



Label organic products, not gene edited, on food safety grounds

Daniel Pearsall & Matt Ridley

October 2023

Science for Sustainable Agriculture

The UK Food Standards Agency (FSA) has followed the science in recommending a streamlined approach to regulating gene edited food and feed products, mirroring the rules already adopted in countries such as Canada, Argentina and Japan, and in line with the approach proposed for the EU. Howls of protest from the organic lobby demanding mandatory labelling of gene edited products must be met with the same level-headed, evidence-based response. Rather than statutory labelling of gene edited products, for which there is no scientific basis in food safety terms, the FSA might more reasonably turn its attention to requiring statutory labelling of organic products – in the same way as raw milk products – to alert consumers to the potential additional risks in terms of food safety and hygiene, write Daniel Pearsall and Matt Ridley.

The UK Food Standards Agency deserves credit for recommending a streamlined approach to regulating the food and feed products of precision breeding techniques such as gene editing.

Such an approach follows the science, and mirrors the regulatory processes already in place in countries such as Canada, Argentina and Japan, as well as the approach proposed for the EU by the European Commission in July this year.

The FSA's approach is also in line with expert scientific advice from the Advisory Committee on Novel Foods and Processes (ACNFP) that there is 'no evidence that precision bred organisms (PBOs) are intrinsically more hazardous than traditionally bred organisms (TBOs)', and is consistent with the definition set out in the Genetic Technology (Precision Breeding) Act that PBOs contain genetic changes which could equally have occurred in nature or through conventional breeding.

These technologies are urgently needed to accelerate the development of higher-yielding food crops with increased resilience to a changing climate, reduced dependence on chemical fertilisers and pesticides, and improved nutritional quality.

A quick glance at the experimental field trials already notified to the UK Government under simplified arrangements introduced in March last year confirms that this is precisely how these breeding techniques are being used in practice.

The focus in each case is on using new precision breeding techniques to make our farming systems more sustainable, whether in terms of reducing food waste (pod-shatter resistant oilseed rape, non-browning potatoes), reducing pesticide and fertiliser use (late blight resistance in potatoes, nitrogen-use efficient barley), healthier eating (Omega-3 enriched camelina, tomatoes higher in provitamin B3), or safer food (low-asparagine wheat).

Predictably, however, the FSA's plans were greeted by the usual howls of protest from the organic lobby, with the Soil Association demanding separate traceability and labelling rules for gene edited products.

It is hard to understand why this is such a concern for organic producers. Gene editing is prohibited under organic standards, and public information, in the form of a register, will be provided about which crop varieties have been bred using gene editing techniques, so that organic producers can avoid them.

This mirrors existing arrangements already in place for varieties developed using a conventional breeding technique known as cytoplasmic male sterility, or CMS for short, which is prohibited under national organic rules in certain European countries.

We are not aware of the organic sector campaigning for food products to be labelled if they were produced using CMS systems or, for that matter, other conventional breeding methods such as radiation induced mutation, which involves randomly blitzing seeds with gamma rays to create novel genetic changes.

Labelling such methods would, in fact, be a tad inconvenient for the organic sector, since the mainstay of the organic beer market, a heritage barley variety known as Golden Promise, was developed in a nuclear reactor using radiation induced mutation.

Defra, the lead Government department on gene editing, made it clear during the passage of the Precision Breeding Act that it had no plans to require separate labelling of precision bred products, precisely because there is no requirement to label other conventional breeding techniques.

Ministers insisted that singling out gene edited products for special labelling would, in fact, be misleading when the same products could equally have been produced using other conventional breeding techniques, for which there are no requirements for separate labelling.

For its part, the Food Standards Agency has made clear that statutory labelling can only be required where there is a safety concern. So, for example, raw drinking milk is considered to present extra food safety risks and must carry the warning label: "This milk has not been heat treated and may contain organisms harmful to health." Similarly, cream must be clearly labelled 'made with raw milk'.

It is important to note that labelling of production methods, such as ‘free-range’, ‘pasture-fed’, ‘outdoor-reared’ or ‘organic’, is a voluntary, rather than a statutory requirement.

So, for example, when levels of organic milk production are surplus to market demand – as is relatively common at certain times of year – the organic milk is not generally poured down the drain, but simply diverted to the conventional, non-organic supply.

There is no statutory requirement to label the resulting conventional milk as containing organic milk, and this may pose concerns for consumers on two levels.

Firstly, the scientific evidence indicates that the food safety risks of eating organic food may be considerably greater than those of eating non-organic food. In his 2019 book *The Myths About Nutrition Science*, food and nutrition adviser David Lightsey cites an analysis of US Food and Drug Administration food safety recall data by Academics Review – a group of scientists dedicated to challenging anti-science claims – which showed that *‘organic foods are four to eight times more likely to be recalled than conventional foods for safety issues like bacterial contamination’*.

Sadly, the recall system is not always 100% effective in protecting human health.

In 2011, Europe’s deadliest food poisoning outbreak, which affected nearly 4,000 people, killing 53, was ultimately traced back to organically grown bean sprouts from a farm in Germany which had been contaminated by a virulent E.coli strain, O104:H4. At the time, Professor Paul Hunter, a public health expert at the University of East Anglia, told Reuters: *“Bean sprouts are very difficult to grow hygienically and you have to be careful not to contaminate them. And organic farms, with all that they entail in terms of not using ordinary chemicals and non-organic fertilisers, carry an extra risk.”*

Secondly, again, the scientific evidence suggests that organic milk production may pose additional risks to the environment. Professor Andrew Balmford, a conservation scientist at the University of Cambridge who has studied the comparative environmental impacts of different farming systems extensively, [said](#) in December 2021: *“Contrary to our expectations, we found the external harms of high-yielding systems quite often turned out to be much lower than those of more extensive systems, such as organic farming. In terms of nitrogen and phosphate losses from different dairy systems, for example, the difference was a factor of two. So, if you want to reduce pollution, you should probably avoid organic milk.”*

Rather than statutory labelling of gene edited products, therefore, for which there is no scientific basis in food safety terms, the Food Standards Agency might more reasonably turn its attention to requiring statutory labelling of all organic products – in the same way as raw milk products – to alert consumers to the potential additional risks in terms of food safety and hygiene.

Daniel Pearsall is an independent consultant specialising in communication and policy development in the farming, food chain and agri-science sectors. He runs a small livestock farm in Scotland. He co-ordinates the Science for Sustainable Agriculture initiative.

Matt Ridley is the author of numerous books on science. He has been a journalist and a businessman and served for nine years in the House of Lords. He lives on a farm in Northumberland. He is a member of the Science for Sustainable Agriculture advisory group.