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What can farmers do to make a positive impact on the health of their local community?

Written by:

Dr Tom Pearson NSch

June 2025

A NUFFIELD FARMING SCHOLARSHIPS REPORT

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ISBN: 978-1-916850-42-2

Published by The Nuffield Farming Scholarships Trust
Bullbrook, West Charlton, Charlton Mackrell, Somerset, TA11 7AL
Email: office@nuffieldscholar.org
www.nuffieldscholar.org

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Farming Scholarships

Date of report: June 2025

*"Leading positive change in agriculture.
Inspiring passion and potential in people."*

Title	What can farmers do to make a positive impact on the health of their local community?
Scholar	Dr Tom Pearson
Sponsor	NFU Mutual Charitable Trust
Objectives of Study Tour	<ul style="list-style-type: none"> Primarily focussing on diet-related ill-health, explore opportunities for UK farmers and growers to make a positive impact on the health of their local community Highlight missed opportunities and barriers in the UK, and consider recommendations for farmers and growers, government and the wider supply chain Understand how we can build better connections between agriculture and health
Countries Visited	Canada (BC), France, UK, US (Connecticut, Pennsylvania), Canada (Ontario) Netherlands, US (California)
Messages	<ul style="list-style-type: none"> Your farm <i>can</i> have a positive impact on local community health A 'whole school approach' to food and farming education can be designed with key roles for farmers and growers The 'Food is Medicine' (FIM) movement and nutrition assistance programmes are potential emerging markets for UK farmers and growers Food with 'Wider Health Benefits' goes beyond the concept of healthy food; it is a package of outcomes and benefits from particular ways of growing food by farmers and growers that are locally engaged Genuine interactions, connections and experiences between growers and consumers can support healthy eating behaviours With the right policies, infrastructure and engagement, local food can operate alongside existing supply chains and be a valuable tool to improve UK food resilience, foster community food and farming connections and build consumer food and nutrition knowledge and confidence Public food procurement is an under-utilised tool to improve healthy diets, and a strong lever to promote a 'value-based supply chain' delivering food with 'Wider Health Benefits'

EXECUTIVE SUMMARY

Whether looking at the more conservative or the more extreme data, everything points to the fact that healthcare is getting very expensive, public health prevention measures are underfunded and not making the required impact, and chronic disease and mental health conditions are on the rise. Poor diet is now recognised as the leading cause of avoidable harm to our health, contributing to lower life expectancy and earlier onset of ill-health, costing the UK £262 billion per year.

Just as the health sector is grappling with the scale and challenge of this, so too is the agricultural sector trying to navigate its own complicated problems, including an entire shift in practices aimed at becoming part of the solution to the climate and nature crisis, rather than part of the cause.

Perhaps these sectors can find some common ground to help solve some of each other's challenges. Challenges that are often more connected than might at first be thought.

This study has a strong focus on food and healthy diets, exploring the idea that farmers could be in a unique position to contribute to their communities achieving healthier lives. Travelling to countries in Europe and North America that have similar agricultural and health challenges, the following healthy diet related 'interventions' were explored, including the role that farmers can play in them:

- Addressing barriers and facilitators to a healthy diet
- Food and farming education
- The 'Food is Medicine' (FIM) movement
- Unique health opportunities of local produce and short supply chains
- Public procurement of food and its role as a public health intervention

The study also recognises that the climate crisis *is* a health crisis and considers climate friendly opportunities within the interventions explored.

There were several key findings which were identified:

- Healthy diet related interventions can be designed to include a valuable role for farmers, such as prioritising procurement of local produce delivering benefits for the local economy and fostering a better connection to food
- Close partnerships between communities and producers can have direct health benefits

- A school's strong commitment to food education can open opportunities for local farmers, through on-farm and virtual educational access and local produce procurement opportunities
- Some FIM programmes are recognising that the true cost of certain foods has knock-on negative health effects for their patients and are prioritising produce that delivers wider health benefits
- Examples of these 'Wider Health Benefits' include climate and nature friendly farming practices, practices that protect water and air quality, nutrient-dense food, local producers boosting the local economy and socially responsible and inclusive employment
- Food Hubs can fill geographical gaps and encourage supply of local produce to consumers such as public institutions and organisations focusing on equitable healthy food access
- Public procurement of food is an under-utilised tool to improve dietary intake
- Measuring the impact of healthy food interventions can be challenging and often lacks consistency between similar programs
- Linking additional, credible wider health benefit metrics to food produce through the supply chain will be a challenge

Healthy diet related interventions explored in this report

- Can include a valuable role for farmers in their design
- Should ask '*where does the food come from*' and whether the food itself, including where and how it has been grown, has a positive or negative impact on the health of the consumer and their wider community. It is a false economy and missed opportunity, to supply these interventions with certain foods, and systems of growing food, that can negatively impact health
- Should collectively agree to provide data that can give consistent, comparable outcomes to help deliver a strong advocacy argument
- Can provide the demand and catalyst for developing values-based supply chains. These 'value chains' need support and innovation to manage 'data-enriched' produce that can deliver the transparency and logistical requirements of food with additional wider health benefits.

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DISCLAIMER

The opinions expressed in this report are those of the author alone and not necessarily those of the Nuffield Farming Scholarships Trust, of the author's sponsor, or of any other sponsoring body.

CONTACT DETAILS

Dr Tom Pearson

Caxton, Cambridge, Cambridgeshire

tom@manorfarmcaxton.co.uk

LinkedIn: [thospearson](#)

Nuffield Farming Scholars are available to speak to NFU Branches, agricultural discussion groups and similar organisations.

*Published by The Nuffield Farming Scholarships Trust
Bullbrook, West Charlton, Charlton Mackrell, Somerset, TA11 7AL
email : office@nuffieldscholar.org
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CHAPTER 1: INTRODUCTION

I grew up on our family arable farm in West Cambridgeshire in the 1980s when my grandfather farmed and in the 1990s when my parents took the farm on. I finished school and headed for different terrain to study medicine and after graduation, spent the following fifteen years in the UK and abroad, working in hospitals, primary care and public health settings.



(source: author's own)

Early on in my career I was in a clinic and asked a patient, who had recently suffered a minor heart attack, about his diet. The list that followed had no fruit, vegetables or fibre and a lot of what these days would be termed 'HFSS food' (High in Fat, Sugar and Salt). The nurse I was working with did not bat an eyelid: this was the normal story. I asked what he thought of changing his diet, and a combination of wariness of 'unpalatable' vegetables, lack of money and time, and peer pressure seemed to be his response.

Perhaps it did not resonate with me at the time, but it was this experience and others like it that had started to shape what would become a Nuffield question.

I came back to the farm in 2015 part time, learning the ropes and covering GP positions in local villages.

Time and time again, I found myself offering an empty prescription... eat more fruit and vegetables, get out and enjoy nature and fresh air; but short of tools in the box to offer any solutions to the real and perceived barriers people faced.

Then some glimmers of hope: a National Food Strategy (2021), the green social prescribing programme. But all within a pandemic that highlighted the chronic disease and mental health burden, and a fragile, largely unhealthy, food system.

I had grown up on a farm, and in a time that offered easily accessible fresh produce to eat and nature on the doorstep. What a privilege. Now I ran the family farm and I found myself asking: *'What can farmers do to make a positive impact on the health of their local community?'*



CHAPTER 2: BACKGROUND TO MY STUDY SUBJECT

'Health is a state of complete physical, mental and social well-being (and not merely the absence of disease or infirmity). The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social contribution.' (WHO, Basic Document 49th ed. 2020)

This study explores the idea that farmers could be in a unique position to contribute to their local communities achieving healthier lives. After all, farmers produce food and food is medicine. Farmers also have space and nature and have the potential to contribute to climate change mitigation, and to improve water and air quality. Farmers are multi-skilled and adept in diversifying and adapting their businesses.

The following pages will introduce some wide-ranging opportunities and emerging markets. Some are already available to a UK farmer, on their own or in collaboration with others. Some can come from interventions, policies or structures yet to be adopted in the UK, but emerging or thriving in other parts of the world.

This study seeks out tools and opportunities that can address health needs, whether through direct preventative or curative interventions, or through addressing the broad social and economic circumstances that together influence health throughout life (known as the 'social drivers of health').

Current and future projections of our country's ill health and the cost of this, are difficult calculations to make. But both conservative and worst-case estimates point to the fact that healthcare is getting very expensive, public health preventions are underfunded and not making the required impact, and chronic disease and mental health conditions are on the rise. There are also substantial costs beyond direct NHS costs: individual costs (lower life expectancy, a reduction in the quality of life and informal social care costs) and wider costs (loss of productivity and formal social care costs).

Poor diet is the leading cause of avoidable harm to our health, contributing to lower life expectancy and earlier onset of ill-health¹, and is costing the UK £262 billion per year². Adverse health outcomes linked to poor diet include, but are not limited to, dental caries (cavities), overweight and obesity, type 2 diabetes, cardiovascular disease and some cancers. The UK has one of the highest rates of overweight and obesity in Europe and this is expected to increase³.



This study has a strong focus on food. There are other 'non-food' health impacts to consider, some of which co-exist with the food-oriented evidence in the chapters that follow. Appendix C will summarise these other agriculture-health opportunities that farmers and growers could get involved in.

Key areas covered include addressing financial barriers to nutritious food, food and farming education, the FIM movement, the health values of local food connections, value-based supply chains and the role of public food procurement. The nutritional value of food will be touched on, but this subject will mostly be left in the capable hands of fellow 2023 NSch Dr Hannah Fraser ⁴.

The Climate Crisis *is* a Health Crisis

There is substantial and growing evidence of the effects of climate change on health in the UK ⁵. These potential impacts are significant and wide-ranging; impacts on health due to heat and cold, flooding and vector-borne diseases such as dengue, chikungunya and West Nile virus. Food imports and prices, particularly for fruit and vegetables, will be more volatile due to the UK's high dependence upon foods from particularly climate-vulnerable countries. Many of these adverse health impacts are avoidable with climate change mitigation. The agri-food sector is responsible for approximately one third of all UK greenhouse gas emissions⁶. Adopting climate-friendly agricultural practices is part of the UK's climate crisis mitigation. This study endeavours to consider climate-friendly opportunities within the interventions discussed.



CHAPTER 3: MY STUDY TOUR

I travelled to countries in Europe and North America that have similar health, food systems and agricultural challenges as we do in the UK. This allowed me to meet some inspirational farmers and growers. It also led me to many other people working in this area, from teachers and chefs to public food procurers, wholesalers and retailers. I also visited charities and social enterprises, researchers, policy makers, urban planners, nutritionists, doctors and social prescribers, community leaders and youth workers.

Country	When	Who
Canada (British Columbia)	March 2023	Peter Leblanc (Farmers' Market Nutrition Coupon Programme), Riley Park Farmers Market Vancouver, Alexa Pitoulis (Fresh Roots).
France	June 2023	Deputy Mayor Gilles Pérole & Sylvain Bourdon (MEAD (Maison Education Alimentation Durable) Mouans-Sartoux).
Canada (Ontario)	July 2023	Elizabeth Shantz (University of Guelph), Omelnisaa Giddam (Sheldale Farm Park Community Garden), Guelph Farmers Market (The Seed).
USA (Pennsylvania)	July 2023	Katie Belazis and Samatha Gibb (The Food Trust), Aslynn Parzanese (St Luke's Hospital Organic Farm), Dr Andrew Smith & Dr. Gladis Zinati (Rodale Institute), Easton Farmers Market.
USA (Connecticut)	July 2023	Dan Horan (Five Acre Farms & Waldingfield Farm), Westport Farmers Market, Chef Michel Nischan (Wholesome Wave – zoom January 2024).
Netherlands	May 2024	Rogier Scherpbier (Zonnespelt), Nick van den Pol (NSch 2020), Arja Kapitein (Transitie Coalitie Voedsel - zoom), Gerdien Dijkstra (Voedselbos Lingehout), Xander Beks (Nuffield Scholar), Mariska Pater (Herenboeren Assen Farm), Patty Scholten (JOGG).
USA (California)	June 2024	Davis Farmers Market, Edye Kuyper (CommuniCare+OLE), Gail Feenstra & Catherine Brinkley (UC Davis), Davis Village Homes Community, Jacob Weiss (Spork Food Hub), Eli Zigas (Fullwell), Dr Stephen Chen (Recipe4Health and Dig Deeper Farms), Sierra Community Hub, Katia Beckmann (Tahoe Food Hub), David Kaisel (Caypay Mills), Alrie Middlebrook (CNGF Land for Nature Based Urban Living, ELSEE garden, Hester Farm and Santa Clara Agrihood), The Edible Schoolyard Project Berkeley.
UK	May 2023 – March 2025 (in-person and zoom meetings)	Professor Rosemary Green (LSHTM), H3 (TUKFS) stakeholder meeting, Gavin Shelton (Co-Farm, Cambridge), Heloise Balme (Bristol Good Food), Lucy Bates (FFCC), Callum Etches & Helen Starr-Keddle (Food Matters), Helen Wood (Avon Wildlife Trust), Sue Pritchard (FFCC), John Miller & Daisy (The Community Farm Bristol), Ped Asgarian (Feeding Bristol), Steph Wetherell (Bristol Food Producers), Jonathan Pauling (Alexandra Rose), Oxford Real Farming Conference (2024), 'One Health – from soil to stomach' Panel participant (Groundswell 2024 & GO Falkland 2024), Dr Courtney Scott (FFCC), Debbie Lockett (Social Prescriber), Public Sector influencer's meeting to discuss British Supply Chains (Love British Food), AFN+ Big Tent Meeting 2024, Dr Kelly Parsons (MRC Epidemiology Unit), CSA Network, 'The Intersection of Food, technology, Investment and the Climate Crisis' (Food Tank Conference), Josiah Meldrum (Hodmedods), Fran Box (TastEd), Aoife Behan (NSch 2020), Dr Jason O'Rourke (Washingborough Academy), Danny Fisher (Better Food Shed), Hayley Parzonko (Surrey University), Jeff Schreiner (Cultura Technologies), Lucy Hollis (Grow), 'Improving Food Resilience: Connecting Farmers, Government and Citizens' Panel Participant (Oxford Real Farming Conference 2025), Anthony Yousefian (The First Thirty).



CHAPTER 4: FINANCIAL BARRIERS TO HEALTHY FOODS AND A ROLE FOR FARMERS & GROWERS

4.1: Affordability and Accessibility

Defining a healthy diet, understanding what helps and deters people from eating healthily, and delivering policy and interventions that make a positive difference, is a huge topic. This is made all the more complicated by the ‘obesogenic environment’ that we live in. We are surrounded by aggressive marketing of hyperpalatable ultra processed foods low in fibre and micronutrients and high in fat, salt and sugar ⁷. Barriers to healthy eating ⁸ include knowledge gaps around food nutrition and cooking, social influences, lack of time, lack of cooking facilities and even a lack of flavour. But top of the list is affordability and accessibility of healthy food. Making healthy food the easy, affordable and accessible choice, alongside tackling our obesogenic environment, is some of the key messaging coming out of food systems policy advice. Appendix A gives a brief background to what we mean by healthy diets, diet-related chronic ill-health and the impact this is having in the UK.

There are a few interventions in the UK that try to address financial barriers such as targeted free school meals, the School Fruit and Vegetable Scheme and programmes supporting low-income families with small children (Appendix A). These interventions are rarely designed with a role for farmers and growers and tend to be given small budgets resulting in ‘a race to the bottom on quality’ ⁹ and a missed opportunity to deliver healthy outcomes ¹⁰.

Eli Zigas is executive director at **Fullwell** in California, an organisation that focuses on making healthy food more affordable for low-income Californians. It supports a healthy, local, sustainable and fair food supply chain by improving the food purchased at large public institutions. During a visit in Berkeley, Eli gave an overview of the basic conundrum. *‘The people producing good food need to be paid more! If you want healthy, local, sustainable and fair food to go to low-income people, then you need to intervene with some sort of subsidy; and in the long term, you need to find a way to reduce poverty/income equality so people have income sufficient to meet their basic needs without subsidies.’*

4.2: Opportunities for local farmers & growers in ‘Nutrition Assistance’ Programmes



In Canada, the BC Association of Farmers' Markets (BCAFM), in partnership with the Province of British Columbia and the Ministry of Health, operate the **Farmers' Market Nutrition Coupon Program (FMNCP)**.

Peter Leblanc, program manager explained how it works and the impact it has. They partner with local community organisations, who can apply for coupons. These organisations can then distribute the coupons according to their community relevant criteria. Coupons are used in any participating British Columbia Farmers Market, giving access to local food and increasing sales for local farmers and growers. Coupons can be used to purchase vegetables, fruits, nuts, eggs, dairy, herbs, vegetable and fruit plants, honey, meat and fish. In the 2023 season, 12,000 households received coupons and surveys showed that 98% ate more fruit



Peter Leblanc, FMNCP, Riley Park farmers market (source: author's own)



Multi-language market signage (source: author's own)

and vegetables and 65% felt healthier.

1,259 farmers opted to accept coupons resulting in CAN\$3.6 million direct coupon revenue to farmers and CAN\$2 million additional sales revenue to vendors (people spending beyond the value of their coupons). As well as providing increased sales, Peter introduced farmers at the market who explained how valuable it was to them to have the opportunity to sell their produce to people who might otherwise not be able to afford it. They also took pride in helping people build their confidence in cooking with unfamiliar produce, including translating their labels and recipes into multiple languages.

Through the Federal Farm Bill, the United States Department of Agriculture (USDA) delivers a substantial package of financial support focussed on food. SNAP (Supplemental Nutrition Assistance Program) is the largest of these programs, offering money to people on low incomes to purchase food with minimal restrictions. Operating alongside this, the Gus Schumacher Nutrition Incentive Program (GusNIP) is aimed at incentivising SNAP recipients to purchase fruit and vegetables. (See Appendix B for more detail on Nutrition Assistance Programs).

Visiting **Farmers Markets in California, Pennsylvania and Connecticut**, it was clear that these match-funded GusNIP programs boosted sales opportunities for horticultural small and medium enterprises (SMEs), with nearly 60% of all GusNIP



sites across the US 'farm direct' rather than 'bricks and mortar', generating over \$100 million in local economic impact in a year¹¹. As horticulture does not receive the same direct subsidies as large producers of broad-acre crops, the GusNIP is viewed by some as informal 'indirect support' to horticultural SMEs.



Farmers Markets and nutrition assistance programmes (source: author's own)

4.3: Gathering the data for coordinated advocacy

Chef Michel Nischan gave the background to the remarkable coordinated efforts involved in achieving GusNIP. Alongside the late USDA Under-Secretary Gus Schumacher, Michel founded **Wholesome Wave** in 2007, with a mission to end food and nutrition insecurity across America by increasing the affordability and access to fresh produce for everyone. They were instrumental in securing legislation supporting \$100 million for Food Insecurity Nutrition Incentive (FINI) grants in the 2014 Federal Farm Bill. *'To get nutrition incentives approved as a federally funded pilot, we had over 600 community-based organisations in our National Nutrition Incentive Network (NNIN) delivering nutrition incentive programs in 26 states. We did not make them call it Wholesome Wave anything: we wanted it to be their name, in their communities. Wholesome Wave provided the tools, the training and the seed funding, so that organisations in the NNIN could do the programs. What we charged them in return was: if you come up with a really awesome innovation, you have to share with us so that we can test it and then make it available to everybody else in the network, and all of you*

What can farmers do to make a positive impact on the health of their local community?
by Dr Tom Pearson

A Nuffield Farming Scholarships Trust report, generously sponsored by NFU Mutual Charitable Trust



have to conduct the research according to our research protocols so that we can get consistent outcomes to fuel our argument for the advocacy work.' By the time the 2018 Farm Bill came around, they had 1400 community-based organisations that were part of Wholesome Wave's NNIN. Using this aggregated data, they managed to successfully expand the offering to \$250 million and secure it as a permanent part of all future farm bills, renaming it the Gus Schumacher Nutrition Incentive Program (GusNIP).

4.4: Food Accessibility

These nutrition assistance programs create a new customer demographic with significant revenue, to the point that *could* allow suppliers to start locating in places that traditionally would have given them too few customers to make it worth their while. The programs also allow supporting organisations to operate and deliver on food accessibility opportunities, such as Vancouver neighbourhood associations offering group transport and familiarisation tours at farmers markets, or the mobile farmers market trucks serving food into neighbourhoods throughout Yolo County, California.



Chapter 4 Summary:

- Eating five portions of fruit and vegetables per day, and preferably 30 different types per week, is the cornerstone of a healthy diet, and even moderate increases in fruit and vegetable intake results in better health (see appendix A for more detail)
- The biggest barriers to achieving a healthy diet are affordability and accessibility - both relatively expensive inaccessible healthy food options and relatively cheap readily accessible unhealthy food options
- Programmes that deliver financial incentives to purchase healthy foods such as fruit and vegetables, can be designed to support local producers and benefit the local economy
- Successful projects work with local organisations who know their community, selecting people who stand to benefit most from the vouchers or coupons due to their susceptibility to food poverty, dietary-related health issues or other risk factors. They are also well positioned to dovetail into additional existing activities focused on health and well-being in their local area
- Farmers markets and other venues with direct sales, give opportunities for customers to engage with the grower, supporting an appreciation of healthy food and growing confidence in developing a healthier diet
- Farmers value the opportunity to sell their produce to people who might otherwise not be able to afford it
- Collaborative research and gathering data according to shared protocols, can give consistent comparable outcomes that deliver a strong argument for advocacy work
- These 'nutrition assistance' programmes can pave the way for organisations to operate and deliver 'complementary' opportunities including improved food accessibility

Financial barriers are the most common reason given for not eating a healthy diet. Programmes that tackle the high cost and affordability of healthy food can help, and with the right design can open opportunities for farmers and growers. Other significant barriers include nutritional knowledge, cooking and food preparation skills, personal beliefs about capabilities, and social influences. What better way to start tackling those than at school.



CHAPTER 5: FOOD AND FARMING SCHOOL EDUCATION AND THE 'WHOLE SCHOOL APPROACH'

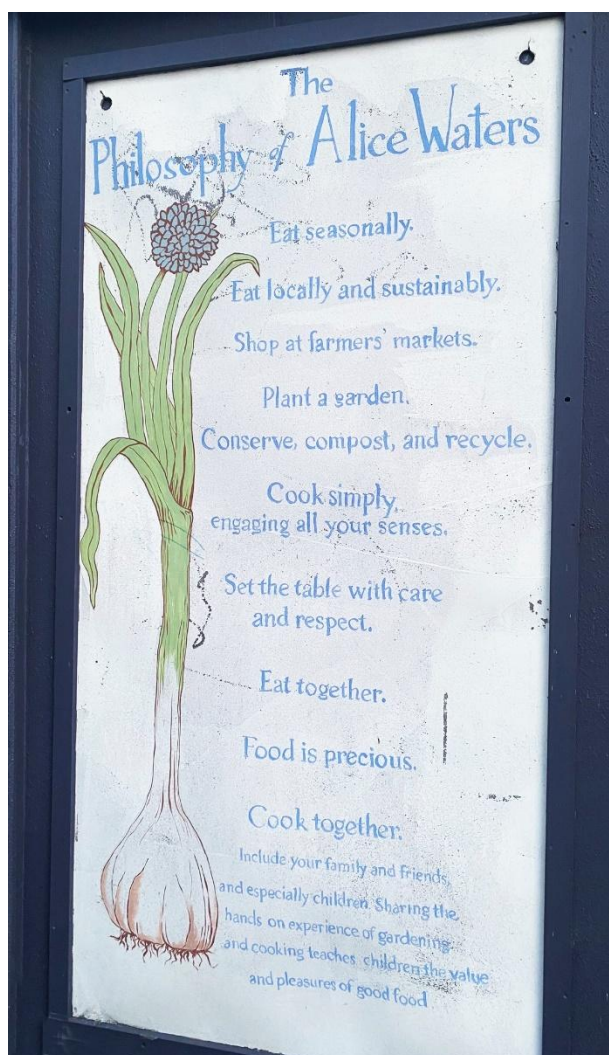
The Municipal of Mouans-Sartoux in the South of France, and their organisation **MEAD (Maison Education Alimentation Durable)**, has successfully combined a whole school approach to food education: connecting produce supply, school kitchens, immersive classes within the growing space, and local community involvement. Joining one of their open days for local government, **Sylvain Bourdon** (agricultural land manager) and **Gilles Pérole** (Deputy Mayor of the city of Mouans-Sartoux) described the evolution and operation of the project. The Municipal purchased four hectares of land in 2012 (and a further 2ha in 2016) and now employs three full time farmers under the civil servant payroll to grow and supply 96% of the vegetable requirements for the three primary schools under their responsibility, serving around 1000 meals a day. The primary schools are within 2.5km of the growing space and each school class has dedicated weeks in the term where they attend school in the classroom facilities located at the organic farm rather than at their primary school location. Kitchen staff have a central role in nurturing children's appreciation of food, talking to the children and staff about the food being served. This shift in local sustainable food has been achieved without any change to the budget, mostly through a remarkable 80% reduction in food waste, carefully measured by the children sorting the leftovers themselves and the kitchen staff weighing and recording these leftovers before returning them to the farm for composting. The Municipal purchased freezer space so that produce grown in the school holidays can be prepped and stored for use in the winter. The farm is also host to summer camps for children and adults.

This project is particularly strong on collecting data and collaborating with researchers. Gilles Pérole and his team won the Innovation in Politics Award 2020 in the Education category in recognition of their work. They are focussed on impact, and, as part of the European BioCanteens Transfer Network, are supporting six cities in Europe to adopt their project ideas. They also regularly organise visitor and training days for interested parties, including local government, and have strong support from the community, with regular open days and many residents volunteering for the project.

The 'spill-over' effects of this programme on local community health are well documented¹². Between 2017 and 2022, 71% of the city's inhabitants had changed their eating habits for the better; including a 16% increase in consumption of fruit and vegetables, a 23% decrease in sugary drinks and a 30% decrease in consumption of ultra processed foods. They are also including eCO₂ emissions data and have achieved an 18% reduction in eCO₂ food related emissions.



Visiting the **Edible Schoolyard Project** at Dr. Martin Luther King, Jr. Middle School in Berkeley, California shows just how a well-established growing space on



Alice Waters Philosophy, Edible Schoolyard Project (source: author's own)

a school campus can inspire. This space serves as a demonstration site and innovation hub for the field of 'edible education' and was founded in 1995 by chef, author, and activist Alice Waters. School children get to plant and grow fruit and vegetables and then cook with them in the school. But beyond this, the whole school is invested in using this facility in all subjects from maths and science to arts, humanities and social justice. Their Edible Schoolyard Network connects more than 5,000 programs in the US and another 800 programs in 75 countries around the world, offering a facility to share experiences and learnings as well as their significant online resource of lesson guides. They have also set up a training program to learn core principles and practical tools for engaging students in academics, sensory learning, and culturally responsive lessons in the kitchen, garden, and school cafeteria.

In the UK, some structures are already in place to offer direct connections between pupils and farmers. These might be 'on-farm' such as the Countryside Stewardship Educational access payment (which can be supported by organisations like Countryside Classroom, the Country Trust and LEAF education), and off-farm/virtual (such as Farmer Time). There is certainly appetite for this.

Tom Martin (**Farmer Time** founder) says that there are over 1000 schools signed up to Farmer Time with typically about 200 teachers on the waiting list to get linked up to a farmer.

However, using this farmer-school contact as part of a broader programme to support long lasting nutritious food choices and building food confidence needs bolder action. **Dr Jason O'Rourke** (Head of **Washingborough Academy** primary school in Lincolnshire) embraces food education to provide holistic teaching and learning opportunities. *'The national curriculum is more of a perceived barrier.'*



Yes, there may only be a few mentions of cooking and nutrition... but food, nutrition and cooking can be used to teach multiple parts of the national curriculum. It needs imagination, stepping out of the comfort zone, and a Head who is dedicated to make a positive change to children's mental and physical wellbeing.'

Washingborough Academy has a 300m² kitchen garden, raised beds, polytunnels, a Lincolnshire heritage orchard and apiary. They only grow heirloom and heritage varieties of vegetables so they can teach the children about seed saving. They have achieved a Soil Association's 'Food for Life served here' Gold Award, and source significant quantities of their food locally for their school meals. *'The kitchen garden is separated into class sections, and each class looks after the vegetables that are assigned to it, the children are then timetabled during the week to plant seeds and do the weeding/watering. [We are] not afraid to include this in our timetable because we know they are really valuable skills for our children to learn.'*

They also use the Sapere method of teaching, organised and promoted in the UK by TastEd. *'Our course is about trying the food with all the senses. It gives children the skills they need for developing a taste for healthy foods as well as the confidence to talk about their own preferences'* said **Fran Box**, director of **TastEd**.

Key to delivering a 'whole school approach' is avoiding 'mixed messaging' by committing to the combination of both great food and farming learning experiences *and* great tasting healthy nutritious school food. Organisations such as Chefs in Schools (UK) and Chef Ann Foundation (US) play a critical role in engaging with and supporting school catering teams.



Chapter 5 Summary:

- Supporting nutritious food choices and building food confidence can provide the building blocks of a healthy relationship with food and equip children with the knowledge and skills to be 'agents of change' within the family and wider community context
- A 'whole school approach' includes a local community of farmers and growers, catering staff, teachers, pupils and their families, connecting produce supply, school kitchens and immersive classes within the growing space
- Structures are already in place for UK farmers to get involved in school education with a waiting list of schools looking for farmers
- In the UK, breaking through the (perceived) barrier of the National Curriculum to deliver food and nutrition education needs dedication and imagination
- A more coordinated approach is required to support long term nutritious food choices and build food confidence
- A school's strong commitment to food education can open opportunities for local farmers, through on-farm and virtual educational access and local produce procurement opportunities
- Local food supply with education opportunities that directly involve the supplier farm/farmer provides a unique opportunity for learning and supporting healthy food choices
- Award systems like 'Food for Life' can help and include rewarding schools for working with local food producers
- Schools should avoid 'mixed messaging' by offering a consistent approach that delivers *both* healthy food and farming lessons *and* healthy school food
- Delivering a dedicated growing space to supply schools with 'in-house' farmers and on-site education is a bold and impactful option

We have explored the financial barriers to healthy eating and the important role that a 'whole school approach' to food education can play. But could food actually cure as well as prevent ill-health and are healthcare providers interested in food as medicine?



CHAPTER 6: THE 'FOOD IS MEDICINE' MOVEMENT

The medical profession has historically been poor at researching, understanding, teaching and using the importance of food and nutrition in everyday clinical practice. However, with an appreciation that a poor diet is now the leading cause of avoidable harm to our health ¹, and a healthy diet can even reverse some chronic illnesses ¹³, the healthcare profession is moving food and nutrition up the healthcare agenda, from the teaching curriculum to clinical practice.

The FIM movement, which includes **produce prescriptions**, is gaining traction and uses healthy nutritious food as a tool for treating and preventing chronic disease.

Produce prescriptions are targeted at food insecure people with at least one diet-sensitive health risk or chronic condition (such as diabetes, pre-diabetes, hypertension, obesity, or heart disease). The medical professional prescribes nutrition education alongside discounted or free produce such as fruit and vegetables (and sometimes also nuts, seeds, beans, whole grains, dairy, and eggs). This is provided by electronic benefit cards or paper vouchers redeemable at grocery stores or farmers markets or, if access is an issue, the healthcare setting or home delivery.

Chef Michel Nischan (introduced in Chapter 4) discussed how **Wholesome Wave** launched the USA's first Fruit and Vegetable Prescription program in 2010. *'Advice and counselling from the medical professional and nutritionist, alongside removing the financial barrier, is a powerful combination, and because the prescription needs to be renewed regularly, this gives the patient the opportunity to check in with the nutritionist to talk about any challenges and barriers in their journey as well as test health outcomes'*. Many of the groups Wholesome Wave work with go beyond this, such as offering shopping and cooking classes. Just like their work advocating for GusNIP, they have established a robust archive of program data. This has been used in a large, multisite evaluation where produce prescriptions were associated with significant improvements in fruit and vegetable consumption, food security, and health status for adults and children, and clinically relevant improvements in glycated haemoglobin, blood pressure, and BMI for adults with poor cardiometabolic health. ¹⁴

One of the other major outputs from GusNIP (other than nutrition incentives discussed in Chapter 4) is produce prescription programs. In 2022/23 there were 1425 produce prescription programs benefitting from GusNIP funds operating across the USA and distributing just over \$6 million of produce.

Dr Stephen Chen is Chief Medical Officer at **Recipe4Health**, a nationally recognised award-winning Food is Medicine initiative in Alameda County,



California. Meeting up at Dig Deep Farms, their produce supplier partner, Dr Chen described his program, which operates over ten sites and has served over 6000 patients.



Dr Stephen Chen, Recipe4Health (source: Dr Stephen Chen)

Working in safety net health centres (federally qualified health centres that serve the most vulnerable patients), they prescribe healthy food alongside behaviour changing support. The 'Food Farmacy' prescription is agroecologically grown organic regenerative food (pesticide free and increased nutrient density) from BIPOC led (Black, Indigenous and People of Colour) regenerative farms. The 'Behavioural Pharmacy'

prescription addresses nutrition, movement, stress reduction and social connection to sustain behaviour change. This is complemented by community-based health coaches that provide group/individual health coaching options such as cooking classes.

Critically, Dr Chen has asked the question '*where does the food come from in our Food is Medicine program?*'; recognising the health of his patients can be affected, for better or worse, by how and where that food is produced.

'Recipe4Health is a health multiplier that generates co-benefits to human health, local economic health, climate and soil health, and health and racial equity'. He prioritises produce that can deliver 'wider health benefits' such as climate and nature-friendly farming practices, pesticide residue-free produce, practices that protect water and air quality, socially responsible and inclusive employment and local producers boosting the local economy.

Dr Chen talks about how to use healthcare to create new markets for these local farmers, echoing USDA Secretary Tom Vilsak speaking at the 2024 US Department of Health and Human Services Food is Medicine Summit: '*Food is Medicine' creates a new revenue stream, a new value-added opportunity, [and] creates an incentive for a diversification of crop production which I believe can lead to small and mid-sized producers being more profitable.*'

Working with universities in California, their data shows that a third of their Recipe4Health patients with pre-diabetes and diabetes had significant decreases in their blood sugars, two thirds improved their cholesterol indicators and there was a 15% reduction in Emergency Department visits. Every \$1 spent on



prescription produce generates \$1.90 for the local economy. Currently under a pilot fund, Dr Chen is advocating for 'Food is Medicine' to become a permanent covered benefit in California's Medicare program.

Up the road in Yolo County, **Edye Kuyper**, food and wellness manager at healthcare provider **CommuniCare+OLE**, described an additional 'tool' within their FIM program for their diabetic patients. Here they operate



CommuniCare+OLE Clinic Garden (source: author's own)

three clinic-based gardens that extend the services available in their health centres to an outdoor setting. They offer education and one-on-one visits in these spaces. They also introduce patients and staff to agriculture and where food



Vegetables in the CommuniCare clinic (source: author's own)

comes from, with a space to offer cooking and food skills education classes. Although the scale of their produce prescription program requires them to source from local farmers, the produce from their gardens is used in cooking classes and distributed in the waiting rooms. They also make use of a mobile farmers market (see Chapter 4.4), improving accessibility for collecting produce prescriptions.



Although the USA is a leader in the FIM movement, the UK has some emerging programmes. Complementing similar positive outcomes seen in the USA, the **Alexandra Rose Charity** published an impact report ¹⁵ from their successful ‘fruit and veg on prescription pilot’ in Tower Hamlets and Lambeth (involving surveys from 91 participants). Eighty per cent of their participants are now eating five-a-day (up from 28%), nine in ten are experiencing improved health and wellbeing, seven in ten are experiencing significant reductions in blood pressure, and there was a 40% reduction in GP visits. £222,000 has been invested in the local economy since the project began.

On a visit to the pilot in the **Bromley-by-Bow Community Centre**, the team emphasised that critical to the programme, beyond the physical prescription of fruit and vegetables, was the additional learning support package that includes food and financial health workshops to benefit participants in the long-term. It was also important to partner with community health hubs where services and groups are ongoing beyond the length of the prescription, so participants leave the project with services and support still available. Participants must collect their Rose Vouchers weekly from the community health hub, enabling hub staff to consistently interact with participants. On average participants were referred to five additional services and these interactions reduced social isolation and withdrawal, building social confidence.

The 2021 National Food Strategy recommended a ‘Community Eatwell approach’ ¹⁶ offering targeted healthy eating support for people on low incomes, giving GPs the option to prescribe fruit and vegetables, along with food-related education and social support, to patients suffering from the effects of poor diet or food poverty. The recommendations from the Alexandra Rose impact report included urging the government ‘*to press forward with their existing commitment to pilot a three-year ‘Community Eatwell’ Programme based upon the Alexandra Rose Fruit and Veg on prescription model.*’ Some progress has been made with the recent government announcement of the ‘Plan for Neighbourhoods’ ¹⁷ which gives the opportunity to include community-level fruit and vegetable prescription schemes.



Chapter 6 Summary:

- The medical profession is starting to take food and nutrition seriously, recognising that poor diet is the leading cause of avoidable harm to our health and responsible for some of our biggest healthcare challenges and costs such as people being overweight and obese, type 2 diabetes, cardiovascular disease and some cancers
- 'Food is Medicine' (FIM) interventions show promise for improving nutrition, reducing food insecurity, improving health outcomes, and increasing health equity
- A significant evidence base is growing, showing FIM interventions are good value and can save healthcare systems money
- Some FIM programs, such as Recipe4Health, are recognising that the true cost of cheap food has knock on negative health effects for their patients. They are prioritising produce from farms that can deliver 'Wider Health Benefits' such as climate and nature-friendly farming practices, pesticide residue free produce, practices that protect water and air quality, local producers boosting the local economy and socially responsible and inclusive employment
- Produce prescriptions should include behavioural and knowledge support which can be delivered by local organisations and could be located in appropriately located growing spaces
- 'On-site' growing spaces at health centres can help introduce patients and staff to agriculture and where food comes from, with a space to offer cooking and food skills education classes
- The FIM movement is a potential emerging market for farmers and growers

Speaking to the people involved in running these produce prescription, whole school food and farming education and nutrition assistance programmes, it was clear that fostering close connections with growers and consumers and choosing to include local food produce in their procurement strategy, were key themes. But why was this important and what farming set-ups can encourage these interactions?



CHAPTER 7: THE VALUE OF LOCALLY ENGAGED FARMING AND THE GROWER-CONSUMER CONNECTION

7.1: Supporting healthy diets through local connections between growers and consumers

The agri-food sector, whether supplying locally or further afield, can choose to broadly contribute to better health through using, and purchasing from, farming practices that promote better air and water quality and support nature and climate change mitigation. There are also opportunities for improvements in nutritional content ⁴ and reduced pesticide residues that could have positive health impacts. However, in addition to this, local food with local engagement, has the potential to deliver *additional* opportunities to improve local health. Boosting local economies will have positive effects on the wider social drivers of health, but perhaps the most tangible benefit are the genuine interactions, connections and experiences between growers and consumers in supporting healthy eating behaviours. Examples of this connection were explored within the school setting in chapter 5, and beyond this, supporting food production that delivers these connections to customers can be a powerful tool.

7.1.1: Bringing the consumer to the farm: Community Supported Agriculture

Community Supported Agriculture (CSA) can take on several forms including 'producer-led' where the farmer offers a share of production in return for a fixed subscription and 'community-led' where the farming enterprise is set up and owned by the community, which takes on direct responsibility for production. CSA farms are most likely to produce vegetables but some produce fruit, eggs, poultry, pork, lamb, beef, dairy produce, honey or bread. These setups build strong, close and mutually beneficial partnerships between communities and producers with the responsibilities, risks and rewards of farming being shared. These close connections to food can have direct health benefits. A CSA Network UK survey (n=192) showed that by being a CSA member, 79% had improved their cooking or eating habits, 82% had improved their overall quality of life and 48% said it encouraged them (and their families) to eat more vegetables.

Geert van der Veer came up with the concept of **Herenboeren Nederland**, a movement in the Netherlands that supports citizens in the development of nature-driven, small-scale farms, and set up the first farm in 2016. **Mariska Pater** (head of HR for the farmers in the Herenboeren organisation) explained the setup



on a walk around the Herenboerderij Hof van Rhee farm near Assen, where she chairs their member board. *'This farm was started in 2020 and was the ninth farm to follow the concept of Herenboeren Nederland. It is a cooperative of 250*



Mariska Pater, Herenboerderij Hof van Rhee farm, Assen
(source: author's own)

member households (approximately 500 mouths) who each make a one-time investment of 2000 euros. With that money they lease a 20ha plot of land and make all the investments needed to get the farm up and running. We grow 50 different vegetables and fruit per year, using nature friendly pesticide free methods, in an eight-year rotation that includes pigs and poultry. Members

contribute 15 euros a week to cover the running costs and pick up a weekly food parcel of vegetables, herbs, fruit and eggs and occasionally meat. There are several farmers, directly employed and supported by the Herenboeren Nederland organisation, who manage the farm, and a board represents the members. As a Herenboer (member) you are encouraged to help out on the land or by joining a working group, but this is not mandatory.' The Herenboeren Nederland organisation now supports 22 farms with over 9000 members and employing 40 farmers. Their goal is to reach 1% of the Dutch population (350 farms) by 2030. This model builds a strong community connected by growing the food they eat. Although no formal data has been collected, being a Herenboer gives the opportunity to access healthy food, develop better eating habits and participate in physical exercise (land work) and social opportunities.

7.1.2: Bringing the farm to the Institution

Aslynn Parzanese, farm manager at **St Luke's Hospital Organic Farm** walked through the substantial setup of polytunnels and field vegetables located on the St Luke's Anderson Campus in Easton, Pennsylvania. She explained that the hospital was built on agricultural land and the St Luke's University Health Network, recognising the importance of healthy eating, allocated 5.7ha of the site to set up a 'farm to hospital' operation. They partnered with the iconic Rodale Institute, working to connect soil health with human health. The farm grows 30 different fruit and vegetables and has a goal to grow 60,000 pounds (27 tonnes) of produce to be distributed throughout their 12 hospital kitchens and cafeterias.



They also grow for the Employee Wellness CSA program currently delivering 120 weekly fruit and veg boxes to healthcare staff. The hospital takes its role of preventative medicine seriously, recognising that the best way to educate someone about feeling better through food is feeding them good food. Adjacent to the farm are 22.8ha of seasonal flowers and native trees with walkways and resting areas. This biodiverse rich area assists their nature friendly farming practices as well as providing wellness opportunities for patients, visitors and the local community.



Aslynn Parzanese, farm manager St Luke's Hospital Organic Farm (source: author's own)

The **Shelldale Farm Park** is located within the grounds of Shelldale Centre Community Hub in Guelph, Canada, home to the Guelph Community (GP) Health Centre, Family and Children's Services and Immigrant Services. The farm park operates on multiple levels within the community including a unique and visibly



Conversations with Shelldale Farm Park growers
(source: author's own)

successful opportunity for new immigrants arriving in Guelph. Their coordinator, **Omelnisaa Giddam**, organised a morning to introduce some of the group. Sitting with over 20 people speaking 18 different languages, it was clear that working alongside each other, with a shared knowledge and appreciation of growing, cooking and eating food, helped both longstanding and new members of the community come together. Fruit and vegetables from all

over the world were grown. Some of the plots were looked after by the group to supply the midwifery team (across the parking lot) to guarantee mums-to-be free fruit and vegetables during their pregnancy. Produce was also offered at the medical centre for patients to try, giving an informal, no-questions-asked, free offering with advice on preparing and cooking. This was just one of many examples seen during this study where common ground was found talking



about, growing and sharing food; breaking down barriers and, in the healthcare setting, being the spark that leads to accessing much needed healthcare and social services.

Chapter 7 Summary:

- Genuine connections between consumers and farmers and growers can support healthy diets
- Community supported agriculture (CSA) can build strong, close and mutually beneficial partnerships between communities and producers that can have direct health benefits
- Common ground can be found talking about, growing and sharing food; breaking down barriers and in the healthcare setting, being the spark that leads to accessing much needed healthcare and social services
- Institutions can support onsite farms, for example in schools and healthcare settings, that deliver a proportion of fresh produce requirements alongside education or wellness opportunities

Nutrition assistance programmes, whole school approaches to food and farming education and the 'FIM' movement can create new markets for farmers and growers who can deliver 'Wider Health Benefits', particularly valuable if this can include local engagement and grower-consumer connections. But how could supply chains and local produce be supported to deliver this, and what role does public food procurement play as a public health intervention and in supporting 'value-based' supply chains?



CHAPTER 8: 'VALUE-BASED' SUPPLY CHAINS AND THE ROLE OF PUBLIC PROCUREMENT

Recognising and evidencing the value of healthy diets, and programmes that can deliver positive diet-related health outcomes, such as nutrition incentives and 'FIM' programmes, is one piece of the puzzle. But to supply these emerging markets, there is a need to support production and 'value-based' supply chains that can deliver produce with 'Wider Health Benefits', including making space for locally engaged producers and local food.

8.1: Food Hubs

Food hubs actively manage the aggregation, distribution, and marketing of food products, primarily from local and regional producers, offering buyers trusted traceability and provenance credentials. They could be well placed to fill gaps in a supply chain that might otherwise struggle to aggregate and distribute produce with 'Wider Health Benefits'.

The California Department of Food and Agriculture (CDFA) has been particularly active in recognising and supporting the role of food hubs through their Farm to Community Food Hubs Program and their Farm to School Incubator Grant Program. They have also moved to back this up with legislation requiring all California state-owned or state-run institutions to ensure that at least 60 per cent of the agricultural food products that it purchases are grown or produced within California State.

Visiting **Spork Food Hub** in Davis, California, general manager **Jacob Weiss** described the hub's setup and evolution. From starting with a CDFA grant that enabled the owners to employ a manager and purchase a truck and 28sq metre cooler, the food hub now employs six full time staff, operates four refrigerated vehicles and has 93 square metre of coolers. Although mostly dealing with vegetables and fruit, they also supply local meat, grains, rice, beans and bread. They work with 60 local farms, distributing mostly to the education sector, including 25-30 schools as well as their local university (UC Davis). They supply to the Communicare+OLE produce prescription program (chapter 6) and supply 15 prisons through a pilot with the California Department of Corrections and Rehabilitation. There have been additional grants for staff time to train local farmers, for example in growing for wholesale requirements, and to train school caterers and kitchen managers, such as cooking with seasonal produce. The hub also receives technical advice and peer learning opportunities from the California



Food Hub Network run by University of California Davis' Sustainable Agriculture Research and Education Program [SAREP].

Jacob described how significant work goes into relationship building with farmers, supporting farms that want to scale up, but also those who want to stay at the same level of production they are happy with. The food hub model works to ensure farmers are treated fairly within the supply chain, letting the farmers set the prices for their produce, with the food hub then working to get the sales, renegotiating this offered price if it is not working for the buyers. Jacob said that the farmers they have taken on board have seen their sales go up.



Jacob Weiss, General Manager at Spork Food Hub and Gail Feenstra Emerita at UC Davis Sustainable Agriculture Research and Education Program (SAREP) (source: author's own)

'We are conscious that for buyers it is always another step, having to purchase from the big wholesaler's catalogues and then making an additional call and paying an additional invoice for Spork produce.' But food hubs can offer added value. They offer a trusted story and traceability of local provenance. They allow local buyers to support their local economy. They achieve high fulfilment rates, Spork buyers receiving what was requested in more than 90% of orders, and if substitutions are required, they will call in advance and work with the buyer for an appropriate substitute. Often with other wholesalers, substitutions are quite common, with no support given to the buyer.



Beyond these benefits, Spork food hub is a good example of how this type of supply chain can build in additional added value. The owners, Hope Sippola and Shayne Zurilgen, both have a background in education and use their urban farm in West Sacramento (Fiery Ginger Farm) to *'deepen connections between locally grown produce and those who receive it,'* running farm tours and tastings events for their local community. On-site training for the nutrition services staff of their institution buyers, as well as 'kids on-farm' field trips and in-school lunchtime taste tests, helps them forward plan with their school districts and farmer partners.

Danny Fisher, head of the **Better Food Shed** in Bow, East London (UK), described their journey from box scheme provider within a buying group to working with 23 small and medium organic UK farms mostly within 70 miles of East London, aggregating and distributing 20 tonnes of fresh organic produce per week. Driven by difficulties with provenance, quality and price from wholesalers, they built up an efficient distribution system allowing sustainable produce into London with the best value possible. *'Our principal driver was to remove extractive profit and use the margin for costs and wages. We manage a relatively low margin – 15% on average. This compares with a minimum of 30-40% margin on the usual 'conventional' [organic or non-organic] wholesalers. We are 'mission driven' – we want to support farmers to get produce into London and get as many Londoners as possible to access that produce.'*

'We are a not-for-profit company limited by guarantee (not a charity). Everything we do is paid for by the business, the small surplus we make on everything that comes through. This model is economically viable.' Key to getting started was finding rent-free premises sharing a disused local council building and receiving a start-up pot of funding from the social enterprise Growing Communities to buy a cold store and pallet trucks, everything else was rented.

This mission driven approach, along with actively engaging with both their growers and the organisations they supply to, while keeping prices competitive with large scale national conventional produce, has fostered strong working relations to supply to food shops, schools and education services, holiday activities and food programmes, social care services, community kitchens, NHS services and more.

But, unlike box schemes, *'the public sector does not understand seasonality. Consistency is an issue. They want what they want and if they cannot get it they go elsewhere. Schools, the children and other public caterers, like peppers, tomatoes, cucumbers and broccoli, but these are not available in the UK for more than three or four months.'* This requires a lot of work to support changes in skill sets and knowledge. They are working with the 'Bridging the Gap' project



that is providing funding to encourage schools to use seasonal produce. This includes educational elements such as farm visits for pupils and kitchen staff.

Sustain, the alliance for better food and farming, calculated that it costs about £150,000 to start a food hub in a warehouse space of 250 square metres that could serve enough food for about 10,000 households. This includes market research, building supplier relations, initial salary/wage payments, fitting the space with equipment and infrastructure, eg., packing station and cold store, and costs for a forklift and commercial van ¹⁸.

8.2 The challenge of additional metrics and technology opportunities in the 'value-based' supply chain

Eli Zigas pointed out some of the logistical issues. *'The practicalities of stating organic as a requirement for produce prescription or public procurement or any policy, is doable... all wholesalers and grocers have labelling systems in place, and there is a well-developed and respected accreditation system. But from a wholesale perspective it is hard enough to separate out organic from non-organic - this is an organic accreditation requirement and can be inspected, let alone try and separately aggregate, store, package and distribute products with multiple different value-added credentials.'*

'A small project sourcing from one or a few farms can get over not needing a form of certification by using a self-auditing process and building customer confidence with transparency through websites/blogs etc, and being local, customers can visit and see for themselves. But scaling up and defining in policy and grants is the issue!'

Data required to differentiate produce with 'Wider Health Benefits' is, at present, not widely measured, recorded or 'tagged' to the produce. However, technology has a pivotal role to play in realising a 'value-based supply chain' that gives the true costs and benefits behind food: integrated technologies delivering accurate low-cost systems of measuring data at the farm level and managing it through the supply chain to inform procurers and consumers. **Jeff Schreiner** (SVP Global Collaboration, **Cultura Technologies**) discussed the empowering potential of building systems that can accommodate more information; *"Data Enriched Commodities, or DEC, hold tremendous potential to transform our food supply chains by integrating comprehensive health and environmental data directly with the commodities. This approach not only supports transparency but significantly empowers healthier consumer choices and more sustainable agricultural practices. In essence, DEC serves as a pivotal innovation to bridge the gap between producing food and promoting health, ensuring that every*



step of the food supply chain contributes positively to public health outcomes and environmental stewardship."

8.3: Public Procurement and its role in promoting healthy diets and leveraging healthier food systems

Sitting around a circle of straw bales in March 2024, **Love British Food** founder **Alexia Robinson** had convened a Public Sector influencers meeting, the first time public sector leaders, providers, suppliers and farmers have gathered together to discuss the supply chain.⁹

During that meeting, there was recognition that public sector institutions, particularly hospitals and educational institutions, are uniquely placed to give people the chance to try healthier options, and that the public sector has a role to deliver healthy food and positive public health nutritious food messaging, helping people make better food choices. If done well this could deliver a long-term impact on reducing chronic illness and the huge financial burden of this. This is echoed by the WHO (World Health Organisation) which has identified public procurement of food as an under-utilised tool to improve dietary intake, observing that governments worldwide have a unique opportunity and responsibility to lead by example through the implementation of healthy public food procurement and service policies¹⁹.

Public food procurement refers to the foods bought by the government with the use of public funds. It provides the meals served at public institutions such as schools, hospitals, care homes, prisons, military bases, local authorities and government offices. The UK Government spends £5 billion on food and catering services annually²⁰. This purchasing power, combined with setting ambitious national standards, could be used as a strong lever to create new markets that can encourage and support producers to deliver the 'Wider Health Benefits' that Dr Stephen Chen referred to (chapter 6).

There are already some frameworks and goals in place. **Tim Radcliffe** (Net Zero Food Programme manager for **NHS England**) highlighted that the NHS has a clear sustainable roadmap and that by April 2028 every product needs to be carbon footprinted. UK Government Buying Standards for food and catering services (GBSF) outline mandatory and best practice standards that include requirements for seasonality, farm level integrated management of nature, water and soils and to include small to medium sized enterprises (SMEs) in food-related tenders. Although it was pointed out that only approximately 60% of hospitals are managing to adhere to these mandatory standards and schools are encouraged, but not mandated, to comply with the standards.



The Procurement Act (2023) and the Procurement Regulations (2024), that came into force in February 2025, aim to help smaller enterprises compete for contracts and deliver on social and economic value, including a desire to increase the proportion of food purchased across the public sector that is certified to higher environmental standards ²¹. This legislation may help position public food procurement as the lever that helps significantly expand an emerging market of produce with 'Wider Health Benefits'.

The Open Food Network (OFN) is a partner of the Procurement for Good (P4G) project with a focus on place-based public procurement. This project will examine ways to improve opportunities for food buyers in schools, hospitals, and other public sector organisations to include sustainable, locally produced food in their menus and to create new markets for small and medium-scale producers. The project will look at extending the functionality of OFNs open-source digital platform to enable food producers to sell to public sector organisations through food hubs.



Chapter 8 Summary:

- Using the term 'value chain' or 'value-based supply chain' rather than 'supply chain' could help stakeholders focus efforts on integrating produce with additional 'Wider Health Benefits'
- Food Hubs are well positioned to specialise in aggregating and distributing food with additional 'Wider Health Benefits'
- Larger wholesale organisations within existing supply chains could be supported to adjust their facilities and systems of work to manage SME produce and additional wider health benefit metrics
- Establishing and supporting Food Hubs, that can operate alongside existing supply chains, can fill geographical gaps and encourage supply between local producers and local consumers, including local public institutions and organisations specialising in equitable access
- Public food procurement and catering needs support to get on board with seasonality
- Supporting Food Hubs with modest start-up funding, procurement and catering education and supportive procurement policies can lead to economically viable businesses
- The WHO has identified public procurement of food is an under-utilised tool to improve dietary intake. The public sector, through their public procurement, has a role to deliver healthy food and positive public health nutritious food messaging and if done well, there is a long-term impact on reducing chronic health and the huge financial burden of this
- UK government buying standards are vague and unambitious with a significant number of procurers are not even adhering to them^{9,20}. However, the new Procurement Act (2023) *may* offer the structure to help deliver on public food procurement with 'Wider Health Benefits'



CHAPTER 9: DISCUSSION

The previous chapters have described the critical role food has to play in achieving healthy lives and has explored the real and perceived barriers people face. Within this narrative, this study has described ‘interventions’ that can break down these barriers and support healthy food choices and environments. They include addressing financial barriers to healthy eating, building food knowledge and confidence and ‘FIM’ tools such as produce prescriptions.

These interventions can be designed to include a valuable role and market for farmers and growers. Close partnerships between communities and their local food producers can have direct health benefits, from building food knowledge and confidence to addressing wider social drivers of health such as local economy contribution.

As Dr Stephen Chen (chapter 6) discussed, these interventions, and indeed public procurement as a whole, need to be asking ‘**where does the food come from?**’ and whether the food itself, including where and how it has been grown, has a positive or negative impact on the health of the consumer and their wider community. It is a false economy, and missed opportunity, to supply these interventions with certain foods, and systems of growing food, that can negatively impact health.

Examples of food with these ‘Wider Health Benefits’ include climate and nature friendly farming systems, practices that protect water and air quality, nutrient-dense food, local producers boosting the local economy, local producers working with their communities including school food and farming education, and socially responsible and inclusive employment.

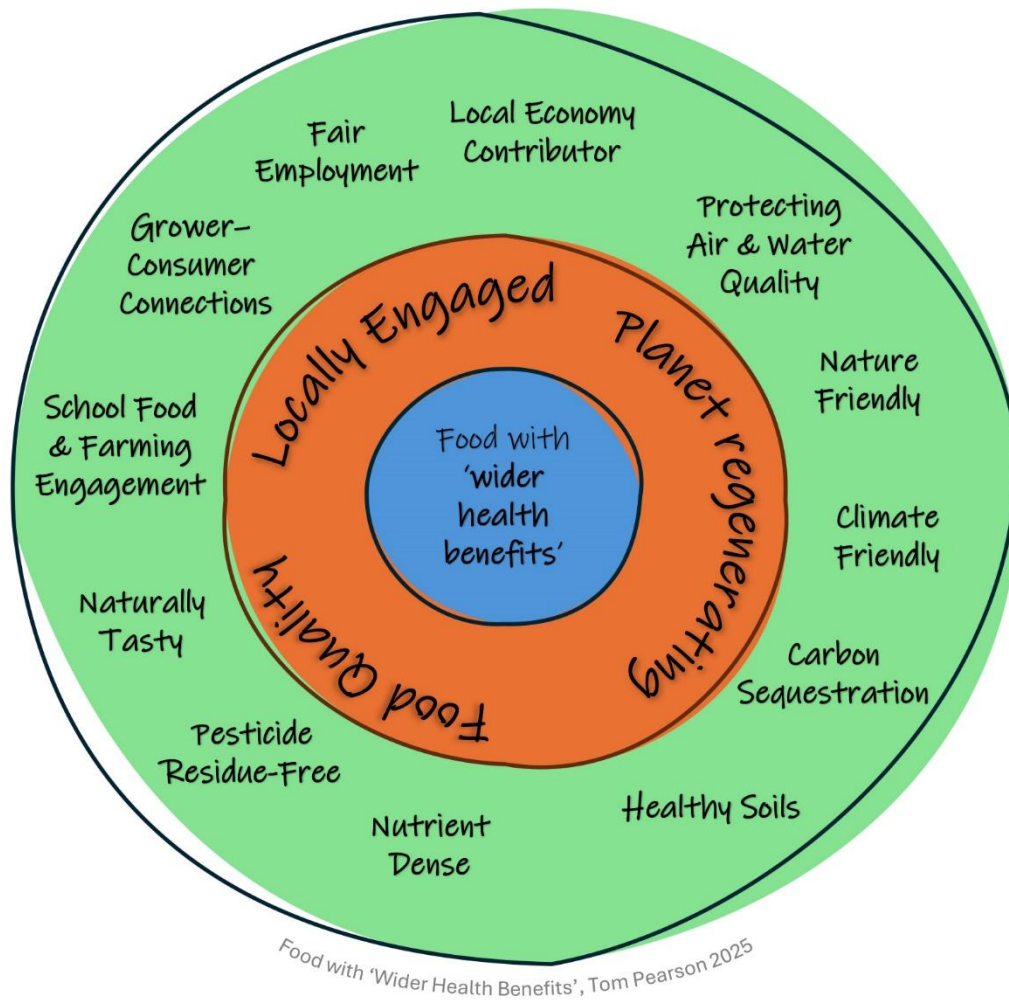


Figure 1: Food with 'wider health benefits'

Food with 'wider health benefits' is a concept beyond 'healthy food' (see figure 1). It is a package of outcomes and benefits from particular ways of growing food and from farms and growers engaged with their local communities and economies.

By recognising the wide-ranging positive impacts of food with 'Wider Health Benefits', the interventions discussed in this study, including public procurement, have the potential to create the demand and catalyst for expanding this emerging market opportunity.

The study then moved on to question how the supply chain (or perhaps better named 'value chain'), can adapt to supply food with 'Wider Health Benefits', describing 'mission-driven' food hubs, and technologies on the horizon to provide 'data enriched' produce, that can deliver the transparency and logistical requirements of food with 'Wider Health Benefits'. Although it was noted that linking additional credible 'Wider Health Benefit' metrics to produce through the value chain will be a challenge.



But, as with most interventions that deliver positive outcomes for society, the usual barriers to adoption, reliance on the unchecked free market and reluctance to change the status quo, require **robust advocacy arguments** that can spur on government, the ag-food industry, private sector investment and consumers to embrace this opportunity.

The **societal economic argument** is strong but requires a recognition, and valuation, of the negative and positive externalities of different food systems: you can spend £1 on food, and this food could cost society an additional pound ²² or *benefit* society significantly more than the over the counter price of the food (Growing Communities report a £3.76 additional benefit ²³ and Alexadra Rose Vouchers £7 of social value ²⁴). Within government it requires a dedication to cross departmental understanding of costs and co-benefits. For example, you *could* spend your £5 billion public food procurement budget on food that ultimately costs you another £5 billion, or you could support and utilise 'value chains' delivering food with 'Wider Health Benefits' that create a multiplier effect of societal benefit, such as boosting local economies, reducing chronic disease and NHS spend and increasing workforce productivity.

The argument linking food with 'Wider Health Benefits' to legally binding **climate and nature targets** is also strong. Our chronic health crisis is intricately linked to our climate and nature crisis, and food with wider health benefits will help address climate mitigation and nature decline. The World Wildlife Fund (WWF) argues that food nutrition security should also be given a legally binding status and woven into climate and nature targets, in what they term a 'triple lock.'²⁵

The geopolitical and climate pressures on the food system have brought '**food resilience**' into the spotlight. Investing in and supporting 'value chains' delivering food with 'Wider Health Benefits' will bolster UK food resilience, or perhaps more aptly named 'nutrition resilience', through climate resilient soils, alternative supply routes and community/citizen engagement. ²⁶

There is growing evidence that the food with 'Wider Health Benefits' described in this study are more nutrient-dense due to growing systems focussed on improving soil health ⁴. **Nutrition** can also be a strong argument for change as described by **Anthony Yousefian** (Partner at **The First Thirty**, investors in early stage AgriHealth): *"Human health is the key driver of change. Consumers tend to prioritise their personal health over planetary health measures such as carbon and nature, but the great thing for food companies is that shifting their products towards healthy products will also mean a shift in supply chains. These will be pointed towards ingredients from healthy soils, as they are more nutrient-rich and dense. This is only achieved because of more life in the soil... and carbon, and climate goals are the by-product. Focus on human health, and you will hit the climate goals. What a huge opportunity for food companies."*

Strong arguments do not always lead to change, and stakeholders across the board need to be willing to have **honest and clear conversations about what**



the barriers are and what is missing, to give government and the private sector the confidence to back the programmes and food with ‘Wider Health Benefits’ described in this study.

In anticipation of this, there is a need to understand what evidence or data driven case studies are missing, and support on delivering these. All interventions visited and discussed in this study were questioned about data collection and measuring outcomes including health metrics. It was clear that measuring the impact of healthy food interventions can be challenging and often lacks consistency between similar programmes. The interventions described in this study should follow in the footsteps of Wholesome Wave (chapter 4.3) and **build collaborative research into their programming**; gathering data according to shared protocols, that can give consistent, comparable outcomes and deliver a strong advocacy argument.

It is **vital that farmers and growers take a leading role** to ensure these interventions are built on prioritising food with ‘Wider Health Benefits’ and maximising on the value of utilising UK produce wherever possible.

A plethora of recently published books, research and reports are highlighting the disastrous trajectory we are taking, the multifaceted opportunities a different way of doing things could bring, and the simple fact that businesses and citizens are calling out for change. The **timing is right** for UK farmers and growers to get involved in what is fast becoming a convergence of some of the most pressing issues of our time - health, climate, nature, food/nutrition, resilience), and position ourselves at the front and centre of designing, promoting and supplying these opportunities and markets.



CHAPTER 10: RECOMMENDATIONS

Individual farmer and grower recommendations

- **Recognise that your farm *can* have a positive impact** on the health of your local community
- Get involved in on-farm and virtual **school food and farming education**. Work with your local schools in programmes such as 'Food for Life' to help create a '**whole school approach**' that delivers clear messaging, through education *and* healthy tasty school meals, to give school pupils a lasting healthy relationship with food
- Consider land **access opportunities** for new entrant farmers and growers interested in short supply chain, especially in horticulture, enhanced public 'green space' access, social prescribing opportunities, community gardens
- The **climate crisis is a health crisis**. Consider your farm's potential positive role in sequestering carbon, improving water and air quality and supporting nature
- Consider how your farm can produce, measure and market **food with 'Wider Health Benefits'**, such as nutrient density, nature and climate friendly practices, improving air and water quality, delivering school and community education and engagement, supporting local economies and fair employment
- **Emerging markets**. Look for the market opportunities for food with 'Wider Health Benefits', including local public procurement, especially schools and hospitals, produce prescription programmes and forward-thinking private sector food procurement
- **Get involved in research opportunities** that contribute to building the understanding and data behind food with 'Wider Health Benefits'
- Consider working towards optimal **nutritional content of your food**. With rapidly evolving understanding of nutrient density, programmes such as 'FIM' and produce prescriptions, public institutions such as hospitals and schools could be obliged to procure from farms that can deliver nutrient-dense food
- **Data driven stories**. Partner up with NGOs and academic institutions to document and measure processes and outcomes, preferably using widely agreed upon metrics that can be collated for better advocacy. Also consider recording and telling *your* story to give confidence to other farmers and growers to get involved



- **Advocate** for the supply chain you are involved in, to recognise the value in your produce with 'Wider Health Benefits', and support and guide them to deliver on programmes that appropriately remunerate for this produce and the data behind it.

Industry and government recommendations

- When sourcing produce or developing procurement legislation and guidelines, ask the question '**where does the food come from?**' and whether the food itself, including where and how it has been grown, has a positive or negative impact on the health of the consumer and their wider community. It is a **false economy**, and missed opportunity, to supply these interventions with certain foods that can negatively impact health
- Utilise the Procurement Act (2023) to position public food procurement as the lever that helps significantly expand an emerging market of produce with 'Wider Health Benefits'. Spend the £5 billion a year of public money on public goods that deliver these multiple benefits and true value
- **Support infrastructure and technology for current wholesalers and existing and new local food hubs** to be able to accommodate and prioritise produce with 'Wider Health Benefits'
- Beyond legislating for local supply, recognise that supplying local food within public procurement strategies also needs to **support infrastructure and stakeholder engagement and education**
- Be willing to have honest and clear conversations about what is needed to give government and the private sector the confidence to back the programmes and food with 'Wider Health Benefits' described in this study. Try to **understand what evidence or data driven case studies are missing and support delivering these**
- UK agricultural industry to **recognise the strong position and go-to choice British produce could put itself in** if we advocate for, and deliver on, food with 'Wider Health Benefits'. Producers outside of the UK will fill this gap if we do not lead
- Recognise that **driving support and legislation for food with 'Wider Health Benefits' bolsters UK food (nutrition) resilience**
- **Support and fund research and programming** that builds further knowledge and data around delivering food with 'Wider Health Benefits' and in particular, the nutritional content of food.



CHAPTER 11: AFTER MY STUDY TOUR

This study has given me the opportunity to explore the fascinating and critically important opportunities to better link agriculture and health. It has expanded my understanding of the health crisis we are stumbling into, and at the same time reinforced my view that farmers and growers are in a unique position to improve the health of their local communities. The visits and conversations with people, programmes and places involved has built an invaluable network to help me continue to work in this area.

During this study we have built the facilities on our farm to be able to host a variety of people and organisations. I hope to be able to offer up a space to develop further understanding and collaborations that link agriculture and health.

I will be expanding our food and farming education opportunities on farm, looking to collaborate with local schools to work towards the 'whole school approach'.

Working alongside on-site and off-site local producers, I am hoping to explore local food supply, delivering food with 'Wider Health Benefits', including the metrics behind this.

Crucially these projects will be documented from their evolution to their impact, delivering case studies backed up by data.



CHAPTER 12: ACKNOWLEDGEMENT AND THANKS

This travel time, study and report have been made possible by numerous people and organisations.

I am hugely grateful to the hardworking and supportive Nuffield Farming Scholarships Trust team and the NFU Mutual Charitable Trust for their generous sponsorship.

It would not be possible to have the time and headspace to have taken on this subject without a lot of input to take up the slack! Thank you to our exceptional hardworking farm team and to my family, especially the continued, unwavering support from my wife Heather.

Thank you to all the brilliant people who have given me their time and hospitality, allowing me to experience and understand some of this enormously complicated and challenging subject. Your passion, expertise and enthusiasm are very much appreciated.



APPENDIX A: HEALTHY DIETS, DIET-RELATED ILL-HEALTH AND ITS IMPACT IN THE UK

A.1: What is a healthy diet and are we achieving this?

The current NHS position on healthy diets is given in the 'Eatwell Guide' with nine clear recommendations. Based on advice from the World Health Organization (WHO), which recommends eating a minimum of 400g of fruit and vegetables a day, the key messages are that **fruit and vegetables should make up just over a third of the food we eat each day**, with starchy foods making up another third (choosing **higher fibre varieties**). Some beans, pulses, fish, eggs, meat and dairy make up most of the remaining balance with a small amount of unsaturated fats. There is **clear advice that foods high in fat, salt and sugar (HFSS) are not needed in our diets** and '*should be eaten less often and in smaller amounts*'.

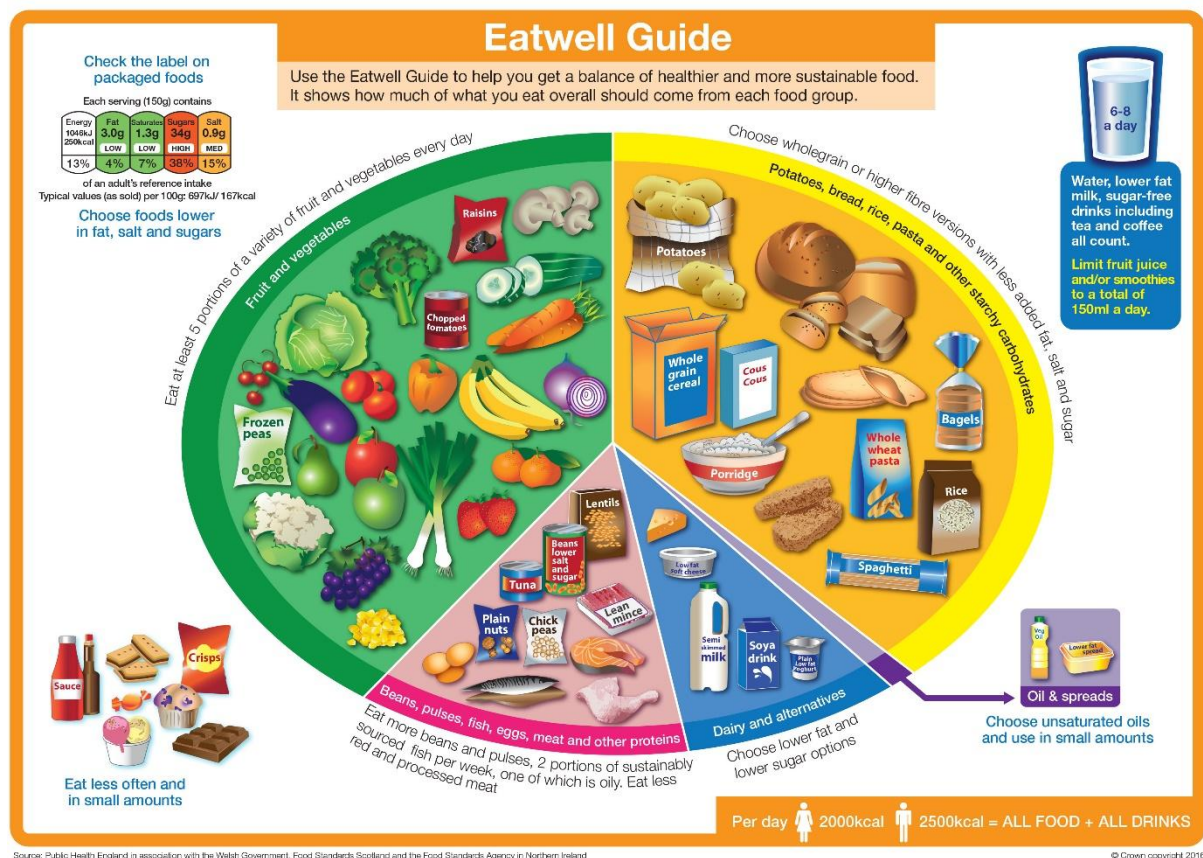


Figure 2: Eatwell Guide (source: Public Health England, Crown copyright 2016)

The EAT-Lancet Planetary Health Diet goes further and suggests that 50% of our diets should be fruit and vegetables, reflecting the growing understanding that less animal products and more plant sourced food is an important tool to mitigate human *and* planetary ill-health²⁸.

What can farmers do to make a positive impact on the health of their local community?
by Dr Tom Pearson

A Nuffield Farming Scholarships Trust report, generously sponsored by NFU Mutual Charitable Trust



There is growing understanding and evidence around the importance of the gut microbiome, with an emphasis on eating a variety of foods. Professor Tim Spector recommends eating 30 *different* plants per week: these can include nuts, seeds, pulses, whole grains, fruits, and vegetables ²⁹. Colourful and fermented foods are also ‘gut friendly’.

There is also emerging data showing significant differences in nutritional values of food items depending on the way we grow them, and in particular the health of the soil they are grown in. ⁴

Whichever way you look at it, the data is clear, we are very much *not* achieving a healthy diet.

Less than 0.1% of the National Diet and Nutrition Survey sample adhere to all nine Eatwell Guideline recommendations and 30.6% adhere to at least five recommendations. ³⁰

Only 31.3% of adults (16yrs+) ate five portions of fruit and vegetables a day in 2023/24 ³¹ and this percentage is significantly less for children. In 2019 diets low in fruit and vegetables accounted for 16,000 premature deaths and 308,000 disability-adjusted life years (DALYs) in the UK¹⁶. Research demonstrates a close response relationship between fruit and vegetable intake and health where incremental increases in fruit and vegetable intake are health protective; in other words, even moderate increases in fruit and vegetable intake results in better health. ³²

Less than 10% of adults and children over 11 in the UK are eating enough fibre (and only 14% of children between four and ten years and 12% aged 1.5-3yrs old) ³³. There is strong evidence to indicate that diets high in fibre are associated with a lower risk of cardiovascular diseases, type 2 diabetes and bowel cancer ³⁴.

The increasing consumption of Ultra Processed Foods (UPFs) is strongly associated with negative health outcomes ³⁵. British children have the highest levels of UPF consumption in Europe, with ultra-processed foods accounting for 82% of calories in schoolchildren’s packed lunches and 64% in school meals ¹⁰.

A.2: Household food security and the barriers and facilitators to a healthy diet

The Agriculture Act 2020 has a requirement for the Secretary of State to present a report on food security to Parliament at least once every three years. Part of this looks at the household level, and in this instance **food security refers to people having physical and economic access to sufficient healthy food at all times**. This considers affordability of food and drink in real terms and compared to other living costs, and trends in the cost of healthy foods. It looks at physical access to



food shops, government schemes to support households to access foods and the use of food aid in the UK.

A recent review ⁸ looking at barriers and facilitators to healthy eating in disadvantaged adults living in the UK showed that individual factors include nutritional knowledge, cooking and food preparation skills, personal beliefs about capabilities, social influences and a lack of time, lack of cooking facilities and even a lack of flavour. However, it concludes that context related factors are likely to drive unhealthy eating in disadvantaged individuals in the UK. These are primarily high cost and poor accessibility of healthy food and conversely, relatively cheap and readily accessible unhealthy food options such as fast-food and retail influence in the form of product placement and two-for-one offers.

The Food Foundation's Broken Plate report 2025 found that the most deprived fifth of the population would need to spend 45% of their disposable income on food to meet the cost of the Government-recommended healthy diet, rising to 70% for those with children. This compares to just 11% for the least deprived fifth. It also found that more healthy foods are over twice as expensive per calorie as less healthy foods ³⁶.

A.3 UK state supported programmes to address financial barriers

In the UK, other than (non-universal) free school meals and the School Fruit and Vegetable Scheme (providing a free piece of fruit or veg to every four to six year-old), the only government-funded benefit available that directly targets help with purchasing food is Healthy Start (England, Wales and Northern Ireland) and Best Start Foods (Scotland). This is part of the UK Government's benefits scheme targeted at very low-income families with children under the age of four (under three in Scotland) and pregnant mothers. Eligible families receive £4.25 per week per eligible individual (£5.30 in Scotland) increasing to £8.50 for infants under one (£10.60 in Scotland). This can be used to purchase milk, infant formula and fruit and vegetables (including pulses).



APPENDIX B: NUTRITION ASSISTANCE PROGRAMMES – FURTHER DETAIL

In the US, through the Federal Farm Bill, the United States Department of Agriculture (USDA) delivers a substantial package of financial support focussed on food. SNAP (Supplemental Nutrition Assistance Program) is the largest of these programs (non-food items, alcohol and foods that are hot at the point of sale are restricted). This is a significant spend. In 2022 there were 41.9 million recipients (approximately 12.5% of the population) spending \$113.9 billion on food. The average SNAP benefit for a single person in 2024 was \$202 per month, with a maximum of \$291. An additional Women, Infants and Children (WIC) supplemental nutrition program is available, (similar to Healthy Start [England and Wales] and Best Start [Scotland]), delivering a further \$5.7 billion of food benefits. Both these programs utilise the EBT (electronic benefit transfer) card for transactions, making paying for and tracking purchases simple.

Operating alongside this, the Gus Schumacher Nutrition Incentive Program (GusNIP) is aimed at incentivising SNAP recipients to purchase healthy produce. Participants in GusNIP reported eating 23% more fruit and vegetables per day than the average low income American (7.5% more than the average American). Many programs offer other services beyond financial incentives, such as nutrition education, support services, and marketing activities. GusNIP defines fruit and vegetables as any variety of fresh, canned, dried, or frozen whole or cut fruit and vegetables without added sugars, fats or salt.

The USDA distributes GusNIP funds (\$250 million over four-year cycles) to grantees across the US who organise matched funding and administer their program to SNAP recipients. This additional money can only be spent on fruit and vegetables. Many of the programs aim to prioritise local economies and local producers. For example, California's farmers markets successfully advocated for \$35 million of matched funding to secure GusNIP programs. Market Match, the largest of these programs, matches the first \$15 spent per customer per farmer's market visit, and is offered at over 270 sites throughout the state – at farmers markets, farm stands and mobile farmers market sites. Across the whole of the USA, 58.6% of all GusNIP program sites were 'farm direct' (rather than 'bricks and mortar') and GusNIP programs generated \$107.4 million in local economic impact in 2022/23.¹¹

Eli Zigas (Fullwell) pointed out that currently less than 1% of SNAP participants receive GusNIP benefits. Some argue that with the potential health benefits of incentivising the purchasing and consumption of fruit and vegetables, more of the Farm Bill funds should go to this, but this would likely come out of the SNAP



budget, reducing the number of SNAP participants. This hunger versus health argument is hotly debated. Eli also pointed out that these incentive schemes are bureaucratic; there are a lot of hurdles for people to jump through to get on the program, and a big administrative cost to running it, approximately \$5.5 billion per year for administering SNAP.

Jonathan Pauling, chief executive of the UK based **Alexandra Rose Charity** explained how they took inspiration from North American farmers market coupon schemes and Gus Schumacher and Wholesome Wave, in setting up their Rose Voucher scheme. Since 2014, the Alexandra Rose Charity has supported 10,500 families on low incomes to access £2.8 million of fresh fruit and vegetables. Each week a family receives £4 of Rose Vouchers for each child (or £6 if the child is under one year old) which can be redeemed for fruit and vegetables at the 60 market trader's stalls in London, Liverpool, Barnsley and Glasgow that they engage with. The charity partners with 73 children's centres, family centres and community organisations who are well positioned to select families who stand to benefit most from the vouchers due to their susceptibility to food poverty, dietary-related health issues or other risk factors. The project makes the most of local partnerships who support families using Rose Vouchers to engage with existing activities focused on health and well-being in their local area. A recent impact study ²⁴, for their biggest project in Southwark (supporting 1068 families), showed that after six months of receiving the Rose Vouchers, children eating five or more portions of fruit and vegetables went from 7% to 64% (and for the parents went from 15% to 55%). It was calculated that every £1 Rose Voucher creates £7 of social value due to better health and wellbeing as a result of improved nutrition - this incorporates NHS savings through reduced GP visits. By working with local market traders, each £1 voucher is worth a further £2.11 to the local economy and since the project launch in 2018, Rose Vouchers have contributed £1.9 million to the Southwark economy.

A new 'Bridging the Gap' pilot launched in November 2023 (led by Alexandra Rose Charity, Sustain and Growing Communities) has a goal of making climate and nature-friendly foods available to people on lower incomes, extending the Rose Vouchers offering to local organic fruit and vegetables (supplied by local food aggregator and distributor Better Food Shed [chapter 8]). This is at the same price as the conventional product to *'include access not only to healthy, but also sustainable food that's good for people as well as the planet'* (Jonathan Pauling, Alexandra Rose Charity).



APPENDIX C: OTHER FARMER & GROWER OPPORTUNITIES LINKING AGRICULTURE & HEALTH

This study has had a strong focus on food. However, it is important to recognise other (non-food) opportunities linking agriculture and health that farmers and growers can get involved in, and the significant cross-over that can exist with the food-oriented interventions described in the main report.

Care Farming – (also referred to as social farming) is the therapeutic use of farming practices to improve mental health, physical health, social skills and education. This is a well-established entity within the UK with about 400 care farms of all shapes and sizes providing care places for different requirements. Through a supervised, structured programme of farming-related activities, care farming offers people with defined health, social or educational needs the chance to participate in farming activities for their therapeutic benefit. Care is bespoke, person-centred and focused on the individual. They provide a variety of services including the development of social skills, basic skills, work skills, animal-assisted interventions and horticultural therapy. The care farming activity has a real purpose behind it and people can make a meaningful contribution to the running of a farm. This might be through animal care, growing crops and vegetables, horticulture or land management. Care farms often provide services for people with mental ill-health, young people excluded from school or on Alternative Provision, people with learning disabilities or with ASD (Autism Spectrum Disorder), people living with dementia, ex-service personnel with PTSD and people with a drug or alcohol addiction history. Social Farms and Gardens (www.farmgarden.org.uk) has created a code of practice, which it encourages all those providing care farming services to adopt, covering safeguarding, risk assessment, health and safety, staff recruitment, farming activities, and evaluation. The Countryside Educational Visits Accreditation Scheme (CEVAS) is a nationally recognised accreditation that offers training for working with school children (educational route) or clients with additional needs (therapeutic route). (www.visitmyfarm.org/courses).

Social prescribing – (also known as 'community referral') involves non-clinical healthcare staff, usually 'link workers', working closely with individuals to support and improve their wellbeing by providing devoted time, emotional support, and by helping them access services and entitlements. These 'social prescribers' can refer people to a range of local non-medical community activities, groups and services. People who typically benefit from social prescribing have complex needs, experiencing social isolation, multiple long-term health conditions and mental health problems, and are high users of primary and/or secondary



healthcare. *'There is a growing body of evidence that social prescribing can reduce pressure on the NHS including reduced GP appointments, hospital admissions and A&E visits, delivering between £2.14 - £8.56 return for every £1 invested.'* ³⁷

Within this offering, **Green Social Prescribing** is the practice of supporting people to engage in nature-based interventions and activities to improve their mental and physical health. These could include local walking schemes, community gardening projects, conservation volunteering, green gyms, open water swimming or arts and cultural activities which take place outdoors. The Preventing and Tackling Mental Ill Health through Green Social Prescribing Project (GSP Project) was a two-year £5.77m cross-governmental Shared Outcomes Fund initiative, launched in April 2021, to improve the use of nature-based settings and activities to improve mental health and wellbeing. The final report ³⁸ showed an estimated social return on investment of £2.42 for every £1 invested, but concluded that investment and time are required to build trust and resilience within the GSP system. It continues to be available in all seven of the test and trial sites in England but has not been rolled out across the country.

Enhanced Access to Green Spaces – within the Environment Act 2021, there is a commitment, set in law, to review and update the 25-year environmental improvement plan every five years. Within the most recent review of this plan (2023) there is a pledge to ensure that all people have access to a green or blue space within a 15-minute walk from home. Enhanced public access was explored in the Environmental Land Management Scheme (ELMS) test and trials work and is considered a public good. So the framework is in place to recognise access as a public good and literature reporting the positive relationship between natural environments and physical and mental health continues to emerge ^{39–42}. What 'enhanced access' looks like is yet to be written into any financial offering to farmers. But done well, it has the potential to make a positive contribution to local community health. Examples of enhancement could involve improved quality of permanent public access (drainage, separation from machinery tracks etc), increasing access through permitted footpaths, interactive engaging signage or community gardens and allotments. There could be a potential use of this enhanced access offer to link with a green social prescribing model.

Within these 'non-food' examples above, there is room to include a food component in many of them. From enhanced access signage that explains what crop is growing next to the footpath, to including talking about, growing, cooking and sharing food in care farming and green social prescribing programmes; helping to break down social barriers, find common ground and build trust, alongside fostering healthy food knowledge and habits and ultimately delivering positive community health outcomes.



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GLOSSARY

Body Mass Index (BMI) - is a simple calculation using height and weight to estimate body fat levels and assess potential health risks. For most adults, a BMI between 18.5 and 24.9 is considered healthy, 25 to 29.9 is overweight, and 30 or higher is obese. It a quick tool for assessing weight status and can be used for screening for potential health risks associated with being underweight, overweight, or obese. BMI may not be accurate for everyone, especially athletes or individuals with high muscle mass.

Chefs in Schools – support schools with practical advice and training, to improve their food and food culture with a mission is to transform the food and food education served in schools and ultimately tackle food-related ill health.
(www.chefsinschools.org.uk)

Community Supported Agriculture (CSA) - is a system that connects producers and consumers within the food system closer by allowing the consumer to subscribe to the harvest of a certain farm or group of farms. It is an alternative socio-economic model of agriculture and food distribution that allows the producer and consumer to share the risks of farming. CSAs can take on several forms including 'producer-led' where the farmer offers a share of production in return for a fixed subscription and 'community-led' where the farming enterprise is set up and owned by the community, which takes on direct responsibility for production.

Countryside Classroom - helps teachers to find resources, places to visit and school support relating to the themes of food, farming and the natural environment, aiming to inspire and enable teachers to use food, farming and the natural environment more often, in and out of the classroom.
(www.countrysideclassroom.org.uk)

The Country Trust - organise Farm Discovery visits aimed at primary schools with a higher-than-average percentage of children eligible for Free School Meals. They also work with Nurture Groups, Pupil Referral Units (PRUs), Young Carers, Special Educational Needs and Disabilities (SEND) schools or other groups supporting disadvantaged children. Other programmes include food discovery and countryside residencies. (www.countrytrust.org.uk/)

Disability-adjusted Life Year (DALY) - One DALY represents the loss of the equivalent of one year of full health. DALYs for a disease or health condition are the sum of the years of life lost to due to premature mortality (YLLs) and the years lived with a disability (YLDs) due to prevalent cases of the disease or health condition in a population. (<https://www.who.int/data/gho/indicator-metadata-registry/imr-details/158>)



Farmer Time – uses digital communications to inspire, engage and educate young people about the journey from farm to fork and the ever-changing, diverse agricultural industry. Children regularly chat live with their matched farmer from their classrooms through a video interface such as Zoom or Skype to discuss ideas, ask questions, share knowledge and gain a ‘real-time’ understanding of the daily issues farmers face. (www.farmertime.uk)

‘Food for Life Served Here’ – is a Soil Association certification (bronze, silver and gold), backed by annual inspections, aiming to encourage and reward caterers who serve fresh food, source environmentally sustainable and ethical food, make healthy eating easy and champion local producers. Standards are available for schools, early years, higher education, hospitals, residential homes, workplaces, cafes and events. Data from schools show that pupils in Food for Life schools are twice as likely to eat their five-a-day and 45% of parents report eating more vegetables as a result of their child attending a Food for Life School. (www.foodforlife.org.uk)

Food Hubs - The United States Department of Agriculture defines food hubs as ‘a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand.’ They tend to be small and medium-sized enterprises built on strong ethical and sustainable values, offering buyers trusted traceability and provenance credentials.

Food is Medicine (FIM) - The FIM movement, which is gaining traction in the USA in particular, is using healthy nutritious food as a tool for treating and preventing chronic disease. This works at multiple levels from healthy food policies and nutrition security programs to more individually tailored prescriptions such as produce prescription programs, medically tailored groceries and medically tailored meals. (www.fimcoalition.org/about-fimc/our-model/)

Glycated haemoglobin (HbA1c) - is a blood test that reflects average blood glucose levels over the past two to three months. It measures the percentage of haemoglobin in red blood cells that has sugar (glucose) attached to it. This test is used to diagnose diabetes, monitor its control, and assess the risk of complications.

LEAF Education – works across the education and agricultural sectors to mobilise farmers and educators to bring food production, farming and the environment into a learning context and embed an appreciation of farming into everyday life. (www.leaf.eco/education/leaf-education)



Open Food Network – a global network of people and organisations developing open and shared resources, knowledge and software to support a better food system. (www.openfoodnetwork.org.uk)

Sapere Method – *'This sensory awareness method delivers lessons around taste and the five senses, linked to the various aspects of schooling. The taste class programme includes ten modules. From the first session about the five senses, to the little educational feast that ends the course, children discover and experiment with flavours, they smell, taste, touch familiar and unfamiliar foods, and discover regional specialities.'* (www.sapere-association.com/sensory-education/method)

Social Determinants/Drivers of Health – are *'broadly defined as the conditions in which people are born, grow, live, work and age, and people's access to power, money and resources. They have a powerful influence on health inequities. These are the unfair and avoidable differences in health status seen within and between countries. At all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health. People who have limited access to quality housing, education, social protection and job opportunities have a higher risk of illness and death. Research shows that these social determinants can outweigh genetic influences or healthcare access in terms of influencing health.'* (www.who.int/health-topics/social-determinants-of-health).

True-cost accounting - We pay for food in many ways, not just at the checkout; but the true cost varies according to how food is produced and how this impacts our health and the environment. UK consumers spend £120 billion on food each year yet there are serious environmental and health-related costs that generate a further £116 billion. Almost half of this is food consumption and production-related health costs. (Figures revised in 2019). www.sustainablefoodtrust.org/our-work/true-cost-accounting

Ultra Processed Foods (UPFs) - are a category of processed foods and drinks that have been through extensive industrial processing and often contain ingredients not typically found in home cooking, like additives, preservatives, emulsifiers and artificial flavours. The NOVA classification system, developed by Carlos Monteiro, is a widely used method for categorizing foods based on the extent and purpose of their processing, with UPFs placed in the fourth category. Studies have shown associations between high intakes of UPF and poor health outcomes like heart disease, type 2 diabetes, and obesity.



978-1-916850-42-2

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ISBN: 978-1-916850-42-2

Published by The Nuffield Farming Scholarships Trust
Bullbrook, West Charlton, Charlton Mackrell, Somerset, TA11 7AL
Email: office@nuffieldscholar.org
www.nuffieldscholar.org