

Inside Stories

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A new research project aims to explore the potential for domestic production and pump-prime the UK's first chickpea breeding programme.

Cicero - developing chickpea as a novel source of domestic UK protein' is a two-year, £500,000 feasibility study led by the crop science organisation NIAB, with collaborators from across the agri-food supply chain. Cicero has been awarded funding by Defra under the 'Farming Futures R&D Fund: Sustainable farm-based protein' competition, part of Defra's Farming Innovation Programme managed by Innovate UK, and starts with immediate effect.

Research will focus on the cool-season legume, chickpea (*Cicer arietinum*). In common with other nitrogen-fixing legumes, the crop has the potential to reduce on-farm fertiliser requirements and the high greenhouse gas emissions associated with fertiliser production and application. Current domestic legume production is mainly restricted to field beans and combinable peas, which are not necessarily optimised for human consumption, with a large proportion destined for animal feed. In contrast, chickpea is familiar to our food industry but is rarely grown in the UK, largely due to the scarcity of adapted varieties and the lack of knowledge both growers and advisors have of the crop. UK food companies annually import 60,000 tonnes for products including stand-alone tins, pouches of cooked chickpeas and packets of dried pulses, alongside use as ingredient in ready meals and bakery products. Cicero will explore the possibility of displacing imported chickpeas through domestic production.

Project lead and NIAB's Head of Breeding Dr Phil Howell explains that Cicero will take a multi-faceted approach. Variety trials and agronomy testing will be carried out by NIAB and specialist seed company Premium Crops, ranging from small plots up to field-scale evaluation. End-use quality assessments will be undertaken by Norfolk-based grower Place UK, who has successfully grown chickpea crops to sell through its vertically-integrated food ingredients business.

"Whilst the two-year project timescale prohibits a full breeding cycle, new populations will be advanced rapidly through the glasshouse, with selections ready for their first field

evaluation by spring 2025. NIAB has already assembled a diverse collection of chickpea material, which will be evaluated in field nurseries over the project duration. These will be complemented by a unique population of novel induced variants developed together with biotechnology start-up Viridian Seeds. These new sources of diversity will all feed into a second cycle of new crosses to kickstart the development of UK-adapted material," says Dr Howell.

"Chickpeas are a classic example of the challenges the legume sector is facing. Manufacturers must often rely on imports to service the increasing demand for healthy plant-based foods. While this crop can be grown in the UK, its yields and quality are unreliable because current varieties are not well-adapted. Ultimately, we need better varieties bred specifically for UK conditions, but we also need to improve our agronomy know-how to get the most out of varieties – now and in the future," finishes Dr Howell.

PROJECT PARTNERS

NIAB, Premium Crops Ltd, Place UK Ltd, Viridian Seeds Ltd

NIAB is the UK's fastest growing crop science organisation, with rapidly expanding research capabilities in plant genetics, agronomy, farming systems and data science, the largest national field trials capability, and strong research links with industry, Government and academia. With headquarters in Cambridge, and regional offices across the country, employing more than 400 people across the UK, NIAB provides scientific research, technical services and practical advice to improve the yield, efficiency and resilience of crop production across the arable, forage and horticulture sectors.

www.niab.com

@niabgroup

Based near Wroxham in Norfolk, Place UK Ltd has a reputation built over more than 60 years as one of Britain's leading fruit growers, IQF (individually quick frozen) suppliers and food processing plants. With the acquisition of Phaseolus Ltd in 2013 they have developed an even stronger position in the supply of IQF beans and pulses. Place UK are a leading supplier to manufacturers including Bakkavor and Greencore. Place UK's frozen products can be found on the shelves of Tesco, Aldi, Sainsbury's, Lidl, Waitrose, M&S, Morrisons and Asda.

<https://placeuk.com/>

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Premium Crops, a division of Cefetra Ltd, are specialists in added value arable crops for UK farmers, providing bespoke quality products that meet the specific criteria required by a wide range of end users. Varieties are tested under UK conditions, and selected seed supplied to contract growers. Our premium production contracts include support from specialist agronomists and a professional logistics team.

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Viridian Seeds is a next-generation plant-based product company backed by cutting-edge non-GM technology. It aims to generate improved varieties of legumes (Super-Legumes) which will transition agriculture and food production to a more sustainable future, while accelerating the dietary transition to plant-based diets. Our mission is to create super-legumes to provide a sustainable source of healthy nutritious plant protein which can benefit farmers, consumers and the planet.

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