
What good food research could do

Professor Tim Lang considers why history matters for UK food-related research and argues for more 'good food research' that is independent, public and interdisciplinary.

The UK has a long and rich tradition of outstanding food-related research. Almost as soon as industrialisation began at the cusp of the 18th and 19th centuries, people began to see the chance to apply its fruits to farming and food. This took at least two research directions. One was to use chemistry to unpick what made things grow. Another was to use it off the land to 'industrialise' food. One focussed on life itself and the other on labour.

One of the first food transnationals to incorporate research was the Anglo-German-Uruguayan-Argentine meat extract behemoth which produced Bovril and later Oxo, applying the science pioneered by Justus von Liebig at Giessen.¹ As food chains became longer, the opportunities for fraud emerged, applying both crude and sometimes sophisticated science. This distortion of research is beautifully summarised in the classic account by Ingeborg Paulus in 1973,² and again more recently and very readably by Bee Wilson³.

A long fight ensued throughout the 19th century to clean up British food. Although an early chemist (Frederick Accum) first exposed adulteration in 1820,⁴ it was not until *The Lancet's* founding editor, Thomas Wakley MP, created an arms-length Lancet Analytic and Sanitary Commission run by Arthur Hill Hassall, that the clean-up really began. The grand-sounding Commission (actually tiny!) gave its exposés to *The*

Times and *The Lancet*, with Wakley trumpeting in the Commons. This was an early example of brilliant UK food campaigning with a small number of people wearing multiple hats! They were effective in winning legal change but, arguably, the right of the British people to have decent, safe good quality food wasn't finally settled until various amendments to the 1865 Act were strengthened decades later.⁵ But the battle over food quality and the role of research had begun in earnest.

"In the UK, our food research agenda is currently paralysed by the enormity of Brexit"

Why does this history matter? Because here we are in the early 21st century, with ample evidence that the food system has serious flaws again and the role of research is implicated. So much R&D works for the food system rather than unpicking its impact. Some consequences are intended by researcher - such as the systematic mining of the environment or deliberate 'ultra-processing' of mass foods - and some are unintended. I don't think anyone sets out deliberately to spread childhood obesity or to break the NHS by externalising vast healthcare

costs from ever cheaper food. Yet the food system nevertheless is locked into a self-defeating illogicality, with researchers compromised too often.

We should not be surprised. Research does not operate in a vacuum. It is framed by intentions, both tacit and overt. That's why there are such ethical issues over research funding and over working with industry. Over the last 40 years, much food research has been heavily incorporated into tweaking rather than reviewing food system performance. But the tensions are becoming clearer. And food companies are acutely aware they face disaster for instance if they fail to rein back their impact on climate change. No wonder, older more critical traditions of science and research have re-emerged, questioning what is meant by a 'good food' system. So often they emerge within civil society, rather than academic science. But, remembering Wakley, Hassall and *The Lancet*, it was ever thus.

What do we need ahead? More public and independent research. And more interdisciplinary pursuit of 'big picture solutions'. Why? Because the data show conclusively that dietary change is now the biggest source of premature death and (perhaps more ominously) healthcare costs.^{6,7} The data also make clear that the food system needs to change pretty dramatically from its current intensification and over-production (particularly of animals), and

that the ecosystems on which Darwinian ecological diversity depends are being most actively destroyed by what ought to be a means of subsistence – food.

No discipline or perspective has the answer to this systemic challenge. It requires more collaborative, less self-serving research. Universities have not helped with their football league approach to the Research Excellence Framework ('REF').

I'm not all gloomy, however. Some great research comes out, clearly in and for the public interest, while ticking the REF boxes. The policy pick-up, however, is weak. There's a failure of politics at present with regard to food. Vast data and studies point to the need to restructure the food system, but too little happens.

Here in the UK, our food research agenda is currently paralysed by the

enormity of Brexit.⁸ Yet this is precisely the moment where we should stop and ask fundamental questions about what sort of food research is most needed to put the UK (and other rich nations) onto a more sustainable track, and to shift food culture amongst the general public more rapidly than has ever happened other than in wartime. This requires interdisciplinary research, and more social science, not just the Life Sciences' pursuit of ever more microscopic dynamics, fascinating though those may be.

Helping deliver sustainable diets from sustainable food systems surely ought to be the framework for all food research.

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- 6 Global Burden of Disease study 2010, Global Burden of Disease Study 2010. The Lancet, 2013. 380 (9859): p.861-2066. <http://www.thelancet.com/themed/globalburden-of-disease>
- 7 WHO (2015) WHO estimates of the global burden of foodborne diseases: Foodborne diseases burden epidemiology reference group 2007-2015. Geneva. p. 225.
- 8 Lang, T., E.P. Millstone, and T. Marsden (2017) Food and Brexit. University of Sussex Science Policy Research Unit: Brighton. <https://tinyurl.com/y9lp63dq>

How to unlock the contribution of agroecology in farming?

Susanne Padel and Nic Lampkin, Organic Research Centre

Food and farming research can deliver public good by focusing on agroecology^{1,2} But how can farmers make use of agroecology in practice and what can research can do to support them?

Two studies we undertook for the Land Use Policy Group provide insights. The first² demonstrated clear potential contribution and called for better information and knowledge exchange systems on agroecological practices, building on tacit farmer knowledge and active farmer participation, alongside an agroecological focus in training, education, research and innovation.

The second³ concluded that farmers want clarity on long-term indicators that consider the finances and resource use to help them future-proof their

farms (e.g. investment in soil fertility).

Farmers need accepted definitions, measurements and indicators of the state of resources and sustainability^{4,5} so they can benchmark their activities.

Research must be clearer on the evidence for practices that farmers can implement. It must provide reliable indicators for monitoring that consider resource use and long-term financial implications and risks. Our Agricolity project tries to address the need. It is a collaboration between many organisations to provide information on Practical, Sustainable Farming Regardless of Labels.

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