Weed beet

Key points

- *Just one weed beet or bolter per square metre can reduce crop yields by 11% through shading and competition for water and nutrients*
- *Weed beet host pests and diseases such as beet cyst nematode, rhizomania and foliar diseases.*
- *On average 1,500 viable weed beet seeds are produced per weed beet plant*
- *On a 70 t/ha crop where this intensity of weed beet and bolters have not been controlled the yield penalty is eight adjusted t/ha*
- *Control costs increase rapidly with weed beet numbers and a control strategy should be in place prior to drilling*
- *Seed which is ploughed in becomes dormant and can remain viable in the soil for twenty plus years*
- *Lengthening the rotation can reduce the numbers of weed beet present in the sugar beet crop*
- *Ask your British Sugar Contract Manager for details of weed beet contractors*

Physical control - key stages of weed beet control

Pre-flowering

Post pollination

At this stage weed beet and bolters should be pulled, have the stem broken close to the root and left on top of the crop to die.

After flowering, plants will potentially have set seed and should be removed from field to prevent mature seed falling in the field.

Open flower

Maturing seed

Where a severe problem is expected, consider delaying drilling to allow weed beet to be controlled in a stale seedbed with a non-selective herbicide or sow a herbicide tolerant variety (Conviso Smart). Choose a variety with a low bolting characteristic (particularly with early drilling), as uncontrolled bolters can produce large quantities of seed and reduce yield by shading.

Control methods

Tractor hoeing

Is most effective before the weed beet have more than four leaves, as the chance of resetting is reduced.

Hand pulling

Is the most effective method of control, remove plants from the field if they have completed flowering – 'if in doubt, carry them out'.

Weed wiping

Should be completed by the time roots are of a harvestable size to avoid rotten weed beet reaching the factory or causing contamination in storage.

Cutting

Is the least effective method but the only real option where levels of weed beet and bolters are above 10,000/ha. If cutting is done using an efficient three cut programme, high levels of control can be achieved. Two cuts will be less effective. When harvesting, aim to minimise losses, as crowns and whole roots left in the ground can flower and set seed in following crops.

Delay cultivations after harvest as around 60% of seed can be eaten by birds and mice.

Herbicide tolerant technology – CONVISO® Smart

The CONVISO® Smart herbicide tolerant technology system is proving to provide effective control of weed beet but the timing of the herbicide is key and sometimes a delayed application of CONVISO Smart herbicide following an initial conventional 'holding' spray is the most effective approach. The system involves herbicide tolerant varieties used in conjunction with CONVISO ONE, a dedicated herbicide based on ALS inhibitors and a formulation of formasulfuron and thiencarbazone-methyl. The system aims to reduce the number of herbicide applications necessary to control weeds with minimal associated effects on sugar beet plants. Understanding your target weed species and getting the timing correct is key to the successful use of the technology.

Dose rate is a single application of 1L/Ha applied in 150-300 L/Ha water.

Timing of application is linked to key indicator weed species such as fat hen at the 2-4 true leaf.

Stewardship

- *The CONVISO® Smart system requires a 10-metre aquatic buffer zone*
- *At planting, thorough cleaning out of the drill is essential when switching between varieties, as is marking and recording each variety location*
- *Plan for bolter removal from every field, this may involve going through the crop multiple times*
- *For spraying, thorough cleaning of the tank using a proprietary spray cleaner when switching between Conviso One and conventional sprays is essential*
- *Post-harvest, ploughing is recommended following a Conviso® Smart sugar beet crop, monitor groundkeepers that are showing signs of new growth, and use a non-ALS-based herbicide to treat.*
- *For following crops, please refer to label or Bayer/KWS and your agronomist for guidance*