Forgotten crops, future crops?

This poster is part of a PhD project titled: “Increasing food and nutrition security through the diversification of food supply chains with forgotten edibles”.

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Background: Global agrobiodiversity is in decline, causing food insecurity, reduced dietary diversity, and loss of culinary heritage. Post-Green Revolution food systems are now highly homogenised, with nearly 90% of global food supply relying on just 15 crops, despite over 7,000 known edible plant species and 417 widely adapted food crops [1-3].

Rationale: Food systems are very complex and require investigating through an interdisciplinary lens [4-5]. Better *in-situ* conservation and use of underutilised landraces and minor crops, especially recognising their sensory values, is key to improving food security and protecting biodiversity. There are hidden traits that could help bring neglected crops back into food systems but are subject to various barriers and facilitators which are not well understood.

Methods: This multidisciplinary study explored barriers and facilitators to food systems diversification with forgotten crops by applying the following methods:

1) Archival Searches on UK crop data bases following a protocol by Yin, (2018),
2) Case study on forgotten peas (*Pisum sativum* L.) varieties, including texture analysis and sensory evaluation, based on the BS ISO 8586:2012 & BS ISO 8586:2014 standards.
3) Case study research on a UK business operating forgotten crops’ value chains - semi structured interviews and a scoping review of documents.

Figure 1: *Exemplars of landrace pea’ accessions showing visual characteristics, sourced from UK seedbanks.*

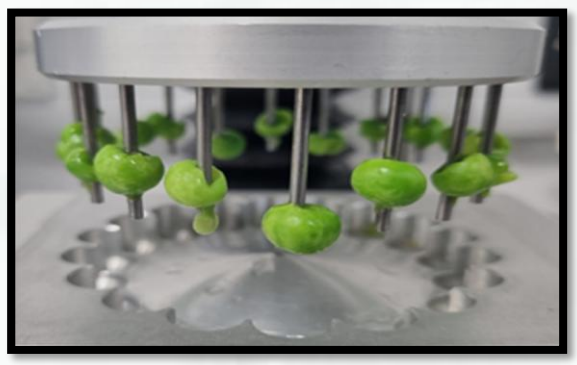

Figure 2: *Measuring pea hardness using the TA.XT plus 100C Stable Micro Systems’ Texture Analyser with Multiple Pea Testing Rig (HDP/MPT).*

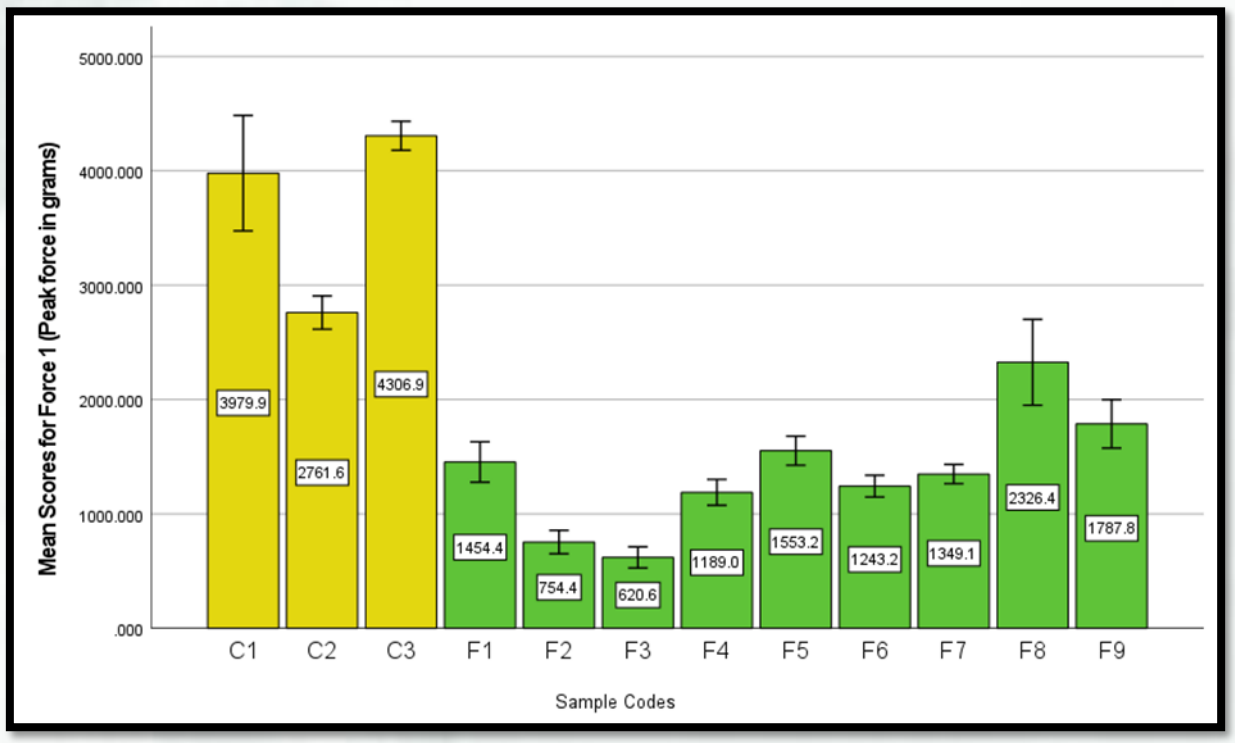

Figure 3: *Mean scores for hardness (Peak Force - first bite) for 12 different varieties of peas, 9 of which were landraces (F) and 3 improved cultivars (C).*

Conclusions: Traditional landraces are largely conserved *ex-situ*, with some *in-situ* conservation by small-scale growers. Archival searches show barriers such as unclear legislation and limited genetic-material access impacting their use [6-7]. However, these varieties offer sensory traits valuable to resilient food systems. Sensory study on peas shows significant differences across liking and consumer purchase intentions, as well as organoleptic characteristics such as hardness. Findings from the case study indicate that many bottlenecks remain and must be addressed by all actors including the producers, retailers, distributors, food service professionals, consumers, and policy makers [3,8].

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