

Resistance to *Pyrenopeziza brassicae* (light leaf spot) in *Brassica napus*

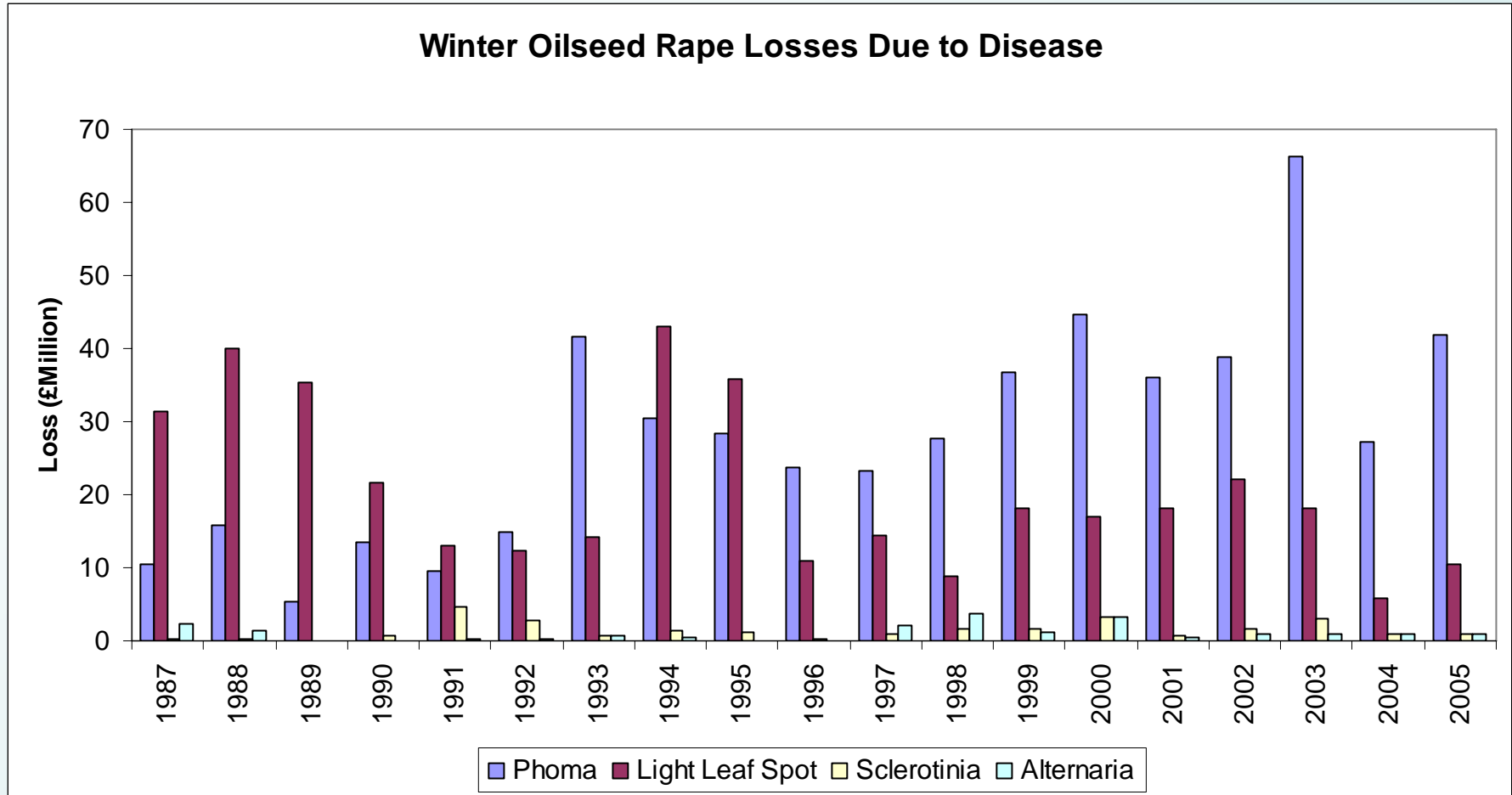
Emily Boys

Supervisors:

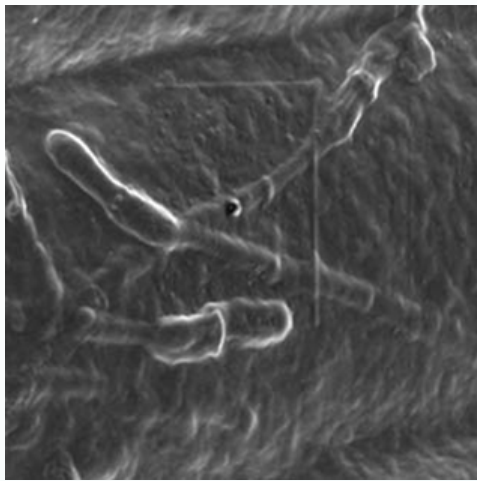
Bruce Fitt, Jon West, Graham King, Peter Werner, Paul Dyer



Light Leaf Spot



- Second most important disease of winter oilseed rape in UK
- Estimated UK yield losses ranging from £6M to £20M per season (2000-2005)
- Particularly important in Scotland and the north of England

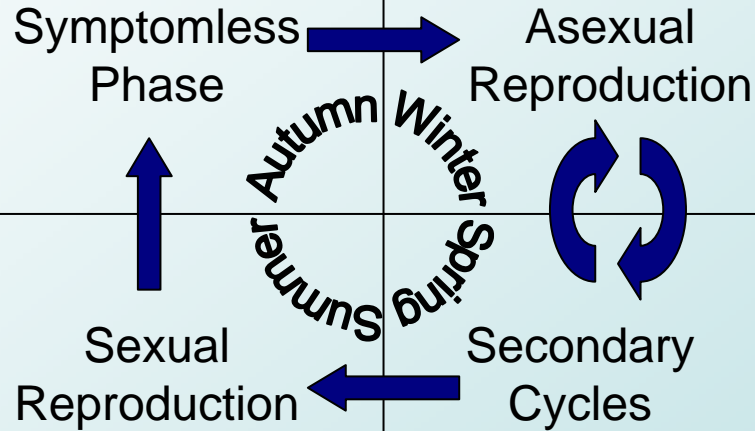


Pathogen hyphae grow in sub-cuticular space



Asexual sporulation produces conidia

Ascospores germinate and directly penetrate cuticle



Air-borne ascospores initiate epidemic



Apothecia develop on infected debris



Infection of leaves, stems, meristems & pods

Resistance to *P. brassicae*

- Cultivar resistance insufficient to control LLS without use of fungicides.
- Fungicides must be applied before symptoms appear – unnecessary applications
- Most resistance currently deployed thought to be quantitative (polygenic).
- Two *R* genes identified by Bradburne *et al.* (1999).

PBR1

- N1
- no sporulation

PBR2

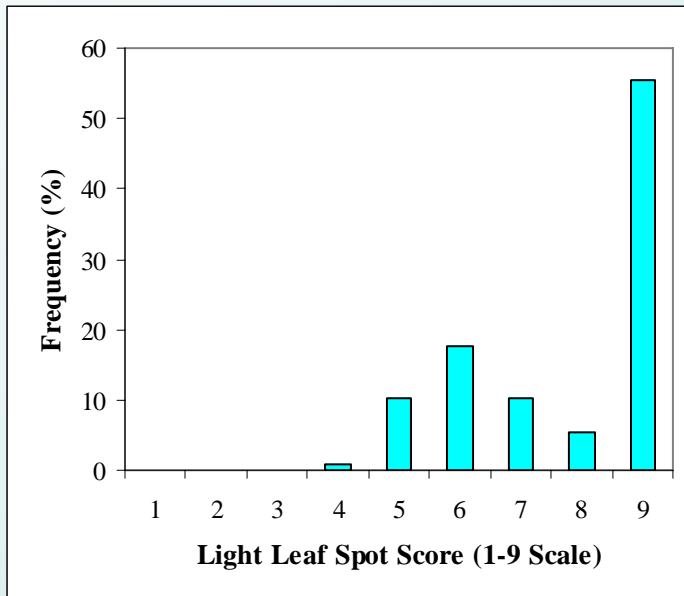
- N16
- little or no sporulation
- black flecking

- Imola bred from one of resistant Bradburne *et al.* (1999) DH lines.
- This project uses a DH population from Imola x susceptible breeding line.

Aims of this Project

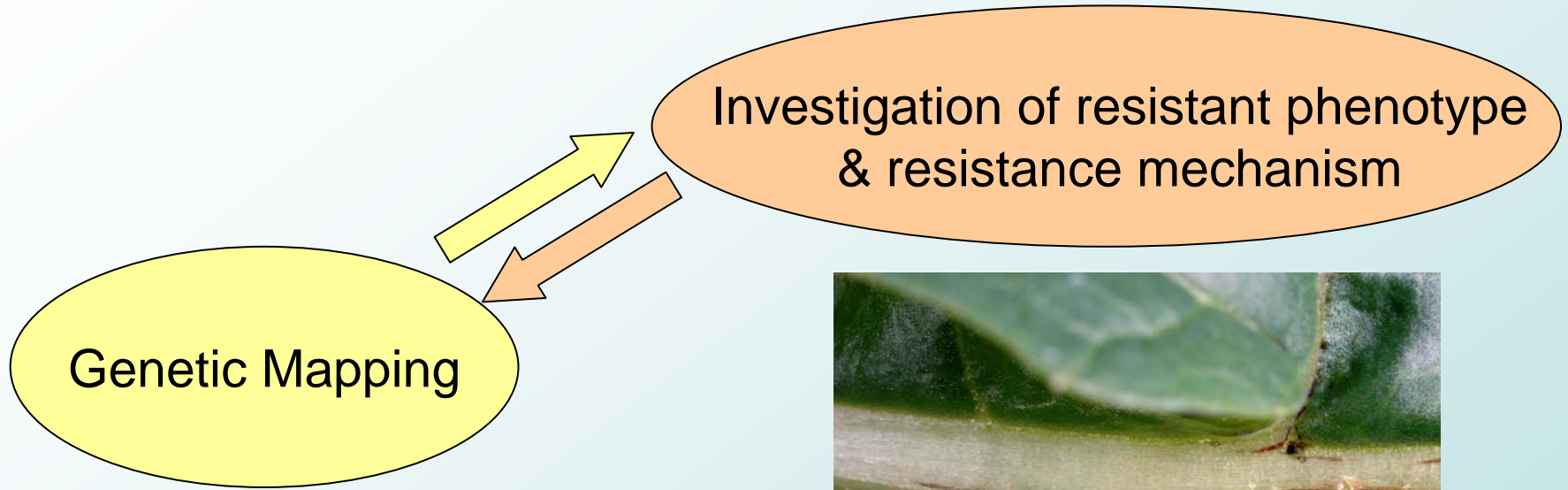
- SSR (microsatellite) markers
- N1, N16, N7
- Identify critical recombinants
- Phenotype critical lines
- Finer mapping
- Use synteny with *Arabidopsis* to identify candidate genes

Genetic Mapping



Only one R gene in Imola?

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