THE SWEET TRUTH

Honey Imports

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If you were to gather all the honey produced by all the beekeepers in England, Northern Ireland, Scotland and Wales in a year, you could fill 230 petrol tankers with your 7000 tonne foraging trip. Sounds impressive? Well, our best efforts as beekeepers do little to satisfy the sweet tooth of the UK population.

After consuming the home crop, the great British public are still peckish and go on to consume a further 34,000 tonnes of honey per annum which must be imported. As a result, 95% of the honey consumed in the UK is sourced from beyond our shores and is worth over £70 million per annum. While our honey imports in 2012 arrived from over 50 countries, the scene was dominated by a whopping 17,000 tonne dollop from China (Defra, 2012).

This is all impressive stuff, but recent reports of contaminants in imported honey and issues with authenticity may have caused some concern to the beekeeping community. We have drawn evidence from the literature to provide you with a balanced view of the three main issues surrounding honey importation: the sweet truth!

Contaminants in Honey

Imports of honey intended for human consumption that originate from outside the European Union (EU) must come from an approved country and be accompanied by a health certificate that conforms to the content of seven different EU directives and regulations.

These rules apply to honey production and processing, as well as the laws governing the hygiene of foodstuffs. Demonstrating a competent residues monitoring plan for honey is essential before any country can trade this commodity into the EU. The paperwork for every consignment is checked; a fail can result in destruction of the honey; a pass will allow the consignment to enter and circulate freely within the EU. The Veterinary Residue Committee in the UK performs additional sample spot checks for chemical residues from retail and wholesale honey as part of a non-statutory programme.

As a result of this surveillance effort, the following chemical contaminants have been reported: chloramphenicol (China/India); oxytetracycline (Argentina/Guatemala); tetracycline (India); lincomycin (China); sulphonamides (Poland, Mexico).

Collecting honey samples for residue testing

A commercial yard for exporting honey

It is also worth noting that it is an EU requirement for the UK to sample home-produced honey. To conform to these requirements, National Bee Unit (NBU) Inspectors collect around 100 honey samples a year on behalf of the Veterinary Medicines Directorate (VMD). Chemical residue testing of these samples has resulted in the discovery of oxytetracycline and naphthalene in UK honey. None of the chemicals detected is damaging to human health but instead, contaminants in honey are more of a quality issue that can be detrimental to public perception of this pure and natural product.

It is clear that honey from home and abroad has been found to contain chemical contaminants, but considering the sheer scale of the industry, there have been relatively few non-compliant samples discovered in either the UK or imported honey in recent years (VMD, 2013).

Authenticity Testing

The EU legislation requires that importers take reasonable steps to ensure that imported honey is not adulterated or falsely described. Many of you will be aware of a recent high-profile news article that described foreign honey being labelled in a misleading manner.

New Zealand is the sole manufacturer of manuka honey, producing 1700 tonnes annually. Interestingly, the annual global consumption is 10,000 tonnes, with the UK alone consuming more than the official annual production! When top grade manuka honey with a Unique Manuka

Factor (UMF) of 25+ is worth £144 per kilo, 130 times more than the price of bulk honey which can be purchased from China, it is easy to see the driver for such mislabelling. The authors did wonder how much manuka honey is mislabelled as Chinese!

As a result of this scandal, chemists at Fera (Food and Environment Research Agency) have been working with the UMF Honey Association in New Zealand to provide a testing framework capable of ascribing a unique chemical fingerprint to manuka honey (eg, Donarski et al, 2010). It is hoped this technology will expose the mislabelled imports and increase the public confidence in manuka honey.

Biosecurity Implications

When we use the word 'biosecurity', we refer to its traditional meaning: 'a preventive measure designed to reduce the risk of transmission of infectious diseases to livestock'. While honey has fabulous antibacterial properties, it can still harbour potentially harmful microorganisms. Lateral thinking drug-users substituted honey for sugar while preparing methadone for injection and ended up with raging bacterial infections containing *Paenibacillus larvae* (Rieg et al, 2010), the organism that causes American foul brood (AFB) in honey bees. The hardy spores of this bacterium are known to survive perfectly well in honey.

Indeed, there are many examples in the literature that confirm viable *P. larvae* in bulk honey samples prepared ready for trade and so moving honey does risk also moving *P. larvae*. But what is the evidence that imported honey has been responsible for outbreaks of disease in honey bee colonies? Work in 1920s America suggests that infection from imported honey was relatively rare and that local transmission events could be tracked to trade in honey bees or beekeeping equipment (Fracker, 1925). However, another early paper clearly describes two AFB outbreaks after careless handling of imported honey from the West Indies and the USA resulted in large spillages that were robbed by local honey bees (Wadey, 1933).

Most recently, work by the NBU has shown that outbreaks of AFB disease in the field occur in discrete clusters (Mill et al, 2013) and several of these were proximal to commercial importers of honey. In response to an earlier version of this work, the Honey Association developed a code of practice on biosecurity for honey packers to reduce AFB risks to honey bees. While distribution of imported honey may move AFB to a new area, there is good evidence beekeepers do their part to spread disease. Fracker (1925) went on to describe how the reluctance by some local beekeepers to deal with AFB resulted in additional disease spread to new apiaries.

Work in Finland also highlighted local and long distance movements of disease which was again spread by beekeepers (Pentikäinen et al, 2009). More recent work by the NBU shows that more than half of all disease movements during an AFB outbreak in Jersey were along 'ownership links' (ie, between apiaries managed by the same beekeeper), suggesting spread due to beekeeping practices rather than spread by the bees themselves (Datta et al, 2013).

To summarise; while imported honey has often been shown to contain the causative organism, and on occasion has been shown to cause disease, the actions of the local beekeeping community are key in minimising the scale and impact of any resulting disease epidemic.

It is edifying to note that more than 350 years ago, in an attempt to 'turne England into Barbados', and stem the flow of cheap sugar cane imports from what were then newly established West Indian planters, Samuel Hartlib sought to increase the English honey crop through improved husbandry. Hartlib's ideology was ultimately unachievable in 1655 due to the inability of our 'green and pleasant land' to provide sufficient forage to satiate a nation's sweet tooth.

This article confirms that little has changed since Hartlib's time and today, a healthy and well-managed honey import industry is a necessary part of life in the UK, as sugar imports were in times gone by.

References

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A honey bee foraging on manuka (Leptospermum scoparium)