Project - FV 254a

Annual report 2008

Title - HDC Pest Bulletin 2008

Grower Summary

Headline

The HDC Pest Bulletin web pages received more than 32,000 'views' between April and October 2008. The peak month was June (over 6,000 views) and the peak day was Monday, 16 June (445 views). The most popular pages were, in decreasing order of popularity: the HDC Pest Bulletin home page, carrot fly, cabbage root fly, carrot and parsnip, Brassicas

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.
- Output from the cutworm forecast (recently incorporated into the MORPH decision support software).

Additional information provided in the Bulletin included:

- 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 fifth 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.

The Pest Bulletin web pages received more than 32,000 'views' between April and October 2008. The peak month was June (over 6,000 views) and the peak day was Monday, 16 June (445 views). The most popular pages were, in decreasing order of popularity: the HDC Pest Bulletin home page, carrot fly, cabbage root fly, carrot and parsnip, Brassicas.

According to Met Office summaries, the summer of 2008 (June-August) was the third wettest in the last 40 years, the summer of 2007 receiving the most rainfall. Such conditions were unfavourable for the survival of several vegetable pests, one obvious exception being slugs.

The HDC Pest Bulletin website got going in early March 2008 when Rothamsted Research produced forecasts of the dates by which various aphid species would start to migrate into new crops, and predicted the relative abundance of each species during the first part of the summer. These forecasts are based on weather conditions, particularly temperature, during the winter. Much of the winter of 2007-8 had been relatively mild, but there were a number of hard frosts during late February which led to a prediction that aphid migrations would be later and smaller than in 2007 – which was an extremely 'early' year. Even so, flights of peach-potato aphid (*Myzus persicae*), potato aphid (*Macrosiphum euphorbiae*) and cabbage aphid (*Brevicoryne brassicae*) were expected to be earlier and larger that the 'average' recorded over the life time of the suction traps. These predictions were confirmed and in general, aphids were captured later and in lower numbers than in 2007, being closer to the 'average'.

The spring of 2008 was cooler than the previous year and consequently a number of pest insects became active later. These included the willow-carrot aphid (*Cavariella aegopodii*), for which a preliminary day-degree forecast was provided on the website for the first time. This species has a relatively discrete period of migration over a period of 5-6 weeks. Aphid infestations were undoubtedly suppressed by the large amount of rainfall over the summer. Although the numbers of cabbage aphid and peach-potato aphid captured by the suction traps in late summer are always lower than in late spring, very few were captured during the latter part of summer 2008.

In 2008, the MORPH decision support software was used to run the cutworm (turnip moth – *Agrotis segetum*) forecast for the first time. Accumulated day-degrees were used to estimate when moths would start to be active and lay eggs and this prediction was backed up by pheromone trap captures at Wellesbourne. The first moths were captured in late May, somewhat later than in the warm spring of 2007. Survival of young turnip moth caterpillars is reduced when the soil is wet and, in general, the cutworm forecast indicated a low risk of damage in most locations, although there were some hotspots, particularly in south-eastern England. We suffered a small amount of damage in lettuce plots at Wellesbourne, but this was not as severe as in some other years. There was also a clear second generation of turnip moth at Wellesbourne, which was active from mid-August until late October. It is difficult to predict how this late 'moth' activity will affect the potential size of turnip moth infestations in 2009.

Our main fly pests are probably less affected by wet weather than aphids and cutworms and both cabbage root fly (*Delia radicum*) and carrot fly (*Psila rosae*) infestations continued to develop as expected at Wellesbourne. The cabbage root fly regularly completes a third generation in the south and Midlands and 2008 was no exception. A third generation of adult carrot flies was predicted at warm sites in the south of the UK. Because much of October was relatively warm and dry, third generation adults of both cabbage root fly and carrot fly continued to be active throughout most of the month. 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 and the carrot fly forecast should help us to do this.

An article about the Pest Bulletin was written for HDC News in October 2008.

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.