Issue 20 · February 2026

NO BEES NO LIFE

EBA MAGAZINE

32 COUNTRIES

FROM WHICH EBA HAS MEMBERS

(61 beekeeping organizations)

In order of confirmation of the Statute of EBA

420.179 beekeepers

Serbia
Slovenia
North Macedonia
Bulgaria
Greece
Romania
Malta
Germany
Hungary
Ukraine
Montenegro
Lithuania
Bosnia and Hercegovina
Sweden
Croatia
Czech Republic
Poland
United Kingdom
Netherlands
Italy
Ireland
Belgium
Cyprus
Türkiye
Switzerland
Prishtina*
Portugal
Spain
Slovakia
Austria
Albania
Iceland
Estonia

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HONEY
HONEY
2nd Birthday
European Beekeeping Association
BUY LOCAL HONEY
European Beekeeping Association
eba
Founded in Belgrade on February 10, 2024

BECAUSE OF THE EBA,

THE VOICE OF BEEKEEPERS IS FINALLY BEING HEARD IN THE EUROPEAN PARLIAMENT AND ACROSS SOCIAL MEDIA…

The EBA has been operating for almost two years. Everyone can imagine in their own way whether we have justified our establishment or not?! But it is definitely thanks to the EBA that the voice of beekeeping is finally being heard in the European Parliament, in the European Commission, and on social media. Almost every day we send letters to those responsible in the EU, urging them to finally listen to beekeeping.

We can also claim quite a bit of credit for the fact that EU Members of Parliament referred the decision on the Mercosur agreement to the EU Court. The EBA personally wrote twice to all 720 EU MEPs, wrote to the EU Commissioner and to the AGRI Committee… We believe that our ort hem salso convinced many that Mercosur is harmful to European beekeeping, and above all to the European honey consumer!

I am happy that our scientific committees are working with enormous energy and contribute greatly to ensuring that our letters are professionally supported, even though they do not receive a single euro for their work. All they receive is the word THANK YOU!

I often ask myself whether all this effort pays off, whether there will ever be results from our work, whether beekeepers will gain anything from what we do. Again and again I repeat to myself: “WHO ELSE WILL FIGHT FOR THE BEES, THE BEEKEEPERS, AND OUR CONSUMERS, IF NOT US BEEKEEPERS!”

That is why I believe in the result. I know that a huge amount of work lies ahead of us, many obstacles along the way, but I am glad that most beekeepers already see the first results of the EBA's work. I am glad that I regularly receive questions from beekeeping associations that are not yet members of the EBA about how and in what way they can join us.

Everyone is welcome, and as long as I am President of the EBA, there will certainly be no membership fee!

I am convinced that strength lies in the unity of European beekeeping. United and determined, we can succeed.

And yes, our voice is already being heard, it will be heard even more, and we will not give up until our demands are heard and implemented!

I ask all EBA members to write about our activities in your national beekeeping magazines, on websites, on Facebook, etc.

Only in this way will we inform more than 420,000 beekeepers who are members of the EBA, and above all also inform European honey consumers that beekeepers are FIGHTING ort hem too, so that they can enjoy real bee products, which they can get from a local beekeeper!

Boštjan Noč, President of the EBA

By Prof. Dr Andreas Thrasyvoulou, Prof. Dr Dražen Lušić, Dr Juraj Majtán, Dr Nik Lupše

WEBINAR
"FAKE HONEY – A FRAUD BEYOND BORDERS"

Watch the entire webinar at the link:
https://www.youtube.com/watch?v=5_k__3oSlmM

On 13th January 2026, EBA and its Scientific Committee on Safety and Quality of Bee Products hosted a free online webinar which tackled a major global problem – Fake Honey.

This highly successful webinar, which has been recorded and is now also available on Youtube (https://www.youtube.com/watch?v=5_k__3oSlmM), provided a comprehensive overview of the scale, causes, and persistence of honey fraud in Europe, while highlighting the scientific, legislative, and practical actions needed to protect beekeepers, consumers, and genuine honey.

The three presenters divided the content logically — covering the problem (Prof. Dr Dražen Lušić), legislative aspects (Prof. Dr Andreas Thrasyvoulou), and practical solutions (Dr Juraj Majtán).

Key takehome messages:

- Honey fraud exemplifies food fraud – intentional adulteration for economic gain with health and trust implications.
- Much of this fraud is enabled by weaknesses within the EU's own legislation and control systems.
- Recent investigations found 46% of honey samples suspicious, but suspicious honey still enters the market
- There is no fully validated, legally binding global reference method to prove honey adulteration. In fact, such reference methods are not expected before 2040.
- EU-wide traceability system is expected before 2029—giving fraudsters years to further organize and adapt
- Fraudsters can import unlimited quantities of adulterated honey, including products originating in China, via intermediary countries
- Consumers are misled, beekeepers are left unprotected, and honest producers are pushed out of the market. Beekeepers are already struggling with low prices, rising production costs, widespread fraud and unfair competition from cheap imports.
- In addition to combating fraudulent honey directly, scientists and beekeepers share a responsibility to educate consumers about the importance of local

honey from local beekeepers, emphasizing the health benefits of authentic honey

- We should strive for the cultivation of informed consumers who understand and value genuine honey!

Q&A from the webinar:

Dhurba Saud: My question is about the European Commission's honey regulations. Currently, honey marketed as authentic in the EU is legally recognized only when produced by Apis mellifera.

However, there are many other honey-producing bee species, such as Apis cerana, Apis dorsata, Apis laboriosa, and stingless bees (Meliponini), whose honeys are often reported to have high nutritional value, medicinal properties, and unique characteristics. Could you please explain why honey from these species is not yet legally recognized in the EU? Is this due to scientific concerns, safety standards, lack of harmonized research, or regulatory limitations? And do you think more research could support future legalization?

Answer:

The EU definition of honey's restriction to Apis mellifera is primarily a regulatory limitation, not a scientific one. The exclusion of honey produced by other bee species from the EU Honey Directive is scientifically unjustified and discriminatory.

The Revised Codex Alimentarius Standard for Honey (amended 2019–2022) defines honey as a product produced by bees, without specifying the species. Similarly, the revised draft ISO honey specification, updated in April 2024, allows honey from other bee species to be included in the definition, provided it meets the established quality and safety criteria applied to Apis mellifera honey.

Honey produced by Apis mellifera and other Apis species shares many common physicochemical characteristics, including sugar composition (fructose, glucose, sucrose), electrical conductivity, HMF content, ash content, and pH. However, honey from other species often shows distinct features such as higher moisture content, higher free acidity, and lower diastase and invertase activity. Differences also exist in taste, aroma, and bioactive compounds such as phenolic acids and flavonoids. Importantly, these parameters are not part of the legally defined quality criteria of either the EU Directive or the Codex.

To align the EU Honey Directive with Codex and ISO standards, we propose revising the definition to "honey produced by honey bees." This change could be introduced as an amendment to Annex I of Directive (EU) 2024/1438, together with appropriate product names. In Annex II, compositional criteria should allow clearly defined deviations for honey from other bee species, in the same way that the Directive already allows exceptions for specific pure honey categories.

The current honeybee-based definition also excludes honey produced by Meliponini (stingless bees), which belong to a different tribe than Apis (Apini). Stingless bee honey differs significantly in taste, texture, composition (moisture, enzymes, sugars, pH), and nutritional and medicinal properties. Since the Codex definition refers broadly to "bees," it should explicitly recognize and accommodate these differences rather than exclude them.

Further harmonized scientific research would strongly support future legalization, but the primary barrier today is regulatory, not scientific.

Juergen Binder: What happens when the fraud industry realizes that low price is suspicious and they rise the price to realistic amounts? Then they make even bigger profit and the price is no longer an indicator.

Answer:

If fraudulent operators raise the price of imported honey, they may reduce unfair price competition with local producers, but they will significantly increase consumer deception. In such cases, price alone ceases to be a reliable indicator of authenticity.

Countries that apply clear and distinctive labeling, clearly differentiating imported from domestic honey, will be less affected. When consumers are informed and aware of quality differences between local and imported honey, deceptive pricing becomes less effective. Therefore, with well-designed labeling, strong promotion of local products, and consumer education, this problem can be substantially mitigated.

Murat Agirbas: All of these issues relate to strained (filtered) honey. So, what kind of studies should be carried out regarding comb honey? Should the same rules apply to comb honey as well? Since comb honey is not homogenized, is not more difficult to assess and understand its characteristics? Initiatives should also be undertaken in this area, and specific regulations should be developed.

Answer:

According to the Honey Directive, comb honey is defined as: "Honey stored by bees in the cells of freshly built broodless combs or thin comb foundation sheets made solely of beeswax and sold in sealed whole combs or sections of such combs." Under this definition, comb honey cannot be filtered without fundamentally changing its nature.

Because comb honey remains in its original form, its physicochemical, organoleptic, and microscopic characteristics are preserved. These characteristics

are consistent with those of other honey categories, except where specific exceptions are already defined in the Honey Directive. Therefore, the existing rules can be applied to comb honey without modification, provided its unique form is respected.

Natasha Lyon: Honey Sensory Analysis evaluation can help prioritize which honeys should undergo lab-based adulteration tests. Where honey varieties have been profiled (over many years), certified sensory panels can assess whether a honey's sensory profile matches it's claimed origin (e.g chestnut honey should show specific bitterness and phonilic notes). Because adulterators often focus on chemical mimicry, honey sensory analysis provides different dimension of authenticity checking (rooted in how real honey should smell, taste and feel). This honey sensory analysis training by The National Italian Register of Experts in Honey Sensory Analysis makes a valuable complimentary tool alongside scientific methods in combating honey fraud.

Answer:

The EU Honey Directive recognizes organoleptic characteristics as a requirement for defining monofloral honey, alongside physicochemical and microscopic criteria, but it does not specify them in detail. As a result, each Member State determines these characteristics independently through national decisions.

While physicochemical and microscopic parameters have been defined in almost all EU countries, organoleptic characteristics have not been formally standardized at the European level. To my knowledge, Croatia is a notable exception, as it links pollen content with sensory characteristics (smell, taste, color) for specific monofloral honeys such as Citrus, Lavandula, Salvia, and Tilia.

Although sensory evaluation is widely used in national and international exhibitions and competitions, it is rarely applied in official honey quality control. The main challenge lies in the quantification of sensory attributes and the lack of harmonized European methodology. Until such harmonization exists, sensory analysis remains an important complementary tool, but not a fully integrated regulatory instrument.

Laura Stadler: The honey labelled as suspicious which is being imported - is this 100% of the 1-4% that is physically checked or 100% of physical checks as well as improper documentation/problems with import documentation - e.g. health certificate not provided, transport documentation, admin errors, custom/taxes not paid on import, etc.

Answer:

All consignments sampled under the EU coordinated action and found non-compliant were ultimately imported. These non-compliant samples represented 46% of the 320 honey samples analyzed.

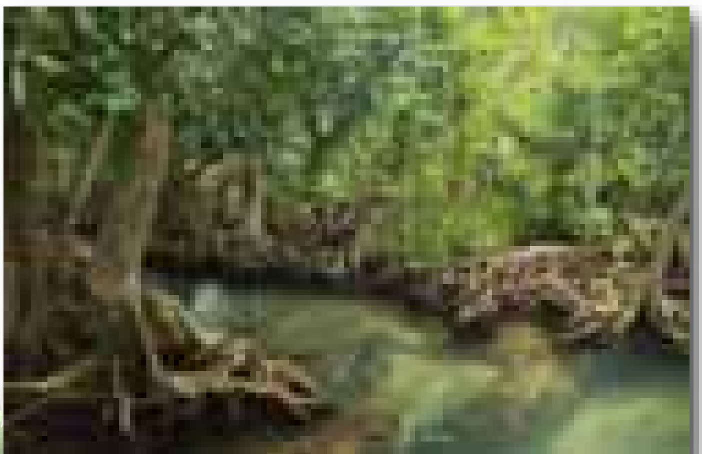
Under Regulation (EU) 2017/625, physical sampling and laboratory analysis of honey at border control posts is optional, not mandatory. In practice, only about 1–4% of honey consignments imported from third countries are physically tested under normal conditions.

The 320 samples analyzed during 2021–2022 were collected specifically for the coordinated EU investigation and do not reflect routine border control procedures.

Sarfaraaz Rashid: Is it true that honey from apiaries in mangrove forests is higher in antioxidants than honey derived from apiaries in inland forests?

Answer:

Yes, in general. Most studies across countries indicate that forest honeys, including those from mangrove ecosystems, generally exhibit higher antioxidant activity than honeys produced in inland or agricultural environments. However, it is important to emphasize that inland multifloral honeys can also exhibit high antioxidant activity.



Ervis Mema: Given that there are many forms of honey fraud, what do you think are the most effective measures that can be taken at the producer, institutional and market levels to prevent this phenomenon?

Answer:

Beekeepers, their organizations, and scientists must continue to demand solutions, particularly the closure of legislative gaps that allow honey fraud to persist and become a well-organized problem in Europe. Stronger and more consistent enforcement at EU borders is essential.

At the same time, beekeepers must protect the integrity of their product. They should reject easy compromises and refuse to participate in fraudulent systems. Their strongest tools are truth, quality, and unity. Protecting local honey through distinctive labeling, effective promotion, and consumer education is crucial.

Ervis Mema: How can beekeepers themselves and their associations be more actively involved in the trust of true authors and the truth of consumer trust.

Answer:

Beekeepers possess both experience and instinct. They can distinguish those who genuinely care about bees and the sector from those driven by personal interests. Through their associations, they can maintain continuous contact with trustworthy individuals and initiatives, including platforms such as No Bees No Life magazine of the EBA. Collective effort is essential to ensure that the magazine truly represents the strong and authentic voice of beekeepers.

Fatjon Hoxha: Should the focus be on the price of imported honey to make conclusion regarding the authenticity of Honey, or we should focus on a more competitive apiculture sector through support and incentives for the sector.

Answer:

Shelf price can be an initial indicator of imported and potentially degraded honey, but it should not be the sole criterion. Consumers should also carefully review the country of origin, which must be declared. If the origin is difficult to find, the honey is almost certainly imported.

Importers often minimize the visibility of the country of origin to avoid consumer distrust, as many consumers prefer local honey. Local honey usually stands out through clear labeling or prominently displayed origin information. The safest choice remains purchasing honey directly from a trusted local beekeeper.

Fabian Lindhe: Artificial syrup should contain more water than honey, but this is not detected by standard honey water tests. Has anyone tested water activity (AW) to determine the actual water content and thereby prove that so-called honey violates the Honey Directive?

Answer:

Modern, next-generation syrups—particularly those produced in China—are designed to evade most analytical methods. These include enzymatically engineered C3 syrups with isotope ratios adjusted to mimic natural honey, acceptable NMR fingerprints, and water content similar to genuine honey. As a result, traditional water content and activity measurements are often insufficient to detect such adulteration.

Ervis Mema: With the changes in acetamiprid rates by the European Union, as well as the agreement of recent days that will allow honey from Latin American countries, even facilitating passage through customs!? the question is, will the HONEY definition rules change for the acceptance of EU honey?

Answer:

No. EU honey regulations will not change, and honey with residues above permitted limits will not be accepted. In practice, exporters can remove pesticide and antibiotic residues using resin filtration. However, there is currently no legally protected method to monitor or regulate this removal process, which represents a serious regulatory gap.

Gordana Hegić: Are there any stricter requirements for bee products (analyses) used for apitherapy purposes?

Answer:

For apitherapy and medical use, medical-grade honey, registered as a medical device, is required, particularly in hospitals and clinics. Alternatively, fresh honey may be used if it is carefully produced, free from antibiotics and chemical residues, and demonstrates sufficient antibacterial activity for the intended therapeutic purpose. It needs to be emphasize e that medical-grade honey is not food anymore and its production is regulated according to the pharmacopoeia.

Kyle Redder: How much of the adulterated honey ends up being used in the manufacturing industry for cosmestic products or other...? Are there any numbers available?

Answer:

There are no official figures, and it's difficult to estimate any exact percentage of adulterated honey in cosmetic products However, a rough estimate can be made. Europe imports approximately 170,000 tonnes of honey per year. According to the EU coordinated action, 46% of imported honey in 2021–2022 was non-compliant. This corresponds to roughly 78,200 tonnes of adulterated honey, much of which has been distributed on the European market as authentic honey.

Demetris Photiou: Does the European honey covers the demand in Europe in case the non Europe honey imports stops No, the average annual honey production

Answer:

Europe produces approximately 280,000 tonnes of honey per year, while consumption is about 360,000 tonnes (450 million people × 0.8 kg per person per year). This results in a deficit of approximately 80,000 tonnes, which is currently covered by imports.

Anonymous Attendee: Is there any isotopic fingerprinting control applied in the imported honey anywhere, not just in EU?

Answer:

In the European Union, the Joint Research Centre (JRC) in Geel used EA/LC-IRMS (Elemental Analyzer / Liquid Chromatography – Isotope Ratio Mass Spectrometry) during coordinated border control actions to detect adulteration in imported honey.

In the United States, the FDA applies Stable Carbon Isotope Ratio Analysis (SCIRA) as part of its import screening to identify undeclared sugars such as cane or corn syrup.

Globally, isotopic methods are widely used by laboratories, but there is no harmonized international requirement mandating isotopic fingerprinting for honey imports.

Gabriel Kondilis: Is there a way to raise awerness through a European campaign in order to "educate" consumers? Imports/Exports is something that will never stop and we can't really do anything about it.

Answer:

The EBA seminar marked an important first step in understanding the depth of the problem. Continuous public awareness efforts are needed through media, digital platforms, magazines, and other communication channels.

Consumers must be informed about the fragile system that allows honey fraud to persist, while simultaneously highlighting the difference between locally produced honey and imported honey. Sustained information campaigns, public pressure, and demands for EU action are essential to ensure that environmental protection and consumer health are prioritized over importer interests.

Additional Question: What is the difference between Joint Research Center and EU Reference laboratory?

Answer:

Joint Research Centre (JRC) is an in-house scientific service of the European Commission. It is part of the European Commission itself, not an external laboratory. The JRC's mission is to provide scientific evidence for EU legislation, develop new analytical concepts and methodologies, support impact assessments, risk assessments, and policy options, act as a neutral scientific authority, especially in politically sensitive areas (e.g. fraud, sustainability, climate, food systems) The JRC often works before or alongside legislation, helping the Commission decide what should be regulated, how it should be regulated, and what scientific tools may be needed in the future. JRC supports policy design and evaluation at EU level.

EU Reference Laboratories (EURLs) are official laboratories designated by the European Commission under specific EU regulations. They are external laboratories, usually national public institutes in Member States. Each EURL is responsible for a very specific analytical field (e.g. honey authenticity, pesticide residues, veterinary drug residues). EURLs ensure harmonized analytical methods across the EU, support official control laboratories in Member States, provide reference methods, validation, and troubleshooting, organize proficiency tests (ring trials), offer scientific and technical training to national labs. EURLs operate after legislation exists, ensuring that rules are applied uniformly, results from different countries are comparable, enforcement is scientifically robust and legally defensible. EURLs support enforcement and harmonization of controls across Member States.


NOW OR NEVER!
EU PARLIAMENT MEMBERS—
LAST CHANCE
TO STAND WITH BEEKEEPERS, FARMERS,
CONSUMERS, AND THE ENVIRONMENT!

Brdo pri Lukovici, 16. January 2026

Subject: Now is the time to save beekeeping! The position of the European Beekeeping Association (EBA) regarding the ECJ referral vote and the Motion for Resolution of the EU–Mercosur Agreement

Dear President of the European Parliament, Ms Roberta Metsola,

Dear Members of the European Parliament,

We are yet again addressing you at this crucial moment to emphasize the negative impacts the EU–Mercosur Agreement will have for all the farming sectors, INCLUDING the beekeeping sector.

According to the Mercosur agreement, up to 45,000 tons of honey will be able to enter the EU each year without customs duties, which is almost 10% of the total annual honey consumption in the EU. As the EU already imports approximately 160,000 tons of honey annually from countries outside the EU, the pressure on the market will be even greater.

Beekeepers in Europe produce honey according to the highest hygiene standards with the best beekeeping practices. Therefore, production costs are higher, consequently the quality of bee products is also higher.

Competing with imports that come from environments with lower standards and lower costs, without customs duties is unfair competition and will prove to be extremely damaging, if not detrimental, to the european beekeeping.

According to the EU Commission, almost 50% of honey on the European market is already counterfeit.

The European Beekeeping Association would like to remind us all that every third spoonful of food depends on bee pollination. Honey can be imported, but unfortunately pollination cannot. We are again asking the European politics to understand the crucial role of bees and beekeepers, both for the farming sector and biodiversity (and this planet!). We would also like to remind all the members of the parliament that you are in this position to defend the consumers, who will be heavily hit by potentially unhealthy, if not fake, bee products.

If for some reason, and it should not, the EU–Mercosur Agreement gets finally approved, the European beekeepers demand strict control of honey traceability and state-of-the-art analysis for residues in honey and control of honey authenticity. This control must be carried out before the honey reaches Europe.

Several institutional reactions have also resulted from the unique manner in which this specific deal has been negotiated, marketed, and pushed through the approval process. Resorting to the ECJ referral further proves that the Members of European Parliament have lost trust in the way in which the ratification process has been conducted.

The European Beekeeping Association firmly opposes the EU–Mercosur Agreement and calls on Members of the European Parliament to support the *ECJ* referral action, preventing the agreement to be approved in its current form.

We remain at your disposal for scientific consultation and constructive dialogue.

Respectfully,

President Boštjan Noe   President of European Beekeeping Association

Dr. Nik Lupše –Head of EBA Scientific Committees, on behalf of the Scientific Committee for Safety and Quality of Bee Products

EBA EXECUTIVE BOARD DECISIONS AND UPCOMING MEMBERS' ONLINE MEETING

At its online meeting held on 5 January 2026, the EBA Executive Board adopted several important decisions that will significantly shape the future work and activities of the European Beekeeping Association (EBA).

Online Meeting of All EBA Members – 21 January 2026

The Executive Board decided to convene an online meeting of all EBA members on 21 January 2026. This meeting will provide an opportunity for members to be informed about recent decisions, ongoing activities, and future priorities of the Association. Further technical details and connection information will be communicated in due course.

Strengthening Communication and Visibility of EBA Activities

In order to improve internal communication and enhance the visibility of EBA activities at national and European levels, the Executive Board agreed that all member organizations are requested to provide:

The name of a designated contact person responsible for receiving and disseminating information on EBA activities within their national organization;

Email contacts of key national media outlets, with the aim of strengthening the public visibility of EBA positions and actions in each country.

Establishment of an EBA Advisory Body

One of the key new developments is the decision to establish an Advisory Body to support the work of the EBA Executive Board. Members of this body will not have voting rights; however, through their expertise, proactive engagement, and concrete proposals, they will contribute to the development of new ideas and to strengthening the overall work of the Association.

Call for Proposals for EBA's Future Work

All members of the EBA Executive Board agreed that proposals for the future work of the EBA should be submitted by 15 January 2026. The Executive Board expects proactive engagement from all EBA members in defining priorities and actions for the coming period.

Intensified Activities Toward the AGRI Committee of the European Parliament

A particularly important decision concerns the further specification and intensification of EBA activities toward the AGRI Committee of the European Parliament. The objective is to ensure that the following key issues are placed on the AGRI Committee's agenda:

The problem of falsified (adulterated) honey on the European market;

The introduction of support per beehive for all beekeepers;

The use of plant protection (phytosanitary) products and their negative impact on beekeeping;

The harmful consequences of the MERCOSUR Agreement for European beekeepers.

Through these actions, the EBA aims to strengthen the protection of beekeepers, ensure fair market conditions, and safeguard the future of beekeeping in Europe.

European Beekeeping Association (EBA)

FORMAL REQUEST TO INCLUDE BEEKEEPING ON THE AGRI COMMITTEE AGENDA

The European Beekeeping Association (EBA) has submitted a formal request to the Committee on Agriculture and Rural Development (AGRI) of the European Parliament, calling for the inclusion of beekeeping as a dedicated item on the Committee's agenda.

This request was adopted by the EBA Executive Board and reflects the urgent need to address the critical challenges facing European beekeeping, including honey fraud, unfair market conditions, environmental pressures, and the impact of EU trade policies.

The full text of the request:

Brdo pri Lukovici, January 17. 2026.

Subject: Request to Include Beekeeping on the AGRI Committee Agenda – Decision of the EBA Executive Board

Dear Chair of the Agri Committee, Ms Veronika VRECIONOVÁ,

Dear Members of the Committee on Agriculture and Rural Development (AGRI),

On behalf of the European Beekeeping Association (EBA), we would like to formally address the AGRI Committee following the decision adopted by the EBA Executive Board at its online meeting held on 5 January 2026.

At this meeting, the Executive Board unanimously agreed to intensify and further specify EBA's activities towards the AGRI Committee of the European Parliament, with the clear objective of ensuring that the situation of European beekeeping is addressed in a structured and substantive manner at parliamentary level.

This decision builds upon the ongoing dialogue between EBA and the AGRI Committee. In this context, we recall the online meeting held on 8 October 2025 between the President of the EBA and the Chair of the AGRI Committee, during which key challenges faced by European beekeepers were outlined and the importance of parliamentary engagement on beekeeping was acknowledged. That exchange confirmed both the relevance and urgency of the issues concerned.

In line with the above-mentioned decision of the EBA Executive Board, we respectfully request that the AGRI Committee include a dedicated item on beekeeping on its agenda, focusing in particular on the following priority issues:

1. The problem of falsified (adulterated) honey on the European market;
2. The introduction of support per beehive for all beekeepers;
3. The use of plant protection (phytosanitary) products and their negative impact on beekeeping;
4. The harmful consequences of the MERCOSUR Agreement for European beekeepers.

European beekeeping is facing unprecedented economic, environmental, and market pressures. Without timely and targeted political action, the sustainability of this sector — which is essential for agriculture, food security, and biodiversity — is seriously at risk.

The EBA therefore considers it of utmost importance that the AGRI Committee addresses these matters as a coherent package and provides political guidance and support for appropriate legislative and policy responses.

We remain fully available to contribute constructively to the Committee's work, including through expert input, data, and practical experience from beekeepers across Europe.

We thank you for your attention and look forward to continued cooperation.

Boštjan Noč
President of European Beekeeping Association

ONLINE MEETING OF EBA MEMBERS – CHANGE OF DATE AND CALL FOR PROPOSALS

The European Beekeeping Association (EBA) would like to inform its members that the online meeting of all EBA members, originally scheduled for 21 January, has been moved and will now take place on:

28 January 2026, at 19:00 (CET)

Members are kindly invited to submit their proposals and suggestions for EBA activities in 2026 no later than 25 January 2026.

The input of EBA members is of great importance for the preparation and adoption of the EBA Work Plan for 2026, ensuring that it reflects the real needs and priorities of European beekeepers.

Technical details, including the meeting link and agenda, will be shared in the coming days.

We thank all members for their engagement and active contribution to the work of EBA.

MEETING OF ALL EBA MEMBERS

28 JANUARY 2026

On 28 January 2026, a meeting of all members of the European Beekeeping Association (EBA) was held.

The President, Boštjan Noč, presented each proposal submitted, explaining and elaborating on all contributions received from members up to the date of the meeting. He emphasized that the proposals were of very high quality.

The President thanked all members who contributed ideas and proposals, noting that the beekeeping sector is facing serious challenges. He stressed the importance of working together and taking decisions swiftly, as required by the current situation. He also highlighted that EBA's Scientific Committees are highly effective and underlined that they should always be consulted in EBA's work and decision-making.

Members actively participated in the discussion, and the meeting progressed in a very constructive and positive direction.

During the discussion, Jürgen Binder (Germany) raised the issue of pollination security and the EU–Mercosur Agreement and proposed that EBA prepare an official letter on this matter. He emphasized that many politicians in Germany are insufficiently informed and called for joint action and coordinated engagement with policymakers. The President confirmed and supported Jürgen Binder's proposal.

Torsten Ellmann (Germany) contributed to the discussion by raising the issue of traceability, while the President additionally addressed the topic of border controls.

Furthermore, Jorge Spiteri (Malta) spoke about the importance of standardized data and proposed that data from all member associations be harmonized at EBA level, in order to strengthen coordination and effectiveness across the organization.

The President proposed a proactive approach to the formation of working groups and encouraged all members to actively engage and participate, underlining that broad involvement is essential for achieving EBA's objectives.

Additionally, Giorgos Athanasiadis (Greece) suggested the formal creation of a working group, supporting the President's call for active member participation and structured collaboration.

The President, Boštjan Noč, also presented a proposal for two specialized groups within EBA:

A group focused on Common Agricultural Policy and broader European agricultural policy, to coordinate EBA's strategic engagement at the EU level.

A group dedicated to data collection and statistical analysis, aimed at strengthening EBA's evidence-based decision-making and reporting capabilities.

Additionally, Tetyana Vasylkivska (Ukraine) expressed interest in participating in the formation of a working group, further highlighting the collaborative spirit among members.

The President Noč thanked all participants for a constructive and productive meeting, emphasizing the value of their engagement and contributions.

EBA

A GREAT VICTORY!

European Parliament freezes the EU–Mercosur deal and refers it to the EU Court of Justice.

On January 21, 2026, the European Parliament took an important step by freezing the EU–Mercosur trade agreement and referring it to the Court of Justice of the European Union.

334 Members of the European Parliament voted in favour. We won!

EBA played a clear and active role in this outcome.

EBA intensively and directly informed Members of the European Parliament, including through an official letter sent to all 720 MEPs, clearly outlining the serious risks posed by the EU–Mercosur deal.

This was not a coincidence.

It is the result of coordinated advocacy, strong arguments, and persistent work by EBA and beekeepers across Europe.

Thank you to everyone who supported, shared, and stood with us.

This decision shows that citizen action works. But the fight is not over. We will continue to defend bees, beekeepers, sustainable agriculture, and fair trade.

The deal is frozen – not defeated. We stay alert.

Boštjan Noč, president od the EBA

EBA THANKS MEPs

FOR DEFENDING BEEKEEPERS AND CONSUMERS IN THE EU–MERCOSUR VOTE

The European Beekeeping Association (EBA) expresses its gratitude to Members of the European Parliament for their commitment to protecting European agriculture and beekeeping. Their vote against the EU–Mercosur agreement supports beekeepers producing honey to the highest standards while safeguarding biodiversity and food security. The full message from EBA highlights the critical importance of pollinators and sustainable farming for Europe's economy, ecology, and society.

Subject: Thank you for standing up for the beekeeper and the consumer in the EU–Mercosur Agreement vote!

Dear President of the European Parliament, Ms Roberta Metsola,

Dear Members of the European Parliament,

The European Beekeeping Association would like to sincerely thank you for your efforts to stop the negative impact the EU-Mercosur agreement would have on the European farming, including beekeeping.

Your vote shows support to all of Europe's beekeepers and their efforts to produce honey according to the highest hygiene standards through the use of best beekeeping practices.

Protection of beekeeping and its standards should be a priority as every third spoonful of food depends on bee pollination, making honey bees essential not only to the European economy and farming but also its ecology, biodiversity and general well-being of us all.

We remain at your disposal for further scientific consultation and constructive dialogue.

Respectfully,

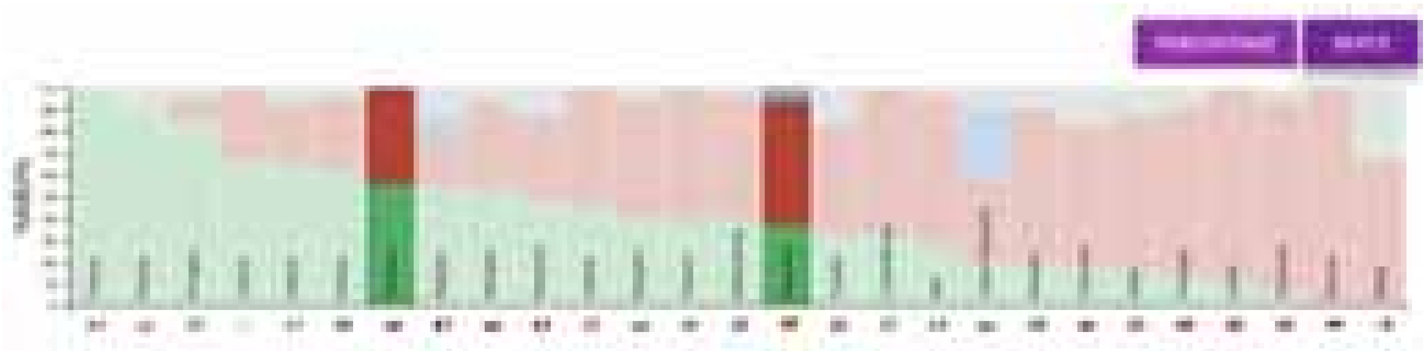
Boštjan Noč
President of European Beekeeping Association

Dr. Nik Lupše
Head of EBA Scientific Committees

EU-MERCOSUR COURT OF JUSTICE REFFERAL VOTE

See how countries and members of the EU parliament voted: who supports european farming and bee-keeping and who is prepared to sacrifice our own wellbeing?

https://mepwatch.eu/10/vote.html?v=183884&country=de%7Csi



EUROPEAN COMMISSION RESPONDS TO EBA

The European Beekeeping Association (EBA), through its Bee Health Scientific Committee, submitted a formal letter expressing concerns regarding the European Commission's recent proposal on pesticide approval procedures.

https://ebaeurope.eu/letter-from-the-eba-bee-health-scientific-committee/

The letter was addressed to:

Members of the European Commission

EU Commissioner for Agriculture and Rural Development, Mr Christophe Hansen

President of the European Parliament, Ms Roberta Metsola

EU Commissioner for Environment, Water Resilience and a Competitive Circular Economy, Ms Jessika Roswall

Chair of the European Parliament Committee on Agriculture and Rural Development, Ms Veronika Vrecionová

Members of the European Parliament

Copa-Cogeca

The European Commission has responded today, and its reply is provided below:

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY

Food Safety, Sustainability, and Innovation
The Director

Brussels
SANTE.E.4/SH/eu(2026)124731

Mr Boštjan Noc
President European Beekeeping Association
Brdo pri Lukovici 8
1225 Lukovica
Slovenia
E-mail: eba@ebaeurope.eu

Subject: Your letter of 21 November 2025 expressing concerns of the Scientific Commission of the European Beekeeping Association regarding the recent proposal on pesticide approvals

Dear Mr Noc, Prof. Özkırım and Dr. Formato,

Thank you for your above-mentioned letter addressed to Commissioners Hansen and Roswall, in which you express your concerns on the food and feed safety Simplification Package in particular regarding the measures for pesticides. The Commissioners have asked me to reply on their behalf.

Let me first underline that the protection of human and animal health and the environment remain the highest priorities for the Commission, including in the context of the regulatory framework for pesticides. The EU legislation on pesticides is among the most stringent in the world. Only active substances which fulfil the strict approval criteria established by Regulation (EC) No 1107/2009 can be approved for use in plant protection products, and only after a thorough risk assessment carried out first by a Rapporteur Member State and then peer-reviewed by the European Food Safety Authority (EFSA) and the other Member States. Each plant protection product containing one or several approved substances must then be assessed by Member States before they can grant authorisation for its placing on the market and use, and products may not be harmful to human or animal health, nor have any unacceptable effects on the environment including bees.

I note that your letter is based on a preliminary draft that is different from the contents of the Simplification Package adopted by the Commission on 16 December 2025([1]).

The Simplification Package adopted by the Commission neither changes the strict approval criteria for active substances, nor the authorisation requirements for plant protection products, thus maintaining the current high level of protection for human health and for the environment. Rather, the proposal aims at creating a regulatory system which is more agile and effective for reviewing the approval of active substances, including for the uptake of new scientific or technical knowledge; and ensure a more rapid response to emerging issues when needed than the current time-driven renewal assessment of all active substances which has led to a situation that due to overall resource limitations there are significant delays in renewal procedures requiring extensions of approvals. In particular, the proposal foresees the set up by Commission of a framework for work programmes that may select specific active substances for a full renewal procedure or a targeted reassessment (which can also be applied to active substances with limited approvals).

In fact, currently most active substances are initially approved for a period of 10 years and then subsequently renewed for a period of 15 years. This means that it takes many years before a newly endorsed guidance document is fully implemented (applied to all approved active substances). With the proposed targeted reassessments, it will become possible to implement such newly endorsed guidance documents much earlier, especially for those substances where an impact is expected. As such the simplification proposal allows to implement new scientific or technical knowledge much faster than waiting for the next scheduled renewal cycle for an active substance under the current time driven renewal cycle. The Commission believes that this will enable for example an accelerated implementation of the revised Bee Guidance Document once this Guidance Document will be endorsed by the Member States.

Also, as clearly set out in the proposal amending Regulation (EC) No 1107/2009, approvals will remain time limited for active substances that are candidates for substitution, for those approved only because they are essential for European farmers, and for substances for which the outcome of the risk assessment points to the need for a re-evaluation after a certain period of time. I also note that for about half of the currently approved active substances (ca. 200) renewal procedures are ongoing and a decision on whether the approval periods of those substances can become unlimited will only be taken after the completion of the respective procedures.

In addition, the proposal contains further safeguards to ensure that the approvals of active substances will be reviewed when there are reasons to do so, including the maintenance of time-limited authorisations, the already current provisions to revise an approval under Article 21 and, as already indicated above, an obligation for the Commission to periodically identify active substances with unlimited approvals for a full or targeted re-evaluation (in particular when data requirements or technical guidance documents are updated).

Member States will continue to be able to take into account new scientific and technical knowledge related to active substances when considering applications for product authorisation (which remain limited in time) and, where they consider that such knowledge requires an update of the last EU assessment will be obliged to inform the Commission accordingly.

An important part of the simplification package is dedicated to accelerating market access and availability to farmers for biocontrol substances and products containing them. Other amendments proposed are aimed at lowering the administrative burden for Member States so they can process applications for new biocontrol substances and products in a timely manner. Member States have repeatedly pointed out to the Commission that the vast majority of their resources is bound by the systematic renewal process for all active substances, meaning that and innovative companies applying for the approval of new biocontrol substances often have to wait for several years before a Member State agrees to take on the role of rapporteur for the first risk assessment. This hinders the transition to a more sustainable portfolio of plant protection products for farmers to ensure safe and secure food production and a phase-out of more hazardous active, due to the lack of suitable and more sustainable alternatives.

The simplification package indeed contains a proposal to increase the maximum length of grace periods (from 18 months to 36 months) that Member States may grant for continued distribution and use of existing stocks of products containing active substances for which approvals have been withdrawn or not renewed but only when there is no immediate concern to health or the environment and only in case there are no reasonable alternatives available to farmers in a given Member State In all other cases, the grace periods remain as they are now. This will ensure that the Member States concerned have more time to authorise alternative products, and do not need to take recourse to emergency authorisations as is often the case today.

Let me conclude by emphasising again that the Commission remains committed to ensuring protection of health and the environment, while at the same time providing farmers with more and better tools, such as precision farming and biopesticides, to protect their crops effectively.

Yours sincerely,

[e-signed]

Klaus Berend

REVISION OF GUIDELINES FOR VARROA MEDICINES!

Take a look, send your suggestions to Biljana (eba@ebaeurope.eu) so that she can forward them to the EBA Bee Health Commission, which will prepare a joint EBA proposal.

A revision of the guideline on #veterinary medicinal products for the control of Varroa destructor parasitosis in #bees is now open for public consultation until 31 May 2026.

Stakeholder expertise is essential to ensure that the revised guideline reflects current scientific knowledge and regulatory standards. More information, including the draft guideline, is available here: https://www.ema.europa.eu/en/documents/scientific-guideline/draft-guideline-veterinary-medicinal-products-controlling-varroa-destructor-parasitosis-bees-revision-2_en.pdf

NEW WEBINAR: UPCOMING SESSION ON INVASIVE HORNETS

The European Beekeeping Association (EBA) continues its commitment to education and knowledge-sharing with a series of free webinars for beekeepers and stakeholders. The next session, titled “Knocking on Our Door: Invasive Hornets – Now or Never!”, is scheduled for February 11.2026 at 6:00pm (CET).

The webinar will feature two expert speakers:

Assist. Prof. Dr. Alexandros Papachristoforou, presenting on “The Oriental Hornet (Vespa orientalis): Expansion and Emerging Threats”.

Prof. Dr. Xesus Feás, presenting on “The Asian Hornet Vespa velutina: A “One Health” Challenge for Beekeepers and Beyond.

This webinar is part of EBA’s ongoing efforts to provide up-to-date scientific knowledge, raise awareness about emerging threats to bees, and support the beekeeping community across Europe.

Participation is free, and all members and stakeholders are encouraged to join.

Register for a Free EBA Webinar

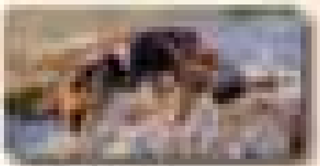
Knocking on Our Door: Invasive Hornets

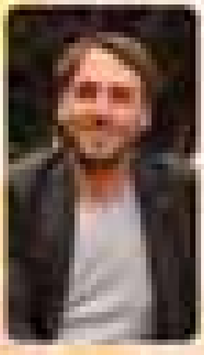
Now or Never!

11 February • 6pm CET

Assist. Prof. Dr. Alexandros Papachristoforou

The Oriental Hornet Vespa orientalis: Expansion and Emerging Threats





Prof. Dr. Xesús Feás

The Asian Hornet Vespa velutina: A "One Health" Challenge for Beekeepers and Beyond

Register on the link: bit.ly/3NIVFngr

A large number of beekeepers in Greece is currently being brought before the courts following decisions by local forestry authorities because they have placed their beehives in pine forest areas. This action is particularly alarming, given that pine forests are the backbone of Greek apiculture, accounting for approximately 65% of the country's annual honey production.

The accusations against these beekeepers are unfounded. Greek legislation explicitly permits the placement and operation of beehives within forest areas, provided that general environmental and safety rules are respected. Consequently, the current prosecutions represent not only a misinterpretation of the national law, but also a serious threat to the sustainability of Greek beekeeping and to the livelihoods of thousands of professional and semi-professional beekeepers, consequently also massively affecting consumers that recognise the importance of local honey and other bee products.

The president of EBA, Boštjan Noč, fully supports the right of greek beekeepers to practice beekeeping in forests freely and without unjustified restrictions. This issue is not a purely national matter, but one of broader European concerns, directly affecting apicultural sustainability, pollination services, and rural economies. EBA will do everything to help greek beekeepers.

Read more about it in the EBA magazine: "A Cry of Desperation from Greek Beekeepers over the Prohibition of Beekeeping in Forest Areas" (2025; 17: 27–29)

Please share and show support to our greek colleagues.

Beexpert

The European beekeeping sector generates approximately €1 billion annually, producing approximately 283,000 tonnes of honey, making Europe the second largest honey producer in the world. In addition to the production of honey and other well-known bee products, pollination services also play a crucial role in the agriculture and food sectors, contributing an estimated €22 billion annually. Furthermore, beekeeping in its most sustainable form also plays an important role in community engagement and can support agricultural productivity, making it a key component of rural development.

In recent years, the beekeeping sector has faced great challenges that have caused significant economic losses, following widespread colony mortality, climate change, and the import of products from non-EU countries.

There is therefore a need to modernize the sector and prepare operators to face these challenges, responding to the agricultural sustainability guidelines proposed at the European level.

In the frame of the Erasmus, the Co-funded European project Beekeeping Education and Expertise for Professional Excellence (BEEXPERT) aims to address the challenges and opportunities of the beekeeping sector by developing an innovative educational approach that strengthens entrepreneurial knowledge.

Through lifelong learning, ongoing professional support, and expanded networking opportunities, the BEEXPERT project will enable beekeepers to thrive in an evolving market. By improving soft skills in sustainable business practices, innovation, and the use of digital systems for hive management, along with expertise in business models, management, import-export, financial planning, marketing, regulatory compliance, upscaling operations, and managing European and national funding, BEEXPERT aims to train professionals capable of both enhancing their businesses and serving as consultants, offering valuable support to improve operations and foster professional growth.

The project partnership brings together industry expertise from a multidisciplinary perspective, from educational partners to beekeepers' associations, and private companies located in six different countries (Italy: University of Naples Federico II, Cosvitec società consortile SRL, National Union of Italian Beekeepers; Portugal: Instituto Nacional De Investigaçao Agraria E Veterinaria and National Federation of Portuguese Beekeepers; Slovenia: Grm Novo mesto - center biotehnike in turizma and Slovenian Beekeepers' Association; Croatia: University of Zadar; Romania: Romenian Beekeepers' Federation and Business Inovation Council SRL; Turkey: University of Hacettepe and Turkish Beekeepers' Association. Dr. Karen Power, Researcher at the Department of Biology at the University of Naples Federico II (Italy), has been assigned the central project coordination role, and the whole consortium will be working together to reach to goal of designing and implementing the educational pathways which is articulated in theoritecal online lessons and hands on experiences, both at national and international level.

The project started on 1st November 2025 and all partners met in Naples on the 16th December 2025 for the official kickoff meeting.

With this project, the parternship looks to the future of education and training at the European level, hoping to support the beekeeping field under a more profitable but sustainable point of view.

You can follow the project updates here:

Website: https://beexpert-project.eu/

Facebook link:

https://www.facebook.com/share/1DhDxSiBCX/?mibextid=wwXIfr

Instagram link:

https://www.instagram.com/beexpert_project?igsh=c3h5cjJzc2R6cHAw

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POPULATION GROWTH OF VARROA DESTRUCTOR (ACARI: VARROIDAE) IN COMMERCIAL HONEY BEE COLONIES TREATED WITH BETA PLANT ACIDS

Abstract

Varroa (Varroa destuctor Anderson and Trueman) populations in honey bee (Apis mellifera L.) colonies might be kept at low levels by well-timed miticide applications. HopGuard® (HG) that contains beta plant acids as the active ingredient was used to reduce mite populations. Schedules for applications of the miticide that could maintain low mite levels were tested in hives started from either package bees or splits of larger colonies. The schedules were developed based on defined parameters for efficacy of the miticide and predictions of varroa population growth generated from a mathematical model of honey bee colony–varroa population dynamics. Colonies started from package bees and treated with HG in the package only or with subsequent HG treatments in the summer had 1.2–2.1 mites per 100 bees in August. Untreated controls averaged significantly more mites than treated colonies (3.3 mites per 100 bees). By October, mite populations ranged from 6.3 to 15.0 mites per 100 bees with the lowest mite numbers in colonies treated with HG in August. HG applications in colonies started from splits in April reduced mite populations to 0.12 mites per 100 bees. In September, the treated colonies had significantly fewer mites than the untreated controls. Subsequent HG applications in September that lasted for 3 weeks reduced mite populations to levels in November that were significantly lower than in colonies that were untreated or had an HG treatment that lasted for 1 week. The model accurately predicted colony population growth and varroa levels until the fall when varroa populations measured in colonies established from package bees or splits were much greater than predicted. Possible explanations for the differences between actual and predicted mite populations are discussed.

Introduction

Varroa mites (Varroa destructor Anderson and Trueman) are the most serious pest of honey bee (Apis mellifera L.) colonies worldwide (Rosenkranz et al. 2010). Varroa is an ectoparasite that feeds on developing brood and adults. Colony losses from varroa are due to brood mortality and the reduction in the lifespan of adult workers that were parasitized during development (Rosenkranz et al. 2010). The combination of reduced rates of brood emergence and short-lived adults impact the demographics of the colony population and over time can cause colonies to perish (DeGrandi-Hoffman and Curry 2004; van Dooremalen et al. 2012). Varroa also transmit many types of virus during feeding (Ball and Allen 1988; Bowen-Walker and

Gunn 1998; Bowen-Walker et al. 1999; Chen et al. 2004; Shen et al. 2005; Di Prisco et al. 2011). Varroa mediated transmission of deformed wing virus is a major cause of colony losses overwinter (Guzman-Novoa et al. 2010).

Varroa populations increase as the broodnest of a colony expands in the spring and summer. Mated female mites (foundress) invade brood cells just before they are capped for pupation (see refs in Rosenkranz et al. 2010). Male and female offspring are produced and mate under the sealed cell. Each invading 'mother mite' can produce about 1.5 mated female offspring in worker cells and 2.7 in drones (Fries et al. 1994; Martin 1998).

The mated female mites leave the cell when the bee emerges and in this phoretic stage search for new cells to infest. It is during the phoretic stage that the mite is most vulnerable to chemical control measures.

The reproductive rate of varroa is not extraordinarily high. If colonies are established with low mite levels in temperate climates, it takes 2–3 years before mite populations are large enough to impact the colony's survival (Boecking and Genersch 2008; Genersch 2010; Rosenkranz et al. 2010). In addition to reproduction, mite populations can increase due to the drifting of foragers from infested colonies or robbing failing colonies infested with mites (Sakofski et al. 1990; Greatti et al. 1992; Kralj and Fuchs 2006). The extent that immigration affects mite population growth in colonies is not known.

Varroa control should be based on well-timed treatments that keep varroa populations low and their growth rates in check. Mathematical models can provide tools for developing strategies to optimize the timing of miticide applications to maximize their impact on mite populations. There are several mathematical models simulating honey bee colony and varroa population dynamics (Fries et al. 1994; Martin 1998, 2001; Calis et al. 1999; Wilkinson and Smith 2002; DeGrandi-Hoffman and Curry 2004; Vetharaniam 2012; see refs. in Becher et al. 2013). We used the model developed by DeGrandi-Hoffman and Curry (2004) to develop mite control strategies. The model generates daily predictions of colony population size (adults and brood) and numbers of phoretic mites so that field data could be compared with model predictions. Additionally, we could initialize simulations with numbers of adult bees, brood, and mite populations using data collected at our apiary sites.

The model also simulates mite mortality from the application of miticides. The efficacy, dates of application and period of effectiveness of the miticide are specified as initial conditions in the simulation.

The model predicts that in temperate climates it could take up to 2 years for mite populations to reach levels where they cause colony losses if initial populations are below 1.0 mites per 100 bees in the spring. These predictions are similar to reports of colonies dying after 2–3 years of untreated varroa infestation (Rosenkranz et al. 2010). The model also predicted that late summer treatments could reduce mite populations so that the bees that comprise the winter cluster are reared with minimal exposure to parasitism. This agrees with findings from field studies by Delaplane and Hood (1999).

We used the model to develop treatment schedules to control mites in colonies with HopGuard® (HG; BetaTec Hop Products, Washington, DC, USA). The active ingredient in this product is beta plant acids. We chose HG because it can be applied to package bees and colonies during the summer and early fall when temperatures are high. Our previous studies determined the efficacy of HG in package bees and established colonies (DeGrandi-Hoffman et al. 2012). In the present study, we established colonies in the spring from package bees or splits from larger colonies and treated them with HG. The purpose of this study was to determine whether varroa can be controlled in commercial colonies using beta plant acids (e.g., HG) by reducing mite levels after establishment and following this with well-timed applications of HG.

Materials and methods

Varroa treatments in colonies started from packages

Bee packages weighing 1.4 kg and containing approximately 9,000 bees were prepared at Pendell Apiaries (Stonyford, CA, USA) on May 2, 2011. Twenty packages were treated with HG for 48 h before installation into the hives. Five packages received no treatment (controls). Packages were treated by fastening a HG strip to the top of the package near the sugar syrup can and caged queen. All packages were kept inside a climate-controlled room. After 48 h and at dusk, each bee package was installed in a standard deep Langstroth hive box fitted with foundation frames and a queen. Thereafter, the bees were fed sugar syrup dispensed by a 4-l (= 1-gallon) can inverted in the top lid. The apiary site had only the colonies used

in this study. The closest colonies not included in the study were 2.4–3.2 km away.

On May 12, the initial mite population in each colony was estimated using the 'sugar shake' method. Approximately 300 bees were brushed into mason jars with wire screen lids. Powdered sugar was added to each jar through the wire screen. Each jar was rolled gently to cover the bees and then set aside for 2–3 min. The jars were then inverted and shaken vigorously over a wide aluminum foil pan filled with 2.5 cm of water until there was no sugar left in the jars. The mites were counted in the pan, and the bees were placed back in each colony. The mite counts were converted to 'mites per 100 bees'. The colonies were assigned into groups of five hives based on their mite levels. Each group was assigned an HG treatment schedule (Table 1). Untreated control colonies comprised group 5. Treatment schedules for colonies established from packages were devised based on simulation results using a varroa–honey bee colony population dynamics model (De-Grandi-Hoffman and Curry 2004). The simulations identified times when HG applications could be applied to keep varroa populations below levels where they might cause colony losses. Various numbers of treatments throughout the summer and fall were included in the schedules to determine the minimum number required for effective control.

Each treatment consisted of two HG strips inserted into each 10-frame hive following label instructions. Mite levels were measured in all colonies before and 48 h after an HG treatment. The post-treatment interval was chosen because the greatest portion of mites that are killed by HG occur 48 h after application (DeGrandi-Hoffman et al. 2012). In addition to estimating mite populations, frames of adult bees and brood were measured prior to HG treatment in all colonies using the methods described in DeGrandi-Hoffman et al. (2008). Colony estimates were made in August and October. The presence of a laying queen also was recorded at these times.

The colonies were started from packages, and HG was applied to the bees in the package. Subsequent treatments in colonies were applied on the dates indicated. Controls received no HG treatments

Varroa treatments in colonies made from splits

Full sized colonies at the Adee Honey Farms were split into smaller colonies on March 24, 2012. These

Table 1
Treatment groups based on times when the miticide HopGuard® (HG) was applied to control varroa mites

Group	Package	June 22	August 4	October 11
1	X	X		
2	X	X	X	X
3	X		X	X
4	X			
5 (control)				

colonies are hereafter referred to as 'splits'. A sealed queen cell was added to each split.

The splits were located in an apiary near Fresno (CA, USA) that contained about 1,800 hives not included in this study. Those colonies also were treated for varroa; 900 colonies with HG and the remainder with another miticide.

Colony population sizes were estimated (frames of adult bees and brood, presence of laying queen) 19 days after the splits were made (i.e., April 11, 2012). There was little or no sealed brood in the colonies at this time because brood from the new queen would not be sealed, and most of the unsealed brood in the split would have developed and emerged. Any remaining sealed brood would have emerged within 48 h, and this would be during the effective period for the HG treatment. Simulations predicted that HG treatments during the broodless period could reduce mite populations to \ 1.0 mite per 100 bees, and that the populations would remain low during the experimental interval. Therefore, we chose this time for initial HG applications.

Twenty-four colonies selected for treatment hives averaged 6.3 ± 0.3 frames of adult bees, and 2.5 ± 0.3 frames of brood. The colonies were treated with two HG strips inserted between the center frames of the broodnest. Similarly, 24 colonies were selected as control hives. These colonies averaged 6.4 ± 0.2 frames of adult bees and 2.8 ± 0.3 frames of brood. The 24 control colonies received no miticide treatment. Estimates of mite populations in all colonies were made immediately before and 48 h after treatment using the procedure described above for the package colonies.

All colonies (those in the study and the other 1,800 hives) were moved to Adee apiary sites in South Dakota for the summer, and returned to isolated yards in Arvin, CA, in September. We were not aware of any colonies other than those belonging to the Adee's at either apiary site. Colony strength and mite levels were estimated on September 11, 2012 using the procedures described above. At this time, the 24 treatment colonies were divided into two groups of 12 colonies. One group received an HG treatment (as described above) on September 12. A second group of 12 colonies received weekly HG treatments for 3 consecutive weeks beginning on September 12. The control colonies also were divided into two groups of 12 colonies each. Twelve control colonies received no HG treatments. The remaining 12 colonies received three consecutive HG treatments applied 1 week apart. Pre- and post-treatment mite counts were made using the methods described above. This experimental design enabled us to compare the effectiveness of single HG treatments with those that lasted for an entire worker brood cycle in colonies having open and sealed brood and different mite population levels. Final measurements of mites per 100 bees, and frames of bees and brood were made on November 12 using the procedures described above.

Conditions common to all varroa-colony population dynamics model simulations

The model used to predict varroa and colony population sizes is described fully in De- Grandi-Hoffman and Curry (2004). The model generates daily predictions of colony size (adults and immature), phoretic mites and infested worker and drone cells. The predictions are based on initial colony size, queen egg laying potential (queen strength), worker longevity, initial mite infestation levels and weather conditions. The weather conditions used in the simulations were chosen based on the areas and times of year when the experiment was conducted.

Queen strength is defined in the model as the maximum number of eggs a queen potentially can lay in a day and was initialized in simulations as 1,000–2,000 eggs unless noted otherwise. The range was captured by conducting separate simulations for each set of initial conditions (colony and mite population sizes) where queen strength was initialized as either 1,000, 1,500 or 2,000 eggs per day.

Measurements of bees and brood in the field were expressed as frames covered with adults or with open and sealed brood. The model expresses colony populations with daily stimates of: adult bees, sealed and unsealed worker and drone brood, and eggs (worker and drone). We converted colony population estimates from the model into total number of adult bees and frames of brood before comparing actual and predicted values. According to our measurements, the number of bees covering both sides of a deep frame was estimated to be 2,506 adults (data not shown). Therefore, we multiplied frames of adult bees in the actual colonies by 2,506 to estimate the total number of adult bees. Predicted totals of brood (sealed and unsealed) were converted to frames of brood by dividing the totals by our estimate of 5,200 cells on a deep frame with about 80 % containing brood.

Mortality of phoretic mites from HG treatments was included in each simulation beginning on the day that HG was applied. The model simulated a daily mortality rate of 50 % of phoretic mites for 7 days for each HG application (DeGrandi-Hoffman et al. 2012).

Simulations: colonies established from packages

To simulate a colony started from a 1.4 kg package of bees, we initialized the model with 9,000 adult bees and no brood on May 12. Separate simulations were run to represent each colony in every group having the range of queen strengths described above. The colony specific estimate of the pre-treatment number of mites per 100 bees sampled on May 12 was used as the initial mite population. Thus, 15 simulations were run to obtain predictions of average mite populations and colony sizes for each group. The predicted averages of mites per 100 bees and colony population size were compared with actual data collected on the same date. The dates for HG treatments in the simulations were the same as in the actual colonies.

Simulations: colonies established from splits

Colonies started from splits of larger colonies began with an average of 6.3 ± 0.3 deep frames of bees (15,787 ± 752 adults) and 2.8 ± 0.3 deep frames of brood. We simulated this range of colony populations by conducting separate simulations using upper and lower ranges of the standard error for adult bees and frames of brood. The range of maximum queen egg laying rates and worker longevity described above were included in simulations for each colony size. However, the model's predictions of adult populations and frames of brood in September and November were much higher than actually occurred. When we adjusted the maximum queen egg laying rate to 1,500 eggs per day and worker longevity to 26 days, predictions of colony and brood population sizes were similar to the actual colonies. These parameter values were used for simulations of both treatment and con-

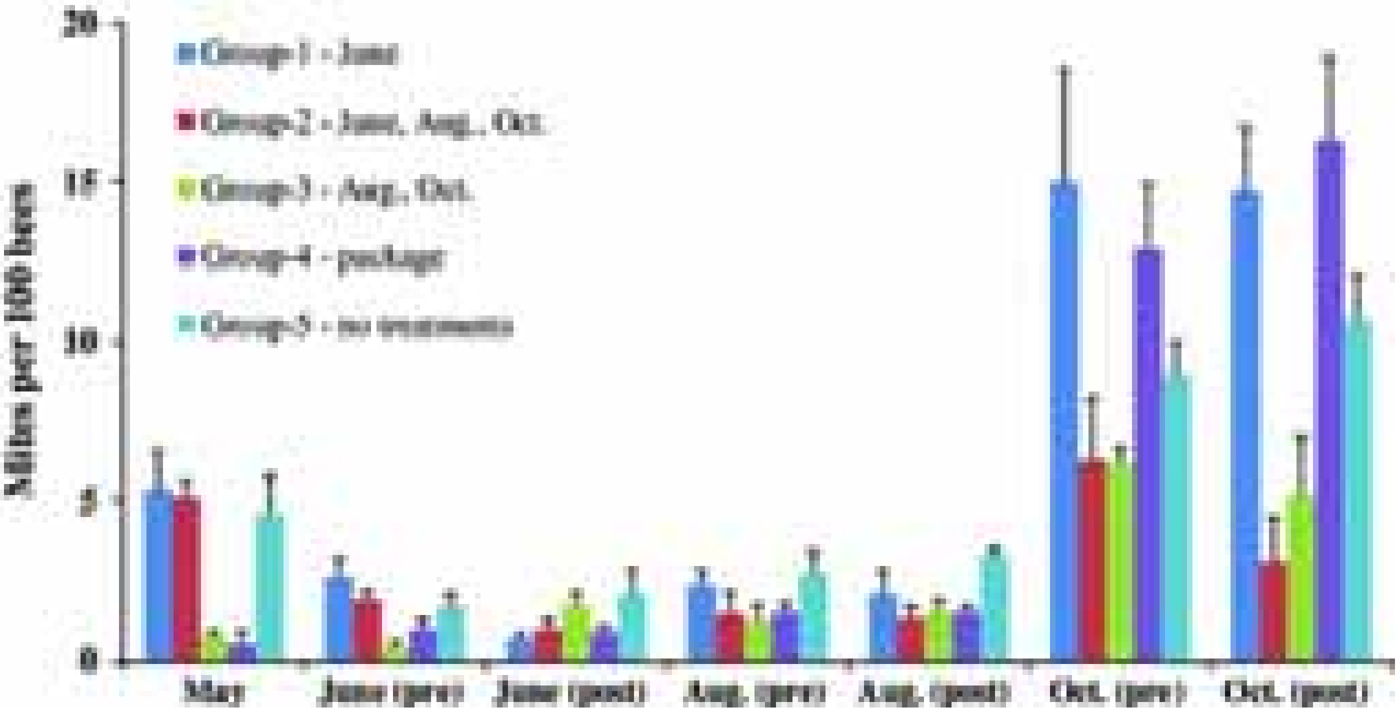


Fig. 1
Mites per 100 bees estimated from sugar shakes of colonies started from package bees and treated with the miticide HopGuard® (HG). All colonies except those in group 5 (Control) were treated in the package prior to establishing them in colonies. Months when subsequent HG treatments were made for the group are defined in the figure legend

trol colonies. Our measurement of the initial mites per 100 bees in the treatment colonies was 2.5 ± 0.5 and controls was 1.2 ± 0.24 mites per 100 bees. These values were used as the starting infestation levels in the simulations. Predicted averages of frames of adult bees or brood and mites per 100 bees were estimated using values from four simulations each for treatments and controls.

Statistical analysis

The average number of mites per 100 bees in colonies started from packages was compared among the groups immediately after the colonies were established and following HGtreatments to any group using a one-way analysis of variance. A repeated measures analysis was conducted to determine if mite numbers differed among the sampling intervals. The effectiveness of the HG treatment 48 h after application was determined by comparing mite counts before and after treatments within each group using t tests.

Mite counts in colonies made from splits were compared between treatment and controls prior to and after HG treatments using t tests. Mite levels among treatment and control colonies receiving one, three, or no HG treatments in September were compared using a one-way analysis of variance. The accuracy of predictions from the model were assessed by comparing actual and predicted averages of mites per 100 bees, adult bees in coloniesand frames of brood using t tests.

Results

Varroa mortality in colonies established from packages

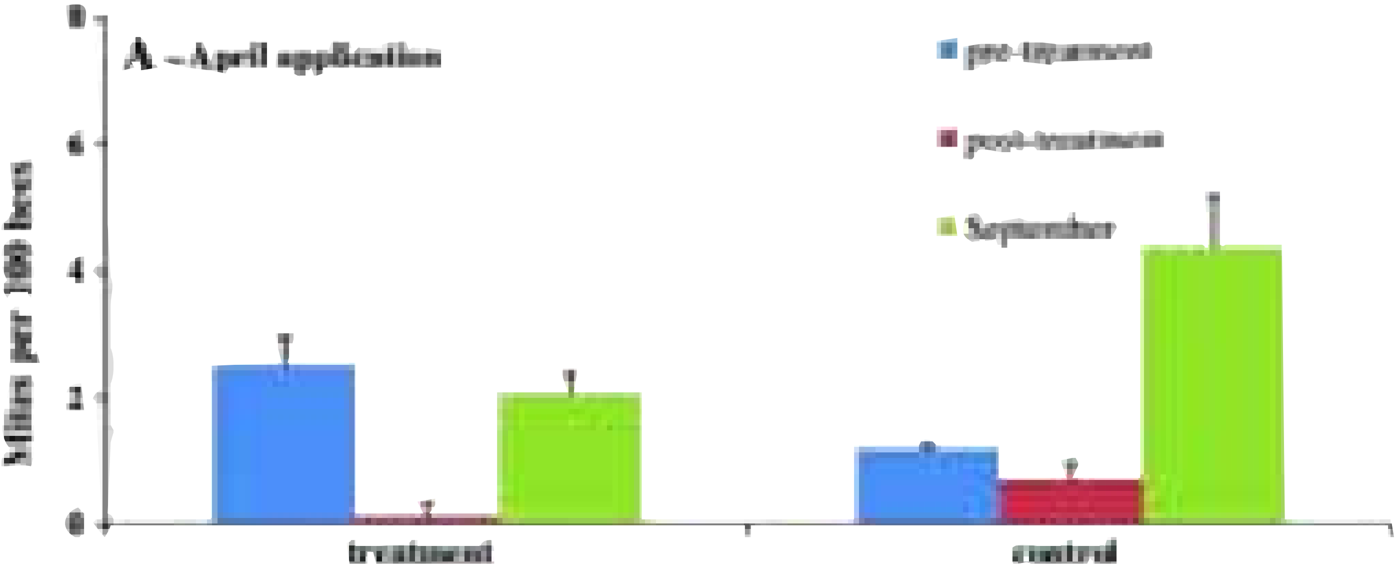
Groups of colonies had significantly different numbers of mites per 100 bees in May immediately after they were established from packages ($F_{4,18} = 7.16$, $p = 0.001$) (Fig. 1).

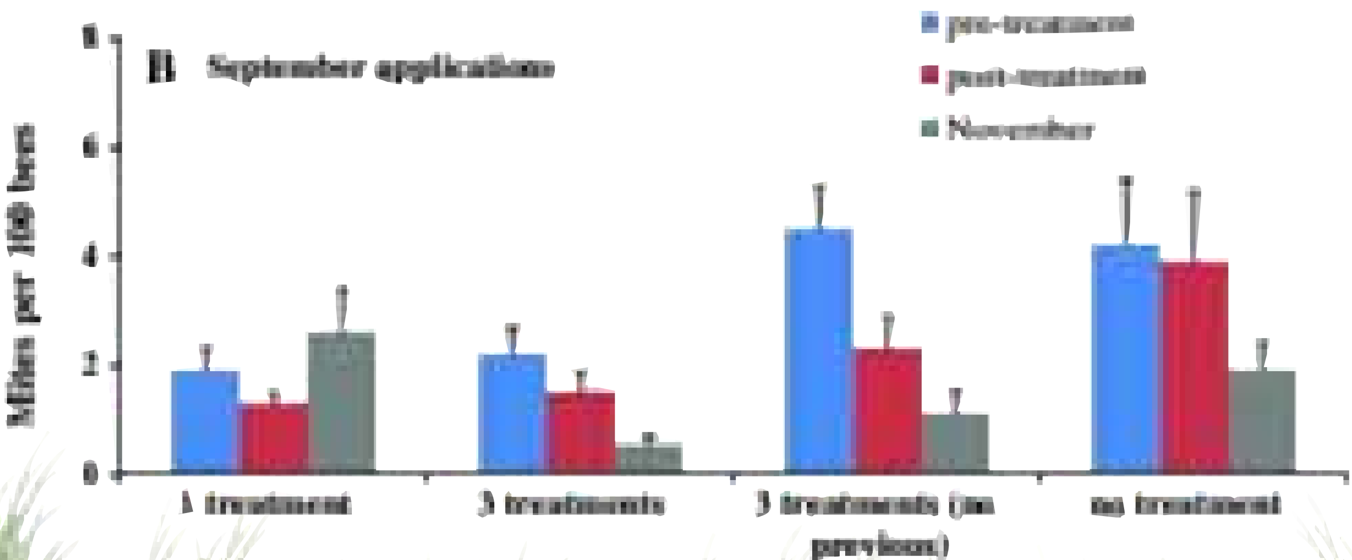
Colonies in groups 1, 2 and 5 had the most mites and groups 3 and 4 the least. After roups 1 and 2 were treated in June, post-treatment mite levels were reduced and no longer significantly different from the other groups (June, pre-treatment: $F_{4,18} = 3.64$, $p = 0.024$; post-treatment: $F_{4,18} = 4.19$, $p = 0.11$). Colonies in groups 1–4 had less than 1.0 mite per 100

1	June	2.6 ± 0.6	0.7 ± 0.2	2.46	0.07
2	June	1.9 ± 0.3	1.0 ± 0.3	4.20	0.01
	August	1.5 ± 0.7	1.3 ± 0.8	0.23	0.83
	October	6.3 ± 1.9	0.5 ± 0.3	2.22	0.09
3	August	1.2 ± 0.5	1.5 ± 0.4	0.43	0.70
	October	2.9 ± 0.2	0.2 ± 0.1	8.69	0.01

Table 2
Comparisons of average number of varroa mites per 100 bees before (pre-) and after (post-) treatment with the miticide HopGuard®

Fig. 2
Mites per 100 bees in colonies pre- and post-treatment with the miticide HopGuard® , in April (a) and in September (b)





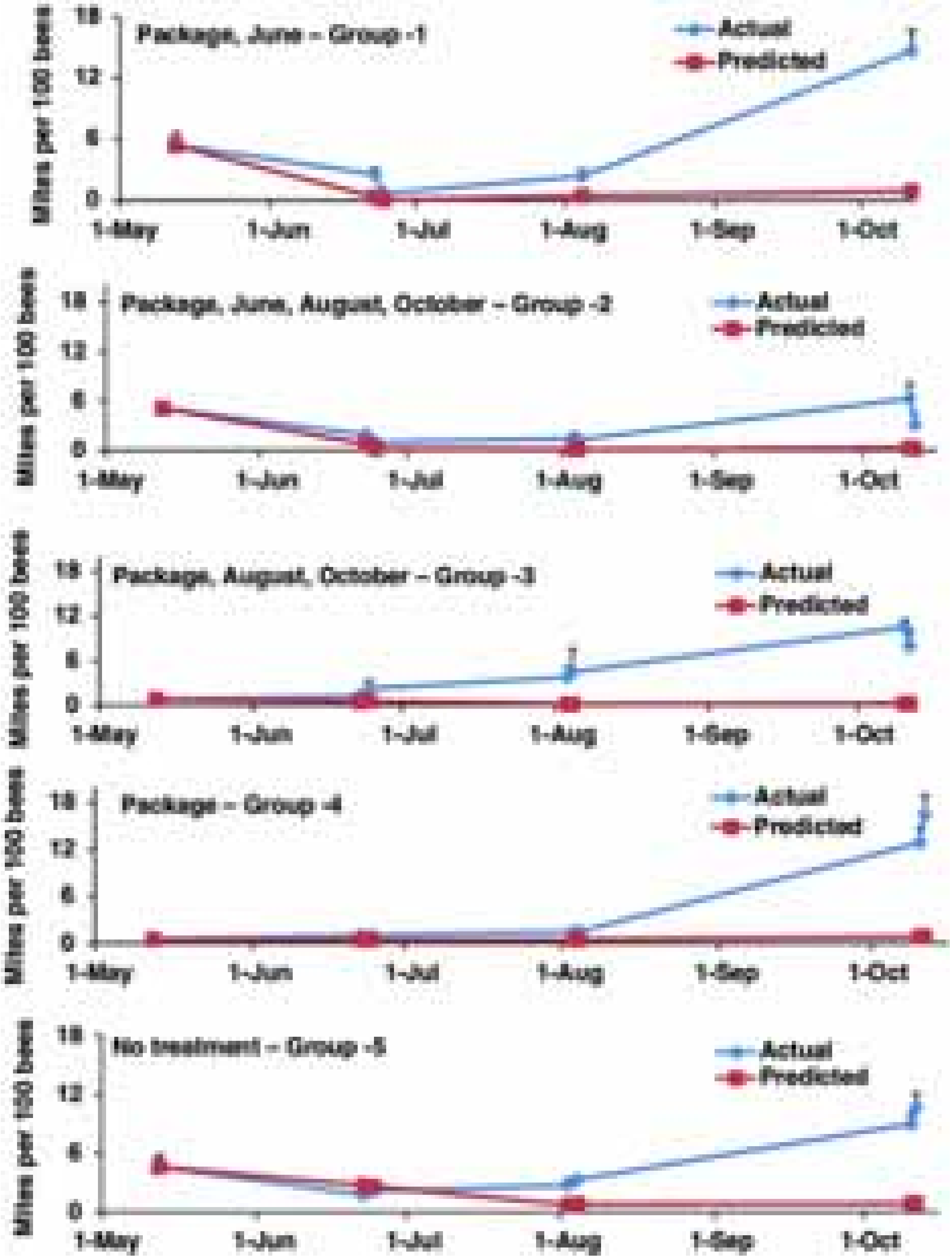


Fig. 3

Actual and predicted averages of mites per 100 adult bees in colonies started from packaged bees on May (5 colonies per treatment Group). Packages were treated with the miticide, HopGuard® (HG). Colonies were treated subsequently with HG during the months designated in each plot. Actual and predicted mite numbers did not differ significantly during May, June, or August. However, in October actual mite numbers were significantly higher than predicted for all treatment schedules as determined by two sample t-tests (p \ 0.05)

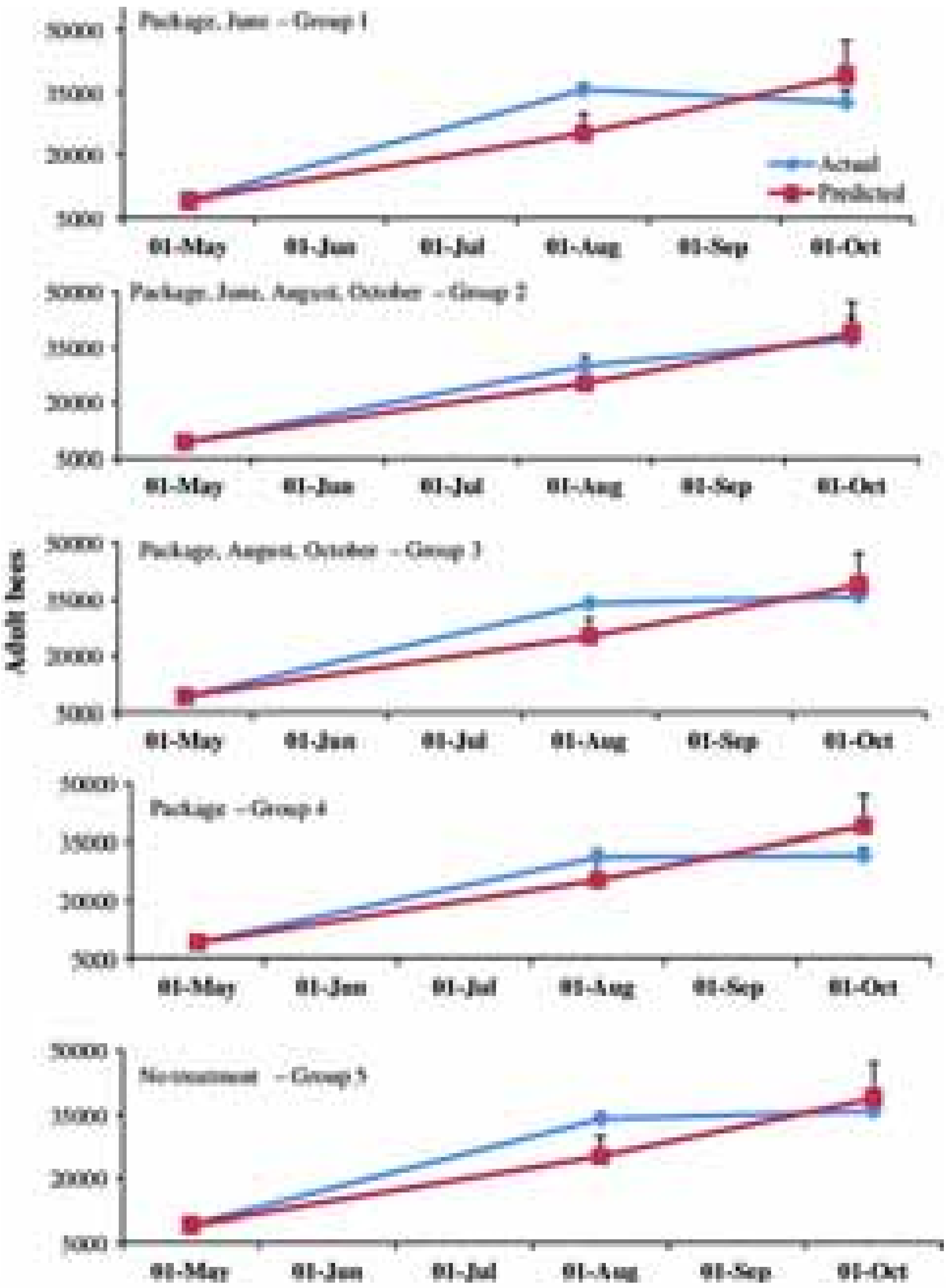


Fig. 4

Actual and predicted numbers of adult bees in honey bee colonies started from package bees in May. Packages in groups 1–4 were treated with the miticide HopGuard® (HG). Additional HG applications were made in colonies in groups 1, 2 and 3 during the months designated in each plot bees in June. Group 5 colonies (untreated controls) averaged 2.1 ± 0.67 mites per 100 bees.

In August, mite numbers did not differ among the five groups prior to HG treatments ($F_{4,18} = 1.37$, $p = 0.28$). After treatment though, colonies in groups where HG was applied (groups 2 and 3) had significantly fewer mites than group 5 ($F_{4,18} = 3.57$, $p = 0.026$). Mites per 100 bees in groups 1–4 averaged between 1.3 and 2.0 mites per 100 bees. Group 5 averaged about 3.3 ± 0.24 mites per 100 bees.

Prior to HG treatments in October, mite numbers were 3–79 higher than in August in all groups (Fig. 1). Repeated measures analysis indicated that mite numbers in all groups were significantly higher in October than during any other sampling interval ($F_{8,25} = 8.9$, p \ 0.0001). The lowest mite numbers before the October treatments were in groups 2 and 3 that were previously treated in August (pre-treatment: $F_{4,18} = 3.33$, $p = 0.03$). These groups also had the lowest numbers of mites after the October treatment ($F_{4,18} = 9.57$, p \ 0.0001).

Comparisons of mite counts in groups 1, 2 and 3 before and 48 h after HG applications (pre- vs. post-treatment) were significantly different for the June treatment in group 2 ($t_5 = 4.22$, $p = 0.013$) and the October treatment in groups 2 and 3 (Table 2). There was no difference between pre- and post-treatment mite counts in groups receiving August treatments (groups 2 and 3). However, these treatments might have been effective at reducing mite populations since those colonies had the lowest mite numbers in October.

Varroa mortality in colonies established from splits

There were significantly more mites in treatment colonies than in controls prior to HG applications in April (treatment = 2.5 ± 0.47 mites per 100 bees, controls = 1.2 ± 0.24 mites per 100 bees; $t_{34} = 2.34$, $p = 0.025$) (Fig. 2). After the HG application, however, treatment colonies had significantly fewer mites than controls (treatment = 0.12 ± 0.05 mites per 100 bees; controls = 0.7 ± 0.27 mites per 100 bees; $t_{24} = 2.13$, $p = 0.043$).

Before treatments in September, the colonies treated in April still had significantly fewer mites (1.3 ± 0.25 mite per 100 bees) than untreated controls (4.2 ± 1.2 mites per 100 bees) ($t_{26} = 2.64$, $p = 0.014$).

HG was applied in September to all treatment colonies and half of the control colonies. Those colonies that had three consecutive HG treatments in September had significantly fewer mites per 100 bees in November than colonies that had one HG application or the controls that had no HG treatments ($F_{3,31} = 3.56$, $p = 0.025$). Mite numbers in colonies that had one HG application in September did not differ from the untreated controls.

Comparisons of actual and predicted mite and colony population growth

Predictions from simulations of mite populations in colonies started from packages were similar to those estimated in actual colonies in June and August (\ 0.5 mites per 100 bees) (Fig. 3). Untreated controls were predicted to have about 1.0 mite per 100 bees and this also was comparable to estimates in actual colonies. Additional treatments in August were predicted to keep mite populations low (\ 0.15 mites per 100 bees). Colonies treated in both June and August or in August alone did not differ in mite umbers before or after treatments, and during these intervals predicted mite opulations were similar to actual counts for all treatment groups. However, actual mite populations in all treatment groups in October was 2.5- to 10-fold higher than model predictions.

The model accurately predicted colony population growth following the establishment from packages. Based on t tests comparing actual and predicted averages, the predicted population sizes did not differ from the actual (p [0.05) during any sampling interval (Fig. 4). Frames of brood also were similar between actual and predicted (p [0.05) (Fig. 5). In colonies established from splits, the adjustments in queen strength and worker longevity generated predicted colony populations and frames of brood that were similar to those in the actual colonies (Fig. 6). There was no significant difference between actual and predicted mites per 100 bees following the April HG treatment ($t_{23} = 7.14$, p \ 0.0001). Mite numbers in treatment colonies were predicted to be less than 0.5 mites per 100 bees. Estimates of the actual mite population in September before treatment, however, were about 129 higher than predicted in treatment colonies (actual = 1.8 ± 0.4 mites per 100 bees; predicted = 0.14 ± 0.01 mites per 100 bees). In control colonies, the actual number of mites per 100 bees was about 69 higher than predicted. In both instances, these differences between actual and predicted mite numbers were significant (treatment: $t_{21} = 5.3$, p \ 0.0001; control: t_{20}

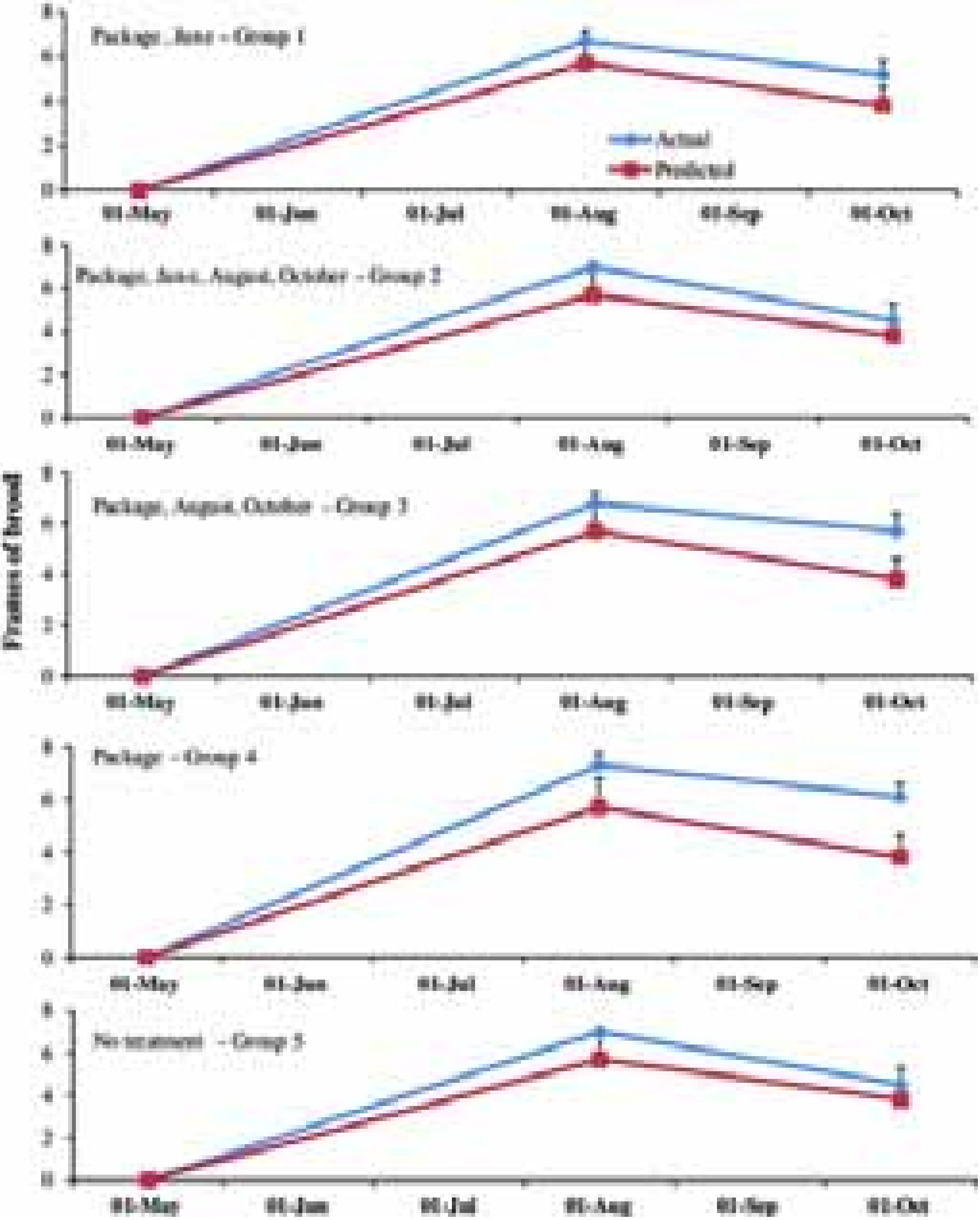


Fig. 5

Actual and predicted frames of brood in honey bee colonies started from package bees in May. Packages in groups 1–4 were treated with the miticide HopGuard® (HG). Additional HG applications were made in colonies in groups 1, 2 and 3 during the months designated in each plot

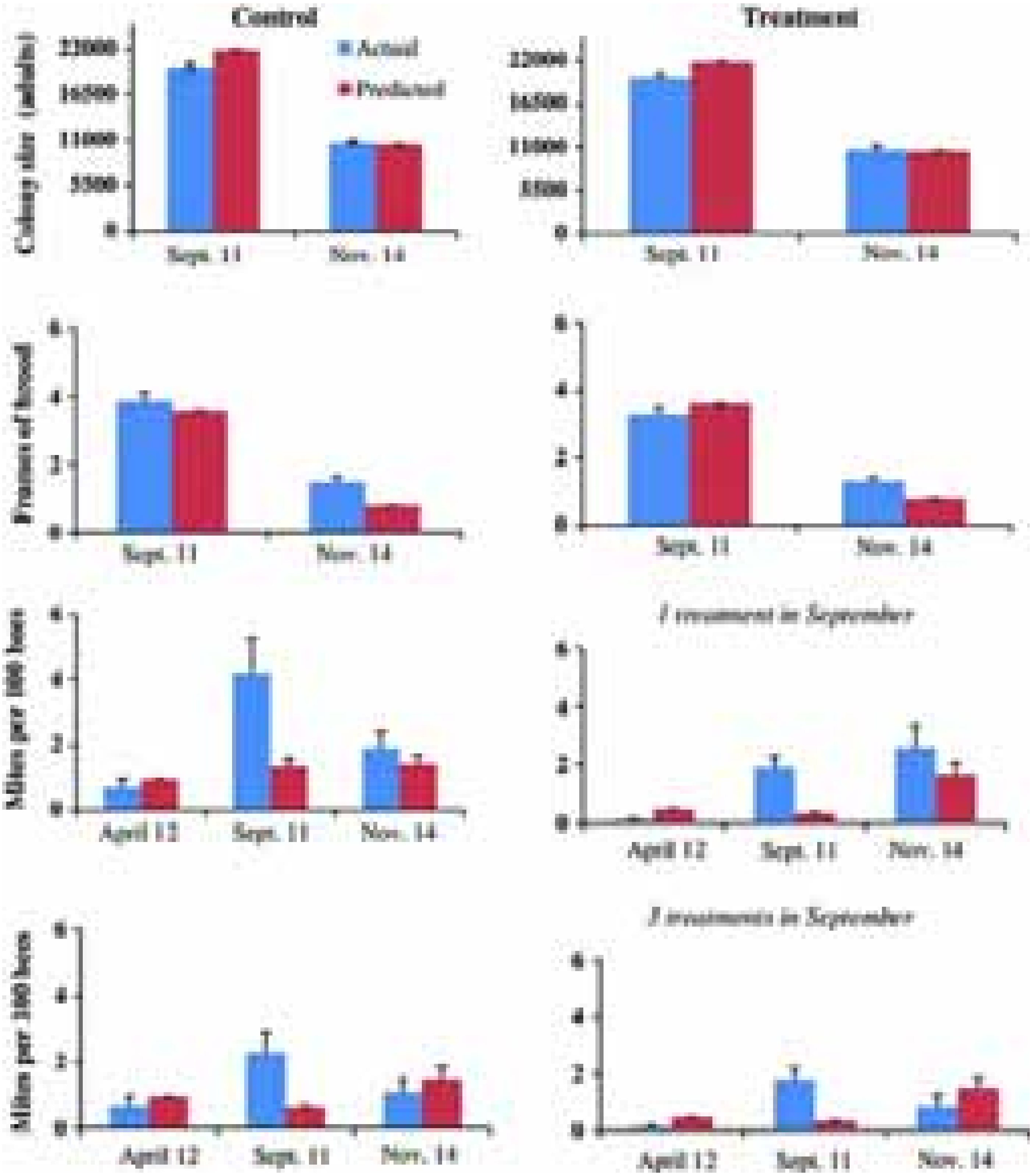


Fig. 6

Actual and predicted colony and mite populations in hives established in March and treated with the miticide HopGuard® (HG) in April (1 treatment) and September (1 or 3 treatments). Control colonies were either not treated or were treated only in September when they received 3 HG treatments

= 3.73, $p = 0.001$). In November, predicted mite populations did not differ from actual in treatment colonies that received either one or three HG treatments (1 treatment: $t_9 = 0.98$, $p = 0.35$; 3 treatments: $t_6 = 2.52$, $p = 0.05$). Predicted mite counts in control colonies also did not differ from actual counts in November (no treatment: $t_{12} = 0.6$, $p = 0.55$; 3 treatments: $t_{12} = 0.73$, $p = 0.48$).

Discussion

Mite populations were reduced when HG was applied in colonies started from package bees (summer treatments) and during the broodless period in colonies made from splits. Mite numbers did not exceed 2 mites per 100 bees until the fall. However, at the sites and sets of conditions in this study, mite populations in the fall were higher than predicted. Mite numbers could be reduced at these times especially if three consecutive HG applications were made. Mite populations at the study sites did not appear to be the product of mite reproduction alone especially by late summer and fall. Instead, increases in mite numbers might have been due to other factors such as the drifting of workers with phoretic mites from other colonies. The frequency of this activity might be higher than previously suspected and significantly increase mite populations before the colonies go into winter. The period of effectiveness for HG is about 7 days, so mites in brood cells can emerge after the active ingredient in HG is no longer present (DeGrandi-Hoffman et al. 2012). Single HG treatments were effective in package bees or colonies without sealed brood because the mite population was composed of only those in the phoretic state. Significant mite reductions with a single HG application occurred in colonies with open and sealed brood in June and October but not in August when brood areas were at their peak. In the colonies started from splits, mite populations in November were no different from untreated colonies if they had only a single HG application in September. To improve thelikelihoo d of reducing mite populations in colonies with sealed brood, three consecutive HG treatments should be applied so that the active ingredient is present for an entire brood cycle.

Though HG reduced mite populations in packages and split colonies during the spring and summer, by the fall mite numbers were many times higher than predicted by our model. The model predicts drone and worker brood population sizes and the probabilities of mites infesting them (mites are more likely to infest drone rather than worker brood).

The reproductive rates of mother mites in worker and drone cells used in the simulations were based on reported values (Fries et al. 1994; Martin 1998) as were the percentages of mother mites that successfully reproduce after entering the cell (Martin 1994, 1995a, b; Rosenkranz and Engels 1994). The proportion of foundress mites that emerge and have additional reproductive cycles is considered in the model as are changes in mite reproductive rates if cells are multiply infested (see DeGrandi-Hoffman and Curry 2004). We based the initial conditions for the simulations on the actual colony and mites population sizes. The model generated predictions of mite populations that were similar to those measured in the field throughout the summer in colonies started from packages. Predictions of mite populations in colonies started from splits also were comparable to actual measurements following the April HG treatments. Predicted colony populations and frames of brood, which are the foundation for mite population growth, were similar to those measured in the field. Therefore, the increases in mite populations measured in colonies in the fall were due to factors not considered in the simulations or from causes other than mite reproduction.

The predictions of mite populations from our model are similar to reports that colonies established with low mite populations can survive for several years if untreated (Buchler 1994; Korpela et al. 1993; Rosenkranz et al. 2010). Mite population growth is slow in colonies established from packages because brood production (and mite reproduction) is limited by the size of the adult worker population. The packages in our study had about 9,000 adult bees and this population declined for about 4 weeks until new adult bees emerged. Predictions from our model on mite population growth in year-1 after colony establishment are similar to those of other models (e.g., Wilkinson and Smith 2002; Vetharaniam 2012). Thus, the high mite levels in the fall were unexpected.

There are several possible explanation that could explain the differences between actual and predicted mite numbers we detected in the fall. We might have underestimated the initial mite numbers in the colonies when they were established. This would have caused a systematic error in predictions that might not have been realized until late summer and early fall. The sugar shake method we used to asure mite populations might not have dislodged every mite. However, we conducted simulations that achieved the October mite numbers we measured in colonies started from packages. The initial mite numbers in colonies would have had to be about 909 higher than what we measured. Furthermore, if the initial mite numbers were high enough to average more than 15 mites per 100 bees in October (e.g., group 4 of the package bee study), in August the mites per 100 bees would have been much igher than the 1.5 ± 0.3 mites per 100 bees

we measured in colonies and predicted with the model. he values predicted by the model in the August count would have to be about 11 mites per 100 bees to reach about 15 mites per 100 bees in October.

Another explanation for the differences between actual and predicted mite numbers in September (colonies started from splits) and October (colonies started from packages) was that factors affecting mite reproductive rates were set too low. We used literature values for mite reproductive success and numbers of mated daughter mites per mother mite invading worker and drone cells. However, mite population growth is extremely sensitive to these values, especially the number of offspring per mother mite. We could achieve mite numbers measured in colonies in October in the simulations if we set mite reproduction to 100 % success in worker and drone cells and added an extra mated mite for each singly infested worker and drone cell. However, estimates of mites in colonies in August would have been about 6 mites per 100 bees to reach the October values under the increased reproductive rates. We did not measure such high mite values in any colonies in August.

Mite population growth in colonies started from packages is lower than in established colonies because brood of suitable age for parasitism by varroa is not immediately available. The first cells that become available for parasitism can be multiply infested and this will reduce reproductive rates further (Donze et al. 1996). The model incorporates these constraints on mite reproduction and might have reduced the rate of mite population growth too severely. This might have been particularly important in drone rood since mite reproduction rates are greatest in these cells. In the model, the first drone brood cells that are available for parasitism will have multiple foundresses invade them thus reducing their reproductive rates. If these cells were not multiply infested in the actual colonies, mite reproduction would have been greater than predicted and over time caused the population of mites to increase at a higher rate than predicted.

The increases in mite populations in the fall might have been due to the immigration of varroa from other infested colonies. Others have reported migration of varroa into colonies from foragers with phoretic mites drifting among colonies in apiaries or robbing colonies weakened by high varroa populations (Sakofski et al. 1990; Kraus and Page 1995; Delaplane and Hood 1999; Kralj and Fuchs 2006; Frey et al. 2011). The increase in mite numbers we detected in the late summer and fall was similar to that reported by Sakofski et al. (1990). In that study, varroa migration was low in spring, and then increased considerably during late summer through October. Our colonies were in apiaries that were isolated or near colonies that were treated. Mite migration has been reported to occur from eavily infested colonies that were 1.5 km away (Frey et al. 2011). If immigration of mites occurred in our study, the source would have been from colonies at least 2–3 km away from our study sites.

This study indicates that mite populations in colonies established from package bees and splits can be reduced with HG when colonies are established, and then kept at low levels throughout the summer with additional applications. When there is brood in colonies, three consecutive HG treatments are needed to reduce mite numbers consistently. The rapid growth of mite populations in the fall however, indicates that low mite populations in the summer do not insure that they will remain low as colonies go into the fall and winter. Colonies should be sampled throughout the fall while bees remain active. This study also shows the challenges of maintaining low populations of varroa. Future investigations are needed to quantify immigration rates of varroa throughout the year in commercial apiaries to determine the impact on mite population growth.

Acknowledgments

The authors thank Mona Chambers, Geoffrey Hidalgo, Maurisa TwoTwo, and Victor Zazueta for field and technical assistance. We also thank Frank Pendell and Brett Adee for allowing us access to their apiaries and colonies. Finally, we thank Matina Donaldson-Matasci, Vanessa Corby-Harris, and three anonymous reviewers for their helpful suggestions on earlier versions of this manuscript.

https://doi.org/10.1007/S10493-014-9821-Z
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at Springerlink.com

Gloria DeGrandi-Hoffman

Carl Hayden Bee Research
Center, USDA-ARS
2000 East Allen Road
Tucson, AZ 85719, USA

gloria.hoffman@ars.uda.gov

F. Ahumada
AgScience Consulting LLC, Tucson, AZ, USA

R. Curry
Crystal River Consulting, Dallas, TX, USA

G. Probasco Á L. Schantz
BetaTec Hop Products, Division of John I. Haas Inc.,
5185 MacArthur Blvd, N1 V, Suite 300,
Washington, DC 20016, USA

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BEES
LIFE

EUROPEAN CAMPAIGN: "BUY LOCAL HONEY"

The Beekeepers' Association "Zrinski" from Slavonski Brod, a member of the Croatian Beekeepers' Association, accepted the initiative of the European Beekeeping Association (EBA) aimed at raising consumer awareness about the importance of purchasing local European honey. The association actively joined the campaign.

In November 2025, the association's beekeepers took part in the Katarina Fair – a crafts and trades fair in Slavonski Brod. The fair was visited by several tens of thousands of visitors.

At its stand, the Beekeepers' Association "Zrinski" used a specially designed, recognizable logo on its promotional materials. The logo was particularly noticeable on a large display panel. In this way, the goal of raising consumer awareness about the importance of buying local honey was successfully achieved at the fair.

Ivan Živić

Secretary of the Beekeepers' Association „Zrinski" Slavonski Brod

CURRENT BEEKEEPING IN THE CZECH REPUBLIC

Current Situation

Beekeeping has deep roots in Bohemia and Moravia, dating back to the Middle Ages. Today, approximately 60,000 beekeepers manage around 600,000 colonies. These numbers clearly show that the vast majority are hobby or small-scale beekeepers rather than commercial operations. On average, they manage 10–15 colonies. Professional enterprises with more than 150 colonies number just over 100.

Given these figures, the Czech landscape supports a relatively high density of colonies. The Czech Republic exceeds the EU average with 8–9 colonies per km2, compared to the EU average of 1–3 colonies per km2. In many areas, colony density is higher than optimal, leading to insufficient and often monofloral forage. This also contributes to greater disease spread among bees.

Another consequence of the large number of beekeepers is the considerable variety of hive systems and, above all, frame sizes. Even the most common frame size in the Czech Republic—the 39 × 24 cm format introduced by František Adamec in 1904—lacks standardized honeycombs dimensions or uniform hive setups. Beekeepers then face difficulties purchasing additional components for their hives when needed. This results in high prices and challenges in buying or selling colonies or nucs.

The excessive number of colonies in the landscape, combined with many small-scale beekeepers, means there is minimal need to move colonies to flowering crops in the Czech Republic—some colonies are always present locally. Farmers show little interest in bringing in bees for pollination, so paid pollination services are not common. When beekeepers do move hives, it is primarily to boost their own honey yields.

Historical beehive
Beekeeping has a tradition in the Czech Republic dating back more than 1,000 years. Historical beehives from the 18th and 19th centuries are on display in various open-air museums and museums. In this beehive, bees fly out of human mouths. Photo: Milan Motyka

Within the European Union, the Czech Republic ranks first in the ratio of beekeepers to population, with about 60 beekeepers per 10,000 inhabitants, compared to the EU average of around 18. This stems from the large number of small-scale beekeepers and the small number of professional operations. The result is unhealthy competitive pressure on low honey prices. Many hobby beekeepers keep bees for enjoyment and often sell honey at prices that do not reflect the labor, costs, or necessary profit for further development of beekeeping and processing of bee products. These low prices make life difficult for professional beekeepers.

Historical beehive
(man in traditional costume)
Old beehives are stored in many Czech museums, which often display them. This hive is shaped like a man in traditional costume.

Bee Breeds

The dominant breed in the Czech Republic is the Carniolan honey bee (Apis mellifera carnica). It is valued for its gentleness, rapid spring buildup, and excellent orientation.

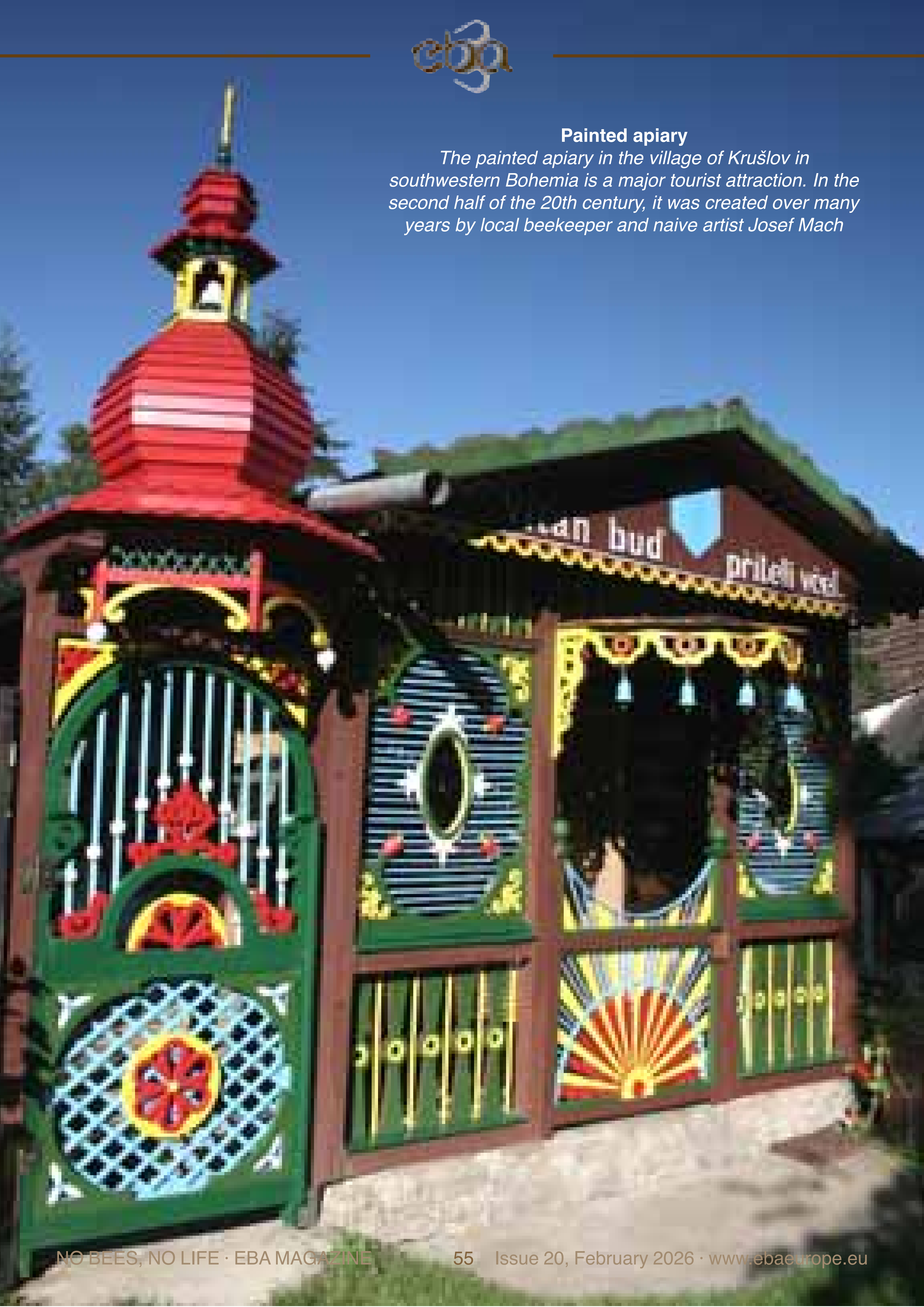
A small group of breeders, concentrated in the Dark Bee Breeders Association (Spolek chovatelů včely tmavé), works to preserve the local original, vital, and resilient dark honey bee (Apis mellifera mellifera), which would be valuable as a genetic reserve. However, a genetically pure population of the dark honey bee likely no longer exists in the Czech Republic. Association members attempt to restore it through isolated breeding in border regions. Paradoxically, efforts to save this valuable original genetics face rigid resistance from state authorities, which—through legislation—mandate the use of only the Carniolan honey bee for breeding.

Similarly, the fairly common breeding of Buckfast bees in the Czech Republic operates more or less outside the law.

Czech Landscape and Bee Forage

The Czech Republic is characterized by large expanses of fields—a legacy of the communist era, when people had to surrender their farms to collective cooperatives. After 1989, these cooperatives were taken over by large agricultural enterprises that farm them today. The average field area managed by one agricultural entity is now about 120 hectares, compared to the EU average of around 19 hectares per entity. The Czech Republic also has some of the largest contiguous agricultural areas in the EU, with average arable land blocks of approximately 15–20 hectares. Satellite images clearly show the difference between the diverse landscape mosaic in neighboring Austria and the brown-green "desert" in the Czech Republic.

This leads to low diversity of land parcels and a narrow range of crops within bee flight range. The result is unevenly distributed forage resources and insufficient variety. In spring, flowering fruit trees dominate, along with vast areas of oilseed rape, which



Painted apiary

The painted apiary in the village of Krušlov in southwestern Bohemia is a major tourist attraction. In the second half of the 20th century, it was created over many years by local beekeeper and naive artist Josef Mach

Beekeepers in front of the painted apiary

Today, the painted apiary in Krušlov is maintained by a local association. Various celebrations and beekeeping courses take place on the premises. The Working Society of Beekeepers CZ repeatedly trains beekeepers here

accounts for about 14–17% of total sown area. Together with cereals, rape covers roughly 74% of all fields in the Czech Republic.

While large monocultures provide a massive but short-term forage burst, once they finish flowering, forage shortages follow. This Czech specificity further reduces forage diversity. A parallel issue is the negative impact of plant protection product applications.

The situation could improve with smaller land parcels managed by smaller farms. However, EU agricultural policy aimed at reducing large monocultures is advancing only slowly, likely due to strong lobbying by Czech mega-agribusinesses.

Regarding forests, massive die-offs from 2015–2022—caused primarily by the spruce bark beetle (Ips typographus)—destroyed 38% of forest stands, mainly spruce. Bees thus lost an important honeydew source. The situation is improving gradually.

Plant Protection Products

The use of pesticides and herbicides in agriculture is regulated due to risks to bees. Farmers must also notify nearby beekeepers of applications in advance to minimize poisonings.

However, farmers often fulfill this obligation only formally, making it impossible to protect colonies from spray impacts. According to State Veterinary Administration records, proven colony poisonings remain exceptional.

Excessive use also occurs in forestry during reforestation, in urban greenery, and on private gardens. Regulation of plant protection products in these non-agricultural sectors is still unsatisfactory.

Association Activities

The tradition of beekeeping associations in the Czech Republic dates to the mid-19th century. Today, the largest is the Czech Beekeepers Association (Český svaz včelařů), to which most beekeepers belong. Those dissatisfied with its approach join one of about thirty smaller independent associations. The largest of these is the Working Association of Super Beekeepers CZ (PSNV-CZ), a member of the European Beekeeping Association (EBA).

The renovated apiary of J. G. Mendel

Johann Gregor Mendel was the first person in the world to discover the laws of heredity through his experiments with crossing peas. He was an abbot at a monastery in Brno, where he kept bees. His apiary can still be seen here today. Photo: Pavel Hrdina

Health Status of Colonies

Czech colonies repeatedly suffer higher autumn and winter losses, mainly due to the nationwide spread of the parasite Varroa destructor. This mite acts as a biological vector, actively transmitting specific bee viruses, especially deformed wing virus (DWV).

According to the annually updated Methodology for Animal Health Control and Vaccination issued by the State Veterinary Administration, treatment against Varroa destructor should be supported by monitoring mite levels in colonies. Every beekeeper must submit debris from the hive bottom from capped cells to a certified laboratory by February 15 each year.

One sample can come from a maximum of 10 colonies. Experts from scientific circles have long pointed out that this test does not predict the infection situation for the coming season at either the apiary or individual colony level. Nevertheless, state authorities—supported by the largest beekeeping association—insist on this obligation, which neighboring countries do not have. Evaluating winter debris evidently does not improve the Czech beekeeping infection situation and leads only to wasting state budget funds and unnecessary workload for beekeepers.

Organic acids are gradually gaining ground over so-called "hard chemistry" for treating against Varroa destructor.

European foulbrood repeatedly appears in areas with higher colony density. American foulbrood has not occurred in the Czech Republic since the 1970s but is now re-emerging. State authorities classify both as dangerous diseases, leading to protective zones and mandatory liquidation of all colonies at a site where more than 15% show clinical signs. Since healthy, evidently resistant colonies are also destroyed in blanket culls, debate continues in the Czech Republic about whether this measure is beneficial.

Managing bee diseases depends on the beekeeper's self-education and responsibility for colony

Apiary above Mikulov
Most Czechs keep up to ten bee colonies. The apiary provides beekeepers with honey and an impressive view of the town of Mikulov, which has a beautiful castle. Photo by Milan Motyka

health. Shortcomings persist here, as some beekeepers stick to outdated, now-superseded treatments and see no need for professional advancement to benefit colony health.

Following guidance in colony care is not inherently bad. On the other hand, it can lead to stagnation and clinging to obsolete views and methods. There is also growing suspicion that the rigid approach to disease management, which worked well in the past, is no longer sufficient. Another problem is insufficient discipline in following treatment protocols, contributing to rising drug resistance.

Research in the Field

A complete serious assessment of the infection situation in the Czech Republic is impossible due to the lack of systematic monitoring and statistical evaluation of colony losses by responsible state bodies. This gap is filled—entirely without state support and through citizen science—by the COLOSS project:

Bee colonies in a small forest
The Czech Republic is one of the countries with the highest number of bee colonies per square kilometer. If you look closely at the landscape, you will find them everywhere. Photo by Pavel Hrdina

Lavender farm

Lavender is now grown not only in France, but also in the village of Starovičky in the Czech Republic. The lavender field brings joy to both people and bees. Photo by Milan Motyka

Monitoring of Winter Colony Losses, led by a dedicated team from the Department of Biochemistry at Palacký University in Olomouc under Dr. Jiří Danihlík. This workplace, along with several others from universities and with partial support from the privately owned Research Institute of Beekeeping (linked to the Czech Beekeepers Association), addresses selected aspects of apicultural research—but only sporadically, based on individual scientists' preferences.

Systematically managed research covering the entire field of beekeeping and its links to related disciplines—directly directed by the Czech state in line with long-term agricultural and food policy—is completely absent. The aforementioned Research Institute of Beekeeping, given its own production program, largely focuses on developing bee medicines, which it produces and distributes to breeders through the largest Czech beekeeping association while promoting their use.

Honey Quality Competitions

Despite the large number of beekeepers, only two nationwide honey quality competitions exist in the Czech Republic. The first is the traditional Czech Honey brand competition, long co-organized by the Research Institute of Beekeeping and the Czech Beekeepers Association. Submitted honey must formally meet laboratory parameters set by the relevant national standard and legal requirements for honey on the Czech market. Upon meeting these and paying a participation fee, entrants receive a certificate—so there is no limit on first or second places.

A newer approach since 2015 is the "Honey of the Year" competition, organized by the PSNV-CZ with the National Honey Exhibition. Here, trained specialist tasters evaluate entries and award a limited number of winners in several categories. One category is open to exhibition visitors, who can vote for their favorite based on personal preference. The event thus raises public awareness of high-quality local honeys.

In addition, regional competitions are held by local associations and organizations. Honey is also evaluated in some food competitions, the most prestigious being the Ministry of Agriculture's Regional Food contest to support local food production. Czech beekeepers also participate in various international honey and mead competitions. Here, in addition to honey and

Modern apiary

In the Czech Republic, bees are currently kept in traditional wooden hives, but also in plastic ones, as in the village of Žárovice. Photo Milan Motyka

its products, items like beeswax products compete—for example, candles from the Světlo včel company at Apimondia 2025.

Honey Production and Trade

Annual honey production in the Czech Republic has fluctuated between 5,000 and 10,000 tons in recent years, influenced by weather variations and irregular higher colony losses. Reduced production also stems from the mentioned forest calamity due to spruce bark beetle and the resulting loss of forest forage.

Production usually averages 11–15 kg per colony. These low yields are mainly affected by the large number of hobby beekeepers and high colony density, which increases food competition. Professional beekeepers, needing higher yields for economic sustainability, move colonies to flowering crops—which are often intensively treated with plant protection products.

All this leads to greater dependence on honey imports. The gap between imports and exports continues to widen. In 2017, exports were 1,540 tons and imports 3,177 tons. By 2024, the balance reached 2,220 tons exported and 6,282 tons imported.

Long-term average honey consumption in the Czech Republic is 0.7–1.1 kg per capita. In the EU, it is 0.8–0.9 kg. Domestic sales are dominated by "from the yard" sales by small beekeepers. Hobby beekeepers often set incorrect selling prices, failing to account for the value of their own labor, among other factors. Combined with rising imports of cheap honey from third countries outside the EU, this negatively affects the price level and market for high-quality Czech honey.

Subsidy Support

Beekeeping receives relatively generous subsidies through the EU Common Agricultural Policy, plus some marginal national or regional programs. However, the subsidy system raises concerns—e.g., regarding administration by an interest association entrusted by the state. This association also oversees compliance with subsidy conditions, which lacks sufficient legal basis, as a private group controls the use of state funds intended for its own members' main activity area. In some cases, it charges additional fees directly from beekeepers. National subsidies for professional beekeeping education facilities are set so that only one effectively preferred training facility qualifies.

Thanks to pressure from smaller associations like the PSNV-CZ, the situation is improving, and some subsidies can now be applied for directly by individuals without intermediaries.

Education

Beekeeper outreach and education are gradually improving. More association and private entities organize lectures and workshops emphasizing modern practices and scientific findings. Unfortunately, some hobby beekeepers still avoid self-education or resist inno-

Rapeseed field

Beekeeping in the Czech Republic faces the same problems as in other countries with intensive agriculture. Large fields are not conducive to biodiversity. Rapeseed is widely grown in the Czech Republic. It provides bees with rich pasture, but after flowering, the fields become a green desert where bees can no longer find any food. Another problem is the treatment of rapeseed against pests, which is toxic to bees if applied incorrectly. Photo Lukáš Prýmas

vative methods out of convenience. New ideas are nevertheless penetrating the Czech beekeeping community. The situation is far from perfect and there is room for improvement.

PSNV-CZ (www.psnv.cz) refuses to accept this state of affairs. It therefore publishes professional literature and the popular-science monthly Moderní včelař (www.modernivcelar.eu), introducing beekeepers to the latest apidology results—often linked to molecular biology and genetics. This year, it also publishes selected contributions from the EBA journal No Bees No Life as a series. In addition, PSNV-CZ organizes numerous "Summer Schools" to teach practical beekeeping skills.

Finally, in cooperation with Mendel University in Brno, it provides and guarantees professional beekeeping instruction at the private Moravian Beekeeping School in Hranice (central Moravia) and the state Secondary Vocational School in Blatná (southern Bohemia).

Petr Kellner

PSNV-CZ

Užití dvou typů pylu

ROUSKOVANÝ A PLÁSTOVÝ PYL JE PRAVIDELNĚ ZASTOUPEN V NABÍDCE VČELÍCH PRODUKTŮ JAKO DOPLNĚK STRAVY. JDE O CENNÝ ZDROJ LÁTEK PODPORUJÍCÍCH LIDSKÉ ZDRAVÍ, JAK VÁS PŘESVĚDČÍ ČLÁNEK PŘEVZATÝ Z ČASOPISU NO BEES NO LIFE.

Včela obalená pylem s pylovou rouskou.
Foto Milan Motyka

Pyl je u každého jednotlivého druhu kvetoucí rostliny jedinečný, takže je jejím „otiskem prstu“. Pylová zrna entomofilních/hmyzosnubných rostlin, tzn. opylovaných hmyzem, jsou drsná a lepkavá, vytvářející drobné shluky. Stejně tak jako květy těchto rostlin mají různé tvary, liší se množství pylu, které tvoří. Zásadní roli tu hrají včely, jež se podílí na opylování přibližně 40 000 druhů rostlin. Včely jsou proto nezbytné pro udržení biologické rozmanitosti.

Historické názvosloví

Staří Egypťané popisovali pyl jako životodárný prášek. Avšak Aristotelés ve slavné knize Historia animalium – Dějiny zvířat – o pylu psal, že je „svou tvrdostí podobný vosku, ale ve skutečnosti je to včelí chléb“. O jeho léčivých vlastnostech byl přesvědčen rovněž otec lékařství Hippokratés. Označení „včelí chléb” se udrželo po dlouhá staletí. Název „pyl” (z latinského pollinis = jemný prášek) poprvé použil v roce 1686 John Ray ve své knize Historia plantarum – Dějiny rostlin.

Pravidelněji se však pyl ve výživě lidí začal používat až po druhé světové válce, kdy se rozšířily pylochyty, které umožňovaly těžbu rouskovaného pylu ve větším množství.

Zpracování pylu včelou medonosnou

Usedne-li včela medonosná na květ, zachytí se na její obrvené tělo pyl. Včela pylová zrna slepí pomocí slin, nektaru nebo medu z medového volátka a obohatí ho svými enzymy. Během letu se od nánosu pylu čistí a ukládá ho do pylových košíčků na zadních nohách. Po každém letu přináší létavka do úlu 16–24 mg pylu, což je cca 3 až 4 miliony zrn. Toto množství odpovídá desetině její hmotnosti.

Vzdálenosti, kterou včely medonosné mohou uletět kvůli sběru pylu, jsou delší než ty, jež uletí, aby nasbíraly nektar. Pro sběr pylu na jedné rostlině totiž potřebují méně času než na získání nektaru, a navíc je náklad pylu lehčí než nektar.

Nezastupitelnost pylu

Pyl je pro včelstvo hlavním zdrojem bílkovin, tuků, vitamínů, minerálů a dalších složek, které jsou pro jeho přežití nezbytné. Roční spotřeba činí 30–50 kg/včelstvo. Pyl je nutný pro výživu plodu a rozvoj včelstva.

Včely v úlu ukládají pyl do buněk plástů, které jím naplní ze dvou třetin a zbývající třetinu zaplní medem, čímž zabrání znehodnocení pylu. Takto uložený pyl nepřichází do styku s kyslíkem a vede k rozvoji bakterií, které vylučují kyselinu mléčnou, což je typická složka úlového pylu, zvaného „včelí chléb“.

Polyflorální rouskovaný pyl připravený ke konzumaci.
Fotoarchiv EBA

CZECH BEEKEEPING CLUBS: FUN WAYS OF TEACHING THE YOUTH

Getting children's attention

In this era of social media it's getting harder and harder to compete for the attention of the current generation. There are more ways to spend your time than ever before and the youth are slowly losing the interest in nature and therefore beekeeping as well. We can't honestly change this much but that doesn't mean we can't adjust our ways of teaching to keep the children, who decided to spend their time learning about bees, interested.

Games

There are plenty of games out there we can play and learn by doing so. We have board games where children need their beekeeping knowledge to win. We also play "pexeso" a memory game where you have to match up cards with labels and pictures of beekeeping tools or flowers for instance. There are some games which might not be so meaningful but they are important to make things more fun. This can be for instance jigsaws and other similar games.

More fun activities

We need to teach practical skills because without them the young beekeepers wouldn't be able to take care of their bee colonies. Our children learn how to make hive inspections, collect honey, treat diseases, feed the bees, and raise queens. We try to make sure to include those activities which might not be so fundamental but the children enjoy them a lot anyways. Most notably its degustation of honey or drone marking.

Teaching instruments

would like to highlight one specific instrument we find incredibly useful and which is popular with the children as well. We call it "photoframe" and it's an ordinary hive frame which has a photograph of a real comb from the hive attached to it instead of a wax foundation. It is useful in many different ways. It allows us to show what the inside of a hive actually looks like without having to disturb the bees or protect the children from bee stings. We can assemble the frames in different ways to simulate a variety of situations beekeepers can come across.

Experiment!

I think there is a very important message I need to share at the end of this article. The only reason I know what is popular with the children is that we try many different things until something works. We also communicate with the children a lot to learn directly from them what suits them the best. And maybe some things they enjoy won't even be popular in your club and that doesn't matter at all. You should be the one to see what the children really need, want and enjoy and you should constantly update your practices to accommodate for that. Because we will never achieve progress if we don't adapt to the current world.

Lukáš Loukota
Young Czech beekeepers, 15 years old

RAMADAN RAFAA:
A LIBYAN VOICE
REDEFINING KNOWLEDGE, SUSTAINABILITY, AND HOPE

In a notable shift toward recognizing scientific leadership from the southern Mediterranean, Libyan engineer Ramadan Mohammed Rafaa has been awarded the title of Ambassador of Knowledge, becoming the first individual from the Middle East and North Africa to receive this prestigious distinction. The award marks a regional first and reflects a growing international appreciation for expertise emerging from contexts long overshadowed by conflict. Rafaa's recognition crowns a professional journey spanning more than four decades, during which he has dedicated his work to advancing beekeeping, protecting pollinators, and linking applied science to environmental sustainability and rural development. His approach goes beyond theory, translating scientific knowledge into practical models that have improved agricultural quality, supported rural livelihoods, and strengthened food security in line with international standards.

Notably, throughout years of conflict in Libya, Rafaa continued his scientific and environmental mission uninterrupted. European observers have highlighted this continuity as a powerful statement: Libya is not solely defined by instability, but also by resilience, expertise, and constructive engagement. Through international forums and cross-border environmental initiatives, Rafaa has consistently presented an alternative narrative—one that frames Libya as a contributor to global knowledge rather than a peripheral crisis zone.

His international standing is further reinforced by multiple honors from European and Arab institutions, as well as special recognition from the European Union for his contributions to pollinator protection and honey quality improvement. He is officially accredited as an international expert and consultant and holds the status of an international jury member in his field, reflecting broad institutional confidence in his expertise.

On the ground, Rafaa established a natural reserve east of Benghazi, which has evolved into a living laboratory combining scientific research with environmental education. The reserve is now cited as a model for connecting academic knowledge with sustainable local development, particularly in fragile and post-conflict environments .

The Ambassador of Knowledge Award is reserved for individuals who demonstrate the capacity to transform knowledge into positive societal impact, foster scientific dialogue across cultures, and place research and innovation at the service of pressing environmental and humanitarian challenges. Rafaa's selection signals a broader institutional shift toward recognizing expertise from regions historically affected by marginalization and conflict .

In European circles, this honor is widely viewed as a symbolic message: investment in knowledge and science can reshape national narratives, build new bridges of trust, and expand international cooperation. Libya, despite years of turmoil, continues to produce figures capable of contributing meaningfully to a more sustainable and humane global future.

The official award ceremony took place at the Government Building in Ljubljana on January 29, where Ramadan Rafaa was formally granted the title—affirming the European Union's recognition of his role as a symbol of scientific excellence and environmental innovation in the region.

Professional conference

APISLOVENIJA 2026

Saturday and Sunday
14. and 15. march 2026

Location:

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Program

SATURDAY

- 10.00 -10.30
  OPENING SESSION
- 10.30 – 11.15
  Issues related to invasive hornets in Slovenia
  Simon Golob
- 11.15 - 12.00
  Experiences in combating invasive hornet species *
  prof. dr. Alexandros Papachristoforou
- 12.00 – 12.45
  Modern methods of Varroa control in Germany *
  dr. Michael Hardt
- 12.45 - 13.00
  Preparations for the World Beekeeping Congress Apimondia 2027 in Dubai*
  Zahira Nedjraoui

* The lecture will be held in English

SUNDAY

- 10.00 -10.45
  From winter dormancy to the first honey harves
  Jure Justinek
- 10.45 – 11.30
  Organic beekeeping – the foundation for successful apitherapy
  Jože Cemič
- 11.30 - 12.15
  Determination of honey types – a challenge for beekeepers
  Boris Potočnik
- 12.30
  Announcement of award winners for the best technological solution in beekeeping, best photo, best article, etc.

You are kindly invited

The event is financially supported by the Ministry of Agriculture, Forestry and Food


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TO THE EBA WITHOUT MEMBERSHIP FEE

At the meeting of the EBA Executive Board, on the proposal of the EBA President Mr. Boštjan Noč, an important decision was made regarding membership in the EBA in the upcoming period: "**Membership in the EBA is free for the duration of the mandate of the EBA President Mr. Boštjan Noč**."

Decision of the EBA Executive Board is another confirmation that the EBA continues to work only in the interest of bees, beekeepers and consumers in Europe.

SPONSORSHIP REQUEST

AND METHOD OF ADVERTISING IN THE MAGAZINE

On behalf of the European Beekeeping Association (EBA),I am writing to seek your support in the form of sponsorship to help ensure the smooth and effective operation of our Association.

The EBA is dedicated to promoting and supporting beekeeping across Europe. The Association was founded out of necessity, as bees and beekeepers are essential for our ecosystem and society. Without beekeepers there are no bees, and whithout bees there is no pollination, leading to a lack of food on planet Earth.

EBA works for bees, beekeepers and consumers.

Our mission is to:

1. Fight against counterfeit honey that flooded the European market;
2. Introduction of incentives per beehive as agro-ecological programme;
3. Fight against the improper use of chemicals that are harmful to bees;

In return for your generous support, we offer various sponsorship benefits. We believe that this partnership would be mutually beneficial and would significantly contribute to the advancement of the european beekeeping sector.

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12 advertisements in the EBA monthly e-magazine in the size of 1/8 A4 page

These are basic packages, but we are open to different forms of cooperation, which we agree on individually. We would be delighted to discuss this opportunity further and explore how we can align our goals with your organization's values.

Thank you for considering our request. We look forward to the possibility of working together.

Yours sincerely,

Boštjan Noč
President of the European Beekeeping Association


BEES
LIFE
CONTENT


BEES
LIFE
CONTENT

EBA informative and professional monthly magazine "**NO BEES, NO LIFE**"

February 2026.
Issued since July 2024.
Publisher: **European Beekeeping Association** (EBA)
Head office: Brdo pri Lukovici 8, 1225 Lukovica, Slovenija
eba@ebaeurope.eu
www.ebaeurope.eu

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Editor in chief of the electronic edition of the magazine:
MD Rodoljub Živadinović, Epidemiology Specialist, Apitherapist
apikult@gmail.com, +381 60 444 01 01 (Viber, WhatsApp, Telegram, Signal, WeChat, Daze)