Guide to Identifying

Broadleaf weeds in crops.

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**Acknowledgements**  
Thanks to Trevor James, AgResearch for his assistance in compiling this booklet and supplying photographs.

* Photos supplied by Trevor James.  
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Controlling emerged weeds in crops can be challenging. Targeting weeds with herbicides while they are small is ideal as they are more easily controlled at lower rates. This guide is designed to assist with identifying seedling weeds through the shape of their cotyledon and first true leaf shapes.
The weeds are sorted by the general shape of the cotyledons (e.g. round, spear etc). The description of the cotyledons can then be used to further assist with identification.

As shown below the key differentiators are the tip (apex) and base shapes as well as the stalk (or lack of) of the cotyledons. Descriptions of the first leaves are also provided to aid identification.

**APEX**

- rounded
- pointed
- flat
- indented
- notched

**BASE**

- rounded
- indented
- notched
- flat
- tapered
Redroot
(Amaranthus powellii)

COTYLEDONS
Apex slightly pointed, base tapered, stalked.

LEAVES
Oval to rhombic, notched at tip, reddish stem.
Prostrate amaranth
*(Amaranthus deflexus)*

**COTYLEDONS**
Apex slightly pointed, base tapered, stalked.

**LEAVES**
Round to oval, notched.
Bathurst bur
(Xanthium spinosum)

COTYLEDONS
Apex rounded, base tapered, stalkless.

LEAVES
Deeply lobed, lobes spear shaped.
Broad-leaved dock
(Rumex obtusifolius)

**COTYLEDONS**
Apex rounded, base tapered, stalkless.

**LEAVES**
Broad oval, round tip, base flat.
Cornbind
(Fallopia convolvulus)

COTYLEDONs
Apex round with mild point, base tapered, stalkless.

LEAVES
Heart-shaped, indented at the base.
Twin cress
(Lepidium didymum)

COTYLEDONS
Apex rounded, tapered base, stalkless.

LEAVES
First leaves club shaped with long stalks, later leaves single stemmed with multiple leaflets.
Black nightshade
(Solanum nigrum)

**COTYLEDONS**
Apex pointed, base tapered, stalked, hairy.

**LEAVES**
Oval to egg shaped, hairy.
Sow thistle
*(Sonchus oleraceus)*

**COTYLEDONS**
Apex rounded, base rounded, stalkless.

**LEAVES**
Round to oval, finely toothed margin.
Storksbill
(Erodium cicutarium)

**COTYLEDONS**
Violin shaped, apex rounded, base indented, long-stalked.

**LEAVES**
Elongated, lobed.
Wild radish
(Raphanus raphanistrum)

**COTYLEDONS**
Apex notched, base rounded, stalked.

**LEAVES**
Long stemmed, notched with first leaves having leaflets.
Wild turnip
*(Brassica rapa sylvestris)*

**COTYLEDONS**
Apex notched, base flat, stalked.

**LEAVES**
Long stemmed, oval shaped with round tips, shallow notches.
Spurrey
*Spergula arvensis*

**COTYLEDONS**
Very slender, needle shaped, standing diagonally upward.

**LEAVES**
Rod-like, pointed.
Wireweed
(Polygonum aviculare)

COTYLEDONS
Long, apex rounded, base not tapered, stalkless.

LEAVES
Thin spear shaped, rigid.
Apple of Peru
(Nicandra physalodes)

**COTYLEDONS**
Apex rounded, base tapered, stalked.

**LEAVES**
Egg shaped with prominent veins.
Fathen
*(Chenopodium album)*

**COTYLEDONS**
Long and slender, apex rounded, stalked.

**LEAVES**
Oval to egg shaped, sugar-like crystals on new leaves.
Groundsel
*(Senecio vulgaris)*

**COTYLEDONS**
Apex rounded, base tapered, stalkless.

**LEAVES**
Egg-shaped, fleshy, toothed.
Willow weed  
(Persicaria maculosa)

**COTYLEDONS**
Apex rounded, base rounded, stalked.

**LEAVES**
Long spear shaped, often dark spots on upper surface.
Water pepper
(Persicaria hydropiper)

COTYLEDONS
Apex rounded, base rounded, stalked.

LEAVES
Long oval to spear shaped slightly crinkled with pale veins.
Chickweed
(Stellaria media)

**COTYLEDONS**
Light green, apex pointed, base rounded, stalked.

**LEAVES**
Opposite in pairs, ovate with pointed tip.
Cleavers
*(Galium aparine)*

**COTYLEDONS**
Apex notched, base rounded, short-stalked.

**LEAVES**
Lanceolate, broad in front, tapered at the base, whorled.
Mouse ear chickweed
(Cerastium glomeratum)

**COTYLEDONS**
Apex pointed, base tapered, stalkless.

**LEAVES**
Oval with pointed tips, hairy.
Rayless chamomile  
(*Matricaria discoidea*)

**COTYLEDONS**  
Apex rounded to a point, stalkless.

**LEAVES**  
Slender, featherlike with spear shaped leaflets.
Scentless chamomile
(Tripleurospermum inodorum)

**COTYLEDONS**
Apex rounded, base rounded, short-stalked.

**LEAVES**
First leaves broader leaflets, later leaves more slender with multiple leaflets.
Shepherd's purse
(Capsella bursa-pastoris)

**COTYLEDONS**
Apex rounded, base rounded, short-stalked.

**LEAVES**
Early leaves spoon/oblong shaped, stalked.
Stinking mayweed
*(Anthemis cotula)*

**COTYLEDON**
Apex rounded to flat, stalkless.

**LEAVES**
2 or more leaflets on long stalk, leaflets pointed.
Californian thistle

(*Cirsium arvense*)

**COTYLEDONS**
Wide, apex rounded, stalkless.

**LEAVES**
Oval, notched with prickles.
Broad-leaved fleabane
(Conyza sumatrensis)

**COTYLEDONS**
Apex rounded, base rounded, stalkless.

**LEAVES**
Oval, tapered to the base, hairy.
Field pansy
(Viola arvensis)

COTYLEDONS
Apex rounded, base rounded, short-stalked.

LEAVES
Round to oval, sparsely notched.
Henbit
(Lamium amplexicaule)

COTYLEDONS
Apex flat, base notched, stalked.

LEAVES
Heart-shaped, toothed, lower leaf pairs wide apart.
Nettle
(Urtica urens)

COTYLEDONS
Apex notched, base rounded, stalked.

LEAVES
Oval, strongly toothed with stinging prickles.
Staggerweed  
*(Stachys arvensis)*

**COTYLEDONS**  
Apex indented, base flat, stalked.

**LEAVES**  
Heart-shaped, toothed, hairy.
Bitter cress  
(*Cardamine hirsuta*)

**COTYLEDONS**
Apex indented, base flat, stalked.

**LEAVES**
Broad oval becoming deeply notched with extra leaflets on stalk.
Buttercup - creeping
(Ranunculus repens)

COTYLEDONS
Apex blunt, base flat, stalked.

LEAVES
Round becoming deeply divided into three toothed leaflets.
Large-flowered mallow

*(Malva sylvestris)*

**COTYLEDONS**

Apex flat, base indented, stalked.

**LEAVES**

Round with irregular notches, indented at the base.
Speedwell - scrambling  (Veronica persica)

**COTYLEDONS**
Apex rounded, base flat, stalked.

**LEAVES**
Triangular shaped, notched at the edges.
Fumitory
(Fumaria spp)

COTYLEDONS

LEAVES
Long stalked with 3 leaflets. Featherlike.
Thorn apple
\( (Datura stramonium) \)

**COTYLEDONS**

**LEAVES**
Broad arrow shaped, later with blunt teeth.
Wild carrot

(*Daucus carota*)

**COTYLEDONS**
Narrow, apex pointed, base tapered, stalked.

**LEAVES**
Deeply dissected and fern-like.
Yarrow
(Achillea millefolium)

**NO COTYLEDONS**
Usually grows from root fragments.

**LEAVES**
Long and feather-like.
Phoma leaf spot and root rot

*(Phoma betae)*
Phoma leaf spot and root rot
*(Phoma betae)*

This disease can cause leaf spots on the foliage and rots in bulbs.

**LEAF SPOT SYMPTOMS:** Individual leaf spots are light brown and circular to oval with dark concentric rings. Favoured by periods of high humidity and warmer temperatures (above 15°C).

**ROOT ROT SYMPTOMS:** First symptoms are wilting of foliage and dark brown spots appearing on the crown. From these spots a soft watery rot appears which spreads into the bulb. Rotted tissue becomes dry, dark brown and shrunken.
Beet yellows virus
There are number of beet yellowing virus diseases that can be yield-limiting with the symptoms often being difficult to differentiate in the field. Beet Yellows Virus (BYV) is the most common and considered to be the most yield limiting. Symptoms are yellowing of the leaves between the veins which can spread through the entire leaf. Leaves can become thicker and then brittle. Beet Yellowing viruses are transmitted by aphids.
Ramularia
(Ramularia beticola)
**Symptoms:** First appears as brown-grey spots on older leaves. Mature lesions have a dark brown margin with silvery-white centers. With magnification white sporulation can be visible from spots. Favoured by cooler weather (17°C) and high humidity.

**Control:** Escolta has a label claim for the control of Ramularia in fodder and sugar beet crops in New Zealand.
Cercospora leaf spot
(Cercospora beticola)
SYMPTOMS: Individual circular leaf spots (3-5 mm). Spot centers are light brown with darker brown to reddish-purple borders. Black sporulating spots can be seen (with magnification) under high humidity conditions. Severe infections result in browning of leaves with the crop having a burnt appearance.

Favoured by higher temperatures and high humidity.

CONTROL: Escolta has a label claim for the control of Cercospora in fodder and sugar beet crops in New Zealand.

TECHNICAL UPDATE: In 2018/19, Cercospora resistance to Qol fungicides was found in beet crops in a small number of NZ locations. If Cercospora resistance is present in your crop, and conditions favour disease development, Escolta may not always provide control, but it will continue to control other important diseases, leading to profitable yield increases. For more information, go to www.cropscience.bayer.co.nz/escolta
Rhizoctonia
(Rhizoctonia solani)
Rhizoctonia
(Rhizoctonia solani)

A soil-borne disease which is present in soils throughout New Zealand. Early infections can result in browned off foliage and plant deaths resulting in gappy crops. Bulb infections can occur in the crown of plants or through tap root infections. Tip root infections cause browning at the tip which spreads up through the bulb causing internal rots through the whole bulb.

Is more severe in heavy, poorly drained and wet soils.
Bacterial leaf blight
(Pseudomonas syringae pv apata)
Bacterial leaf blight
(Pseudomonas syringae pv apata)

**SYMPTOMS:** Irregular shaped to circular spots with tan centres and dark to black borders. Often coalesce resulting in a blighted look. Leaf margin infections result in large brown lesions with yellow spreading margins.

Favoured by prolonged cool to warm (10-25°C) wet conditions.
Powdery mildew

(Erisyphe betae)
**SYMPTOMS:** White powdery covering on leaves. More commonly on upper leaf surfaces. Seen on older leaves first. Favoured by high temperatures (>20°C) and dry weather.

**CONTROL:** Escolta has a label claim for the control of powdery mildew in fodder and sugar beet crops in New Zealand.
Rust
(Uromyces beticola)
Rust
(Uromyces beticola)

**SYMPTOMS:** Small circular (1-2 mm) raised pustules that are red-orange or brown colour. Favoured by moist and mild weather (15-20°C) with overnight dews.

**CONTROL:** Escolta has a label claim for the control of rust in fodder and sugar beet crops in New Zealand.
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Introduction

The diseases in this guide are globally common diseases of beet crops. Some of the diseases are commonly seen already in New Zealand but others are yet to be identified as being present here.

Acknowledgements

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