



National Audit Office

**DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS**

# The health of livestock and honeybees in England

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# SUMMARY

**1** The 2001 Foot and Mouth epidemic cost an estimated £8 billion and demonstrated the impact animal disease can have if it is not brought quickly under control. The most serious diseases affecting farm animals can threaten human health, harm animal welfare, disrupt international trade, and lead to adverse economic, social and environmental impacts. There are currently 34 notifiable exotic diseases, listed in Appendix 1, which, together with the risk of new diseases arising, threaten kept animals. In 2007 there were two separate outbreaks of Avian Influenza which affected poultry, an outbreak of Foot and Mouth Disease which affected cattle, sheep, goats and pigs, and an incursion of Bluetongue that infected cattle and sheep.

**2** This report focuses on dealing with those notifiable endemic and exotic diseases that affect farm animals. There are some 119,000 livestock farms in England, with around five million cattle, 16 million sheep, four million pigs and 128 million poultry. Endemic diseases are those always present amongst domestic animals or wildlife and include, for example, Bovine Tuberculosis and Scrapie; exotic diseases such as Avian Influenza or Foot and Mouth Disease are not always present.



**3** There are also an estimated 250,000 colonies of honeybees in England and Wales, and beekeepers have reported unusually high losses in recent years. Honeybees are affected by diseases, such as Foulbrood, and parasites, such as Varroa. Varroa is now endemic in the United Kingdom, and can make bee colonies more vulnerable to disease. There are reports that a new threat, Colony Collapse Disorder, is affecting honeybees in the United States of America, although there is currently no clear evidence to suggest that it is occurring in the United Kingdom. Large-scale honeybee losses could adversely affect the pollination of strawberries, apples, pears and other crops, which is estimated to be worth around £200 million a year. Our examination therefore includes the health of kept honeybees.

**4** The Department for Environment, Food and Rural Affairs (the Department) has overall government responsibility for the development and implementation of Government policies for protecting farm animals and bees in England from notifiable diseases. It works in partnership with central and local government bodies and with farmers, beekeepers and livestock keepers. The lead delivery body for farm animals is Animal Health, an executive agency of the Department, which operates across Great Britain in conjunction with the Department, the Scottish Government and the Welsh Assembly Government. Local authorities have a statutory role and share responsibility for enforcing animal health and welfare legislation with the Department and Animal Health. The Department spent £381 million on animal health and welfare in 2007-08, of which £107 million was grant in aid to Animal Health for its work in England, Scotland and Wales. Local authorities, as a whole, spend a limited amount of money on animal health and welfare, supplemented by some £8.5 million direct funding from the Department. The National Bee Unit, which is part of the Central Science Laboratory, oversees the health of honeybees in England and Wales. It received £1.3 million funding in 2007-08 from the Department and a further £0.3 million from the Welsh Assembly Government under a separate Memorandum of Understanding.

## Managing exotic diseases

**5** The outbreaks of Foot and Mouth Disease and Avian Influenza in 2007 were controlled effectively in that the diseases were contained to a limited number of farms. Dr Iain Anderson carried out an independent review of the 2007 Foot and Mouth Disease outbreak, following his earlier report on the 2001 outbreak, and concluded that 'the overall response in handling the outbreak was good. Many of the lessons identified in the 2002 Report had been acted upon and performance, taken as a whole, was much improved'. The Department and Animal

Health successfully managed three concurrent disease outbreaks at the end of 2007. Nevertheless, veterinarians and industry representatives expressed concern that larger or more frequent incidents of notifiable exotic diseases would prove a more severe challenge to the Department's and Animal Health's ability to respond so effectively. The Department has not explicitly modelled the likely threat of different diseases occurring at the same time. Larger outbreaks would also divert substantial resources from work to deal with other diseases. As it was, in 2007-08, Animal Health reallocated £17 million of resources from controlling endemic diseases and preventive work in response to the demands of managing exotic disease outbreaks, such as Foot and Mouth Disease, Avian Influenza and Bluetongue. The Department is considering the extent of contingency it will need to build in to its resourcing plans in future.

## Endemic pests and diseases

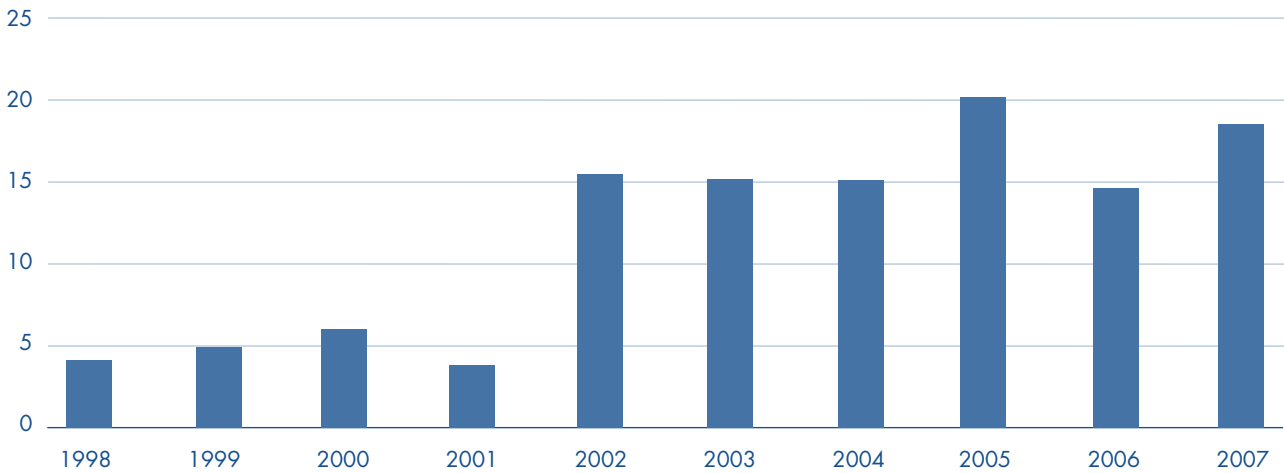
**6** Salmonella in poultry, which could otherwise pose a severe threat to human health, has been successfully controlled through initiatives by the Department and industry alike. Likewise, Scrapie in sheep has been managed down through a comprehensive control programme, and confirmed cases of Bovine Spongiform Encephalopathy (BSE) in cattle in Great Britain have fallen from 36,682 in 1992 to just 33 cases in 2008.

**7** There was a temporary reduction in testing for Bovine Tuberculosis during 2001, while resources were diverted to dealing with the Foot and Mouth Disease epidemic. When testing resumed there was a sharp increase in the number of cattle slaughtered because they tested positive for Bovine Tuberculosis in England (see [Figure 1 overleaf](#)). Since then Bovine Tuberculosis has continued to persist at a high level, with at least 2,500 new incidents each year rising to 3,183 in 2007. In 2007-08, controlling Bovine Tuberculosis across the whole of Great Britain absorbed £39.4 million, or 39 per cent, of Animal Health's total annual expenditure.

**8** Bovine Tuberculosis is a challenging disease to control, partly because there is an established reservoir of disease among cattle and among wild animals, particularly badgers, which may come into contact with cattle. In November 2008, the Department established a Bovine Tuberculosis Eradication Group for England, to work with the industry to review existing control measures and develop plans for the eventual eradication of the disease in England. The enhanced involvement of farmers in developing measures to tackle the disease should prove beneficial. Attempts to control the spread of Varroa in honeybees have not prevented it from becoming endemic in England.

## 1 The number of cattle in England slaughtered after testing positive for Bovine Tuberculosis

Number of cattle slaughtered (000)



Source: National Audit Office analysis of Departmental data

## Managing disease risk

**9** Lead responsibility for the prevention and control of statutorily notifiable diseases affecting farm animals continues to rest with the Department working with livestock keepers and veterinarians, and there are a large number of delivery bodies involved. The Department is in the process of transferring more delivery responsibilities to Animal Health. The current division of responsibilities blurs the distinction between policy and delivery, such that Animal Health does not yet have a clear responsibility for working proactively with the farming industry to minimise the risk of notifiable disease.

**10** The British Egg Industry Council's Lion Code scheme, designed to reduce the incidence of Salmonella in eggs for human consumption, shows that industry-based and government-endorsed solutions can be effective in controlling disease. Salmonella, primarily presents a risk to public health, since it rarely causes disease in poultry. Scheme members must comply with strict bio-security and management standards along with sampling requirements to prevent Salmonella to achieve Lion Code accreditation. The results of annual surveillance for zoonotic diseases (those diseases which can transfer from vertebrates to humans) which are reported to the European Commission, show that the incidence of Salmonella food poisoning is continuing to decline.

**11** The National Bee Unit provided around 800 formal training events in 2008 in England, a large proportion in conjunction with local beekeeping associations, to help beekeepers recognise and manage disease. Of those beekeepers we surveyed who attended courses, 97 per cent said the training was valuable and useful. Twenty per cent of the beekeepers we surveyed, however, said they have not looked to the Department for information and advice because they receive information from elsewhere. At a local level, inspectors tend to have contact with local beekeeping associations, such as by contributing to training courses, but there appears to be limited collaboration between the Department and national beekeeping associations.

## Bio-security

**12** Animal Health conducts regular visits to test animals for statutorily notifiable diseases, ensures diseased animals are removed and culled, and investigates welfare complaints. Concurrently, local authorities undertake risk-based inspections to enforce animal movements and welfare legislation, and the Rural Payments Agency carries out visits to confirm farmers' compliance with statutory management standards required to claim European single farm payments. Apart from Animal Health notifying the Rural Payments Agency when Bovine Tuberculosis tests are due, there are no systematic arrangements – either nationally or locally – to harmonise these interventions and take advantage of the presence and expertise of veterinary and enforcement staff to provide a holistic package of advice and support to farmers and livestock owners.

**13** The Department's 'lessons learned' review following the November 2007 outbreak of Avian Influenza in Suffolk found that bio-security risks, including keeping poultry near open water where they were at risk of contact with wild birds, coupled with working practices that increased the risk of transferring the disease between farms, may have contributed to the scale of that outbreak. The most appropriate bio-security measures can vary depending upon the animal species, the disease risk and the nature of the farm, but the Department has no agreed national bio-security standards. The Committee of Public Accounts recommended in its 2005 report that the Department introduce effective deterrents for those farmers who would otherwise fail to meet minimum standards of bio-security, but it has not done so. In the absence of agreed national standards, Animal Health does not carry out bio-security risk assessments.

**14** The Committee of Public Accounts previously recommended that targeting inspections on a risk assessment basis would reduce the risks of a future disease outbreak. The frequency of surveillance testing Animal Health carries out is based on the prevalence of disease in the herd's local area. This surveillance targeting does not take into account the Agency's assessment of bio-security risk factors on a farm by farm basis completed by veterinarians in the course of their visits to carry out Bovine Tuberculosis testing. Whilst Animal Health has not shared these more subjective assessments with farmers, local veterinarians we consulted believe it could have helped them to work with farmers to put stronger preventive measures in place by focusing effort more precisely.

**15** The Department has spent £2.7 million, half the amount originally allocated, on projects to help the farming industry improve farm health planning, in order to reduce the risk of disease spreading in the first place. One important project promoted the value of a documented farm health plan to underpin the other measures taken. The Department has not yet evaluated this initiative, but in 2007 it commissioned a three year research study of 120 beef herds to quantify the costs and benefits of putting in place improved bio-security measures on farms. Many good farms may have been taking similar measures already, but the farmers we interviewed raised doubts over whether this initiative had changed widespread farming practices. There are no explicit financial incentives, for example in compensation payments for removal of diseased animals, to reward high standards of biosecurity.

## Compliance with compulsory inspections and testing

**16** Inspections and compulsory testing are both effective in identifying disease in farm animals. Out of 16 confirmed cases of exotic disease that we examined, 12 were cases of Bluetongue that is often identified by veterinarians during compulsory pre-movement checks. When disease is confirmed it is recorded in the computerised disease control system maintained by Animal Health. We found, however, that in the absence of a confirmed outbreak and when the number of ongoing investigations into suspect disease is low, the Department relies heavily on paper-based systems to record exotic disease notifications. The Department is looking into a project to strengthen its capacity to detect emerging threats early, part of which is a review of disease investigations.

**17** Animal Health had not rigorously enforced routine testing for Bovine Tuberculosis. Out of a sample of 20 farms that we examined in Gloucestershire, 11 farmers had failed to present their animals for testing on time. In each case Animal Health had not enforced compliance with the testing regime, but had placed the herd under a movement restriction, and had not recommended that the Local Authority take any legal action against the farmer. Overall, in cases where disease was confirmed, Animal Health took on average 15 days to remove infected cattle for slaughter, against its target of 20 days; but took longer than 20 days in nine of the 46 cases that we reviewed.

## Honeybee parasites and diseases

**18** The Department spent £1.3 million in 2007-08 on addressing risks to honeybee health in England, and £0.33 million on research into honeybee losses and the potential risk presented by new threats such as Colony Collapse Disorder. Managing such disease risks requires regular surveillance to identify the extent of notifiable disease and for evidence of emerging problems. A key risk arises from an absence of comprehensive inspection and treatment of colonies.

**19** The Department's understanding of the extent of disease among honeybees is limited by the estimated 20,000 beekeepers who are not known to its bee inspectors. Four in every five identified cases of notifiable disease in 2008 were diagnosed by inspectors during either targeted or random inspections. Beekeepers themselves are less likely to notify suspected disease, and unregistered beekeepers notified only 14 out of the total 446 cases of Foulbrood in 2008.

**20** One reason for low levels of notification may be that beekeepers tend to find diagnosing disease difficult. We found that inspectors are particularly valued by registered beekeepers for their ability to recognise disease. Beekeepers who are unknown to the Department are also not included in the National Bee Unit's programme of inspections, with the result that disease in their colonies is unlikely to be diagnosed. The Department is attempting to increase the proportion of beekeepers registered on BeeBase through data cleansing and efforts by inspectors to identify unknown beekeepers.

**21** In January 2009 the Secretary of State announced funding of £2.3 million over the next two years to support the work of the National Bee Unit. This money will be used to identify all those who keep bees and provide advice to beekeepers on tackling pests and applying good husbandry. In addition, the Department announced £2 million funding for bee health and pollinator research over five years, as part of a bee health strategy it is developing and which will also be informed by our conclusions and recommendations.

## Managing the cost of controlling disease risks

**22** The Department is consulting on a scheme to share the responsibility and cost of protecting animal health with farmers. At present its financial information is, however, focused upon reporting within internal management structures and cannot be used readily to calculate accurate figures for the full cost of managing specific farm animal diseases. Establishing costs at this level of detail to inform our examination required substantial manual recalculation.

**23** Animal Health recognises that there is scope for it to achieve greater operational efficiencies, and that its supporting information systems and business processes are in need of modernisation. As part of its Business Reform Programme to modernise its systems and processes, the Agency is taking steps to enhance its budgeting and financial management, particularly by apportioning cost more accurately to specific disease risks. Potential slippage within the original delivery timetable means it is unclear when the projected benefits will be achieved, with the risk that the business may not be able to secure all the projected benefits as quickly as originally planned.

## Conclusion on Value for Money

**24** We have assessed whether the Department, together with its agencies, has contained the spread and impact of diseases among farm animals and honeybees; whether it has used the funds provided by Parliament effectively; and whether it has balanced the costs and benefits of responding to outbreaks of disease against expenditure on preventive measures to minimise the risks of an outbreak.

**25** The Department and Animal Health dealt effectively with the outbreaks of Avian Influenza, Foot and Mouth Disease and Bluetongue in 2007. Animal Health responded promptly, the number of premises affected was relatively small, particularly when compared to the Foot and Mouth Disease outbreak in 2001, and the diseases were contained. On that measure, the estimated £33 million expenditure by Animal Health in 2007-08 on dealing with exotic animal disease outbreaks has represented good value for money when compared with the economic costs that could have been incurred from these diseases becoming more widespread.

**26** Endemic diseases and other domestic threats to farm animals and honeybees have been managed with less success. Progress has been made with the control of diseases such as BSE, Scrapie and Salmonella. Bovine Tuberculosis has, however, continued to spread to more herds, and is now firmly established across the South West of England. Attempts to control Varroa have not prevented it from becoming endemic in England.

**27** The Department has not established specific farm bio-security standards for animal health, and it will take some years to evidence the impact of improved bio-security on disease management. The Department and its delivery bodies have not factored into the existing process for targeting inspections or preventive work the assessments of farm bio-security risks undertaken during site visits for Bovine Tuberculosis testing, or adopted similar assessments for other diseases. Furthermore, the Department does not have sufficiently robust financial or performance information on controlling diseases to assess routinely the costs and benefits of interventions, and to underpin a transparent and equitable cost-sharing scheme.



## Recommendations

**28** On collaborative working and co-operation between government and stakeholders to tackle disease more effectively:

**a** **Although there is a national control programme in place to tackle Bovine Tuberculosis, progress in hot spot areas has been hampered by a lack of local collaboration, planning and risk management.**

While recognising that there are substantial challenges in tackling the disease, the Department and the Agency should determine what more could be done with the tools that are available, including prompt testing and removal of infected animals, and action to reduce risk through bio-security and animal husbandry measures. Animal Health, with the Department's support, should pilot local consultative boards in these hot spot areas to involve local authorities, veterinarians and farmers in a more actively collaborative approach to risk assessment, enforcement and preventive action.

**b** **The Department's effectiveness in safeguarding honeybee health and training beekeepers to diagnose disease has been hampered by incomplete data on the location and health of honeybee colonies and ineffective working relations with some of the relevant industry associations.** The Department will need the active support of beekeepers to implement a strategy for honeybee health, and should build its relationships with beekeeping stakeholders by adopting a more consultative style. The National Bee Unit should pilot local consultation arrangements to encourage beekeepers and inspectors to target resources effectively.

**29** On making preventive measures more effective:

**c** **In the absence of standards and adequate data on farm bio-security, the Department and Animal Health are unable to establish whether poor farm health planning contributes to the likelihood of a disease outbreak.** Animal Health should develop, in consultation with the Department and the farming industry, guidelines and standards appropriate to different livestock sectors to enable Animal Health Officers to assess the risk exposure on each farm.

**d** **Compensation payments to farmers do not take into account the efforts farmers make to prevent disease and apply good standards of bio-security and husbandry.** The Department should, in consultation with the farming industry, incorporate

within compensation schemes, or within the proposed cost and responsibility sharing initiative, incentives for farmers to follow good standards of bio-security and husbandry, and corresponding penalties if reasonable steps to prevent disease have not been taken. These reforms should be integrated into the Department's proposals for responsibility and cost-sharing.

**e** **Without a more accurate and comprehensive register of beekeepers, the practical guidance offered by the National Bee Unit is only available to limited numbers.** Before adopting mandatory measures such as compulsory registration, the National Bee Unit should build on beekeepers' receptiveness to bee inspectors' advice, and:

- adopt throughout England the approach taken in the National Bee Unit's Eastern Region, which it has started replicating in some other regions, to cleanse and update the database of registered beekeepers;
- share information with the relevant associations to improve the BeeBase records, and ask associations to encourage their members to sign up to BeeBase; and
- assess what incentives could be offered to encourage more beekeepers to register, such as better training and advice from experienced bee inspectors.

**f** **The National Bee Unit carries out its own research projects and engages with the wider research community, but it has not given sufficient emphasis to sharing the findings of its research more widely.** The Department has established a Research Funders' Forum with the aim of determining how limited resources can be put to best use and how responsibilities for research could be shared. To help prioritise its research projects, the Department should undertake a gap analysis in collaboration with other potential research partners, and should identify and exploit the potential for collaboration with others, such as Higher Education Institutions and industry. In deciding its research programme, the Department should balance the need for applied research that can offer practical benefits for the bee health programme with the need for strategic research to understand new and emerging risks to honeybee health. This should include projects commissioned from researchers working in fields related to bee health to draw on expertise from other areas.

**30** On ensuring compulsory testing and inspections are carried out:

- g** **The effectiveness of the routine testing regime for Bovine Tuberculosis is undermined by the weakness of existing enforcement arrangements.** Animal Health should, in collaboration with local authorities, determine the levels of enforcement action available and the circumstances in which such steps should consistently be triggered.
  - h** **There is a risk that Bovine Tuberculosis has spread undetected to new farms from farms where disease is detected because of failure to carry out additional tests on neighbouring farms in good time.** Animal Health should introduce, and monitor its performance against, a target for completing testing of contiguous farms where it has determined that such tests are required.
  - i** **Beekeepers in the National Bee Unit's Northern and Southern regions are less likely to be visited by inspectors than those in the South East.** The work of inspectors is critical to detecting disease and spreading best practice among beekeepers. The Department should evaluate what capacity is needed to enable the National Bee Unit to provide a sufficient level of inspection and advice to beekeepers nationally to prevent disease occurring and reduce the risk of disease spreading.
- 31** On managing and prioritising resources:
- j** **The Department is unable to readily measure the full cost of different interventions to protect animal health.** From the start of 2009-10, the Department should track funding streams and apportion direct and indirect costs to each disease control programme regularly. Understanding the full costs of managing specific disease risks, combined with an assessment of the likelihood and impact of different diseases, would better inform the Department's budgeting.