



A collaboration between AWI, GRDC, MLA, RIRDC and Dairy Australia

## Purple clover

### Scientific name(s)

*Trifolium purpureum*

### Strengths

- Erect growth habit (up to 80 cm high) makes purple clover ideal for high quality silage and hay production
- Very productive with dry matter yields of up to 15 t/ha reported
- Can be grazed during the season
- Deep roots, which allow it to remain green into summer
- Tolerant of clover scorch (cv. ELECTRATM)
- Tolerant of transient waterlogging
- Seed can be harvested with a conventional header harvester with some modifications

### Limitations

- Susceptible to germination following false breaks
- Not suited to areas <550 mm annual rainfall
- Seed harvesting can be difficult, as seeds are hard to remove from the calyx that encloses them

### Plant description

It is distinguished by its head of bright purple-pink flowers, which measure up to 100 mm in length, and its narrow, elongated trifoliate leaves.

### Pasture type and use

Purple clover is a highly productive, erect growing, aerial-seeding annual legume suited to grazing and high quality fodder production in short-term pasture phases in high rainfall areas.

### Where it grows

#### Rainfall

Purple clover is generally suited to areas with >550 mm annual rainfall. However, its deep rooting habit could make it suitable for areas with a perched water table and annual rainfall as low as 500 mm.

#### Soils

Purple clover grows on a range of soil types ranging from sandy loams to clay loams and from pH 4.5 - 8.0 (CaCl<sub>2</sub>). Purple clover has some tolerance to transient waterlogging, but is not as well adapted as Persian and balansa clovers to extended periods of waterlogging. Not tolerant of salinity.

#### Temperature

Frost tolerance unknown.

### Establishment

#### Companion species

Compatible with many annual legumes (e.g. subterranean clover, biserrula, serradella, crimson

clover and gland clover) and perennial grasses (e.g. Italian ryegrass, consol lovegrass and Premier digit grass). It could also be sown with oats of Italian ryegrass for mixed fodder production (silage or hay).

### **Sowing/planting rates as single species**

Sow 5-10 kg/ha as a pure forage or seed crop.

### **Sowing/planting rates in mixtures**

Sow 2-3 kg/ha of purple clover with 3 kg/ha each of subterranean clover and other annual legumes for a mixed pasture

Sow 10 kg/ha with oats or Italian ryegrass and for mixed fodder production.

### **Sowing time**

Sow purple clover as close to the break of season in autumn as possible.

### **Inoculation**

Seed of purple clover must be inoculated with group C rhizobia.

### **Fertiliser**

Sow with 100 to 150 kg/ha superphosphate, or super/potash if on sandy soils

## **Management**

### **Maintenance fertiliser**

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### **Grazing/cutting**

Purple clover can be grazed heavily in winter and early spring. Grazing must be reduced from flowering onwards to achieve good seed yields. During this time stock can be transferred to subterranean clover pastures.

Purple clover is an excellent silage or hay option. Reduce grazing pressure in spring or remove stock for silage or hay production.

### **Seed production**

While the aerial seeding habit of purple clover makes it easy to header harvest, threshing the seed is difficult. This is because the seed pods are difficult to separate from the tough calyx that encloses them. The most successful harvesting operations have occurred when the harvester drum is set as close to the concave as possible and run at high speed. Harvesting is more efficient during hot, dry conditions.

Swathing improves seed harvest efficiency and is most successful if the windrows are left as long as possible.

Purple clover is a cross-pollinated species and requires pollination by bees for good seed production. The addition of bee hives at the onset of flowering is recommended.

### **Ability to spread**

Limited

### **Weed potential**

There have not been reported cases of purple clover growing within native vegetation.

### **Major pests**

Purple clover has moderate susceptibility to damage by red-legged earth mite particularly at the seedling stage. It is also susceptible to attack by blue-green aphids and to native budworm.

### **Major diseases**

Cultivar ELECTRATM is resistant to clover scorch disease (*Kabatiella caulivora*), while cv. Paratta is highly susceptible

Some susceptibility to chocolate spot (*Botrytis fabae*) and Phoma blackstem (*Phoma medicaginis*)

Susceptible to Bean Yellow Mosaic Virus and Cucumber Mosaic Virus

### **Herbicide susceptibility**

There are no broadleaf herbicides currently registered for use on purple clover. Control weeds in winter with heavy grazing.

Grass weeds can be safely controlled with common grass-selective herbicides.

## Animal production

### Feeding value

Herbage produced by purple clover is of high quality, with winter and early spring levels of crude protein around 16-22% and dry matter digestibility of 60-72%. Purple clover loses quality from the commencement of flowering through to maturity.

### Palatability

Purple clover appears to be very palatable to stock

### Production potential

Purple clover is one of the most productive annual legume species. Trial plots in high rainfall areas have regularly yielded more than 10 t/ha dry matter, with some reports of up to 15 t/ha.

### Livestock disorders/toxicity

No livestock disorders have been reported but, as with most legumes, could cause bloat in cattle in very pure purple clover swards.

Purple clover has very low to undetectable levels of the isoflavones associated with infertility in sheep.

## Cultivars

Cultivar	Seed source/Information
ELECTRA™	
Paratta	

## Further information

For more information, phone Peter Skinner (08 9368 3670), Phil Nichols (08 9368 3547), Department of Agriculture and Food Western Australia, or Belinda Hackney (02 6938 1858), NSW Department Primary Industries.

<http://www.clima.uwa.edu.au/research/pastures/cultivars>  
[www.agric.wa.gov.au/content/past/pl/clo/fn2006\\_cloverscorch\\_myofu.pdf](http://www.agric.wa.gov.au/content/past/pl/clo/fn2006_cloverscorch_myofu.pdf)  
Pasture legumes for temperate farming systems - the ute guide

## Acknowledgements

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## Author and date

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