



STRATEGIC PLAN TO SUPPORT NATIVE PROTEIN PRODUCTION

IRISH PROTEIN
STAKEHOLDERS GROUP

EXECUTIVE SUMMARY

Ireland has a large dependency on imported animal feed, especially proteins. There is a requirement for circa 900,000 tonnes of protein (or 3.1 million tonnes of faba bean equivalent), which is mainly satisfied by imported soya, maize distiller's grains and other feed sources.

In the short term, the faba bean is the most suitable crop to reduce Ireland's reliance on imported proteins but peas, lupins, soya and forage crops can all make valuable contributions. Since the introduction of the protein payment in 2015, the area of spring beans has increased from under 3,000ha in 2014 to almost 13,000ha in 2020, producing on average 52,000t for the Irish feed industry.

Protein Stakeholders Group targets

The target as set out by the Teagasc-led Protein Stakeholders Group is to increase this to 130,000t from 20,000ha. The group has identified three key strategies to achieve this goal:

1. Improving farmer profitability from protein crops versus other crops through variety improvement, better agronomic practices and bridging knowledge gaps.
2. Create a positive market environment for indigenous protein crops by establishing their nutritional credentials and demonstrating to livestock producers the advantages of substituting imported proteins.
3. Create a greater recognition of the sustainability credentials of native protein crops to achieve climate change and biodiversity targets by the displacement of imported protein sources.

National and EU policy

The Protein Stakeholders Group target is closely aligned to national and EU policy. The European Green Deal sets out how to make Europe the first climate-neutral continent by 2050. The Farm to Fork strategy is at the heart of the European Green Deal, aiming to make food systems fair, healthy and environmentally friendly. The Farm to

Fork strategy recognises the role that native protein crops can make in achieving these targets. Increasing the area of leguminous protein crops makes a positive contribution to the targets of a 20% reduction in fertiliser use and a 50% reduction in pesticides set out in Farm to Fork.

Ag Climatise, the Department of Agriculture, Food and the Marine (DAFM) roadmap towards climate neutrality emphasises the importance of increasing the proportion of homegrown protein in livestock rations.

The roadmap states that over the next decade, there is the potential to produce 40,000ha of beans. The

report also references the potential for alternative protein crops for human use that would capitalise on the increasing trend of plant-based diets.

The Group's target of producing 20,000ha of native protein crops is supported by Ireland's Common Agricultural Policy (CAP) proposed strategic plan 2023-2027 under the voluntary coupled support scheme for protein crops, with target payment rates of

€350/ha available for peas, beans, lupins and soya with mixed cropping included at a lower rate. The proposed increase in support from €3m to €7m highlights the DAFM's commitment to protein crops.

Sustainability

Teagasc analysis of the average tillage area from 2019-2021 has shown that increasing the area of faba beans from the current ~10,000ha per annum to 20,000ha per annum can reduce nitrogen (N) requirements by up to 1,619,529kg of N or 6,000t of CAN equivalent.

Legumes have an important role in sustainable tillage systems. In addition to enhancing soil N levels and acting as a break in cereal rotations, they are a resource for pollinators, promote soil biodiversity and the overall greenhouse gas (GHG) emissions associated with legumes is low.



OUR GOAL

To support farmers to produce 130,000t of indigenous protein crops from 20,000ha in Ireland by 2030.

THREE STRATEGIES TO GET THERE



FARMER PROFITABILITY

Improving farmer profitability from protein crops versus other crops through variety improvement, better agronomic practices and bridging knowledge gaps.

CREATING DEMAND

Create a positive market environment for indigenous protein crops by establishing their nutritional credentials and demonstrating to livestock producers the advantages of substituting imported proteins.



SUSTAINABILITY

Create a greater recognition of the sustainability credentials of native protein crops to achieve climate change and biodiversity targets by the displacement of imported protein sources.

THREE STRATEGIES TO GET THERE



Improving farmer profitability from protein crops versus other crops through variety improvement, better agronomic practices and bridging knowledge gaps.

OBJECTIVES

- 1.1 Improving farmer profitability from protein crops versus other crops through variety improvement, better agronomic practices and bridging knowledge gaps to exploit the added value potential of plant-based protein in premium food markets.
- 1.2 Improve basic agronomy to deliver crop improvement to average target yield of 6.5t/ha for beans and 6.0t/ha for peas.
- 1.3 Quantify the positive effects of incorporating beans into long-term crop rotations in terms of nitrogen (N) reduction in succeeding crop, soil fertility, and yield improvement across the rotation, and lower pest pressure.
- 1.4 Development of premium markets. Examples include: protein for vegan diets; fishmeal market; and, pea gin.
- 1.5 Support farmer income by continuation of the protein payment scheme.

ACTIONS

- ▶ Link to research projects to identify traits linked to yield improvements and premium markets. Collaboration between [Teagasc/Goldcrop/Seed Technology/DAFM](#) to tests varieties in the field.
- ▶ Strong knowledge transfer and advisory measures to raise awareness on the agronomic and environmental benefits of rotation systems, and provide advice to farmers. Development of an agronomy guide and dedicated knowledge transfer events.
- ▶ Review of literature on the long-term benefits of legumes in cereal rotations, with specific reference to [Cropquest](#) and [ObtiBC](#). Research opportunity for postgraduate.
- ▶ Outputs from [U-Protein](#) project. U-protein aims to explore sustainable crop- and marine-based protein alternatives to protein derived from dairy and meat.
- ▶ Develop links to EU networks for knowledge sharing, including [Legumes Translate](#) and [TRUE \(LIN\)](#).
- ▶ Benchmark faba beans and establish the agronomic practices of the top 10% of growers.

IMPACT

- ▶ Growers' guide for beans outlining best practice based on research to attain target yields.
- ▶ Joint industry knowledge transfer events to provide a link from research to growers to overcome the agronomy challenges highlighted by growers.
- ▶ Establish grain parameters (protein content, starch, amino acid profile) suitable for grains to supply human feed markets (ingredient or whole).
- ▶ Increased knowledge base on the requirements for premium markets to increase farmer return from legumes.
- ▶ Having established the agronomic practices of the top 10% of growers, use this information at knowledge transfer events to advise other growers and to inform future research.



Create a positive market environment for indigenous protein crops by establishing their nutritional credentials and demonstrating to livestock producers the advantages of substituting imported proteins.

OBJECTIVES

- 2.1 Support for animal feed compounders who prioritise native feed ingredients over imported feed sources.
 - 2.2 Review the nutritional value of beans and peas for ruminant and monogastric diets.
 - 2.3 Awareness campaign directed at livestock and pig farmers highlighting the positive nutritional and environmental sustainability benefits of feeding rations.
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ACTIONS

- ▶ Review research on the nutritional value of peas and faba beans in ruminant and monogastric diets.
- ▶ Examine processes necessary to make faba beans 'ration-ready' and examine how cost efficiencies can be made.
- ▶ Demonstrate to livestock farmers the value of natively produced rations with [Bord Bia](#) involvement.
- ▶ [Teagasc feeding study](#). A four-year study in Johnstown Castle to look at the impact of utilising domestic sources versus imported proteins for dairy production.

IMPACT

- ▶ Industry can use nutritional and carbon credentials of Irish-produced and fed rations in promotion/marketing of consumer-facing products to be used positively to promote Irish feeds.
 - ▶ Reduced costs of processing faba beans in feed mills by assessing options and solving problems in processing solutions, supporting increased inclusion of Irish legumes.
 - ▶ Livestock farmers increasingly including/asking for Irish legume inclusion in rations (due to awareness of nutritional value and sustainability credentials).
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THREE STRATEGIES TO GET THERE



Create a greater recognition of the sustainability credentials of native protein crops to achieve climate change and biodiversity targets by the displacement of imported protein sources.

OBJECTIVES

- 3.1** Establish a sustainability indicator for Irish proteins (GHG, carbon, biodiversity, etc.) in comparison to imported protein sources.
 - 3.2** Establish the reduction in nitrogen (N) and pesticide use when legumes are incorporated into the rotation and demonstrate how incorporating beans into the rotation aligns with EU Farm to Fork policy.
 - 3.3** Quantify the biodiversity value of increasing the area of beans/peas from current five-year average of 9,687ha to 20,000ha.
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ACTIONS

- ▶ Research to compare carbon (GHG, carbon, biodiversity, etc.) in comparison to imported protein sources.
- ▶ Industry appraisal of utilising Irish protein over imported proteins (case study).
- ▶ Calculate the reduction in N and pesticide usage, and impact on arable rotations through a series of farmer case studies.
- ▶ Assess the impact of alternative protein resources on land use and sustainability indicators – [U-PROTEIN](#) project, task 1.

IMPACT

- ▶ Differential in CO₂ emissions between native and imported sources calculated and validated.
- ▶ N and pesticide reductions calculated for use by farmers and policymakers.
- ▶ Unlocking Protein Resource Opportunities To Evolve Ireland's Nutrition (U-PROTEIN):
 - report on sustainability impact of proposed land use changes;
 - report on the effect on farm-scale carbon footprint of proposed land use change under different scenarios;
 - report on the effect of farm-scale nutrient balances and use efficiency of proposed different scenarios;
 - report on the economic effect of proposed land use change under different scenarios; and,
 - identify future scenarios – a workshop of key stakeholders will identify the main future socioeconomic and environmental developments for the Irish agri-food sector and the related demands on the land resource.



Current protein requirement
in compound rations
c.900,000t
(or 3.1mt faba bean equivalent)



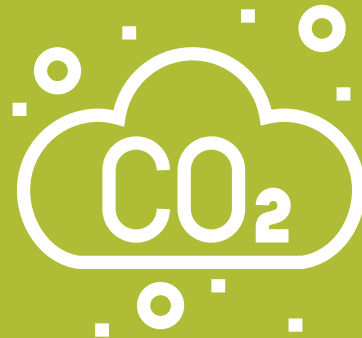
Current production
c.10,000ha
of peas and beans or
52,000t



Our target:
20,000ha
or
130,000t

GHG reductions

Increasing protein area to 20,000ha
reduces nitrogen requirements by
equivalent of 6,000t CAN



Fully traceable protein source for Irish livestock



Meeting targets

Role in achieving EU targets
Farm to Fork
Fertiliser -20%
Pesticides -50%



IMPLEMENTATION – DELIVERING THE STRATEGY

- 1.1 Variety development to achieve yield stability through better drought tolerance, disease resistance, and selection for desirable traits for premium markets.
- 1.2 Improve basic agronomy to deliver crop improvement to average target yield of 6.5t/ha for beans and 6.0t/ha for peas.
- 1.3 Quantify the positive effects of incorporating beans into long-term crop rotations in terms of N reduction in succeeding crop, soil fertility, yield improvement across the rotation, and lower pest pressure.
- 1.4 Development of premium markets. Examples include: protein for vegan diets; fishmeal market; and, pea gin.
- 1.5 Support farmer income by continuation of the protein payment scheme.



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- 3.2 Establish the reduction in N and pesticide use when legumes are incorporated into the rotation and demonstrate how incorporating beans into the rotation aligns with EU Farm to Fork policy.
- 3.3 Quantify the biodiversity value of increasing the area of beans/peas from current five-year average of 9,687ha to 20,000ha.



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