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Aphids 2022

Did the aerial threat materialise and did Cruiser SB help?

The 2022 Virus Yellows forecast predicted up to 68% of the national crop was at risk from virus infection by the end of August in the absence of any aphid control strategies. This high forecast triggered the use of Cruiser SB, via the terms and conditions of the emergency authorisation, and approximately 75% of the area was treated.

Aphicide sprays were also available for non-Cruiser (three options) or Cruiser SB treated fields (two options) if crops subsequently reached the recognised treatment thresholds. The first aphids *(Myzus persicae)* were also predicted to arrive from 19 April onwards. So, with early aphids anticipated and potentially high numbers in the crop forecast, what did happen this year?

BBRO, as it has done previously, worked with British Sugar, several growers and agronomists to monitor aphids across the four sugar beet factory areas through the spring and early summer. From the third week in April until early July, 45 sites were closely monitored for green wingless aphids on 20 plants twice a week. In addition, at 11 of the BBRO managed sites, yellow water pans were deployed and samples taken twice a week for laboratory analysis to confirm numbers of winged M. persicae and Macrosiphum euphorbiae, the primary vectors of virus yellows.

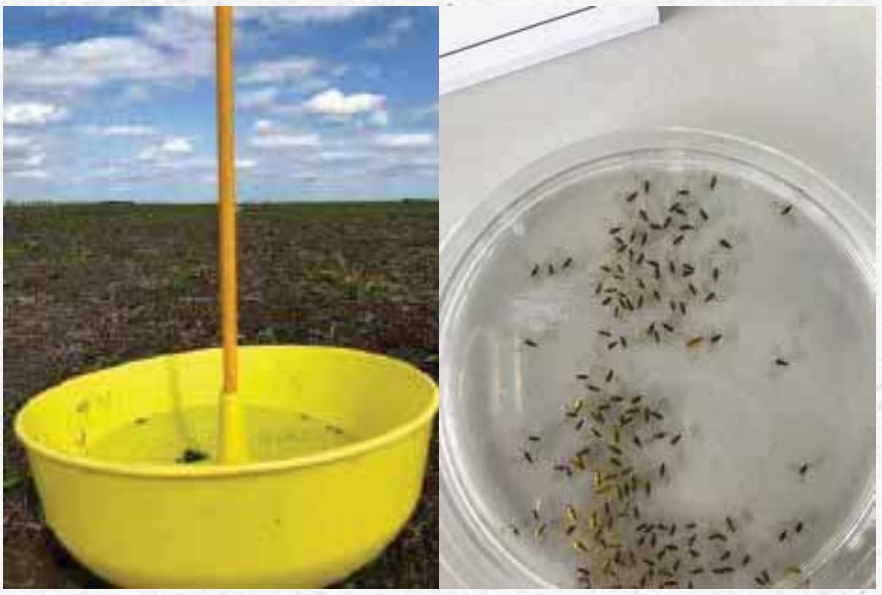

Fig.1. Yellow water pans formed an integral part of the BBRO aphid survey, with the pan collections (right) closely monitored.

Water traps

As predicted by Rothamsted, the first winged aphids were caught in the field from the third week in April onwards. At most BBRO monitoring sites numbers peaked in late May (as highlighted at the Cambridgeshire site shown in Fig. 2.) and continued migrating in smaller numbers until late June. Numbers of winged aphids did vary between monitoring sites, and the following factors were influential:

Influential factors impacting aphid numbers in crops in 2022

1. Proximity to autumn-sown oilseed rape/brassica crops
2. Proximity to overwintered AD beet
3. Nearby spoilage heaps or other root remnants from 2021
4. Delayed or patchy emergence encouraging aphids into field

In-field crop monitoring

75% of the selected monitoring sites were not treated with Cruiser SB, and several of the BBRO trial sites had both treated and untreated areas.

Winged and wingless aphid numbers increased throughout May and early June, especially on non-Cruiser treated crops. The threshold of one green wingless aphid per four plants (5 or more wingless aphids per 20 plants) was exceeded in many of these crops and foliar insecticides were applied. In addition, in some crops, particularly with small plants present, the persistence of foliar insecticides was relatively shorter than anticipated and several growers had to use all three allotted sprays before the onset of mature plant resistance to limit the build-up of aphids.

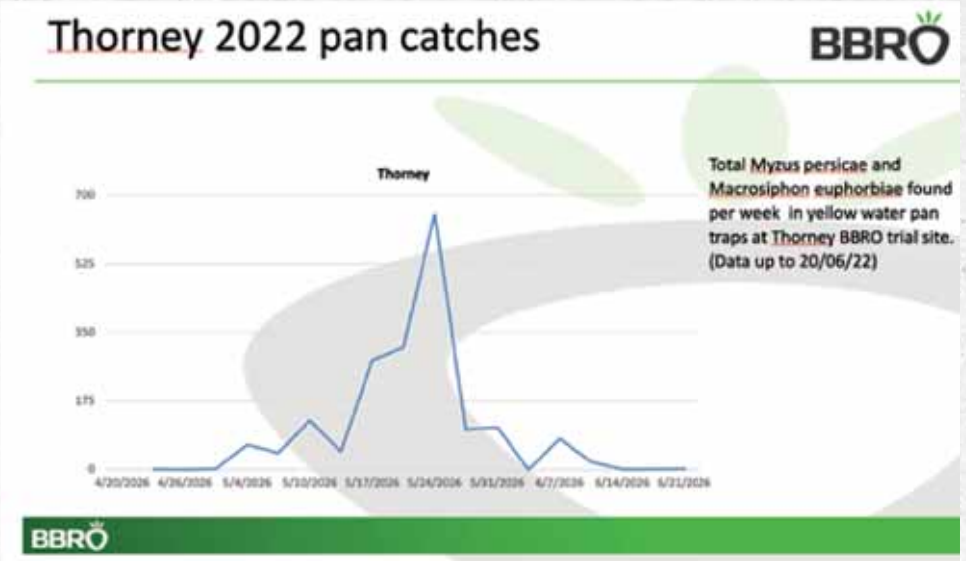

Fig.2. Numbers of winged *M. persicae* caught in yellow water pans, Thorney, Cambridgeshire.

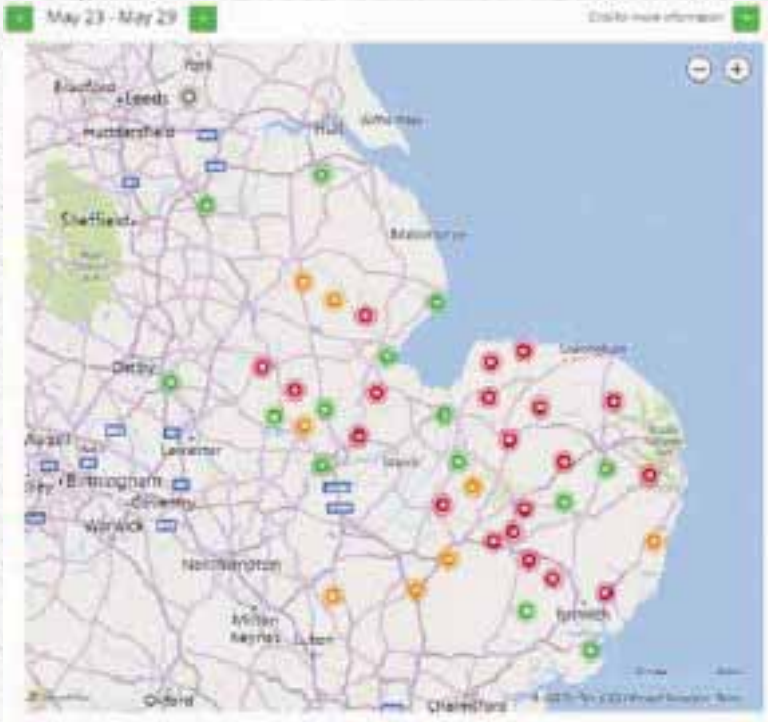

Fig.3. Locations of aphid monitoring sites in 2022. (Green = no green wingless aphids found, Amber = green wingless aphids identified on crop but below spray threshold, Red = aphid above spray threshold).

Examination of most Cruiser-treated crops showed that the seed treatment gave effective protection of green wingless aphids for up until 10 weeks post sowing. However, the first indications of wingless aphids being found on Cruiser-treated crops were recorded in the third week in May; such wingless aphids were often small and potentially would still die after further feeding. During this transition phase, BBRO encouraged all growers and agronomists to monitor their crops to evaluate the ongoing efficacy of Cruiser SB before any foliar aphicides were be applied.

Virus Yellows levels?

At the time of writing, virus symptoms were being observed in the national crop. Early indications are that Cruiser SB and well-timed applications of aphicides had decreased virus infection, but the full extent of virus yellows will not be known until late summer/early autumn. Updates of the virus yellows situation in 2022 will be published in the BBRO Bulletins and the May 2023 edition of Sugar Beet Review.

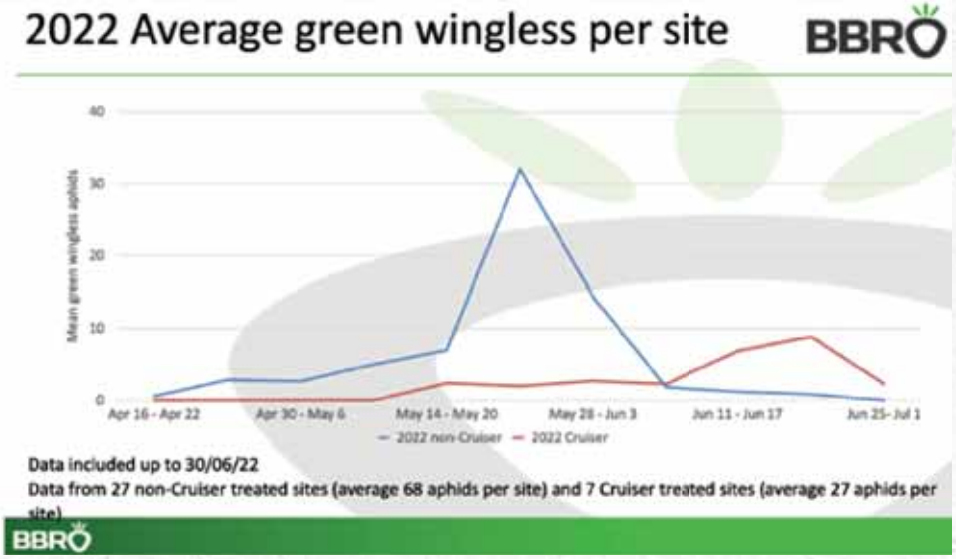

Fig.4. Overall mean number of green wingless aphids per site for non-Cruiser (27 sites) and Cruiser treated (7 sites)