Cape tulip

Cape tulip is the common name applied to two highly toxic and declared pest plants that were introduced from South Africa as garden plants.

One-leaf tulip (*Moraea flaccida*) and two-leaf cape tulip (*Moraea miniata*) are herbaceous perennial weeds that now pose a significant risk to landholders throughout southern Australia.

Both cape tulips are difficult to control with herbicides due to the dormancy of corms below the ground. It is therefore important to keep your property free of cape tulips and to recognise and destroy new infestations before they become established.

What does it look like?

One-leaf cape tulip grows from a corm that sprouts annual leaves and flowers to 60cm high. Each plant has one leaf which is flat, 1-2cm wide and up to 1m long. Flowers are 3-5cm in diameter with six petals that can vary from salmon pink and orange to yellow.

The fruit is a three-valved capsule up to 5cm long which starts green and turns brown when mature. Seeds are brown in colour, irregular in shape and discharged from the summit of the capsule. Each capsule may contain up to 150 seeds. Corms are 1-2cm in diameter, white in colour but covered in brown fibrous tunic. Roots are fine, shallow and fibrous.

Two-leaf cape tulip grows from a corm surrounded by a black tunic and sprouts to 60cm high with annual leaves and flowers. Each plant has 2-3 leaves, which are flat, 1-2cm wide and up to 1m long. The flowers are smaller and more numerous than those of one-leaf cape tulip. They are 2 to 4cm in diameter with six pink petals and yellow bases that are dotted with green. The root system is fine, shallow and fibrous with a central corm.

Two-leaf cape tulip does not produce seeds, even though small capsules are sometimes formed after flowering. Instead, large numbers of cormils (tiny corms 1-2mm long) are formed in the angle of each leaf and also around the corm at the base of the plant.

Where is it found?

Both cape tulips can be found on agricultural land (especially permanent pastures), roadsides, waste land and remnant bushland.

Cape tulip is found in soils that range from sands to heavy waterlogged clays in higher rainfall areas.

What is its life cycle?

Corms germinate after the autumn rains and new corms begin to form before the flowers appear in September.

Cape tulip grows quickly throughout winter and soon after produce flowers. The aerial growth dies by November.

Corms can stay dormant in the soil for 5-10 years until a favourable season and up to 60% of corms may not germinate each season. It is estimated that two-leaf cape tulip can amass up to 20,000 cormils per square metre.

What is its impact?

All parts of both one-leaf and two-leaf cape tulip are toxic to all types of grazing animals. The poison is a glycoside that causes loss of appetite, weakness and depression, blindness, dysentery, scouring and paralysis on the hind legs, and in extreme cases death. In some stock, about a kilogram of fresh leaf material is enough to cause death overnight. At present there is no treatment readily available.

The plant remains toxic even when dry, so contaminated hay can also be a problem. Landholders need to be aware of the legal implications of selling or moving contaminated hay.

Stock can become accustomed to grazing on infested pasture and may only show mild effects. Over time, this results in desirable pasture species being replaced by cape tulip due to selective grazing which further decreases stock carrying capacity.

Why is hygiene important?

Cape tulips are spread though infested fodder, soil or machinery. Hay or silage cut from infested paddocks is probably the most common method of dispersal.

Seeds and corms will stick to wool and the feet of animals. Seeds are still viable after passing through stock. Dried plants, with seed capsules intact, are also spread by wind and running water.

Movement of gravel for road-making from infested areas can spread corms and seeds.

What can you do?

Successful control of cape tulips depends on several factors. Firstly, it is important to determine the species, as the timing for two-leaf cape tulip is usually earlier than one-leaf cape tulip. Secondly, it is important to eradicate the small patches first and prevent spread by seed or corms.

Another important factor is corm dormancy. Both species produce corms that have a high dormancy. During the summer this dormancy gradually declines so that by the beginning of April most will sprout if moisture is present.

Because of the presence of these dormant corms or cormils, herbicide treatments will need to be applied over several seasons before any significant reduction is noticed.

Seasonal conditions can alter the timing by 2-3 weeks from year to year so it is essential to regularly monitor the corm growth stages.

To check for treatment stability, landholders are encouraged to dig up corms to see that the old corm is shrivelled and the new corm forming. Since not all corms germinate every year, known locations of infestations must be monitored regularly.

It is also important to understand that a high percentage of corms will germinate into active growth after fire. Control following a fire event can be quite effective.

Foliar spray

Cape tulips can be controlled using a foliar spray method, with either a knapsack sprayer or boom spray equipment for larger infestations. For more widespread infestations, it is recommended that landholders spray using a selective herbicide that will translocate throughout the root system of the plant.

One of the most effective treatments is the broadleaf herbicide, metsulfuron methyl, mixed with a good quality penetrant and water at the appropriate label rates. The use of this herbicide is ideal in a pasture situation as it will only affect plants that are broadleaf if applied at the correct rates. Note that metsulfuron methyl is suitable only in grass pastures, as it will affect clovers and medics. Some trees and shrubs are also sensitive to this herbicide through root uptake.

Treatments should be applied from early emergence to September, regardless of the species, as this is the stage of corm exhaustion (when shoots first appear and before flower buds) and control will be most effective.

As a guide, control should be programmed around the following times:

- One-leaf cape tulip: August-September
- Two-leaf cape tulip: July-August

Wiping

Herbicide can be applied using a sponge, weed tongs or a wick applicator. This method is commonly used in bushland situations where the risk of off-target damage from spraying is almost certain.

Herbicide can also be applied in broad-acre farming situations using a blanket or wick applicator. They consist of a series of ropes, blanket or carpet suspended above the ground on a boom and saturated with a herbicide, usually glyphosate. Taller weeds such as cape tulip come into contract with the

herbicide soaked-blanket and the pasture below remains unaffected.

For advice on chemical control, contact the Northern and Yorke Landscape Board. Please refer to PIRSA's Weed Control Handbook for declared plants in South: www.pir.sa.gov.au/biosecurity

Hand removal

Control by manual removal is difficult due to many cormils formed around the basal corm and in the leaf axis and flowers. The top also tends to break off leaving the corm in the soil.

For the odd plant, small patches or where cape tulip is growing in a bushland setting, it is possible to carefully grub the plant making sure the entire root system and all corms are extracted and then burnt. Plants can be effectively removed using a knife or a trowel. Slashing and mowing are ineffective and may increase spread of cormils.

What are your responsibilities?

Cape tulip is a declared plant under the *Landscape South Australia Act 2019*. Landholders must control the plant on their property. Sale or movement of plants or goods containing plants or plant parts is prohibited within the state.

More information

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