

November 2020



Summary report

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

Faye Ritchie (ADAS), Philip Walker (ADAS), and Catherine Harries (AHDB)

Summary of AHDB fungicide projects

2010–24 (RD-2007-3457), 2015–18 (214-0006) and 2019–22 (21120013)

While the Agriculture and Horticulture Development Board seeks to ensure that the information contained within this document is accurate at the time of printing, no warranty is given in respect thereof and, to the maximum extent permitted by law, the Agriculture and Horticulture Development Board accepts no liability for loss, damage or injury howsoever caused (including that caused by negligence) or suffered directly or indirectly in relation to information and opinions contained in or omitted from this document.

Reference herein to trade names and proprietary products without stating that they are protected does not imply that they may be regarded as unprotected and thus free for general use. No endorsement of named products is intended, nor is any criticism implied of other alternative, but unnamed, products.

AHDB Cereals & Oilseeds is a part of the Agriculture and Horticulture Development Board (AHDB).

Background

Fungicides for control of phoma leaf spot and stem canker have been evaluated for over ten years at ADAS Boxworth, Cambridgeshire and ADAS Terrington, Norfolk. In 2017 to 2019 the ADAS Boxworth trial was moved 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 to 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 2016 onwards and focuses on the efficacy of products that have recently been approved for use in oilseed rape. Historic data are available on the AHDB website.

ahdb.org.uk/fungicide-performance

Note: the product name for Angle (difenoconazole + azoxystrobin) is now Priori Gold.

Harvest year 2020

Phoma stem canker severity was high in Norfolk (index 80 in untreated) and moderate in Herefordshire (index 46 in untreated) prior to harvest in 2020. The first signs of phoma leaf spot were seen at both sites at the mid to end of October. In Herefordshire, the first treatments were applied on 24 October 2019 at the 6-leaf stage (40% phoma leaf spot incidence, 0.4% leaf area affected). In Norfolk, first sprays were applied on 6 November 2019 (32% phoma leaf spot incidence; 0.15% leaf area affected) at the 6-leaf stage. The second spray in Norfolk was applied on 23 January 2020 at BBCH 20 (85% phoma leaf spot incidence; 0.2% leaf area affected) and at the Herefordshire site on 17 December 2020 at the 18-leaf stage (90% phoma leaf spot incidence; 0.3% leaf area affected).

Data from the two trials was combined and a cross site analysis conducted. This showed that Proline, Plover and Priori Gold performed similarly against stem canker at the 50% of the recommended label rate, decreasing the stem canker index from 64 to between 37 and 45 (Figure 2a). The yield response for Plover and Angle at 50 to 100% dose rate was 0.5 to 0.6 t/ha and Proline 0.7 to 0.8 t/ha (untreated = 2.60 t/ha) (Figure 2b).

A further cross site analysis was conducted using data from all six trials conducted from 2017 to 2020. These showed that Proline, Plover and Priori Gold, across a range of sites and seasons, performed similarly against stem canker, decreasing the stem canker index from 42 to between 20 and 27. Stem canker index was decreased further following application of Filan and Aviator Xpro, which decreased the index to between 13 and 16. Cross site analysis showed that yield response with fungicide for 50 to 100% dose rate for all products was 0.2 to 0.4 t/ha (untreated = 3.50 t/ha) (Figure 3).

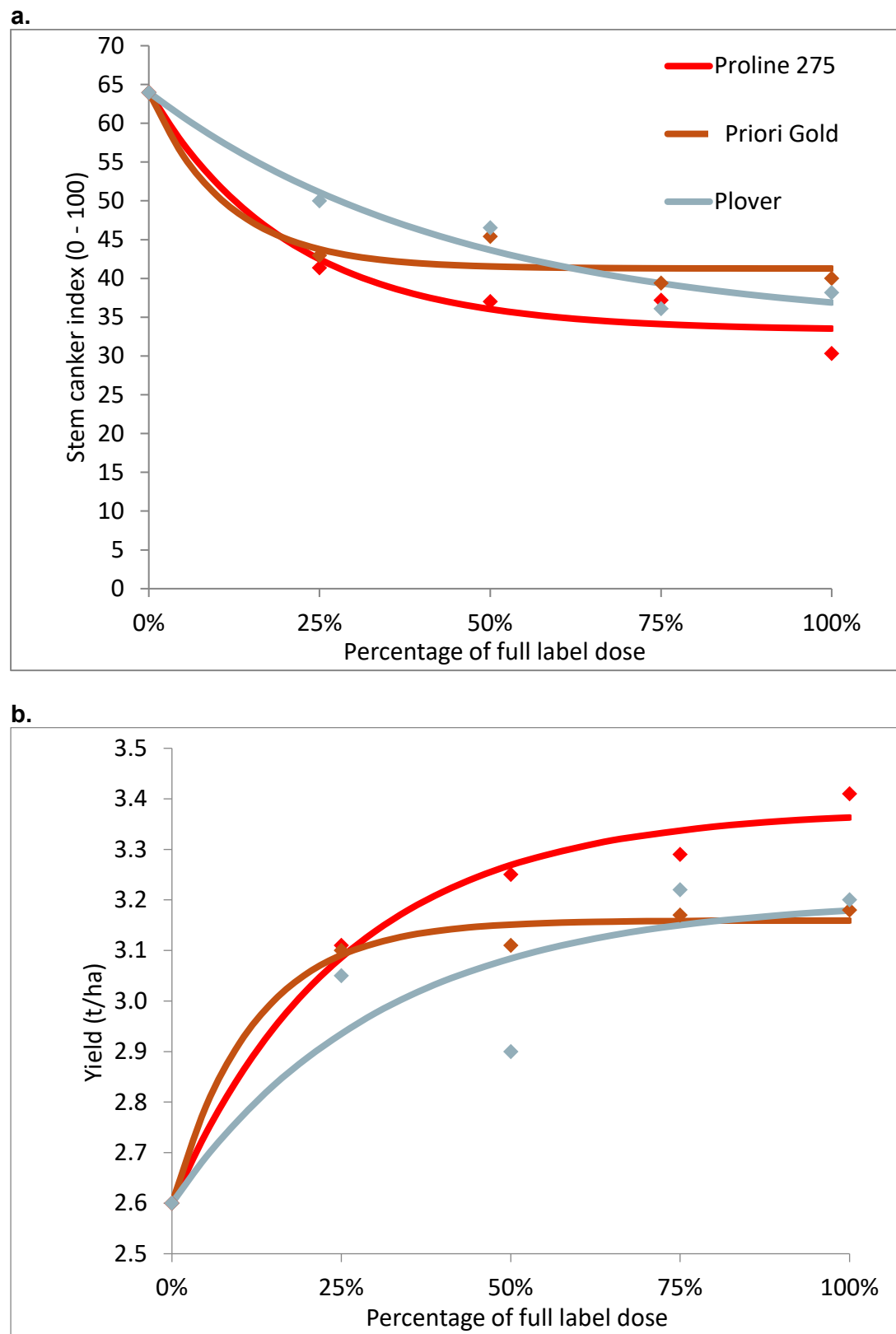


Figure 2. Phoma stem canker control (a.) and yield (b.) response, at 91% dry matter in relation to fungicide dose in Norfolk and Herefordshire in two trials conducted in 2020. Note that Plover is restricted by a maximum total dose that is equivalent to a single full rate application. Therefore, the 2 spray programmes exceeding 2 x $\frac{1}{2}$ rate are above the maximum recommended dose.

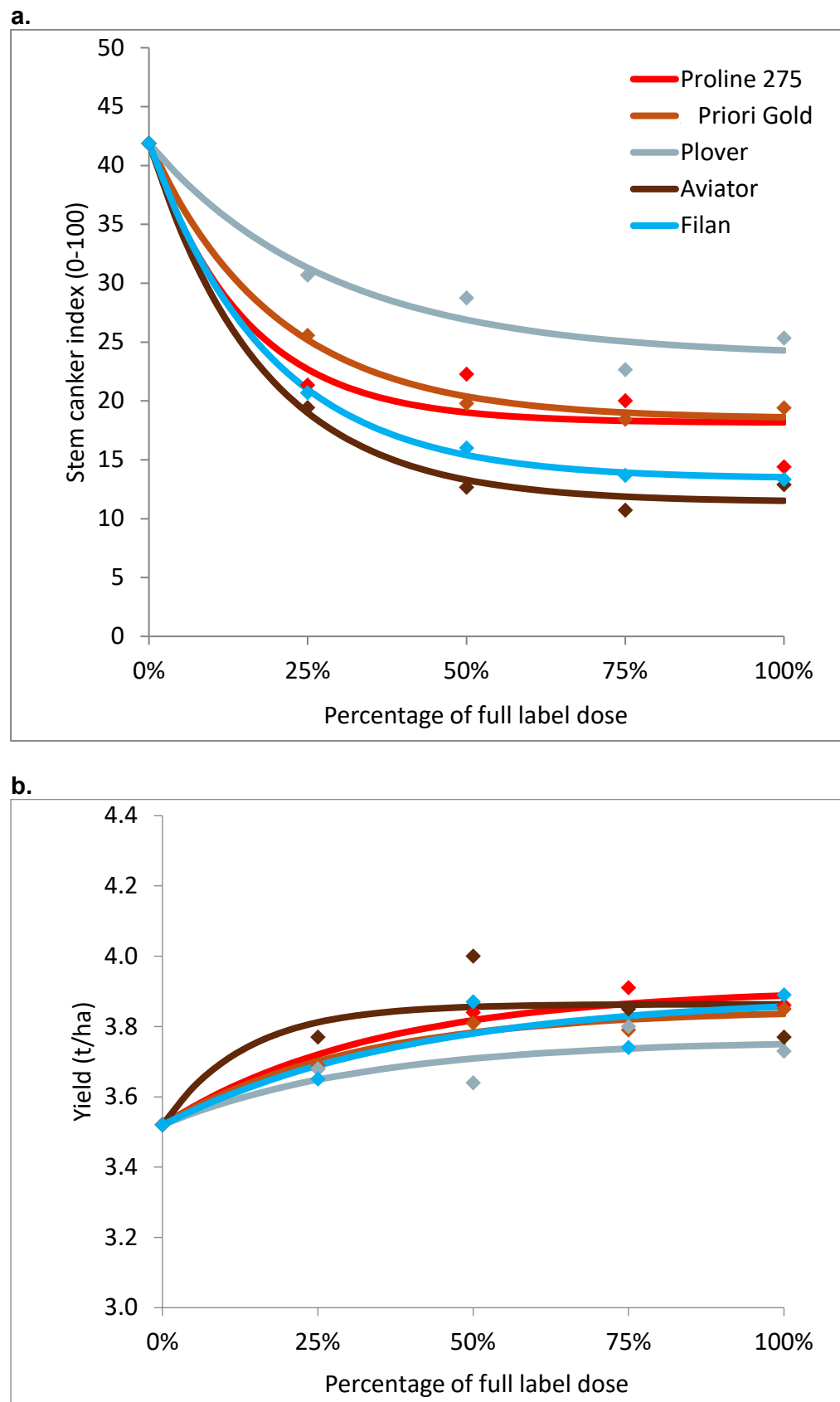


Figure 3. Phoma stem canker control (a.) and yield (b.) response, at 91% dry matter in relation to fungicide dose in Norfolk and Herefordshire in six trials conducted in 2017 to 2020. Note that Plover is restricted by a maximum total dose that is equivalent to a single full rate application. Therefore, the 2 spray programmes exceeding 2 x $\frac{1}{2}$ rate are above the maximum recommended dose.

Key points for assessing and managing phoma leaf spot/stem canker risk in harvest year 2021

Use the phoma forecast on the AHDB website (ahdb.org.uk/phoma-leaf-spot-forecast) to guide crop monitoring and for planning fungicide applications. In most areas, the first leaf spotting was observed in mid-October in 2020, which is later than the previous year. Later drilled crops often result in smaller plants over the winter and are at a higher risk when infections occur. Late epidemics occurring in February/March can be very damaging if plants are small in late autumn or winter.

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. 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.

Using a range of different modes of action, in alternation or mixtures/co-formulations throughout the fungicide programme, is necessary as part of a robust fungicide resistance management strategy to prevent the selection for fungicide insensitive strains. There is now a range of modes of action available for the control of phoma leaf spot/stem canker and the latest [fungicide resistance management guidelines](#) are available.