



ROTHAMSTED
RESEARCH



The University of
Nottingham

Understanding True Eyespot Disease of Cereals: Past, Present and Future

Fareed Bhatti

Supervised by Paul Dyer, Kevin King and Jon West



Chadacre
Agricultural Trust



What is eyespot disease?



Eyespot Lesion



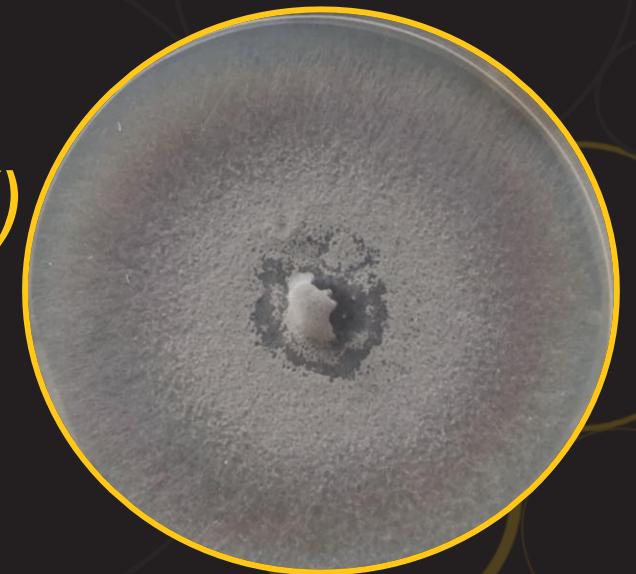
Crop lodging

Causal pathogens and their differences

- Colony morphology (useful for initial identification)
- Growth rate (on agar)
- Host pathogenicity/ host resistance
- Infection strategy
- **Fungicide sensitivity**

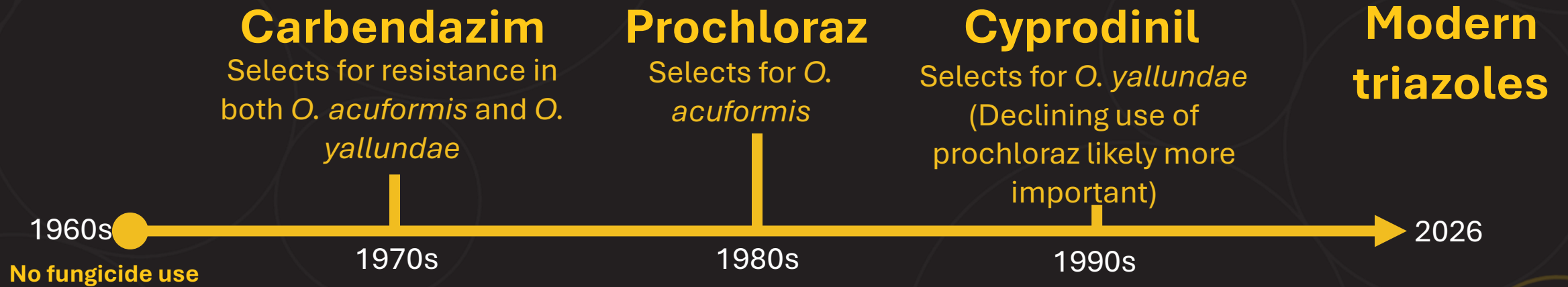


*Oculimacula
acuformis (OA)*



*Oculimacula
yallundae (OY)*

A brief history of selection by fungicides



Differences in fungicide sensitivity between the two species result in a fluctuating population dynamic

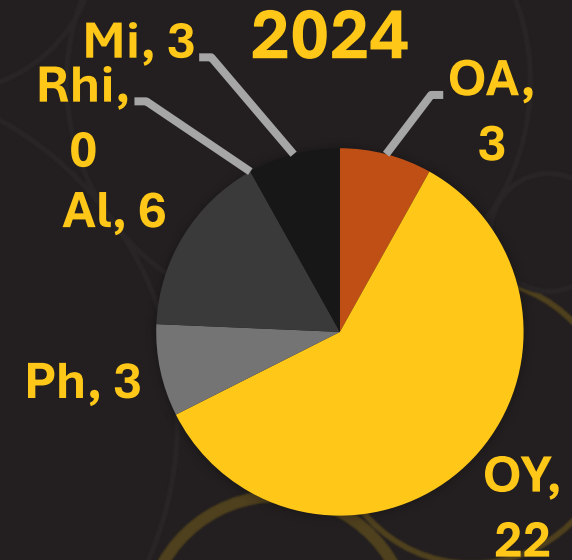
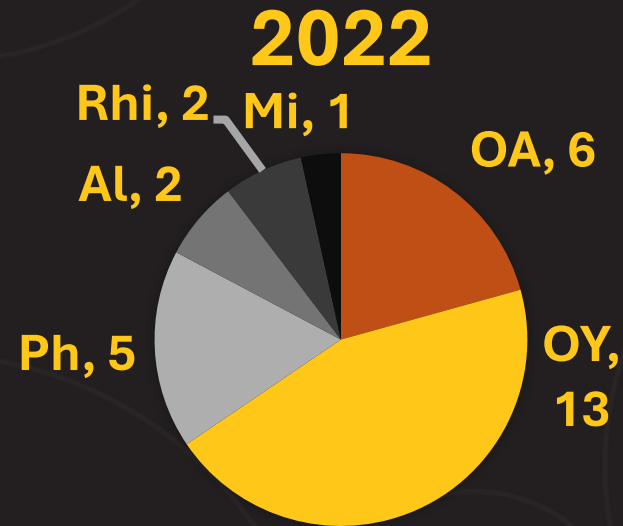
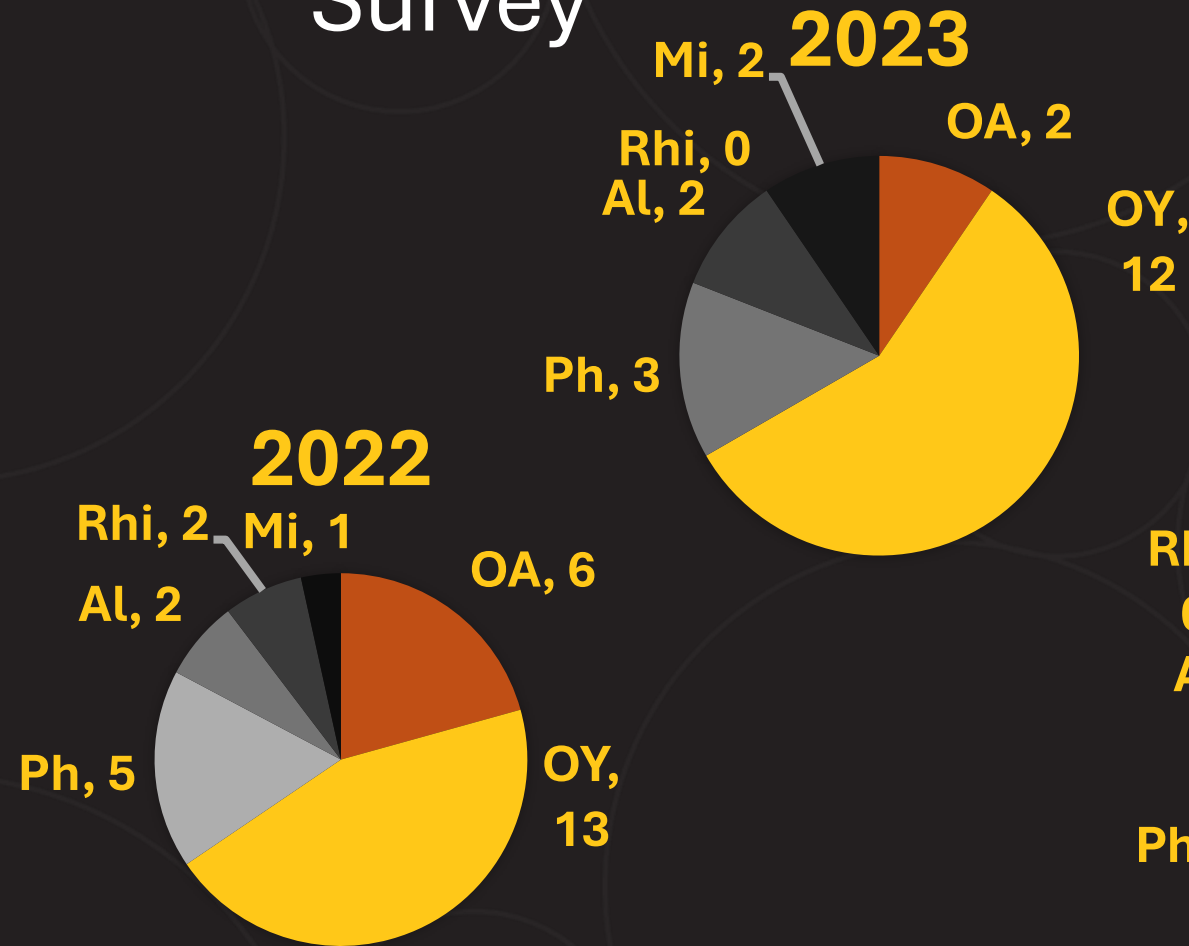
Which is the more prominent eyespot pathogen now?

Eyespot collection & Survey



A single lesion with emerging hyphae

OA-> *O. acuformis*
OY-> *O. yallundae*
Ph-> *Phaeosphaeria* sp.
Al-> *Alternaria* sp.
Rhi-> *Rhizoctonia* sp.
Mi-> *Microdochium* sp.



The majority of isolates collected were *Oculimacula yallundae*

Fungicide sensitivity testing

Comparing reference and modern isolates

Reference isolates

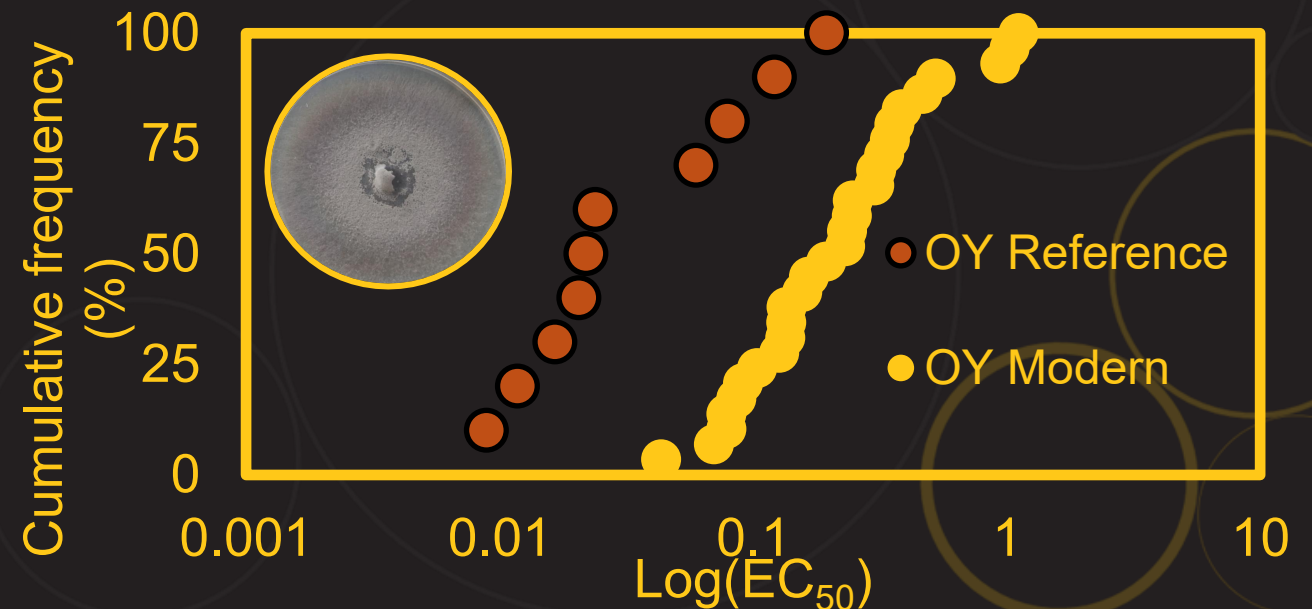
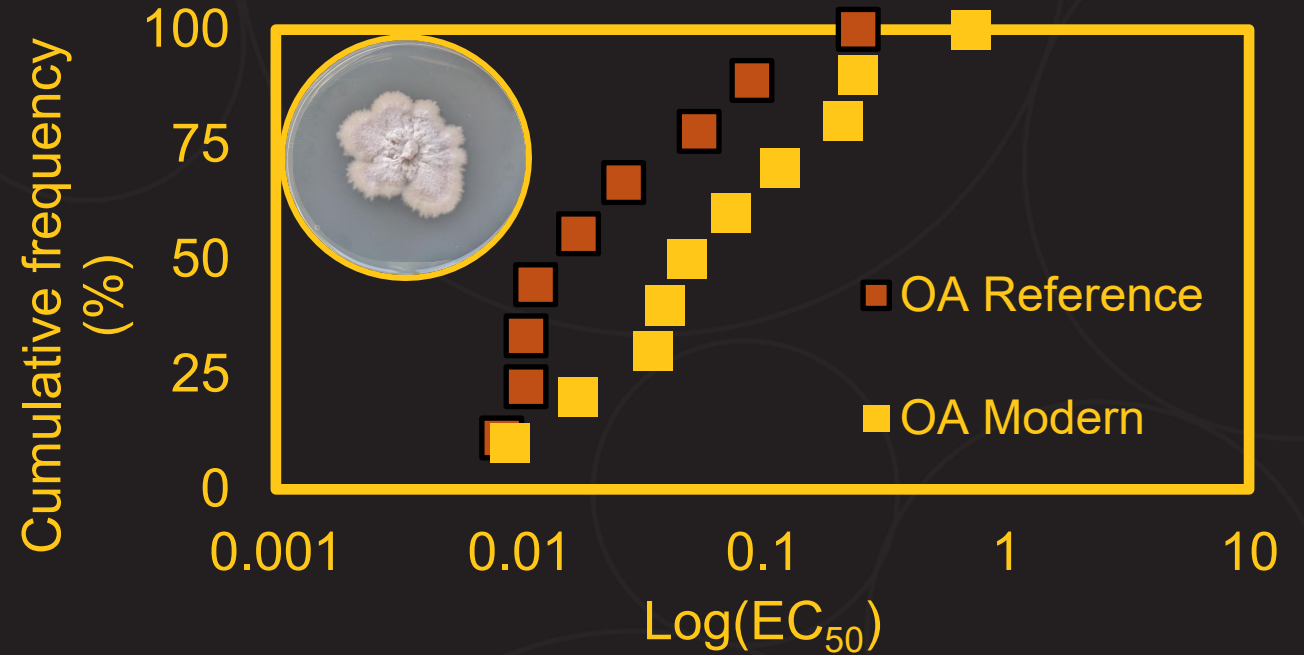
Collected
Pre-2001

Modern Isolates

Collected
2022-2024

Modern isolates of *O. yallundae* show reduced sensitivity to prothioconazole-desthio compared with reference isolates

Fungicide - Prothioconazole-desthio





ROTHAMSTED
RESEARCH



The University of
Nottingham

To find out more about my work

**Or to find out how I was able to go back in time to
detect eyespot before it was officially reported**

You can find me by my poster 😊

Thank you



Chadacre
Agricultural Trust