BeanMeals toolkit for Sustainable Food Places

Applying food systems thinking when transforming your local food culture

January 2025

Contents

1 Introducing the BeanMeals toolkit

Working towards food system transformation

A key challenge for the UK food system is how to move towards healthier diets with lower environmental impact while also enhancing local and national enterprise. Between May 2022 and November 2024, researchers from the BeanMeals project analysed how to pursue systemic innovation in the food system. They did this using a 'fork to farm' concept using two novel UK pulse crops, Capulet, a navy bean and Godiva, a blonde kidney bean developed at the University of Warwick. These novel beans were served in school meals in Leicester City and Leicestershire County. Researchers from BeanMeals helped identify drivers to the scaling up the consumption and production of UK-grown beans, as well as any winners and losers of doing so. They engaged local (Leicestershire-based) and national stakeholders to help identify leverage points in the food system.

Another aspect of the research was to evaluate how the food system is performing in four key areas: nutrition and health, environmental impact, social and equality outcomes and economic indicators.

Why beans?

- UK-grown beans are a disrupter to the food system and a vehicle to test for focused ingredient for the fork to farm approach.

- Eating more beans supports a shift towards healthy and sustainable diets.

- Beans are a source of valuable nutrition across the year.

- Beans are simple and an affordable solution to health, climate and environmental change.

- Beans are a rich source of plant protein and dietary fibre, and are nutrient dense.

> **ℹ️ Watch the videos about BeanMeals to learn more:**
> **www.eci.ox.ac.uk/beanmeals**

The aim of this toolkit

The BeanMeals team worked with Sustainable Food Places to increase systems thinking awareness and skills for Sustainable Food Places members, Local Authorities and other organisations striving for food systems change.

This toolkit provides guidance for how to plan to transform a local food system. It contains examples and evidence from the BeanMeals project to support a greater systems focus on local food systems.

How can this toolkit help Sustainable Food Places members?

The food system is complex and interconnected. Addressing the system as a whole makes lasting change is more achievable. For example, improving the food public procurement (FPP) system will ultimately affect other structures, organisations and actors within the food system.

An evidenced-based plan using food system models and good practice will mitigate risk and ease the pathway to change. It provides a robust base from which to challenge the status quo and garner the necessary support from stakeholders that will allow change to occur.

BeanMeals has also produced an accompanying set of discussion cards to support Sustainable Food Places members when taking a food systems approoach. They can be used with this toolkit or as a standalone resource.
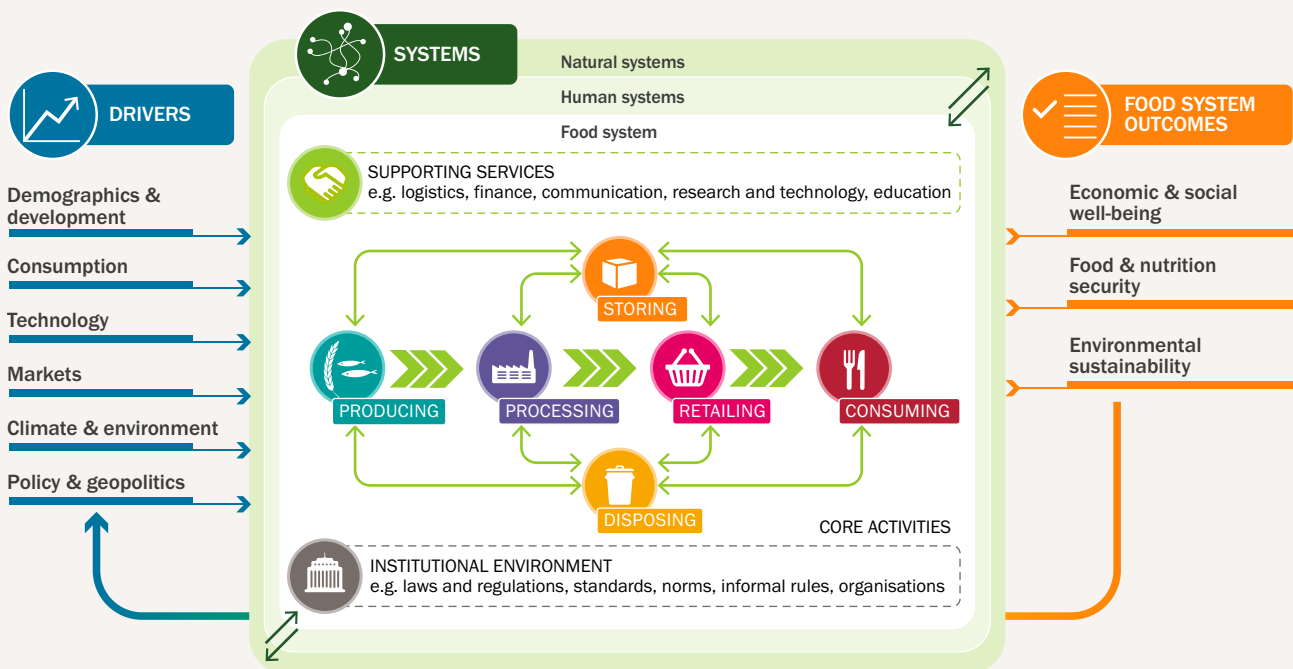
2 The need for food systems thinking

Taking a holistic view for problem solving

Need to know

- Our food system is complex and dynamic.

- It involves activities, such as producing, processing, retailing, consuming and disposing of food undertaken by people responding to a wide range of interacting influences. These are known as drivers.

- The activities deliver a number of outcomes, including food security and nutrition, economic and other aspects of social wellbeing, and environmental conditions.

- The people undertaking the activities are supported by infrastructure, such as transport and trade and their activities are governed by conditions set by regulations, policies, laws and standards.

- As part of a dynamic system, the food system outcomes feed back to and modify the drivers.

Use the accompanying set of cards to have helpful discussions around systems thinking

Figure 1: A food systems map

SYSTEMS

Natural systems
Human systems
Food system

DRIVERS

Demographics & development
Consumption
Technology
Markets
Climate & environment
Policy & geopolitics

SUPPORTING SERVICES
e.g. logistics, finance, communication, research and technology, education

PRODUCING   PROCESSING   RETAILING   CONSUMING

STORING

DISPOSING

CORE ACTIVITIES

INSTITUTIONAL ENVIRONMENT
e.g. laws and regulations, standards, norms, informal rules, organisations

FOOD SYSTEM OUTCOMES

Economic & social well-being
Food & nutrition security
Environmental sustainability

How to use the food systems map

- Look across the overall set of outcomes rather than individual ones when considering how to make improvements to local food system outcomes (i.e. transform them to an improved state). The reason for this is that different actors in the system care about different outcomes and prioritise actions to improve their preferred outcomes (e.g. economic gain / livelihood).

- Note that food system outcomes can only be transformed by adapting activities within the food system.

- Separate the food system activities (what we do) from the outcomes (what we get).

- Assess the benefits and costs across all the food system outcomes when implementing systemic innovations.

Three things to remember

1. Food system outcomes can only be transformed when the people undertaking the food system activities respond to signals. These signals can be seen as either opportunities (such as new business opportunities or technologies) or threats (such as health or environmental concerns).

2. A 'Systemic Innovation' approach (i.e. innovations that require collaboration between multiple actors using 'systems thinking'; see below) is needed.

3. Understanding the benefits and costs of change from a local perspective places an area in a better position to take advantage of co-benefits.

BeanMeals tip: Define your priorities and where they sit in the food system map
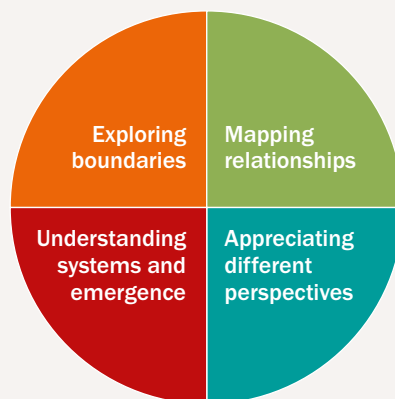
3 How to innovate using systems thinking tools

Useful tools for planning and implementing transformation

Need to know

Systems thinking:

- helps individuals to connect the dots between their decisions and their overall impact and the relationships between the issues

- can demonstrate likely connections in a food system that can be complex

- can highlight the interconnectedness of variables and what the drivers are

Figure 2: Four systems thinking skills

| Exploring boundaries | Mapping relationships |
| Understanding systems and emergence | Appreciating different perspectives |

Credit: G Midgely

Using systems thinking

When planning innovations and change in the food system, you should take into account:

- different perspectives of actors (people involved) across the local food system.
- current challenges
- current drivers
- what the desired future looks like from a range of perspectives
- the current relationships in the system
- the current boundaries in the system discussions will help you clarify what is part of your system and what is not included

BeanMeals Tip: BeanMeals used system thinking to map who was involved in UK pulse food systems, including identifying the drivers, winners and losers of interventions to increase prominence of the pulses
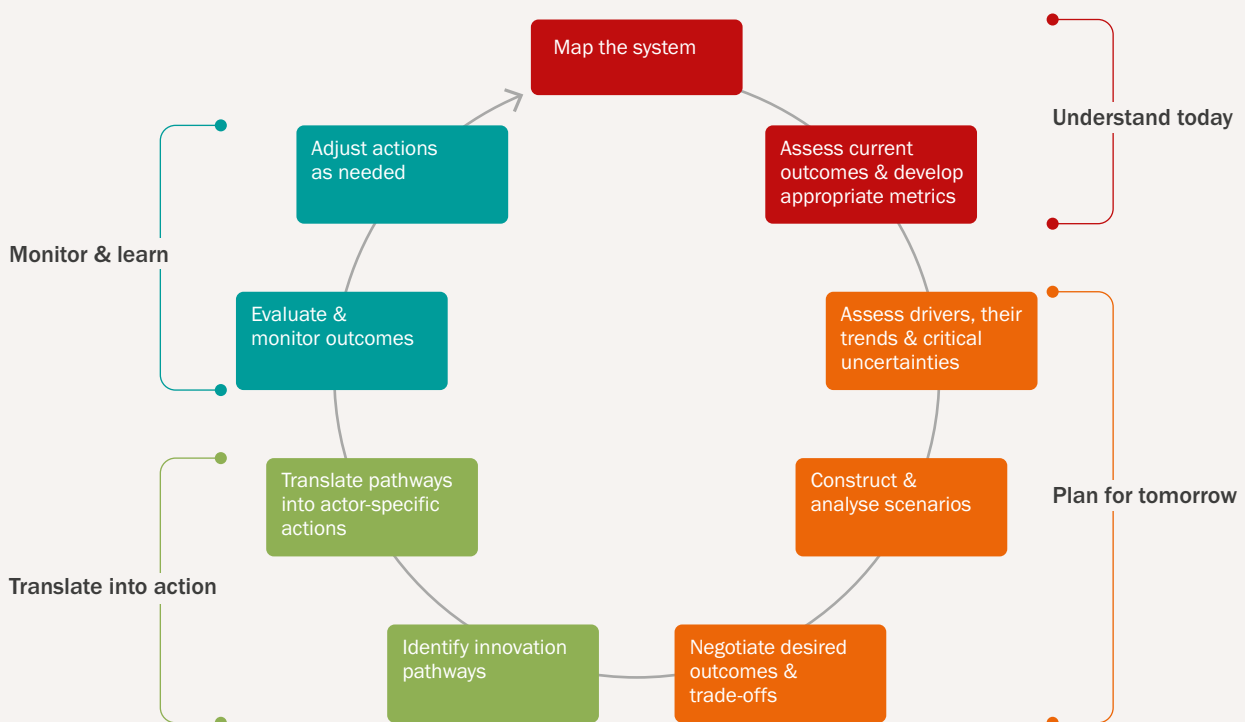
A process for food system transformation and innovation

Need to know

- Following a process for transformation helps to identify innovation within the food system.

- Mapping out the food system's activities, outcomes and drivers will help you understand its current status and issues.

Figure 3: A process for food system transformation

Using a transformation process

- Consider what needs to change and which innovations are needed.

- Translate innovations into action across the mapped-out system.

- Consider which pieces of the system might have to move jointly (e.g. increasing consumer demand for beans while simultaneously thinking about how to best supply beans).

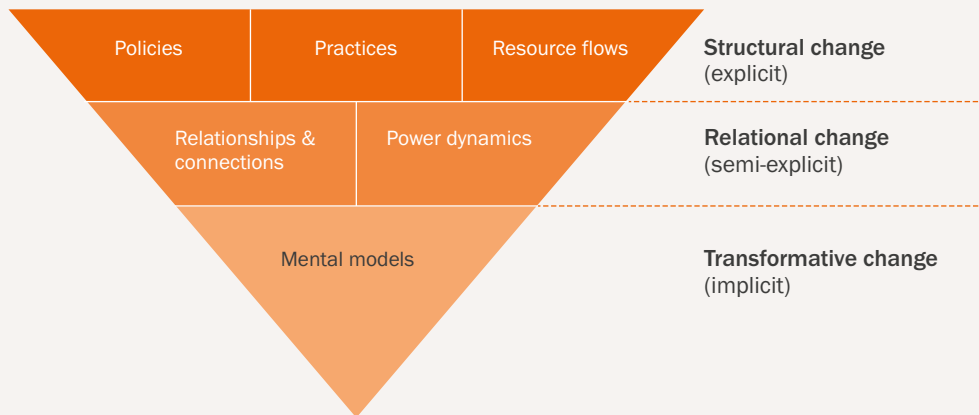- Implementing this process ensures that monitoring, learning and evaluation are included.

BeanMeals tip: Use this tool to break down the steps needed for transformation; this can be done in different ways and intensities to suit your resources

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Understanding conditions for systems change

Need to know

- Transformative change requires the use of data and models to influence and change hearts and minds.

Figure 4: Conditions for systems change

Policies	Practices	Resource flows	**Structural change** (explicit)
Relationships & connections	Power dynamics		**Relational change** (semi-explicit)
Mental models			**Transformative change** (implicit)

Credit: Foresight4Food

Using a systems change model

- Relational change: determine the relationships, connections and the power dynamics.

- Structural change: what are the policies, practices and resources needed to assist the relational change?

Use the accompanying set of cards to have helpful discussions around systems thinking

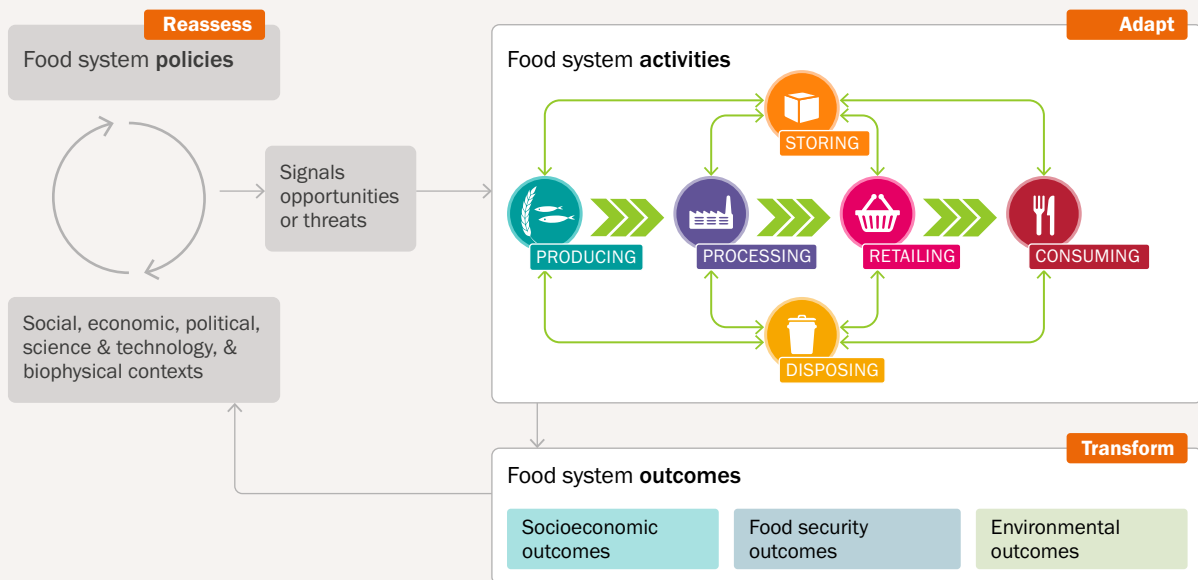BeanMeals tip: Data and use of models can help to change hearts and minds

Theory of Change model

Need to know

- Understanding the theory of change helps to transform the food system.

- The Theory of Change model adopts a place-based system change approach with a focus on collaboration across different sectors.

Figure 5: A theory of change model

Credit: Ingram and Thornton 2022

Using the model

- This loop approach demonstrates that to change an outcome policy change and adaptations in the food system are needed.

- Establish where the loops are in your local system.

BeanMeals tip: Collaboration across the food system is necessary for transformation

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The food compass

Need to know

- A compass model helps place-based stakeholders move local food systems forward.

- Using metrics with this model will identify gaps and areas for focus.

- The model allows you to measures and plot improvements in four key areas.

- The food compass assists local food systems to have balanced outcomes.

Figure 6: Food systems compass

Credit: Hebinck, Zurek et al. (GFS 2021). A sustainability compass for policy navigation to sustainable food systems. Global Food Security and www.susfans.eu

Societal goals / sustainability score   Areas of concern / performance metrics   Sustainability dimensions / progress indicators

How to use the compass

- Use metrics to monitor food system performance and demonstrate potential for transforming key areas.

- Aim to improve each quadrant by working towards an equal level in each of the quadrants.

- Work with the compass to build a tangible, visual and data-led case to garner support for your plan for transformation.

- Map the available data onto the compass to identify compromises, adaptations and gaps.

- Examine which areas need adaptations to actively transform outcomes.

- Understand that change and innovation in one part of the food system will have tradeoffs and effects in other parts of the system.

BeanMeals tip: BeanMeals worked with Leicester City and Leicestershire County to develop their own food compasses – available at **www.eci.ox.ac.uk/beanmeals**

Find out more about these two food partnerships:

Leicester: www.sustainablefoodplaces.org/members/leicester

Good Food Leicestershire: www.sustainablefoodplaces.org/members/leicestershire/
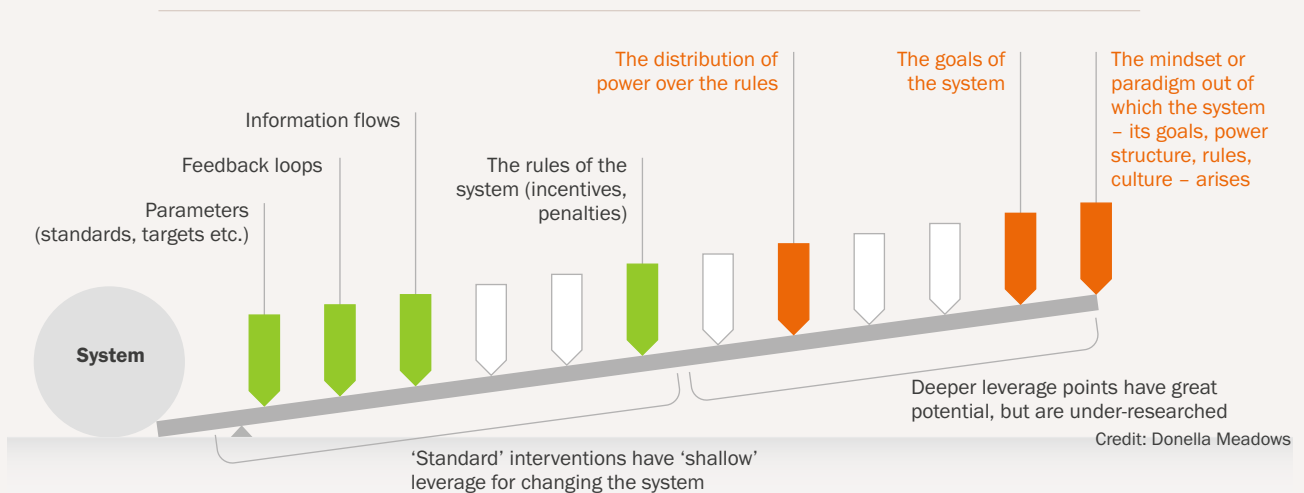
Leverage points

Need to know

A lever for change is an area of work that has the potential to deliver wide-ranging positive change beyond its immediate focus. There are two types of lever.

1. Standard intervention with a shallow leverage for changing a system.

2. Deeper leverage points with larger potential but require a greater focus.

Use the accompanying set of cards to have helpful discussions around systems thinking

Figure 7: Leveraging the food system

The distribution of power over the rules

The goals of the system

The mindset or paradigm out of which the system – its goals, power structure, rules, culture – arises

Information flows

Feedback loops

The rules of the system (incentives, penalties)

Parameters (standards, targets etc.)

System

Deeper leverage points have great potential, but are under-researched

Credit: Donella Meadows

'Standard' interventions have 'shallow' leverage for changing the system

How to work with leverage points

- Examine the types of levers necessary for change in your local area.

- Build a case for transformation and demonstrate the potential of a deeper leverage together with the shallow leverages.

- Establish if there is a commitment locally for shallow leverages (quick wins) or/and a long-term commitment to work on deeper leverage points.

BeanMeals tip: This model is useful for demonstrating to stakeholders that different types of leverage are possible

4 BeanMeals and the Sustainable Food Places themes

We highlight learnings from BeanMeals which align with the six key issues in the Sustainable Food Places framework

1. Good Governance and Strategy

Innovating in school food policy

Defra is nominally responsible for food policy in England, although other government departments also make policy that impacts on food production and consumption. This often lacks coordination as different departments prioritise different goals around public health, education, agriculture and the environment.

Public procurement is often considered as a potential lever for transformational change in the food system, using public money to deliver a range of beneficial health, sustainability and rural development outcomes. England lacks ambitious and sustainable food public procurement (FPP) policy, with no mandatory policy for school meal procurement. Plans to update this policy and support more sustainable and local sourcing are long expected and overdue.

A raft of food NGOs have stepped into this policy vacuum to innovate in the food system. For example, local Sustainable Food Partnerships connect food issues and policy actors across local authorities; The Soil Association Food For Life works in schools to support local and sustainable sourcing in school catering and a 'whole school approach to food'. Committed headteachers have also implemented school policies that support catering and teaching staff to create a culture of healthy eating in school. For example, by improving the dining environment and making the uptake of free school meals mandatory.

Effective and coordinated food policies in England would make innovation across the food system far more straightforward. For school food, this should include mandatory sustainable FPP policy; updated School Food Standards and effective compliance mechanisms; policies to increase free school meal eligibility; as well as ring-fenced funding, in line with inflation.

🌐 www.sustainablefoodplaces.org/resources/food_governance_and_strategy/

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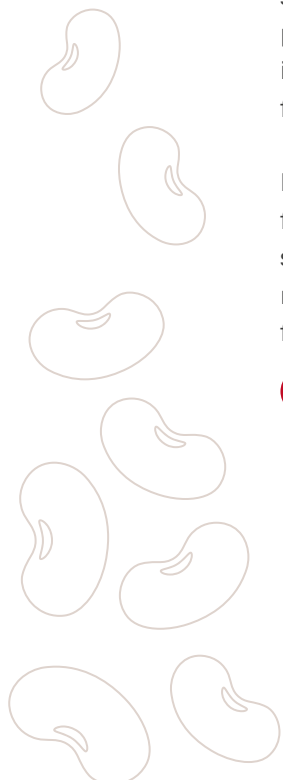
2. Good Food Movement

Engaging with Public Health and Local Authorities

The project integrated a novel food (beans) into a local food system to highlight the current system. Adopting a fork-to-farm approach, the project tracked the novel beans across the food system. This required collaboration from local Public Health teams and Local Authority staff.

BeanMeals identified champions and influencers, and engaged stakeholders to maximise support and impact. A series of audience-appropriate communications helped enhance the beans' accessibility and desirability, and to dispel myths and misconceptions.

🌐 www.sustainablefoodplaces.org/resources/local_good_food_movement/

> **"**Working with Beanmeals enabled us to think about the whole food system. That was really useful for us; it helped us bring food system thinking into other areas of the council. As a result, we created some really good momentum to do the work that we needed to do.**"**
>
> **Gavin Fletcher, Sustainable Food Partnership Coordinator** | Leicestershire County Council. BeanMeals project partner and Sustainable Food Places Member

3. Healthy Food for All

Beans in the community

Beans are a valuable source of nutrition across the year. In their dried form they can be stored for a year, therefore seasonality is not an issue. In the research project, beans were easily added to a variety of school and household recipes.

The research with households highlighted how some household cooks were experts when it came to beans, i.e. they were experienced in cooking with pressure cookers and a range of dried pulses. On the other hand, those who were dried bean novices found the preparation of the beans challenging. Despite the fact that dried beans are cheap, the need to soak and then boil them used a lot of time and energy and required preplanning. The BeanMeals household work highlighted the need for a change in technology (pressure cooking) to cook with dried beans.

In the six schools in Leicester City and Leicestershire County, when beans were on the lunchtime menu, consumption and liking of the beanmeals was comparable to regular school meals. Children were more likely to consume and enjoy beans when they were added to foods they already liked. In the classroom, fun and engaging bean-based learning increased children's knowledge, curiosity and willingness to try beans.

🌐 www.sustainablefoodplaces.org/resources/healthy_food_for_all/
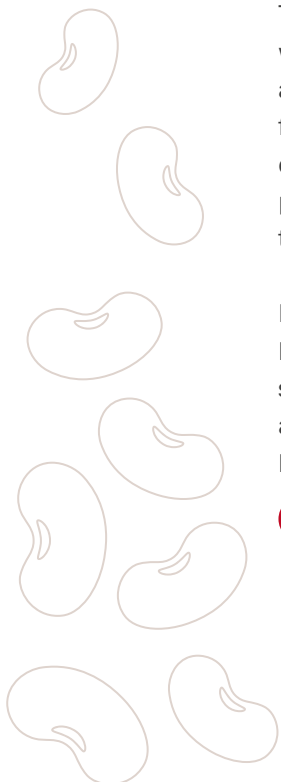
4. Sustainable Food Economy

Pathways for scaling up beans

There is potential for increased demand for UK-grown dried beans if some blockages in public procurement and agricultural policy are addressed nationally and locally to some extent.

Supply infrastructure needs investment in order to scale up the UK beans industry in areas such as canning, cleaning, processing and manufacturing composite products.

BeanMeals identified three routes to scaling the value chain for UK beans; Community Enterprise, Artisanal Entrepreneurs and Food Giants. In the report *Enhancing the MIssing Middle,* BeanMeals provided evidence to suggest that local investments into the local food system can benefit the food system as a whole.

Download the report at www.eci.ox.ac.uk/beanmeals

www.sustainablefoodplaces.org/resources/sustainable_food_economy/

5. Catering and Procurement

Getting more beans on to plates

Despite the lack of supportive policy, there is still scope to bring UK-grown beans and local sustainably sourced food into school meals. Schools choose their school meal provider and there are separate routes to influence their procurement.

Local authority caterers: Some local authorities have sustainable procurement policies. If not, work with procurement teams to explain the importance of sustainable local sourcing and collaborate to identify local suppliers. Procurement teams can break up tenders into smaller lots (by area, by specific produce) so smaller local suppliers can more easily fulfill the requirements. Support suppliers in writing bids for tenders, which can be bureaucratic and time-consuming. The new Crown Commercial Services' Buying Better Food and Drink online procurement platform may also be useful for local sourcing and is due to be launched soon. Public health and sustainability teams may also be able to influence local authority procurement.

In-house caterers: These tend to be smaller independent companies. They could supply one school or academy or a whole Multi-Academy Trust (MAT). Academy Trusts have greater oversight over their own procurement budgets than local authority-run schools and may be easier to influence towards sustainability goals. Working with in-house caterers would include brokering relationships between local suppliers and in-house catering procurement teams.

Large private caterers: these tend to have dedicated procurement teams with a global reach, which means they can source more cheaply, taking advantage of economies of scale. Procurement decision-making is therefore usually at a regional or national level. One way to work with them would be through their voluntary Environmental, Social and Governance (ESG) goals.

An alternative route is to work with wholesale suppliers that hold existing school catering contracts to list more local products on their frameworks. These may be small regional companies or large national wholesalers.

🌐 www.sustainablefoodplaces.org/resources/food_procurement_and_supply/

> **❝**The Beanmeals work shone a light on the fact that there is only so much we can do locally. There's a need for national policy, such as better reinforcement of school food standards, more investment into school food. Those can only come about with big policy changes.**❞**
>
> **Sue Holden, Project Manager Prevention** | Public Health, Leicester City Council. BeanMeals project partner and Sustainable Food Places Member

6. Food for the Planet

Beans as a disrupter

Legumes fix the atmospheric nitrogen, release in the soil high-quality organic matter and facilitate soil nutrients' circulation and water retention. In the UK, beans are typically viewed as part of crop rotation, where farmers need to consider the most viable crops for their land, based on economic feasibility and growing conditions.

Additionally, geographical restrictions in certain areas may limit where beans can be grown. However, BeanMeals demonstrated that a shorter supply chain for UK-grown beans is possible, and group purchasing can be an effective way to scale up the supply of locally produced beans. As consumer demand for beans increases, UK bean production could become more economically viable.

Currently, most beans consumed in the UK are imported, but this trend may shift as the population increases its consumption of healthy, bean-based meals. Ideally, a sustainable food system would maximise local produce, but in the case of beans, it is not always practical or necessary to source exclusively from the UK to achieve a varied, healthy diet.

BeanMeals also focused on the role of cooks in schools and households as key actors in the food system. They are responsible for making decisions about what goes onto the plate, balancing health, accessibility, and affordability. Bean meals cooked by the school caterers required cooking from scratch and highlighted the importance of quality ingredients such as beans for creating tasty and nutritious dishes. The household cooks were constrained by their wider food environment, which may be pushing away from meals freshly cooked from scratch towards unhealthy convenience foods.

Beans played a pivotal role in the project's research as a disruptor in the food system. By emphasising UK-grown beans on the plate, BeanMeals created a pull effect through the food system, driven by consumer demand rather than a push from the farm. This demand from cooks is a crucial factor in transforming the food system, as they have the power to shape consumer habits and create lasting change.

🌐 www.sustainablefoodplaces.org/resources/food_for_the_planet/

About Sustainable Food Places

The Sustainable Food Places programme (SPF) enables food partnerships to take a systems and collaborative approach to transformation to form essential sustainable food infrastructure across the UK.

This radical movement for change makes healthy and sustainable food a defining characteristic of where people live.

🌐 **www.sustainablefoodplaces.org**

BeanMeals
Thinking beyond the can

About the BeanMeals project

The BeanMeals project explores the systemic innovation needed to transform the food system in institutional catering and home-cooking by using healthier ingredients (in particular beans), new public procurement practices and more-local products. Running from June 2022 to November 2024, the project has brought together researchers from several UK research institutions with partners from the public and private sectors.

This report is part of a series of outputs from the BeanMeals project. The research was funded through the Transforming the UK Food System for Healthy People and a Healthy Environment SPF Programme, delivered by UKRI, in partnership with the Global Food Security Programme, BBSRC, ESRC, MRC, NERC, Defra, DHSC, PHE, Innovate UK and FSA.

🌐 Find out more about Beanmeals at **www.eci.ox.ac.uk/beanmeals**

Transforming UK Food Systems Programme

The programme aims to fundamentally transform the UK food system by placing healthy people and a healthy natural environment at the centre. To support this aim, the research addresses critical questions, brings together different stakeholders across the food system and deliver evidence to enable action.

🌐 Find out more about Transforming UK Food Systems Programme at **ukfoodsystems.ukri.org**

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