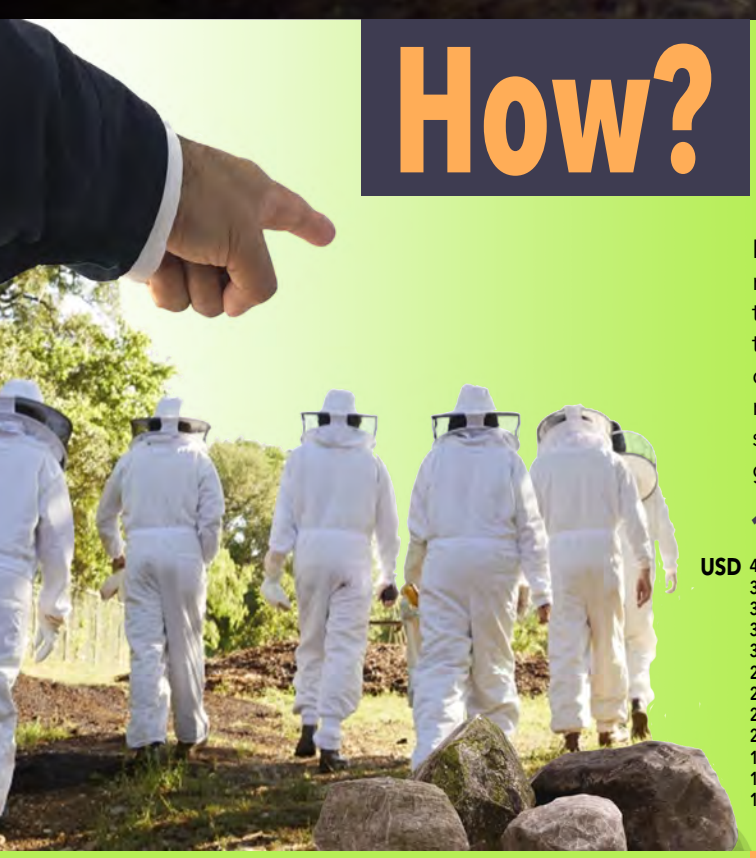
Huge honey fraud leaves bees **helpless**

HONEY AUTHENTICITY PROJECT

It destroys beekeeper's livelihoods, consumer's confidence and harms **health**



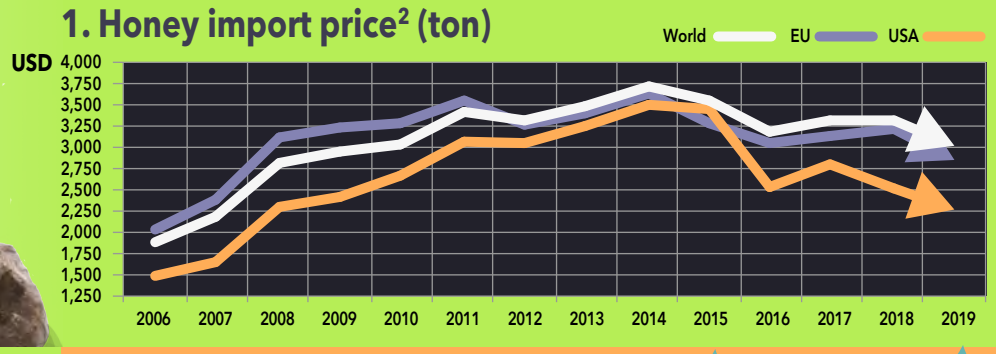
How?

By bringing thousands of tons of cheap fake honey into international trade, driving actual beekeepers out of business, who are the chief guardians of bees

In recent years honey prices have dramatically fallen due to roughly 150 thousand tons per year of fake honey traded internationally up to a third cheaper than authentic one. An economic analysis[1] published in 2017 shows that in the same year the average price of honey of seventeen main exporting countries was 22 % below the projected theoretical balanced price. Extrapolating from the quoted study, the price was already 40 percent lower for 2019, and falling.

If that trend continues no beekeeper will bear, bees will suffer and decline even more.

1. Honey import price[2] (ton)



Beekeepers,

main protectors of bees and environment

A scientific study –among many others– titled *Role of Beekeeping in the Conservation of Forests*[3] shows how "beekeeeping preserves nature, agriculture, sustains livelihoods and provides food security", and is why "it is recommended that developing countries should establish honey councils within their domains as a way of reinforcing the conservation of forests".

Beekeepers around the world have become some of the main defenders and carers of honey bees. It is easy to undestand that if they rely on bees they look after them. However, what is not so evident is, in order to protect honey bees, they have to protect the environment where bees live, thus they protect the whole ecosystem where thousands of species of insects, plants, animals in general and all biodiversity thrive.

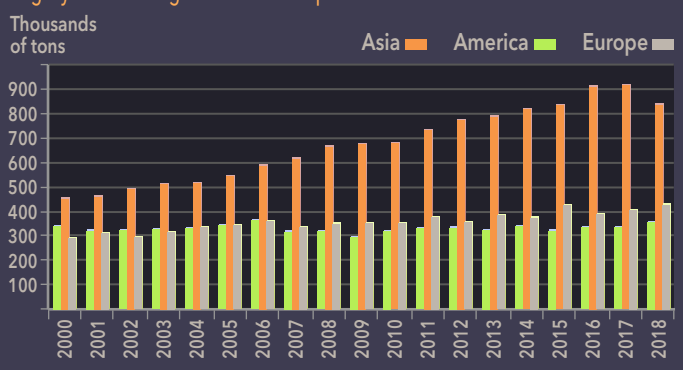
Beekeeping is a way to protect the environment and bees. Be must reinforce it, not destroy it just as this huge honey fraud does.

What statistics say

The large number of threats to bees (climate change, environmental pollution, pest and predators, pesticides, loss of habitat) create an adverse environment, not only for their development, but even for their survival[4]. The consequence is the Colony Collapse Disorder (CCD), a global fact expressed in the annual loss of hundreds of thousands of colonies and that makes it difficult to believe the inexplicable and surprising growth of honey production in Asia.

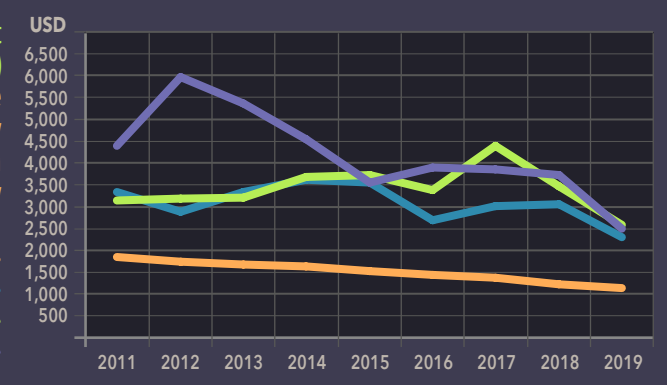
2. Honey production (FAOSTAT)

Highly abnormal growth of Asian production



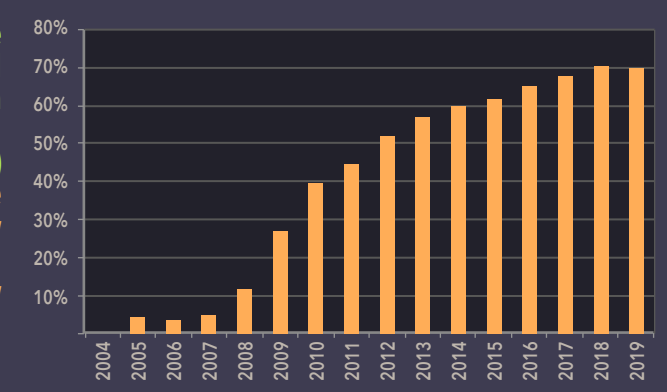
3. Honey import prices in the UK (ITC)

The prices of Chinese fake honey have forced down those of real honey

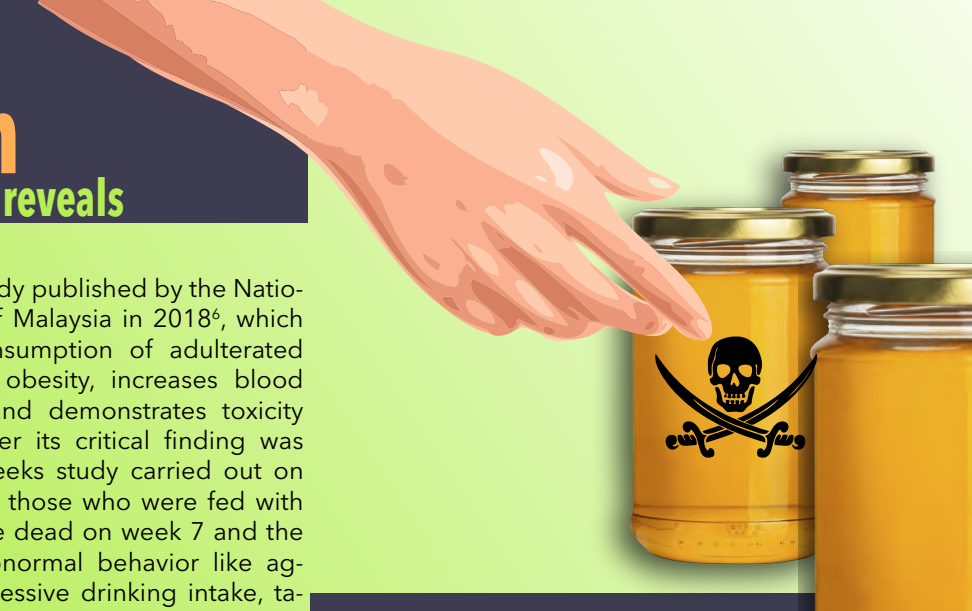


4. Percentage of Chinese honey imported by the UK in relation to its total honey imports (ITC)

Surprising increase in imports of fake honey that have replaced imports of real honey



Damage to consumer confidence... and health a study reveals



FAO-WHO Codex Alimentarius Comission defines the Economically Motivated Adulteration as a subset of food fraud. It is the intentional substitution or addition of a substance in a product for the purpose of increasing the apparent value of the product or reducing the cost of its production for economic gain[5]. For UK Food Standards Agency –and equivalent institutions in all countries–, food fraud is a crime. It defines it as serious fraud and related criminality in food supply chains. It can be seriously harmful to consumers, food businesses and the wider food industry.
That is exactly what happens in honey fraud.

A crime against health

This consumer deception is not only hurtful in itself but could cause harm to health as evidenced by a study published by the National University of Malaysia in 2018[6], which claims that consumption of adulterated honey induces obesity, increases blood glucose level and demonstrates toxicity effects; moreover its critical finding was that on a 16-weeks study carried out on rats, 31.25 % of those who were fed with fake honey were dead on week 7 and the rest showed abnormal behavior like aggressivness, excessive drinking intake, tachycardia, thinning hair, heavy breathing, lethargy and increase in body weight, fat pads, body mass index, triglyceride, cholesterol and glucose levels, which indicates that adulterated honey consumption leads to obesity and potentially diabetes, beside toxicity effects in liver and kidney.

In this scientific study one third of rats fed with fake honey died prematurely and the rest ended with heavy damaged health, while all rats fed with pure honey improved their health

Second sampling in the UK[7]

Our first sampling[8] –where no sample was compliant either– was carried out in 2018. This time we bought thirteen honey jars: one in Coop, Aldi, Morrisons, Lidl, Waitrose, Poundland, Sainsbury's and two in M&S, Asda and Tesco. The purchase criteria was low prices.

Purchases were made in early March 2020 in Bristol, Surrey and Brighton & Hove, and dispatched to FoodQS –a full accredited laboratory in Langenzenn, Germany. Analysis results were delivered 13th of July with following conclusion: all samples are product of this huge and harmful honey fraud.

All samples were fake honey

In new findings in the UK, once again not one was compliant (2020)

OK / Not OK

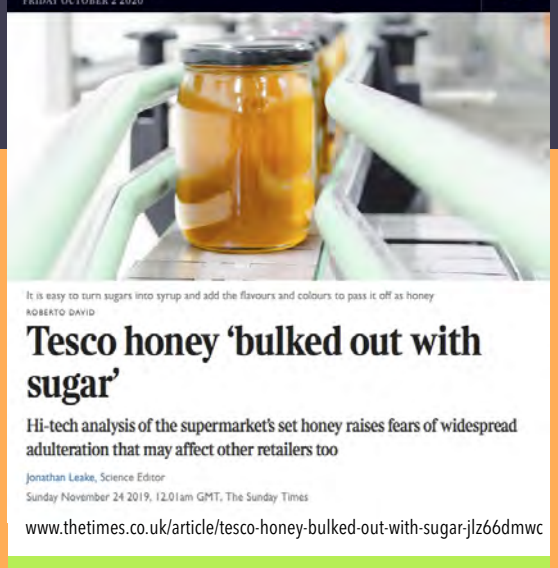
Samples (13) ---->		Unit	Values Typical for Honey	(1) The Coop clear Honey	(2) ASDA Set pure Honey	(3) Rowse Honey	(4) ALDI Grandessa Honey Squeezy Clear	(5) Morrisons Pure clear	(6) Tesco Set Honey	(7) Tesco clear honey	(8) LIDL Highgate Fayre clear Honey	(9) Essential Waitrose pure clear Honey	(10) Sainsburys clear honey	(11) Poundland Clear Blossom Honey	(12) M&S Food Pure Honey	(13) M&S Food Pure set Honey
Broad Spectrum	Analysis															
Biological Properties:	HMF	mg/kg	max 40	37,9	21,4	25,6	32,0	26,6	15,1	37,2	26,6	20,8	25,6	13,8	16,0	15,9
	Diastase	DZ	min 8	3	3.6	3.2	1.4	5	6	6	3.1	10	4.4	1,5	5.7	5.3
Composition of Honey and Physical Characteristics	Moisture	%	max 20.0%	18.4	18,2	18.7	18.7	18.5	18	18.6	18.5	18.5	18.6	18,7	17.7	17.8
Bee Activity Markers:	Proline	mg/kg	min 180	n.d.	221	n.d.	434	177	346	n.d.	n.d.	195	190	n.d.	416	n.d.
Generic Fraud Markers:	AOAC 998.12 C4 Sugars (SCIRA & ISCIRA)	Pos/Neg	negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
		% C4 sugar	<7%	0	0	0	0	0	0	0	0	0	0	0	0	0
	Psicose	%	0%	0.35%	0.14%	0.05%	0,21%	0.00%	0.29%	0,06%	0,30%	0.00%	0,05%	0,30%	0,44%	0,44%
	HRMS Screening	Positive/Negative	negative	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Negative	Positive	Positive	Positive	Positive
Nuclear Magnetic Resonance	foreign sugars NMR	Positive/Negative	negative	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive
	multivariate verification	Out of model/In Model	In model	out of model	Out of model	In model	Out of model	Out of model	out of model	Out of model	Out of model	In model	In model	Out of model	Out of model	In model
	univariate verification	Out of model/In Model	In model	in model	In model	In model	In model	In model	in model	In model	In model	In model	In model	In Model	In model	In model
Targeted Fraud Markers:	E150	Positive/Negative	n.d.	Negative	Positive	Negative	Negative	Positive	Positive	Positive	Negative	Negative	Positive	Negative	Negative	Negative
	Honey Foreign α-amylase	Positive/Negative	n.d.	Negative	Positive	Positive	Negative	Positive	Positive	Positive	Positive	positive	Positive	Negative	Positive	Positive
	B-fructofuranosidase	Positive/Negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative
	gamma-Amylase	Positive/Negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative
	Honey Foreign Oligosaccharides	Positive/Negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative
	beta-Amylase	Positive/Negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	negative
	thermostable amylases	DZ	no detected (n.d.)	n.d	n.d	n.d	n.d.	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
	Glycerol	mg/kg	max 300	826	438	322	348	317	440	524	725	235	379	452	726	253

So far, HAP's complaints filed before UK authorities have yielded no results

Honey Authenticity Project (HAP) –based on evidence provided by the sampling carried out in late 2018–, filed in mid-2019 eleven complaints before Trade Standars Agency of Richmond, Brighton & Hove and Kingston in the UK.

To date only Richmond, where only one complaint was filed about Tesco honey, has responded. According to analysis commissioned by these authorities to Public Analyst Scientific Services laboratory, this honey is fully part of the fraud[9]. Although Richmond's authorities now have the evidence, the fake honey remains on shelves and the perpetrators of the crime remain unpunished.

HAP demands to Brighton & Hove, Kingston and Richmond do their job.



THE TIMES
FRIDAY OCTOBER 2 2020
Log in

It is easy to turn sugars into syrup and add the flavours and colours to pass it off as honey

ROBERTO DAVID

Tesco honey 'bulked out with sugar'

Hi-tech analysis of the supermarket's set honey raises fears of widespread adulteration that may affect other retailers too

Jonathan Leake, Science Editor
Sunday November 24 2019, 12.01am GMT, The Sunday Times

www.thetimes.co.uk/article/tesco-honey-bulked-out-with-sugar-jlz66dmwc

Public Analyst Scientific Services laboratory:

"The results of this analysis showed the presence of numerous marker compounds found in sugar syrups and was therefore consistent with the addition of sugar syrup."

Notes

1. García N, Phipps R. 2017, International Honey Market Report: "To bee or not to bee", based on Apimondia report.
2. Carrillo, LA. Graphics No. 1, 2, 3 y 4 with data from International Trade Statistics and FAOSTAT, 2020.
3. S.I.N. Agera, *Role of beekeeping in the Conservation of Forest*, Global Journal of Agricultural Sciences Vol 10, No. 1, 2011: 27-32
4. IPBES (2016). The assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on pollinators, pollination and food production. S.G. Potts, V. L. Imperatriz-Fonseca, and H. T. Ngo (eds). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 552 pages.
5. Agenda item 7, CX/FICS 18/24/7 Codex Alimentarius Comission, FAO-WHO, August 2018.
6. Suhana S. *et al*, 2018 *Adulterated honey consumption can induce obesity, increase blood glucose level and demonstrate toxicity effects*. UKM, Sains Malaysiana, 47 (2). pp. 353-365. ISSN 0126-6039
7. HAP, link to Analysis of 13 samples, UK sampling, 2020. https://drive.google.com/drive/folders/13kUcuIDSbmY1b0BXhpbpFIuYZ8qO0qgK?usp=sharing
8. HAP, link to Analysis of 11 samples, UK sampling, 2018. https://drive.google.com/drive/folders/1_ip9ymu_2KvuhTFhL4uVyYlGRjK7EXFr?usp=sharing
9. Results of Tesco's own brand honey analysis commissioned by London Boroughs of Merton & Richmond and conducted by Public Analyst Scientific Services laboratory. https://drive.google.com/file/d/1d3hifV_CTGRV7UmQaHpwTKmlPrxE14i9/view?usp=sharing

HONEY© AUTHENTICITY PROJECT

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