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Experiences of *Alternaria* Disease Forecasting in the UK

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Introduction

In the last few years *Alternaria* has become more of an issue in UK potato crops (Florendine 2010), with severe infections being experienced in certain susceptible varieties, such as the processing cultivar Markies. Because not all late-blight fungicides have activity against *Alternaria*, products with specific activity to this disease have been recently introduced. However timing of application is important for these products (along with dual-activity fungicides) as control is through protectant action only. In 2010 and 2011, with support from BASF, *Alternaria* trials were carried out by SAC. Included was a Decision Support System (DSS) treatment, with the aim to evaluate the effect of application timing on disease control. The potato *Alternaria*-specific fungicide, Signum (Jilderda 2005), was used for the DSS treatment.



Methods

The trials were set up in a commercial field, cv. Markies. Plot size was 4 rows x 7.5 metres, with 4 replicates in a randomised complete block design. In addition to untreated plots, there were infector strips (2.5m) between replicates. Because of low early disease pressure in 2011, the infector strips were inoculated with a mixture of *A. solani* on 22 June.

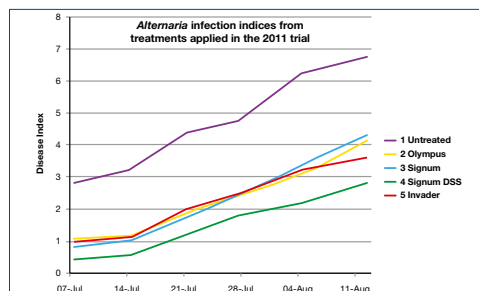
Treatments

- 2 **Olympus** (azoxystrobin/chlorothalonil) @ 1.0 l/ha x 3 then Dithane (mancozeb) @ 2.0 kg/ha in 2011
- 3 **Signum** (boscalid/pyraclostrobin) @ 0.25 kg/ha x 4
- 4 **Signum DSS** @ 0.25 kg/ha x 4 then Invader @ 2.4 kg/ha in 2011
- 5 **Invader** (dimethomorph/mancozeb) @ 2.4 kg/ha x 4 (2011 only)

Treatments 2, 3 and 5 were applied 4 times at a standard 14 day programme. The first timing of these treatments was made around 50% crop cover, in June. The DSS treatment timing was dictated by the Dacom *Alternaria solani* model (Hadders 2004), using local real time + forecast weather data and crop growth stage to calculate disease pressure.

Results

In both years all treatments gave significantly better *Alternaria* control than the untreated. In 2010 trial there were few differences between treatments, however, in 2011 the DSS treatment gave lower % plant infection and disease severity compared to other treatments, as expressed by a disease index in the chart below.

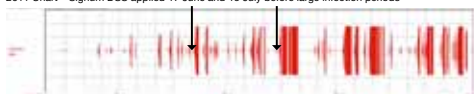


Infection 13 September 2011

Dacom *Alternaria* Disease Pressure Charts (infection periods in red)
2010 - Signum DSS applied 9 June after large infection period



2011 Chart - Signum DSS applied 17 June and 15 July before large infection periods



Conclusions

In 2010 a high *Alternaria* risk period occurred early in the season around the 6 June, as a consequence infection in the crop was seen a few weeks later. Because of a late set-up of the DSS treatment, it was not applied until after this date (ref. 2010 chart above). The other programmes also did not start until mid June, which explains why there were few differences between treatments in this year.

Disease pressure in 2011, in contrast, occurred later with infection periods starting in late June. Two timings of the DSS treatment are highlighted above (2011 Chart) on 17 June and 15 July. These application dates were ahead of infection events. However, the standard 14 day programmes were not applied until after these dates. The difference in this timing is the most likely reason for improved disease control by the DSS treatment. This is evidence that such systems could prove to be useful tools for product timing and choice for *Alternaria* control in the UK.

References

- Florendine, B. 2010 *Alternaria* article - Farmers Weekly
- Hadders, J. 2004 *Alternaria* control in the USA and Egypt. EuroBlight Report 10, Jersey
- Jilderda, K. Kruts, M. Scholtens, R. Jacobs, K. Sinnema, T. Signum, 2005 A novel fungicide for control of *Alternaria* spp in potatoes. EuroBlight Report 11 Tallinn

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Further information on this work is available from:

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