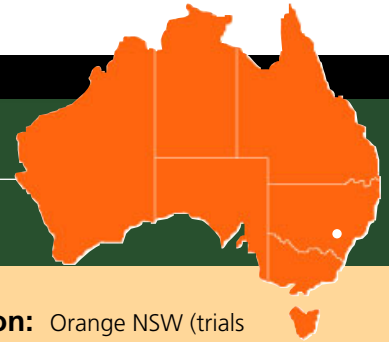


# factsheet

## Physical weed management:

### strategically grazing St John's wort



St John's wort

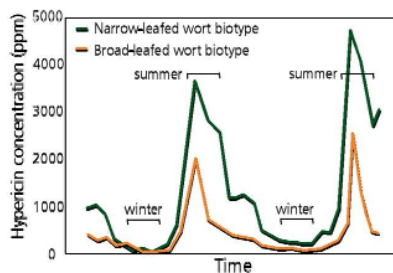
### The problem and history

St John's wort (*Hypericum perforatum*) was introduced into Australia in 1875 as a garden plant. It is commonly used for medicinal purposes but is also a serious weed in NSW, Victoria and South Australia. Control options include various physical (including grazing), chemical, cultural and biological methods.

This weed can become toxic to livestock when grazed. It contains the toxin hypericin which causes symptoms of toxicity such as hyperthermia and photosensitisation in sheep, cattle, horses and goats. Hyperthermia is where body temperatures are elevated. Photosensitisation is where animals become more sensitive to the effects of sunlight.

### Variation in toxin production

Like most species St John's wort has biotypes. Biotypes of plants have the same genetic makeup but show variation in some characteristics. The biotypes of St John's wort can be



Hypericin production measured three-weekly showing the variation between biotypes of St John's wort both in seasonal and total production. These two biotypes represent the higher and lower range of production. Figure: Chris Bourke

**Project:** Update on research relating to the toxin hypericin produced by St John's wort, its impact on livestock and the latest thinking on grazing management.

**Participants:** Dr Chris Bourke, Principal Research Scientist (Poisonous Plants), NSW Department of Primary Industries (DPI).

**Location:** Orange NSW (trials conducted in February and March).

**Ave annual rainfall:** 941 mm

**Vet sector resource:** RTD5402A  
*Develop a strategy for the management of target pests.*

grouped into two categories - broad-leaved and narrow-leaved. They vary dramatically in hypericin production.

The fact that there is such a variation in toxicity between broad and narrow-leaf biotypes makes it critical for producers to correctly identify plants so they can plan their grazing strategy.

It is also critical to recognise that hypericin production varies greatly throughout the year with the spring and summer months having markedly higher levels of toxin production.

### Impact on livestock

Livestock grazing pastures containing St John's wort can develop symptoms of toxicity within 48 hours and in extreme cases, death can occur. Timing and management of grazing animals on infested pastures is critical to avoid toxicity and production loss. The greatest impact on livestock occurs when they are grazing St John's wort during bright sunny weather.

### Symptoms of toxicity

The symptoms of toxicity include restlessness, head rubbing, pawing the ground, head shaking, intermittent

hind limb weakness with knuckling over, panting, confusion and depression. Some will lie down, some will develop diarrhoea.

Those with photosensitisation will develop inflammation and swelling around the eyes and forehead and can begin to damage themselves by rubbing irritated areas of skin.

Animals with abnormally high body temperatures (hyperthermia) become difficult to muster and handle and can die if not treated.

### Species sensitivity

It was previously thought that different livestock species demonstrated differences in sensitivity to hypericin.



Significant leaf differences occur between broad and narrow-leaf biotypes and this is linked to hypericin production  
Photo: Chris Bourke

However, recent research has found that sensitivity has more to do with a number of different factors.

Factors influencing sensitivity include:

- skin pigmentation (eg dark pigmented skin animals are most tolerant as opposed to those with white or broken pigments);
- skin cover (eg animals with thick wool or hair are less susceptible);
- skin softness (eg young animals with softer skin are more susceptible); and
- reproductive status (eg animals that are pregnant or lactating are placing their young at risk as the hypericin is transported through the blood or milk supply).

## Control using grazing

A sound grazing management strategy is critical for hilly areas where chemical and mechanical control measures are expensive or difficult.

### Guidelines for grazing

Recent research has contributed to the development of guidelines that will minimise harm to the grazing stock and create the best chance for pastures to re-establish and out-compete St John's wort.

Grazing will suppress growth, flower and seed production. Sheep are more effective defoliators of the plant than cattle. However, they should be used in a complementary role for best results.

## Guidelines for grazing St John's wort to minimise harm to livestock and to improve pasture re-establishment and competitive ability.

Guideline	Recommendation
Guideline 1	Use dark fully pigmented, non-lactating, non-pregnant cattle (not calves) as a knock down option two months prior to commencing grazing with sheep or goats.
Guideline 2	Use merino sheep, preferably from fine (less than 20 microns) or superfine (less than 17 microns) bloodlines. If using goats follow the same principles choosing darker pigmented animals if possible.
Guideline 3	Make sure sheep have at least four months wool growth cover. Never use recently shorn animals.
Guideline 4	Utilise adult wethers or dry, non-pregnant ewes. Never graze pregnant ewes, lactating ewes, lambs or weaners on St John's wort pastures.
Guideline 5	Use high stocking rates during the grazing period.
Guideline 6	Identify if the St John's wort is the broad-leaf or the narrow-leaf type.
Guideline 7	For broad-leaf St John's wort infestations start grazing sheep on May 1 and continue grazing until October 14.
Guideline 8	For narrow-leaf St John's wort infestations start grazing sheep on July 1 and continue grazing until September 14. During this time sheep will eat the soft, green, prostrate growing shoots which are low in hypericin thus suppressing regrowth.
Guideline 9	In subsequent years, as less and less St John's wort remains, grazing can gradually be increased by starting earlier in autumn and ceasing later in spring. However, once the new spring flower spikes reach a height of 5-10 cm, move the stock off to avoid poisoning.
Guideline 10	Repeat this process every year and try to replace diminishing St John's wort infestations with more appropriate pasture species.
Guideline 11	If possible fence off heavy St John's wort infestations so that very heavy stocking rates can be used during safe grazing periods. Never overgraze as this favours St John's wort re-infestation.
Guideline 12	Ideally stock should have access to good shade, even during winter months. This will increase their tolerance.
Guideline 13	Never graze St John's wort infestations whilst they are flowering or forming seed capsules.

Guidelines developed by Dr Chris Bourke, NSW Department of Primary Industries

For further information visit the Weeds CRC's website: [www.weeds.crc.org.au](http://www.weeds.crc.org.au)

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**Further reading:** The Agfact 'St John's wort' (Agfact P7.6.1, 2005), from NSW Department of Primary Industries.



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