

2.1. 8 NOVEL CROPS and NOVEL CROPPING SYSTEMS



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Research on NOVEL CROPS



2012-2016

SUSTAINABLE PROTEIN SUPPLY
SP: Health impacts of sustainable ingredient selection in the food and drink industry



Plant Crops
Composition

Human
Dietary
Studies

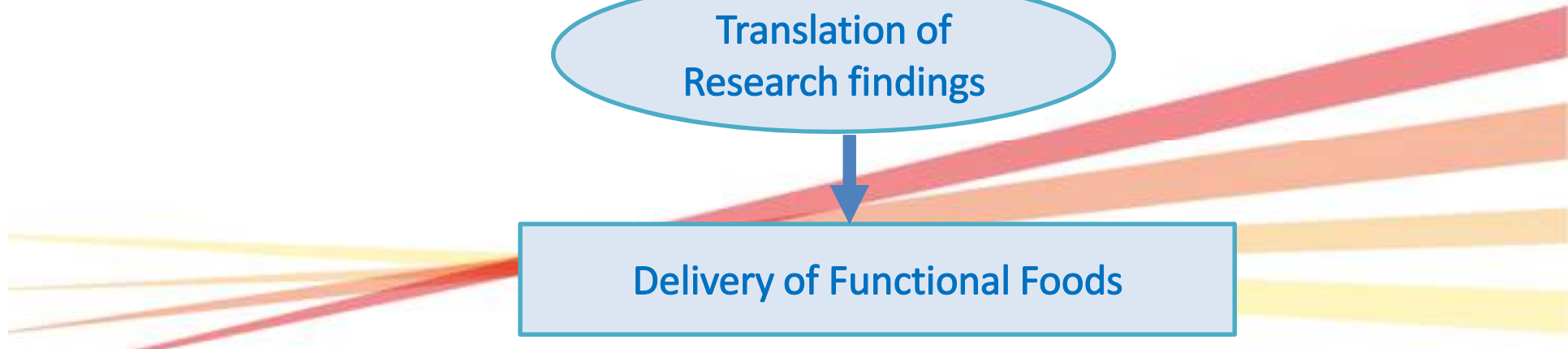
Nutritional &
Health
Impact

2016-2021

NOVEL REFORMULATION TECHNOLOGIES
Development of Novel Sustainable Functional Food Ingredients

Translation of
Research findings

Delivery of Functional Foods



NOVEL CROPS Outcomes

Scottish Pie Project



Croft Valley Foods Ltd

Novel crops for healthier food formulations

- 11% less calories (330 Kcal)
- All plant based protein
- 30% less fat
- 150% more fibre
- 55% less Na content
- 3 times more bioactive molecules
- 23% less lipid peroxidation product

IAN WILKINSON

“....results gave me evidence to use in marketing the product, ensuring credibility in a very competitive marketplace....

.....satisfaction from both vegetarian and meat-eaters has been positive”

Customer statement:

..... “It was the best pie he had tasted”



NOVEL CROPS Outcomes

Food Industry and Consumer Engagement



NOVEL CROPS Outcomes



Buckwheat



Hemp



Inverleith LLP

Development of NOVEL CROP Functional Food Ingredients

- Nutritional therapies
- Prevention of non-communicable diet related disorders (CVD, T2D)
- To be introduced in staple foods, whole range of foods

Think Tanks (Gateway)



Revalorisation potential of underutilised protein-rich resources

Deliver a protein map for Scotland

Identify waste and co-products prime for revalorisation

Engage with key stakeholders

Pathways towards a sustainable-protein economy

Approaches to mapping the plant protein economy (UK)

Identifying pathways and triggers to shift towards greater sustainability

Provide a food and feed protein budget



Using pulses in fermentation based industries



- *high value products (beer and neutral spirit)*
- *high value high-protein coproducts*

Kirsty Black, master distiller and distillery manager at Arbiakie Highland Estate



- *Originally pioneered with Barney's Beer, www.barneysbeer.co.uk*
- *now supported in a joint PhD with Abertay University ([Prof. Graeme Walker](#)), and*
- *a Case Study within the EU-H2020 project TRUE - www.true-project.eu*
- *Coproducts are valorised in partnership with Horizon Proteins Ltd, www.horizonproteins.com*



Isolating and characterising elite-rhizobia



- over 200 rhizobia isolates screened in glasshouse-, polytunnel and field-trials



Originally supported by Genomia Fund, and now a joint PhD with Uni. Stirling, ([Dr. R. Quilliam](#)), co-funded by PGRO and Legume Technology Ltd.

- www.pgro.org
- www.legumetechnology.co.uk



Field trials of elite rhizobia strains are underway

Thank you



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