

Defra Survey of Crop Pests & Diseases (ECM61206)

Presented by Dr Duncan J Coston on behalf of Dr Julia Smith and Dr Sacha White.



Project aim



- **Deliver pest and disease information essential to establishing consensus across policy, research and industry**
- **Policy** – evidence to support Defra's policy objectives (e.g. Sustainable Use Directive, National Action Plan, including increasing uptake of IPM)
- **Research** – the long and short-term datasets can support research projects across many key areas
- **Industry** – e.g. pest and disease risk forecasting, informing breeding priorities, investigating the impact of changes to European pesticide legislation

WP 1 – Stakeholder Engagement



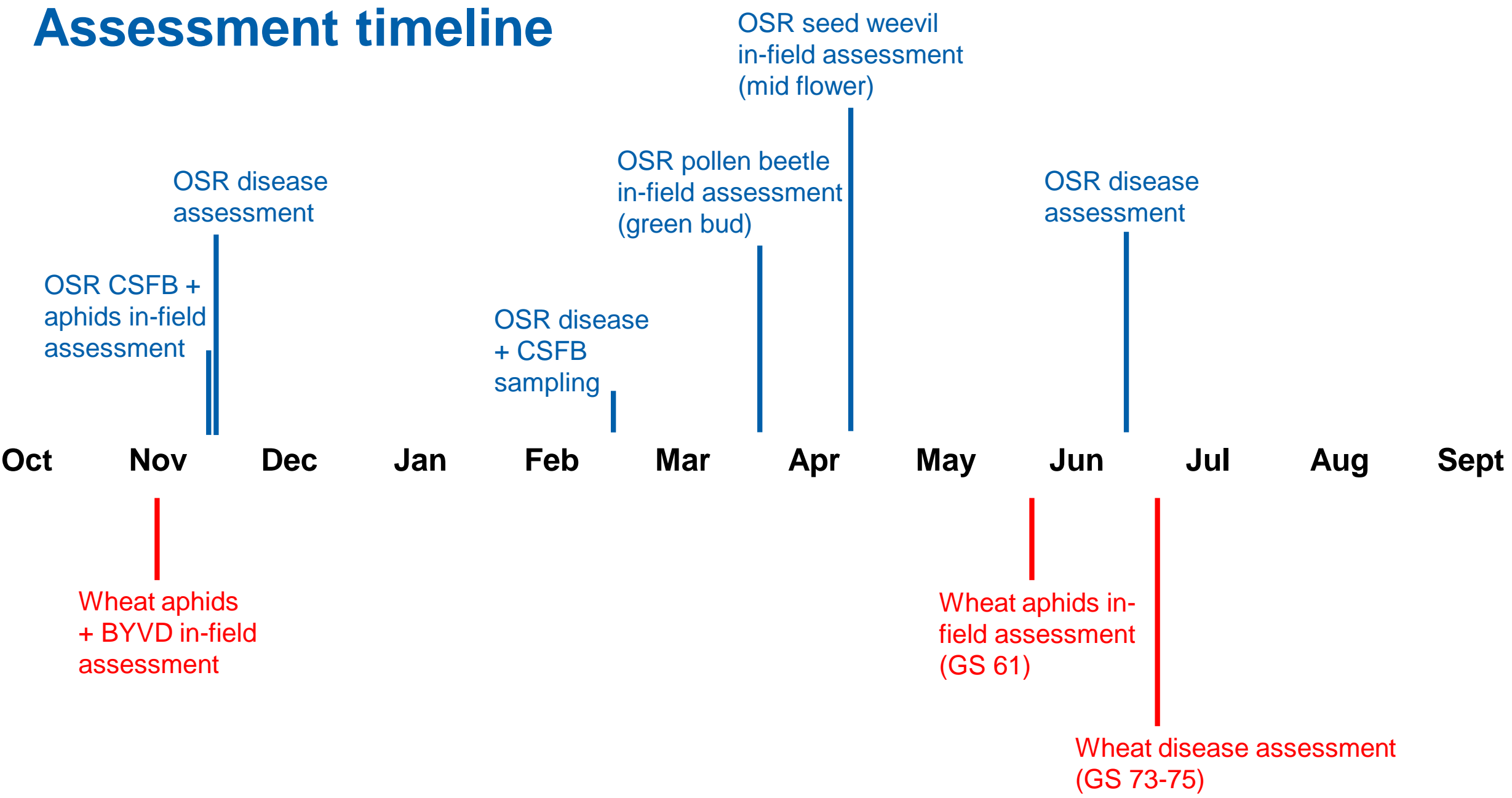
- **Objective:** Enable stakeholders' input to guide survey priorities, methodologies and innovations. Ensure data, analysis and findings are communicated effectively to stakeholders, to maximise impact and public good.
- **Deliverables:**
 - Form a Project Steering Committee:
ADAS, AHDB, AICC, CRD Defra, Welsh Government
 - Form a Diverse Stakeholder Engagement Group
(BSPB, CEH, Crop Protection Association, FSA, LEAF, NFU, Plant Health, The Wildlife Trust)
 - Communications and knowledge exchange plan

WP2 - Crop pest & disease assessment



- **Objective:** Assess pests and diseases of wheat and OSR, ensure consistency with previous surveys.
 - 300 wheat fields and 85 OSR fields spread across England and Wales
- **Deliverables:**
 - Data set of wheat and oilseed rape pests and diseases, referenced by location
 - Corresponding data set of crop input details and other agronomic factors such as cultivar, sowing date, rotation, tillage practice
 - Individual field reports sent to each participating farmer

Assessment timeline



WP 3 – Data accessibility



- **Objective:** Develop a web-based platform for the survey that provides the project team, Defra, stakeholders and the public with open access to the data, analyses and interpretation.
- **Deliverables:**
 - Make data freely and easily accessible (including historical data)
 - Web platform for the Pest & Disease survey that provides:
 - Pre-prepared trend graphs and maps, and database
 - Farmer contact management system, and data visualisation and management services
 - Dynamic visualisation of pest & disease risks and threats
 - Portals for entry of data from fieldwork and lab analysis

WP4 - Innovations



- **Objective:** Test the feasibility, usefulness and efficiency gains from key innovations. Develop and implement the most valuable innovations.
- **Deliverables:**
 - Optimised survey methodology (inc. review of sample size and stratification)
 - Validated efficient CSFB larval assessment methodology
 - Analysis of the historic data set, targeted at policy guidance needs
 - Report on the feasibility and usefulness of innovations including:
(Molecular diagnostics, Image analysis, Citizen science, Image library for training purposes, Extending the scope of organisms surveyed, Provision of pest and pathogen samples to monitor emerging strains)

More information:

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Cabbage Stem Flea Beetle monitoring 2021



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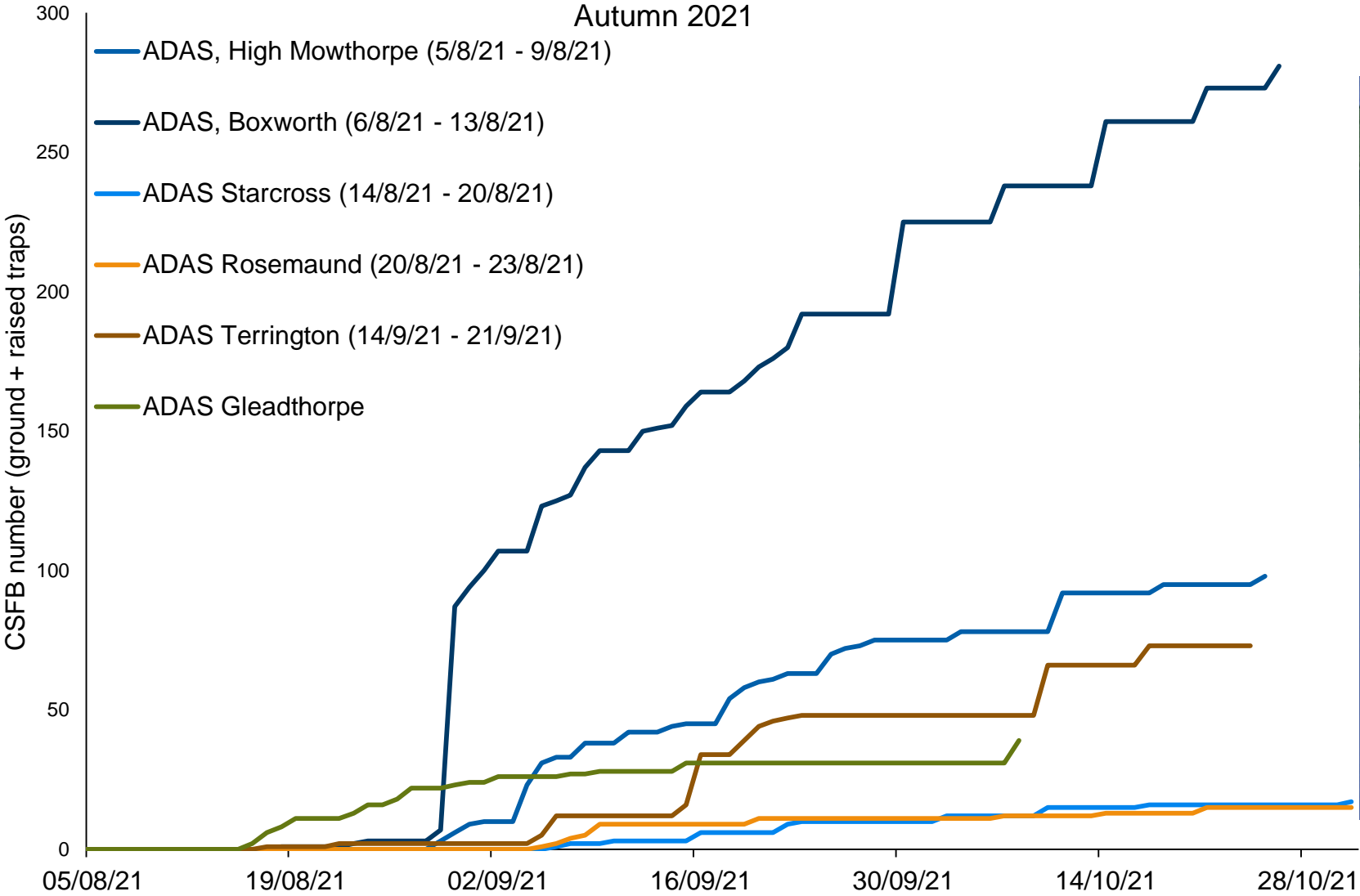


Adult immigration

- Adults – August to September daily counts then weekly in October
- Recorded using yellow water traps or sticky traps
- One at ground level
- One raised approximately 1 meter above ground



Combined adult immigration



Leaf area loss - 2021

- Leaf area loss – Once a week from crop emergence for six weeks or end of September
- Estimated percentage area loss
- Assessed on 50 plants



Appendix 1 – Examples of percent leaf area of oilseed rape eaten by *Psylliodes chrysocephala* beetles.

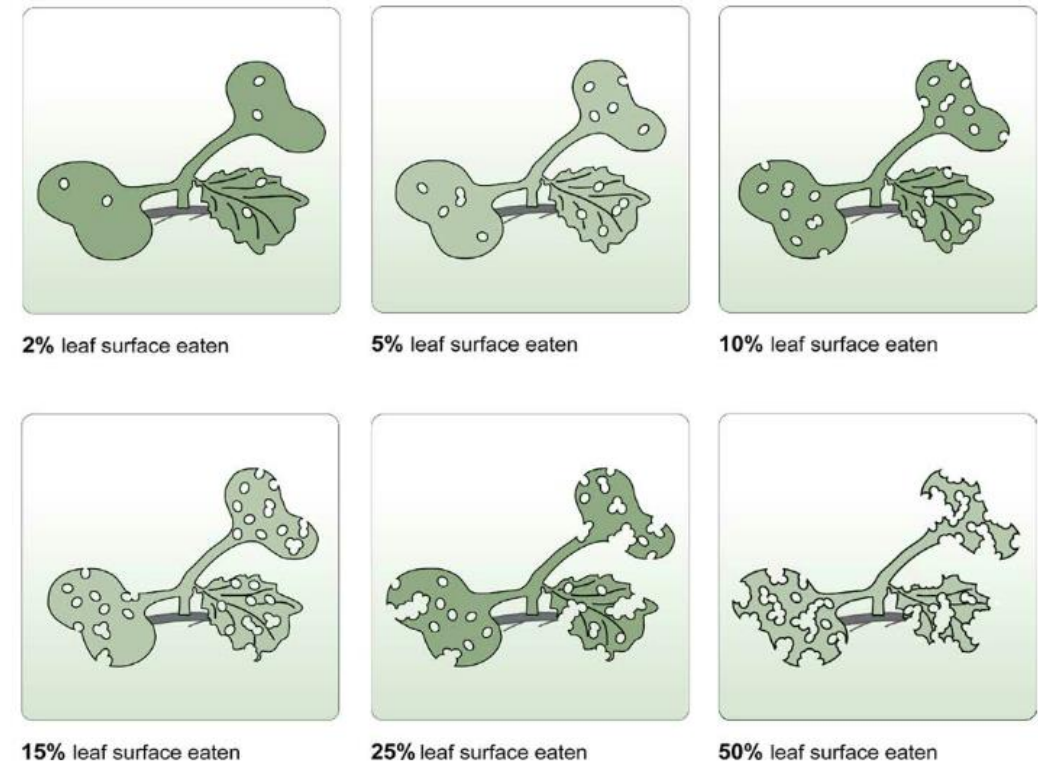
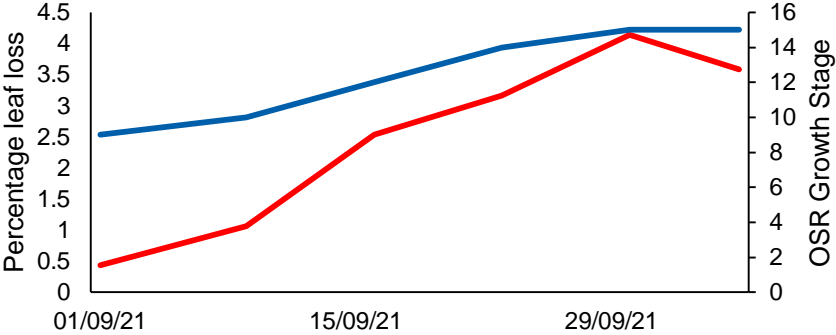


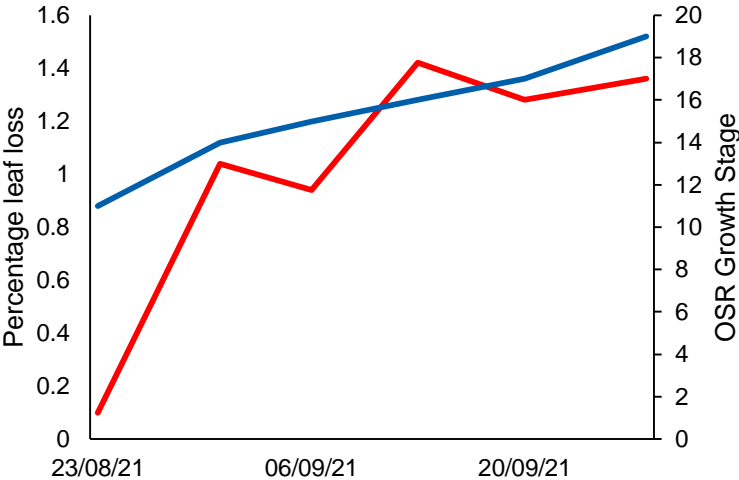
Fig. 1 Percent leaf area of oilseed rape eaten by *Psylliodes chrysocephala* (Courtesy of B. Pölitz and H. Schmalstieg, Plant protection services of Germany). Up to 50% damage is illustrated, but 'no damage' or higher percentages should also be recorded.



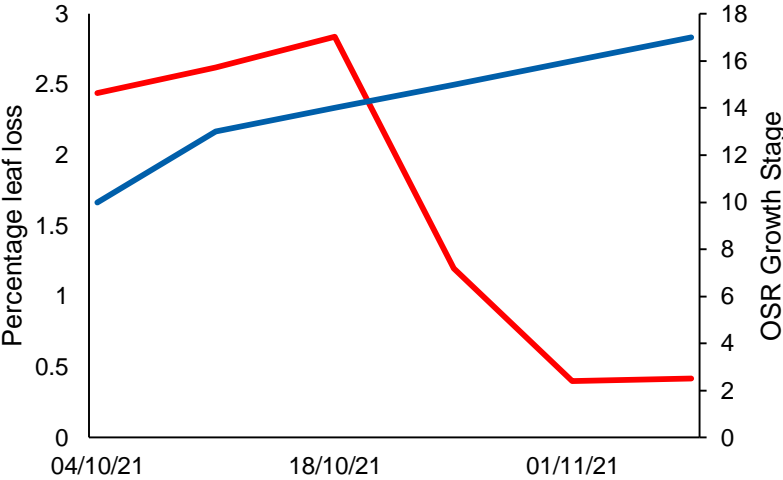
ADAS Gleadthorpe



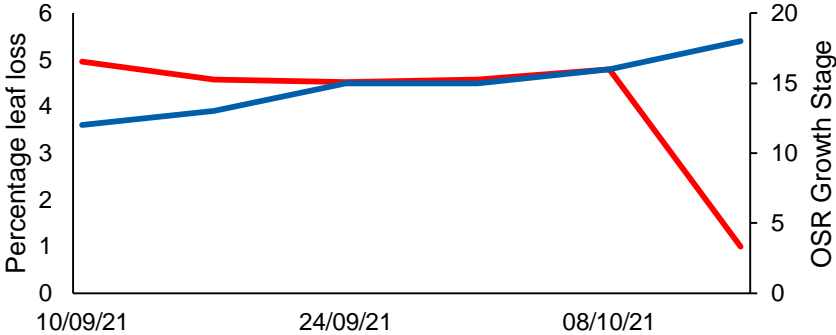
ADAS, High Mowthorpe - 5/08/21



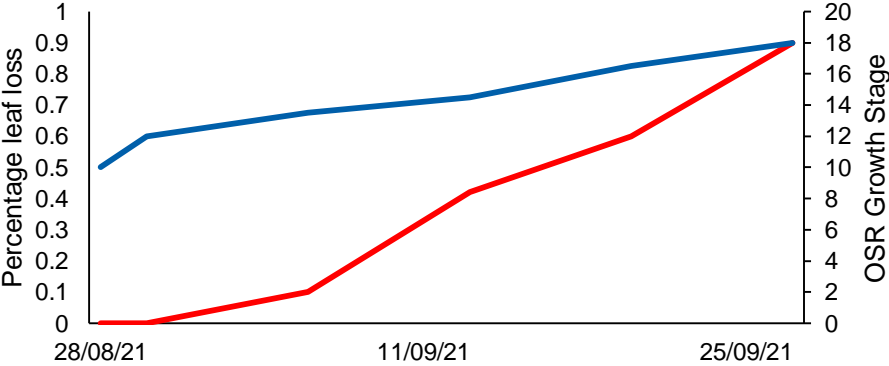
ADAS Terrington - 14/09/21



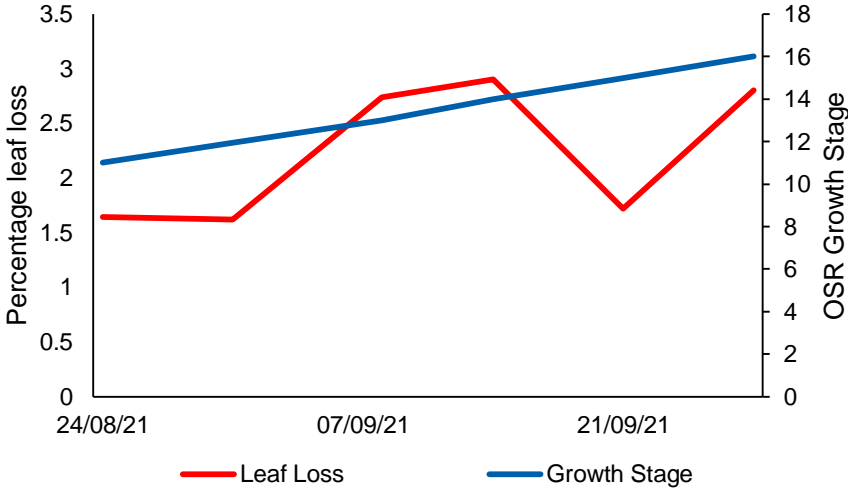
ADAS Rosemaund - 20/08/21



ADAS Starcross - 14/08/21



ADAS, Boxworth - 6/08/21



What will this tell us!



- What triggers immigration into the crop?
 - Weather
 - Date
 - Crop drill timing
 - Crop GS
 - Regional variation
- In parallel with controlled environment trials at Harper Adams.
 - How long does it take eggs to hatch?
 - How important is temperature/ humidity to egg hatching time?

Thanks to those who collected the data



ADAS Rosemaund, Herefordshire	Aimee Helme and Sam Telling
ADAS, High Mowthorpe, North Yorkshire	Tom Brackenbury
ADAS, Boxworth, Cambridgeshire	Richard Hackett
ADAS Gleadthorpe, Nottinghamshire	Joseph Priest
ADAS Terrington, Norfolk	Joe Gent
ADAS Starcross, Devon	Geoff Bailey



William Scott – Placement student at ADAS Boxworth

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