

## CONTROL OF CALTROP

Caltrop (*Tribulus terrestris*) is a summer-growing weed found widely throughout WA. It is most common in areas of frequent spring and summer rain.

Under the Local Government Act it is a prescribed pest plant in a number of south-west and wheat belt shires of the state.

Caltrop has seeds remaining dormant in the soil for probably four to five years. They germinate after summer rain. Plants grow rapidly, flowering and forming new burrs within a few weeks.

The trailing stems of caltrop are long and wiry. They are covered with fine hairs. The stems lie prostrate on the ground, radiating from a central tap root. The leaves consist of several leaflets arranged opposite each other on the stems.

The flowers are small, less than 1 cm in diameter,

and yellow with five petals. Wedge-shaped burrs are formed in clusters of five, each with four or more long sharp spines.

Under cropping situations the weed is of little agricultural importance as it is a summer-growing plant which does not affect winter crops. It is readily eaten by sheep but there have been a number of confirmed cases of caltrop poisoning in sheep and goats. It is no longer a Declared Plant in WA.

However it is a nuisance around farm buildings, townsites, railway yards and recreation areas because of the sharp spiny burrs.

A heavy infestation after adequate summer rain can produce an abundance of burrs which make it very uncomfortable for people and animals alike.

### Control



### Farms

Small numbers of plants may be eliminated by hand grubbing. The plants should be dried and then burnt.

The recommended method of control on farms is 2,4-D amine (500 g/L) in a knapsack sprayer at the rate of 4 mL per litre of water for small infestations and 4 L/ha of 2,4-D amine for large paddock infestations. Often retreatment for new germinations is necessary after each summer rainstorm.

The ester formulation of 2,4-D at 1000 mL/ha also gives good control, particularly if mature plants (branches greater than 1.5-2.0 m length) are present.

Under very warm/dry conditions the addition of a crop oil may improve the result.

Around sheds and along fence lines a mixture of 2 L/ha of amitrole and atrazine with 1-2 L/ha of 2,4-D amine also gives very good control of caltrop and will give a short residual control. The addition of a wetting agent increases the effectiveness of this treatment.

A higher rate (6 L/ha) of Amitrole + Atrazine can be used, but care must be taken that there are no drains into which the chemical could be washed to affect susceptible trees.

Where vines, tomatoes and other vegetable crops are grown commercially, especially near Mount Barker, Geraldton, the Ord irrigation area and Swan Valley, the use of 2,4-D is subject to the Spraying Restriction Regulations.

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## Control (con't)

In these areas Reglone<sup>®</sup>, glyphosate, or Amitrole/Atrazine mixes (such as Vorox AA<sup>®</sup>) may be the best option for control.

### Townsites

Considerable care must be taken when selecting and applying chemicals in townsites because some are unsuitable for use in these situations.

The proximity of gardens, and vegetable or vine crops makes the use of 2,4-D inadvisable.

Roadside infestations of caltrop should be sprayed with 3L/ha of Amitrole/Atrazine. It is essential not to exceed the recommended dose otherwise roadside trees and other desirable plants may be affected.

Along fences and vacant blocks, providing there are no shallow rooted trees or shrubs present, soil residual herbicides such as Glean<sup>®</sup>

(chlorsulfuron) or Amitrole/Atrazine mixtures could be used. These are useful because they will prevent further germinations of caltrop for several weeks. This reduces the number of herbicide applications that are necessary to control every new germination that often occurs after summer rain.

Mixtures of chlorsulfuron or Amitrole/Atrazine can be applied with leaf absorbed products such as glyphosate or Reglone<sup>®</sup>. This gives the quick kill of existing plants plus the longer term control from the residual products.

Where applied on house blocks near trees or in areas to be used for gardens the non residual foliar contact herbicides should be used. In this situation regular inspections will have to be made to determine if other germinations of caltrop have occurred, which will then need treating.



Situation	Chemical	Knapsack rate/10 L	Rate/ha	Comments
Farms	2,4-D amine(50%)	40 mL	4 L	
	2,4-D ester(80%)		1-2 L	Can also be applied by mister using water or distillate as the carrier. Need care near homestead or susceptible legume crops.
Roadsides - fencelines (no trees nearby)	Amitrole/Atrazine	60 mL	6 L	Do not apply near drains where there is a possibility that the chemical can be moved away from site of application. Trees, particularly Eucalyptus are susceptible.
Trees nearby	Amitrole/Atrazine + Glyphosate		3 L + 3 L	The addition of suitable wetting agent will often increase the effectiveness of these treatments.
	Glyphosate + Chlorsulfuron		3 L + 20 g	
	Amitrole/Atrazine + 2,4-D amine		2 L + 1-2 L	
	Chlorsulfuron	0.2 g	20 g	Can be applied both before and after the caltrop has emerged.
Townsites	Glyphosate	30 mL	3 L	Apply only to caltrop plants. Repeated applications will be necessary as new germinations occur.
	Reglone <sup>®</sup>	30 mL	3 L	

## Further Information

For further information on caltrop recognition and control contact your local shire or town council.