

Identifying Poymeria and other take-all weeds

By Stephen Johnson, University of New England and Australian Cotton CRC

This article focuses on the identification of various take-all weeds, the most important of which is *Polymeria* take-all. The take-all weeds are so named because they appear to 'take all' the water and nutrients available to the cotton plants they compete with.

These weeds are commonly found in dense patches, are nearly all perennial weeds and in some cases have creeping root or shoot systems that may be spread by cultivation. They are widespread throughout the cotton industry and often difficult to control.

Despite these common features, four of the five take-all weeds belong to different plant families. It is important to know which take-all species you have as this has important implications for management.

The article deals primarily with the identification of *Polymeria* take-all but other take-all species are also described so that they can be distinguished. Since there are two different *Polymeria* species that are weeds in cotton crops, the differences between the two species are highlighted. Future articles will contain more information on the biology of *Polymeria* take-all and its impact on cotton yields.

Different *Polymeria* species

There are two different species of *Polymeria* — *Polymeria* take-all and annual *Polymeria* (Photo 1). *Polymeria* take-all (*Polymeria longifolia*) is a difficult-to-control weed species found in many western and northern cotton growing areas (Photo 2). *Polymeria* take-all is also known as *Polymeria*, take-all, Peak Downs curse or clumped or erect bindweed.

It is an erect, perennial plant that is 7–25 cm tall. Most new shoots arise from a depth of 5–20 cm from an extensive, rhizome system found down to 1.5 metres, although a very small number of new plants also arise from seed (Photos 3 and 4). The long narrow leaves and shoots are covered in silky



Photo 1. A comparison between *Polymeria* take-all (*Polymeria longifolia*) on the left and annual *Polymeria* (*Polymeria pusilla*) on the right.

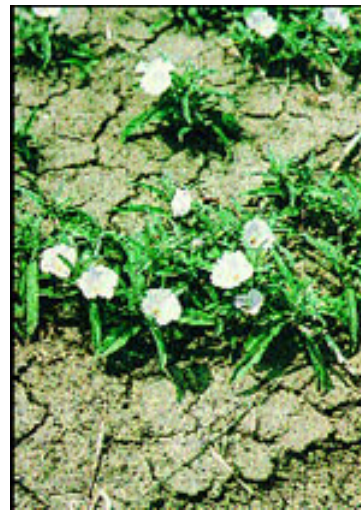


Photo 2. A flowering *Polymeria* take-all plant. Rhizomes underneath the ground connect these plants.



Photo 3. A vegetative shoot of *Polymeria* take-all.



Photo 4. A *Polymeria* take-all seedling (from seed).

hairs and have a grey-green/silver colouration.

The flowers are trumpet shaped, up to two cm long and are pale pink, mauve or white with a yellow centre. Flowering is year round but mainly from spring to autumn with one seed (most common), or two, produced per capsule.

In contrast, annual *Polymeria* (*Polymeria pusilla*) is a troublesome species in some cotton growing areas (Photo 5). Despite its name, annual *Polymeria* is a perennial species that grows all year round in small circular patches upwards in size from 20 cm in diameter.

It produces small, 6–13 mm diameter, trumpet-shaped flowers over summer and autumn. The flowers are pale pink or mauve with yellow centres.

This species only reproduces by seeds that are produced either above or below ground in capsules that are 4–6 mm in diameter and borne on short down-turned stems. There are several herbicides registered for the control of annual *Polymeria* (pyrithiobac sodium, fluroxypyr and picloram/triclopyr mixtures).

Both species appear to grow on heavy clay soils, in areas that may be flooded seasonally. The main difference between the two species is that while *Polymeria* take-all has an erect habit, annual *Polymeria* has trailing stems that root at the nodes.

The leaves of annual *Polymeria* are oblong to oval-shaped (10–30 mm long and 7–20 mm wide) as opposed to the longer and narrower leaves of *Polymeria* take-all (20–70 mm long and 2–10 mm wide). The seed heads of *Polymeria* take-all are always produced above-ground. But the seed heads of annual *Polymeria* may be produced above or below ground.

Different Take-all weeds

Polymeria take-all is one of the most troublesome take-all species. Other take-all weeds include:

- Haloragis take-all and raspweed (*Haloragis aspera* and *Haloragis glauca*);
- Vigna take-all or maloga bean (*Vigna lanceolata*);
- *Crotalaria* take-all (*Crotalaria dissitiflora* var. *dissitiflora*); and,
- Dalton weed (*Senecio daltonii*).

Haloragis species

Various *Haloragis* species can be found throughout cotton farming areas (Photos 6 and 7). These include Haloragis take-all (*Haloragis aspera*), also



Photo 5. A small annual *Polymeria* plant in flower. The stems of this plant are beginning to run.

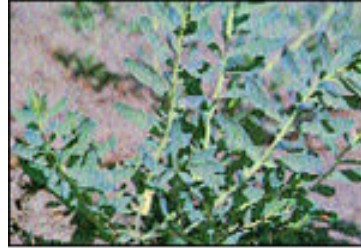


Photo 6. A vegetative *Haloragis* plant.

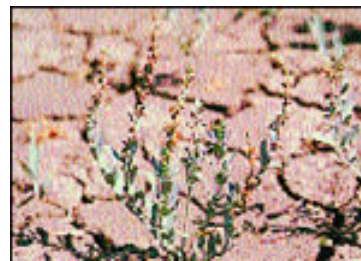


Photo 7. A reproductive *Haloragis* plant. Note the large number of red seed heads at the tips of the branches.



Photo 8. A flowering *Vigna* take-all (*Vigna lanceolata* var. *latifolia*), or maloga

known as rough raspwort or raspweed, and grey raspwort (*Haloragis glauca*), also known as grey raspweed or bluish raspwort. Both of these species have blue/green leaves, are 10–40 cm high with shoots produced annually from a creeping stolon system. The leaves of grey raspwort are 35–45 mm long and 5–8 mm wide, while those of *Haloragis take-all* are 20–40 mm long and 8–15 mm long.

The margins of both plants may have small teeth and those of *Haloragis take-all* may be lobed. The flowers of both species are 2–3 mm long. Those of grey raspwort are green to yellow while those of *Haloragis take-all* are green to red. The seed heads of both plants are globular or pear-shaped and produced from summer to autumn.

Both plants are known to be weeds of cultivation and commonly found on heavy soils, particularly wet areas. Vikki Osten, a Queensland DPI dryland weed scientist based at Emerald, has undertaken a research project into the biology of *Haloragis aspera*.

Vigna take-all

Vigna take-all or Maloga bean is also known as native bean. It is a variable species and there are currently three recognised varieties — *Vigna lanceolata* var. *lanceolata*, *Vigna lanceolata* var. *latifolia* (Photo 8) and *Vigna lanceolata* var. *filiformis*.

Vigna take-all is a twining perennial plant that arises from a taproot and has stems up to two metres long. Each leaf has three smaller leaflets that vary in size and shape.

The leaflets of variety *lanceolata* are lance- to narrow oval-shaped, 2–7 cm long and 3–10 mm wide. The leaflets of variety *latifolia* are oval to wedge shaped, 2–8 cm long and 10–35 mm wide while the leaflets of variety *filiformis* are linear to lance shaped and 4–8 cm long and 2–7 mm wide.

Up to five yellow pea-like flowers, 7–10 mm long, are produced in late spring to summer. The seedpod is 2–5 cm long and contains 4–7 seeds. The plant is a common weed of cultivation on black soils, particularly in wet areas.

Crotalaria take-all

Crotalaria take-all (*Crotalaria dissitiflora* subsp. *dissitiflora*) is also known as grey rattlepod (Photo 9). *Crotalaria take-all* is a perennial species that grows upright to 40 cm, although the stems may sprawl over the ground.

bean plant. Note the runners of this plant, such as those on the lower left of the photo. They can grow up to two metres in length.



Photo 9. A flowering *Crotalaria take-all* (*Crotalaria dissitiflora* subsp. *dissitiflora*), or grey rattlepod plant.



Photo 10. A flowering Dalton weed (*Senecio daltonii*) plant. These plants arise from rhizomes.

The young plant stems are commonly covered in downy hairs. Each leaf has three leaflets that are elliptic or oval-shaped, 15–35 mm long and 6–12 mm wide. Flowering occurs over summer and autumn and the 8–26 cm long flower heads contain up to 30 yellow pea-like flowers. The flowers are 8–11 mm long while the seedpods are 15–30 mm long.

Dalton weed (*Senecio daltonii*) is also known as Dalton's groundsel (Photo 10). This perennial species arises from a rhizome system and grows from 10–50 cm high. The leaves are lance to elliptic in shape, 30–100 mm long and 2–15 mm wide, sometimes with irregular teeth on the margins.

Flowering mainly occurs during autumn with yellow flowers 10–15 mm in diameter. The weed seeds are spread by the wind and the plant is a common weed of cultivation on heavy soils.

Further information

For photos of the various growth stages and information on some of these weed species, refer to the weed identification and information section in WEEDpak. For management information refer to the best bet management and management of problem weeds sections of WEEDpak.

Copies of WEEDpak are now available from Cotton Industry Development (Extension) Officers and directly from the Technology Resource Centre of the Australian Cotton Cooperative Research Centre.

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