

<p>Title : Updated policies to control pests and diseases of honey bees</p> <p>Lead department or agency : Defra</p> <p>Other departments or agencies: Welsh Government</p>	<p>DRAFT PRELIMINARY IMPACT ASSESSMENT (IA)</p> <p>Date: December 2012</p> <p>Stage: Development of options</p> <p>Source of intervention: Domestic</p> <p>Contact for enquiries: Richard Watkins, Defra</p>
<p>Summary : interventions and options</p>	
<p>Cost of preferred option</p> <p>Defra and Welsh Government (WG) currently contribute £ 2.24m (Defra £1.8m and WG £0.44m) per year to current programmes on controlling pests and diseases of honey bees. The preferred option will be carried out using existing resources and is therefore cost neutral. The total economic benefit (i.e., reduction in economic losses by beekeepers and improved pollination of crops) over 10 years from adopting the updated policies in the preferred option (instead of current policies) would be around £68m.</p>	
<p>What is the problem under consideration? Why is government intervention necessary?</p> <p>Honey bees are vulnerable to serious pests and diseases already present in the UK and to potential threats from pests and diseases not yet present. Effective control of honey bee pests and diseases is important towards achieving a sustainable and healthy population of honey bees for pollination and honey production and hence contributing to the government's food security and biodiversity objectives. The value of insect pollination to crop production is estimated at £430m (UK National Ecosystem Assessment); estimates of honey bees contribution to this total are thought to be around half, although not fully understood.</p> <p>Regulations have been in place since the 1940s to control the spread and impact of serious pests and diseases of honey bees. Policies and associated legislation focus on beekeepers notifying suspect cases of disease to government, powers for authorised persons (bee inspectors) to destroy or treat infected honey bee colonies and movement restrictions. The beekeeping sector mainly comprises hobby beekeepers and as such does not (currently) have the capacity to adequately address threats to honey bee health either individually or collectively (market failure), hence the need for government intervention. Most beekeepers are either hobbyists or micro-businesses.</p> <p>Updated policies have been developed (the preferred option) from a policy review which followed from Defra's response to the NAO's 2008/09 investigation of bee health. The NAO challenged Defra's effectiveness in safeguarding honey bee health due to incomplete data on the location and health of colonies. In response, Defra provided additional funding in 2009/10 and 2010/11 to the National Bee Unit (NBU) to improve our understanding of disease burdens, with the intention of using this updated data to develop a new national bee health programme. Based on this new survey data which were available from the NBU in late 2011/12 and other available evidence, Fera's Bee Health Policy Team led the review of pest and disease control policy and implementation on behalf of Defra and Welsh Government.</p>	

What are the policy objectives and the intended effects?

To achieve a sustainable and healthy population of honey bees for pollination and honey production and hence contribute to the government's food security and biodiversity objectives. In particular to improve our resilience to serious exotic bee pests and diseases and to limit the spread and impact of serious pests and diseases already present.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Three options have been considered :

1. Refine and build on the current policies with a renewed commitment to collective action by Government, beekeepers and beekeeping associations.
2. Maintain current policies with no changes.
3. Revise the current programme to do the minimum required by the EU legislation.

Option 1 is the preferred option. It sets the future direction for our response to honey bee pest and disease risks around five themes, including better regulation approaches:

1. A renewed commitment to collective action by government, beekeepers and beekeeping associations to manage and reduce serious pest and disease risks and colony losses;
2. Enabling beekeepers and improving their self-reliance to manage pest and disease risks;
3. Tackling the causes of problems, not just symptoms;
4. Formalising and extending better regulation approaches for the surveillance and control of notifiable diseases, specifically by recognising and rewarding good practice by commercial beekeepers, by reducing surveillance burdens, which the NBU already has in place for some of these beekeepers; and,
5. Broadening the government's role to cover other pests and diseases particularly a renewed commitment to improving beekeepers' management of the *Varroa* mite, which is widely acknowledged by beekeeping experts and stakeholders as the principal challenge facing beekeeping in the UK and a significant cause of colony losses.

Option 1 would be achieved without the need for additional resources. The total economic benefit (ie, reduction in economic losses by beekeepers and improved pollination of crops) over 10 years from adopting the updated policies in the preferred option would be around £68m. This is the estimated difference between losses from 'maintain current policies' and preferred option losses.

We have not undertaken a similar analysis for option 3 – do minimum required by EU legislation. Strictly adhering to the EU minimum obligations as the basis of the government's programme would lead to significant increases in colony losses and associated costs to beekeepers and pollination. This approach would not be supported by beekeepers. It would also increase the risk of not detecting exotic pests hence increasing the potential for future colony losses. A programme based on the minimum EU requirements would not be a desirable or realistic due to the considerable downsides in terms of losses and beekeepers' opposition. Hence it does not warrant, and we have not undertaken a cost-benefit analysis.

Analysis and evidence

A preliminary impact assessment has been carried out using evidence that emerged from the disease control policy review. The review group developed a prioritisation tool which projected the likely prevalence and impact of endemic and exotic disease on bee colonies in England and Wales in a single year (2020). The review group considered three policy scenarios of (i) no change to current policy; (ii) do minimum option envisaging limiting current programme activities to basic levels of activities necessary to meet EU legal requirements; and (iii) preferred option intended to update current policies including a renewed focus on Varroa (non-statutory) which is the main cause of colony losses.

Average figures for the prevalence and impact of each pest and disease were used to develop a baseline (no change scenario) and project the impact of the preferred policy option in 10 year horizon (2012-22), using the data from the prioritisation tool. In order to calculate the prevalence and impact of the pest or disease in the 10 year horizon, we have developed a set of assumptions on likely progression of different endemic and exotic disease in time.

From this analysis the total economic benefit (ie, reduction in economic loss) over 10 years from adopting the preferred option would be around £68m (difference between 'no change' losses and preferred option losses).

Assumptions:

'Baseline – no change' in policies scenario

1. Current policy, which places emphasis on statutory controls of notifiable disease, is likely to maintain the current low levels of AFB (and EFB), and would have no significant effect on endemic disease in the future - i.e. no reduction or change in impacts/losses over 10 year horizon ('baseline- no change' scenario impacts for all 10 years).
2. Assumes that three exotic species arrive between now and 2022, but in different years. From the introduction year, the prevalence of a new exotic disease/pests is likely to increase in the first 2-4 years from low levels on arrival to the levels projected in the baseline prioritisation exercise (2020) when 2 of the 3 exotics plateau; the 3rd exotic – A Hornet - continues to increase in 2021 and 2022 (mirrors situation in France). The impact of the exotic pests remains static as per the 2020 baseline prioritisation exercise projection.
3. The impact of a disease/pest is not significantly influenced by other diseases and pests. Therefore, it assumed that the impact of one disease is independent of other disease that may occur concomitantly.

'Preferred option' scenario

4. Prevalence for endemics is same as baseline (reflecting the prioritisation exercise outputs) except for EFB and AFB which suggests an increase (due to uncertainties about how effectively the preferred option will lead to maintaining EFB and AFB at current levels and possibility that levels could increase if the

preferred option is not successful). Suggesting 2% for EFB and 0.6% for AFB by 2020, starting to increase from 2018 and to fall off again by 2022 due to reprioritisation by the NBU.

5. The impacts from the endemics assumes preferred option changes are phased in during the 10 year horizon – i.e., losses are reduced over this period (except for AFB). Figures used show transition from baseline outcomes to achieve prioritisation outcomes by 2020 and sustained after then.
6. (as for baseline) Prevalence for exotics increases from low levels on arrival to levels projected in the preferred option prioritisation exercise (2020) when all 3 plateau. Impacts for exotics assumed preferred option prioritisation outcomes for all years following arrival, reflecting improved resilience for exotics (eg, early detection and availability of management methods) from the preferred option being in place by the time any of the 3 exotics arrive.
7. The impact of a disease/pest is not significantly influenced by other diseases and pests. Therefore, it assumed that the impact of one disease is independent of other disease that may occur concomitantly.

Options

1. Option - Baseline/no change

The option for no change to current policy is used as a baseline. Under the baseline, given the relatively low prevalence of EFB and AFB (eg, EFB at 0.34 % of inspected colonies in 2011), further reductions in prevalence and impact of the disease are unlikely. Varroa is likely to remain the main cause of colony losses given the high prevalence (99% in 2011) and continuing poor management by beekeepers. As a result of this ‘no change to policies or implementation’, the impact of pests and diseases is likely to remain static over the time horizon considered.

2. Option - Do minimum required to meet EU obligations

This would effectively put an end to much of the government’s honey bee health programme which is largely based on voluntary measures for which there are no legal requirements at EU level. For example, EFB would be de-regulated and the NBU’s voluntary surveillance programme would cease. However, government would continue with some elements of the current programme eg, notifying the Commission if we were to detect SHB and/or *Tropilaelaps* in honey bees/colonies in the UK and implementing EU safeguard measures on SHB.

Strictly adhering to the EU minimum obligations as the basis of the government’s programme would lead to significant increases in colony losses from EFB, AFB and Varroa, and associated costs to beekeepers and pollination. This approach would not be supported by stakeholders. It would also increase the risk of not detecting exotic pests hence increasing the potential for future colony losses. Whilst it has been useful to consider the minimum EU requirements, it would not be a desirable or realistic basis for the programme due to the considerable

downsides in terms of losses and stakeholders' opposition. Hence it does not warrant, and we have not undertaken a cost-benefit analysis.

3. Option – Preferred/recommended policy

This option refines and builds on current policies with a renewed commitment to collective action by government, beekeepers and beekeeping associations to manage and reduce serious pest and disease risks and colony losses. It envisages different approaches to managing EFB, including tackling the causes (recurrent outbreaks) and if appropriate rewarding good practice (by reducing inspection burdens). It also seeks to increase training and education of beekeepers to improve their skills and ability to better manage Varroa to reduce colony losses. The training and education is also expected to improve skills and awareness of all other diseases, including notifiable and exotic diseases and pests. Key feature of this policy option is that it improves self-reliance and the resilience of beekeeping community to improve management of disease already present in England and Wales and prevent establishment of new exotic disease and pests. It is expected to build on the ongoing Healthy Bee Plan, Phase 2 which enhances synergies between official inspections by NBU and training and education delivered by beekeepers' associations.

Table 1 summarises the results of the preliminary assessment of the impact policy options considered. Option 1 (maintain existing policy) results in total loss of economic benefits from healthy honeybees. This due to the fact that Varroa damage to bee colony will continue, whilst much of the government's effort will be absorbed by inspections of notifiable diseases of EFB and AFB which currently have a low incident and as such have relatively smaller impact on colonies. Option 3 (preferred option) results in a net economic benefit (i.e. reduction in honey production and pollination service) of approximately £68m over 10 years and a benefit-cost ratio of 3.28.

Table 1: Discounted costs and benefits over 10 years and at 3.5% (£million)

Option	Discounted programme costs¹	Discounted economic loss due to disease	NPV of savings due to option 3	Benefit cost ratio
Option 1 - baseline	20.79	373.54	-	-
Option 2 – do minimum to meet EU requirements	We did not analyse this option as strictly adhering to the EU minimum obligations as the basis of the government's programme would lead to significant increases in colony losses from EFB, AFB and Varroa, and associated costs to beekeepers and pollination			
Option 3 – preferred option	20.79	305.21	68.33	3.28

¹ We assume the annual programme spending of £2.24m remains constant throughout the 10 years. Option 1 is a baseline.