Weed control in sugar beet – 'must know'

(to be used in conjunction with the BBRO Reference book)

Planning is key

Taking time to discuss weed control before drilling is time well spent. Consider the following when planning in your weed control strategy:

- Look at the history of fields going into sugar beet and note the weed species expected. Take into account the sprayer capacity and how much flexibility you have.
- Review previous years weed control – what did and didn't work.
- Conventional or SMART varieties? Monitor the presence or absence of Beet Cyst Nematode (BCN), ALS resistance and weed beet when making varietal choices for individual fields.
- Will you use a pre-emergence herbicide?
- What products are available; should you use straights or formulated products, what fits best for your situation and is there any cost benefits of one over the other.
- Costs – what will your weed control strategy cost?
- Identify problem weeds e.g., mugwort, barnyard grass, nutsedge, amaranthus to create a long-term control strategy across the farm.
- Cultural control – what opportunities are there, aim to use sugar beet as a 'cleaning crop'.

Key herbicide actives for annual broad leaved weed control

There are three key actives for conventional weed control in sugar beet, ethofumesate, metamitron and phenmedipham. These three actives should form the 'building block' of a weed control programme.

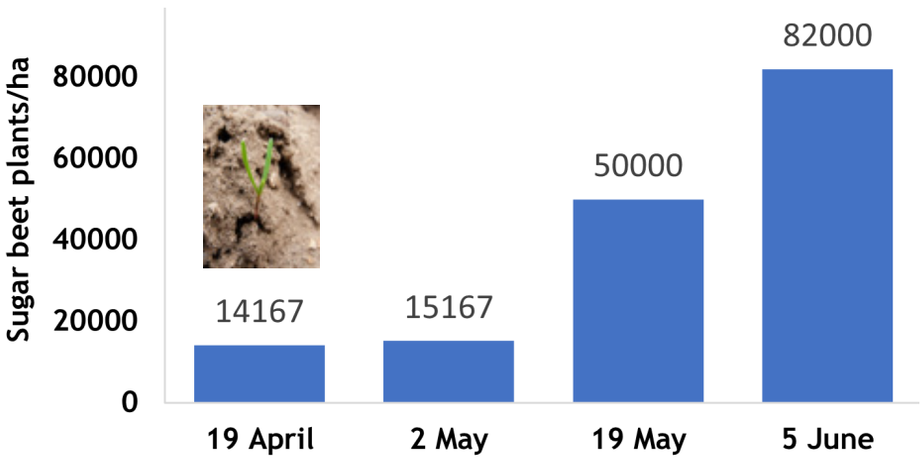
Active	Strengths	Timing
ethofumesate	Cleavers, Knotgrass, Black bindweed	Pre and post emergence, contact and residual
metamitron	Mayweeds, Knotgrass, Annual nettle, Fat-hen, Annual meadow grass	Pre and post emergence, contact and residual
phenmedipham	Black bindweed, Fat-hen, Charlock, Ivy-leaved speedwell	Post emergence, contact

Other conventional herbicide actives available which can be 'added in' according to weed species present are triflusulfuron-methyl, lenacil, clopyralid, quinmerac, clomazone and dimethenamid-p. Currently quinmerac and dimethenamid-p are only available in co-formulations.

The actives foramsulfuron and thiencarbazone-methyl make up Conviso One and can only be used on SMART varieties. One application is permitted at 1.0 L/ha. As from 2025 supported tank mixes of Conviso One with conventional chemistry will be permitted (refer to labels).

Variable crop emergence – what do you do?

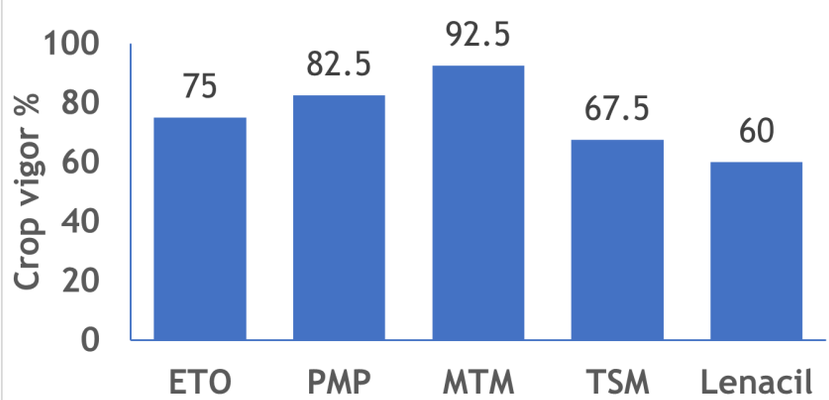
In some seasons sugar beet and weeds do not all emerge together as illustrated in graph (right). On the 19th April the beet field population was under 15K plants/ha but knotgrass was emerging. Seed that had not emerged was checked for viability, using a hand lens and germination tests carried out (damp kitchen roll in a warm environment). As beet seed yet to emerge was still viable, herbicide applications commenced in mid-April. **Don't delay starting weed control programmes if problem weeds have emerged.** Metamitron is very kind to the crop and can be applied at any growth stage and is useful where a 'holding spray' is required.



Factors impacting on herbicide activity

Soil pH, soil structure, weather, spray intervals, water quality, spray quality, tank mixes, adjuvants, weed susceptibility and size can all influence how well herbicide programmes work.

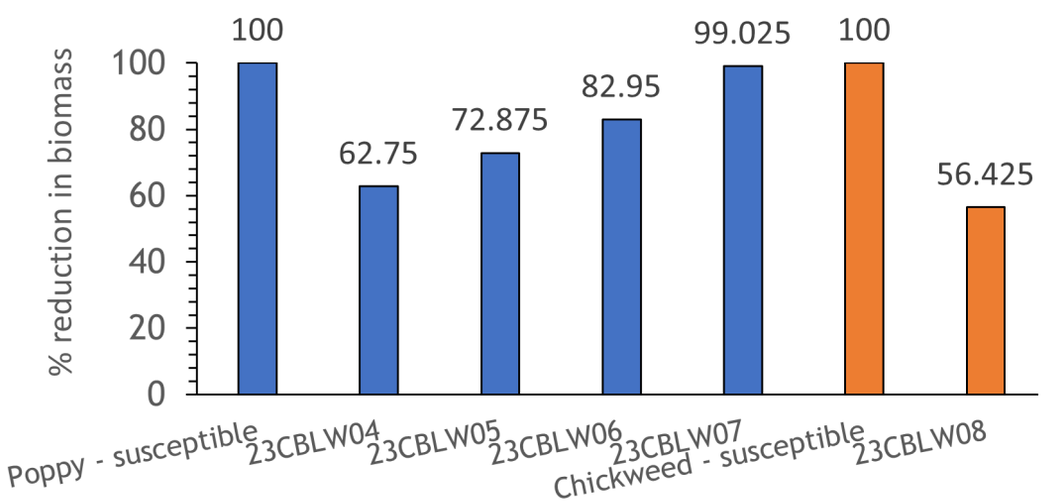
In 2024 the active lenacil was 'accused' of damaging some sugar beet crops – but it was not totally to blame. The graph below shows crop vigour scores after ethofumesate, phenmedipham, metamitron, triflusulfuron-methyl or lenacil were applied at the T1, T2 and T3 timings. Metamitron is known to be safe to the crop and is a useful active to use where crops are stressed and a 'holding' spray is required. Triflusulfuron-methyl and lenacil are known to be harder on the crop, as is clopyralid (not shown) and these actives need to be treated with respect. Lenacil should still have a place in herbicide programmes, but avoid using high rates or complicated tank mixes at early timings, or where the crop is under stress.



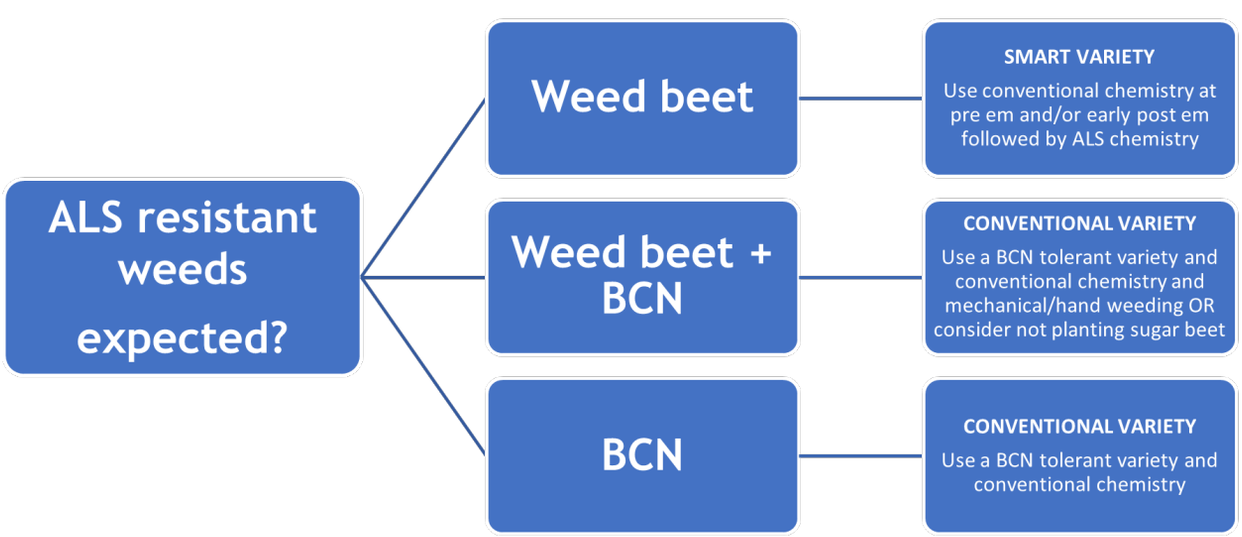
Active	Strengths
Lenacil	Brassica species, black bindweed, knotgrass
Can only be used post emergence and has residual activity. Avoid applying if heavy rainfall forecast.	

ALS resistance – an increasing problem?

There has been confirmed cases of ALS resistance in UK arable crops for some years but only recently identified in the sugar beet crop. In 2024 ADAS carried out a screen on weed seed taken from 5 different sugar beet fields, signs of resistance were confirmed at 4 of the sites. Where resistance to ALS chemistry is suspected or has been confirmed then use conventional herbicide chemistry or where Conviso One is still going to be used incorporate conventional herbicide chemistry into the programme as well.



Weed beet and BCN should be taken into account as well as ALS resistance when making variety choices and deciding on herbicide programmes. Follow the flow chart below to help make decisions if ALS resistant weeds are expected or confirmed.



Black-grass control

Apply glyphosate +/- 2,4-D prior to drilling sugar beet to remove black-grass and any other weeds present.

Pre-emergence

- Ethofumesate 500 g a.i/ha + metamitron at least 700 g a.i/ha
    - Apply metamitron at rates appropriate to annual broad-leaved weeds expected.
    - Ensure sufficient ethofumesate is available for post-emergence applications. Remember the restriction of 1000 g a.i./ha in any 3-year period applies.

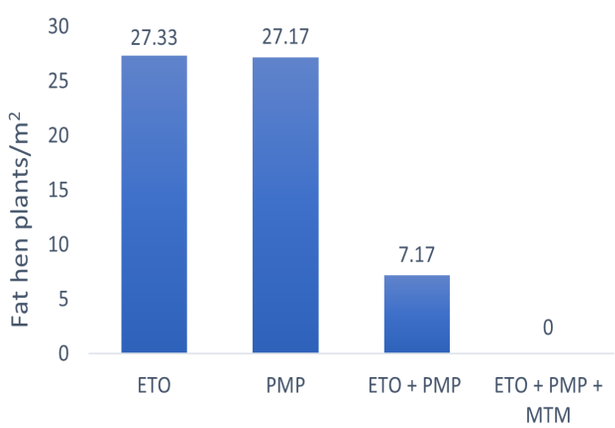
Post emergence

- Clethodim – can be applied from crop cotyledon fully expanded make sure black-grass is actively growing.
    - Don't tank mix with annual broad-leaved herbicides, use a water conditioner.
    - 120, 180 and 240 g a.i./litre formulations are available check labels for rates. The 240 g a.i. formulations have a maximum label rate of 0.75 l/ha that will apply 180 g/ha of clethodim.
- Use ethofumesate +/- triflusulfuron-methyl
    - Apply at rates appropriate to crop growth stage and annual broad-leaved weeds present
    - Triflusulfuron-methyl will have an effect on ALS sensitive black-grass strains

Where Conviso One is being used, it is likely that clethodim will still be required to give adequate control of black-grass.

Fat hen – it can grow to nearly 3m

Controlling fat hen is a priority for many sugar beet growers, being a tall weed, it is also very competitive. BBRO trials have shown that the use of the three actives ethofumesate, metamitron and phenmedipham + adjuvant applied at the correct rates, time and intervals can give adequate control of high populations of fat hen. The results below are from a trial where ethofumesate 150g + metamitron 700g + phenmediphamn 320g + adjuvant /ha applied at T1, T2 and T3 gave complete control of fat-hen. In the untreated plots fat hen numbers reached 44 plants/m^2.



INFO COMPILED BY PAMELA CHAMBERS - BritishSugar