

## Control of Caltrop

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

Under the *Local Government Act* (1995) it is a prescribed pest plant in a number of southwest and wheatbelt Shires of the State.

Caltrop has seeds that remain dormant in the soil for probably four to five years. They germinate after summer rain. Plants grow rapidly, flowering and forming new burrs within three to four 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 taproot. The leaves consist of several leaflets arranged opposite each other on the stems. The leaves are fern-like and greyish-green. Caltrop is often confused with doublegee, however, the latter has a green leaf similar to English spinach.

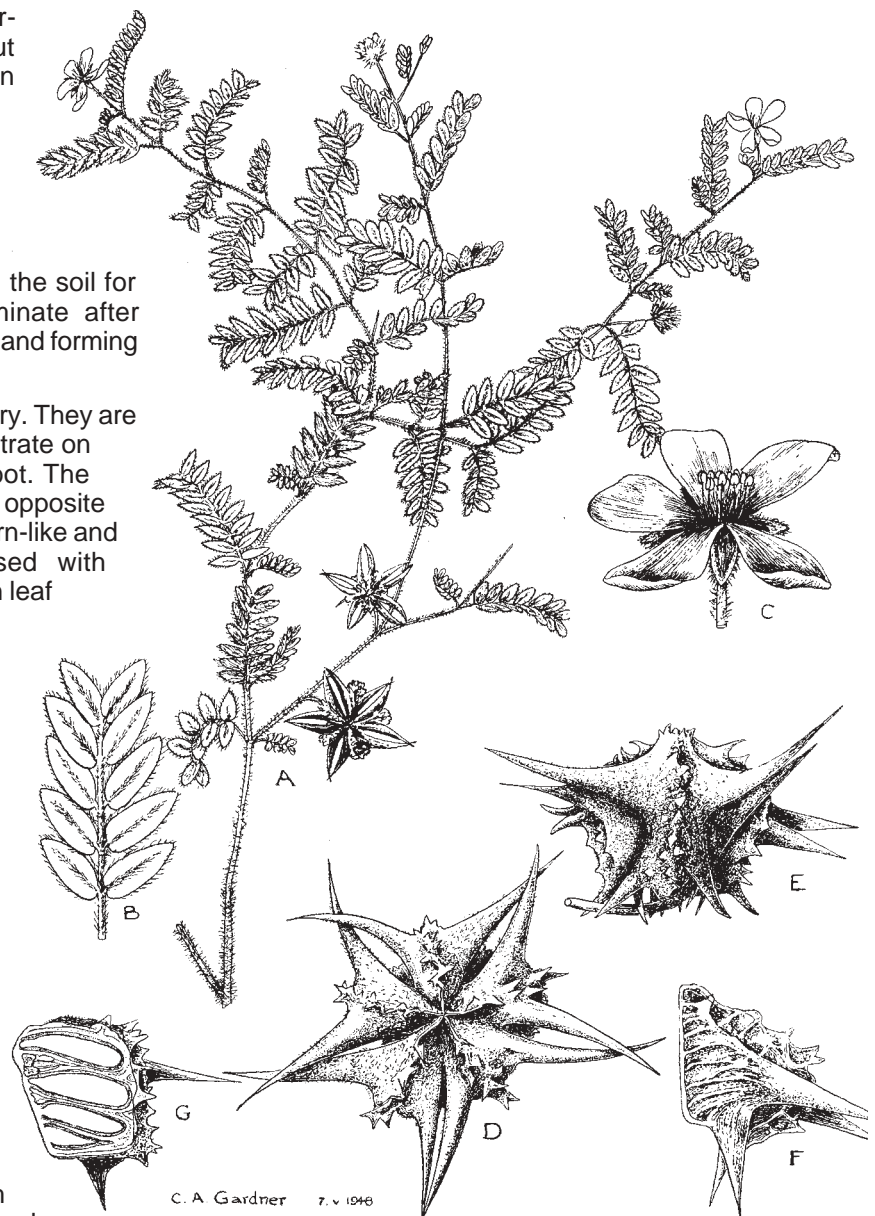
The flowers are small, less than 1 cm in diameter, and yellow with five petals. Wedge-shaped burrs are formed in clusters of five, each with four or more long sharp spines.

Under cropping situations the weed is of little agricultural importance as it is a summer-growing plant, which does not affect winter crops. Sheep readily eat it, but there have been a number of confirmed cases of caltrop poisoning in sheep and goats. It is no longer a declared plant in Western Australia. However, it is a nuisance around farm buildings, townsites, railway yards and recreation areas because of the sharp spiny burrs.

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

### Farms

Small numbers of plants can be eliminated by hand grubbing. The plants may be placed in a bag and disposed of in a bin or they could be dried and then burnt, if permitted by local council bylaws.



*Caltrop* (*Tribulus terrestris* L.) A—Habit; B—Leaf; C—Flower; D—Upper surface of burr; E—Lateral view of burr; F—Separate carpel (lateral view); G—The same in longitudinal section showing seeds.

### Important Disclaimer

The Chief Executive Officer of the Department of Agriculture and the State of Western Australia accept no liability whatsoever by reason of negligence or otherwise arising from the use or release of this information or any part of it.

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.

Where vines, tomatoes and other vegetable crops are grown commercially, especially near Mount Barker, Geraldton, the Ord River Irrigation Area and the Swan Valley, the use of 2,4-D is subject to the *Agriculture and Related Resources Protection (Spraying Restrictions) Regulations 1979*. In these areas, Reglone® or glyphosate 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.

Where applied on house blocks near trees or in areas to be used for gardens the non-residual foliar 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.

To prevent spread of the weed, tyres and footwear, should be cleaned to remove burrs.

## Further information

For further information on caltrop recognition and control contract your local shire or town council. As caltrop is not a declared plant, you are not required to report it to the Department of Agriculture.

Chemical control options				
Situation	Chemical	Knapsack rate/10L	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 crops.
	Diquat + paraquat		1-2 L	Addition of 2,4-D may give better control of large fruiting plants.
	* glyphosate (450 gai†)	0	.44 -1.2 L	Addition of 2,4-D ester will improve control.
	Basta®	50 mL	3 - 5 L	Similar action to glyphosate.
	Dicamba (80 g/L) + MCPA (340 g/L)	40 mL	2.8 – 4.0 L	
Townsites	*glyphosate (360 gai†)	30 mL	3 L	Apply only to caltrop plants.
	Reglone®	30 mL	3 L	Repeated applications will be necessary as new germinations occur.
	Diquat + paraquat		3 L	Repeated applications will be necessary as new germinations occur. Licensed contractors to apply.
* Other formulations available and rates should be adjusted when using these.				
† grams active ingredient.				