



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

# Eastern star clover

## Scientific name(s)

*Trifolium dasyurum*

## Strengths

- Delayed germination, which helps protect against seedling losses from false breaks and allows use of non-selective herbicides or intensive grazing after the break of season for up to 6 weeks to control of troublesome crop weeds
- Vigorous and rapid growth following germination
- Productive annual forage for grazing or high quality fodder production
- Wide adaptation to mildly acid and alkaline sandy-loam and loam soils
- Suited to self-regenerating ley systems or short-term phase farming
- Ideal companion plant in mixtures with grasses
- Seed can be direct-headed by a modified grain harvester

## Limitations

- Very susceptible to clover scorch (*Kabatiella caulivora*) and chocolate spot (*Botrytis fabae*)
- Sensitive to cowpea aphids

## Plant description

Eastern star clover is an erect, aerial seeded clover suited to short-term pasture phases for both grazing and fodder production. Flowers are purple at the tip of the corolla and whitish or pink below. The seeds are about 6 mg and are yellow in colour.

## Pasture type and use

Agwest® Sothis is the first cultivar of eastern star clover commercially released to world agriculture .It is suitable for use on acid and alkaline fine textured soils in low to medium rainfall areas (325-500 mm). It germinates very late in the season compared to traditional pasture legumes and weeds. This allows the use of non-selective herbicides or intensive grazing after the break of season for up to 6 weeks to control troublesome crop weeds. Although slow to germinate, it can grow rapidly in late winter/spring and produce a productive legume-dominant pasture for grazing or forage conservation.

## Where it grows

### Rainfall

Best suited to regions with 325 - 500 mm annual rainfall with a predominantly autumn-winter-spring distribution and relatively little summer rain.

### Soils

Eastern star clover grows on a range of soils with pH ranging from 4.5 - 8.0 (CaCl<sub>2</sub>) and soil textures, but will not persist on deep, infertile sands.

It 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

Tolerant of light frosts

## Establishment

### Companion species

Compatible with many annual legumes (e.g. subterranean clover, biserrula, serradella, rose clover and gland clover) and perennial grasses (e.g. Italian ryegrass, consol lovegrass and Premier digit grass). It can also be sown with cereal rye or oats for fodder production (silage or hay).

### Sowing/planting rates as single species

Sowing rate for seed production and pure pasture swards should be between 10 and 15 kg/ha. Sow shallow at 0.5 cm. Rolling after sowing is an advantage.

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

Sow at 3 to 7 kg/ha in mixtures with other pasture legumes.

### **Sowing time**

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

### **Inoculation**

Seed of Eastern star clover must be inoculated with group C rhizobia.

### **Fertiliser**

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

## **Management**

### **Maintenance fertiliser**

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### **Grazing/cutting**

Can be heavily grazed in winter. Reduce stocking rate at flowering time.

### **Seed production**

Machine harvested seed yields of eastern star clover have ranged between 300 to 650 kg/ha. Seed can be harvested with modified grain harvesters.

### **Ability to spread**

Some seeds of eastern star clover survive ingestion by sheep and can be easily spread around paddocks.

### **Weed potential**

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

### **Major pests**

Moderate sensitivity to red-legged earth mites, bluegreen aphids and lucerne flea. Sensitive to cowpea aphids.

### **Major diseases**

Eastern star clover is very susceptible to clover scorch (*Kabatiella caulivora*) and should not be grown where this disease commonly occurs. However, the main target environment for this species is the medium rainfall wheatbelt, where clover scorch is unlikely. Eastern star clover is susceptible to chocolate spot (*Botrytis fabae*) and (*Botrytis cinerea*) grey mould and should not be grown before or after grain legume crops.

### **Herbicide susceptibility**

There are currently no broadleaf herbicides registered for use on eastern star clover. Herbicide trials indicate that it is sensitive to many of the more common broadleaf herbicides, including Bromoxynil, Tigrex®, Spinnaker®, Raptor® and Broadstrike®. Grass weeds can be safely controlled with common grass-selective herbicides.

## **Animal production**

### **Feeding value**

Eastern star clover has good forage quality, with dry matter digestibility of 71% and crude protein levels between 20 and 25 % at the start of flowering. It grows rapidly in winter and can be moderately grazed during this time. Its upright habit makes it an ideal plant for mixtures with grasses that can be used later in the season for conserving silage or hay.

### **Palatability**

Palatable

### **Production potential**

Production of meat and wool from sheep grazing eastern star clover is similar to production from sheep grazing subterranean clover. There are no detectable differences in meat acceptability.

### **Livestock disorders/toxicity**

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

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

### **Cultivars**

<b>Cultivar</b>	<b>Seed source/Information</b>
Agwest® Sothis	Seed Distributors

### **Further information**

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Weblinks:

Agwest® Sothis eastern star clover - Farmnote 323

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