



REPORT

Resilience to animal diseases

Department for Environment, Food & Rural Affairs

Key facts

Hundreds of millions to billions of pounds	6	Very high
the government's estimate, in the National Risk Register, of how much a major animal disease outbreak could cost the UK economy; the 2001 foot and mouth disease outbreak cost an estimated £13.8 billion, in 2023-24 prices	consecutive years that England has had an outbreak of highly pathogenic avian influenza (2020 to 2025)	Department for Environment, Food & Rural Affairs' (Defra's) current assessment of the risk of an outbreak to which it would be unable to respond effectively, a rating of 20 out of a possible 25, which compares to its stated tolerance level of 16 out of 25
7.2 million	number of birds culled because of highly pathogenic avian influenza outbreaks from November 2020 to mid-March 2025	
2017	the most recent year that the Cabinet Office surveyed local authorities about their plans to respond to an animal disease outbreak	
Around 5%	Defra's best estimate for the proportion of live animal imports currently undergoing physical checks; these are being done at final customer destination; the government's target was that 100% of these imports should undergo physical checks at a border control post by late 2024	
£2.8 billion	estimated cost of Defra's programme to redevelop the Weybridge site between 2021-22 and 2036-37; Weybridge is the UK's primary science laboratory capability for managing threats from animal diseases	
Very high	Defra's current assessment of the risk of site failure at Weybridge, the maximum rating of 25 out of 25	
£563 million	estimated whole-life cost of Defra's Livestock Information Transformation Programme, intended to create a new digital livestock tracing system, of which £181 million has been spent up to March 2025	
20%	Animal & Plant Health Agency's (APHA's) vacancy rate for vets in April 2025; the highest rate during 2023-24 was 24% compared with a sector-wide average rate of around 10% that year	

Summary

1 Animal disease outbreaks are a significant threat to England's farming sector, to food security, to human health, to rural communities, to animal keepers and to the economy and trade. They can also have a negative impact on wildlife. Past outbreaks have had significant economic impacts. For example, the major foot and mouth disease outbreak of 2001 cost the public and private sectors an estimated £5.2 billion and £8.6 billion, respectively (in 2023-24 prices). Recent outbreaks of highly pathogenic avian influenza (HPAI) – commonly known as bird flu – have resulted in 7.2 million birds being culled between November 2020 and mid-March 2025.

2 Animal diseases are categorised as exotic (not normally present in the UK, such as foot and mouth disease) or endemic (already present in the UK, such as bovine tuberculosis (TB)). There is broad consensus within government and among experts that factors such as climate change, antimicrobial resistance and changing UK trading patterns are likely to increase the rates of endemic diseases and the frequency and variety of exotic disease outbreaks. The Department for Environment, Food & Rural Affairs (Defra) has reported outbreaks in 16 of the past 20 years. This includes the UK's largest HPAI outbreak to date, in winter 2022-23, and concurrent outbreaks of HPAI and bluetongue virus (BTV), which affects sheep, cattle and other ruminants, in 2024-25. Government and industry are also concerned about other exotic diseases such as African swine fever, which is spreading in parts of Europe, Asia and Africa. The government's 2025 National Risk Register (NRR) includes four exotic animal disease outbreaks that would have significant impacts, including economic impacts ranging from hundreds of millions to billions of pounds.

3 Defra is responsible for providing policy, guidance and funding to maintain and strengthen animal disease resilience (including the ability to anticipate, prevent, prepare for, respond to and recover from an outbreak) in England. The Animal & Plant Health Agency (APHA), an executive agency of Defra, has the lead operational role. Local authorities also have an important role, both in responding to outbreaks and by working with farms, abattoirs, markets and vets to reduce the risk of outbreaks happening. Animal diseases may spread between nations, but their management is a devolved issue in Northern Ireland, Scotland and Wales, although some aspects such as border controls are GB-wide.

4 Managing animal disease risks is important to Defra's wider environmental aims. The Environmental Improvement Plan 2023 sets out the government's plan for the environment and has a top-level objective of "enhancing biosecurity", including protection against animal diseases. Resilience to animal diseases is also a key enabler for other government priorities, as it supports growth, productivity and trade.

Scope of this report

5 This report forms part of our ongoing examination of the nation's resilience to risks in the NRR. It examines whether Defra, working with key public and private bodies, is taking effective action to ensure England is resilient to animal diseases. We have assessed whether:

- Defra has an effective strategic approach to managing animal diseases, both exotic and endemic (Part One);
- Defra, APHA and key public and private bodies are taking appropriate action to prepare for animal disease outbreaks (Part Two);
- Defra and APHA have responded efficiently and effectively to recent exotic disease outbreaks and are well-placed to respond to future outbreaks (Part Three); and
- Defra and APHA are taking effective action to strengthen long-term resilience to animal diseases (Part Four).

6 We do not assess the Cabinet Office's coordination role in managing risks across government, nor do we examine individual local authority plans related to animal disease, or the success of local interventions. We focus on managing disease in the livestock sector but recognise that diseases also affect other kept animals such as pets, and wildlife.

Key findings

The government's strategic approach to managing animal disease risks

7 Defra and APHA have a good understanding of new and emerging risks from animal diseases. Understanding risks is a core principle of resilience. Defra and APHA have robust arrangements in place to gather intelligence on animal disease risks through 'horizon scanning' and international disease monitoring. Despite losing access to some European Union (EU) intelligence since EU exit, the Government Internal Audit Agency (GIAA) reported in 2022 that Defra and APHA were able to effectively identify new and emerging risks from animal diseases. The information they gather is used to inform regular briefings, public surveillance reports as well as the Cabinet Office's risk assessments and published NRR (paragraphs 1.4 to 1.6 and 1.9).

8 Defra has assessed that the risk of an outbreak to which it would be unable to respond effectively is “very high” and above the level it considers tolerable.

Defra assesses risks based on likelihood and impact. In December 2022, following increased frequency and severity of avian influenza outbreaks, Defra escalated the risk that it would be unable to respond effectively to a severe or concurrent animal disease outbreak to its principal risk register. It assessed this risk with a score of 20 out of a possible 25, which falls within its highest risk category. This is above the level that Defra considers tolerable (a target of 16 out of 25, which it increased from 12 out of 25 in 2024) (paragraph 1.7).

9 Defra is not making full use of its understanding of risk to prioritise and allocate resources, and is hampered by a limited understanding of what it spends on animal diseases and what impact this has.

Government guidance highlights the importance of using an assessment of risk and risk tolerance (a ‘risk appetite’ approach) to make informed management decisions, including funding and resource prioritisation. Defra has started looking at risk management across its functions in a more coordinated way since introducing the Defra Group Resilience Strategy in 2024. Defra has also identified some priority investments for the 2025 Spending Review, including on animal diseases. However, Defra is in the early stages of integrating a risk appetite approach into resourcing decisions. Its assessment and escalation of animal disease risks have not resulted in clear prioritised actions to reduce the risk. Defra’s decisions on allocating and prioritising funding for animal disease resilience are also hampered by limited information on what it currently spends on animal health and disease management, and by difficulties in assessing the benefits of this investment (paragraphs 1.11 to 1.13).

10 Defra lacks a long-term strategy and action plan for improving resilience to animal disease.

Increasing resilience to animal disease is a core objective of the UK’s Biological Security Strategy and supports the government’s 2023 Environmental Improvement Plan. However, Defra lacks an up-to-date overarching strategy and action plan for animal disease resilience which would bring its ambitions and activities together under a coherent vision and set of objectives. We found that many of Defra and APHA’s animal disease activities are reactive, rather than part of a proactive, coherent plan. By contrast, the government has up-to-date strategies for plant diseases and antimicrobial resistance (paragraphs 1.14 to 1.16).

Preparing for outbreaks

11 Defra and APHA have generic contingency plans for outbreaks that set clear roles and responsibilities, but there are significant gaps in their plans. The plans cover exotic and endemic zoonotic diseases (zoonotic diseases being those that can infect humans), and Defra has a legal obligation to update the exotic disease plan annually. Defra has also developed disease-specific strategies for controlling individual animal diseases but has not updated them to reflect lessons from recent outbreaks. For example, it has not updated its foot and mouth disease strategy since 2011. Local authorities are required to prepare plans for outbreak response at a local level; however, central government has limited oversight of these plans, and the Cabinet Office has not surveyed local authorities about their plans since 2017. In 2023, APHA found that current contingency plans do not cover how the government would respond to concurrent large exotic disease outbreaks, while a review by GIAA identified gaps in planning for a scenario where capacity is insufficient to respond as planned or may be quickly overwhelmed. Defra also has lead responsibility for recovery following an animal disease outbreak but told us it does not have the expertise or local intelligence to undertake some recovery activities (paragraphs 2.2, 2.3, 2.5 and 2.6).

12 Defra and APHA are not testing the adequacy of their plans effectively. Defra and APHA periodically test their contingency plans through exercises. However, the capacity to conduct and learn lessons from exercises has reduced as they respond to increasingly frequent outbreaks. For example, exercises are increasingly 'table-tops' rather than live-play scenarios that would better simulate a real outbreak, with some exercises not involving contractors or field participants (paragraph 2.4).

13 Key surveillance activities that help detect exotic disease incursions early are under pressure. Defra and APHA told us about the importance of 'eyes and ears on the ground' to identify infections quickly and stop their spread. While APHA has its Surveillance Intelligence Unit to collate available data and identify patterns and trends, some other key activities have reduced or are not taking place as planned. Examples include regional public sector laboratory testing, APHA inspections, and border checks. APHA told us that outdated data reporting systems limit its capacity to carry out surveillance. Despite clear responsibilities in contingency plans, Defra and APHA also told us there is a mixed picture at local level in how well local authorities are discharging their duties, most often because animal diseases are competing with other priorities and statutory responsibilities where there is limited capacity and financial resource (paragraphs 2.8 to 2.10).

The government's response during recent outbreaks

14 Defra and APHA have worked hard to manage recent medium-severity outbreaks of exotic diseases but do not have clear metrics to monitor how well they are coping. There has been an outbreak of HPAI in England in six consecutive years from 2020 to 2025. The UK is currently experiencing outbreaks of HPAI and BTV, affecting birds and ruminants, respectively. Our focus group with poultry farmers illustrated the significant impact the outbreaks had on their businesses and their physical and mental health. A range of stakeholders we interviewed praised the hard work and dedication of staff within Defra and APHA during these outbreaks. APHA tracks some metrics during outbreaks but does not have a comprehensive set of thresholds or benchmarks to determine how well it is coping and how close it is to not coping. We have seen evidence that APHA is learning lessons from the outbreaks and implementing changes to improve its approach (paragraphs 3.2 to 3.4 and Figure 5).

15 Defra and APHA would struggle to manage a more severe outbreak or concurrent serious outbreaks of exotic disease. Defra and APHA have repeatedly reported that they would struggle to respond effectively to severe or concurrent serious outbreaks of animal diseases. Their response would be limited by a lack of capacity (both in government and the private sector) and lack of skills and expertise in some areas, such as veterinary capacity for livestock. APHA's latest vet vacancy rate, in April 2025, was 20%. The highest rate reached during 2023-24 was 24%, compared with a sector-wide average rate of around 10% that year. Recent outbreaks have highlighted the government's reliance on external contractors to fill these gaps, but this approach has not always been effective. In 2023, the Cabinet Office assessed Defra's ability to respond to outbreaks of exotic disease as 'amber', defined as falling short of being able to respond with minimal disruption (paragraphs 3.6 to 3.7).

16 Defra and APHA need to do more to improve their systems, processes and workforce planning to enable a more efficient and effective response. APHA relies on some outdated and inefficient data collection and management processes during an outbreak. For example, its field teams complete paper-based forms, which are then manually added to a database, meaning additional work and delays to having the latest data. There is also scope to improve workforce planning, including surge capacity planning to enable a more rapid response. APHA has not deployed its new resource planning system consistently across the organisation and does not have a holistic view of staff deployments. We have seen some examples of APHA innovating to improve the efficiency and effectiveness of its response during an outbreak, such as sequencing techniques for tracking bovine TB and salmonella. But larger-scale changes that could have a transformative impact on APHA's operations, such as digital transformation, require a more strategic and focused approach. APHA aims for its Delivering Sustainable Futures programme to modernise and digitise its key processes to make them more efficient. APHA has made slower progress than planned due to continuing outbreaks. The programme's funding beyond 2025-26 is not yet confirmed (paragraphs 3.8 and 3.9).

17 Defra's major programme to redevelop the Weybridge site is on track, but the risk of site outage remains very high. Weybridge is the UK's primary science laboratory capability for managing threats from animal diseases. The site is in poor condition, with ageing buildings that need major repair and replacement, and a lack of capacity to carry out research and testing. Defra began a major programme to redevelop the site in 2017. Defra's central cost estimate for the programme is £2.8 billion between 2021-22 and 2036-37. We reported in June 2022 that Defra was acting to reduce cost and uncertainty and to learn lessons from other programmes. The Infrastructure and Projects Authority reviewed the programme in August 2024 and found it is now on track. However, the programme will not deliver the main new laboratory facilities at Weybridge for another 10 years. In June 2024, Defra increased its assessment of the risk of site failure to the highest rating (25 out of a possible 25, up from 20), and Defra's Outbreak Readiness Board lowered its rating for the site's capability to respond to a medium-severity outbreak. Contingency plans for a significant failure at Weybridge are limited due to the uniqueness of the site. Defra has a separate Critical Works Programme that aims to keep the site running as best it can, but this has faced problems, including a planned replacement incinerator that was cancelled because the supplier could not deliver the incinerator to the required specifications (paragraphs 3.10 to 3.13).

18 Defra and APHA lack a comprehensive livestock movement tracing system. Tracing animal movements quickly once an infection is detected is crucial to responding quickly and effectively to contain an outbreak. Current systems are fragmented, with different platforms for different species and in each of the devolved nations in the UK. Some also run on outdated legacy systems, such as the Cattle Tracing System which was set up in 1998 and has significant reliability issues. Defra's Livestock Information Transformation Programme is intended to deliver an upgraded, multi-species digital tracing system, but has suffered from delays and cost increases as the scope of the programme has changed substantially from the original Livestock Information Programme. The estimated whole-life cost of the programme is now £563 million. Defra currently rates deliverability as 'amber-red' due to increased costs and funding constraints, and it has fallen behind the timescales planned in its 2023 outline business case. Defra had spent £181 million on the programme up to March 2025 (paragraphs 3.14 to 3.16).

Strengthening resilience to animal disease over the longer term

19 Defra and APHA have introduced a range of initiatives and new approaches to strengthen resilience to animal disease. These include the following.

- Launching the Animal Health and Welfare Pathway in 2023, which provides funding to support continual improvement in animal health on farms.

- Supporting research and innovation to improve the tools available to detect and respond to disease incursion. Recent examples include a new test that significantly reduces the time to confirm bovine TB infection, and whole-house gassing of poultry on infected premises, which speeds up culling after disease is confirmed.
- Taking forward the bovine TB Eradication Programme, which launched in 2011. Defra has updated this Programme over time, including a set of new measures in 2021, and aims to eradicate bovine TB in cattle by 2038 (paragraphs 4.2 and Figure 8).

20 Defra does not have a long-term strategic approach to address the lack of availability of animal vaccines. Animal vaccination is an effective way to reduce disease and maintain animal health and welfare. Limited availability of animal vaccines is a global issue. Defra's Veterinary Medicines Directorate (VMD) manages short-term supply issues with animal vaccines in the UK. It told us the situation has become more acute in the last two years, in part due to structural market issues and limited incentives on the private sector to produce animal vaccines. While decisions on what vaccines to produce and supply are largely determined by the commercial considerations of manufacturers, VMD has convened two discussions with stakeholders to better understand the key issues. VMD told us that, given the structural issues, there now needs to be a long-term strategy to ensure animal vaccine availability (paragraphs 4.8 to 4.10).

21 The government's current failure to meet targets for checks on live animal and animal product imports, and a possible growth in illegally imported animal products, are significant threats to biosecurity at the border. Following EU exit, the government introduced its Border Target Operating Model (BTOM), a risk-based border control system for commercial imports from both the EU and the rest of the world. The level of checks at border control posts (BCPs), set out in the BTOM, have not been met by the target dates. For example, the government chose to delay changes to physical checks on live animals, which are still being carried out under the pre-EU exit regime. Defra's best estimate is that around 5% of animals are being checked, all at the final customer import destination, compared with the target of 100% at BCPs by late 2024. Defra does not know the level of checks currently being undertaken on imported animal products at BCPs. Uncertainty during negotiations of a new sanitary and phytosanitary agreement with the EU, announced on 19 May 2025, has added further delays. Illegally imported animal products intended for commercial use are entering England via commercial routes and under the guise of 'personal imports', which do not pass through BCPs. These pose a significant and potentially growing threat for introducing exotic animal diseases such as African swine fever or foot and mouth disease, particularly at Dover where there is a high volume of imports (paragraphs 4.11 to 4.13).

22 Defra and APHA are struggling to balance responding to increasingly frequent outbreaks with activities to strengthen long-term resilience. Defra and APHA's approach to managing disease outbreaks is through a 'surge capacity' resourcing model, where staff switch priority from business-as-usual activities to outbreak response. While APHA has had some increased resource for outbreak response, this has not included veterinary or technical staff, and its business-as-usual activities have been affected by almost continual outbreaks since the end of 2020. APHA's performance against its corporate key performance indicators has deteriorated, and it has deprioritised some business-as-usual activities. This has meant reduced capacity in Defra and APHA to undertake important work such as animal welfare inspections and enforcement; bovine TB disease follow-ups; disease surveillance activities; staff training; updating contingency plans; and simplifying the legislative framework covering animal diseases. Defra and APHA recognise that current resourcing models may need to be reviewed, including considering how responsibility and costs are shared between government and industry (paragraphs 4.3 to 4.7).

Conclusion on value for money

23 Managing animal diseases and the risks they pose is complex and involves different parts of the public and private sectors. Defra and APHA have led good work to assess these risks, identify new threats, and introduce new initiatives to strengthen long-term resilience, such as the Animal Health and Welfare Pathway. However, the context is changing, and their operating model is unlikely to be fit for purpose; outbreaks are more frequent, and livestock may become more vulnerable to disease due to factors such as climate change and antimicrobial resistance. APHA and the wider system – including local authorities, farms and vets – have coped with medium-sized outbreaks in the past six years, but their ability to respond to severe or more serious concurrent outbreaks has not been tested. APHA has struggled to balance being in almost constant outbreak mode with managing endemic diseases and putting sufficient priority towards building future resilience.

24 There is a clear need for Defra to take a more strategic approach to animal diseases. Without a focused strategy and action plan for how diseases should be managed, Defra, APHA and others lack a shared vision of what resilience looks like now and in the future and how this will be achieved, and have been unable to prioritise resources and investment to maximise value for money. With the current capacity constraints in government and key sectors, Defra and APHA need to make the most of opportunities to innovate and make their work more efficient and effective, speeding up their ability to respond and freeing resource to focus on other priorities that will help improve resilience.

Recommendations

25 Defra should, over the next year:

- a** fully integrate its understanding and assessment of risk into its process for prioritising and allocating resources across the Defra group; for animal disease resilience funding, it should support this by:
 - improving its management information to give a more complete picture of what it spends on animal disease resilience; and
 - ensuring a consistent approach across the Defra group for estimating the benefits of animal disease resilience investment;
- b** support APHA to improve its systems and processes in ways that will ensure more efficient and effective responses to outbreaks; this could include providing ongoing support for APHA's Delivering Sustainable Future programme; and
- c** work with the Veterinary Medicines Directorate to identify barriers to animal vaccine availability and develop a plan to address these barriers to ensure availability over the long-term.

26 Defra and APHA should, over the next 18 months:

- d** develop a coherent, time-bound strategy and plan that sets out how they will ensure resilience to animal disease within the context of increasing risk from factors such as climate change and antimicrobial resistance; this should specify outcomes for animal disease resilience to support the effective implementation, management and scrutiny of its various commitments in this area; it should include:
 - endemic and exotic diseases to ensure an integrated approach and effective use of available resources;
 - how APHA's resourcing model will evolve to cope with more frequent outbreaks;
 - how digital transformation will improve efficiency and effectiveness, particularly within APHA;
 - investigating alternative models of sharing responsibility and cost between government and industry; and
 - dedicated resource to develop this strategy that is not diverted to disease outbreak response;
- e** work with stakeholders in the veterinary sector to develop a workforce strategy that addresses the challenges currently facing the veterinary workforce, particularly in government but also considering the private sector;

- f** update their approach to conducting exercises to test their contingency plans so that they fully examine all aspects of the plans, including resources available 'on the ground'; and fully capture and implement lessons learned; and
 - g** ensure their disease outbreak plans are comprehensive and up-to-date, including updating disease-specific plans where required, ensuring plans cover responding to concurrent large exotic disease outbreaks and a scenario where capacity is insufficient, and developing a contingency plan for an exotic zoonotic disease outbreak.
- 27** On border controls, and taking account of the new sanitary and phytosanitary (SPS) agreement with the EU, Defra should, as a matter of urgency:
- h** review whether current SPS controls are providing effective biosecurity at our borders;
 - i** collate and publish regular data on volumes of SPS imports and checks for animal products in each category of risk; and
 - j** work with Border Force and Port Health Authorities to ensure there are robust checks on illegally imported animal products coming through ports, both through personal and commercial import routes; this should include particular consideration of goods arriving via both these routes at Dover, due to the volume of traffic there.