

NOURISH SCOTLAND MAGAZINE

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Food in a
changing
climate



**Changing what we eat • Changing how we farm and grow food
Changing local food economies • Changing public policies**

About Nourish...

Nourish works alongside others for a Scotland where:

- We eat more of what we produce and produce more of what we eat.
- You can find healthy, local, seasonal, organic food all across the country.
- There is a stronger food culture, which is bringing people closer together.
- Everyone can afford to feed themselves and their family well.
- There is a diversity of thriving small food businesses.

Nourish exists to establish a sustainable food system in Scotland based on ecological farming and short supply chains. Changing our food culture and public policies are key to achieving this. Nourish facilitates this change through engaging with organisations, community initiatives, politicians and officials. We work to influence policies from local to EU level. For the local food community Nourish provides a platform for networking and sharing best practice.

Nourish makes sure that food is brought to the fore in public

debates of various kinds, making the link between a localised food system and its positive outcomes for economic development, job creation, skill development, health, environmental stewardship and justice.

Nourish's work also directly contributes to growing the local food economy, e.g. through training programmes, such as the New Farmer Programme (teaching food production, processing, marketing and business skills) or linking local food producers with community food initiatives.

Join Nourish...

Would you like Nourish to represent your views and those of the wider local food movement in Scotland to government and industry? Would you like to be part of a movement for a just and sustainable food system in Scotland and beyond? Then join us!

Nourish membership includes a subscription to our tri-annual magazine, discounts to Nourish events, and an opportunity to vote and stand for positions on the board of directors. Membership is currently available in three categories: individual, business, and food groups.

To join us please see our website <http://www.nourishscotland.org/> or contact us at the details below.

If you would like to connect with like-minded people with similar interests and find out what is happening, both locally and nationally join the online community on www.nourishscotland.org.uk.



Nourish Scotland, 54 Manor Place, Edinburgh, EH3 7EH
Tel: 0131 226 1497 • Email: info@nourishscotland.org.uk
www.nourishscotland.org

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TELL US WHAT YOU THINK!

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Antediluvian food policy

Robert Frost famously wrote: 'Some say the world will end in fire, some say in ice'. But given what we have seen over the last few weeks Philip Larkin's line is perhaps more appropriate: 'If I were called in, to construct a religion, I should make use of water'.



Pete Ritchie

**DIRECTOR OF
NOURISH SCOTLAND**

Nourish is with David Cameron rather than UKIP on the probable causes of the second 'one in a hundred year event' in two years: we think human activity is weirding the weather.

So what should we be doing to adapt to warmer, wetter weather in Scotland – and warmer, weirder weather across the globe, in a context of growing demand for food?

At a global level, agriculture and land use have the greatest potential of any sector for climate change mitigation and adaptation. However, we don't yet have robust global mechanisms for rewarding land use which keeps existing carbon in the soil or which locks more in (whether through agroforestry, biochar or better management of organic matter).

Australia's Carbon Farming Initiative is an effort to provide carbon credits to farmers adopting verifiable climate-friendly measures, from breeding cattle for reduced methane production, to growing native hard woods on long rotations. While this scheme may not be perfect, we do need governments to invest at scale in what works.

Until the 'externalities' of food production – emissions of carbon dioxide, methane and nitrous oxide along with soil erosion, biodiversity loss and fossil water use – are factored into the costs of food, it is hard to see how food and farming can become part of the solution rather than a major part of the problem.

It's time for global food businesses as well as global and national institutions to recognise that our common future depends on investment in resilient, climate-smart, local, regional and national food systems managed to feed people fairly and sustainably rather than for short-term profit.

It is difficult for us to predict how climate change will affect our production systems in Scotland over the next decade. We do know that there will be increased global food price volatility, creating food insecurity at household level across the world.

In Scotland we are not well placed to deal with volatility in international markets. We are heavily dependent upon imported inputs to our agricultural systems such as animal feed and fertilisers. We export a lot of food we produce (grain, potatoes, seafood, lamb and beef) and import significant quantities of dairy, eggs and meat. Our just-in-time supply chains hold no stockpiles of critical foodstuffs that would allow us to cope with any interruptions to the supply chain. As well, we transport much of our foodstuffs by road, rendering our supply chains very vulnerable to adverse weather events and the effects of increased petrol prices.





Scotland has ambitious targets for climate change mitigation and is developing its climate change adaptation plan. Now is the time to be ambitious for food and farming, and to move decisively towards a more resilient, low carbon future.

Scotland has ambitious targets for climate change mitigation and is developing its climate change adaptation plan. Now is the time to be ambitious for food and farming, and to move decisively towards a more resilient, low carbon future. We need to invest in urban agriculture, people-powered growing at community scale, in agroforestry, organic farming and knowledge transfer at national scale to make low carbon farming the norm.

Of course we need to change what we eat. Local, seasonal, unprocessed food, more veg, whole grains, and modest amounts of grass-fed Scottish meat will improve our health as well as our footprint.

Above all, we need to stop wasting food. We're doing better than we were – but if we're wasting 30% of the food we buy it's like dumping all the food we grow in South East Scotland.

We have a great opportunity in this referendum year to discuss and debate the type of country that we want to be and the type of society that we want to build in a future Scotland. Regardless of the referendum's outcome, we want to see a Scotland that is resilient, secure, healthy and environmentally sound. Fixing our food system – the way we farm, the way we shop, the way we eat and the way we dispose of food – has the potential to deliver huge benefits to us all. At Nourish we are doing all we can to keep food issues at the centre of the plate, rather than viewing them as merely a side dish. 🌱

What's on at Nourish?

It's the start of a new year and a good time to reflect on what Nourish achieved in 2013 and consider where our focus should be for 2014.

In 2013 a huge range of relevant policy consultations took place. Nourish has submitted responses to EU, United Kingdom, Scottish Government and Parliamentary consultations. In these responses we highlighted the lack of attention given to food in climate change and planning policies; made demands and set out how to achieve: stronger links between food policy and public health policy, closer co-operation between cities and rural areas in food provision, support for agroecological farming, joined up research and development on climate-smart and resource efficient food production, effective mechanisms to protect prime agricultural land from development, support for agroforestry and business co-operation through Rural Development funding etc. All our responses can be found on our website.

We have also been working with a range of partners in both Edinburgh and Glasgow to support them in their efforts to become Sustainable Food Cities. This work is on-going.



Glasgow Sustainable Food Cities Workshop © Francesco Benvenuti

What will we work on in 2014?

We are now about to start work on a national survey that aims to size the value of the local food economy in Scotland. It should serve as a baseline and assess the scope for potential growth in the sector along with identifying opportunities for and barriers to such growth. We are inviting all local food businesses to take part in our survey which can be accessed online: www.surveymonkey.net/s/nourishlocalfoodsurvey

From March to December 2014 Nourish will run its first year of the 'New Farmer Programme'. It is designed for people who want to become local food producers – typically at a scale of 1-25 acres. The course will focus on food production, marketing and business skills.

In our on-going policy work we will focus on policies that are going through the Scottish Parliament scrutiny procedure over the coming year such as the Scottish Rural Development Programme, the Procurement Bill and the Community Empowerment Bill. We will also continue our work aimed at tackling food poverty.



OCCUPY FOOD

Sustainable food can transform Scotland, if we want it to

Mike Small, Director of the Fife Diet, argues that better leadership is needed to create a more effective low carbon food system in Scotland.

Above: Spring bounty pallet
© Fife Diet

This year the Fife Diet released its Carbon Food Report, which showed that if everyone in Scotland was on the equivalent of the Fife Diet (by changing household behaviour around six options), we could collectively contribute to 60% of the Scottish Government's annual carbon emissions savings target, only by changing the way we eat.

Statistics released by the Scottish Government this year revealed that, for the second year running, Scotland has failed to meet the legal targets it set itself to reduce carbon emissions. Emissions in 2011 were 848,000 tonnes over the target. Emissions fell by 2.9% between 2010 and 2011, but fell just short of the 2011 target for adjusted figures, which take into account the EU Emissions Trading System. But Fife Diet estimates that our 5,000 members saved 1019 tonnes CO₂ equivalent in 2012-13.¹ If everyone in Scotland made similar changes to their food habits, up to a million tonnes of carbon could be saved. Why aren't we doing this?

Two recent conferences in England give some context to this societal failure.

Policies to counter global warming effectively "will only advance if accompanied by radical social movements", socialist writer and activist Naomi Klein told the Radical [greenhouse gas] Emissions Reduction conference in London. "Transformative policies... must be backed by transformative politics."

"It's not that our ideas [about cutting greenhouse gas emissions] are not popular. But they are not powerful, not dominant. They are not winning." The movement needs to "turn the popular into the powerful" by creating a "radical, enabling environment in which these policies can flourish", she said.

It makes sense. You can't pick apart one aspect of our culture and decarbonise it because everything's connected. Even if that makes it seem daunting it's

better than kidding yourselves that small ameliorative efforts are going to crack it.

The Sustainable Food Trust held an event on 'True Cost Accounting in Food and Farming' in London in December with the aim to discuss the development of a new economic model for our food systems, one based on the principles of 'true cost accounting' and reached similar conclusions.

The knowledge is there but the inability to factor-in externalities precludes change. 'System change not climate change' as the saying goes.

Everywhere we turn business as usual is the casual complacent orthodoxy. What do we mean by this? The obvious example is a food policy skewed heavily towards export growth and narrative about 'yield'. Professor Kevin Anderson of the Tyndall Centre at the Radical Emissions Reduction conference outlined a series of other problems:

- Tax breaks for shale gas development
- Chancellor proposes 37 gw of unabated CCGTS
- Highest investment ever in North Sea Oil
- Reopening Scottish coal mines
- Expanding aviation and more ports
- Emissions standards for cars watered down
- Rejected 2030 decarbonisation target
- Plan to remove green taxes from energy bills
- Supporting Arctic exploration for hydrocarbons
- Opened a consulate in Alberta (tar sands)

In this context eating locally seems absurd. What we need is a generalist approach that sees multiple wins and begins to connect up a rooted grounded local economy with a sustainable diet which has health and wellbeing at its heart.

The irony is we have the answers right before us. The Fife Diet has shown that, even within the constraints of the current food infrastructure, with little agricultural change or challenge to the retail monopoly we can still create a better lower carbon system from within the current dysfunctional shell.

But how can we expand this? Where is the ambition of the 20:20 Climate Group? Where is the leadership to make this happen? Scotland has failed to meet its climate change targets for the second consecutive year. The disappointing thing is that we needn't have. But we need to be bolder and we need more

Changing household behaviour around six options:

- Eat more organic
- Eat less meat
- Waste less food
- Compost more
- Eat local
- Grow some of your own food



leadership. People need to get their heads-around the fact that this will actually involve change, and then embrace that change.

Kevin Anderson, deputy director of the Tyndall Centre, said that he considered, hypothetically, that a 10% per year reduction in greenhouse gas emissions by rich countries is "viable". Such drastic action is required to meet the United Nations target of limiting CO2 emissions to achieve a 66% chance of limiting the increase in surface temperature to 2 degrees. "Radical emissions reduction between now and 2030" would have to be accompanied by "a Marshall plan-type effort" to build low-carbon infrastructure, Anderson said. The radical emissions reduction had to be made by a small minority: he estimates that 1-5% of the population is responsible for 40-60% of emissions.

That's an extraordinary figure and suggests that the next step be, essentially: Occupy Food. The opportunity for radical holistic change is right here, right now, we just need to grasp that opportunity.

As we consider radical options for constitutional change, let's expand that belief – let's align it with the wider need to create environmental justice. Let's transform Scotland. Let's create a plan to re-localise our food system and make a plan for decarbonising our food system. It's social change that will taste good. 🌱

1 Our unique new analysis is backed by independent experts from Edinburgh University and the project has been independently monitored by Ecometrica and Brook Lyndhurst (June 2011).

Delivering food security and reducing the climate impact of food production

Besides pursuing technological solutions to address issues of food security, modifying our behaviour around food consumption and waste is of utmost importance to help meet climate targets, and make agriculture more sustainable explains Pete Smith.

Scotland has world leading legislation to tackle climate change, and our targets of a 42% and 80% reduction in greenhouse emissions from 1990 levels by 2020 and 2050, respectively are among the most ambitious in the world. Policies are in place in Scotland in all sectors of the economy to help deliver on the targets, and in the agriculture sector initiatives such as *Farming for a Better Climate* aim to help farmers reduce their climate footprint. Such policies will help to deliver technological options on the food supply-side, but globally, supply-side options alone are unlikely to deliver the large cuts in greenhouse gas emissions required. The time has come to start thinking about how we might change the way we produce food in more fundamental ways, and how we might modify our food demands to help meet climate targets, and make agriculture more sustainable.

We need to eat, and ensuring the food security of the 7 billion people on the planet today, and the 9–10 billion expected by 2050, is in itself an enormous challenge. Arguably, delivering food security and preventing dangerous climate change are two of the greatest challenges humanity has ever faced. Both challenges must be met while reducing the impact of farming on ecosystem services that deliver vital goods and services, and support human health and well-being.

Options that co-deliver improved food security and greenhouse gas mitigation, such as increased production efficiency, do exist. But demand-side measures such as changed diets and waste reduction must also play a role. A recent study (Smith et al., 2013. How much land-based greenhouse gas mitigation can be achieved without compromising food security and environmental goals? *Global Change Biology*

19, 2285–2302), has looked at potential supply and demand-side measures that could be used to improve food security and reduce greenhouse gas emissions from agriculture. This study found that supply-side climate mitigation measures, such as changes in land management, might either enhance or negatively impact food security, whilst demand-side mitigation measures, such as reduced waste, or reduced demand for meat and other livestock products, should benefit both food security and greenhouse gas mitigation.

Everything we chose to eat has a greenhouse gas consequence. We need to start thinking about how we move away from the mass consumption of greenhouse gas intensive foods (such as meat and other livestock products) to those with a lower greenhouse footprint. It may never be acceptable to most people to remove meat, and less so all animal products, from their diets entirely. It is possible, however, that people could choose to eat meat less often and in smaller quantities. In the developed world, overconsumption of meat and livestock products has been linked to obesity and a range of poor health outcomes, so from a climate and a health perspective, it could be argued that meat, and other greenhouse gas intensive products, should be occasional luxury items, rather than something we feel we must have in every meal.

Technological solutions, where farmers make the changes in the way they farm, whilst we get on with business-as-usual,

are easier for us to contemplate than demand-side measures where it is we, the consumer, who must change. We know that effecting behaviour change is notoriously difficult, be that addressing our addiction to fossil fuels, changing personal travel behaviour, or changing our diet, so how will this demand-side behaviour change happen? There are no easy answers, but price is known to be an effective mechanism to influence behaviour, so a tax on greenhouse gas intensive food products has been suggested as a possible viable economic mechanism to modify consumer prices and change consumption patterns. Obviously possible adverse impacts on food access, social justice and equity would need to be resolved if this were ever to be considered seriously.

Given the enormity of challenges, all options need to be considered. Supply-side measures should be implemented immediately, focussing on those that allow the production of more agricultural product per unit of input. For demand-side measures, given the difficulties in their implementation and lag in their effectiveness, policy should be introduced quickly, and should aim to co-deliver to other policy agendas, such as improving environmental quality or improving dietary health. These problems facing humanity in the 21st Century are extremely challenging, and policy that addresses multiple objectives is required now more than ever. If we have the will, surely it is not beyond our wit to develop these solutions. 🍏

ABOUT THE AUTHOR

Pete Smith is Professor of Soils & Global Change at the University of Aberdeen, Science Director of ClimateXChange and Director of Food Systems for the Scottish Food Security Alliance – Crops.



Our living earth

Healthy soils are the foundation of a healthy food system. The high rate of soil degradation both worldwide and in the UK increases significantly our vulnerability to climate change. *Laura Stewart* explains the potential of organic agriculture to adapt to and mitigate the effect of climate change on our soils.

The Soil Association believes that protecting and improving the health of our soil is even more important today than it has ever been – particularly given the challenges that climate change will bring in the future. Indeed Monty Don, the Soil Association President, believes it to be the biggest conservation problem now facing our planet.

The need for farmers and growers to understand and protect our soils has never been greater. We are destroying soils worldwide 10 times faster than nature can restore them and, in the last 40 years, human activity has degraded two billion hectares of soil – over 50% of our land.

At our recent National Soil Symposium, held in Bristol, there was much discussion about the earth

beneath our feet and the potential it has to keep our planet healthy. Professor Urs Niggli, a scientist from the Swiss Organic Research Centre speaking at the event, summed up the problem nicely: “Soil erosion and degradation are the most threatening consequences of modern agriculture – with devastating impacts”.

Put simply, we are damaging our soils rapidly and without them, we can’t grow our food. Nearly a third of the land in the world used for growing crops has already become unproductive¹ but the impact of this damage has other consequences. Soils, like forests, can act as huge carbon sinks – storing vast amounts of carbon beneath the ground, but when soils are unhealthy, they can become carbon sources and release carbon into the atmosphere.

Above: Charlie Lauder event – Charlie Lauder speaking at GrassMaster event in The Borders

Right: Sniffing Soil – Soil Muck and Money event Elphin nr Ullapool, in November

¹ <http://www.theguardian.com/environment/earth-insight/2013/jun/07/peak-soil-industrial-civilisation-eating-itself>



Soils, like forests, can act as huge carbon sinks – storing vast amounts of carbon beneath the ground, but when soils are unhealthy, they can become carbon sources and release carbon into the atmosphere.

HOW CAN ORGANIC FARMING HELP?

Organic farming is a system that puts soil management at its very centre. A recent global study found that soils in organic farms are not only healthier but that they also store more carbon than non-organic systems.²

The International Panel on Climate Change have said that if we manage our soils better, we could reduce global agricultural greenhouse gas emissions from around 30%,³ down to around 3%.⁴ Clearly the results of this global study demonstrate that organic farming techniques will help to achieve this much-needed reduction.

HOW DO SOILS STORE CARBON?

Carbon is stored in our soils as a result of carbon dioxide taken in through plants and animals being later deposited in the soil in a mineral form, within dead plant material and manure – often described simply as ‘organic matter’.

The increase in organic matter (and therefore carbon) in organically farmed soils is a result of many farming practices, such as the increased use of composts, manures and crop rotations, which can be features of the traditional mixed farming we see in Scotland too.

Additionally, organically farmed soils contain a greater diversity of soil life. This means more earthworms and more micro-organisms that help plants grow better and absorb hard to get nutrients. It also means more organic matter and carbon – as improving the diversity of life in your soils means you get the best conditions for carbon to accumulate.

By contrast, manufactured nitrogen fertilisers and pesticides, used in non-organic systems, tend to depress soil biodiversity.⁵

CLIMATE CHANGE ADAPTATION

There is another benefit to healthy soils that are high in organic matter, carbon and soil biodiversity. Such soils cope with extremes in weather, as they are more stable, can absorb more water, and allow more to filter through. This means farming organically can make you better adapted to droughts, floods and erosion – things which may become increasingly common due to climate change.

BUT WE CAN DO BETTER

So organic farming provides us with a way in which we can stop our soils degrading, sequester carbon and adapt to the impacts of climate change and what’s really encouraging is the fact that soil science still has a long way to go. There are many ways we can improve organic farming techniques to help capture more carbon, improve our crop yields and the quality of what we grow. There is exciting research and innovation happening in both the lab and the field. Soil Association Scotland delivers training events to help farmers and growers – whether organic or not – to make the most of organic principles to help look after and improve their soils.⁶

Soil is something we should all care about – as Monty Don so eloquently put it: “it all starts with the soil. The soil is our heart.” 🌱

2 <http://www.fibl.org/en/media/media-archive/media-release/article/organic-farming-enhances-soil-carbon.html>

3 “Greenhouse gas (GHG) emissions from agriculture, including crop and livestock production, forestry and associated land use changes, are responsible for a significant fraction of anthropogenic emissions, up to 30% according to the Intergovernmental Panel on Climate Change (IPCC).” <http://iopscience.iop.org/1748-9326/8/1/015009/>

4 Soil carbon sequestration has the potential to reduce total agricultural emissions by 89%: “Soil carbon sequestration (enhanced sinks) is the mechanism responsible for most of the mitigation potential (high agreement, much evidence), with an estimated 89% contribution to the technical potential.” <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter8.pdf>

5 De Vries et al (2013) ‘Soil food web properties explain ecosystem services across European land use systems’, PNAS <http://www.pnas.org/content/early/2013/08/08/1305198110.abstract>

6 <http://www.soilassociation.org/innovativefarming/futurefarminginscotland>

ABOUT THE AUTHOR

Laura Stewart is Director of the Soil Association Scotland.

Meat: less and better?

The many facets of the link between meat production and climate change and what planet-friendly meat consumption could look like in Scotland is explored by *Pete Ritchie*.

We all want a painless way to reach Scotland's target of reducing our greenhouse gas emissions by 80% by 2050. Better insulated homes, solar panels, offshore wind and tidal, decarbonised transport – energy will become more expensive but we will use less of it, so what's not to like?

Food is different. It's personal. Agriculture and deforestation contribute over 30% of our greenhouse gas emissions – and also have the greatest potential for mitigation through carbon sequestration and better management.

We can **farm** more sustainably in Scotland – agroecological and organic production methods can reduce greenhouse gas emissions and lock up more carbon; but at the same time, as global food citizens, we need to **eat** more sustainably. We can change the world three times a day.

Meat is the most greenhouse gas intensive part of our diet (with the exception of air-freighted fruit and vegetables). In Scotland we eat on average around 75kg/meat per year, mostly as processed products rather than as carcase meat.

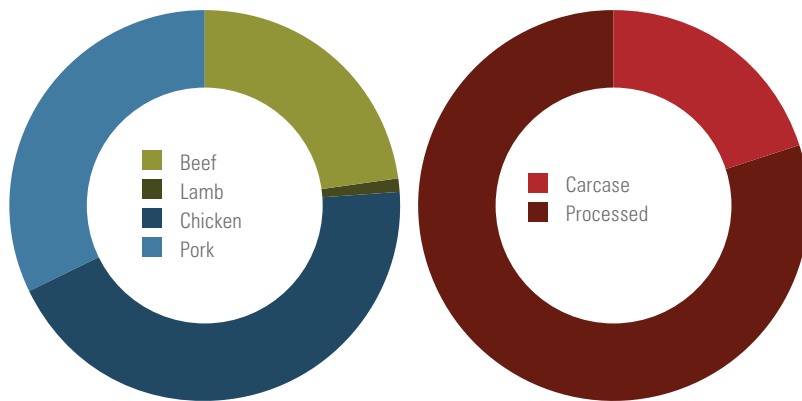
Using typical figures (4kg CO₂ per kg chicken, 8 kg per kg pork, 16kg per kg beef) the 'farmgate' emissions of the meat in our diet comes to around 660kg CO₂ eq per person annually – about the same as the fuel for driving 4000 miles a year in a small efficient car. Most of the 'carbon footprint' of beef is from the methane produced by cattle (and other ruminant animals) when they digest grass.

Just how much meat contributes to global warming is a contested area between advocates of industrial agriculture (sheds better than grass) and advocates of agroecology (grass better than sheds); vegetarian and animal welfare advocates (eat less or no meat, factory farms bad) and health advocates (eat less red meat to reduce heart disease).

While meat consumption per person in the North has stagnated and may be on a slight decline, the massive global increase in meat consumption over the last thirty years will continue to 2050 as incomes rise and diets change in low-income countries. But cultural traditions are important too, with the 1bn plus people in India still eating less meat than the 60m in the UK.



Scottish meat consumption



Source: DEFRA family food survey 2012

Estimates of meat's 'carbon footprint' vary widely, partly because production systems vary widely, partly because of taking wider or narrower impacts into account. We are also now getting more accurate estimates of methane produced by cattle in the field¹.

So, for example, chickens don't produce methane – but they do eat soya, so should the deforestation caused by the need for more soya be laid at their door?²

On the other hand, pasture-based beef and sheep systems can **more than offset** the methane generated by the carbon sequestered in grassland – especially in an organic agroforestry system³. Intensive systems of cattle feeding ('barley beef' in this country, feedlots in the US) produce much less methane per kilogramme of meat because cattle grow much more quickly – but they don't offset this through grazing, so in overall terms are less efficient.

Similarly, systems in hot countries which feed cattle maize which in turn has been grown using irrigation will use a lot of scarce water: while pasture-based systems in Scotland typically only use rainwater (which is hardly scarce).

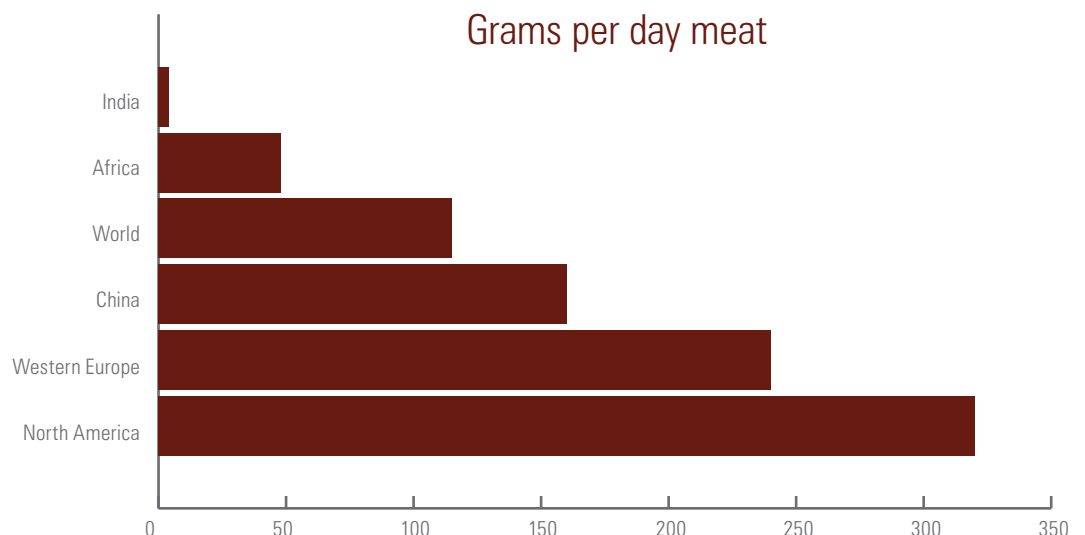
And of course any system which feeds human-edible food to animals is arguably putting more pressure on arable land and encouraging more forests to be cleared for pasture and more pasture to be ploughed for crops.

Globally, there is about half an acre of arable land per person available for food production; and there's another acre each of pasture which isn't suitable for crops. It makes sense to use this resource to rear animals designed by nature to convert grass and tree leaves which we can't eat into high quality food.

SO, SHOULD WE EAT MEAT, AND IF SO, WHAT SORT OF MEAT AND WHERE FROM?

Historically, we are low meat-eaters in Scotland: while we have exported beef and lamb for over two centuries our diet was based on oats and milk rather than meat. The growth in consumption since the war has been in pork and chicken consumption, where industrial systems and cheap grain have brought meat prices down to a historic low. We eat more than ten times as much chicken as our grandparents.

While we import half the chicken and pork we eat in Scotland (and we import soya from Latin America to feed the ones we do grow here), we grow as much beef as we eat, and more than ten times as much lamb.



Source: Food and Agriculture Organisation 2012



“ There’s still plenty of room for improvement. On the production side, we can reduce emissions per kilo of beef and lamb by improving animal health and nutrition, breeding, organic management, agroforestry and use of manures.

Given the fact that grassland locks up carbon – and the value of using cattle and sheep as part of crop rotations in sustainable farming systems – there’s a clear argument in Scotland for eating a sensible amount of our own organic grass-fed beef and lamb.

If we’re eating pork, we should be looking at GM free outdoor and organic systems. And we should go for organic chicken whenever we can – with guaranteed access to pasture. The latter being still much cheaper per kilogramme than cheese.

There’s still plenty of room for improvement. On the production side, we can reduce emissions per kilo of beef and lamb by improving animal health and nutrition, breeding, organic management, agroforestry and use of manures. Bringing the worst-performing farms up to the standards of the best would make a huge difference. Beef from dual-purpose dairy cows has a lower carbon footprint per unit of food by combining milk and beef production.

Recent evidence from Scotland Rural College’s Green Cow project suggests that some individual beef cattle produce up to 40% less methane than average, and can pass this on through their genes.

On the consumption side, we should aim for less and better meat – to shift overall meat consumption down towards the global average of around 42kg per year (equivalent to one quarter-pounder a day) and to make more of this home-grown grass-reared organic beef and lamb.

Grass and clover fed beef has a significantly better balance of omega 6 to omega 3: less fat overall, and a better fatty acid profile including more conjugated linoleic acid; and more of the precursors to vitamins A and E⁴. (The yellower softer fat on grass fed beef is a good sign!).

We should stop wasting meat. Despite the recession we still wasted about 7 million chickens in Scotland last year. There are many ways to encourage change. Government is using the 2014-2020 Common Agricultural Policy to support beef producers directly. This scheme should be designed to favour grass-fed and organic systems serving short supply chains and should include free extension services to help below-average farms improve productivity.

Government should commission more research on the environmental and health benefits of grass-fed and organic beef; and encourage substitution of home grown beans and peas for feeding pigs and home-grown rapeseed for feeding chickens.

Agroforestry (integrating trees and grazing) can increase feed conversion efficiency by providing shelter, as well as bringing multiple environmental benefits such as flood prevention, soil quality and biodiversity.

We can include unprocessed Scottish beef and lamb in healthy start vouchers for low income families with young children who may struggle to access good meat, and use less but better meat in school and hospital meals.

We can celebrate the low meat Scottish tradition – haggis, neeps and tatties is a great combination, with haggis using the offal which we normally don’t use and bulking out the meat with oats, the original superfood.

We need better vegetarian cooking, and more fusion cooking of meat and veg to give planet-friendly omnivores more choice, and to find creative alternatives to the ubiquitous chicken in our ready meals, pies, pizzas and wraps. 🍷

- 1 <http://www.ghgplatform.org.uk/Projects/AC0115.aspx>
- 2 Garnett, Tara: Livestock-related greenhouse gas emissions: impacts and options for policy makers. Environmental science & policy 12 (2009) 491-503.
- 3 Allard, V., et al 2007. The role of grazing management for the net biome productivity and greenhouse gas budget (CO₂, N₂O and CH₄) of semi-natural grassland. Agriculture, Ecosystems and Environment 121, 47–58.
- 4 Daley et al. Nutrition Journal 2010, 9:10 A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef.

ABOUT THE AUTHOR

Pete Ritchie is Director of Nourish and runs Whitmuir Organics.



Food — don't let a good thing go to waste

In Scotland, we create 2.1 million tonnes of food waste every year. This not only causes huge economic losses but is also doing very significant damage to natural resources — climate, water, land and biodiversity. *Nourish* sets out the backdrop to this issue and *Zero Waste Scotland* provide a briefing on the new Waste Regulations which are also tackling food waste, and describe what some businesses have done to significantly reduce their waste.

The Waste (Scotland) Regulations represent Scotland's most significant development in recycling and are designed to help realise the true value of resources currently being thrown away, boost Scotland's economy and create green jobs. The Regulations will play a key role in helping Scotland reach its target of 70% recycling of all waste by 2025. New figures from Zero Waste Scotland estimate that Scotland is currently paying £95 million in landfill taxes to throw away recyclable materials, valued at £97 million.

Scotland's food waste problem is significant — 2.1 million tonnes of food waste are created every year. Of that, the commercial and industrial sector creates 74% of the wastage. For example, publishing its food waste figures for the first time, Tesco said that, in the first six months of 2013, it generated 28,500 tonnes of food waste. Of that total, 21% was made up of fruit and vegetables and 41% of bakery items. Tesco also estimated that across the UK food industry as a whole, 68% of salad sold in bags was wasted. We welcome the

transparency of Tesco and hope that other supermarkets will follow suit and that food waste figures will be regularly benchmarked and published. Household food wastage accounts for 26% total food waste with the average household throwing away food worth £430 a year.

Food waste is also problematic from an environmental perspective, with consequences for the climate, water and land use, and biodiversity.¹ For example, when food is sent to landfill it produces

What you can do as an individual consumer to reduce food waste.

- Get your portions right.
- Be savvy about storage.
- Make the most of your leftovers.
- Plan your shopping and stick to your shopping list.
- Recycle your food waste.
- Visit www.lovefoodhatewaste.com



and herbs for the restaurant's use in its own grounds. Additionally, Edinburgh tap water is filtered, chilled and offered at no charge to its guests either still or carbonated in reusable bottles; this reduces glass waste and the carbon footprint of bottled mineral water.

Retailer, **Mo's Convenience Store**, in Blantyre started a waste management programme to reduce the three 1,200 litre bins of waste the business was producing every week, most of which was being sent to a landfill site. Through a comprehensive programme of waste reduction and recycling, the business has managed to reduce this to just one bin a week, effectively cutting its monthly waste pick-up bill from £320 to £82 per month, an annual saving of £2856.

As well as separating all cardboard and plastics and taking them to the local cash and carry for recycling, Mo's has also devised ways of ensuring its food waste is kept to a bare minimum.

The store has an on site bake off oven to ensure bread is fresh, and minimise wastage. Once bread has been on the shelf for a day, it's reduced in price for the next day. Whatever remains unsold at the end of the second day is either given away for free or, in the case of the baguettes, halved and used to make pizza-style flat bread. 🌱

1 A recent FAO report, Food Waste Footprint: Impacts on Natural Resources, is the first study to analyse the impacts of global food waste from an environmental perspective.

Image: Martin Young Mains of Scotstown Inn
© Zero Waste Scotland

methane as it rots – a powerful greenhouse gas, at least 20 times more potent than carbon dioxide. For all these reasons we need to significantly reduce food waste.

However, as long as we have these massive amounts of food waste, the methane it creates can be used as an energy source. Processing the current amount of food waste through modern treatment facilities has the potential to generate enough energy to power a city the size of Inverness and supply 10% of Scotland's fertilizer needs.

BRIEFING FROM ZERO WASTE SCOTLAND ON THE NEW WASTE REGULATIONS AND CASE STUDIES

Since January 2014 all Scottish organisations, big and small, are required to separate plastic, metal, glass, paper and card for recycling, or risk a fine.

Most food businesses are required to separate food waste for collection too. Any business which processes, distributes or prepares food for sale and produces over 50kg of food waste per week must present it for separate collection. The requirement to present food waste for separate collection will extend to all food businesses that produce over 5kg of food waste per week with effect from 1 January 2016. Rural food businesses are exempt from the food waste requirements of the Regulations.

Mains of Scotstown Inn, an Aberdeen pub and restaurant, is benefitting from nearly £8,000 of annual savings by implementing a number of waste reduction and recycling initiatives to ensure that only 13% of waste ends up in landfill.

To reduce food waste, guests are encouraged to take home a 'doggy box'

(made of recycled cardboard). Remaining food waste is put into the pub's wormery, a £700 investment which quickly paid for itself by reducing landfill costs, thanks to its host of more than 1,000 worms who are capable of eating their own body weight in two days. Other waste, such as paper, is also added to the wormery to help soak up excess moisture. The resulting compost is used on the pub's herb, fruit and salad garden.

In addition, the pub recycles all of its cooking oil. It receives a fee for the used oil which is then used to create biodiesel and anti-bacterial soap from the byproduct, Glycerol. The biofuel and soap is then bought back and used by the pub. Food and drink cans are kept separate, then sold to a local scrap merchant for a great return. This almost covers the cost of all waste and recycling.

Timbryard, an artisan restaurant in Edinburgh has blazed a trail with its waste management techniques. Recycling more than 95% of its waste, the restaurant minimises the financial cost of waste created. Good kitchen management means that very little food is thrown out and all vegetable waste is composted, providing the nutrients needed to grow salad leaves

Is your business waste regulation ready?

For free advice and training on resource efficiency measures, visit www.resourceefficientscotland.com/regulations. You can also email enquiries@resourceefficientscotland.com or call 0808 808 2268.

The Resource Efficient Scotland programme, being delivered by Zero Waste Scotland, is helping organisations to be in compliance with the new Regulations. Businesses are encouraged to speak to their local authority or waste contractor to discuss services.

Glasgow Local Food Network

Over recent years Glasgow has seen a great increase in the number of community gardens and growing spaces across the city. It's been an exciting time. A grassroots community-led movement has transformed some of the derelict areas of the city into thriving spaces where people can grow, meet, discuss and learn about local food. *Rosalind Corbett* and *Abi Mordin* write about the network that supports the growth of this movement.

Glasgow Local Food Network (GLFN) first started in 2008, as an informal voluntary network of community organisations and individuals from across the Glasgow area who are passionate about local food.

Members work in partnership with other groups and individuals to make the best use of resources, skills and expertise, and to strengthen a peer support network. We also want to link local food with environmental sustainability and social justice – maintaining principles of affordability and accessibility.

EVENTS AND PROJECTS

Since 2011 the network has run a range of activities to promote local food in the city. Glasgow Harvest 2011 saw celebrations of local food hosted by community gardens in the South, East, North and West of the city. An irreverent homage to the village fête, each celebration featured live music, communal cooking, food sharing, workshops and competitions. New work by visual artists drew inspiration from the people and spaces that make urban growing in Glasgow unique. Glasgow Transition Support ran workshops exploring ideas for a more connected and resilient food system for Glasgow.

Spurred on by the success of *Blasda* (a local food festival across Scotland), GLFN members organised a Glasgow-wide Seed Swap and Local Food Gathering. In early March 2012 more than hundred people of all ages, stages and backgrounds gathered in Glasgow to share food-growing stories, local food and swap seeds. Coordinated by SAGE (Sow and Grow Everywhere) and Glasgow Harvest with Urban Roots and Glasgow Transition Support, the day had a range of activities, approaches and resources to engage and inspire action.

GLFN aims to:

- raise the profile of community food and local food across the city,
- grow and develop the connections between local businesses, organisations, and local government, and
- grow a local food economy in Glasgow by producing more of what we eat and eating more of what we produce.

Blasda 2012 followed on in quick succession – by now more groups and projects were springing up and were keen to get involved. An amazing day was held at the The Briggait – Glasgow's iconic former fish market which is now an amazing arts and cultural venue – and which was also open as part of Doors Open Day – which helped to increase the footfall. The event featured 2 photography exhibitions: *Handmade* by Clem Sandison – an exploration of food cultures around Scotland, and *Sown* by Dan Sambo – haunting images of community gardens at night. A plethora of workshops took place throughout the day from the practical 'Wild Herbs as Food and Medicine' to the discussion based 'From Farm to City: How to get Scottish Produce into Glasgow'. This was combined with a busy marketplace of stalls from different projects and organisations, an organic and fair-trade tea and cake stall, and the launch of our online map of community based food growing projects across the city.

Fast forward through 2013 – and another Seed Swap, film nights, Local Food and Social Justice event later – Glasgow Local Food Network continues to meet to plot and plan new projects. Most recently the Network launched "A Tonne of Tatties" project coordinated by Locavore CIC. Locavore has been able to buy a tonne of local and organic produce directly from the farmer (specifically field scale crops such as potatoes, carrots,

onions etc. that can't be grown in huge quantities in community gardens) which is then distributed at an affordable price to community groups, who are able to supplement the bulk purchases with greens and herbs from the community gardens. 2014 looks to be a busy year for GLFN, and we're looking forward to seeing how the network develops and grows. Some plans in the pipeline include another seed swap, a harvest food exchange and supper only using ingredients from within 100 miles of Glasgow. We hope to involve more community food projects in the network, and have plans to set up a volunteer exchange programme and resource bank to give groups access to more resources and energy to get projects off/on/into the ground and growing. 🌱

FURTHER INFORMATION

You can find out more about GLFN at:

- Facebook group <https://www.facebook.com/groups/32823901056-2316/>
- Blog <http://www.glasgowlocalfood.blogspot.co.uk/>
- Email glasgowlocalfood2012@gmail.com

ABOUT THE AUTHOR

Abi Mordin is a volunteer with GLFN and project manager at Urban Roots. Rosalind Corbett is a volunteer with GLFN and a Community Food Worker at Woodlands Community Garden.



Do you fancy living the “good life”? Be careful what you wish for!

David Finlay writes about the ups and downs of running a sustainable farming business.

Cream o’ Galloway was established in 1993 by Wilma, a city based IT consultant with a hankering for the ‘good life’, and myself, David Finlay, a conventional, upland livestock, tenant farmer with a hankering for a challenge.

After assessing the options, some market research and product trialling, we plumped for premium ice cream made from the milk of our Ayrshire dairy cows. Our main criterion was that all the other ingredients for the ice-cream recipes could be found in an average kitchen cupboard. What could be more natural and healthy than that?

To add a bit more value we incorporated a small shop, playground and viewing gallery into our plans. Then pressed the start button...
What followed has been a blur of exhilaration,

exhaustion, depression, euphoria and everything in between. “For example?” I hear you ask. OK, I’ll start with a couple of ‘good’ stories.

In the first 5 years our visitor numbers increased from 5,000 to 50,000, almost despite us. So, our meagre visitor facilities had to grow – nature trails, cycle tracks, dog walks, adventure playground, restaurant, and posh loos! – all as visitor numbers approached 75,000 by 2007. A very profitable little ‘side-line’.

In 1999 we found that we were one of only two manufacturers in the UK making organic ice cream. We were actually approached by one of the major retailers to develop a line of organic ice creams (oh joy!). At the same time my daughter opened 60 new London accounts in 2 weeks – unheard of. The market was there for the taking!

Above: Cow and calf
© David Finlay

We have developed and trialled the new farming model last winter. The model took also account of the issues of pollution, climate change, biodiversity loss, animal welfare and anti-biotic resistance. ”

And the baddies?

In 2000 we borrowed a boat-load of money and expanded to meet this new organic demand. In February 2001, Foot-and-Mouth disease hit us, right between the eyes. All of our visitor centre income and half of our ice-cream wholesaling income evaporated. That just about finished us. By the time we had picked ourselves off the floor, many of our new customers in The South had moved over to a flurry of new organic suppliers, and surprise (!), the supermarket contract had gone elsewhere.

In 2007 organic, Fair Trade was a rapidly expanding niche, but was also excruciatingly difficult to achieve. We established a new brand, 'Made Fair', and developed new-look packaging and ice cream range. By early 2008 we were ready to hit the market. It was more like hitting a brick wall as recession driven austerity reinforced a wave of media, and FSA, fuelled organic backlash.

We realised that what we need is a strategy change. Therefore we are now about to shorten our supply chains (less bought-in, 'exotic' and unhealthy ingredients), simplify our processes (move to milk and cheese) and get closer to our customers who will be loyal to our philosophy, not to price.

The strategy change doesn't come cheap. It involves new build, plant and equipment, packaging, marketing and so on. In order to raise the funds we need support from our customers and will therefore start 'Herdshare', a community supported agriculture (CSA) model, with a community buy-in through shares. The community will become collectively the owner of our herd.

We have developed and trialled the new farming model last winter. The model took also account of the issues of pollution, climate change, biodiversity loss, animal welfare and anti-biotic resistance.

Now, compared to the average UK dairy we should be able to cut our greenhouse gasses by 60%, energy use

by 60%, antibiotic use by 90+%, agro-chemicals by 90+% (all per unit of product), extend cow productive life by 100% and increase biodiversity 10-fold.

We can achieve this while simultaneously increasing total farm production, maintaining profitability and achieving the highest standards of animal welfare. Amongst others, we leave the calves with their own mums. A chance visit by a curious Compassion in World Farming mid trial, earned us their Good Dairy Award – the first in Scotland.

A quick word about our GHG emissions. Not using any soluble nitrogen fertilisers helps greatly. As organic farmers we rely on clovers to absorb nitrogen from the air to feed our crops. Also, as part of our new-build, we have converted a slurry store into an experimental anaerobic digester – turning farm plant-based wastes plus cattle slurry into electricity and hot water. Enough for the farm and Cream o' Galloway. Not only that, but the resulting material produced by the digestion process (a bit like composting) is a better fertiliser and is less environmentally harmful than the original raw slurry. This, together with our 75 acres of new broad-leaved woodland and community owned 50kW wind turbine whose electricity we purchase, is estimated will cut our emissions by 60%. 🌱



FURTHER INFORMATION

Would you like to get involved?

Keep abreast of developments? Why not visit us? Or join our CSA, 'Rainton Herdshare' which we will launch in 2014! Find out more www.creamogalloway.co.uk/finlays-farm, or email me at david@creamogalloway.co.uk



**Black Isle
Community Markets
...a great way to shop**

The Highland Food Challenge

In 2010, Transition Black Isle launched the Highland Food Challenge. *Anne Thomas* explains which projects emerged with the launch and how sustainable food has developed since 2010.

Transition Black Isle, is a voluntary group set up in 2009 to wean us off our current carbon intensive culture on the Black Isle. The group is part of the international 'Transition' movement.

The Highland Food Challenge started with an initial 'challenge' exercise where participants were encouraged to 'eat local', 'eat organic', 'eat seasonal' and 'eat vegetables' for three months. A total of 57 people signed up. We created a pack explaining why changing our diet is part of living sustainably. The pack contained a monitoring exercise. Participants followed this exercise with varying degrees of success with those who were already aware of modifying their diets saying that

there was less scope for improvement, but all of us finding the focus helped us to really think about what we were buying and look critically at labels. However, for some of us who had thought we were doing quite well already often the monitoring exercise showed that local food as a percentage of

what we were eating was not as great as we had thought.

Our initial title was the 'Black Isle Diet', but we quickly found that some food groups such as fish and dairy were not really produced on the Black Isle despite it being



Our website provided a facility for people to post favourite recipes to give others ideas about how to use what is available locally. Local food demos, held at markets, were also a popular way of giving people ideas about how to change their cooking practices.

Changes we made as a family

As a family we now grow the vast majority of our vegetables and keep bees. We are able to purchase much of our meat, cheese, eggs and fish locally, although sometimes the demands of life still lead us to the supermarket. We've had to modify what we eat considerably to fit in with what we have available e.g. more potatoes, seasonal vegetables and soft fruit (some frozen for the winter) and a lot less rice, pasta and exotic fruit, but generally this has led us to have a much healthier diet too. Reading about the health effects of sugar has led to us cutting this to as little as possible. We also take vitamin D supplements, as this far north it's very difficult to obtain enough from sunlight for much of the year. Chanterelles and fish are local foods which have good levels of this, but not enough.



a large fertile area surrounded by sea, so we had to use 'Highland'. We also thought that 'Challenge' sounded more positive than 'Diet'.

The year's funding from the Climate Challenge Fund covered several activities to promote sustainable food which were all part of the Highland Food Challenge. Our website provided a facility for people to post favourite recipes to give others ideas about how to use what is available locally. These have had a huge number of page views. Local food demos, held at markets, were also a popular way of giving people ideas about how to change their cooking practices. Cheese-making, preserving and 'bottling the tastes of summer' were particularly well received.

We also employed a market organiser for a year for the monthly North Kessock Community Market which had been set up as a voluntary venture. This post enabled the market to become well established with the 28 available stalls now always full. The model was based on a market set up in Culbokie by Ferintosh Community Council and copied again about a year later at Cromarty. Sufficient revenue was received from the £8 stall fees to rent the hall and pay for an organiser for North Kessock, although Cromarty has continued to be organised by volunteers and makes a small profit for Transition Black Isle. Different groups provide refreshments at the markets each month which is a valuable way for them to fund-raise.

A directory of local food producers, retailers and restaurants was compiled by volunteers called 'Our Local Larder'. We also produced stickers for local producers to display with this logo. The directory includes a table of producers and products, a 'cafés and restaurants' section and a map to show locations. We have sold nearly all the 2000 copies. A suggested donation of £1 gave us the possibility of a reprint. Three years on it needs updating. Initially this will be online, using an existing website linked to our own. We collaborated with Transition Town Forres on this booklet and used the same designer so that the two booklets could form part of a series.

An apple press and trailer which was purchased with the fund money have been well used at the community markets, by schools and individuals. This year we had 10 bookings and an average of 50 litres of juice was produced from apples which would largely have otherwise gone to waste.

The Highland Food Challenge was run simultaneously with our 'Grow North' course; a series of practical training sessions on food growing which were compiled into a written 'Growing Guide'. We have sold 400 copies of this so far. This has resulted in a lot more people 'growing their own'. Two community gardens and some allotments were set up as part of this initiative. If people can grow even some of their food, then this can often more than compensate for local food sometimes being more expensive than supermarkets.

For the last three years, in spring, we have been running a 'Potato Day'. About 400 people come to this event where they can choose from about 60 varieties of seed potatoes. Local farmers donate some potatoes and we make some profit, which we reinvest into other projects. Leftover potatoes were given to about 20 local schools and six charities this year. They were able to grow these themselves or sell them to raise funds. The potato day has encouraged many more people to grow their own potatoes.

The potato day and a well-used apple press are now an established part of the local calendar. Community Markets, which are also a venue for initiatives such as seed, seedling and vegetable swapping, continue to thrive.

Our future plans include a local food week in September 2014 and another Grow North course. We plan to review our community growing and consider scope for further initiatives, including holding more food demos. The Challenge to persuade more people to eat more Highland Food goes on. 🌱

Above image © Jo Hunt

ABOUT THE AUTHOR

Anne Thomas is convenor of TBI, member and co-convenor of the food group and works part time as a Speech and Language Therapist.