# **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 and underpinning global food security and nutrition 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 and expertise 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 4.0.

Cost: It is estimated that the cost of building and equipping NPIC will be between £40 to £50m.

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The James Hutton Institute

The case for a **National Potato** Innovation **Centre** (NPIC)

## Potato is a globally important crop





The third most important staple food

**High in** vitamins, minerals,

protein and

dietary fibre

Can be

adapted

to different

agro-

environments



**Produces more** food per hectare and per unit of water than grain crops

Scott, Markus Spiske, Cloris Ying / unsplash.com

Gary

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## Food security is a global issue

Potato is a major 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.

The climate and biodiversity crises require rapid development of crop cultivars adapted to warmer environments to be grown in low input sustainable systems.

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

The seed potato sector in Scotland and north/east England is worth £100m - Scottish seed is 80% of the business



Potatoes are worth c£750m to farmers



The potato supply and value chain is worth >£3bn annually to UK economy and support thousands of jobs in potato businesses, retail and hospitality

The export market for GB seed is worth

UK c.70% selfsufficient



It is estimated that for every £1 of potatoes grown and sold in the UK, consumer expenditure is £3.70 through value chain and retail impact

## 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 internationally renowned for potato science, and the UK's biggest R&D centre for potatoes
- We are custodians of the Commonwealth Potato Collection (CPC), a unique source of potato germplasm from wild relatives and land races
- We have extensive expertise in delivering commercially successful varieties . for major breeding companies, worth c£30m (c. 4.2% market share)
- We have a track record in delivering applied science for the agricultural industry .
- We have many national and international partnerships

## How the NPIC will work

The NPIC will work with the whole sector to deliver solutions to industry, and will comprise a state-of-the art-innovation centre that will work in partnership with all stakeholders; academic, industry and government. 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. much faster production

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

3. Innovative

potato products

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:**

- A new **glasshouse complex** with controlled environment facilities to grow out accessions from our Commonwealth Potato Collection, carry out cross and 'speed breeding', mine key traits including drought tolerance, pest and disease resistance and 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 pilot plant to assess processing characteristics
- Open **campus space** comprising demonstration, engagement and meeting spaces for stakeholders to access for mono-, bi-, or 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