Department of Agriculture and Food
GOVERNMENT OF WESTERN AUSTRALIA

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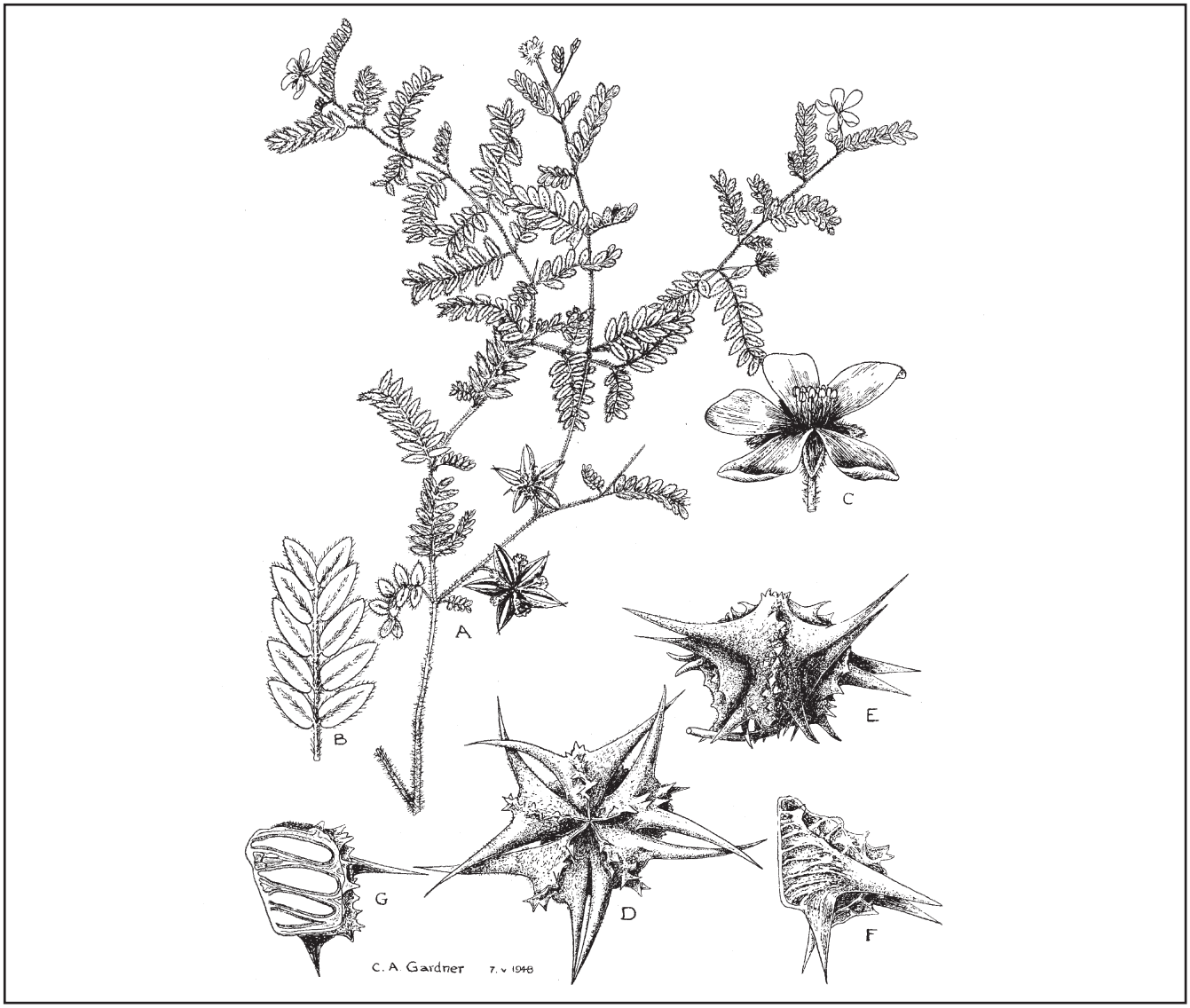
Farmnote

Control of Caltrop



*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*

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

Under the *Local Government Act 1995* it is a prescribed pest plant in a number of southwest and cereal growing shires of the State.

However it is not a declared plant, and there is no requirement to report it to the Department of Agriculture and Food.

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 five weeks.

Table 1 **Chemical control options**

Situation	Chemical	Knapsack rate/10L	Rate/ha	Comments
Farms*	*2,4 D amine (625 g/L)	11–25 mL#	1.1–2.4 L#	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 g/L)	25 mL	*0.44–1.2 L#	Addition of glyphosate compatible 2,4-D amine will improve control.
	Basta®	50 mL.	3–5 L#	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 g/L)	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	Not for domestic application unless by Licensed Pest Control Operators

*Other formulations available and rates should be adjusted when using these.
Where a rate of herbicide is specified as an upper or lower rate i.e. 11–25 mL or 1.1–2.4 L the lower rate should be used for seedlings and juvenile plants. The upper rate should be used for mature or flowering plants.

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. Caltrop is a nuisance around farm buildings, townsites, railway yards, roadsides, car parks, cycle paths and other 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.

The recommended method of control for small infestations on farms is 2,4-D amine (625 g/L) at the rate of 2.5 mL per litre of water in a knapsack sprayer and 2.4 L/ha of 2,4-D amine for large paddock infestations. Often further treatment for new germinations is necessary after each summer rainstorm.

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

Commercial cropping areas and townsites

Considerable care must be taken when selecting and applying chemicals in townsites and/or where vines, tomatoes and other vegetable crops are grown commercially 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 and other hormone type herbicides inadvisable. This is because of the possibility of herbicide drift either as droplet or vapour. The drift of all herbicides can also be of concern if the application is made under unfavourable conditions such as high temperatures, too low or too high wind speeds, and under conditions where temperature inversions occur trapping vapour and droplets and moving the herbicide considerable distances. The topic of herbicide drift is covered in other publications.

Where applied on house blocks near trees or in areas to be used for gardens the non-residual foliar herbicides should be used. In these areas, Reglone® or glyphosate may be the best option for control.

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.

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

Further reading

Farmnote 61/99: Hormone herbicides: what you should know before you spray

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