PCN Action Scotland and the BBC – behind the scenes

Recently the PCN Action Scotland project has attracted the attention of the BBC as an impactful and valuable agricultural news topic to film segments on. The project has recently featured in print (Read article here), on the radio (Listen here), and on TV (watch here) on both Reporting Scotland and the One Show. This has been an incredible opportunity for the project. We don't take it lightly that very few research projects attain this high a level of public outreach. For example the article above has already had 50k views on X (Twitter) alone and the article garnered over 168 comments directly on the BBC website.

As the knowledge exchange lead for PCN Action Scotland, I spent a day behind the scenes of the One Show recording to see what goes in to making their feature segments. Before filming started there were multiple hours in phone calls to give expert background information and for project partners to help storyboard for the segment. Firstly, Dr James Price, who leads the project, was interviewed in his lab at the James Hutton Institute. He explained what PCN are, why they are such a problem to Scotland's potato industry, and the work that PCN Action Scotland are carrying out to tackle the problem. He particularly focused on how valuable resistant varieties could be as a solution, and the increased need for the industry to grow, promote and buy PCN resistant potato varieties.

What are PCN?

Potato cyst nematodes (PCN) are microscopic roundworms which live in soil and feed on potato crops. There are two species of PCN – *Globodera pallida* and *G. rostochiensis*. PCN can survive in soil for multiple decades, feeding whenever potatoes are planted and reducing the yield that can be harvested.

Why are PCN a problem?

PCN can survive in soil for multiple decades, feeding whenever potatoes are planted and reducing the yield (number and quality of potatoes) that can be harvested. If we don't start intervening soon Scotland won't be able to grow seed potatoes by 2050.

What is a resistant potato variety?

Resistant varieties are those which can limit PCN from multiplying in the field. It is scored on a numerical scale with 9 being the most resistant and 2 being the most susceptible.

What is the difference between ware and seed potatoes?

Seed potatoes are those which are used to grow next year's potato crops from. For example a seed potato crops this summer will be harvested, stored over winter, and then planted next year.

Ware potatoes are those which are harvested for an end purpose such as selling fresh in supermarkets or going for processing into products such as crisps. Ware potatoes are not allowed to be replanted the following year.

Next it was an early start for Jim Wilson, local potato grower, managing director at SoilEssentials, and PCN Action Scotland work package 6 lead. Filming started at 7:30am and Jim was interviewed by chef and TV presenter Hasan 'Big Has' Semay. Best known for his 'Sunday Sessions' YouTube channel and being a judge on Young MasterChef. Has brought a genuine interest for the topic and a casual manner that put interviewees at ease. Jim, alongside his colleague Catriona, also from SoilEssentials, demonstrated for the cameras how to take a soil sample to test for PCN. They also discussed the available management options for a field that has a PCN infestation, and the different decisions they might make for ware and seed potatoes. Jim also took the film crew on the back of the potato harvester to get an up-close view of what it takes to get our potatoes out of the ground and on to supermarket shelves.

The crew then visited another local farm manager Kerr Howatson to give them a personal case study on what can be done with a PCN infested field. Kerr explained that there was a PCN problem (*G. pallida*) in one of his fields, so he had decided to grow the variety Elland (CygnetPB) which is resistant to that PCN species. By doing this he aims to reduce the PCN population in his field to below detectable levels. The Elland potatoes which Kerr has grown this season have been harvested and will be sold by Albert Bartletts, and the crew were interested in why resistant varieties are not more widely grown as part of the solution. We discussed that part of the problem is a lack of familiarity with these variety with buyers and consumers so the last stop on the tour was to visit a local fish and chip shop (Murray's in Broughty Ferry) where a dual resistance variety was fried up and compared to a more conventional chip variety. A taste test was then carried out with members of the public. Everyone loves chips, and the new varieties got lots of positive comments on and off camera.

The key takeaway messages we highlighted in these interviews are:

- Although PCN is a big issue faced by the Scottish potato industry it is not insurmountable, and immediate use of resistant potato varieties along with other integrated pest management techniques will really help.
- We were careful to explain that resistant potato varieties are all produced through conventional plant breeding methods, to avoid any mistaken perceptions and comments about GM.
- Resistant potatoes do not look any different to the varieties traditionally sold in stores. There will only be the same subtle differences in texture and taste as there are between any current varieties e.g. a Maris Piper and King Edwards.
- We need all sectors of the potato industry, from growers through to processers and buyers, to embrace PCN resistant varieties if we are to make a real lasting change to the current PCN problem. Hopefully more awareness and demand from the public will help with this.
- There are a lot of PCN resistant varieties coming through breeding programmes now and we only highlighted a few in the interviews. Other varieties are available and trials data on several of them can be found on the PCN Action Scotland website.

More information on the PCN Action Scotland can be found here at the Potato Cyst Nematode Hub (pcnhub.ac.uk).

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