



RHASS Presidents' Initiative for 2023

The RHASS Presidents' Initiative for 2023 will raise awareness of the critical role science plays in our food and drink sector.

CASE STUDY:

Seed potato trials look to science for alternative disease management strategies.



Case Study Partner

Scottish Agronomy is Scotland's leading agronomy advice service. Proudly independent and farmer-owned, they are dedicated to finding evidence-based solutions for their grower and trade associate members. They believe that the secret to success lies in knowledge and their state-of-the-art field trials system, industry relationships and their expert team, keeping them at the forefront of crop research and development. They work to find practical, cost-effective solutions to support businesses, covering individual support, a small group service or an information only approach.



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Eric Anderson, Senior Agronomist

Overview

With the agricultural industry losing more chemicals from their toolbox every year, researchers are working closely with seed potato farmers to identify how to address disease threats using alternative and more integrated pest management (IPM) schemes.

Farmer-owned cooperative, Scottish Agronomy, has been running world-class trials in collaboration with their farmer members, with the aim of translating science into action on a practical level, to identify what works, with a view to sharing these findings more widely.

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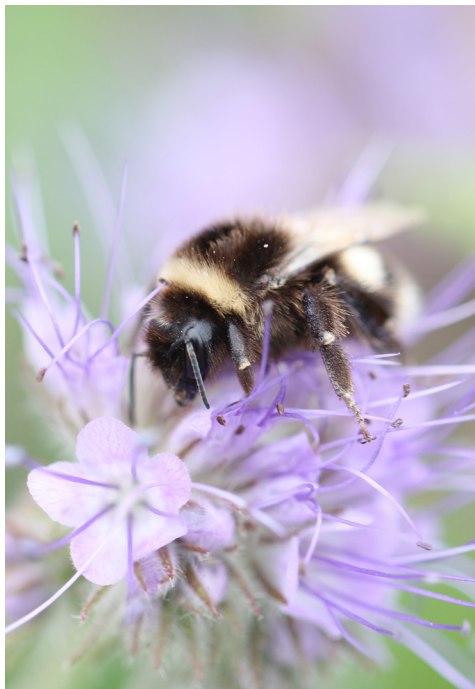
Seed potato trials

Arable farmers, the Reids at Milton of Mathers farm near St Cyrus, Montrose, have been at the heart of seed potato trials in Scotland for over a decade, paving the way for a greener sector, less reliant on chemicals.

The farm itself extends to 243ha of seed potatoes, mixed spring barley, malting winter wheat, winter oilseed rape and he rents a further 50ha for seed potatoes, which are supplied exclusively to McCain.

"We're losing products every year, and this is only going to continue, so it is vital that we as farmers are listening to the science and exploring different IPM approaches which we can implement on farm, to provide us with natural defence strategies," said Jim.

"For a long time, farmers have depended on chemicals because they were cheap and readily available but due to their overuse, many of the virus carrying aphids are resistant to the pyrethroid insecticides we used in the past. Working alongside Scottish Agronomy, we have been looking at alternative techniques such as planting flower strips, buffer cereal margins and using straw mulch, with promising results."



High health status

Eric Anderson of Scottish Agronomy is overseeing the range of work being undertaken at Milton of Mathers and explained why this work is so important. "Seed potato production is a highly specialised and innovative industry and accounts for 37% of Scotland's planted potato area, produced by 186 registered seed growers. The health status of the crop is higher in Scotland

than anywhere else, and this is something we want to maintain, to enhance both domestic and export opportunities for seed. "The challenges presented by changing weather patterns and the onset of milder autumns, require greater collaboration with growers and scientists, pushing for an integrated programme which creates that translational science into practice.

"The health status of the crop is higher in Scotland than anywhere else, and this is something we want to maintain."



Research in practice

"Working closely with Jim, and the team at McCain, we have been able to look at practical aspects on a real seed farm and demonstrate tangible solutions to the wider seed sector."

One of the main trials Jim and Eric have been investigating over the last two years has involved

spreading chopped wheat straw before emergence of potatoes, as a mulch, to act as a natural defence. Alongside this, they have been applying a mineral oil to the canopy early on in the crop development, which creates a coating on the leaf surface, so when an aphid lands on the leaf, the oil dislodges the virus particle from the aphid mouth parts.

Straw mulch

Two trials were conducted in 2021, one on Jim's farm in Montrose and another sister trial in Fife and it was found that applying straw mulch led to a 40% reduction in Mosaic virus, but by using an integrated programme applying mineral oil decreased Mosaic virus by 55%.

The same trial was repeated in 2022, and using straw mulch alone accounted for a 49% reduction in virus and where a mineral oil was added, it provided 54% control.

"Interestingly, where we used a pyrethroid insecticide, it increased Mosaic virus relative to a control of no treatment and was 17% less effective," said Jim.

"By adding straw, you are not only discouraging aphids landing in the crop, but you are adding organic matter to the following crop as well. There are a lot of farms that have no livestock, and they are baling straw and selling it on to other parts of the country, but the evidence suggest that they should be keeping more of that straw for themselves."

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This case study is one in a series, highlighting where farmers, across a range of different sectors, have benefited from scientific advancements.



Wildflower corridors

Other defence techniques being trialled at Milton of Mathers, include drilling spring barley around the seed crop and planting wildflower corridors stretching from headlands to the middle of the field, to entice natural aphid predators into his potato seed crops.

“As farmers we should be creating corridors in crops permanently, as field sizes have become bigger, hedges have been ripped out, but we need to have corridors within the fields because predators generally congregate around headlands and these avenues created within the crop, are good for insect life and for wildlife,” continued Jim.

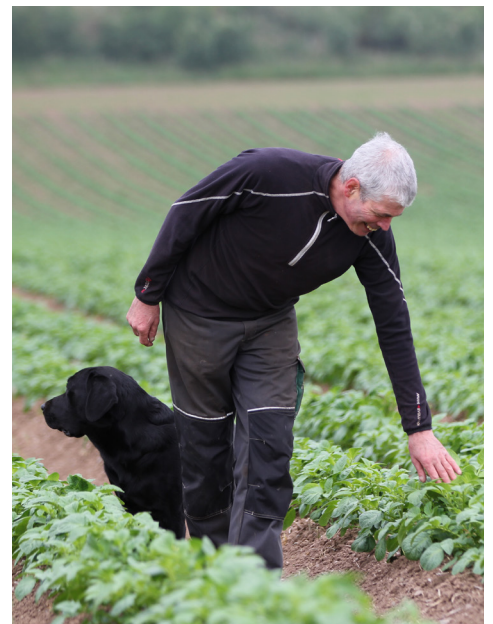
Scalability

“No one technique is a silver bullet, but using a multitude of techniques in-field is providing good results. Our trials have real scalability and there is a strong ‘show and tell’ element to what we do, and we regularly have people on to farm to see what we are doing and looking at how they can actively engage in some of these practices on their own farm.”

Eric concluded by reiterating the value to be gained from researchers and farmers collaborating.

“Jim and I have worked together for over a decade and that blended opportunity of combining an agronomy approach with an enthusiastic and practical approach from a farmer has worked so well.

“The work we are doing is for the benefit of the whole industry and it is crucial that there is scalability and uptake by farmers, so we can support and maintain the high health status of Scotland’s seed potato sector, moving forward.”



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