Aphids and virus

Investment: £672K over 12 years. Return: £440K p.a.

Challenge

If present in significant numbers, aphids can cause direct feeding damage to ware potato plants and impact saleable yield; but their more significant role is as vectors of a range of viruses. There are strains of PVYn which can induce necrotic rings on the surface of tubers reducing their saleability.

In seed crops aphids and viruses are an even bigger issue. EU determined tolerances restrict the proportion of virus infected plants allowed in the progeny of crops grown and marketed as seed potatoes.

Control

A range of chemical sprays are available for aphid control but they are under constant scrutiny with regards to impact on non-target invertebrate species and wider environmental impact.

Potato Council funded Aphid Monitoring

Potato Council funded aphid monitoring, utilising 100 yellow water traps, was introduced in 2004 to provide growers with aphid flight data within the main seed potato growing areas. This allows them to schedule aphid sprays and alternate different aphicide actives in-line with the estimated threat of virus spread.

This demonstrates the industries commitment to stewardship and minimises the risk of selecting for insecticide resistance within colonising aphids. The programme costs c.£22 000 per year and follows a research investment of £552k[1] balanced against the estimated value of the c.15 000 hectares grown of between £70 and £80 million. It is important to note that GB seed is primarily marketed on its high health status with around a quarter of seed production exported to EU and non-EU countries.

Whilst some growers will agree a spray regime prior to planting and stick to it whether virus pressure is high or low; there are many who will use the system or their agronomists advice in real time to adjust timing and nature of sprays - saving money.

This year in the main seed producing areas of Scotland and Northern England; it is estimated that around £40 per hectare would have been saved on using less expensive products at the start of the season if spray regimes were designed around the nature and timing of aphid flights on a species basis. This amounts to **a saving of some £440 000** if adopted across the industry.

In the more Southerly regions of England and Wales advice would have been to keep sprays tight and targeted towards colonising aphids. Whilst in this case cost of production may be elevated this year, there would be a projected saving in comparison with potential additional costs; these include the additional roguing requirements the following year and the estimated average cost of downgrading a crop of £1 900 (taken from Potato Council Groundkeeper survey 2011, to be published). Costs assume tank mixing with blight sprays.

The campaign also highlights the need for early roguing allowing targeting of problem crops and control of potential virus sources.

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Knowledge Transfer Executive

[1] research investment

1998-2001	Aphid resistance	£37 500
2000-2002	Aphicide use	£60 100
2009-2011	Neonicotinoids	£22 500
2009-2012	Virus transmission	£248 300
2011-2014	Mineral oils	£183 500