

Saving the Scottish Tattie

New approaches for virus control in Scottish seed potato crops

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Supporting industry and policy to reduce insecticide use and sustain the economic value and resilience of the Scottish seed potato sector.

Introduction

Control of aphids on potato crops, and the economically damaging viruses they transmit, is an ongoing challenge in all major European potato producing countries, including Scotland, that has become more severe in recent years. Potato crops are attacked by several aphid species, most commonly by the peach-potato aphid (*Myzus persicae*) and the potato aphid (*Macrosiphum euphorbiae*). These aphids transmit disease-causing viruses such as Potato virus Y (PVY) and Potato leafroll virus (PLRV). A multi-pronged approach was developed to tackle some of the priorities outlined by the Scottish Aphid-Borne Virus Working Group representing research, industry and policy. This real-world approach guides best practice, helping growers time interventions and improve crop protection, and meet regulatory requirements.

Our approach and outputs

Mapping changing aphid and virus populations and their traits

The vector and virus populations have changed over several decades. We have identified new dominant virus strains and aphid species and genotypes, and we are assessing the risks posed to crop health.

Using AI to create national early warning systems for forecasting risk

We have developed highly accurate forecasting models that act as early warning systems, predicting PVY and PLRV risks at both national and local scales for the following season.

Field testing integrated pest management strategies

We are collaborating with agronomists to test companion cropping and crop protection products as alternatives to insecticides.

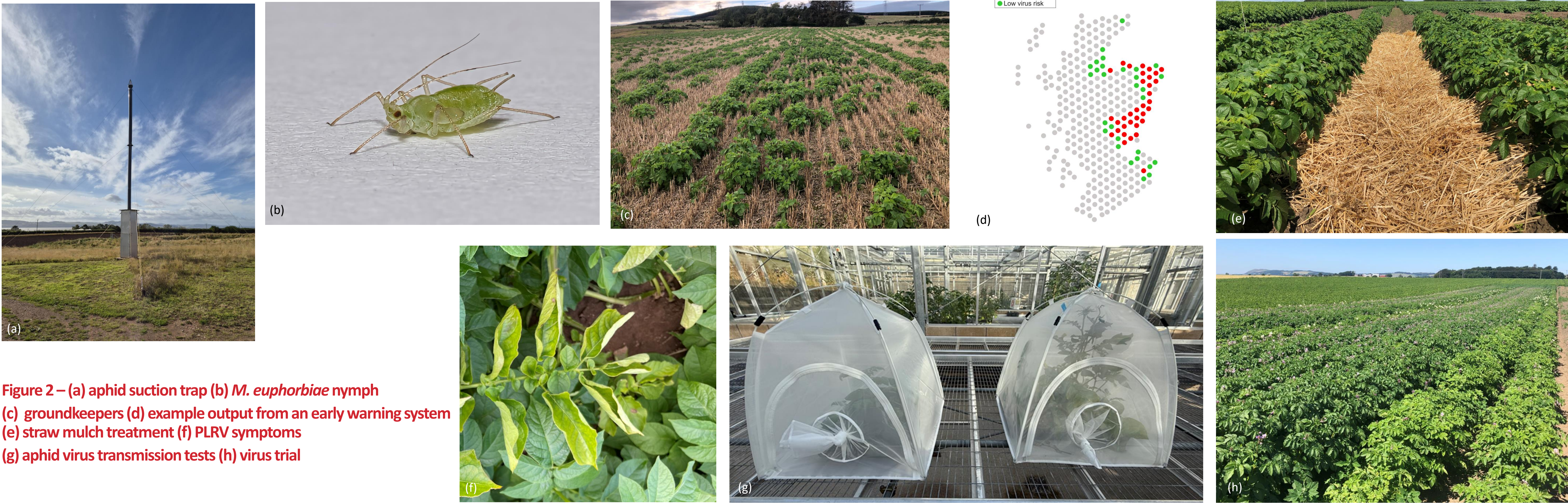


Figure 2 – (a) aphid suction trap (b) *M. euphorbiae* nymph (c) groundkeepers (d) example output from an early warning system (e) straw mulch treatment (f) PLRV symptoms (g) aphid virus transmission tests (h) virus trial

Conclusions

Benefits from this work

- Decision support tools combining new knowledge on virus and aphid diversity and modelling of local virus pressure helps the growers plan ahead and use the limited available virus control options more effectively.
- Development of integrated pest management strategies bringing together crop resistance, insecticide alternatives, natural pest control and accurate pest monitoring so that controls are applied only when needed.
- Researchers, agronomists and regulators work closely together to ensure that the latest information is shared with industry stakeholders and growers.

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