‘Hand in Hand’: Synergies in Scottish Potato Sustainability

An Interview with Dr Alison Karley

This interview was held on 11 March 2025

Dr Alison (‘Ali’) Karley (AK) is a researcher in the Agroecology Group at the James Hutton Institute, now Head of the Ecological Sciences department. She contributed to the SEFARI Gateway-funded project *Roadmap for Reducing Greenhouse Gas Emissions from the Scottish Potato Crop*, working alongside colleagues from Scottish Rural College (SRUC). The project produced a phased roadmap for reducing emissions from one of Scotland’s most economically important crops.

Dr Ioanna Akoumianaki (IA), Policy and Impact Officer at SEFARI Gateway, James Hutton Institute, spoke with Ali about what the roadmap revealed, the synergies it surfaced between pest and disease management and carbon reduction, and the directions that could carry this work forward.

IA: *Why does this work matter for Scotland?*

AK: The potato sector, and particularly the seed potato sector, is a major contributor to the Scottish economy. Scotland has historically been the place where clean, disease-free seed potatoes are produced, largely because the climate here is less favourable to certain pests and diseases. But potato growing also carries a significant carbon footprint, and the system is disruptive to soil. If Scotland is to meet its net-zero goals while keeping a valuable seed potato industry, we need to understand how to bring those emissions down. That is what the roadmap set out to do.

IA: *How has this research shifted thinking about emissions from the potato sector?*

AK: One of the most useful contributions of the project, in my view, is showing that two problems often treated separately, pest and disease control on one hand and carbon footprint on the other, are closely linked.

Pest and disease control is becoming harder for several reasons that compound one another. Regulatory concerns about environmental and human health impacts have led to the withdrawal of a number of pesticides, leaving fewer products available to growers. The pests themselves have built up resistance to several of the products that remain, so even those tools are losing their edge. On top of that, a warming climate favours pests and diseases. And alongside all of this, public and policy attitudes continue to move towards more environmentally sensitive growing practices.

What is becoming clear is that alternative agronomic methods, those that rely less on chemical inputs, can deliver both better pest and disease management and lower emissions at the same time. From my own angle, working on sustainable production systems, I see growing interest from the sector in exactly these kinds of methods. The synergy is real, and the roadmap has helped surface it.

IA: *Variety choice has come up frequently in your recent discussions with the sector. Could you say more?*

AK: Variety profile comes up in nearly every workshop I have attended over the past few months. The varieties grown are very much shaped by the market, and supermarkets play a significant role. If you look at potato bags in a supermarket, you might find four different varieties on display. That is quite limited diversity. Supermarkets are looking for consistency in what they think their customers want, but customers rarely get the chance to explore anything different. It is something of a circular argument.

Because those varieties tend not to be ideal for pest and disease resistance, the wider challenge becomes harder, whether the goal is lowering the carbon footprint or improving disease control. There has been a positive development worth highlighting, though: a newer variety, Innovator, with resistance to certain disease issues, has begun to be more accepted by retailers. It is still a small share of overall production, but it is a good-news story and shows that change is possible.

IA: *What would help the roadmap’s recommendations land in practice?*

AK: Capacity-building is a natural next step, and it needs to span the whole chain: growers, advisors, processors, and the regulatory side. Best practice does exist, but the guidelines need regular updating, and

there is room to make sure that what good practice looks like is more consistently understood and applied across the sector.

Some of the variation reflects genuine practical constraints. Walking the crop to spot the early signs of pest or disease pressure takes time, and farming has become much less people-intensive than it once was. So an effective programme of training and support would refresh good practice and account for the real-world conditions in which growers, advisors and regulators are working today.

IA: *Looking forward, what would strengthen the roadmap's impact?*

AK: The most valuable next step, in my view, is to look at the potato growing system as a whole. Potatoes are not grown on their own. They sit within a crop rotation, and the data in the report shows clear trends but also a lot of variation, much of which reflects what farmers are doing in those fields in other years and with other crops. Decisions need to be made within that wider context.

That points to a follow-on approach that brings carbon footprint together with pest and disease management, soil health, and the rest of the crop rotation. It also points to the value of working across organisations. A joint initiative with Scotland's Plant Health Centre, for instance, would connect crop protection, which is a major part of the environmental footprint, with the carbon and emissions agenda. Several different initiatives, working together, could help the sector think about all of this in a more joined-up way.

Both objectives, carbon reduction and crop resilience, matter, and they are far more achievable together than apart. The research community, the sector and government have an opportunity to build something genuinely cross-cutting on the basis the roadmap has set out.