Outcomes and impact of NPIC

World class research in potato science supporting innovation in the potato supply and value chains will lead to:

- New businesses and start-ups
- Training and skills development
- New breeding pipelines for rapid development and deployment of new varieties for sustainable systems
- New technologies for efficient, net zero production with less waste
- High value functional foods and novel natural products including, non-animal based-proteins, potato-based plastics and biomolecules (e.g. vaccines)
- A focal point for potato research across the UK and globally
- An aligned and informed stakeholder community
- New international collaborations underpinning global food security with global economic benefits
- Reputation as a key player in food security in the UK and globally

Economic benefits in the form of:

- New facilities, expertise and jobs brought to Tayside
- Complementary facilities and critical mass in food and drink available to all sectors of the industry
- A strong creative cluster for food and drink innovation in the UK attracting inward investment for jobs and new businesses

A strategic outline case and high-level economic analysis demonstrate a clear need for the project, and a strong economic case with potential benefit cost ratio (BCR) of over 4.4.

Cost: It is estimated that the cost of building and equipping NPIC will be between £46 to £56m.

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The James Hutton Institute



The case for a National Potato Innovation Centre (NPIC)



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Food security is a global issue

Potato is a major food crop in the UK and throughout Europe, and is key in government strategies worldwide (including in China, India and Sub-Saharan Africa) to attain food security by ensuring a reliable and sustainable supply of healthy food.

A sustainable, climate adaptive and resilient food supply requires i) rapid development of cultivars adapted to a changing climate, that grow in low-input systems and support integrated pest management; ii) net-zero farming through improved sustainable and climate resilient growing systems; and iii) better exploitation of crop waste through novel uses.

Potato is an important part of the Scottish and **UK economies**



Potato is the world's third most important food crop and the UK's second (after wheat)

BUT- Self-sufficiency in UK potato production has fallen from 100% in 1970s to <65% in 2024

The potato industry is worth £4.3b to the UK

economy, equivalent to £6.71 downstream



on-farm GB is a net exporter of seed potatoes, with Scotland £1.6b to the of area grown

accounting for c. 75%



BUT- GB imports 4x more potatoes (£970m of predominantly processed products)

The James Hutton Institute in partnership will use science to future-proof the UK potato industry

We are proposing to establish and manage a National Potato Innovation Centre (NPIC) because we are:

- The UK's biggest R&D centre for potatoes
- Custodians of the Commonwealth Potato Collection (CPC), a unique source of potato germplasm from wild relatives and land races
- Experts in delivering commercially successful varieties for major breeding companies, worth c£30m (c. 4.2% market share)
- Strong in delivering applied science for the agricultural industry
- Internationally renowned with many national and international partners

How the NPIC will work

The NPIC will comprise a state-of-the art-innovation centre to work in partnership with all stakeholders; academic, industry and government to deliver solutions to industry. Based in Dundee with national and international partners, NPIC will be part of a creative cluster where it will generate new findings, innovative products and high skilled jobs in new industries.

There are three main pillars:

1. Discovery and breeding

2. Resilient production systems

Develop sustainable, climate resilient production systems using precision agritech tools such as robots, drones, below ground phenotyping, Al and modelling, controlling disease, managing waste and contributing to net zero farming systems.

3. Innovative potato products

Investigate novel uses of potato: using waste tubers, peelings, haulms as raw materials for extraction of bioactives for medicine, modified potato plants to produce plant-based medicines (e.g. opioids and vaccines), and new alternatives to plastic. Production of new functional foods from nutritious high quality potato proteins (a rapidly growing world market).

Investment for the NPIC is needed in the form of...

Capital funding:

- Glasshouse complex and vertical farm with controlled environment facilities to grow out our Commonwealth Potato Collection, carry out crosses and 'speed breeding', mine key traits (including drought tolerance, pest and disease resistance) identify new genes and compounds, and conduct disease testing and trial processing experiments (new products)
- Facilities to investigate novel compounds, below ground phenotyping systems to assess tuber and root features and a pilot plant for processing characteristics
- Open **campus space** comprising demonstration, engagement and meeting spaces for stakeholders in multilateral projects

Training and apprenticeships:

• A need to invest in technical skills and know-how in advanced production and processing for early career researchers, through Fellowships and Studentships to train the next generation of specialists