



Common Heliotrope

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J.J. Dellow, Weeds Agronomist, Orange Agricultural Institute.

C.A. Bourke, Principal Research Scientist (Poisonous Plants), Orange Agricultural Institute.

A.C. McCaffery, Project Officer (Weeds), Orange Agricultural Institute.

THE PROBLEM

Common heliotrope (*Heliotropium europaeum*), also known as caterpillar weed or potato weed, is a summer-growing annual native of southern and central Europe, western Asia and northern Africa.

Accidentally introduced to South Australia during the 19th century, it is now recorded in all states except the Northern Territory and Tasmania.

It is of considerable economic importance as a summer fallow weed, and in grazing situations because of its toxicity to stock.

It is widespread in southeastern Australia, infesting over 10 million hectares, which is why it is not a declared noxious weed – complete control and eradication are unlikely.

The earliest recording of common heliotrope in NSW was in the Parkes district in 1899.

Flower head and leaves of a mature plant



DISTRIBUTION

In NSW, common heliotrope occurs west of the Great Dividing Range mainly within the 300 to 500 mm winter-dominant rainfall zone. The heaviest infestations in NSW are confined to the central and southern part of the State. In particular, the drainage systems of the Lachlan, Murrumbidgee and Murray Rivers.

It occurs mainly on disturbed areas such as roadsides, summer fallows and pastures dominated by winter annuals such as barley grass and subterranean clover.

Once established it will grow and thrive under conditions dry enough to stunt or kill most other plants.

THE PLANT

Common heliotrope belongs to the Boraginaceae family, which includes forget-me-nots, comfrey, Paterson's curse and amsinckia or yellow burrweed.

Common heliotrope is a hairy, summer, annual herb, usually growing 10 to 30 cm high, but can be up to 50 cm high. It has a well developed taproot system with a complex system of branches.



J.J. Dellow

An infestation of common heliotrope. Note the form of the mature plant.

The leaves are oval to egg shaped, distinctively grey-green on the upper leaf surface and pale green below.

The flowers are white with a yellow throat, and are less than 5 mm in diameter. They grow in clusters in two closely packed rows on one side of a coiled spike sometimes referred to as a fiddle neck. Flowering starts within 3 to 4 weeks of emergence, and under favourable conditions can continue throughout summer.

The fruit is a group of four brown nutlets containing one brown to black seed each.



J.J. Dellow

Table 1: Summary of livestock toxicity symptoms

Animal	Clinical Symptoms	Production Effects	Pathology
Horses	<ul style="list-style-type: none"> • Weight loss • Dull • Depressed • Unco-ordinated • Wander aimlessly • Can develop respiratory difficulties • Death 	Reduced productivity.	Liver damage and secondary brain damage.
Pigs	<ul style="list-style-type: none"> • Death 	Reduced productivity.	Liver, kidney and lung damage.
Cattle	<ul style="list-style-type: none"> • Depressed • Unpredictable bouts of aggression • Death 	Reduced productivity.	Liver damage and secondary brain damage.
Sheep, Goats	<ul style="list-style-type: none"> • Can accumulate copper which can cause sudden death when released into the bloodstream. 	Reduced productivity.	Liver damage.

Unlike blue heliotrope (*Heliotropium amplexicaule*), common heliotrope only reproduces by seed. Seed will germinate at any time during late spring and summer, provided moisture is available. Germination is inhibited by temperatures below 15° C, but increases rapidly as temperatures rise to 30° C. The plant is also frost sensitive.

Once established, the plant produces several generations in one season and ripens seed every 6 to 8 weeks after germination.

Common heliotrope is not an aggressive plant and is extremely susceptible to competition during establishment.

DISPERSAL

Common heliotrope has sticky seeds that pass unharmed through the digestive tracts of animals. Therefore it is mainly spread by stock or as a contaminant in fodder.

LIVESTOCK TOXICITY

Common heliotrope contains pyrrolizidine alkaloids, commonly referred to as PAs. The types of PAs found in common heliotrope are considered more poisonous than those found in blue heliotrope.

Heliotrope is not very palatable to livestock and consequently tends to be avoided; however, some individuals continue to eat it indiscriminately.

Continual ingestion by livestock of large amounts of heliotrope plants (either fresh or dried), or of their seeds as contaminants in stock feed, can cause liver damage and reduced

productivity. Horses, pigs, cattle, sheep and goats can all be affected, but display decreasing susceptibility with horses being the most susceptible.

Table 1 summarises the symptoms experienced by stock.

All affected livestock species may become jaundiced and experience varying degrees of photosensitisation.

METHODS OF CONTROL

The effective control of common heliotrope will usually involve a combination of the following options to reduce the seed bank.

Cultivation

Cultivation readily controls seedling growth. On fallow, repeated cultivations may be needed to control the successive geminations characteristic of the plant.

Pasture Management

Competitive perennial pastures have an important role in controlling this weed.

Common heliotrope is not aggressive during establishment, therefore maintaining a vigorous pasture will gradually eliminate it. Advice on pasture management can be obtained from your local agronomist.

Grazing Management

Overgrazing, which reduces pasture vigour, must be avoided in the control of common heliotrope. Management of grazing pressure to avoid this is critical to control this weed.

Sheep and goats can be used in grazing management of heliotrope provided a different group of animals is used each year. The sheep

rumen has a great capacity to degrade most of the poisons present in the plant. The merino has the greatest tolerance to heliotrope but adult wethers should be used rather than breeding ewes or juveniles. British breed crosses are less selective grazers than merinos and consequently are more frequently affected by heliotrope poisoning.

Anecdotal evidence suggests supplementing sheep with molybdenum and sulfate can reduce the chronic health effects of heliotrope poisons. The combined effect of molybdenum and sulfate is to reduce the accumulation of copper in the animals liver. The aim of this practice is to either improve the short term heliotrope tolerance of crossbred sheep, or to allow the same group of merino sheep to be used to graze the plant over two or three successive seasons.

Correct grazing management to reduce PA toxicity is even more critical if Paterson's curse is also present. In this situation stock can be exposed to PAs during summer from the common heliotrope and during the cooler months from the Paterson's curse, increasing the risk of toxicity occurring from prolonged grazing.

Horses, pigs and cattle should never be used in the grazing management of heliotrope.

Chemical

Chemical control is commonly used in fallow situations and degraded pastures.

Only a registered herbicide used according to the directions on the label should be used to control a weed. Refer to the NSW Agriculture publication *Weed Control in Lucerne and Pastures Guide* for the recommended chemicals to control common heliotrope.

To improve the effectiveness of chemical control, herbicides should be applied to common heliotrope when it is young and actively growing. Avoid spraying stressed plants.

Biological Control

To date, two agents have been released, a rust fungus (*Uromyces heliotropii* Sred) which has had no measurable impact, and a flea beetle (*Longitarsus albineus* Foundras) which has failed to establish under difficult conditions.

Co-operative research into the biological control of common heliotrope is continuing.

ACKNOWLEDGMENTS

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- The 1st edition of the Agfact.
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