British Beet BBRO Research Organisation

Advisory Bulletin

Issued: 22nd May 2023

IN BRIEF

- Winged *Myzus persicae* numbers continue to increase across the BBRO yellow water-pan trap network.
- Counts of wingless green juvenile aphids on plants are now also increasing.
- To date, reports of threshold (1 wingless aphid per 4 plants) being reached are relatively low (only 3 of the 46 BBRO monitoring sites at the end of last week) but this is expected to increase this week.
- Non-Cruiser treated crops will require a foliar insecticide at an early stage and should be checked for wingless aphid numbers **now**.
- EA approval for the use the insecticide Movento on sugar beet for control of aphids has now been received. This product can only be used as a third spray on **non-CruiserSB** treated crops, once the other insecticides (InSyst and Afinto or Teppeki) have been applied. Check conditions relating to this EA approval on the BBRO website.
- Cruiser SB treated crops should be protected against aphids for approximately 8-10 weeks from drilling, we recommend that crops should be checked from 8 weeks onwards after drilling.
- Warm weather is resulting in vigorous leaf growth on spoil heaps, sites of last season's beet clamps and groundkeepers. These are a potential source of both aphids and virus as well as other diseases and should be controlled as a matter of urgency.
- After a period of slow crop leaf development, warmer and drier conditions will encourage better crop canopy growth. Make sure nutrients are applied in a timely manner and herbicides are applied carefully to avoid any leaf damage.

Fig 1: Beneficial insect numbers are also increasing, ladybird above enjoying aphid lunch.

Advisory

It is essential to check non-Cruiser treated crops for aphids. Winged adult activity is increasing. To date, three species have been confirmed in sugar beet: the peach-potato aphid (*Myzus persicae*) the potato aphid (*Macrosiphum euphorbiae*) and the black bean aphid (*Aphis fabae*). *Myzus persicae* is the key species as a vector of virus.

For more info on aphid identification see https://www.bbro.co.uk/media/50728/aphid-id-home-print.pdf

Wingless juvenile numbers are also increasing, especially in non-Cruiser treated crops. These can be produced very quickly once the adult females have landed on a leaf. They grow rapidly passing through four development stages (instars) with the juveniles moulting their exoskeleton between each instar stage. The growth rate depends largely on temperature. On average, juveniles reach adulthood and can fly and move to other areas of field, potentially spreading the virus and producing more offspring within 10 days of birth.

Control of wingless juveniles is key to reducing their further spread of virus both within crops and to other sugar beet crops.

Aphid monitoring

The BBRO website provides a guide to the number of aphids in your area. Wingless aphids are being counted on plants at 46 sites. The majority of these were drilled with non-Cruiser treated seed. On average, the number of wingless aphids has been below the threshold for application but **numbers are now increasing and there will be an increasing number of sites where the threshold for a foliar insecticide has been exceeded** (please refer to the BBRO website for latest information Aphid Survey Dashboard - BBRO).

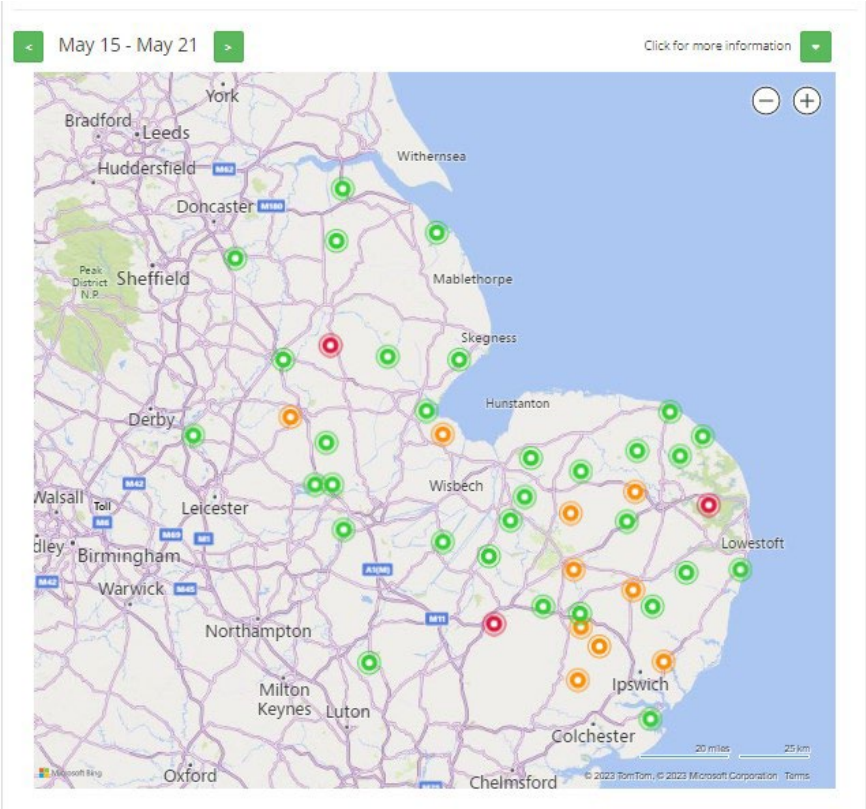


Fig 2: Aphid survey map as of 21st May 2023

Remember that the BBRO network is a general guide to aphid numbers. We know that these can vary massively between fields. It is essential therefore that you assess your individual crops for aphids.

You need to do this at several locations across each field to gain a good average for the field. Because of the prolonged drilling season, you may have fields at various stages of emergence and early canopy growth. Finding a single common application date for all fields may be a challenge and going either too early or too late for some crops may compromise efficacy and the number of foliar applications you can make.

Be careful to make sure you check for aphids on the heart leaves, within the folds at leaf margins and on the underside of leaves.

Aphids are not evenly distributed across fields. When checking for aphids in crops, check sheltered field margins, especially the leeward (downwind) of shelter belts and the leeward side of any hills and in hollows. This is where aphids can often be found in greater numbers. Also, if there is oilseed rape grown in proximity, check in areas of the field nearest to this as this may be the local source of aphids.

Triggering the use of foliar insecticides

At this stage of the season the threshold trigger for spraying is 1 green wingless aphid per 4 plants (5 green wingless aphids per 20 plants).

Where plants are still emerging or are small (cotyledon/1-2 true leaves) you might want to consider the timing of the first application to ensure there is sufficient leaf area to maximise the efficacy and uptake of the aphicide by the plant.

Available aphicides: InSyst and Teppeki or Afinto (only one application of either flonicamid-based product is permissible) and now Movento. Where a foliar insecticide is required in non-Cruiser crops, we recommend starting with Insyst for faster knockdown and then using Teppeki/Afinto as a second spray. Movento must be used as your third spray option.

Remember Cruiser-treated crops should be protected for up to 8-10 weeks from drilling so should not require a foliar insecticide at this stage. Make sure you have the drilling date of each crop recorded so you are clear on where aphid monitoring is a priority.

Late drilling/re-drilling Cruiser SB-treated sugar beet seed

Please remember that it is a condition of the EA that **no** Cruiser SB-treated seed can be used after 1 June 2023. Additionally, **no** Cruiser SB-treated seed may be used on the same field area for 46 months from the date of sowing treated sugar beet seed in 2023. This means no re-drilling with Cruiser SB-treated seed.

Weed control.
With a range of drill dates and warm soil with plenty of moisture, ‘keeping on top’ of weed control especially in conjunction with application of foliar insecticides is a challenge. Pam Chambers of British Sugar has compiled some key advice below:

1. Physical tank mixes are supported for annual broad-leaved herbicides and insecticides but ideally, they should not be applied together. Insecticides require a minimum of 200 l/ha of water whereas ABLW herbicides are likely to perform better at 80-100 l/ha with a fine spray.

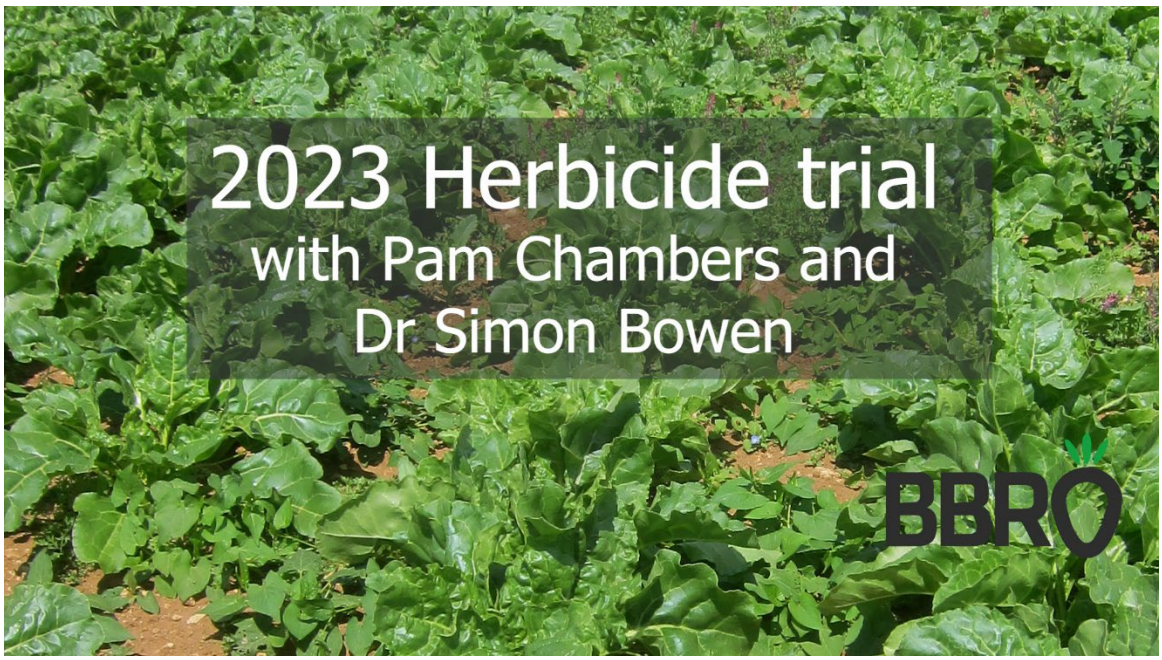
2. A tank mix of graminicide and insecticide is a better option as both require 200 l/ha water volume and coarser sprays.
3. If temperatures increase to the predicted 20°C plus, then avoid spraying herbicides in the middle of the day especially if cloud cover is absent. Aim to spray in the evening or early morning. Beet and weeds are likely to be sensitive to herbicides when conditions are warm, moist, and humid.
4. Some 'transplanted' weeds are getting very large, e.g., cleavers/small nettle/cranesbill, be realistic it may not be possible to control these with herbicides, plan to use a tractor hoe!
5. When controlling black-grass clethodim should be first choice, remember to add in a water conditioner even in non-hard water regions.
6. As soon as the beet crop reaches 1st true leaves 1cm there is support for 'Broad-acre' mixes these can be useful where weeds are getting large, manufacturers provide examples of supported mixes.
7. Remember to always add in an adjuvant oil when using triflusulfuron-methyl (Debut) as performance can be reduced by 50% if it is omitted, depending on the weed species being targeted.
8. Aim to use the actives that are strongest on the key weeds present e.g., for fat-hen phenmedipham + ethofumesate + adjuvant will work well on emerged weeds. See the BBRO Reference book for strengths and weaknesses of actives.
9. Tank mixing graminicides and annual broad-leaved herbicides is not ideal, the efficacy on grass weeds and in particular black-grass can be compromised. Physical compatibility support does exist but where possible apply separately especially if you have a serious black-grass problem.
10. This season the best advice is to make sure that the interval between sprays is short where large weeds are being targeted. Adhere to product labels and take a note of crop health but 5–7-day intervals may be optimum for controlling large weeds.

Avoiding herbicide damage

- Remember that under certain conditions, the risk of herbicide damage is increased. Check labels for advice. Be mindful that in fields with different varieties that crop growth stages may be varied. Ensure you are aware of these.
- Different herbicides may affect crops differently under challenging conditions. In 2018 where sprays were being applied in **hot weather** a replicated herbicide screen assessed crop vigour in relation to different herbicides. In order of crop safety where 100 = no crop effect:

metamitron	92.5
phenmedipham	82.5
ethofumesate	75
triflusulfuron-methyl	67.5
lenacil	60

- Some beets may only just be emerging, take care with these and remember that metamitron with oil although not hugely effective is safe, and will sensitise weeds to further sprays.
- Rectify any nutrient deficiencies and allow crop to recover from any physical damage, i.e., from hail, wind before applying any complex tank mixes.
- Phenmedipham although a contact herbicide is relatively safe.



Click image to access weed control information.

Crop nutrition

With canopy development being so slow to date, it is important to optimise the supply of nutrients to crops to assist with leaf growth:

- Make sure any planned top dressings of nitrogen have been made.
- If applying liquid nitrogen as a top dressing, be careful if plants are backwards and showing signs of stress. Consider applying fertiliser either as a split dose or leaving until plants are larger and leaves are more resilient.
- If you have had a large amount of rainfall and are concerned about some of the applied nitrogen being lost from the rooting zone of young plants, applying a small additional amount of nitrogen 10-20 kg N/ha will ensure availability in the topsoil profile Be mindful to keep within the limits of N-Max (120kgN/ha) Undertaking a SMN test may help identify an issue. Sample the top 0-15cm and 15-30 cm profile as a check. Laboratories can usually report results within a week.
- Apply manganese and magnesium sprays as soon as there is sufficient canopy (4-6 leaf stage). Don't delay and do not wait until symptoms appear.
- If, even after a warm period of weather, crops are still slow and appear pale, stunted and possibly with reddened cotyledons, then root function may still be compromised. Consider applying some nitrogen and phosphorus with the manganese and magnesium as a foliar treatment. This will provide the **essential** nutrients to 'kick start' growth. Your manganese and magnesium products are also likely to provide some sulphur. If not, consider applying some sulphur. Boron and zinc may be low in crops on sandy, higher pH soils but unlikely to be essential to many crops at this stage.
- Target a programme of application of 1-3 kg/ha of each element. Remember, foliar feeding is best undertaken as a 'little but often' approach. Avoid applying foliar nutrients to plants in hot sunny conditions.

EVENTS

BBRO will be attending:
Cereals 13th June (NFU Sugar Hour)
Morley Innovation Day. 22nd June. Book via: niab.com/morley-innovation-day-east-anglia-22-june-23
Royal Norfolk Show – 28th and 29th June (Innovation Hub)

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Two NRoSO points in total (not per bulletin) have been allocated between 01/06/2022 and 31/05/2023 **NO471260f** reference. To claim these points please email NRoSOCPD@cityandguilds.com