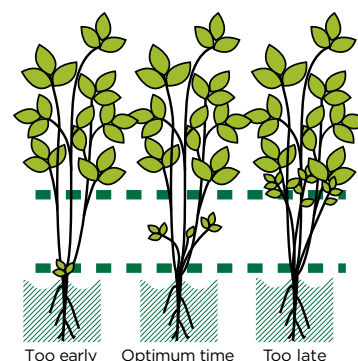
Cutting and grazing tips

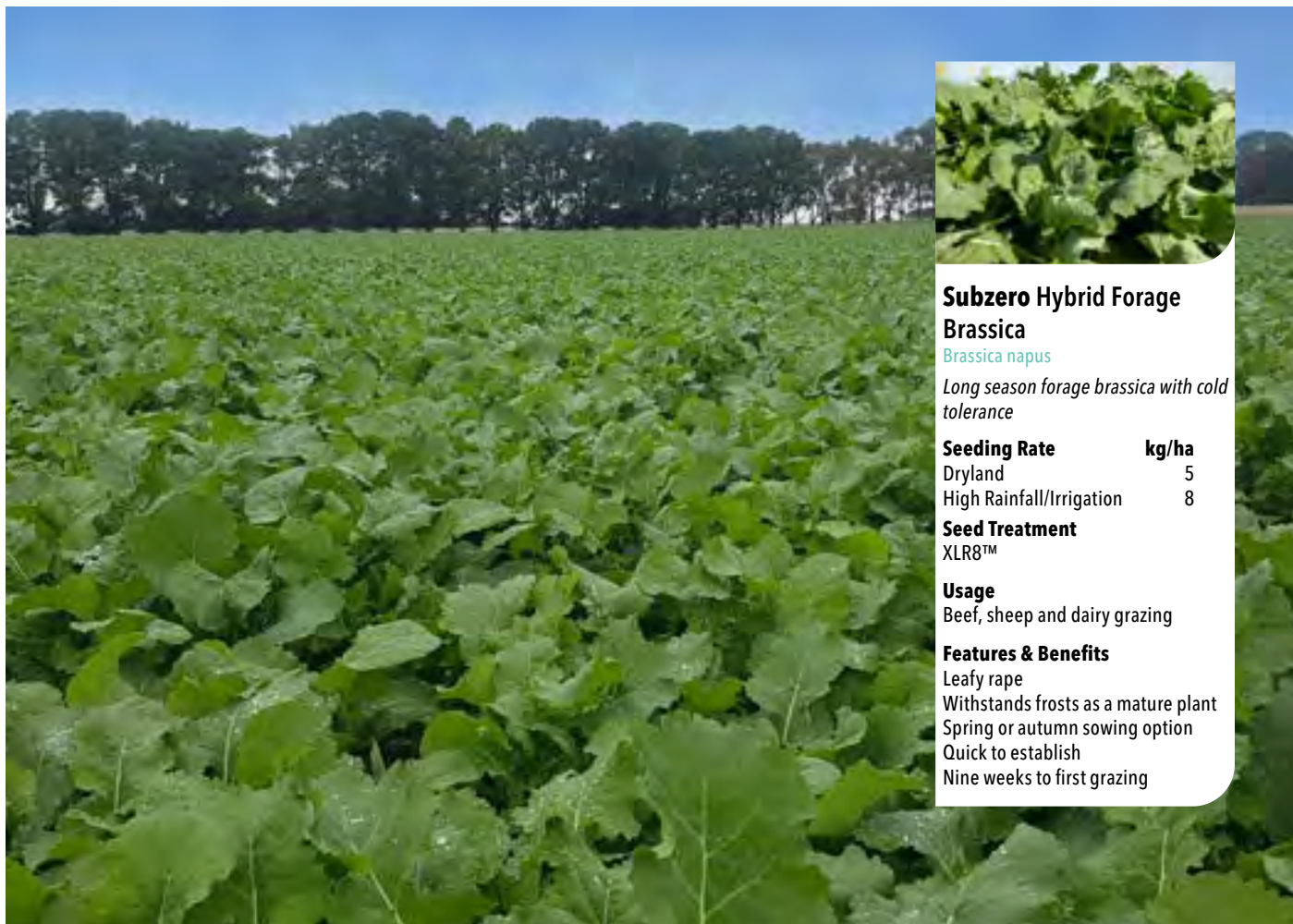
Variety	Recommended Grazing Practice/ Number of Paddocks	Recommended Cutting Interval
L70, L71, Q75®, L91®, L92, SW9720 Lucerne	Strict rotation/6 - 7 paddock rotation	25 - 28 days
L56®, GTL60®, SW6330, ML66 MultiLeaf® Lucerne	Flexible grazing period (up to 3 weeks)/3 - 4 paddock rotation	33 - 35 days
Q31®	Flexible grazing period (up to 3 weeks)/3 - 4 paddock rotation	38 - 42 days



BUD DEVELOPMENT

The appearance of two centimetre long shoots from the crown on just over half the plants are the most reliable indicator of when to cut or graze for maximum productivity and persistence of lucerne.





Subzero Hybrid Forage Brassica

Brassica napus

Long season forage brassica with cold tolerance

Seeding Rate	kg/ha
Dryland	5
High Rainfall/Irrigation	8

Seed Treatment
XLR8™

Usage
Beef, sheep and dairy grazing

Features & Benefits
Leafy rape
Withstands frosts as a mature plant
Spring or autumn sowing option
Quick to establish
Nine weeks to first grazing



Bouncer Hybrid Forage

Brassica

Brassica napus

Early-maturing hybrid forage brassica

Seeding Rate	kg/ha
Dryland	3
High Rainfall/Irrigation	5

Seed Treatment
None/ XLR8™ optional

Usage
Short term annual grazing forage

Features & Benefits
Leafy turnip
Very quick to graze, 5 weeks from emergence
Quick to recover from grazing
No ripening of forage required before grazing



Balance® Chicory

Chicorium intybus

True perennial-type chicory

Seeding Rate	kg/ha
Dryland	3
High Rainfall/Irrigation	5

Seed Treatment
XLR8™

Usage
High performance animal production

Features & Benefits
True perennial type
Highly digestible dry matter
Excellent pasture mix option
Lowers bloat potential in pasture mixes



Compass Chicory

Chicorium intybus

Short term chicory

Seeding Rate	kg/ha
Dryland	3
High Rainfall/Irrigation	5

Seed Treatment
None/ XLR8™ optional

Usage
High performance animal production

Features & Benefits
Short term type
Excellent establishment vigour
High digestibility and preferred intake
Lowers bloat potential in pasture mixes



Ranger® Plantain

Plantago lanceolata

Perennial grazing plantain

Seeding Rate	kg/ha
Dryland	1-3
High Rainfall/Irrigation	4-8

Seed Treatment
XLR8™

Usage
High performance animal production

Features & Benefits
Nutrient accumulator
Highly palatable and digestible forage
Improved livestock weight gains
Forage is an excellent source of trace elements and has drenching properties

CLOVER & PASTURE LEGUMES



Casper White Clover

Trifolium repens

Early maturing variety with large leaf size

Seeding Rate	kg/ha
Dryland	3-4
High Rainfall/Irrigation	5-8

Seed Treatment

Goldstrike®

Usage

Permanent pasture grazing

Features & Benefits

Early maturing variety
Large leaf trait
Excellent permanent pasture option
Quick recovery from grazing, suits rotational grazing systems with a grass base



Jumbo White Clover

Trifolium repens

Late maturing 'Ladino' type

Seeding Rate	kg/ha
Dryland	3-4
High Rainfall/Irrigation	5-8

Seed Treatment

Goldstrike®

Usage

Grazing and hay production

Features & Benefits

'Ladino' type with large leaves
Excellent recovery from grazing
High heat tolerance gives 'year-round' production
Highly digestible feed for elite animal performance



Riesling White Clover

Trifolium repens

Early maturing variety with high stolon density

Seeding Rate	kg/ha
Dryland	3-4
High Rainfall/Irrigation	5-8

Seed Treatment

Goldstrike®

Usage

Permanent pasture grazing

Features & Benefits

High stolon density
Strong root system
Highly persistent in higher rainfall environments
Highly digestible forage



Renegade Red Clover

Trifolium pratense

Big yielding, short-term red clover

Seeding Rate	kg/ha
Dryland	3-4
High Rainfall/Irrigation	5-8

Seed Treatment

Goldstrike®

Usage

Grazing and hay production

Features & Benefits

Erect growing 'hay type'
High yielding
Good disease tolerance
Excellent hay type for top end forage yield and annual mixes



Seed Treatment Options

Innovation and the latest technology are key components of S&W Seed Company Australia's commitment to improving the performance of its forage products.



Goldstrike®

S&W Seed Company Goldstrike® includes rhizobia inoculation, micronutrient package, and Apron® XL fungicide (where available on the label). Goldstrike® is comprised of the highest quality seed and coating technology and is the best establishment package for pasture legumes.

Goldstrike LongLife®

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.

XLR8™

XLR8™ treatment is a film coat application of Poncho® Plus insecticide.

Poncho® Plus is a significant advancement in the seed treatment market. It 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 Red-legged Earth Mite, Cutworm, and Lucerne Flea. Poncho® Plus also offers added establishment vigour in the early growth stage of the plant.

The benefits from our XLR8™ seed treatment not only comes in the form of insect protection but also shows long-term benefit in assisting early seedling plant growth. This is demonstrated with greater root system development in seedlings, leading to higher overall pasture establishment and long-term pasture production.

Our XLR8™ seed treatment comes standard on all brassicas, herbs, and our premium proprietary lucerne varieties. Our XLR8™ seed treatment can be applied upon request to all seed products where registration is applicable.

	Micro Nutrient	Rhizobia Inoculation	Apron® XL Fungicide*	LongLife tested**	Poncho® Plus Insecticide	Gaucho® Insecticide	Film coat only
Goldstrike®	✓	✓	✓				
Goldstrike LongLife®	✓	✓	✓	✓			
Goldstrike LongLife® XLR8™	✓	✓	✓	✓	✓		
Goldstrike XLR8®	✓	✓	✓		✓		
XLR8™					✓		✓
Gaucho®						✓	✓

*Where available on label ** Six months storage life on medics and sub clovers, and up to 12 months storage life on lucernes.

Poncho® Plus Comparison Chart	SEED TREATMENT			BARE SEED AND FOLIAR SPRAY		
	Poncho® Plus Broadleaf Pasture	Poncho® Plus Grass Pasture	Gaucho®	Chlorpyrifos	Ground Spray Dimethoate	SP Foliar
Registered Claims Benefits	Redlegged Earth Mite	✓	✓	✓	✓	✓
	Lucerne Flea	✓	✓		✓	
	Blue Oat Mite	✓	✓	✓	✓	✓
	Cutworm	✓	✓		✓	
	Yellowheaded Cockchafer		✓			
	African Black Beetle		✓			
Benefits	May offer Stress Shield™ benefits	✓	✓	✓		
	Up to four weeks systemic protection for emerging seedlings	✓	✓	✓		
	Protection against some soil pests	✓	✓		✓	
	Low impact on beneficial species	✓	✓	✓		
	Targeted chemical placement	✓	✓	✓		

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“At S&W Seed Company, we have a complete range of Lucerne varieties, giving our growers the right dormancy and product to suit every situation.”

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S&W Seed Company

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