

October 2019



Summary report

**Fungicides for phoma stem canker control
in winter oilseed rape**

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Summary of AHDB fungicide projects
2010–2014 (RD-2007-3457) and 2015–2018 (214-0006)

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1. Background

Fungicides for control of phoma leaf spot and stem canker have been evaluated over ten years at ADAS Boxworth, Cambridgeshire and ADAS Terrington, Norfolk. In 2017 and 2018, one trial was moved from ADAS Boxworth to ADAS Rosemaund, Herefordshire. All trials are conducted on phoma susceptible varieties with good resistance to light leaf spot. Products are tested at four doses ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and full label rate) as two spray programmes, plus a completely untreated control. The first fungicide application is in early autumn (ideally 20-40% plants affected and usually October) with a second application 4–10 weeks later (November/December) when re-infection is apparent. Leaf disease assessments are done after each application and stem canker assessed in late June (presented as a canker index 0 to 100). Combine harvested yield data are adjusted to 91% dry matter. Priority for inclusion for testing in this project is given to products not currently approved to allow independent data to be available when they come to market. Data in this report starts from 2018 onwards. Historic data are available on the AHDB website.

2. Harvest year 2018

Overall, stem canker severity was high at Terrington (index 78, untreated) and moderate at Rosemaund (index 37, untreated) prior to harvest in 2018. The phoma epidemic was early and prolonged. Both sites still had almost 100% plants with lesions in November and December 2017. At Rosemaund, the first treatments were applied on 23 October 2017 at the 6-leaf stage (40% phoma leaf spot incidence, 0.5% leaf area affected). At Terrington, first sprays were applied on 9 October 2017 (60% phoma leaf spot incidence; 0.9% leaf area affected) at the 7-leaf stage. The second spray at Terrington was applied on 21 November 2017 at the 12-leaf stage (100% phoma leaf spot incidence; 2.6% leaf area affected) and at Rosemaund on 20 December 2017 at the 12-leaf stage (98% phoma leaf spot incidence; 1.0% leaf area affected).

At Rosemaund, stem canker indices were moderate (index 37) in the untreated controls. Decreases in stem canker severity were observed following fungicide application for all products (Figure 1). The largest decrease was observed for Filan, with Proline and Plover performing similarly. Yield responses ranged from 0.06 to 0.29 t/ha (Figure 2). At Terrington, stem canker levels were high (index 78 in the untreated controls). For stem canker severity, Filan was the most effective and decreased the stem canker index to 30. Proline and Plover decreased canker indices to between 50 and 60 (Figure 3). This was a similar pattern to Rosemaund. Yield responses ranged from between 0.12 and 0.87 t/ha (Figure 4). Canker indices of 30 are generally considered the point at which effects on yield are noted, however, yields for Proline and Plover were similar to those achieved by Filan despite higher canker indices.

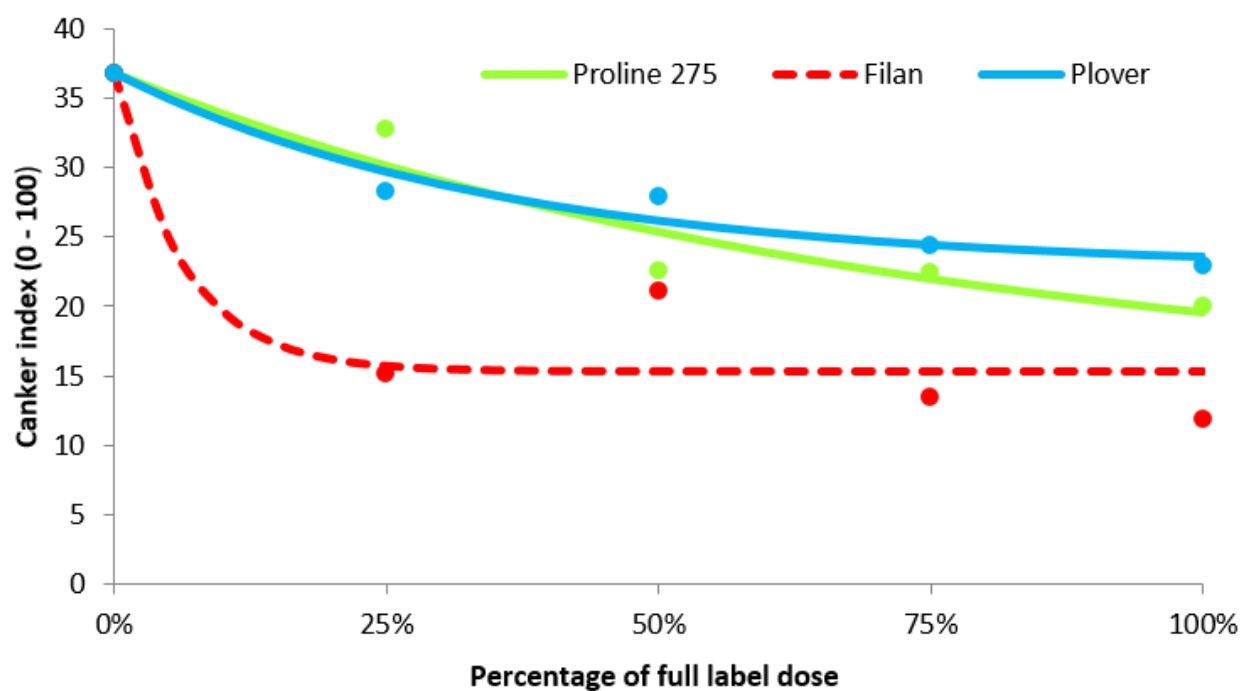


Figure 1. Phoma stem canker control in relation to fungicide dose at Rosemaund, Herefordshire in 2018.

Note that Plover is restricted by a maximum total dose equivalent to a full rate application. Therefore, the 2-spray programmes exceeding 2 x 0.5 rate are above the maximum recommended dose.

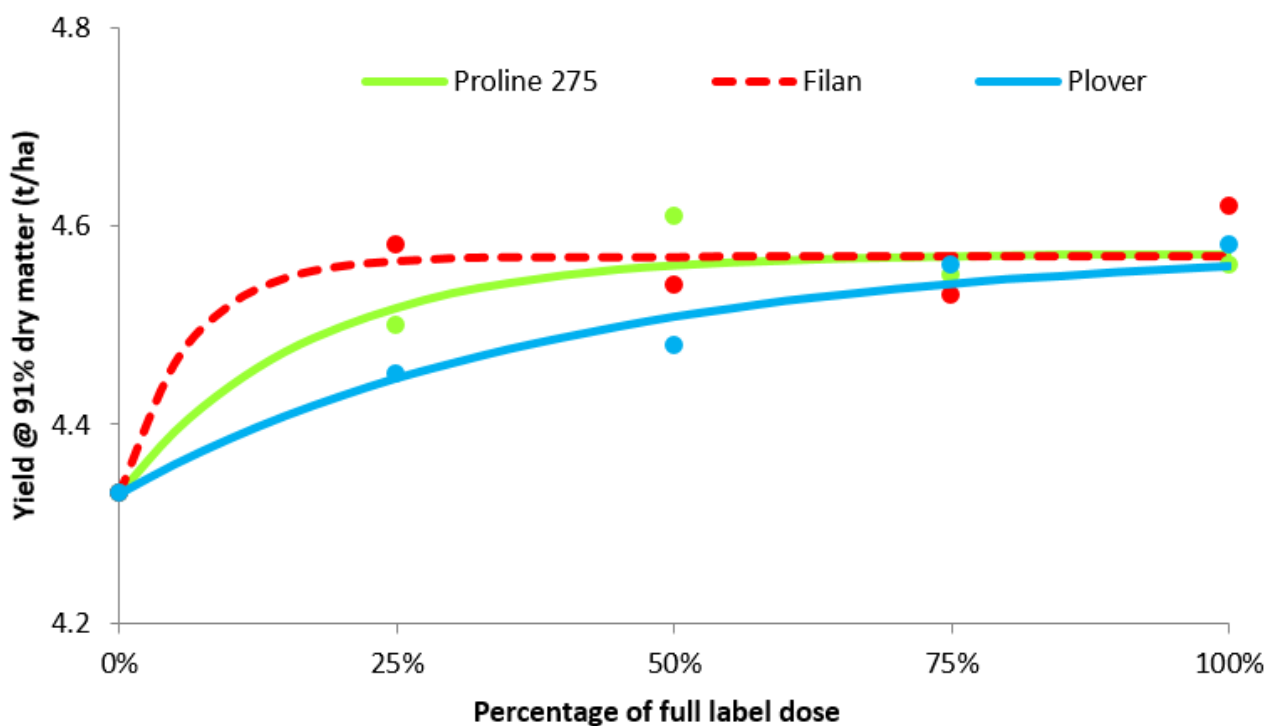


Figure 2. Yield at 91% dry matter (t/ha) in relation to fungicide dose at Rosemaund, Herefordshire in 2018.

Note that Plover is restricted by a maximum total dose equivalent to a full rate application. Therefore, the 2-spray programmes exceeding 2 x 0.5 rate are above the maximum recommended dose.

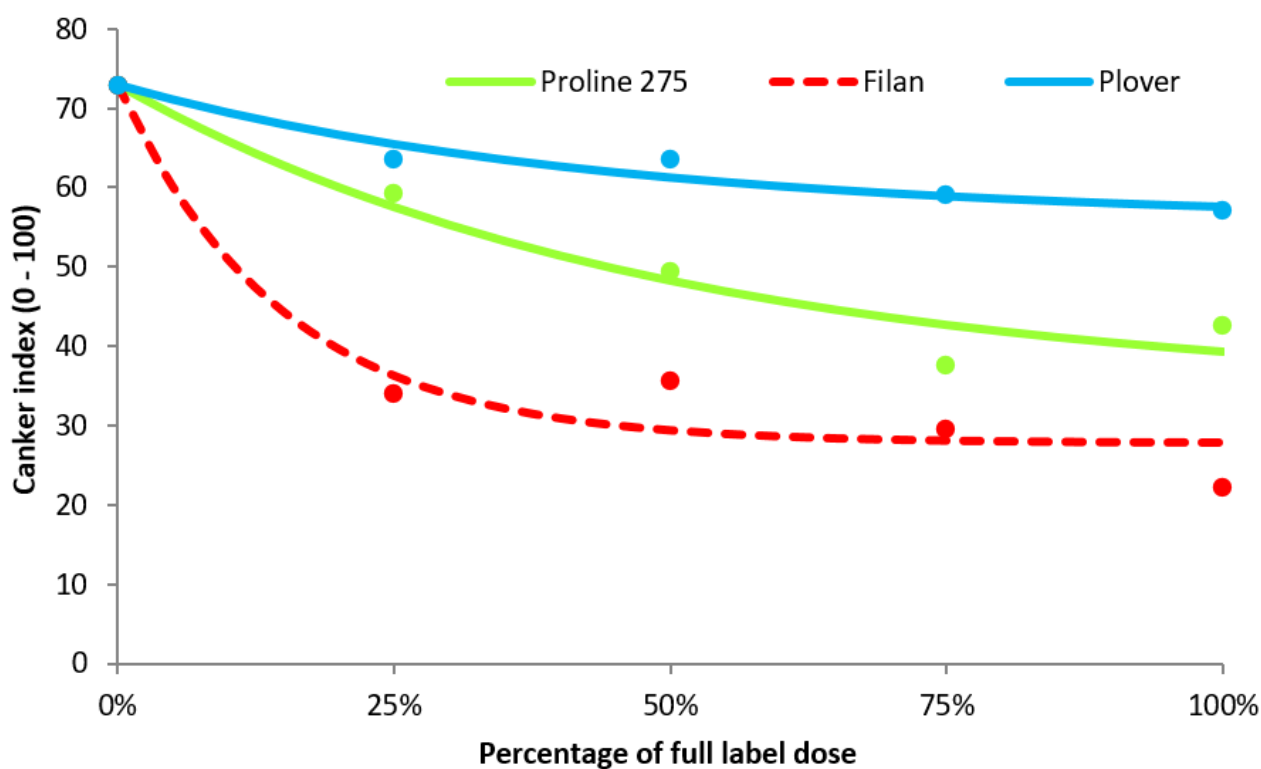


Figure 3. Phoma stem canker control in relation to fungicide dose at Terrington, Norfolk in 2018.

Note that Plover is restricted by a maximum total dose equivalent to a full rate application. Therefore, the 2-spray programmes exceeding 2 x 0.5 rate are above the maximum recommended dose.

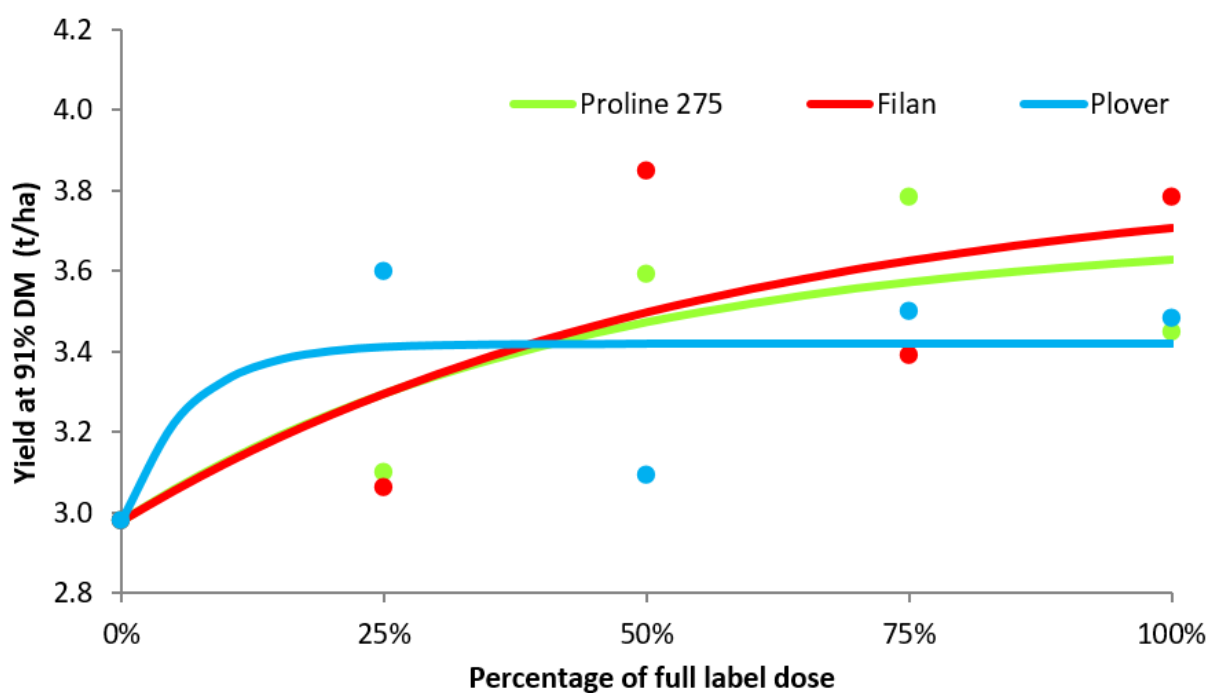


Figure 4. Yield at 91% dry matter (t/ha) in relation to fungicide dose at Terrington, Norfolk in 2018.

Note that Plover is restricted by a maximum total dose equivalent to a full rate application. Therefore, the 2-spray programmes exceeding 2 x 0.5 rate are above the maximum recommended dose.

3. Harvest year 2019

Overall, stem canker severity was low at both Terrington (index 26, untreated) and Rosemaund (index 26, untreated) prior to harvest in 2019. The phoma epidemic in autumn 2018 was late with first signs of leaf spotting not seen until 15 October at Rosemaund and 5 November at Terrington. At Rosemaund, the first treatments were applied on 1 November 2018 at the 7-leaf stage (18% phoma leaf spot incidence, 0.2% leaf area affected). At Terrington, first sprays were applied on 16 November 2018 at the 6-leaf stage (32% phoma leaf spot incidence; 0.05% leaf area affected). Second sprays were applied at Rosemaund on 3 January 2019 at the 19-leaf stage (69% phoma leaf spot incidence; 0.3% leaf area affected) and at Terrington on 10 January 2019 at the 19-leaf stage (68% phoma leaf spot incidence; 0.1% leaf area affected).

At both sites, decreases in stem canker severity were observed following fungicide application for both products Proline and Plover. The cross-site analysis showed that both products performed similarly at the 50% dose, with Plover decreasing the stem canker index from 26 to 16 and Proline decreasing to 13 (Figure 5).

Due to the late onset of the epidemic, canker indices of less than 30 were reported in the untreated control and this is generally considered too low for yield effects to be observed. As a result, yield responses at the trial sites were small (untreated = 4.71 t/ha) (data not shown).

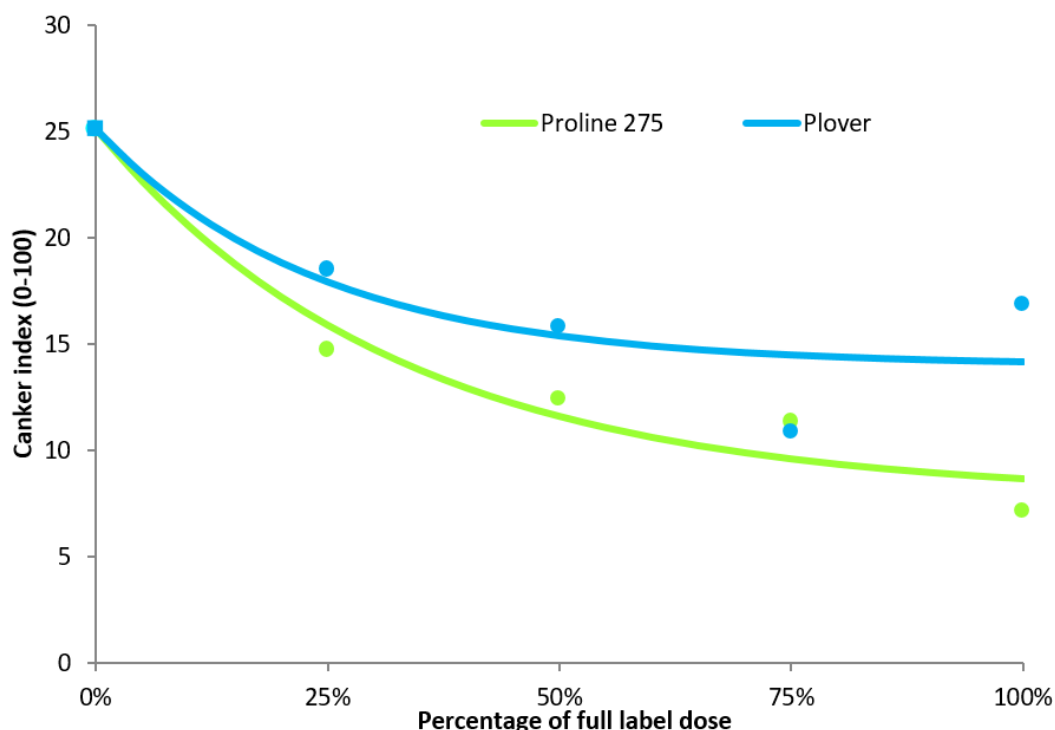


Figure 5: Phoma stem canker control in relation to fungicide dose. Data from Herefordshire and Norfolk were combined in 2019.

Note that Plover is restricted by a maximum total dose that is equivalent to a single full rate application. Therefore, the 2-spray programmes exceeding 2 x ½ rate are above the maximum recommended dose.

4. PHOMA LEAF SPOT/STEM CANKER MANAGEMENT

Use the phoma forecast (which can be accessed via ahdb.org.uk/phoma) to guide crop monitoring and for planning fungicide applications. First leaf spotting was observed in late September in 2019. However, thresholds were being met at the end of October in forward crops of susceptible varieties. Field monitoring for thresholds from now onwards will now be important. Due to high cabbage stem flea beetle pressure, some fields have been drilled late or re-drilled. This will result in smaller plants at a higher risk from phoma leaf infection.

Fungicide application timing is important and the first application should be made on crops (RL rating 7 and below) when 10 to 20% of plants have phoma leaf spot and plan a second application when re-infection is evident (4 to 10 weeks later). Note some varieties with high resistance ratings for stem canker (RL rating 8 and above) also have good resistance to phoma leaf spot and may not require a phoma fungicide unless the 20% threshold is exceeded. Some varieties are likely to require an autumn fungicide (November) for light leaf spot control, if there is a risk, and this should be considered when planning autumn programmes.

Good control of phoma leaf spot and stem canker can be achieved with two sprays at half the recommended label rate. Early phoma epidemics are the most damaging to yield and typically put 0.5 t/ha of yield at risk, although rapid re-infection in the autumn can also reduce yields. Late epidemics occurring in February/March can be very damaging if plants are small in late autumn or winter. It should be noted that all azoles offer protection when applied prior to infection, though product choice will also be influenced by requirements for curative activity when small plants are infected.