

# Food biodiversity: reflecting on our past to reshape our future.

## Lessons from the world

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Preserving and reviving traditional or indigenous knowledge in food systems is an effective way to promote food diversification, and biodiversity, and create resilient communities. This approach helps to maintain social and cultural traditions and heritage, enhance food sovereignty and security, and enable the promotion of healthier and more nutritional diets, as well as new sources of income for primary producers and manufacturers.

A rich and diverse food system can benefit businesses, communities, and nature. Food tourism can further develop and build on the interest in indigenous & traditional ingredients and the origins of food, ultimately supporting consumers to reconnect and explore the provenance of food and consider the importance of fostering biodiversity in what they choose to buy and eat.

### Why is food biodiversity important?

Food is an important part of our daily lives and different cultures have their unique recipes, techniques, and flavours. Throughout history, various civilisations have developed rituals around food: Egyptians buried food with the dead, and in pre-Columbian cultures, crops held importance being considered a deity in the case of corn. Communities in South America developed preserving methods to stock up on food. European populations also have their traditional crops such as Bere, an ancient form of barley grown and milled in Orkney for over 300 years. All of these populations traditionally used a wide variety of available ingredients in creative ways to be in harmony with the environment and society.

### Importance of food diversity

Today, about seventy per cent of the world's food comes from only twelve plants and five animal species<sup>1</sup>, whilst there are over 15,000 varieties of edible plants for human consumption. As a matter of fact, just thirty plants provide the world with 95% of its calories. These include rice, wheat, and corn<sup>2</sup>, which have replaced traditional crops in many places. The lack of diversity in our food sources puts society, health, and nature at risk of being severely impacted on a global scale by climate change, social and economic changes, and natural disasters. This challenge not only affects human diets but also puts farmers and nature ecosystems in danger. It threatens the crucial food biodiversity and security that we rely on.

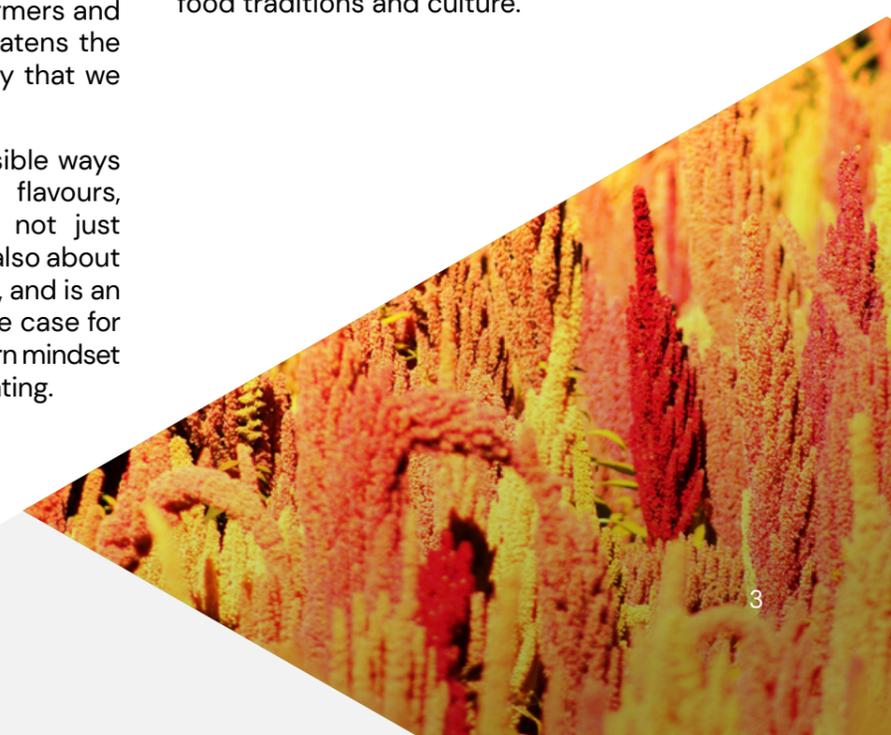
Our current diet is limited in all possible ways – lacking diversity in ingredients, flavours, techniques, and meaning. Food is not just about providing energy or profit; it is also about enjoyment, community, and tradition, and is an essential social act. This has been the case for hundreds of years, but today, the modern mindset tends to overlook these aspects of eating.

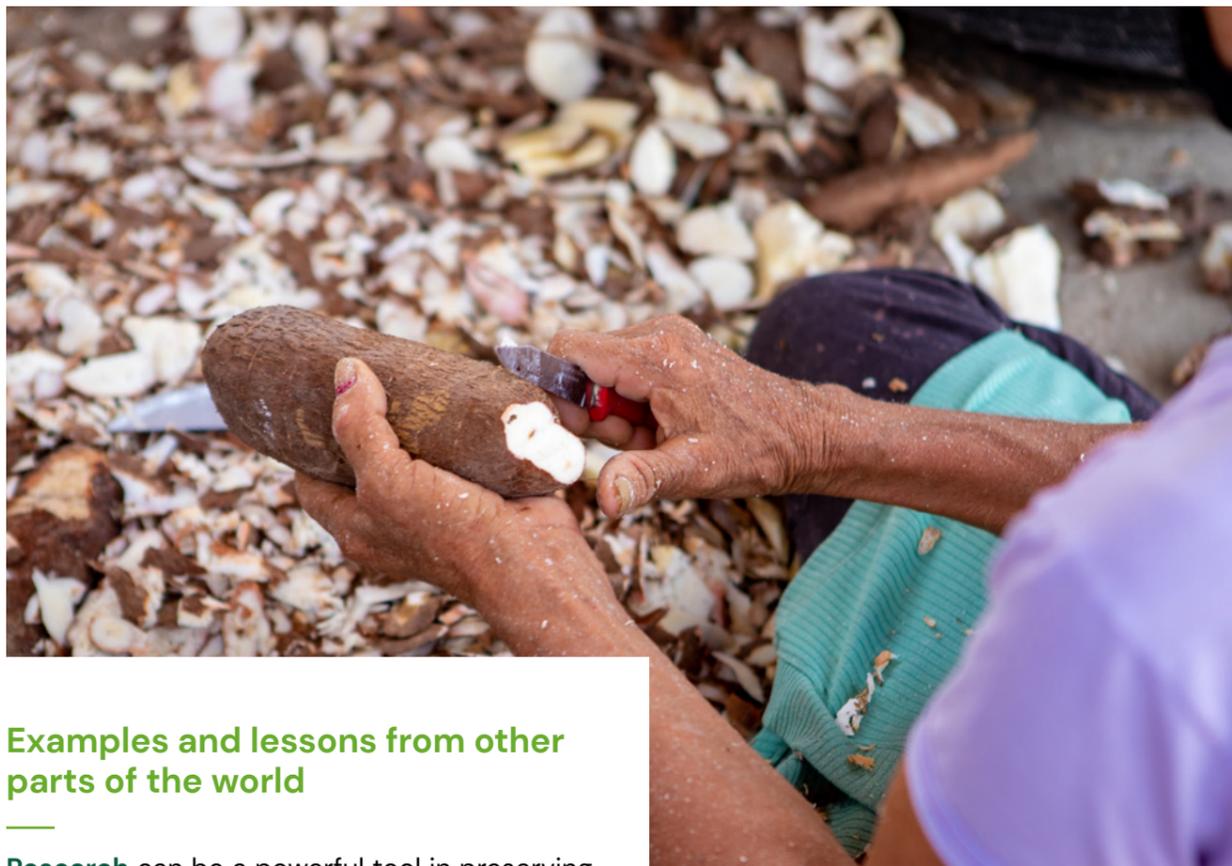
The United Kingdom has unfortunately experienced significant depletion of its natural resources, resulting in one of the lowest levels of biodiversity in all of Europe<sup>3</sup>. Given this situation, it is imperative that it takes steps to conserve and enhance its remaining biodiversity. Fortunately, this is already being addressed through policy and strategic initiatives in the agri-food industry, but more can be done in the private sector to boost change and increase food biodiversity and resilience.

### Revival of crops, traditional food with modern twists

Changing diets can create new opportunities for the farming and food industries. Farmers can diversify their income by adopting sustainable stocking rates and managing their land in a way that promotes food production, biodiversity, and carbon sequestration.

Reviving traditional crops and foods can also have positive effects on biodiversity and the social well-being of local communities. Peer-to-peer learning can help improve farming practices and ensure that everyone has access to healthy food. By prioritising food diversity, resilience, sovereignty, and security, a more sustainable agricultural system can be created. Food holds more significance than just its exchange value, as it serves as a social and cultural mechanism to bring people together. The slow food movement is an example of an initiative that prevails in quality and variety while fostering the preservation of food traditions and culture.





### Examples and lessons from other parts of the world

**Research** can be a powerful tool in preserving food biodiversity and promoting traditional crops. In Nariño, a state in Colombia, there are countless plantain varieties that are being safeguarded through initiatives like *NariñoBio*<sup>4</sup>. The idea is to engage various groups, such as indigenous populations, researchers, academia, and the general public, to understand the importance of food biodiversity and how it promotes species conservation. This is done through immersive experiences that teach people how to prepare traditional recipes and showcase the benefits of using different genetic varieties of local bananas, plantains, and cassava<sup>5</sup>.

Another example in the Andean region in Peru is the revival of ancient tubers, grains, and superfoods. Oca, a tuber grown above 3,000 metres, is crucial to the lives of approximately 9 million people. By discovering and tackling a virus that was harming the crop's productivity, Rolando Estrada a researcher and lecturer at the University of San Marcos in Lima asked farmers to send in their varieties and to enable them to be cleaned, removing the virus to safeguard their intravariability and preserve their importance<sup>6</sup>.

Preserving traditional crops like quinoa, oca, and cassava can boost productivity and combat climate change, benefiting both people and the environment in Andean Countries. Andean farmers are receiving broader support to preserve genetic diversity and traditional knowledge, leading to improved production and the creation of markets for ancient grains, tubers, and seeds. However, wider dissemination of this knowledge is still needed.



**Academic and private sector** initiatives demonstrate the potential to merge traditional practices with modern innovations, promoting the use of traditional crops in current activities. Malena Martinez, co-director of the *Mater Iniciativa*<sup>7</sup>, a Peruvian organization is restoring traditional ingredients and expressions' cultural significance. They emphasize the importance of plants in creating diverse products, fostering community, and preserving culinary techniques. This includes food, crafts, and other social group work. They promote socioeconomic resilience by showcasing Peruvian cuisine and traditions.

Summer farms (*fäbod*) in Sweden, are an alternative to intensive farming, preserving cultural heritage, and biodiversity, and providing new income streams. They offer dairy products and rural and agri-tourism activities but their most significant contribution lies in the preservation of cultural heritage by offering services to visitors to rural areas, the maintenance of the cultural landscape, preserving historical buildings, raising animals, and keeping traditions alive<sup>8</sup>. The societal value of summer farming is priceless as outlined by Wendy Barrie and Bosse Dahlgren in their book: *Meadows, The Swedish Farmer & The Scottish Cook*. *Fäbods* hold immense cultural and historical significance, known for their production of exceptional dairy products that are unlike anything else in the region. The rich, flavourful cheeses crafted from milk supplied by the Swedish rare breeds mountain cows, who graze on the lush summertime pastures, serve as a testament to the value of this traditional farming system and its significance to local communities.

**Public policies** can promote change and support the establishment of secure markets for traditional crops. It gives the example of Sustainable Food Procurement and the Home-grown school feeding (HGSF) programme in Busia, Kenya, which linked farmers with traditional vegetables and schools to improve diets and nutrition. The programme also promoted social protection and agricultural growth by including locally sourced traditional vegetables in school meals provided by local farmers<sup>9</sup>.

All these examples and many more around the world show that ancient crops, cuisines, and traditional knowledge are re-emerging as alternatives to create new thriving systems and new income streams. In Scotland there are examples of local businesses using heritage and traditional ingredients, often with a modern twist, with the help of research, and product development, to create new and seasonal experiences. Using nature as a focus for innovation, perhaps wild and foraged or heritage species, provides an opportunity to build on the provenance of food and farming.

“ A multidisciplinary approach can promote change, knowledge sharing and support the establishment of markets for traditional crops. ”



## What opportunities exist in Scotland?

Scotland can offer unique and engaging food experiences by revitalising traditional ingredients, promoting diversity, and preserving heritage recipes. Foraging for unique heritage ingredients is becoming increasingly popular, fostering a sense of community and maintaining cultural traditions<sup>10</sup>.

By prioritising seasonal sustainability, and offering seasonal menus, there are countless opportunities for enjoyable and ethical dining experiences. To this end, many chefs have recognised this opportunity to add seasonal, heritage-foraged ingredients to their creations. An example of an initiative aiming to reconnect consumers with local and natural products is NatureScot's [Scotland's Natural Larder](#). Associated with this is the annual initiative [Foraging Fortnight](#) celebrating natural, wild, and sustainably foraged foods and highlighting events for both businesses and consumers.

Several Scottish plants, crops and vegetables with deep cultural roots have disappeared over time. However, some that were once extinct in the UK have been rediscovered in gene banks and seed catalogues abroad. Organisations like the [Scottish Seed Hub](#) and [Seed Sovereignty](#) are preserving heritage Scottish vegetable cultivars to promote diverse and healthy local diets and create new opportunities for the food industry.

Led by Wendy Barrie from Slow Food Ark at Taste for Scotland, initiatives like the Scottish Food Guide and their heritage food events raise awareness of Scotland's food heritage through the producer stories. Wendy was instrumental in the [North Ronaldsay Sheep](#) gaining Slow Food Presidium status – the first in Scotland. This group comprises 12 producers and aims to conserve, not only the breed and production system but also the island heritage. A great example of a rare, seaweed-eating breed, linked to a unique place and supporting a community through agri-food heritage.

Orkney also boasts another well-known heritage product – Bere, an ancient type of barley. Bere is low in gluten and saturated fats, high in soluble fibre and is a source of minerals and vitamins. As a traditional product, it was used to make bere bannocks and is today being added to many baking recipes. A focus for tourists to the island [Barony Mill](#) provides tours and demonstrations of the milling process. Scotland also benefits from the support of organisations like Scotland Food & Drink, showcasing the value of local food and drink through initiatives like [Food & Drink Fortnight](#) and through strategies such as [Sustaining Scotland. Supplying the World](#) and [Grow Regionally](#) supporting Scotland's local food & drink businesses.



Photograph by Susan Tyzack, taken at The Barony Mill

## Summary

Promoting a diverse and rich food system helps promote healthier diets and new income sources for everyone in the food supply network. The status quo is not enough to protect planet Earth and fight climate change. Supporting local businesses and combining traditional knowledge with innovative ideas can help increase food biodiversity and building resilience. A multidisciplinary approach is required and will help to create a better future for our planet, involving all participants in the food system and enabling knowledge sharing about agricultural techniques, food ingredients, and business models.

Scotland can create amazing opportunities by reviving traditional crops with a contemporary spin through research and business innovation. The synergy between business, research, academia, and Government can be built upon to maximise future potential.

**If you'd like to continue this conversation, then SAC Consulting's [Food & Enterprise](#) team would love to hear from you. We are a diverse and talented team, bringing a variety of skills to the table. With a wide network of contacts across the agri-food sector, we work closely with research colleagues and industry alike and will continue to help Scotland's food, drink and rural businesses develop and grow.**

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2. [Vanishing crop varieties, permaculture and food forestry benefits, and three sisters gardening – resilience](#)
3. [UK has 'led the world' in destroying the natural environment | Natural History Museum \(nhm.ac.uk\)](#)
4. [NariñoBio: Diseño y prueba de una estrategia de innovación social de innovación social de naturaleza en territorio ancestral Awá del Departamento de Nariño, DT\\_NarinoBio\\_01112018.pdf](#)
5. [Instituto de Investigación de Recursos Biológicos Alexander von Humboldt on LinkedIn: #nariñobio](#)
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