

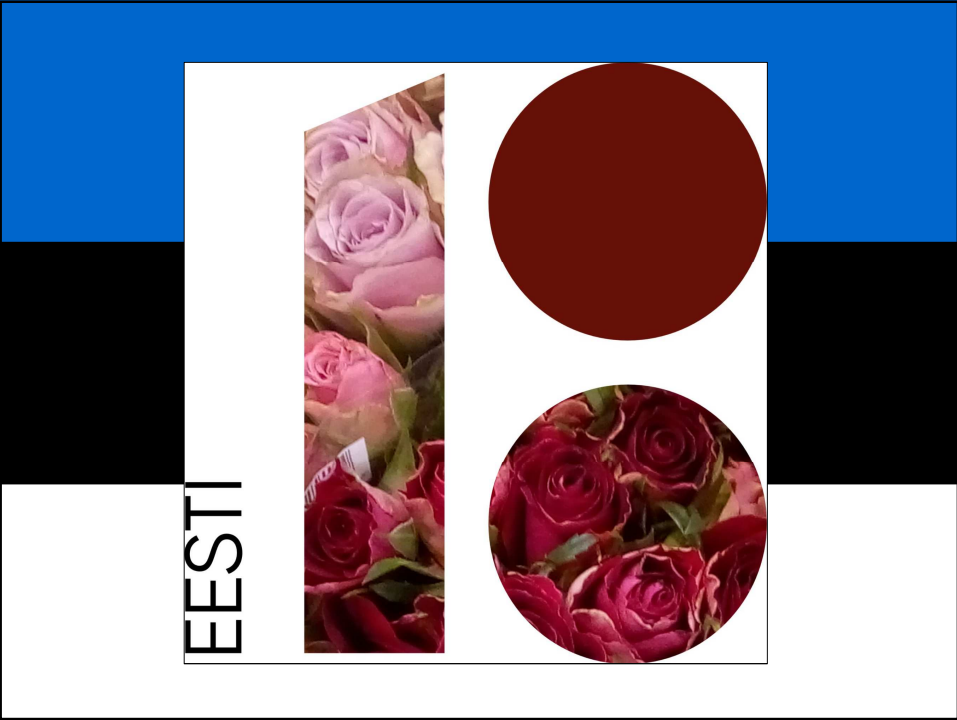
 Niedersächsisches Landesamt für Verbraucherschutz und Lebensmittelsicherheit

■ Bee Institute Celle - Germany
Dr. Otto Boecking

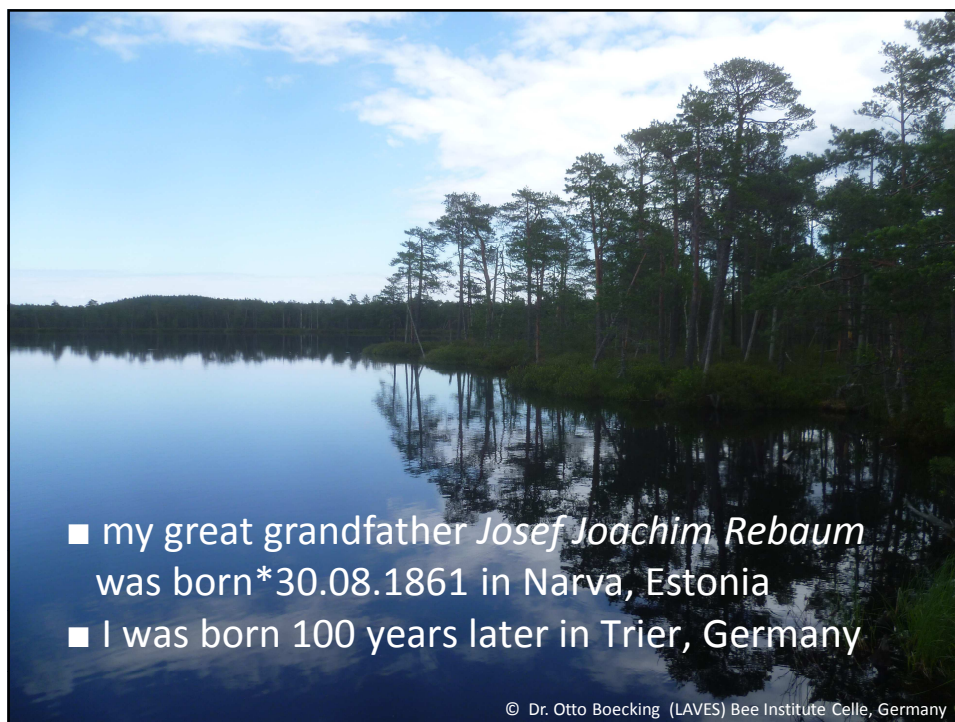
 „*Kaasaegne taimekasvatus ja mesindus*“
06.märts 2018

 **Farmers and Beekeepers -
doing good together**
Põllumehed ja mesinikud –
koos saame häid tulemusi, sünkroontõlge

 
Euroopa Maaelu Arengu
Põllumajandusfond:
Euroopa Investeeringud
maapiirkondadesse



EESTI





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Farmers and Beekeepers doing good together



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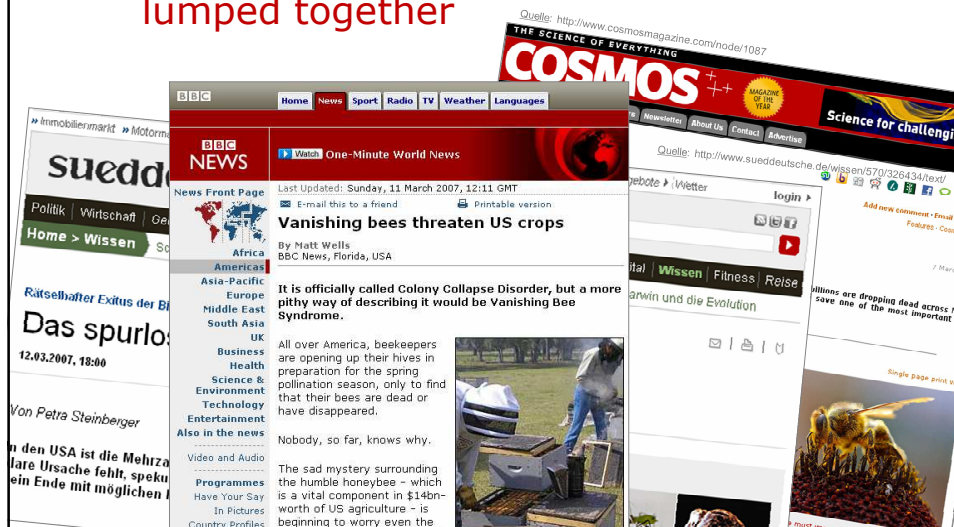
Farmers and Beekeepers doing good together

- 1. the problem** - not only in Estonia
- 2. pollination** - a win-win situation
- 3. plant protection/bee protection**
- 4. solution approach** – “together”

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„bee losses“

- In the press + public everything is lumped together



- bee losses \neq bee losses

■ **1. autumn-/winterlosses** [Honeybee]
(bee diseases/Varroa/management problems)

■ **2. losses in summer** [Honey- and Wild-bees]
(mainly misuse of pesticides)

■ **3. species-losses** [Wild bees in the world and honeybee species in Asia and subspecies in Africa]
(nature destruction)

euro|topics
Europe's press comments

DEBATES DOSSIER MEDIA

Source: <https://www.eurotopics.net/en/182872/estonia-what-can-we-learn-from-the-dead-bees>



20. July 2017


Estonia: what can we learn from the dead bees?

Beekeeper in Estonia have sounded the alarm after the death of millions of bees in the country in recent weeks. Government investigations into the first case of mass bee deaths have revealed that the bees were poisoned by a crop protection product used on a field of rapeseed. The Estonian press is shocked and decries modern man's alienation from nature.

Share debate on

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■ **The beekeeper's warnings must be heeded**



■ POSTIMEES (EE) / 20 July 2017

Back to Soviet times

The beekeepers' warnings must be heeded, Postimees urges:

“We’re proud of our local food products, but that can change quickly. After all, who wants a return to Soviet times, when planes sprayed the countryside with herbicides and destroyed our natural environment?”

There can become

reports could serve as an important warning.

We're proud of our local food products
I add say both, beekeepers & farmers

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Beekeepers and Farmers
Not against one another

© Landwirtschaftliches Wochenblatt 1953

**Both need the Bees
Therefore both must protect them**

But together

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Augenblicke 2017

Brandenburg > Imker wollen Dauerstreit mit Bauern beenden
Abo bestellen > MAZ Media Store > AboPlus > Online > ...

27.02.2017

in Germany: **Beekeepers want to quit the ongoing dispute with Farmers**

Belasteter Honig Drucken | Text | ...

Imker wollen Dauerstreit mit Bauern beenden

Mehrfach schon wurde Honig durch Chemie von Pflanzenschutzmitteln verunreinigt, weil die märkischen Imker nicht wissen, wann die Landwirte ihre Felder spritzen. Jetzt wollen Imker und Bauern ihren Dauerstreit auf einem Treffen in Potsdam beilegen.

VORIGER ARTIKEL

Apotheken geht der Nachwuchs aus

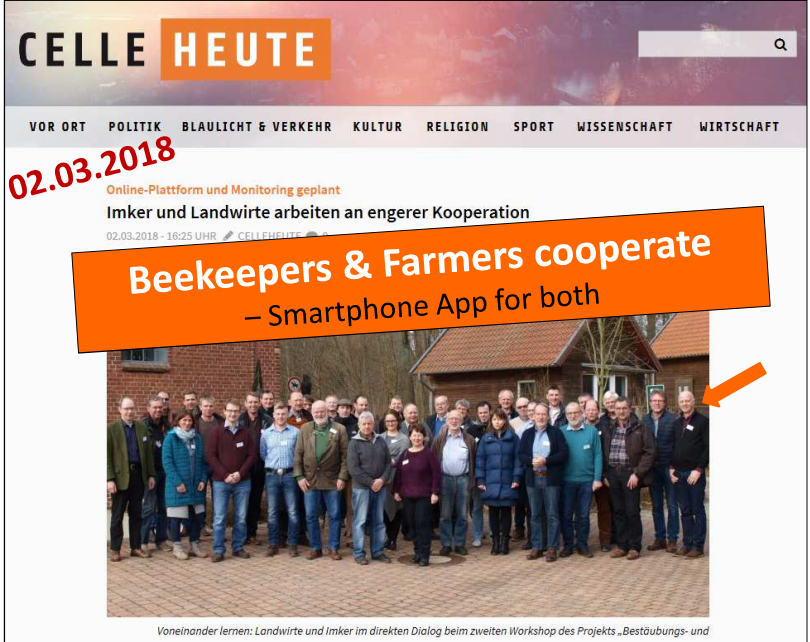
NÄCHSTER ARTIKEL

War es Mord? Urteil im Raserprozess erwartet

Source: <http://www.maz-online.de/Brandenburg/Imker-wollen-Dauerstreit-mit-Bauern-beenden>

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Source: <https://celleheute.de/imker-und-landwirte-arbeiten-an-engerer-kooperation/>



02.03.2018
 Online-Plattform und Monitoring geplant
 Imker und Landwirte arbeiten an engerer Kooperation
 02.03.2018 - 16:25 UHR

Beekeepers & Farmers cooperate
 – Smartphone App for both

Voneinander lernen: Landwirte und Imker im direkten Dialog beim zweiten Workshop des Projekts „Bestäubungs- und

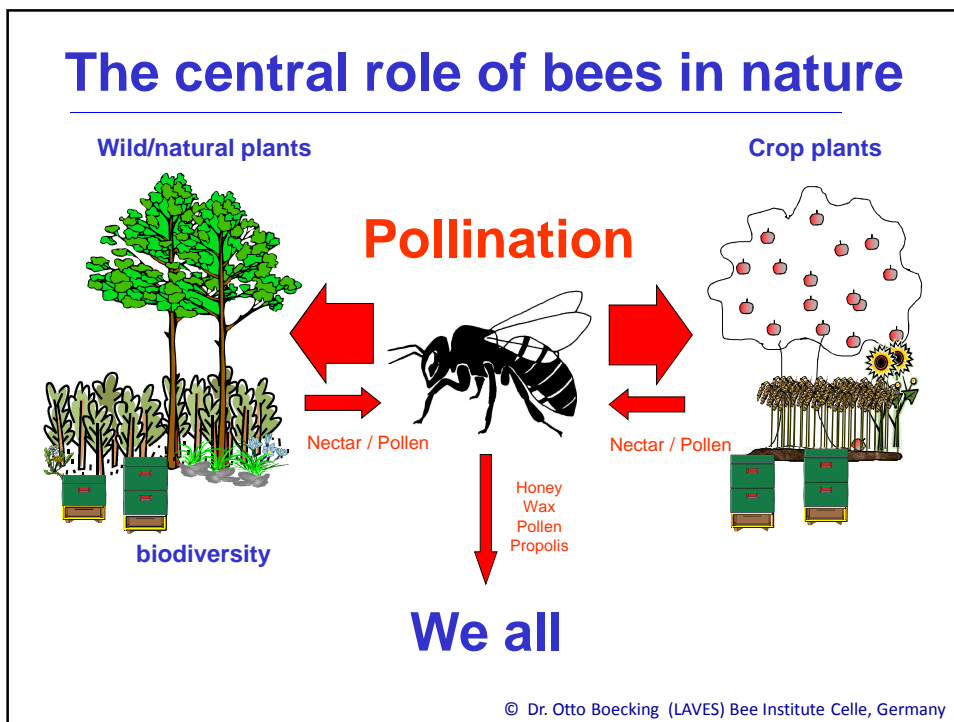
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Farmers and Beekeepers doing good together

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Nachrichten > Wissenschaft > Natur > Artenschutz > Uno-Bericht: Bienensterben wird zum globalen Problem Donnerstag, 10.03.2011 14:37 Uhr

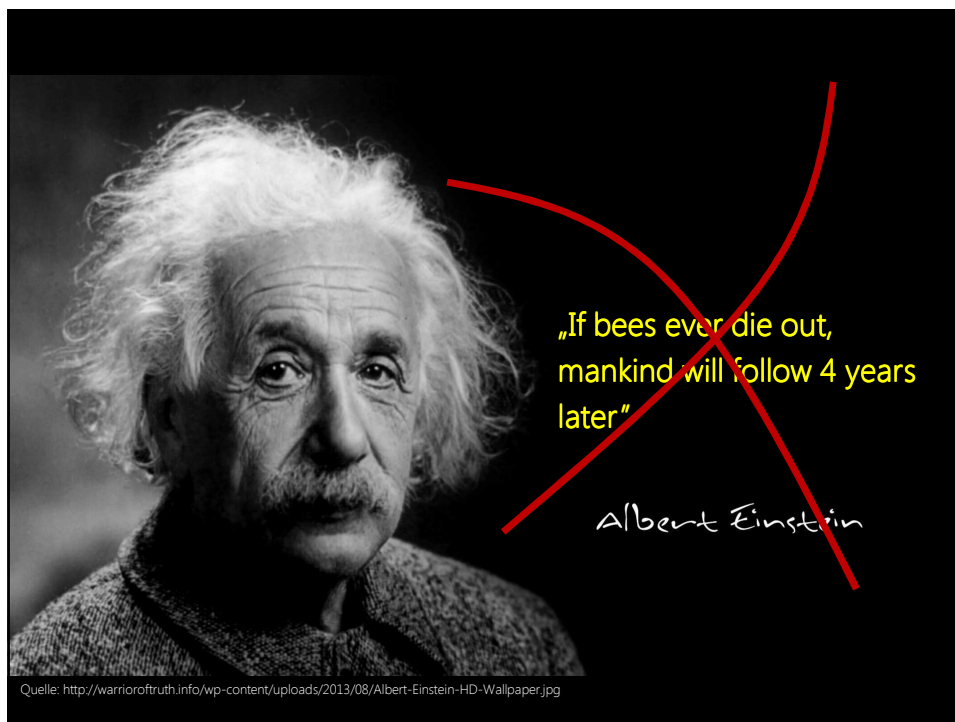
Uno-Bericht

Bee losses is growing to a global problem

Ein neuer Uno-Bericht schlägt Alarm: In immer größeren Teilen der Welt sterben die Bienen. Die Nahrungsgrundlage der Menschheit scheint bedroht. Besonders schwierig wird die Lage dadurch, dass Gegenmaßnahmen alles andere als einfach zu finden sind.

Food availability seems to be endangered for the society!

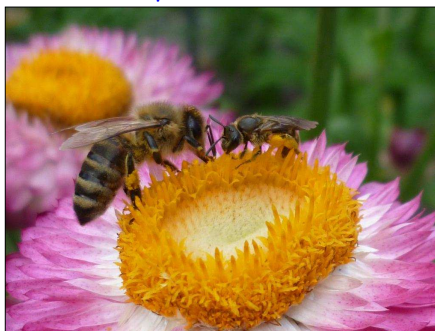
Quelle: <http://www.spiegel.de/wissenschaft/natur/uno-bericht-bienensterben-wird-zum-globalen-problem-a-750139.html>



The value of pollination by bees for the public economy

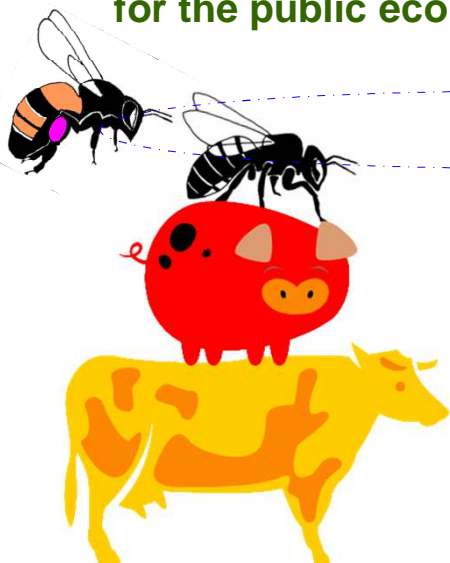


2 billions €
annually in Germany
(Honey + Pollination)



© Dr. Otto Boecking (LAVES) Bee Institute Celle, Germany

The value of pollination by ^{honey- + wild bees} bees for the public economy



2 billions €
annually in Germany
(Honey + Pollination)



Lucas, A. Garibaldi et al. (2013)
Wild pollinators enhance fruit set
of crops worldwide. *Science* 339:
1608-1611.

© Dr. Otto Boecking (LAVES) Bee Institute Celle, Germany



■ **annual amount of pollen needed for one bee colony - calculated**

Results from 50 colonies, *Celle 2011*

Pollen need [kg]
♀+♂ brood



Ø **35,5** [kg]
min/max
17,1 – **49,5**



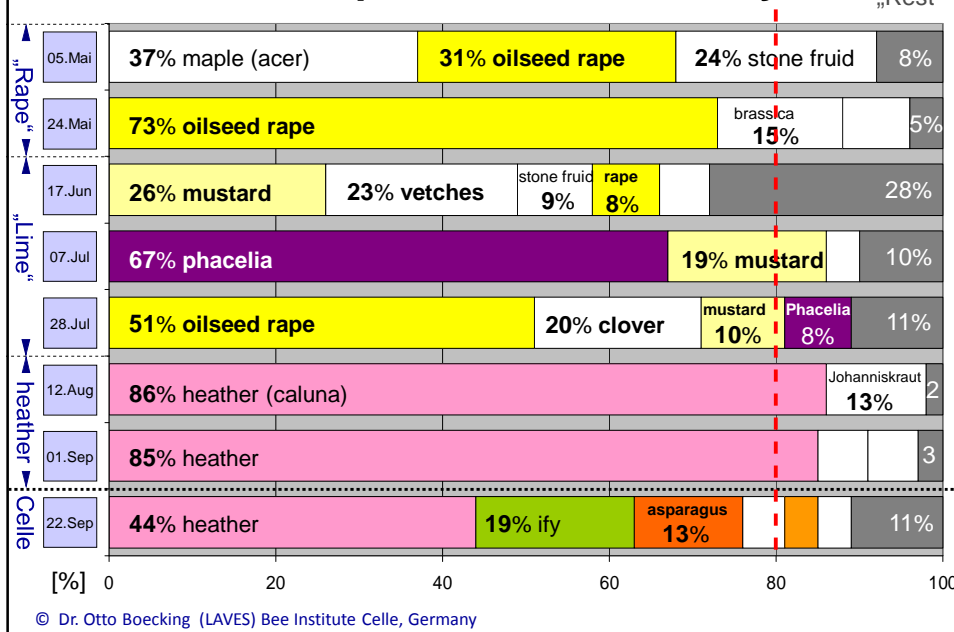
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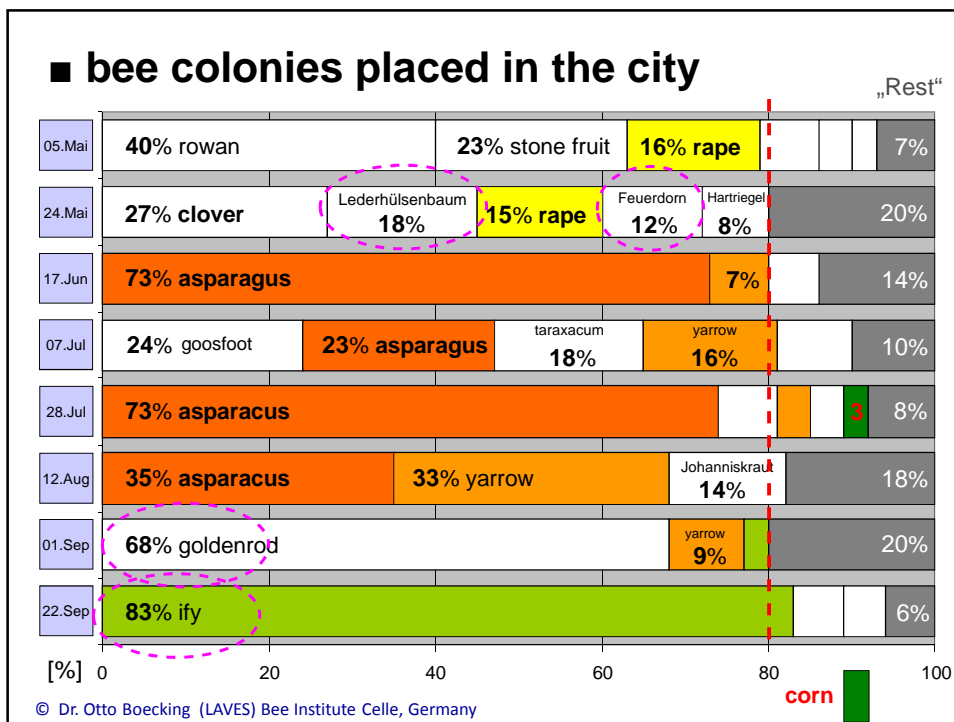
■ **Pollen sources of honeybee colonies – use of a pollen trap**

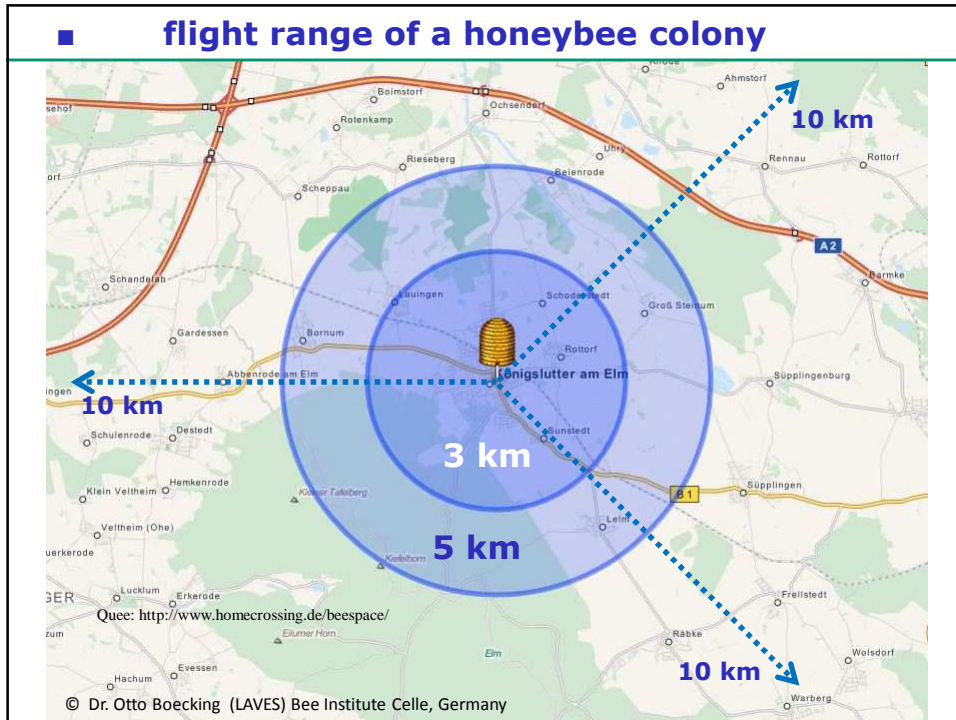


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■ **bee colonies placed in the countryside**







oilseed rape - pollination by honeybees is adding to the farmer's yield crop

extra yield
appr. 1000 kg/ha or 25 % plus

Stefan Mandl (2006) Diss.
Univ. für Bodenkultur, Wien

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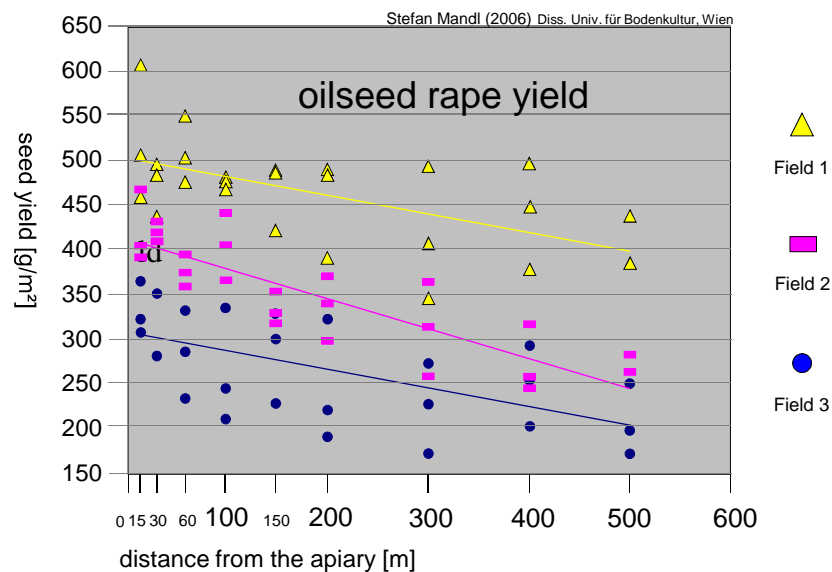
oilseed rape - research shows that pollination by honeybees



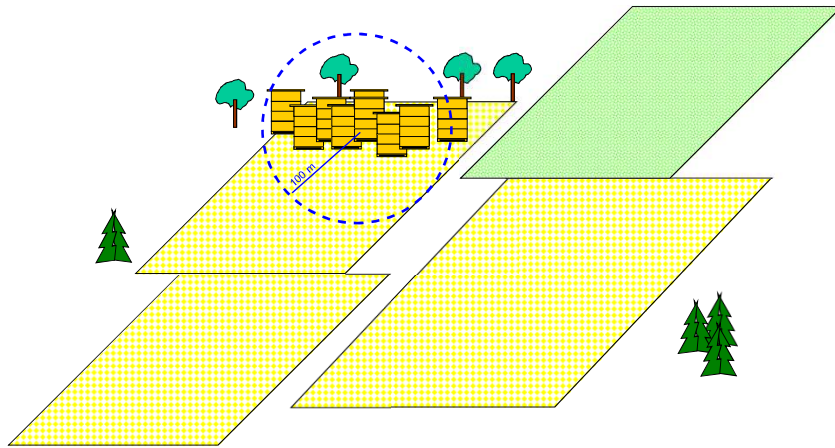
- encourage higher yields with better ripening,
 - promote more uniform flowering + earlier pod setting,
 - increase the number of pods per plant + seeds per pod + the seed weight,
 - increase the germinability of the seeds
- honeybees are needed for production of quality hybrid seed – a vital component of the seed production industry.

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Bees collect nectar and pollen near to their hives

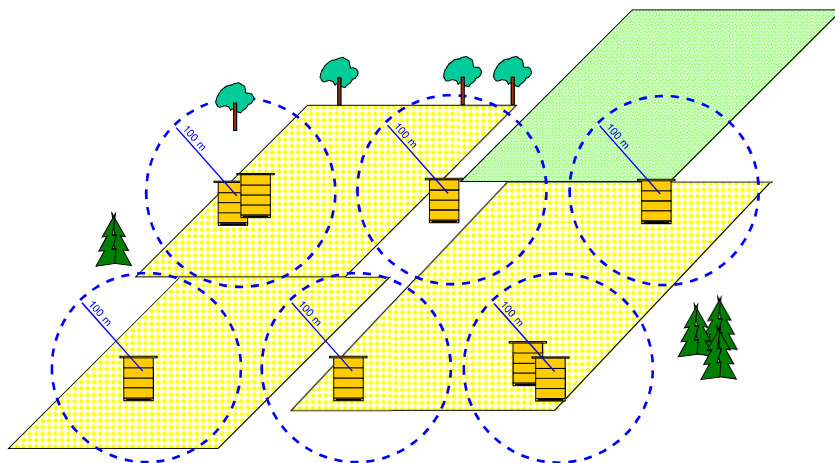


Bees collect nectar and pollen near to their hives
site of bee colonies in the field



© Dr. Otto Boecking (LAVES) Bee Institute Celle, Germany

Bees collect nectar and pollen near to their hives
site of bee colonies in the field



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**pollination - a win-win situation
for beekeepers & farmers
oilseed rape**

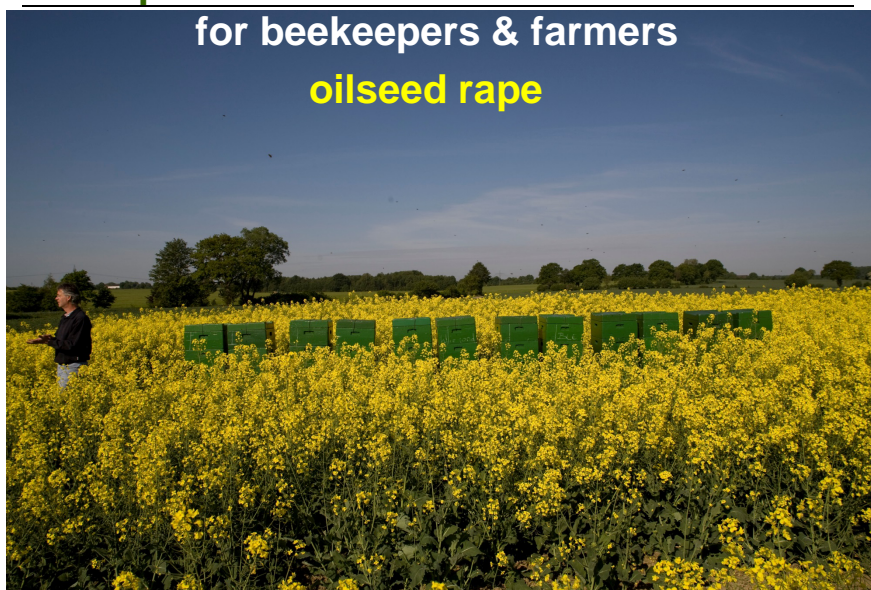
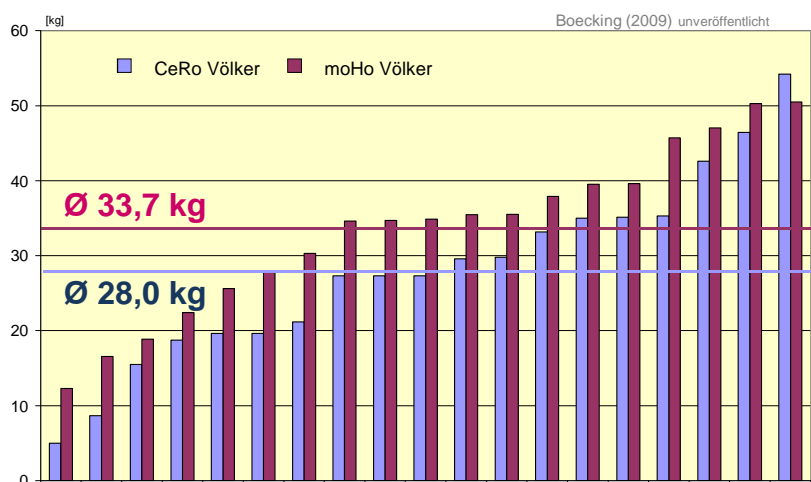


Foto: Linda Dreisen

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Honey harvest from oilseed rape fields



© Dr. Otto Boecking (LAVES) Bee Institute Celle, Germany

Honey Trivia

YOU KNOW.....



Honey is a consumer oriented product

© Dr. Otto Boecking (LAVES) Bee Institute Celle, Germany

Source: PEXELS Creative Commons Zero (CC0) License

Honey is a consumer oriented product

Thu 5 Oct 2017

International edition

Home Sport Culture Lifestyle More

Home Wildlife Energy Pollution

Honey tests reveal global contamination by bee-harming pesticides

Neonicotinoid insecticides are found in 75% of global honey samples and half contain a cocktail of chemicals

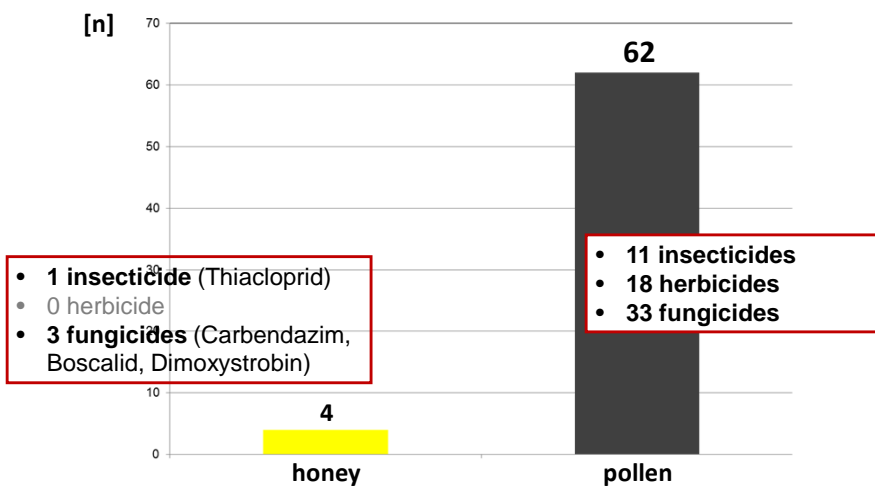


Source: <https://www.theguardian.com/environment/2017/oct/05/honey-tests-reveal-global-contamination-by-bee-harming-pesticides>

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Residues in honey and in bee collected pollen

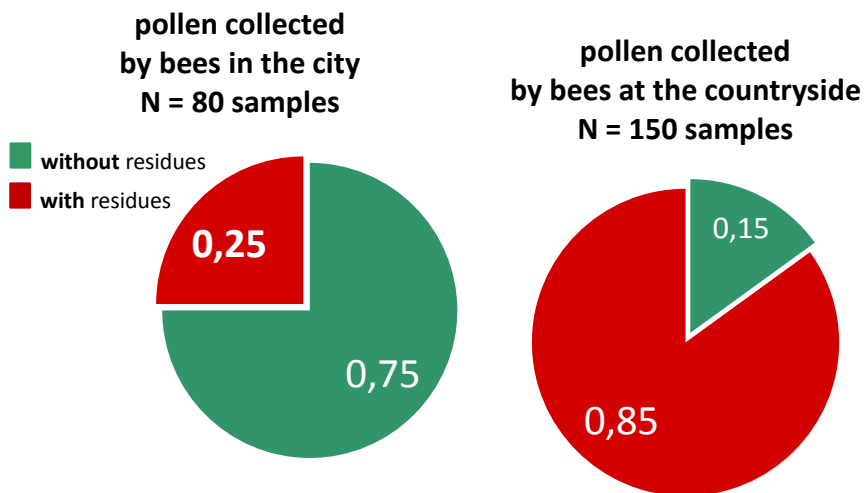
data (LAVES) Bee Institute Celle 2011 - 2014 courtesy of Dorothee Lücken



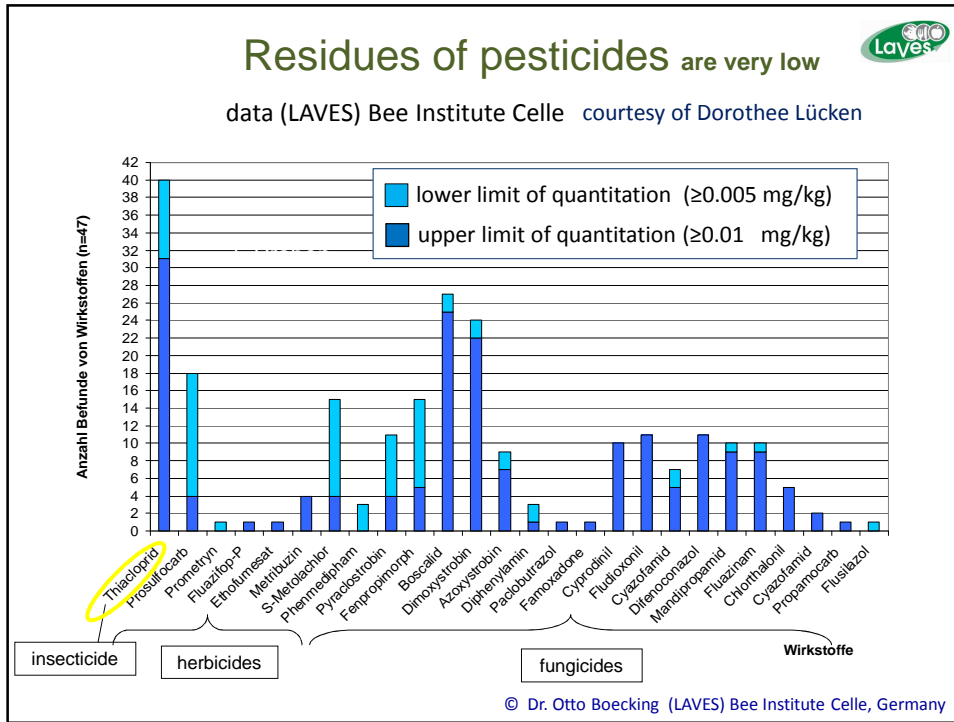
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Residues of pesticides

data (LAVES) Bee Institute Celle 2011 - 2014 courtesy of Dorothee Lücken







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Farmers and Beekeepers doing good together

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3. plant protection/bee protection



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Bees Protection Ordinance

Ordinance on the use of pesticides harmful to bees

Germany: 1986 (2011)

(article § 2 Abs. 1)

■ **It is prohibited to use plant protection products (pesticides) harmful to bees:**

- on blooming plants or
- on other plants, when they are visited by bees

(article § 2 Abs. 3)

■ **No application of pesticides harmful to bees in distance of a circle of 60 meter around the apiary:**

- only if agreed by the beekeeper

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Bee poisoning in potato fields

Potatoes are not attractive for bees



Foto: Martina Janke

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Bee poisoning in potato fields

Potatoes are not - **but the weeds are attractive for bees**




Foto: Martina Janke

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CASE-LAW: Bee poisoning – the farmer takes a risk

Rechtsprechung



- Suche
- Erweiterte Suche
- Gerichte
- Rechtsgebiete

Niedersächsisches
Vorschrifteninformationssystem
NI-VORIS

Rechtsprechung der niedersächsischen Justiz

Nachträgliche Kürzung der Betriebsprämie 2006 wegen Verstoßes gegen die Bienenschutzverordnung

"Andere Pflanzen" i. S. d. § 2 Abs. 1 Nr. 2 BienSchV, an denen bienengefährliche Pflanzenschutzmittel nicht angewandt werden dürfen, weil sie von Bienen "beflogen" werden, sind solche, die unter den gegebenen örtlichen Verhältnissen gewöhnlich von Bienen zwecks Nahrungssuche angefliegen werden. Das Verbot beschränkt sich nicht auf den Zeitraum des täglichen Bienenfluges.

Bee protection is more focusing into the near future, than backwards or only onto the actual situation. It is crucial, pesticides should not harm bees.

Bienenschutzverordnung vom 22. Juli 1992 (BGBl. I S. 1410), geändert am 6. August 2002 (BGBl. I S. 3082) - BienSchV, insbesondere deren § 2 Abs. 1 Nr. 2, verstoßen hat und ihm wegen des dann darin zugleich liegenden sog. Cross-Compliance (= CC) Verstoßes u. a. die Betriebsprämie 2006 anteilig zu kürzen ist.

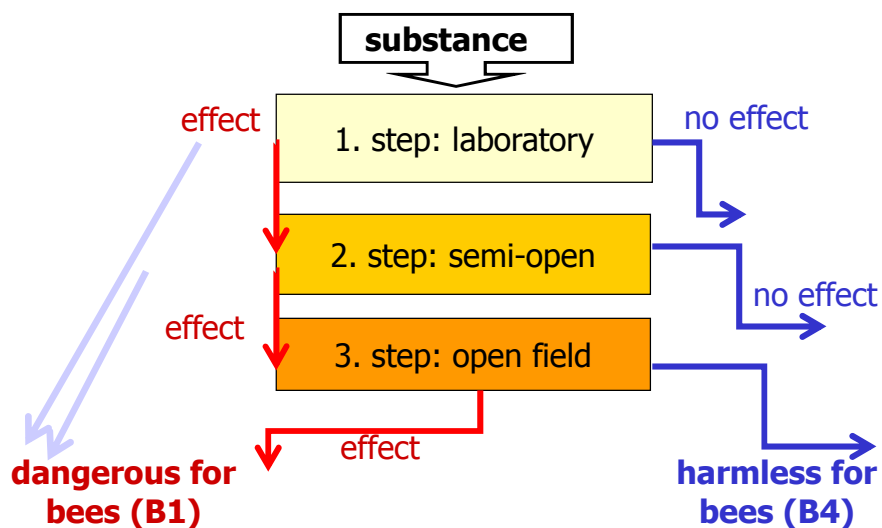
2. Der Kläger ist Inhaber eines landwirtschaftlichen Betriebes im Norden des Landkreises A.. Er baute dort im Jahr 2006 u. a. Kartoffeln an.

3. Im Juli 2006 kam es in Niedersachsen, u. a. im Landkreis A., wegen lang anhaltender Trockenheit zu einem Blattlausbefall in Konsumkartoffeln mit steigender Tendenz zum Monatsende; es wurden teilweise bis 17.000 Läuse pro 100 Fiederblatt festgestellt. Nach den von der Beklagten vorgetragenen Erkenntnissen ziehen solche massiv von Blattläusen befallene Kartoffelpflanzen insbesondere nach langen Trockenphasen auch Bienen an. Denn die Läuse produzieren Honigtau, der von den Bienen insbesondere mangels anderer - vertrockneter - Trachtpflanzen als Trachtquelle genutzt wird. Als Schwellenwert, ab dem mit einer entsprechenden Nutzung durch Bienen zu rechnen sei, sieht die Beklagte nach Abstimmung mit weiteren Fachbehörden eine Befallsdichte von mehr als 500 Blattläusen/100 Fiederblatt an. Nach ihren - etwa in den sog. Blattlauswarndiensten vom 6. und 13. Juli 2006 enthaltenen - Empfehlungen sei zwar spätestens bei einer entsprechenden Befallsdichte ein Einsatz von Pflanzenschutzmitteln geboten. Ausgeschlossen sei jedoch der Einsatz von bienengefährlichen Mitteln wie u. a. Tamaron. Auch in der vom Kläger selbst vorgelegten Empfehlung der Landberatung B. -C. vom 13. Juli 2006 wurde darauf verwiesen, dass das bienengefährliche Tamaron nur in honigttaufreien Beständen eingesetzt werden

Plant protection products are subject to an extensive authorization process



3-steps cascade for the testing and approval of pesticides



Folie: Dr. Werner von der Ohe

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All authorized plant protection products are classified according to their hazard for bees

- B1** **hazardous to bees**, the use on blooming plants is not allowed in general – this also applies to weeds
- B2** **hazardous to bees**, except when applied after the end of the daily bee flight until 11 p.m. on the crop to be treated
- B3** **non hazardous to bees**, due to the manner in which authorisation governs application of the product, bees are not endangered
- B4** **non hazardous to bees**, up to the maximum application rate, or concentration if no application rate is stipulated, as stated for authorisation is applied

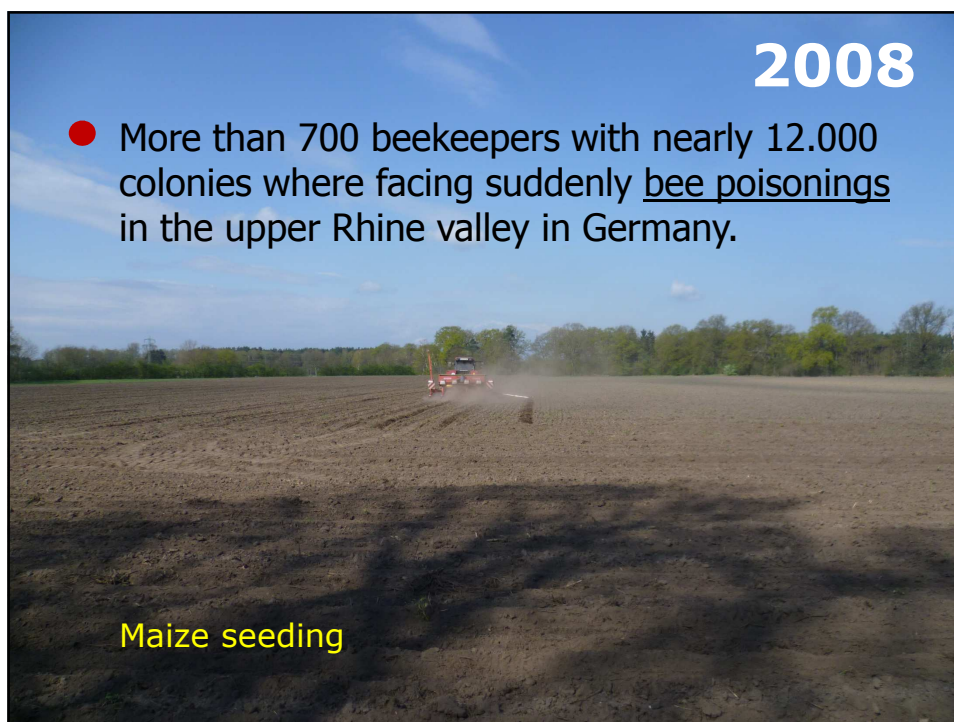
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The screenshot shows the top section of the JKI website. On the left is the JKI logo, which consists of a stylized green leaf and the letters 'JKI' in blue, with 'Julius Kühn-Institut' written below it. To the right of the logo is the text 'Federal Research Centre for Cultivated Plants' and 'Bundesforschungsinstitut für Kulturpflanzen'. Below this is a navigation menu with four items: 'The JKI', 'Topics', 'Institutes' (which is highlighted with a green background), and 'Info centre'. To the right of the navigation menu is a search bar with the text 'Google Benutzerdefinierte Suche' and a magnifying glass icon. Below the navigation menu is a large photograph of a bee on a yellow flower. Below the photograph is a green horizontal bar with the text 'BS Institute for Bee Protection'. At the bottom of the screenshot is the copyright notice '© Dr. Otto Boecking (LAVES) Bee Institute Celle, Germany'.



The photograph shows several red, damaged plant buds lying on a sandy surface. The buds are cracked and appear to be the result of insect damage. The year '2008' is written in white text in the upper right corner. The text 'A special case with consequences' is written in yellow text in the lower right corner. At the bottom of the photograph is the copyright notice '© Dr. Otto Boecking (LAVES) Bee Institute Celle, Germany'.



A special case with consequences



reasons:

- control of a new pest in maize (*Diabrotica virgifera*)
[quarantine pest]
- Seed dressing with the double ammount of the insecticide [neonicotinoid]
- Poor seed dressing, dry windy weather during the maize seeding, drifting of dressing-dust onto the nearby open blooming plants (rape, apple ++)
[toxin transfer into the colonies with the bees]

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A special case with consequences



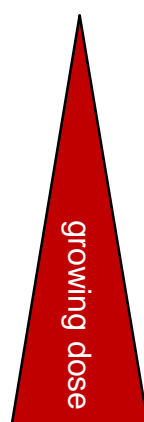
changes:

- Before the circumstances could be clarified the responsible office stopped in Mai 2008 the allowance to use some of the seed dressings.
- The European agency for food safety (EFSA) presented with the beginning of 2013 a reevaluation of 3 neonicotinoids.
- The EU-commission restricted in mid 2013 the use for 3 neonicotinoids for the time of 2 years (ongoing) in some agricultural crops.

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Hazards of bees due to insecticides

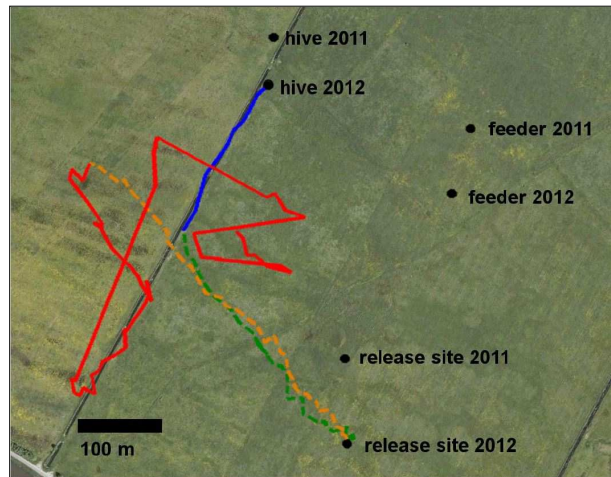
are depending on dose and concentration.



- no effect
(visible or measurable hazards)
- sub lethal effects
- chronic poisoning
- acute poisoning

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Neonicotinoids – show negative effects on the orientation ability of (individual) bees



Quelle: Fischer J, Müller T, Spatz A-K, Greggers U, Grünwald B, et al. (2014) Neonicotinoids Interfere with Specific Components of Navigation in Honeybees. PLoS ONE 9(3): e91364. doi:10.1371/journal.pone.0091364

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Neonicotinoids – negative effects can not be proven in whole bee colonies (fed with neonicotinoids)

Bee institute Kirchhain test long-term effects of Thiacloprid

Residues can be detect – yes

Bee poisoning – no

After two year investigation Thiacloprid did not resulted in visible adverse effects in the treated colonies.

Quelle: Siede R, Faust L, Meixner M, Grünwald B, Büchler R (2014) Performance of bee Colonies which are experimentally exposed to sub-lethal Doses of Thiacloprid. (Poster) AG-Tagung Marburg

© Dr. Otto Boecking (LAVES) Bee Institute Celle, Germany

A new laboratory test – in vitro-brood-test

allows us today to test for sub lethal effects –
the Bee Institute Celle is working on this topic



Fotos: Dr. Werner von der Ohe

■ **Take-home-message:**

- **Summer-losses/-damages In honeybee colonies are mainly to be explained by misuse of pesticides.**



Foto: Dr. Werner von der Ohe

- **Summer-losses/-damages due to pesticides are always a reason for the improvement of pesticide-testing methods and approval schemes.**

- *The bee institute in Celle is working on this topic.*



Farmers and Beekeepers doing good together



1. the problem - not only in Estonia



2. pollination - a win-win situation



3. plant protection/bee protection



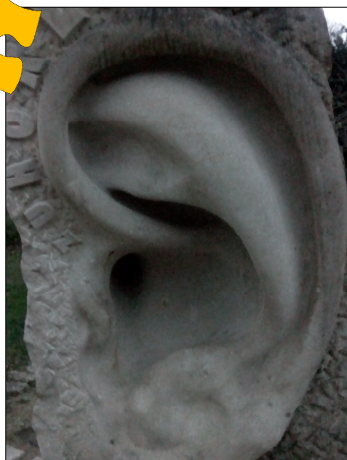
4. solution approach - "together"

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Beekeepers & Farmers

be(e) friendly!

listen to each other



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together
is one of the most inspiring words

1.step coming together **is a beginning**
2.step keeping together **is progress**
3.step working together **is success**

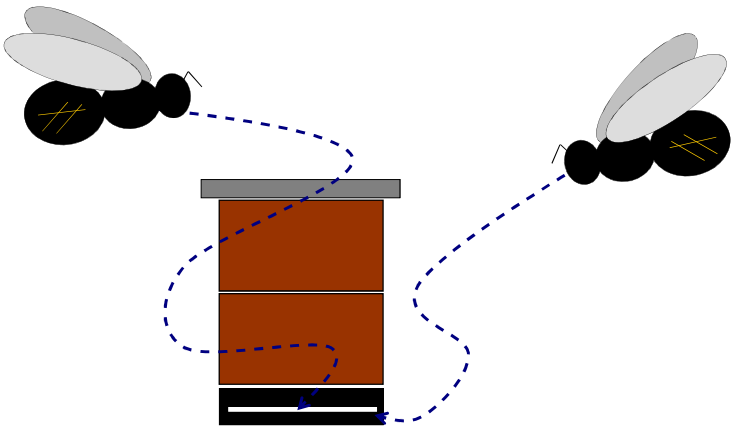
based on Edward Everett Hale (1822 – 1909)

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“Ta Lendab Mesipuu Poole”

Juhan Liiv * 30.04.1864 in Alatskivi; † 01.12.1913 in Kavastu-Koosa (today Luunja, Tartu)

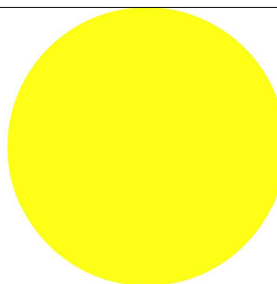
“He Flies Towards the Beehive”



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tänama!

EESTI



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