FRC Food Brexit Briefing

Hormone-treated beef: Should Britain accept it after Brexit?

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Summary & Recommendations

This Briefing explains why the use of synthetic, industrially-manufactured hormones in beef production, and the threat of importing hormone-produced beef after Brexit, matter for UK consumers. There is robust scientific evidence showing that meat produced using one key hormone (17β-oestradiol) increases the cancer risk to consumers, while for the rest the available evidence is insufficient to show that their use is acceptably safe. The Briefing outlines the basis of the scientific and policy disputes over the use of supplementary hormones in beef cattle production. It shows that, although the USA is most associated with hormone-reared beef, other countries that want to export their beef to the UK, post Brexit, either allow hormones to be used, or are suspected of doing so. The EU has been reasonably vigilant on consumers' behalf on this issue, and it has robust scientific grounds for its ban on their use.

The risk from beef hormones is one of many issues on which UK consumers have benefited from the EU's measures to protect public and environmental health. Chlorine-washed chicken is another example.[1] As an EU Member State, the UK's public and environmental health has been relying on the contributions of EU institutions such as the European Food Safety Authority,[2] the European Commission's Directorate-General for Health and Food Safety,[3] the European Commission's Directorate-General for Environment,[4] the European Environment Agency,[5] and the European Chemicals Agency.[6]

Although the UK has bodies such as Public Health England, the Food Standards Agency and Environment Agency (and counterpart bodies in the Scottish, Welsh and Northern Irish devolved administrations), Brexit will disrupt the prevailing system, by severing the UK from the EU counterparts, including the bodies listed above. We are currently protected by the EU-wide legally binding standards, and the large network of EU co-ordinated agencies and expertise.

In the run-up to Brexit the UK has to make key choices and those choices need to be made urgently. Will our food safety standards remain aligned with prevailing EU rules, or will they be raised even higher? Or will the Government weaken many of those standards to reach trade agreements with powerful countries such as the USA, where food standards are far lower than those in the EU? Or will the Government decide to lower the UK's food standards, down to the level of the lowest-common-denominator provided by the rules of the Codex Alimentarius Commission,[7] that serve as base-line standards for all members of the World Trade Organisation?[8] [9] The UK will be compelled to be a 'rule taker' rather than a 'rule maker'. In practice, the UK must decide which organisation's rules it will take: the EU, the USA or the WTO.

If, as an independent country, the UK Government sets food safety rules that don't match those of our trading partners, we may be able to import foods from anywhere, though only if their products conform to our rules. But UK producers won't be able to export to countries with rules different from our own, unless they manufacture products specifically for export that differ from those intended for domestic consumption. If you want to export, your products must conform to the importers' rules. The suggestion that the UK could substantially increase its exports, while adopting unique sets of rules that will not be shared by our trading partners, is entirely illusory. And not just for food, but for all traded goods and services. If the UK has to choose between conforming to EU standards or those of the USA or the WTO, the best option is to remain aligned with those of the EU.

If, after Brexit, the UK allows the import of hormone-produced beef, domestic producers will demand a 'level playing field' and they too will use the hormones to cut their costs. Those changes in policy would represent a marked shift for the UK towards increased agricultural intensification, which would conflict with the UK's commitment to the UN's Sustainable Development Goals[10], which require changes in an entirely different direction.

The US Government, and representatives of the US beef industry, have been arguing energetically for many years that Europe's ban on imports of hormone-produced beef is misguided and should be abolished.[11] There are some voices in Parliament who want the ban on hormone-produced beef to be abolished after Brexit. They portray that change politically as a way to lower the cost of mass-market beef in the UK, not necessarily so that people can eat more beef, but rather to keep food costs low and therefore wage costs 'competitive'. It is also important to acknowledge that beef consumption should be kept low for both environmental and public health reasons. The UK needs to eat more fruit and vegetables not more beef.

This Briefing concludes that vigilance by UK consumers, health and food bodies will be needed to prevent any weakening of UK standards post-Brexit and to stop hormone use, and more generally to prevent food standards being bartered away in exchange for future trade deals.

We recommend:

- After Brexit, the UK Government should ensure either that food standards remain fully aligned with EU standards, or that we adopt higher standards. Food standards should not be weakened, especially not sacrificed to facilitate trade in undesirable and/or unsafe products.
- The UK consumer movement should strongly resist moves to weaken current levels of consumer protection as part of future trade deals.
- UK food and farming industries should publicly commit themselves to producing and selling only beef from cattle never treated with synthetic hormones.
- The retail industry (supermarket chains, independent stores and butchers) should advise their members, customers and MPs to tell the UK Government that they will not sell synthetic hormone-reared beef.
- The UK Government should explicitly acknowledge that any weakening of UK food standards, such as permitting the sale of hormone-reared beef, will result in barriers to UK food companies wishing to export their products to the EU's Single Market.
- UK NGOs, researchers and public health professionals should maintain a vigilant watch on hormones policy and practice in the UK and EU, and other countries with which the UK trades, taking particular note of new scientific or policy signals emerging from official bodies and the 'national competent authorities'.

Why synthetic hormone use in beef production matters

In May 2016 the UK voted to leave the EU. There was then no UK Government Post-Brexit Food Plan. There was still no Food Plan when the Article 50 procedure was invoked in 2017. That is still the situation at the time of publication. There has been far too little public discussion of the implications of Brexit for food security, food standards, public health or the environment. Since May 2016, some of the implications have started to emerge, and the risks from, for example, delays at the Channel ports and empty supermarket shelves, as well as chlorine-washed chicken, have been debated.[12] [13] The UK's Food Standards Agency has been regrettably weakened by budget cuts since 2010, and if the FSA is to take full responsibility for the many functions that have been dealt with at an EU level while the UK has been an EU Member State, it will need significant increases in its budget, personnel, capabilities and legal powers; a fact that sadly no minister has yet been willing to acknowledge.[14]

The UK is a few months away from Brexit without clarity about food safety, food standards and the protection of public and environmental health. We welcome the verbal promises made by ministers that food standards will be maintained after Brexit but challenge the Government to show how, without the infrastructure to research or police those standards, those promises could be kept.

A case in point concerns the possible introduction, after Brexit, of beef from cattle treated with synthetic hormone implants. Currently such beef is banned by EU legislation, but is deemed acceptable and widely consumed in, for example, the USA and Australia. This matters because the EU's policy on beef hormones is grounded in a robust scientific assessment, which the US and Australian authorities have unwisely chosen to ignore.[15] Both the USA and Australia have indicated that, if the UK wants a free-trade deal with them after Brexit, the UK will have to accept imports of their hormone-produced beef.[16] [17]

All mammals, including humans and cattle, have natural hormones circulating in their bodies, but in the USA almost all beef cattle receive hormone supplements as fat-soluble pellets implanted under the skin. The six hormones administered to beef cattle in the USA (but prohibited in the EU) are 17β-oestradiol, progesterone, testosterone, zeranol, trenbolone acetate and melengestrol acetate.[18] [19] These supplementary synthetic hormones are used in high-intensity beef production systems, where treated cattle gain weight faster for a given amount of food, so they reach their slaughter weight at slightly lower cost. One commentator estimated in 2012 that their use increases productivity by between 5% and 20%.[20]

The use of synthetic hormones occurs most frequently in the USA in so-called 'feedlot systems', where cattle are confined in large sheds or crowded outdoor 'lots' for around six months during which they are rapidly fattened on grain-based diets to slaughter weight. Those animals never graze; food is delivered to them. Key animal welfare problems associated with feedlots include muddy conditions, poor cattle handling and heat stress.[21] Grain-based diets can lead to serious digestive and other health problems for cattle.[22] Those systems are far less common in the UK and EU than they are in, for example, the USA and Australia.

In negotiations that are already being mooted with the USA, for example, the UK would lack the policy 'clout' it currently has as a member of the EU. Beef hormone use, like other products and practices that are not permitted in the EU, could become a test case for whether UK Government assurances of maintaining high food standards will in practice be delivered after Brexit. The UK could easily become a 'US rule taker' rather than a 'UK rule maker'.

Extent of the use of synthetic hormones

The use of hormone supplements in livestock has not been confined to beef cattle. In the USA, and several other jurisdictions, farmers are allowed to inject their dairy cows with a synthetic hormone known as bovine somatotropin, which stimulates lactation, so the cows' milk yields rise, for a given amount of feed.[23] In other species such as pigs, chemicals such as ractopamine are administered as growth promoters, though they are not hormones but so-called beta agonists.[24] Poultry can also be treated with some supplementary antibiotics, for a non-therapeutic purpose, i.e. as growth promoters. None of those practices is lawful in the EU.

Official estimates of hormone use are regrettably sparse. UK consumers need up-to-date information on their use; the UN Food and Agriculture Organisation data sets are unfortunately very out-of-date.[25] The FAO has, however, in various publications acknowledged problems with hormone use. In 2013, for instance, it reported that "...animal wastes, antibiotics and hormones..." from industrial farms around urban centres were "...major sources of pollution..."[26]

Although, in the minds of UK consumers, the use of synthetic hormones is particularly associated with US beef, they are used in other types of livestock and in other countries too.[27] Hormones of some kind are also permitted in Canada, Mexico and Australia.[28] At least some hormones, such as oestrogen-based hormones, are banned in Uruguay, Brazil and Argentina but suspicions have been voiced of illegal use in several countries.[29] In Brazil, hormone use is not permitted but an Irish study found evidence of illegal use in 2007.[30] In 2017, Russia banned imported Brazilian beef after illegal hormones were found.[31] In Australia in 2011, it was reported that 40% of beef was reared using hormones, but not cattle intended for export to the EU.[32] New Zealand, which formally permits growth hormones, reports negligible use, with only 0.0001% of beef cattle being treated.[33] In Uruguay, most cattle are pasture fed and use of hormones is banned.[34]

The EU has been sufficiently concerned about the possible use of hormones in some countries seeking to export beef to the EU for it to designate special production units on particular farms to prevent the import of unauthorised beef and beef products from countries where the use of hormones is lawful.[35]

The Codex Alimentarius Commission (or Codex for short) is a large intergovernmental body consisting of the Member States of the UN Food & Agriculture Organisation and the World Health Organisation; it was established in 1961. Since 1994, the World Trade Organisation has designated Codex standards to be the minimum baseline standards for internationally traded food products. WTO rules allow all Codex Member States to prohibit the import of foodstuffs that fail to comply with Codex standards. Codex standards cover issues such as safety, toxicity, labelling, contaminants, food additives, veterinary medicines and pesticides. In 1995, Codex accepted the use of three hormones in beef production.[36] Given that the EU had agreed to ban the use of hormones in 1988, the policy stage was set for a battle in the late 1990s about who sets food standards.[37] In numerous respects, EU standards are substantially higher than Codex standards. If the UK leaves the EU with the aspiration of becoming an individual member of the WTO, under a no-deal Brexit, it will just become a Codex rule-taker; which implies an abrupt deterioration of food standards in the UK.

The risks from hormone-treated beef

Senior US officials and politicians have indicated that if the UK wants a free trade deal with the USA after Brexit, the UK will have to accept for sale in the UK any and all foodstuffs deemed acceptable

by the US authorities, despite the fact that many of them are not deemed to be acceptably safe in the EU.[38] Australian politicians and beef traders are advancing similar arguments.[39] Senior US authorities have threatened the UK, saying that if it wants any sort of free trade deal with the USA, post-Brexit, all US food and products must be included.[40] [41]

The use of hormone treatments in beef cattle as growth promoters has been officially sanctioned in the USA for over 60 years. As the US Food and Drug Administration (FDA) website explains:

"Since the 1950s, the…FDA has approved a number of steroid hormone drugs for use in beef cattle and sheep, including natural estrogen, progesterone, testosterone, and their synthetic versions. These drugs increase the animals' growth rate and the efficiency by which they convert the feed they eat into meat…These steroid hormone drugs are typically formulated as pellets or 'implants' that are placed under the skin on the back side of the animal's ear. The implants dissolve slowly under the skin and do not require removal." [42]

The US authorities have long argued that since the FDA has deemed beef from hormone-treated cattle to be acceptably safe, that settles the scientific issue; all other countries should therefore fall in line with US policy. This Briefing argues that the US assessment has been focussed too narrowly – only on average healthy adults, which effectively excludes other significant population groups – and explains how, by widening the scope of its assessments, the EU showed that hormone-treated beef does not meet the requirements of EU food safety legislation.

Beef from hormone-treated cattle has been banned in the EU (and its forerunners) since the mid-1980s, and that prohibition therefore currently applies in the UK. Both the USA and Australia have repeatedly complained about the EU's policies on beef hormones,[43] [44] [45] as well as about other, less controversial but not less important, EU food safety standards.

The central contentions of this briefing are firstly that the EU's ban on hormone-treated beef is based on a sound scientific rationale, and secondly that the legitimacy of EU's policy has been recognised by the World Trade Organisation and by previous US administrations. The UK Government should therefore refuse to be bullied into agreeing a trade deal with any country that would require reductions in UK food safety standards. If, post-Brexit, the UK Government was to allow food safety standards to fall, merely to help some other sectors to increase their trade, they would rightly be showered with derision by large parts of the electorate, and would risk raising long-term costs to the NHS for dealing with the resulting deterioration in public health.

The evolution of the scientific and policy debates since 1980

The lessons of the beef hormones saga can best be appreciated by tracing the evolution of the scientific and policy debates about the commercial use of beef hormones. When, in the 1980s, the EEC first imposed a ban on the importation of supplementary-hormone-treated beef, its grounds for doing so were scientifically weak. Over time, the scientific grounds for the EU's position have strengthened, while the basis for the US position has weakened. That hormone-treated beef remains lawful in the USA is in part a reflection of the relative weakness of the US consumer movement, and the power that agri-business corporations exercise over US food and agricultural policies.[46]

The US Government, in the form of the Department of Agriculture and the Food & Drug Administration, has provided risk assessments of meat from hormone-treated cattle and deemed it acceptably safe. Nonetheless, the European Commission continued to prohibit the importation or sale of hormone-treated beef. Having failed to persuade Europe to accept imports of US beef, in the 1990s the USA initiated a trade dispute on this topic at the World Trade Organisation (WTO).

In 1997, a WTO Dispute Panel found against

the Europeans, and the WTO's Appellate Body subsequently confirmed most aspects of that Panel's judgement.[47] The US Government then exercised its right to impose financial penalties, at the rate of some $160 million a year, on selected European imports, saying the revenue would be used to compensate US beef farmers for their lost sales.

The WTO Dispute Panel's 1997 ruling was interpreted by some as implying that non-EU countries could compel the EU to accept their food and agricultural products, even if the European Commission was not convinced that those products were acceptably safe. The implications of the WTO Dispute Panel's judgement, and of the Appellate Body, were in fact more subtle.[48]

The Dispute Panel did not assert that the EU had no scientific evidence of risk, nor did the panel assert that meat produced using those hormones was unproblematically safe. The Dispute Panel concluded, however, that the EU had not properly followed rules concerning the requirements for, and conduct of, an appropriate science-based risk assessment.

While the EU had some evidential grounds for its concerns about the safety of the hormones permitted by the USA, those data had not been obtained from studies of the consequences of consuming beef containing residues of supplementary growth hormones. They came instead from studies of the direct medical use of some of the hormones in pharmaceutical products and treatments. The WTO Dispute Panel judged that those data were not sufficiently relevant to the alleged risk, from eating meat, which the European measure was designed to control.

As the Appellate Board said, the evidence:

> "... constitute[s] general studies which do indeed show the existence of a general risk of cancer; but they do not focus on and do not address the particular kind of risk here at stake – the carcinogenic or genotoxic potential of the residues of those hormones found in meat derived from cattle to which the hormones had been administered for growth promotion purposes ... Those general studies are, in other words, relevant but do not appear to be sufficiently specific to the case at hand." [49]

In other words, the scientific evidence, which was then being used by the Europeans to justify their measure, was too indirect.

The US Government's defence of hormone-produced beef has long been based on an assumption that, since the hormones in question are chemically similar to the animals' naturally occurring hormones, and since hormone residues in meat from cattle produced using supplementary hormone are similar to those found in traditionally produced meat, their use poses no significant hazard. Moreover, the US Government has argued that the use of growth-promoting hormones grew noticeably after the early 1970s, while no adverse trends could be discerned from the US domestic public health epidemiological data.

EU officials recognised that a fresh risk assessment would be required, or perhaps several risk assessments: one focussing on possible adverse effects on the health of the treated cattle and another on possible adverse effects on human consumers of hormone-treated beef. Officials also eventually realised that the US public health assessments were narrowly focussed only on the possible risks to average healthy adults from eating hormone-treated beef, but not to other groups of consumers.

The European Commission responded by asking its expert advisors to assess the risks to diverse groups of European consumers from eating hormone-produced beef. The Commission explicitly extended the scope of the requested scientific risk assessments to cover not just average healthy adults but other potentially more vulnerable groups, as not all Europeans are

average, healthy or adults. The Commission also requested advice concerning the possible eco-toxicological effects of the residual hormones excreted by treated cattle, which had never been officially considered a relevant issue in the USA, though it had also not previously been on the European agenda. That issue arose, however, in the aftermath of the publication of a paper showing that adult male sperm counts in Europe had fallen by 50% over the proceeding 50 years.[50]

An important respect in which the scope of European risk assessments was widened was by asking the experts on the Scientific Committee on Veterinary Measures Relating to Public Health (SCVMPH) to assess the possible risks, not only to average adult consumers, but also to groups including pregnant women, pre-pubescent children and those who are immunologically compromised. There is nothing in WTO rules or case law to prevent the EU, or any member jurisdiction, from modifying the scope of its consideration of risks to include aspects that had not previously been included.

In April 1999 the European Commission's SCVMPH issued a report, which concluded that there was some evidence that several of the hormones used in the USA, and other jurisdictions, may pose a risk to the health of vulnerable groups, and for the others there was insufficient evidence to be confident that they were acceptably safe.[51]

The SCVMPH said in 1999:

> "In the case of 17β oestradiol there is a substantial body of recent evidence suggesting that it has to be considered as a complete carcinogen, as it exerts both tumour initiating and tumour promoting effects. The data available does not allow a quantitative estimate of the risk.
> For the other 5 hormones, in spite of the individual toxicological and epidemiological data described in the report, the current state of knowledge does not allow a quantitative estimate of the risk.
> For all six hormones endocrine, developmental, immunological, neurobiological, immunotoxic, genotoxic and carcinogenic effects could be envisaged. Of the various susceptible risk groups, prepubertal children is the group of greatest concern. Again the available data do not enable a quantitative estimate of the risk. In view of the intrinsic properties of the hormones and in consideration of epidemiological findings, no threshold levels can be defined for any of the 6 substances."[52]

On the basis of that fresh risk assessment, the European Commission returned to the WTO Dispute Panel, and successfully persuaded it that the EU's ban on those hormones and on meat produced using those compounds, was fully compliant with the rules of the WTO. Since then, the EU has ceased to pay compensation to the USA. The WTO reached that conclusion despite the fact that the expert advisory committee to the Codex had previously deemed the contested hormones to be acceptably safe, if residues are below specified maximum levels.[53] Importantly none of the Codex evaluations published after the SCVMP reported in April 1999 have referred to the SCVMP or its analysis.

The EU-US dispute was finally resolved by a 2009 Memorandum of Understanding between the USA and the EU.[54] Under that agreement the EU is able to retain its ban on hormone-treated beef in exchange for providing substantial tariff-free market access for US hormone-free beef. The UK will probably need to make a similar arrangement with the USA, after Brexit, if it wants to prevent the import of hormone-treated beef.

Implications and the issue of labelling

The EU has lawfully sustained its ban on beef hormones because it chose to ask a significantly different set of questions about the risks they posed than was addressed by the US authorities. Given that those wider questions, and the answers to them, are as relevant to UK consumers as they

are to consumers in the EU's other 27 Member States, the UK regulations should, after Brexit, remain fully in line with those in the EU. Another crucial point is that while the disputed hormones continue to be used in the US beef industry, US labelling regulations do not include any provision for US shoppers to know what hormone supplements, if any, have been used to produce the beef that is on US supermarkets' shelves. The US authorities do not just want the UK to accept US beef after Brexit, they want it to be accepted and sold unlabelled. Currently UK consumers can be confident that all the beef offered for sale in the UK, and the rest of the EU too, has been produced without the use of supplementary growth hormones. If hormone-treated beef were to reach British retailers, and if it were to be labelled in exactly the same way as any other beef, then consumers would have no way of knowing whether the beef they were choosing was hormone-free. Moreover, UK producers who did not use the hormones would be unable to signal to consumers that their beef was raised without those hormones.

Conclusions

This Briefing has shown that there are good grounds for public concern about use of synthetic hormones in beef production. The EU's ban is based on a sound scientific rationale. After Brexit, the UK should maintain the ban on hormone use as growth promotors in beef production. Data on worldwide use need to be updated to provide an accurate picture of what is being used and where, and where those products are traded.

Evidence suggests that British consumers want higher standards of food safety after Brexit; they most certainly don't want them lowered.[55] [56] It therefore seems likely that if unlabelled hormone-treated beef became available in the UK, demand for beef would fall sharply.

The British Government would be making a foolish mistake if, post-Brexit, it were to compromise this or other aspects of EU food safety standards. UK consumers would not forgive such a government, and such a decision would also incur the wrath of the UK's main supermarket companies and a large proportion of UK beef farmers, whose livelihoods would be undermined by imports of low-cost, poor-quality meat. The supermarkets don't want to stock food products that their customers don't want to buy.

But pressure to let hormone-produced beef into the UK is already accumulating. It is likely to build up further, not least on the grounds of cost-savings. And the UK is in a weakened position. It is losing all the benefits it has gained from the EU's scientific and institutional infrastructure and the political 'clout' to resist powerful agri-business interests and their governmental supporters. Despite the rhetoric that a post-Brexit UK will be 'free' to trade with all and anyone on its own terms, it will in fact become a relatively small market player. The UK could easily become a 'rule taker' rather than a 'rule maker'. The choice will be whether to take the EU rules, those of the USA or of the WTO.

UK consumers need to make their voices heard on this now, before their current protections are eroded.

Our recommendations are given at the start of this Briefing.

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