Department of Agriculture and Food

GOVERNMENT OF WESTERN AUSTRALIA

Factsheet

Updates at Department of Agriculture and Food

Tar vine

Tar vine (*Boerhavia coccinea*) is found throughout Australia, with the exception of Tasmania (Image 1). The origin of this species is unknown, but it may be native to the Kimberly, Pilbara and desert regions of Western Australia (WA). There are twelve species of *Boerhavia* in Australia, but *B. coccinea* is the most common in disturbed areas like agricultural fields or roadsides. It is a common summer weed species, and like most summer weeds it depletes soil moisture and nutrients, reducing the yield potential of the subsequent crop. This weed also acts as a green bridge for crop pests and disease, including scab disease, Melon viruses, *Xylella fastidiosa* disease of grapes and plague locusts. It can be a beneficial and highly palatable pasture species. Some species of *Boerhavia* are consumed by people, but *B. coccinea* should not be harvested for human consumption. Leave it for the stock to eat. While tar vine contains oxalates, the levels are unlikely to be high enough to be toxic to livestock. However, livestock should be removed if toxicity is suspected. Tar vine has sticky seeds, which may contaminate wool. This weed is difficult to control, as the stressed, dusty plants are poorly responsive to herbicides.

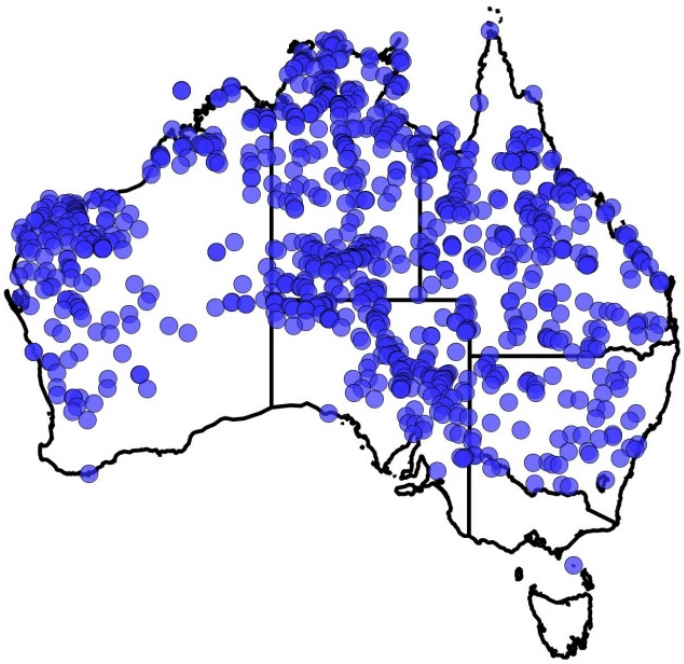

Image 1 - Distribution of tar vine in Australia. Map sourced from Australia's Virtual Herbarium (http://avh.ala.org.au) on 1 May 2017.

Identification and attributes

Tar vine is also known as tah vine, scarlet spiderling, common spiderling, giotcho, red Boerhavia or hogweed. It is an annual or perennial species, which usually grows as a summer weed in Australia (Image 2).

Image 2 – A mature tar vine growing in the summer fallow at Mullewa, Western Australia. Photo courtesy of Abul Hashem, Department of Agriculture and Food, Western Australia (DAFWA).

Tar vine is a low-lying, sprawling plant with stems that can exceed a meter in length. The plants can be 2 m across and 1 m high, but are usually prostrate and about 10 cm high (growing as a vine). Stems may be prostrate or bend upwards near the end. The stems are usually densely branched, hairy and often covered in glands that make the plant sticky. As a result, it is common to have sand grains sticking to the leaves, stems and seeds (Image 3). The leaves are oval-shaped (ranging from egg-shaped to lance-shaped), held on short stems. They can be wavy along the edges and may have reddish margins. The leaves are in opposite pairs, one smaller than the other. The inflorescence may have three or many tiny, frilly flowers, each just a few millimetres long. The flowers can be white, pink, red, purple or yellow. The non-fleshy fruits are pear shaped and about 3 mm long. Each fruit contains one seed. The plants develop a stout taproot with a well-developed root system.

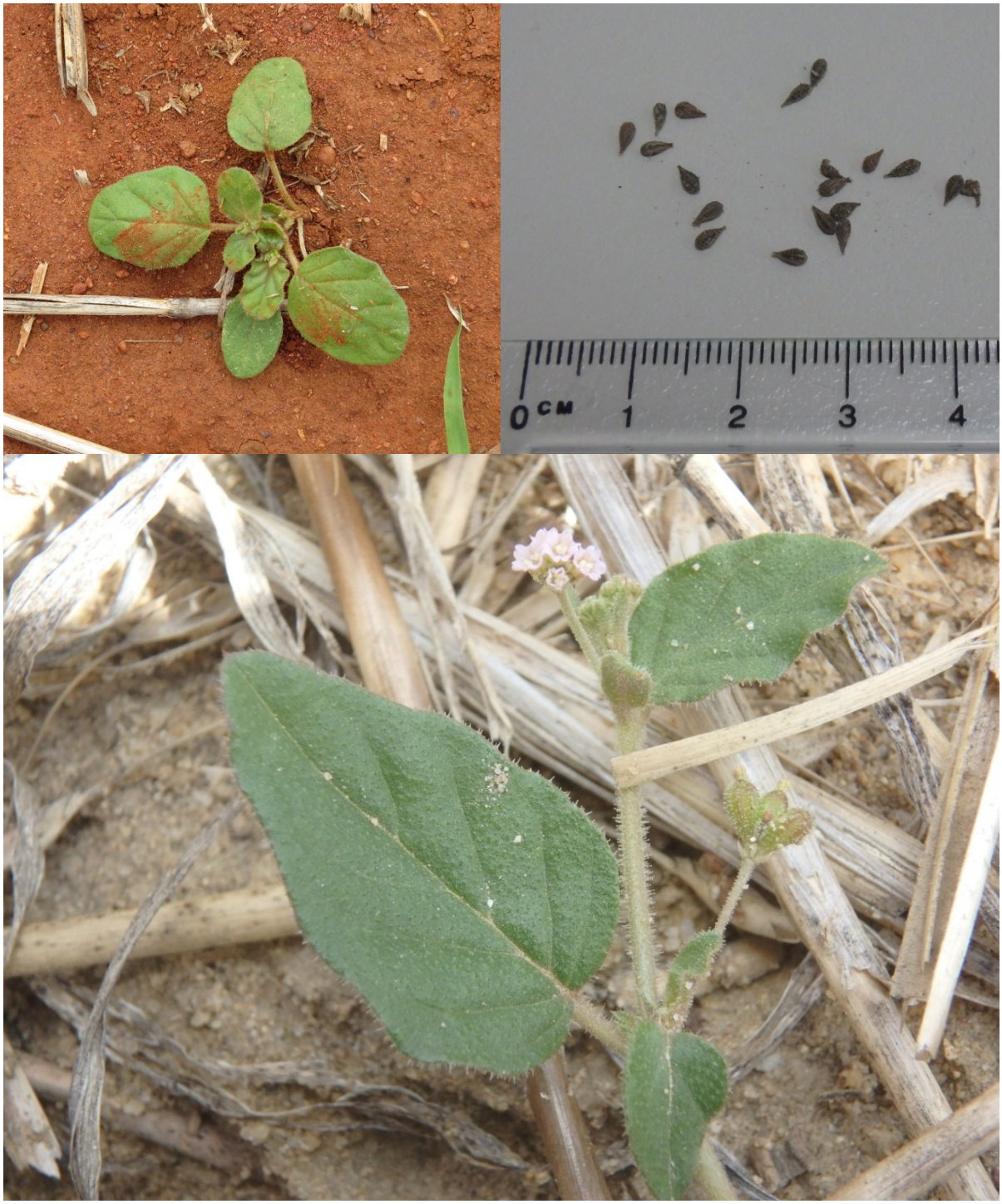

Image 3 – A young tar vine plant (top left), tar vine fruit photographed next to a ruler (top right), and a tar vine branch, showing leaves, flowers and green fruits. Photos courtesy of Catherine Borger and Abul Hashem, DAFWA.

Biology

The optimal temperature for germination is 25^{o}C. Tar vine is generally considered a spring/summer plant, but germination may occur throughout the year, depending on location.

Tar vine seed has initial dormancy. Seed buried at a depth of 2 cm have initial germination of about 10%, and seeds on the soil surface have an initial germination of 1%. Following removal of dormancy, about 70% of the seed germinate. An experiment at Merredin and Northam, Western Australia, demonstrated that tar vine seed germination is highly variable (Image 4). Seed from the same population was placed on the soil surface in November 2014, after it was harvested from tar vine that matured in the spring of 2014. In Merredin, low levels of germination occurred over a period of 1.5 years, in different seasons. In Northam, all germination occurred in the spring of the following year. Therefore, seed may remain dormant for over a year, or germinate in the year following seed production, depending on environmental conditions. Germination may have been more rapid in this experiment if the seed was buried.

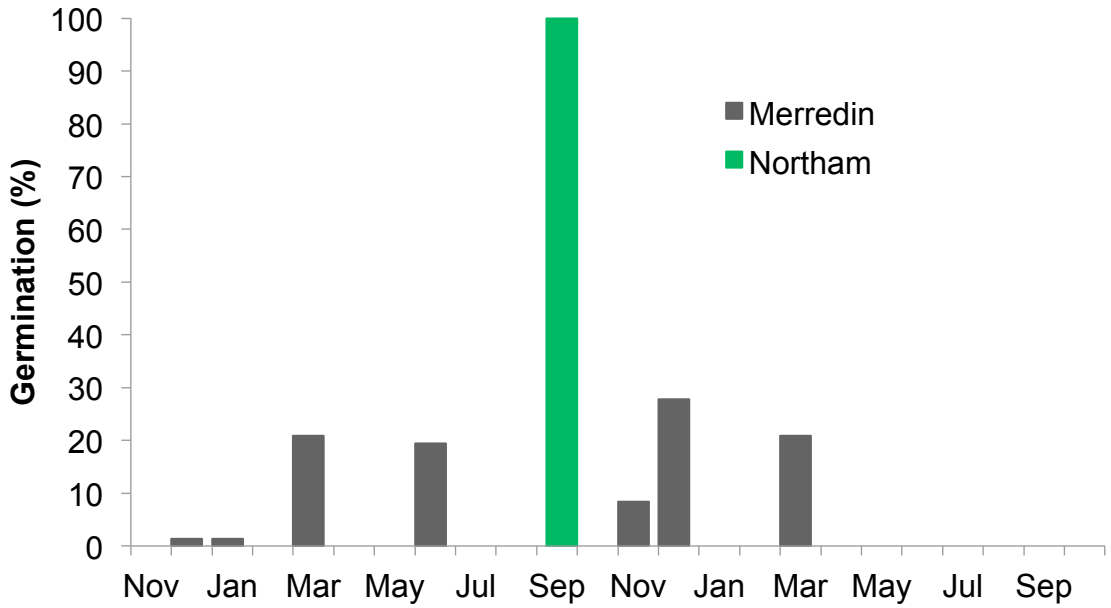

Image 4 – Germination (as a percent of total germination) of tar vine seeds placed on the soil surface at Merredin or Northam, Western Australia, from November 2014 to October 2015.

Following germination, the plants can grow as annuals or perennials. If plants germinate after summer rainfall and run out of moisture, they can produce flowers and set seed 2-3 weeks after emergence. If sufficient moisture is available, plants grow vigorously over spring and summer, but die back to the base in response to cold autumn/winter conditions.

Tar vine grows in a wide variety of habitats, and is found in tropical, subtropical, semi-arid and temperature regions of Australia. However, it is most prolific in disturbed sites. This species disperses via seed movement. As the seeds are frequently sticky, they can attach to livestock or clothing and machinery.

Tactics for integrated weed management

Tar vine is not herbicide resistant, but glyphosate is commonly overused for management over the summer fallow, so resistance may develop.

Knockdown control

Tar vine is difficult to control over summer. A single application of non-selective herbicide is ineffective when used against mature, stressed plants. Glyphosate alone or as tank mix with phenoxy herbicides, followed by Spray.Seed®, effectively controls this weed. Alternatively, glyphosate followed by Para-Trooper® gives good control. If possible, spray plants on a cooler day over the summer fallow. Herbicides will be more effective if the plants are suffering reduced heat stress.

Grazing

Graze infested areas heavily and continuously during spring, summer and autumn. It is unlikely that the oxalate levels in tar vine could cause toxicity, but it may be an issue if stock are in poor condition when introduced to the field. Remove stock if toxicity is suspected.

Burning residue

Tar vine seeds can be destroyed by burning, but sufficient crop residues are needed to achieve a uniform burn.

Cultivation

Strategic cultivation (i.e. mouldboard ploughing) to bury seed is effective. However, buried seed may remain dormant, so it is important to ensure buried seeds are not immediately returned to the surface in subsequent years.

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Other useful links

Summer fallow weed management.
www.grdc.com.au/GRDC-Manual-SummerFallowWeedManagement

Controlling tar vine
http://www.giwa.org.au/2017researchupdates_papers_not_for_presentation

GRDC project UA00149

Important disclaimer