LUCERNE
AURORA

OVERVIEW

Dormancy 6 – Aurora is a dormancy 6 alfalfa variety, bred by the New South Wales Department as an alternative to Trifecta and Hunter River. It is a general purpose variety which is suited to grazing and haymaking. It has very good pest and disease ratings and is suitable for both dryland and irrigated with good persistence. Aurora shows very good resistance to the major aphid and nematode pests but only low resistance to Colletotrichum Crown Rot (Colletotrichum trifolii), Bacterial Wilt (Claviba michiganense) and Fusarium Wilt (Fusarium oxysporum)

- Dormancy rating 6
- Good pest resistance
- Low resistance to several diseases

SEED AGRONOMY

- Winter Activity 6
- Min Rainfall (mm) 350
- Seeding Rate 25-30 Kg/Ha
- Dryland 4-8
- High Rainfall / Irrigation 10-15

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ENTERPRISES FOR THIS SEED

- Sheep, Beef Cattle, Horse, Hay & Silage

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% lower.

Leaves: Comprise three smooth, slightly toothed, oval, wedge shaped to pointed leaflets, sometime white crescent shaped markings. Leaf veins strong, straight with little branching. Broadly triangular with one or more small teeth occur at the point of leaf attachment to the stem.

Flowers: Pea owers, mostly purple in colour, and about 8 mm across, borne in clusters up to 4 cm the tops of branches.

Pods: 4 - 5 coils in a spiral, spineless with a hard outer surface; produced in clusters; 1 - 5 seeds/p

Seeds: Small, green to yellow to light brown in colour; kidney shaped; 440,000 - 500,000 seeds/kg.

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PASTURE TYPE AND USE

Medium term perennial (3 - 5 years); year-round production, predominantly in the spring/summer varying levels of winter production (winter activity). Used for conservation, particularly hay production 'ley' legume in cropping rotations 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

Soils: Lucerne requires deep, well-drained soils (sands to moderately heavy clays) with a slightly a alkaline pH. It is intolerant of high levels of exchangeable aluminium.

Temperature: Optimum temperatures for dry matter production range from 15 - 25_C in the day a 20_C during the night. However, this will vary with the winter activity level of the cultivar.

ESTABLISHMENT

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

Sowing/planting rates as single species: 2 - 12 kg/ha for dryland hay or grazing, depending on an rainfall. 8 - 20 kg/ha for irrigated hay production. Sow into a nely worked, moist, weed-free seedb cm; cover with light harrows/weldmesh. On light soils rolling is desirable to improve seedmoisture Direct-drilling can work but failures occur and caution is warranted. Ensure seed is Gold Strike trea

Sowing/planting rates in mixtures: 0.25 - 1.0 kg/ha in a grass pasture, depending on the makeup legume component of the stand. Ensure seed is Gold Strike treated.

Sowing time: Early autumn to early winter; late April is ideal. Lucerne is best sown between late August & October, ideally on a winter & Spring sowings are dictated by wet years.

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Inoculation: Treated. The use of XLR8 seed treatment is recommended to reduce damage from in seedling stages.

Fertiliser: On marginal fertility soils, responses to magnesium, manganese, zinc, molybdenum, bo copper can occur. Establishment on acid soils is often made possible following the spreading/inco 1-5 t lime/ha. Aluminium toxicity can occur on soils with pH of lower than 5.5 (water) or 4.7 (calciu chloride). Based on soil test, potassium (K), phosphorus (P) and sulphur (S) levels need to be main 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 wh quantities of nutrient are removed in hay. Based on soil test, potassium, phosphorus and sulphur l to be maintained at the levels indicated above.

Grazing/cutting: Timing of grazing or cutting should be matched to the build up of carbohydrate r the plant's roots. Levels in the roots are lowest about 2 weeks after grazing or cutting and reach the maximum at full bloom, somewhere between 4 _ 8 weeks after the previous defoliation (dependen of year and winter activity level of the cultivar used). Cutting for hay is best done at 10% ower or w basal shoots are 3 - 5 cm in length. It should be rotationally grazed for long term persistence, whe as a pure stand or in mixed swards. It should be grazed off in 1-2 weeks followed by spelling for 4- 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 dro spread by livestock, it rarely establishes effectively owing to soil and soil water constraints. In luce producing environments, it may be found on road verges but not in adjacent paddocks subject to g

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 ea leafhopper, vegetable jassid, white fringed weevil, sitona weevil, small lucerne weevil, lucerne crow lucerne leaf roller, weed web moth or cotton webspinner, cutworms, wingless grasshoppers, thrips seed web moth, native budworm, lucerne seed wasp, mirids, mites, snails.

Major diseases: Seedling disease: Damping off.

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Leaf and stem diseases: alfalfa mosaic virus, lucerne yellows, bacterial leaf and stem spot, witche common leaf spot, Stemphylium leaf spot, Leptosphaerulina leaf spot or pepper spot, rust, downy Cercospora leaf spot, Phoma black stem, powdery mildew.

Root and crown diseases: Phytophthora root rot, Colletotrichum crown rot, Rhizoctonia canker (m signi cant,) violet root rot, Acrocalymma crown and root rot, Stagonospora crown and root rot, Fu bacterial wilt, Sclerotium blight and Sclerotinia rot.

Herbicide susceptibility: Herbicides can be used to take out grasses or broadleaved weeds select can be used pre-planting or post-planting to tackle weeds at different stages of crop development lucerne is di cult to remove with herbicide. Follow agronomist recommendations and check labe herbicides that are registered for use in lucerne or to remove lucerne.

Animal production

Feeding value: Lucerne is highly digestible (60 - 75 %), is a good source of crude protein (15 - 25 % 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 s lucerne to 1.5 kg/head/day from young, leafy regrowth. Live weight gains of 300 - 400 g/head/day achievable with lambs.

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

Lucerne Dormancy Groups

The activity-dormancy of lucerne varieties has little effect on the total production during the life of a stand. It is important though in determining the amount if autumn to early spring production. Lucerne varieties are referred to as being: Winter dormant, semi winter dormant and highly winter active.

More recently a scale of 1 to 10 has been used, 10 being highly winter active, while 3 is winter dormant.

Scale	Lucerne varieties	Growth habit
1–3	**Winter dormant** varieties have a dormant period, usually started by shortening daylight hours. Growth during this period virtually stops. They have less winter vigour and so are less suited to sowing in the cooler months of winter. These varieties provide less feed at the critical autumn – early winter period, so are not favoured as dryland varieties.	
4–5	**Semi-dormant** varieties have better autumn and spring growth than winter dormant varieties. They have broader crowns which sit lower in the ground compared to more active varieties. These varieties have only a short dormancy period in midwinter. Where strict rotational grazing is not possible, these varieties may persist better than those with more activity.	
6–7	**Winter active** varieties slow down in growth during the cold winter months, but they never become dormant. They will recover faster after cutting or grazing than dormant varieties.	
8–9	**Highly winter active** varieties also have slower growth in winter but are highly active in late autumn and early spring. Varieties commonly have narrow crowns which sit above ground level, making them more vulnerable to grazing damage. Most Australian bred varieties, however, have retained good grazing tolerance.	
10	**Very highly winter active** lucerne varieties are currently very productive but have poor persistence. They are well suited to short rotations (2–4 years) and require careful grazing management to maximise persistence. This catergory has only recently been added to the winter activity scale.	

Lucerne Variety Managment

During the establishment period Lucerne seedlings are very vulnerable and care must be taken not to over graze as it can cause a severe reduction in plant density. Once established, rotational grazing is very important to help improve persistence of the crop. Ideally spell before cutting or grazing until 10% of stems commence flowering, or crown shoots are 1–2cm long on 50% of plants. Avoid cutting or grazing lower than 5cm and it is important to have the crop grazed within a certain time frame (i.e. 4–6 weeks). Set stocking at moderate to high stocking rates reduces persistence.