Ethical priorities for future agrifood research

There needs to be a revolution in the way science knowledge is obtained, writes **Ben Mepham** – and ethical reasoning must be a crucial element in decision-making on science and agriculture policy.

What drives research?

Significant difficulties in making plans for research priorities lie in adequately understanding the present situation, and accurately forecasting the resulting developments. Given these imponderables, and uncertainties pervading the Brexit debate, I adopt here a radical 'visionary' approach - hoping that if the analysis proves useful, appropriate policy implications will emerge. For, while ethical deliberation clearly does not exert the clout of legislation, arguably it can exercise a significant influence by informing sound judgments.

In *Food Ethics* (1996),[1] my chapter on research policy began with this quotation from an article by the social scientist Howard Newby: "*Agricultural science has indeed transformed the practice of agriculture. Discoveries made by people in white coats ...have been transferred into farmers' fields in a bewilderingly short space of time, assisted by a wide network of institutions ... aimed at speeding up the process of technology transfer.*" Given Newby's "bewilderingly short space of time," and the dramatic acceleration of 'technology transfer' over the last 20 years, it is pertinent to enquire whether ethical analysis has assumed more, or less, significance in formulating research policy over that period.

In my chapter I suggested, with reference to farm animal welfare, that three types of question should be posed for 'rigorous' ethical auditing: i) are issues assigned a priority commensurate with their ethical significance? ii) is the research addressing appropriate questions? and iii) is the research conducted in ways that respect consumers' rights to know about the processes and products employed in food production? In brief, my conclusions suggested that in no case had these ethical issues been adequately addressed.

Over the last 20 years, the notion that 'ethics' is relevant to assessment of the activities of governmental and commercial organisations, and not just to personal standards of behaviour, has assumed a high public profile. Now, almost all organisations dealing directly with the public have established ethics committees, and codes of ethics. But this 'privatisation' of ethics led to abolition of many government committees with clearly-defined ethical remits, such as the Agriculture and Environment Biotechnology Commission (AEBC, of which I was a member) and the Farm Animal Welfare Council. Moreover, as noted by the renowned US agricultural ethicist, Paul Thompson,[2] "*while people … think of medical ethics as a field where normative assumptions and disagreements are analysed and debated, 'food ethics'… [including its agricultural dimensions] … tends to be associated with personal conduct*" e.g. concerning consumers' choices to eat foods they consider raised under 'good welfare' conditions or 'additive-free'. So, in the agri-food context, "*the norms distinguishing right from wrong are presumed obvious and noncontroversial*" because for many people it is not the role of food ethics to specify, analyse or debate normative commitments. Yet, arguably, this is precisely where ethical deliberation is necessary.

The Biotechnology and Biological Sciences Research Council (BBSRC), which funds the UK government sponsored agri-food research, describes its mission in a 'core narrative'.[3] In essence, this amounts to providing support to the bioscience base, in order to underpin the bioeconomy, and build a more prosperous nation. But wider concerns, such as global environmental sustainability (adversely affected inter alia by intensive agriculture) and malnutrition (due to inadequate and/or inappropriate food supply) are not mentioned in the BBSRC's narrative. Instead a headlong pursuit of economic growth in the face of a rapidly degraded environment, and a marked deterioration in public health, illustrates the government's reliance on out-dated theory to address new global crises.

An ethical research agenda

Much basic research in the biosciences, when conflated with biotechnology (with which it is inextricably entwined in BBSRC programmes), aims to address economic objectives. But when this focus is to the detriment of environmental, animal welfare and public health considerations, it is hardly compatible with the aim of achieving universal prosperity. What seems necessary is a much more joined-up, holistic analysis of the ethical implications of research programmes, to guide sound decision-making on research priorities – a primary aim of the now-disbanded AEBC.

In another chapter in 'Food Ethics' (Ethical analysis of food biotechnologies: an evaluative framework) I outlined a conceptual tool, the ethical matrix. Based on elements of the so-called 'common morality,' it sought to facilitate ethical deliberation on the impacts of proposed technological innovations for a range of interest groups (for example consumers, farmers, retailers, farm animals and biota in the environment). Subsequently, it has been used extensively, e.g. by the Food Ethics Council, and across the EU – which sponsored a major research grant to explore its utility. Thompson[2] is surely right that "*it is arguably most useful as a heuristic device … that facilitates multidisciplinary conversation and collaboration.*" It does not aim to prescribe ethical decisions, but to clarify views and justify individual judgements.

I believe bioethical analysis should be an essential ingredient of BBSRC's remit. But it's a telling fact that, apparently, this

claim was only once endorsed – when, in 1997, I was awarded a three-year BBSRC research grant for a project 'Bioethical analysis of technology assessment'. Focusing on two prospective dairy technologies, it involved workshops employing the ethical matrix, surveys of retailer, consumer and farmers' attitudes and desktop research. Arguably, it provided crucial evidence for the EU's ban on the use of growth hormone in dairying. However, a subsequent BBSRC Chief Executive considered that bioethics was outside the Council's remit.

The ethical matrix is only one of several ways to aid ethical assessment of scientific research policies. But structured deliberation, with input from representatives of different interests in society must surely now be a routine element of prospective technology policies. The public participatory process on the future of the Norwegian fishing industry, conducted using an ethical matrix, is a notable example of the value of this approach in forward planning.[4]

Food systems for universal, sustainable nutrition

Space limitations confine my focus to this single objective. To economise on citation of references, several key ideas are discussed in earlier publications.[5] To illustrate the attitudinal changes required to devise research policies responsive to rigorous bioethical analysis, I suggest that the following claims need to be assigned importance.

Reliance on economic growth is no longer valid

Probably, the most important claim advanced in recent years, is that future prosperity can only be achieved if decoupled from economic growth. For Tim Jackson, "*In a world of limits, frugality recalls us to our membership in a wider community: prosperity can only be conceived as a condition that includes obligations and responsibilities to others. It's a view that is almost totally antithetical to the prevailing notion of prosperity through individual gain.*"[6] But despite the evidence that "*excess nutrient loading, species loss, ocean acidification and climate change [are] already representing a serious threat to the integrity of ecological systems,*" until recently this claim was questioned by many economists. Now, for informed and thoughtful people, it's virtually a truism; for, "*to have a chance of avoiding collapse in the resource base in the (not too distant) future requires a massive technological shift, wholesale changes in patterns of consumer demand; and a huge international drive for technological transfer.*"[6] But there is little evidence of these objectives in BBSRC research policy.

Intergenerational justice is crucial

An estimated 800 million of the world's 7.3 billion people suffered from chronic undernourishment in 2014-2016. Addressing this relentlessly self-perpetuating predicament is clearly not just a matter of stop-gap measures but of inter-generational justice. Reciting the UN Declaration of Human Rights is cynical and meaningless if not supported by serious positive measures. In an inter-generational context, this ethical obligation needs to ensure: that in future the planet is sufficiently well-stocked with resources to supply everyone with adequate nutritious food; and everyone has an equitable access to this total stock. Environmental lawyer Edith Brown Weiss proposed two important principles to underpin this obligation: conservation of options (ensuring that future uses of the diversity of the natural and cultural resource base are not unduly restricted); and conservation of quality (ensuring the planetary resources we pass on are in no worse condition than those we inherited).[7]

Research aims need to be re-directed

Traditionally, the aim of science has been the acquisition and extension of knowledge. But Nicholas Maxwell's novel approach to scientific research – aim-oriented rationalism – makes attainment of personal and social wisdom its principal aims.[8] He argues that, as science can never be fully 'neutral', the aim of research ought to be to acquire wisdom rather than just to accumulate supposedly ethically neutral facts. He claims that intellectual priority needs to be given to the dual tasks of articulating our problems of living, and proposing and criticising possible solutions. Many years' experience as a scientist and reflection as a bioethicist, persuade me of the soundness of this thesis.

A revolution in the way 'scientific knowledge' is acquired and used is urgently needed. Given the enormous roles played by bioscience and biotechnology in our lives, an introduction to ethical reasoning should be provided to all secondary school children, be a prominent feature of tertiary education, and a crucial element in decision-making on science policy. Structured approaches, such as the ethical matrix, can facilitate sound judgements.

Priorities for food supply should be: sustainable, universal nutrition, by means that mitigate environmental degradation; and respect for the rights of humans and nonhumans (farmed and feral) while remaining sensitive to the diversity of cultural norms. Research policy should be revised to address these priorities – although this will entail substantial restructuring.

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3 BBSRC (2017) Core narrative [link] Accessed 27/11/2017
4 Kaiser M and E M Forsberg (2001) Assessing fisheries, using an ethical matrix in a participatory process. J Agric Env Ethics 14 (2) 191-200
5 Mepham B (2008) Bioethics: an introduction for the biosciences. 2nd edn. London, Oxford University Press; Mepham, B (2012) Agricultural Ethics. In: Encyclopedia of Applied Ethics 2nd Ed. Chadwick, R. San Diego, Academic Press, Vol 1, 86-96; and Mepham, B (2012) Food Ethics. Ibid. Vol 2, 322-330.
6 Jackson T (2017) Prosperity without Growth. 2nd edition London, Routledge
7 Brown Weiss E (1989) Climate change, intergenerational equity, and international law. http://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=2637&context=facpub
8 Maxwell N (2007) From Knowledge to Wisdom:2nd edn. London, Pentire Press