

Selective weed control



Graham Paul's latest BASIS article looks at unusual turf weeds and how to identify them



With spring weather hopefully around the corner, maybe it's time to consider some strategies for selective weed control. In the UK there are over 50 species of broad-leaved weeds that can be found in mown turf.

Some species will be affected by mowing closer than they can tolerate, so these will only survive in more natural, less intensively managed areas. Coastal environments support a number of salt tolerant plants (halophiles) such as Buck's-horn plantain (*Plantago coronopus*) and Thrift (*Armeria maritima*) that are not normally found inland. Soil type, pH and the availability of water will reduce the list still further.

The first step in selective weed control is to identify the weeds present. Starting with seaside plants, 'bathed' in the salty mists that pervade coastal habitats. Their ability

to survive in this environment is due to a genetic adaptation that allows them to withstand conditions of high salinity. The salt mist coming from the sea will increase the levels of sodium chloride in the soil, which is then absorbed by the roots and accumulates in plant tissues. Abnormally high levels in plant cells will seriously affect the movement of water across cell membranes and as a consequence, growth is slowed or halted completely. This osmotic imbalance can cause the 'stunted growth habit' that some species exhibit in coastal regions or it can eliminate them altogether.

Three other weeds occasionally found in coastal turf include; Sea Plantain (*Plantago maritima*) similar in appearance to Ribwort Plantain but with narrower fleshy leaves, Sea Milkwort (*Glaux maritima*) a creeping perennial weed with stalkless fleshy leaves and



pink flowers and lastly Sea Stork's-bill (*Erodium maritimum*), which has simple lobed leaves and small pale pink or white flowers that rapidly lose their petals.

These species fall into the category of 'unusual turf weeds' and are relatively easy to control with what I have termed the 'general purpose' selective herbicides.

These are a group of similar products that contain MCPA, mecoprop-P and dicamba such as

MAIN ABOVE: Thrift *Armeria maritima*

INSET ABOVE: Plantain - Bucks Horn *Plantago coronopus*



Longbow', 'Relay', 'Re-Act' or 'T2 Green'.

The common Dandelion (*Taraxacum officinale*) gets its name from the corrupted French description of the leaves ('dents de lion' – lion's teeth) but natives of France may also know this weed by the name 'pis en lit' – a reference to bed wetting that myth tells us can result from picking dandelion flowers! Most people can identify a dandelion but there are several other lookalikes that produce a similar single yellow flower-head, which can fool the untrained eye when the weed is found in mown turf. The first of these; Cat's-ear (*Hypochaeris radicata*) has fleshy, lobed, hairy leaves that (with a bit of imagination) resemble the 'fight-torn' ears of a tom cat! I have seen many different species of cat but never one with green ears! The flower stalk is quite different from a dandelion; being thinner, wiry and bearing a few scale-like dark-tipped bracts.

Cat's-ear is relatively easy to control with most general purpose selective herbicides but some products may require a further application.

The next of the dandelion 'look-

alikes' are the Hawkbits; Autumn Hawkbit (*Leontodon autumnalis*) and Rough Hawkbit (*Leontodon hispidus*). Rough Hawkbit is a very hairy plant in contrast to Autumn Hawkbit; which has more slender, often hairless leaves. Rough Hawkbit has un-branched flower stems whereas Autumn Hawkbit can have two or three branches in its flower stems.

These two Hawkbits can be controlled by with two applications of products containing MCPA, mecoprop-P and dicamba at a rate 3.5L/ha, such as 'T-2-Green' or 'Re-Act'

Another dandelion flower 'look alike' is Mouse-ear Hawkweed (*Pilosella officinarum* – formerly *Hieracium pilosella*) This perennial herb has long leafy runners and produces a rosette of grey-green leaves that have soft, dense, short white hairs on the underside and long stiff hairs on the upper surface.

The florets have red stripes on the under surface.

The leaves are quite different from the dandelion but the flowers can appear similar when fully open because the red stripes are not visible from above. Mouse-ear Hawkweed is fairly easy to control



with products containing 2,4-D, MCPA and mecoprop-P.

Selective herbicide products are usually formulated from two or more active ingredients in order to extend the spectrum of control to deal with as many turf weeds as possible in one spray. Manufacturers try to match the weaknesses of one active ingredient with strengths of another, to create a 'one product' answer to weed control in turf.

However, due to the diversity of weeds found in managed turf situations, the quest for complete control has so far been elusive. Further-

MAIN ABOVE: Hawkbit Autumn Composite

INSET ABOVE: Cats Ear Composite



MAIN ABOVE: Medick - Spotted
Medicago arabica

INSET ABOVE: Black Medick
Medicago lupulina

RIGHT PAGE BOTH IMAGES:
Speedwell - Ivy Leaved
Veronica hederifolia

more, repeated use of products that leave some weeds uncontrolled can, over several seasons, lead to domination by these resistant species. Two weed groups spring to mind in this respect; the yellow clovers and the speedwells can both increase in numbers to the extent that the small flowers become highly visible, requiring specialist herbicides to remove them.

The yellow clovers are all members of the pea family (Fabaceae); three species of Trefoils and two species of Medick. These five species can all be found in UK turf and are fairly difficult to control and even more difficult to identify!

To distinguish between the three yellow trefoils look for leaf hairs, leaf size and the number of flowers in the flower head.

- Hop Trefoil (*Trifolium camp-est- re*) has sparsely hairy leaves and has 25 to 40 flowers per head.

- Lesser Trefoil (*Trifolium dubium* – also known as yellow suckling clover) has similar sized leaves to Hop Trefoil but they are usually hairless and there are between 15 and 25 flowers per head.

- Slender Trefoil (*Trifolium micranthum* – also known as Least Yellow Trefoil) has smaller leaves and flowers with only 2 to 10 flowers in the flower heads.

The yellow trefoils are best controlled with specialist selective herbicides containing mixtures with fluoxypyr such as 'Cabalex', 'Praxys', 'Swiftsure' and 'Trafalgar'. The general purpose products will give some control but re-growth

from early treatments may require a second spray.

The two species of Medick have similar shaped leaves and flowers to the Trefoils. Spotted Medick (*Medicago arabica*) has obvious dark spots on the leaves that easily separate it from all of the others.

Black Medick (*Medicago lupulina*), a perennial, can be distinguished from the yellow trefoils by its 'mucronate' leaf tips. These are short, abrupt points on the end of the leaf mid-vein. The seed pods are kidney shaped and turn black when ripe.

Black Medick can be controlled with the general purpose products at the highest dose (where a range of rates is recommended) but retreatment may be necessary in some cases. Best control is indicated with the specialist herbicides suggested for the yellow trefoils. Spotted Medick may also respond to these recommendations but I could not find a label or other reference to confirm this.

Speedwells are members of the genus *Veronica*, which includes about 15 UK species, many of which are found in turf and will require specialist selective herbicides to control them. All speedwells have flowers with only 2 stamens but vary considerably by the leaf shape, size, hairiness and by the colour of the flowers; which can range from deep blue to lilac, with some that are almost white.

The more common varieties found in turf include; Slender, Ivy-leaved, Thyme-leaved and

SELF ASSESSMENT

Use the questions below to check your understanding of this topic. Readers can claim BASIS points if the questions are answered correctly

1) What is the term used for salt tolerant plants?

- a) Halogenic, b) chlorophile, c) halophile, d) osmotrope

2) Alongside the weed Autumn Hawkbit, which other member of this family was mentioned?

- a) Rough Hawkbit, b) Smooth Hawkbit, c) Lesser Hawkbit, d) Mouse-ear Hawkbit

3) What term describes a leaf or bract with an abrupt point at the tip?

- a) Periodate, b) stylate, c) dentate, d) mucronate

4) What characteristic do all Speedwells have in common?

- a) Blue flowers, b) hairy leaves, c) they are all annuals, d) flowers have only 2 stamen

5) Yellow clovers found in turf are all members of which botanical family?

- a) Figwort (Scrophulariaceae), b) Pea (Fabaceae), c) Carrot (Apiaceae), d) Rose (Rosaceae)

“Most speedwells flower very early in the spring so they are often difficult to control before the flowering stage”



Germander Speedwell. The latter, Germander Speedwell (*Veronica chamaedrys*), has two opposite lines of long hairs on the stem and is notoriously difficult to control, with frequent reports from users of re-growth after 6 weeks of treatment with some products.

Other species occur in local environments and particular habitats such as Marsh and Heath Speedwell. Like the yellow clovers, if they are left uncontrolled by general broad spectrum herbicides, they can proliferate to the point that they dominate the sward. Most speedwells flower very early in the spring (March/April) so they are often difficult to control before the flowering stage.

The majority of speedwells can be controlled with specialist selective herbicides containing fluroxypyr, for instance; ‘Cabadex’, ‘Praxys’, ‘Swiftsure’ and ‘Trafalgar’. The dual purpose moss control product ‘Jewel’ that contains carfentrazone-ethyl and mecoprop-P will also give moderate control of speedwell species.

Tank-mixing to increase weed spectrum

In circumstances where the weeds present in turf include deep rooted or difficult to control weeds

such as thistle, speedwell or yellow trefoils then it may be prudent to treat the area with a tank-mix to extend the capabilities of a general purpose product such as ‘Relay’ or ‘T-2-Green’ with another amenity approved product.

To achieve control of deep-rooted weeds, consider using a mix with a product containing 2,4-D amine, such as ‘Depitox’. Difficult weeds, for example speedwell or yellow trefoil would require a mix with one of the specialist herbicides referred to in the relevant sections above.

In order to stay legal when tank-mixing it is important to stick with the following guidelines:

- Check with your supplier that the proposed mixture is suitable for the intended use. A supplier offering to support a mix should have tested it and will know if there are any compatibility issues or effects on the performance of the products.
- Note that when mixing two or more pesticides in a tank-mix all conditions of approval on all of the product labels and safety data sheets must be complied with.
- If any product in the mix is subject to a LERAP requirement, then this applies to the tank-mix as well.

