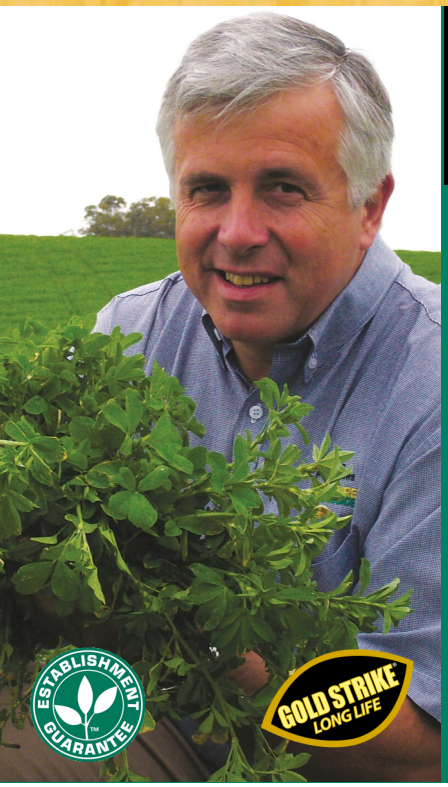
SEED DISTRIBUTORS TECH SHEET



Q31 Lucerne winter dormant

(Medicago sativa)

- Q31 is set to become the leading hay and chaffing variety for premium markets
- Q31 has a superior leaf retention trait and the highest nutritive value in retained leaf in feed and hay, combined with high yields and excellent quality for hay, chaff, silage and grazing
- It demonstrates greater persistence than winter active varieties, when persistence is more important than winter growth
- Q31 is ideally suited to irrigation and dryland pastures in cold climate areas. The superior leaf retention trait leads to improved quality lucerne to be sold into premium markets
- Q31 was 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

WINTER ACTIVITY	3
MIN RAINFALL (mm)	450
SEEDING RATE	**Kg/Ha**
DRYLAND	4—6
HIGH RAINFALL/IRRIGATION	8—15

Multiple Pest and Disease resistance chart

Variety	Winter Activity	Spotted Alfalfa Aphid	Blue Green Aphid	Pea Aphid	Phytophora Root Rot	Anthrac-nose	Bacterial Wilt	Fusarium Wilt	Stem Nematode	Root Knot Nematode
Q31	3	R	MR	MR	HR	HR	HR	R	HR	HR

HR = High Resistance, R = Resistant, MR = Moderate Resistance, LR = Low Resistance, S = Susceptible, ND = No Data.

Lucerne Agronomic Information

Strengths

- Perennial, year round production.
- Deep rooting, extracts water and nutrients from depth, restricts water table recharge.
- Moderate tolerance of soil salinity and sodicity.
- Responds quickly to spring and summer rainfall (or irrigation).
- Dual purpose (grazing and hay).
- Highly productive.
- High nutritive value.

Limitations

- Short-term persistence in some regions (mainly due to disease susceptibility).
- Susceptible to waterlogging.
- Needs rotational grazing.
- Can cause bloat in cattle.

Plant description

Plant: Deep rooted, upright, perennial legume.
Stems: Erect from 40 - 80 cm high at 10% flower.
Leaves: Comprise three smooth, slightly toothed, oval, wedge shaped to pointed leaflets, sometimes with white crescent shaped markings. Leaf veins strong, straight with little branching. Broadly triangular stipules with one or more small teeth occur at the point of leaf attachment to the stem.
Flowers: Pea flowers, mostly purple in colour, and about 8 mm across, borne in clusters up to 4 cm long at the tops of branches.
Pods: 4 - 5 coils in a spiral, spineless with a hard outer surface; produced in clusters; 1 - 5 seeds/pod.
Seeds: Small, green to yellow to light brown in colour; kidney shaped; 440,000 - 500,000 seeds/kg.

Pasture type and use

Medium term perennial (3 - 5 years); year-round production, predominantly in the spring/summer but with varying levels of winter production (winter activity). Used for conservation, particularly hay production; as a 'ley' legume in cropping rotations (often called a 'phase' legume in such systems in southern and Western Australia); and as a medium-term legume in long term grass pastures in the subtropics.

Where it grows

Rainfall: In rain grown stands, 500 - 1200 mm/annually (subtropics); 250 - 800 mm/annually (southern and Western Australia).
Soils: Lucerne requires deep, well-drained soils (sands to moderately heavy clays) with a slightly acid to alkaline pH. It is intolerant of high levels of exchangeable aluminium and even short periods of waterlogging.
Temperature: Optimum temperatures for dry matter production range from 15 - 25°C in the day and 10 - 20°C during the night. However, this will vary with the winter activity level of the cultivar.

All **Seed Distributors** proprietary lucernes have a minimum of **90% germination**

Establishment

Companion species: Lucerne is often sown as a pure sward. It is very competitive but if sown at a low rate it will grow with species such as early-flowering sub clover/annual medics, phalaris and Mediterranean types of tall fescue to boost winter production. It can be grown with chicory and a range of tropical grasses.

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Q31 Lucerne

Seed Distributors sets new benchmark - 1000 viable Rhizobia per seed on stored Lucerne after 12 months and Medic and Sub Clover, after 6 months

Sowing/planting rates as single species: 2 - 12 kg/ha for dryland hay or grazing, depending on annual rainfall. 8 - 20 kg/ha for irrigated hay production. Sow into a finely worked, moist, weed-free seedbed at 1-2 cm; cover with light harrows/weldmesh. On light soils rolling is desirable to improve seed-moisture contact. Direct-drilling can work but failures occur and caution is warranted.
* ensure seed is Gold Stone treated
Sowing/planting rates in mixtures: 0.25 - 1.0 kg/ha in a grass pasture, depending on the makeup of the legume component of the stand.
* ensure seed is Gold Stone treated.
Sowing time: Early autumn to early winter; late April is ideal. In southern Australia districts with an 8 month or more growing season, lucerne is best sown between late August & October, ideally on a winter fallow. Late Spring sowings are dictated by wet years.
Inoculation: Gold Stone Treated.
The use of Gold Stone ***XLR8*** seed treatment is recommended to reduce damage from insects at seedling stages.
Fertiliser: On marginal fertility soils, responses to magnesium, manganese, zinc, molybdenum, boron and copper can occur. Establishment on acid soils is often made possible following the spreading/incorporating 1-5 t lime/ha. Aluminium toxicity can occur on soils with pH of lower than 5.5 (water) or 4.7 (calcium chloride). Based on soil test, potassium (K), phosphorus (P) and sulphur (S) levels need to be maintained at the following levels: K: 0.3 m. equiv/100g; P: 25 mg/kg; S: 10 mg/kg.

Management

Maintenance fertiliser: Maintenance fertiliser needs to be applied regularly in irrigated lucerne where large quantities of nutrient are removed in hay. Based on soil test, potassium, phosphorus and sulphur levels need to be maintained at the levels indicated above.
Grazing/cutting: Timing of grazing or cutting should be matched to the build up of carbohydrate reserves in the plant's roots. Levels in the roots are lowest about 2 weeks after grazing or cutting and reach their maximum at full bloom, somewhere between 4 - 8 weeks after the previous defoliation (dependent on time of year and winter activity level of the cultivar used). Cutting for hay is best done at 10% flower or when the basal shoots are 3 - 5 cm in length. It should be rotationally grazed for long term persistence, whether grown as a pure stand or in mixed swards. It should be grazed off in 1-2 weeks followed by spelling for 4-8 weeks, depending on time of year and winter activity level of the cultivar used.
Ability to spread: Low. Lucerne is usually cut or grazed before seed matures.
If lucerne seed is dropped or spread by livestock, it rarely establishes effectively owing to soil and soil water constraints. In lucerne producing environments, it may be found on road verges but not in adjacent paddocks subject to grazing.
Weed potential: Low, in keeping with its inability to spread.
Major pests: Red legged earth mite, spotted alfalfa aphid, blue green aphid, pea aphid, lucerne flea, jassids or leafhopper, vegetable jassid, white fringed weevil, sitona weevil, small lucerne weevil, lucerne crown borers, lucerne leaf roller, weed web moth or cotton webspinner, cutworms, wingless grasshoppers, thrips, lucerne seed web moth, native budworm, lucerne seed wasp, mirids, mites, snails.
Major diseases: Seedling disease: Damping off.
Leaf and stem diseases: alfalfa mosaic virus, lucerne yellows, bacterial leaf and stem spot, witches broom, common leaf spot, Stemphylium leaf spot, Leptosphaerulina leaf spot or pepper spot, rust, downy mildew, Cercospora leaf spot, Phoma black stem, powdery mildew.
Root and crown diseases: Phytophthora root rot, Colletotrichum crown rot, Rhizoctonia canker (most significant,) violet root rot, Acrocalymma crown and root rot, Stagonospora crown and root rot, Fusarium wilt, bacterial wilt, Sclerotium blight and Sclerotinia rot.
Herbicide susceptibility: Herbicides can be used to take out grasses or broadleaved weeds selectively, or can be used pre-planting or post-planting to tackle weeds at different stages of crop development. Mature lucerne is difficult to remove with herbicide. Follow agronomist recommendations and check labels for the herbicides that are registered for use in lucerne or to remove lucerne.

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Q31 Lucerne

Animal production

Feeding value: Lucerne is highly digestible (60 - 75 %), is a good source of crude protein (15 - 25 %), and has high levels of metabolisable (8 - 11 MJ/kg DM).

Palatability: Very palatable.

Production potential: Daily live weight gains for beef cattle range between 0.7 kg/head/day from stemmy lucerne to 1.5 kg/head/day from young, leafy regrowth. Live weight gains of 300 - 400 g/head/day are achievable with lambs.

Livestock disorders/toxicity: There are few problems. To avoid cattle bloat, nitrate poisoning and red gut, do not graze immature/lush lucerne, especially with hungry stock (pre-feed with dry roughage).

Chemical options in Lucerne

	Pre-sowing	Post emergent, seedling and established lucerne						
Herbicide	Trifluralin	Bromoxynil	Spinnaker®	Raptor®	Jaguar®	Fusilade®, Verdict®	Select®	2,4D-B Trifolamine
Group	D	C	B	B	C & F	A (Fop's)	A (Dims)	I
Grass weeds								
Ryegrass	■		■	Suppression		■	■	
Barley Grass			■	■		■	■	
Brome Grass				■		■	■	
Wild Oats	■		■	■		■	■	
Silver Grass				Suppression				
Broadleaf Weeds								
Capeweed		■	■		■			■
Wild Radish		■	■	Suppression	■			
Wireweed	■	■	■	Suppression	■			■
Wild Mustard		■	■	■	■			
Wild Turnip		■	■	■	■			■
Doublegee		■	■	Suppression	■			
Crop stage	PS	1+ Leaf	1+ Leaf	2+ Leaf	3+ Leaf	2-3 Leaf	1+ Leaf	2 to 6 leaf
Weed stage	PE	2-6 Leaf	PE-3 Leaf					

Established Lucerne only				
Herbicide	Simazine - Simagranz®	Spray Seed®	Paraquat - Shirquat® 250	Diuron - Diurex®
Group	C	L	L	C
Grass Weeds				
Ryegrass	■	■	■	■
Barley Grass	■	■	■	■
Brome Grass	■	■	■	■
Wild Oats	■	■	■	■
Silver Grass	■	■	■	■
Broadleaf Weeds				
Capeweed	■	■		
Wild Radish		■		■
Wireweed		■		■
Wild Mustard	■	■		■
Wild Turnip	■	■		■
Doublegee				■
Crop stage	At Least one year old			

Shading = control of named weeds; leaf = true leaf; PS = pre-sowing; PE = pre-emergent A: Aryloxyphonoxy propionates, Cyclohexanediones B: Imidazolinones C: Nitrates, Urea, Triazines D: Dinitroanilines, Benzoic acids, Pyridines F: Nicotinanalides L: Bipyridles.
Herbicides for weed control in Lucerne as indicated by shading.
****Before using any herbicide consult your agronomist and the product label regarding safe and effective use****

Table adapted from The Back Pocket Guide WA

Combined information provided courtesy of Pastures Australia and Seed Distributors

Australian Government Rural Industries Research and Development Corporation RIRDC www.rirdc.gov.au

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