

Annual report FV 254 – HDC Pest Bulletin 2007

Grower Summary

Headline

The HDC Pest Bulletin web pages received more than 29,000 'views' between April and November 2007. The peak month was June and the peak day was Friday, 1 June (376 views).

Background and expected deliverables

The HDC Pest Bulletin was hosted by the Warwick HRI website and the link to the site was provided in the HDC weekly e-mails. The Bulletin consisted of a 'General Summary' page with links to crop-specific pages for brassicas, lettuce, carrot/parsnip, alliums and narcissus.

The main sources of information for the website were:

- A summary of the captures of pest aphids made by the network of suction traps run by the Rothamsted Insect Survey, accompanied by commentary relevant to horticultural crops
- Output from the HRI/HDC forecasting models for carrot fly, cabbage root fly, pollen beetle and large narcissus fly. The pest forecasts were run using weather data collated by the Met Office from a network of weather stations (from Jersey in the south, to the north of Scotland). A royalty was paid to the Met Office for use of the weather data.
- The ADAS cutworm forecast

Additional information provided in the Bulletin included:

- Information on the development of thrips populations in allium crops – from a Defra-funded project led by Warwick HRI
- Information on the resistance status of peach-potato aphids captured in suction traps – provided by Rothamsted Research
- Information on caterpillar and flea beetle activity where available
- Day-degree forecast for lettuce root aphid
- Feedback from growers (this was limited)

- Information on pest activity in the monitoring plots at Warwick HRI. This was mainly on carrot fly and cabbage root fly and was presented in conjunction with the appropriate forecasts.

Summary of the project and main conclusions

The HDC Pest Bulletin <http://www2.warwick.ac.uk/fac/sci/whri/hdcpestbulletin/>

has just completed its fourth season. The bulletin provides forecasts for several pests of vegetable crops (and also large narcissus fly), summaries of aphid captures by the network of suction traps run by the Rothamsted Insect Survey and other information on pest numbers and activity as it becomes available. It also provides a certain amount of 'historical' data – which can provide useful background information.

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The summer of 2007 was a disaster for many vegetable growers and it is small compensation that what was potentially going to be a very 'bad' year for pest insects was much less damaging than expected.

Pest aphids, such as peach-potato aphid (*Myzus persicae*) and cabbage aphid (*Brevicoryne brassicae*), that overwinter as adult aphids are able to capitalise on mild winters and this was certainly the case in 2007 when very high numbers of peach-potato aphid were captured in the Rothamsted Suction traps and in water traps relatively early in the year. The first peach-potato aphids were captured approximately 2 months earlier than in 2006 and 6 weeks earlier than the 10-year average (1997-2006). There was particular concern about the potato crop and a special Insecticide Resistance Action Group warning was published on the Pest Bulletin site in mid June giving advice on resistance management strategies. The first cabbage aphids were also captured about a month earlier than average and two months earlier than in 2006. However, it started to rain in mid June and a combination of wet weather and natural enemies wiped out aphid populations in many places. Aphid numbers continued to be low throughout the summer, although there is evidence that numbers of peach-potato aphid and cabbage aphid started to increase in brassica crops during September. In early March 2007, Rothamsted Research produced forecasts of the dates by which various aphid

species would start to migrate into new crops, and they also predicted the relative abundance of each species. These forecasts were published on the pest bulletin website. The predictions for the peach-potato aphid were particularly close to reality this year.

Most of the willow-carrot aphid (*Cavariella aegopodii*) population overwinters in the egg stage. The warm spring led to early egg hatch on the winter host (willow) and subsequent early development of the winged forms that migrate to carrot crops in the spring. Winged aphids were captured by Rothamsted suction traps a month earlier than in 2006 and a month earlier than the 10-year average. The infestation in plots of carrot at Wellesbourne was similarly very early. It is likely that the currant-lettuce aphid, which also overwinters in the egg stage, but on currant species (e.g. blackcurrant, gooseberry), also developed early, but unfortunately it is captured in very low numbers in the suction traps.

There was an expectation that cutworms (caterpillars of the turnip moth, *Agrotis segetum*) would cause significant problems in 2007. In summer 2006, the weather was so warm that some of turnip moth population was able to complete a second generation. This is usually a sign that moth numbers will be high in the following spring. Indeed the numbers captured in pheromone traps at Wellesbourne in 2007 were relatively high and the adult population was active several weeks earlier than in 2006 as a result of the warm spring. However, by the time large numbers of cutworm eggs started to hatch, the rain had started. This reduced the risk of cutworm damage considerably as mortality of young caterpillars is very high if it is wet. Indeed, the ADAS cutworm forecast bulletins published on the web site indicated that there was no need to treat for cutworms in any part of the UK.

Our main fly pests are probably less affected by wet weather than aphids and cutworms and both cabbage root fly and carrot fly continued to develop as expected. The cabbage root fly regularly completes a third generation in the south and Midlands and 2007 was no exception. Emergence of both species started early, because of the warm spring, but the lack of a particularly hot summer slowed them down to a certain extent. The third generation of adult carrot flies started emerging in early October at warm sites in the south of the UK. An HDC-funded study several years ago indicated that the third generation was generally not a threat to carrot crops, because even if female flies laid eggs at this time there were insufficient 'heat units' for these to develop into larvae that would cause damage. However, we need to keep a watchful eye on third generation carrot fly in the face of climate change and the carrot fly forecast should help us to do this.

An article about the Pest Bulletin was written for HDC News and was published in November 2007.

Financial Benefits

Information on the timing of pest activity and on pest abundance helps growers make significant improvements in the pest control decision making process.

Action points for growers

Access the 'HDC Pest Bulletin' regularly and feed back information to help make the Bulletin as useful and effective as possible. Feed back information by following the link to 'Rosemary Collier' on the site.