



Grower Summary

**Monitoring metalaxyl-M sensitivity of
Downy Mildew infections of Impatiens**

PO 011b

Annual Report 2016

Project title: Monitoring metalaxyl-M sensitivity of Downy Mildew infections of Impatiens

Project number: PO 011b

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(or expected completion date):

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The results and conclusions in this report are based on an investigation conducted over a one-year period. The conditions under which the experiments were carried out and the results have been reported in detail and with accuracy. However, because of the biological nature of the work it must be borne in mind that different circumstances and conditions could produce different results. Therefore, care must be taken with interpretation of the results, especially if they are used as the basis for commercial product recommendations.

AUTHENTICATION

We declare that this work was done under our supervision according to the procedures described herein and that the report represents a true and accurate record of the results obtained.

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GROWER SUMMARY

Headline

Downy mildew monitoring undertaken in 2016 highlighted only one late season infection in the wider environment; the infection was caused by the metalaxyl-M sensitive form of *Plasmopara obducens*.

Background

Impatiens downy mildew (IDM), caused by *Plasmopara obducens*, is a foliar disease specific to impatiens. During early 2011, a metalaxyl-M resistant strain of *P. obducens* was introduced into commercial impatiens production resulting in widespread downy mildew infections which were difficult to control. To try and minimise the risk posed by the resistant strain, pro-active action was taken by the industry to restrict impatiens production using cutting raised plants. This action appeared to have been successful as no IDM infections caused by the resistant strain were detected during monitoring in 2012 (PO 011) or 2013 (PO 011a); in 2013 no downy mildew infections of impatiens were reported. However the risk of infection by the resistant strain still remains, particularly in areas where infection has occurred previously.

This small scale project aims to continue the monitoring work undertaken during 2012 and 2013 to provide growers with:

1. An early warning system for identifying the presence of metalaxyl-M resistance, in order to assist with decisions on suitable spray programmes.
2. Guidance as to the prevalence, persistence and geographical distribution of the metalaxyl-M resistance compared to metalaxyl-M sensitivity in the wider environment.

Summary

Sporangia washed from downy mildew-infected impatiens samples sent to Fera were inoculated onto three replicate impatiens plants, each treated with a Subdue soil drench prior to inoculation. An additional three plants, drenched with an equivalent volume of water, were

inoculated as untreated controls. Inoculated plants were grown at 20°C until symptoms developed on the controls (8-10 days), at which point the metalaxyl-M sensitivity of the inoculated isolate was determined based on the pattern of infection; resistant isolates infected both treated and control plants whereas sensitive isolates only infected the control plants.

In 2016, one sample was received from a private garden in Cheshire during early September. As in previous years the detection of disease late in the season, and a lack of samples from nurseries, suggested that the disease had not come from seed-raised material but from other inoculum sources.

Testing showed that the *P. obducens* isolate collected was sensitive to metalaxyl-M. This is consistent with results from monitoring in 2012, 2013 and 2015 when no metalaxyl-M resistance was detected.

Financial Benefits

In the UK, the annual retail value of the impatiens crop before 2008 was estimated to be £40m; however the onset of impatiens downy mildew has considerably reduced this value. The outbreak of downy mildew in 2011 demonstrated that the disease has potential to destroy whole site annual production as well as undermine consumer confidence in this commercially important product.

Prompt (up to 10 days after sample receipt) and widespread (sample originator and the wider network of growers) reporting of the metalaxyl-M resistance status of any infections would allow growers to ensure that spray programmes used will be effective in minimising losses that may result from any outbreaks.

Action Points

- Where possible grow impatiens from seed, not vegetative cuttings.
- Apply a protectant fungicide programme to seed raised crops during the production phase.
- Monitor crops carefully for signs of the disease, provide good levels of ventilation and don't water crops late at night.
- Send infected plants to Fera for metalaxyl-M sensitivity testing.
- Dispose of infected plant material into sealed bags or bins.