

Regional differences in proportions of *Leptosphaeria maculans* and *L. biglobosa* in eastern England

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INTRODUCTION

Phoma stem canker (Fig 1), caused by fungal pathogens *Leptosphaeria maculans* (Lm) and *L. biglobosa* (Lb), leads to annual yield losses of £50-90M in the UK. Lm is generally associated with severe stem base cankers and Lb with superficial upper stem lesions. Recent studies suggest that Lb can cause both upper stem lesions and base cankers in the UK and is less sensitive to some triazole fungicides



Fig 1: Phoma stem canker on oilseed rape

AIM

To monitor the regional differences in proportions of *Leptosphaeria* spp. ascospores in the air in eastern England.

MATERIALS AND METHODS

- Burkard air samplers set up (Fig 2) at four sites in England (Bayfordbury, Hertfordshire; Eye, Suffolk; Impington, Cambridgeshire and Rothwell, Lincolnshire)
- Daily amounts of Lm DNA and Lb DNA in the air quantified from September to March in 2015-2016, 2016-2017 and 2017-2018, determined using quantitative PCR (qPCR).



Fig 2: Burkard air sampler set up at Bayfordbury in Hertfordshire

RESULTS

- More Lm DNA than Lb DNA in 2015-2016 and 2017-2018 at all sites except Bayfordbury (Fig 3 a, c, d, f, g, i, j, l)
- More Lb DNA than Lm DNA in 2016-2017 at all sites except Rothwell (Fig 3 b, e, h, k)
- Lm DNA and Lb DNA detected at the same time at all sites except Rothwell where Lm DNA detected earlier than Lb DNA in all three seasons (Fig 3)
- Leptosphaeria* spp. DNA detected later at Impington than at other three sites in all three seasons (Fig 3)

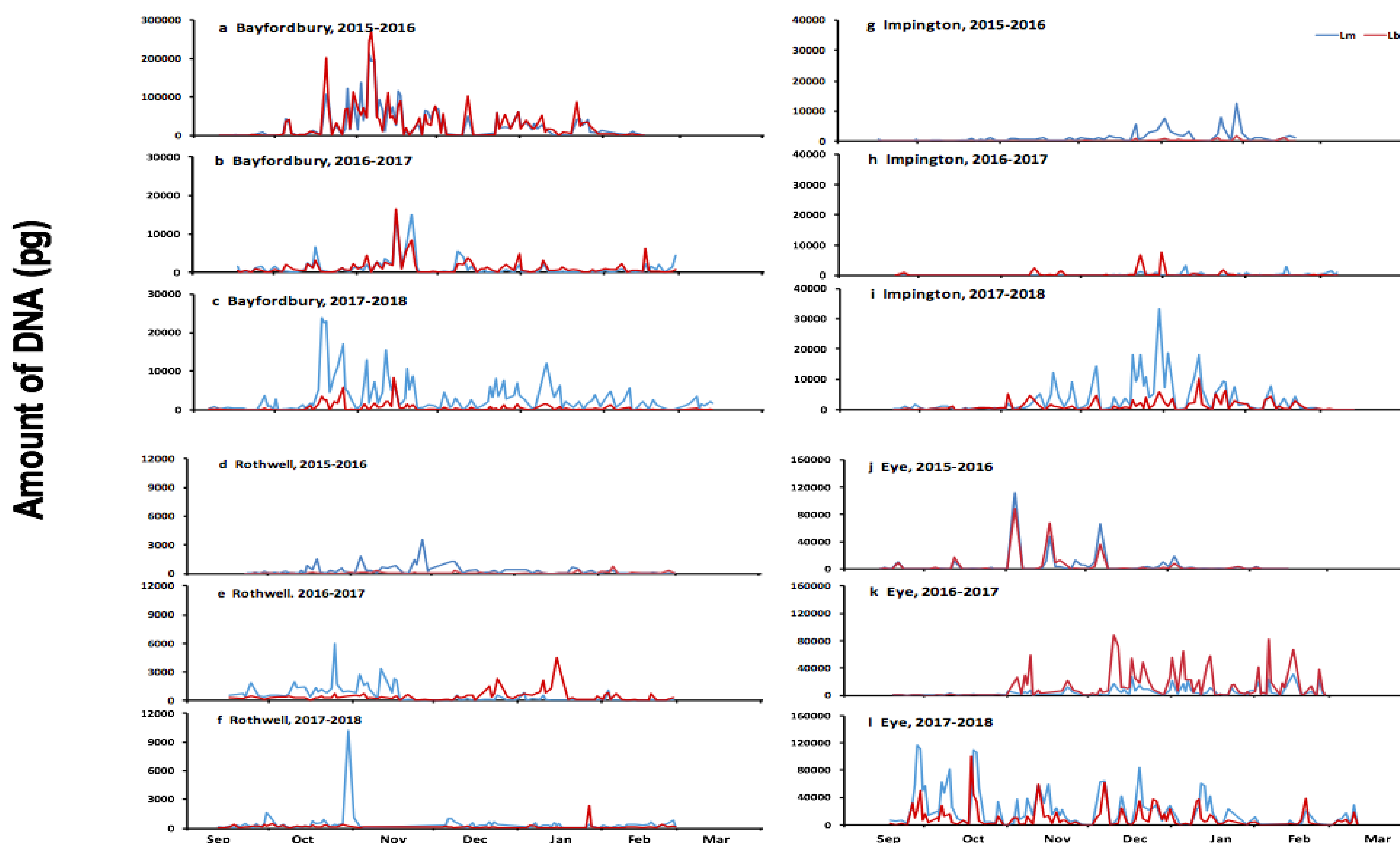


Fig 3: Amounts of Lm DNA and Lb DNA in the air in three cropping seasons at four sites in England

CONCLUSIONS

- Differences were observed in proportions of Lm and Lb ascospores in the air in different seasons at different sites
- Timing and proportions of ascospore release can guide choice of fungicide and timing of sprays