Achieving more sustainable British beef and sheep food systems in a changing environment

AUTHORS

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RESEARCH BRIEF 2

Exploring opportunities and risks of the Animal Health and Welfare Pathway (AHWP)

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SERIES INCLUDES

Research Brief 1 – Transparency in the beef and sheep meat food systems enables agency and fairness
Research Brief 3 – Exploring opportunities and risks of the Environmental Land Management schemes (ELMs)

KEY FINDINGS

1. Improvement is needed in the monitoring of animal health and welfare in the beef and sheep food systems.

2. Johne's disease and lameness were found to be the most concerning diseases among farmers in beef cattle, while in sheep it was footrot and neonatal lamb disease.

3. Perception of concerning health conditions appears to overlap partially with the most reported on-farm issues; lameness, mastitis and endoparasites in sheep and lameness, mastitis and pneumonia in cattle.

4. Although health is important, when farmers were asked to rank this along with other issues that negatively affected their farm, subsidies and consumer perception scored higher reflecting their importance.

5. Published research on animal health focuses on specific diseases in isolation, notably mastitis, lameness and BVD, with less attention to the total disease burden.

6. Oxytetracycline is the most reported antibiotic and used across a range of diseases. In general, data on antimicrobial and anthelmintic use and resistance in the beef and sheep sectors is inadequate for the purpose of national surveillance.

7. There are concerns about importing cheaper beef and lamb from countries with lower production and welfare standards.

8. Overall, beef and sheep sector stakeholders are positive about the Animal Health and Welfare Pathway (AHWP) elements and goals, but critical of the amount of funding available.

An unprecedented set of challenges now confronts livestock food systems in Britain. With household budgets being squeezed, producers, processors, retailers and wholesalers are under increasing pressure to maintain the affordability of their products despite rising input costs. At the same time, the need to achieve and demonstrate high standards in environmental sustainability, animal health and welfare, and nutritional quality only adds to the difficulties. Meanwhile, uncertainties over potential future trading, legal, and political arrangements following the UK's departure from the EU represent a yet further layer of complexity.

A research project focused on beef and sheep production and marketing systems in Great Britain jointly led by the University of Hertfordshire and the Royal Veterinary College, has been looking at how the sector might maintain and improve its economic, social and environmental sustainability in the face of these multiple challenges. A key issue being explored are the implications of the UK government's recently launched Animal Health and Welfare Pathway (AHWP): specifically, will it actually lead to measurable improvements and what might be possible downsides for the beef and sheep sector?

01 About our project

Achieving more sustainable British beef and sheep food systems in a changing environment is a four-year project funded by the Cadogan Charity and jointly led by the University of Hertfordshire and the Royal Veterinary College. The work investigates how ruminant production and marketing systems in Great Britain can maximise quality food production and economic viability, while promoting sustainable land use and management, including environmental and antimicrobial stewardship. The **overall aim** is to identify public policies and private sector strategies to support the provision of reasonably priced beef and sheep products that are profitable, equitable and sustainable across the food value chain, in the post-Brexit agricultural and food policy context.

Adopting an interdisciplinary, multi-method approach, including literature reviews, modelling, value chain analyses, surveys and case studies, the project explored a wide range of topics, from farm-level decision-making, livestock production capacity and the use of antimicrobials and anthelmintics, to consumer preferences and government policy.

Three important interconnecting themes emerged during the research, each influencing the economic, social and environmental sustainability of the beef and sheep meat sector:

1. Transparency and agency
2. The Animal Health and Welfare Pathway (AHWP)
3. The Environmental Land Management schemes (ELMs)

In this research briefing, we discuss our work on the implications of the AHWP, and how negative impacts might be minimised.

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ACHIEVING MORE SUSTAINABLE BRITISH BEEF AND SHEEP FOOD SYSTEMS IN A CHANGING ENVIRONMENT

The following activities were conducted to explore how beef and sheep meat production and marketing can maximise quality food production and economic viability, while promoting sustainable land use and management including environmental and antimicrobial stewardship:

Literature reviews

Overview of production systems, metrics and disease impacts

Grassland modelling

Beef cattle and sheep production capacity on existing grassland

Case studies

Animal health management and farm-level decision making; antimicrobial and anthelmintic surveillance

Policy and governance

Analysis of existing and upcoming policies and governance mechanisms

Value chain analysis

Beef and sheep meat value chains

Surveys

Consumer perceptions and preferences

RVC Royal Veterinary College University of London

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02

What are the issues with the Animal Health and Welfare Pathway?

The AHWP is a long-term plan to improve the health and welfare of livestock by redirecting public funds previously allocated to Direct Payments to reward farmers who produce healthier, higher

welfare animals. The Pathway has been developed through co-design with sector stakeholders and offers eligible farmers[1]:

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- **annual visits from a vet to review the health and welfare of their animals leading to an agreed plan of action.**
- **capital grants to deliver health and welfare priorities.**
- **financial support to prevent and reduce selected endemic diseases and conditions.**
- **and, potentially from 2024/25 'payment-by-results' to reward farmers who demonstrate higher welfare practices.**

The AHWP aims to stimulate market demand for higher welfare products. The AHWP, part of a broader post-Brexit shift in UK agricultural policy towards the paradigm of 'paying farmers public money for public goods', is also intended to benefit farm productivity, food security, public health, UK trade and the environment. This market demand can be supported through other interventions, such as labelling and mandatory public disclosure, to improve accessibility, availability and affordability of such products for consumers, and encourage their procurement by retailers.

While efforts to improve animal health and welfare are welcome, important questions remain. For instance, which animal diseases and conditions should be seen as priorities to tackle in terms of their impact? Will the funding provided through the AHWP be sufficient to drive measurable improvements? How would labelling work in practice given insufficient transparency in the food system and poor levels of understanding among the general public?[2] And to what extent does the AHWP complement or conflict with the Environment Land Management schemes (ELMs), which are themselves a feature of the current agricultural transition policy?[3]

A key goal of the research was therefore to consider the implications of the Pathway for the beef and sheep meat food systems, and how negative impacts might be minimised.

03 What did we do?

To better understand the implications of the AHWP for the British beef and sheep meat value chain, we conducted systematic literature reviews on the economic impact of endemic disease, and on antimicrobial and anthelmintic use (AMHU) and resistance (AMHR). These were complemented with a survey on beef and sheep health and farm management and reviewing surveys on the perceived impact of diseases and syndromes on farms.

We also reviewed documents on the policy development of the Pathway, and interviewed stakeholders involved in it; the latter included farmers, vets, government officials, animal welfare scientists and external policy advisors, as well as representatives of the pharmaceutical, livestock and farming industries. We used these findings to suggest pathways to change for discussion in a

[1] https://www.gov.uk/government/publications/animal-health-and-welfare-pathway/animal-health-and-welfare-pathway
[2] *See Research Brief 1: Transparency in the beef and sheep meat food systems enables agency and fairness.*
[3] *See Research Brief 3: Exploring opportunities and risks of the Environmental Land Management schemes (ELMs)*

stakeholder workshop with representatives from the Animal Health and Welfare Board, National Farmers Union, National Beef Association, Pasture for Life, Sustainable Control of Parasites in Sheep, British Cattle Veterinary Association, British Meat Packers Association, Euro Quality Lambs, MSD Pharmaceuticals, Ruminant Health and Welfare Group, Animal and Horticulture Development Board, and beef and sheep farmers. Their reflections are summarised below (Section 05).

04 What did we find?

Overall, beef and sheep sector stakeholders are positive about AHWP's elements and goals, but critical of the amount of funding available.

Interviewees agreed that annual vet visits are likely to improve the health and welfare of their animals, but question whether the amount of money offered is worth applying for. Similarly, capital grants would be helpful to act on the vet's recommendations, but the money might be better spent on medical investigations. Stakeholders welcomed BVD as a priority for the beef sector, but some were unhappy that Defra set anthelmintic efficiency as a sheep priority. It was felt that the proposed payment-by-results scheme should reward farmers' efforts, in addition to achieved results (Figure 1).

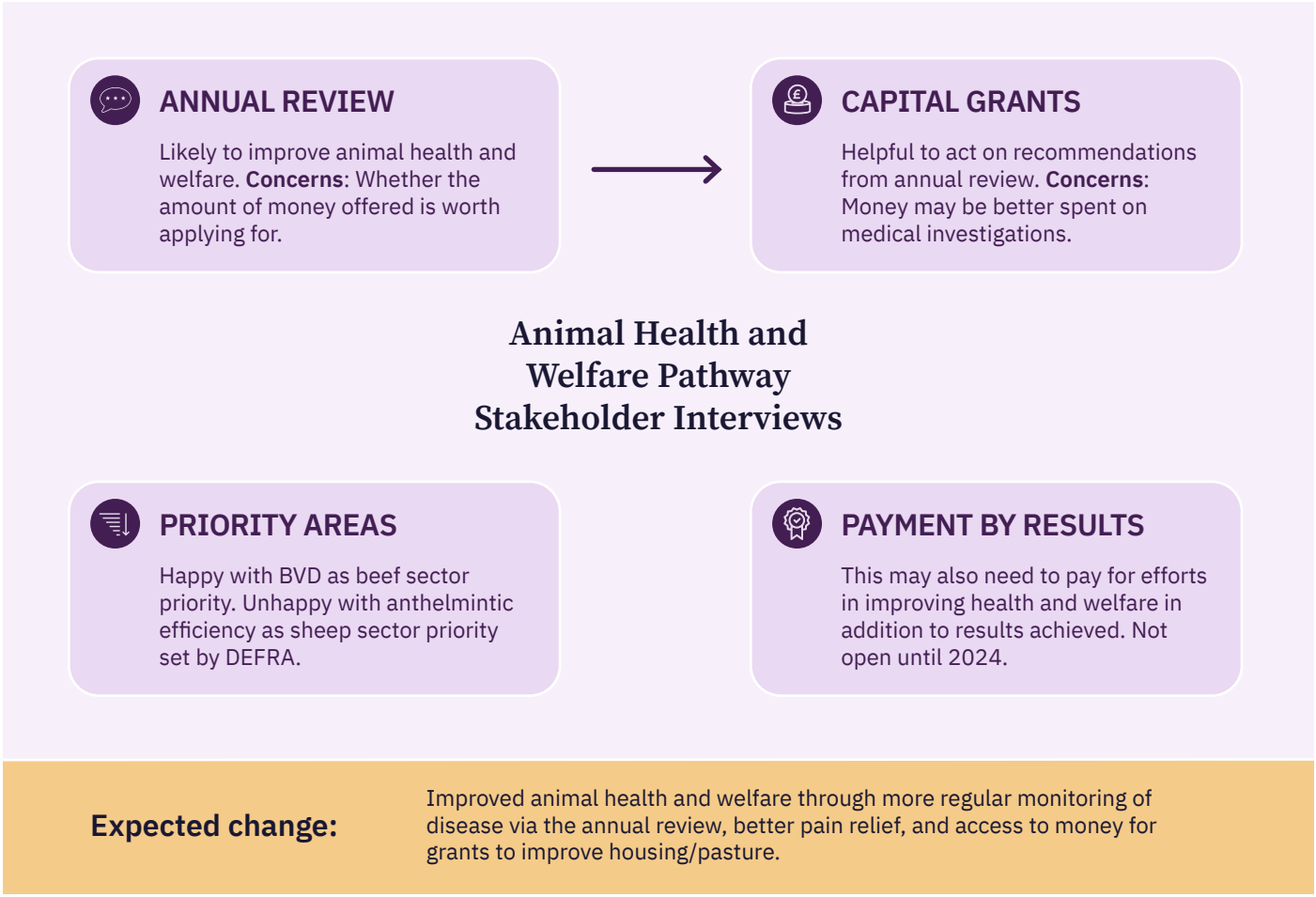

Figure 1: Stakeholder opinion on elements of the AHWP

Monitoring of animal health and welfare in beef and sheep food systems needs improvement.

With no regular data monitoring, the sector's understanding of the impact of diseases on animal health, welfare and productivity is based mostly on perceptions.

Most concerning diseases and syndromes are Johne's disease and lameness in beef cattle and footrot and neonatal lamb disease in sheep.

According to a survey of sheep and cattle farmers, agricultural consultants and veterinarians, conducted by the Ruminant Health and Welfare Group (RHAWG) and the Agriculture and Horticulture Development Board (AHDB), Johne's disease is the top ranked disease of concern to the cattle sector, while lameness is both the top ranked syndrome of concern and perceived to have the highest impact on animal welfare. For sheep farmers, footrot is both the top ranked disease of concern and has the highest perceived impact on animal welfare, while neonatal lamb diseases are the top ranked syndromes of concern (Figure 2).

	Top ranked **diseases** of concern	Top ranked **syndromes** of concern	Highest perceived **impact** on animal welfare
CATTLE	Johne's disease	Lameness	Lameness
	Viral pneumonia	Neonatal or calf disease	Neonatal or calf disease
	Liver fluke	Reproductive failure	Digital dermititis
SHEEP	Footrot	Neonatal lamb disease	Footrot
	Fly strike	Viral pneumonia	Contagious ovine digital dermitiitis
	Liver fluke	Anthelmintic resistance	Fly strike

Figure 2:The top three ranked diseases and syndromes, and the top three perceived to have the highest impact on animal welfare. Survey by RHAWG and AHDB

For some farmers, animal health appears less important in terms of negative farm impacts than subsidies and consumer perception.

A survey of British beef (n=24) and sheep (n = 42) farmers carried out by the Royal Veterinary College and University of Hertfordshire found that while animal health is important, subsidies and consumer perception are ranked higher when considering negative impacts on farm. Lameness, mastitis and pneumonia in cattle and lameness, mastitis and ectoparasites in sheep were the most frequently mentioned by respondents as diseases present on their farm.

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Published research on animal health and welfare focuses on specific diseases in isolation, notably mastitis, lameness and BVD, with less attention to the total disease burden.

Mastitis and lameness in dairy cattle, Bovine Viral Diarrhoea (BVD) in beef cattle and ectoparasites in sheep are the diseases mentioned most in the scientific literature over the last 37 years. Studies tend to focus on direct producer impacts and disease interactions, but often overlook the total disease burden. This risks overestimating the impact of single diseases. Moreover, the management of multiple diseases simultaneously could generate co-benefits.

Oxytetracycline is the most reported antibiotic and used across a range of diseases. In general, data on antimicrobial and anthelmintic use and resistance in the beef and sheep sectors is inadequate for the purpose of national surveillance.

A baseline is needed to monitor improvements arising from the new AHWP, but appropriate data on antimicrobial and anthelmintic use and resistance is scarce, especially in the sheep sector. There is a reliance on sales data (e.g., for antimicrobial use), which is of insufficient quality and compatibility for use in surveillance.

There are concerns about importing cheaper beef and lamb from countries with lower production and welfare standards.

For instance, in Australia, mulesing, where the skin around the tail and back legs of sheep is removed to prevent flystrike, is carried out on about 20 million Merino lambs annually, while in beef production hormone growth promotors are used in about 40% of heifers and steers.

05

What issues emerged at our final stakeholder workshop?

KEY FINDINGS FROM THE WORKSHOP

- The AHWP is good in theory, but its implementation must be convenient and cost-effective for farmers.
- Trust and transparency in the process is important.
- Annual visits from a vet are welcome, but vets may need more training and encouragement to engage in the sheep sector.
- Capital grants are appreciated but may inflate equipment prices.
- The priority areas identified in the Pathway are generally acceptable, although the focus on anthelmintics use in sheep is problematic.
- A shift away from a focus on specific pathogens and disease to a more holistic view of animal health and welfare is needed, for example bringing in the importance of nutrition.
- Payment-by-results will have a significant beneficial impact on beef welfare, although the details are still to be finalised.
- ELMs and the AHWP are too disconnected, with no mention of livestock in the ELMs policy and lost opportunities for synergies and trade-offs.

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At a workshop held in London in June 2023, leading stakeholders[4] were invited to comment on and critique our research and the pathways, with discussions guided by the following questions:

1. What do you see as the main factors for success for the AHWP? In other words, what needs to happen for the AHWP to
    a. Be effective?
    b. Avoid negative outcomes and
    c. Thereby produce the expected animal health and welfare improvements.
2. What is the role of your organisation in supporting the successful implementation?
3. What are your experiences with the different elements of the AHWP so far (annual review, capital grant scheme); what has worked well / not well and what are areas for improvement?
4. What is your view on the priority areas and how these were identified?
5. How should Payment by Results be measured and rewarded, if at all?

The following critical issues and reflections emerged during the discussion:

Implementation of AHWP must be cost-effective for farmers.

Livestock producers value good animal health and welfare, and workshop participants felt the design of the AHWP was feasible and sensible in theory, although implementation may prove a challenge if unforeseen problems emerge. Farmers' participation will depend on the scheme's accessibility, convenience and value-for-money, especially as producers generally believe they are already doing a good job. Workshop stakeholders stressed the importance of upfront financial rewards, noting that under the current arrangements farmers are expected to make investments and then claim back outlays further down the line, which could prove a barrier. It was also pointed out that many farmers operate joint beef and sheep enterprises but since funding is currently available for one animal species only, they are forced to choose.

Trust and transparency in the process is important.

Workshop participants agree that the new Pathway has been – and continues to be - genuinely co-designed, with all stakeholders inputting on every aspect, contrasting it favourably with the centrally imposed ELMs policy. But farmers may still be nervous about their data being collected in the AHWP and how it might be used.

[4] Workshop participants included representatives from Defra (Department for Environment, Food and Rural Affairs), farmers, NFU, SCOPS, processors, pharmaceutical industry, animal health and welfare groups.

Annual visits from a vet are welcome, but vets may need more training and encouragement to engage in the sheep sector.

Workshop attendees noted, where a vet is familiar with a farm the review is easier to do. Although it is reported that beef farmers, who see a vet less often compared to dairy, are particularly keen to have the vet on farm through this scheme. The fact that farmers will benefit from bespoke rather than standard veterinary plans is also welcome in theory. There is, however, a feeling that vets themselves may need more support, training and guidance in order for the AHWP to be successful, particularly in the sheep sector which is relatively neglected by veterinary practice. Valuable training resources for vets are already available but according to some sheep farmers, not enough vets use them. For instance, flock health checklists exist and can serve as a good starting point for conversations with the vet. Workshop participants discussed how to encourage more vets to work with large animals, given that small animal practitioners earn more and enjoy a better work-life balance. An alternative may be to open the scheme to sheep consultants as well as vets, although there is also a shortage of sheep consultants.

Capital grants are appreciated but may inflate equipment prices.

Stakeholders reported that while the government grants are a great idea on paper, the announcement of a new grant can lead to a rush of orders, prompting suppliers of equipment such as handling systems to respond with increased prices, which in turn reduces the benefit to farmers.

The priority areas identified in the Pathway are generally acceptable, although the focus on anthelmintics use in sheep is problematic.

Workshop participants concurred with the research findings that BVD should indeed be a beef sector priority in the AHWP, noting a plan to ensure the BVD-free status of the British herd in order to comply with European rules, and ongoing legal work to make mandatory the eradication of BVD. They also corroborated the research findings that a focus on tackling anthelmintic resistance in the sheep sector is problematic, reporting that farmers are now required to treat their animals for worms (i.e., to use anthelmintics) in order to get funding for the vet visit. While much of the AHWP has been co-produced with stakeholders, the government took the decision on anthelmintics without industry support. Indeed, an industry stakeholder advised against attempting to measure anthelmintic efficiency, given that it is unclear what 'efficiency' actually means as a proxy for resistance, and what kind of data would need to be collected.

A shift away from a focus on specific diseases to a more holistic view of animal health is needed.

Diseases rarely impact in isolation from one another. Instead, diseases - bovine respiratory disease being a good example - tend to occur when a 'soup of pathogens' act together. Also, because the symptoms of different diseases can appear similar, there is a risk of misdiagnosis leading to animals becoming sicker, while other less visually obvious diseases presenting themselves at the

same time may not be reported at all. Furthermore, too much attention on particular diseases can result in 'smaller' diseases being neglected. The AHWP's focus on specific diseases, also reflected in the literature on livestock disease, is therefore a limitation. An alternative may be to avoid the term 'disease' altogether and instead seek to assess the 'total health burden' on farm animals. This broader, more holistic approach allows for example, the consideration of multiple

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diseases being present on farm, and the impact of nutrition, including the quality of feed, among others. As one stakeholder phrases it, "without good nutrition you haven't got good health at all." A promising way forward may therefore be applying data collected in this project to the methodology developed by the Global Burden of Animal Diseases (GBADs) programme[5] on what a farm with minimal or no disease would look like, i.e., an almost ideal state in terms of health.

Payment-by-results will have a significant beneficial impact on beef welfare.

Workshop participants noted that the current focus of the Pathway's payment-by-results scheme, as it relates to their sectors, is on pain management in cattle following treatments such as beef castration and dis-budding of calves. Farmers will be paid for the 'result' of having a vet administer painkillers. The scheme is expected to benefit a high number of animals but is still being co-designed and how its impact will be measured is unclear. One possibility is for the vet or a veterinary technician to inform Defra once painkillers have been administered (although technicians would need training and permission to carry out the procedure). Progress on payment-by-results for pain management in sheep, which centres on lameness, castration and tail docking, has been paused for now, and poultry has been excluded altogether. A more philosophical discussion was had in the workshop as to why farmers should be paid public money to comply with existing recommendations on animal health and welfare. For some, the decision to focus funding on 'the bottom 25% of farmers' to raise standards overall is akin to rewarding poor rather than good performers, who in any case may still be beyond the Pathway's reach.

[5] https://animalhealthmetrics.org/

ELMs and the AHWP are too disconnected, with no mention of livestock in the ELMs policy and lost opportunities for synergies and trade-offs.

ELMs and the AHWP are being introduced simultaneously and have significant areas of overlap; as it was phrased in the workshop: *"If you reduce disease, it will automatically improve environmental outcomes."* Yet, said workshop participants, the policies appear to have been developed in silos, leading to missed opportunities for synergies. It was also noted that the ELMs policy has no mention of 'livestock' at all. Simplified communication regarding these policies is needed, including perhaps an organogram showing where ELMs sit in relation to the AHWP to help *"join the dots for farmers," and ensure "AHWP and ELMs actions stack up and complement each other."*

06 To conclude

Our research indicates that the new Animal Health and Welfare Pathway represents a positive step, broadly welcomed by the industry and likely to improve the lives of beef and sheep meat animals. Nevertheless, there appears room for improvement in several areas, specifically, the need for a robust nationwide farm-level monitoring system collecting accurate, reliable data both on health and welfare, and on the use of antimicrobials and anthelmintics. This information would be important not only to support the Pathway but also to underpin a new, standardised and well-understood consumer labelling system as discussed in Research Brief 1. Importantly, the Pathway must take a holistic view of animal health and welfare, with more focus on the total health burden on beef and sheep farms than on specific diseases and syndromes. Given that unintended consequences and unforeseen issues will almost certainly emerge as the Pathway is put into practice, any efforts to address these should be informed by continuing close cooperation with stakeholders in the food systems and by good evidence and an awareness of these issues.

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Further information

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https://www.rvc.ac.uk/research/projects/veeph/sustainable-beef-sheep-food-systems