Issue 12 · June 2025

NO BEES LIFE

EBA MAGAZINE

EBA' s SECOND OBJECTIVE ACHIEVED!

30 COUNTRIES

FROM WHICH EBA HAS MEMBERS

(55 beekeeping organizations)

In order of confirmation of the Statute of EBA

414.349 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

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EBA's SECOND OBJECTIVE ACHIEVED!

The EBA has 3 main objectives, which were approved by the Assembly when the EBA was established and also by this year's Assembly.

The second objective is to ensure that every bee colony in Europe is supported by agri-environmental measures. The second objective of the EBA is almost achieved with the EU Commissioner's communication on 24 May, as almost 100% of the EU Commission's and the EU Commissioner's proposals in the follow-up procedure have been approved. I am delighted with the many positive reactions across Europe, many thank and welcome this EU Commissioner's communication, which is also considered a historic turning point for the beekeeping sector. I am pleased that the support and congratulations came from Apimondia, from the President of the Commission for Europe, Mr Robert Chlebo - Apimondia RC Europe from Slovakia, even though Slovakia is not a member of the EBA.

The EU Commissioner, Mr. Christophe Hansen, clearly stated (you can listen at the link https://ebaeurope.eu/listen-to-the-eu-commissioner) that he proposed this at the initiative of Slovenia, because as the president of the ČZS and EBA, who comes from Slovenia, he associates me as an initiative of Slovenia (read: at the initiative of the Beekeeping Association of Slovenia and the state of Slovenia). The Commissioner also publicly stated that I was in contact with him before my appointment as Commissioner and constantly after his appointment. Slovenia has been trying to succeed for 20 years, but it needed the EBA with more than 415,000

beekeepers from 30 countries, for the EU Commissioner and his colleagues to listen to the beekeeping sector!

I am surprised by the notes of some who did not listen to the EU Commissioner, that support was possible until now?! I wonder if it was really possible and if it was, why did we unanimously include it among the main goals of the EBA? Why did we strive for something that was supposed to be possible already?

Many beekeeping organizations across Europe have been wanting Europe to enable support per hive for decades, but unfortunately, as far as I know, there has been no success so far.

Let us be proud of the successes of the EBA, let this success give us additional strength and energy to achieve the other two main goals. I hope that when we manage to achieve these two goals, we will not get another “explanation” that this has already been arranged and that they are responsible for it …

Boštjan Noč
President of the EBA and the ČZS

FIRST DAY OF THE VISIT OF THE EU COMMISSIONER FOR AGRICULTURE TO SLOVENIA

On the May 23, 2025, is the first day of the visit of the EU Commissioner for Agriculture. He convinced me personally. At a joint meeting with agricultural organizations today, I highlighted:

1. Excellent cooperation between beekeepers and farmers, since 2011 in Slovenia without mass bee deaths – let's transfer good practice to the EU and thus reduce bee deaths throughout Europe.

2. Varroa control agents are at different prices in different countries, the free movement of these agents throughout Europe is necessary and thus the price will be similar everywhere, the goal is the same!

3. Initiative for a unified European promotional campaign, Europeans buy locally, origin Europe. Unified promotion of EU quality schemes is necessary.

The Commissioner answered these questions as follows:

He absolutely agrees with the transfer of good practices throughout the EU.

Regarding bee disease remedies and all phytopharmaceuticals in general, he was very clear, it is necessary to simplify the registration of new, more effective medicines and FFS and a single registration in Europe for everyone. Above all, he supports the development and registration of new biological remedies.

He said that in Europe the procedure takes up to 8 years, for example in the USA a maximum of 1 year. This is unacceptable, so he advocates simplifying procedures.

Regarding promotion, he emphasized that this is essential. He emphasized that part of promotion is also educating all consumers about the advantages of local food!

Boštjan Noč
President of the EBA

EU BEEHIVE SUBSIDIES FOR POLLINATION ARE BEING INTRODUCED AT THE REQUEST OF THE EUROPEAN BEEKEEPING ASSOCIATION

The results of the work of the European Beekeeping Association are visible!

On May 24th, the 8th World Bee Day was celebrated, where the EBA leadership met with the European Commissioner for Agriculture and Food, Mr.Christophe Hansen – Subsidies for bee colonies in Europe are being introduced!

One of the main goals of the Slovenian Beekeeping Association for 20 years and one of the main goals of the European Beekeeping Association – it was obviously necessary to establish the EBA in order to achieve that goal, is for Europe to recognize the importance of bees as pollinators and to allow direct financial support for bee colonies.

Today, the EU Commissioner for Agriculture and food announced the fantastic news that he had listened to the beekeepers of the European Beekeeping Association and that the EU Commission had already prepared amendments for 14 May and that subsidies per hive are being introduced as part of the agri-environmental measures!

This news from today's meeting is truly a ray of hope for the beekeeping sector in Europe, which is in a difficult situation.

Numerous letters from the European Beekeeping Association in the last year and numerous meetings with high-ranking representatives of European politics and, above all, the understanding of the problem by the EU Commissioner for Agriculture and Food have brought results.

The Commissioner thanked President EBA Boštjan Noč, highlighting the importance of Slovenian beekeeping as a shining example for the whole of Europe and the world.

He highlighted the importance of pollinators, which play a key role in ensuring a high-quality food supply and a diverse range of essential nutrients.

"*Despite all these challenges, the EU remains the second largest honey producer in the world, and the number of beekeepers and hives has remained relatively stable over the last 5 years.*

The CAP or Common Agricultural Policy is an important instrument to support the protection of bees and pollinators through environmentally friendly agricultural practices. We have a specific

budget of €60 million per year dedicated to the beekeeping sector, from which Slovenia also benefits," the Commissioner pointed out.

"*Until now, beekeeping support has been paid mainly per hectare. We propose to allow Member States to provide support per hive.*

Finally, I know that beekeepers, and consumers too, are concerned about honey fraud. Consumers also want to know where their honey comes from. We have recently tightened the rules on the labelling of honey and on ensuring the quality and authenticity of honey. We have also stepped up our work on analysis to detect the adulteration of honey with sugar syrups and created a honey platform to help us in this work," said the Commissioner.

The Commissioner also announced fantastic news, marketing funds were also approved at the EBA's request, financial support for the promotion and investment in the marketing of bee products, highlighting the importance of building trust on a solid foundation between producers and consumers. The Commissioner highlighted the importance of bee products, not only honey, but also other products.

The Commissioner pointed out the need to continue working together to protect our pollinators, support our beekeepers and ensure a sustainable future for agriculture.

"*Together we can make a difference and ensure a brighter future for generations to come,*" said the Commissioner.

The President of the European Beekeeping Association, Boštjan Noč, concluded the meeting by summarizing the most important segments of the meeting, thanking the Commissioner for his support and efforts, in achieving a goal that includes 20 years of struggle of the Beekeeping Association of Slovenia and the European Beekeeping Association, it was obviously necessary to establish the EBA in order to achieve that goal.

Thank you to everyone who supported the EBA in this initiative.

"We, at the EBA, continue to work even more determinedly towards achieving the other goals of the EBA, for bees, beekeepers and consumers in Europe", said Boštjan Noč, President of the EBA.

LISTEN TO THE EU COMMISSIONER!

Audio recording of the meeting of beekeepers with the European Commissioner and press conference with the European Commissioner, you can find THERE.

WILL THE POPE OFFER MASS FOR BEEKEEPERS IN THE VATICAN ON DECEMBER 7TH?

The Beekeepers' Association of Slovenia and the European Beekeepers' Association have made a request that on Saint Ambrose, the patron saint of beekeepers, the Pope receive beekeepers and offer mass for bees and all beekeepers of the world?We are waiting for an answer, we are going to the Vatican on December 7th!

Opinions on the success of EBA

Robert Chlebo

President of the Apimondia Regional Commission for Europe

On behalf of Slovak Beekeepers Association and Apimondia Regional Commission for Europe

Introduction of direct financial support for beekeepers is one of the best news for beekeeping sector in EU in these difficult years. It can help beekeepers and their bee colonies to survive times when sustainability of commercial honey production in the Europe is threatened by many factors. Congratulation to our beekeeper friends from the European Beekeeping Association and especially the president Bostjan Noc for their effort and this great success!

Fabian Lindhe

Member of the Assembly of the European Beekeeping Association, Sweden

Hi, of course you do a great job, I guess most professional beekeepers in Sweden love this idea, from a personal perspective i like it more when we can get a high enogh price for our produkt that we dont need subsidies.

Roger Patterson

Member of the Assembly of the European Beekeeping Association, President of the BIBBA (Bee Imporvement and Bee Breeders Association), United Kingdom

Although the UK are no longer in the EU, so our beekeepers are unable to take advantage of this good news, BIBBA congratulates the EBA officials on obtaining such a great benefit for beekeepers. In addition, we note the reference to adulterated honey by the Commissioner for Agriculture. We agree that what has been achieved has been helped by the formation of the EBA, so giving the craft of beekeeping a stronger voice.

Tetyana Vasylkivska

Chairman of the Board NGO "Brotherhood of Ukrainian Beekeepers"

Expert advisor for strategic plan-

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ning, the European integration, and sustainable development

Member of the Assembly of the European Beekeeping Association

Member of the Executive Board of the European Beekeeping Association

Vice President of the European Beekeeping Association

On May 24, 2025, the European Beekeeping Association (EBA) achieved a significant historic victory: the European Commission officially announced the introduction of direct subsidies for bee colonies within the framework of the EU's agri-environmental measures. This decision represents the recognition of the vital role of bees as key pollinators and is a response to the many years of tireless efforts by the European beekeeping community, including our organization.

The NGO "Brotherhood of Ukrainian Beekeepers", as a full member of the EBA, sincerely welcomes this initiative and considers it a turning point in shaping a new policy for sustainable agriculture in Europe.

For many years, we have been working toward the recognition of beekeeping as an independent and important branch of agriculture — one that requires a dedicated and supportive policy. Beekeeping is not merely a sector. It is a mission that unites the work of humans and nature.

The bee is not merely a source of honey. It is a tireless worker, pollinating plants in fields, orchards, and forests each day—ensuring harvests, preserving biodiversity, and strengthening both food and environmental security across Europe.

The bee knows no borders—it pollinates plants in fields and meadows, orchards and vineyards, in mountains and valleys across all European countries, bringing benefits to nature and humanity alike in the name of life preservation.

But the bee needs protection, and its first and foremost protector is the beekeeper. The beekeeper is a unique specialist who understands how to build a harmonious relationship with the bee, providing it with proper care and conditions to fulfill its vital mission. The beekeeper understands the language of the bee, ensures its health, protects it from climate change, pesticides, and diseases. It is the beekeeper who maintains the colonies that safeguard life on our planet.

We are deeply convinced that beekeepers in Europe deserve direct financial support for their work. They may not own hectares of land, but they sustain millions of bees that pollinate those hectares.

We express our heartfelt gratitude to Mr. Christophe Hansen, European Commissioner for Agriculture and Food, for his wise and visionary decision, for his willingness to listen to the voices of beekeepers, and for recognizing the crucial role of bees and beekeepers in ensuring Europe's food and environmental security.

We also extend our sincere thanks to the leadership of the European Beekeeping Association, and personally to the President of the EBA and President of the Slovenian Beekeepers Association, Mr. Bostjan Noc, for his outstanding leadership, principled stance, consistency, and inspiring belief in our shared cause.

It is thanks to his incredible energy, many years of experience, diplomatic skill, and ability to unite beekeepers from all across Europe that we have achieved something that not long ago seemed unattainable.

We believe that this decision opens new opportunities not only for beekeepers in EU member states, but also for beekeepers in European countries on the path toward EU integration.

Together, we must seek mechanisms to ensure that every beekeeper in Europe-regardless of their country-has the right to such support.

This is a shared victory for all who believe in the bee, the beekeeper, and a common European future. The unity of European beekeepers brings hope for the future-for bees, for beekeepers, and for all of Europe.

Opinions on the success of EBA

Torsten Ellmann

Member of the Assembly of the European Beekeeping Association

Member of the Supervisory Board of the European Beekeeping Association

President of the Germany Beekeepers Association (DIB)

Germany

The European beekeeping community has long campaigned for the free pollination services of beekeeping to be better rewarded. While some associations are calling for "pollination subsidies" for individual bee colonies, others reject such subsidies – as they do for other sectors of agriculture.

In fact, EU member states have had the option of using money from the Common Agricultural Policy (CAP) for payments for beehives for some time now. The French beekeeping associations, for example, work in this area to maintain this option, which was already proposed in the last two CAP periods. In France, the national plan includes the possibility of payments for bee hives as, referring to Article 70 of EU Regulation 2021/2115. The article refers to environmental, climate-related and other management commitments. The management of the intervention is done at regional level and a simplification has already been done. To our knowledge, it was also an option offered to Maltese beekeepers in the past. In the current CAP, the intervention to reward pollination is still there but with a very small budget of 50 000 Euro dedicated to beehives on holdings.

Following the farmers' protests, the associations that have come together in the Copa-Cogeca organisation have, on our initiative, repeatedly called on the EU Commission to include beekeeping in the planned simplifications for the Common Agricultural Policy. Our friendly beekeeper organisations and we are therefore very pleased to have been heard by the Commission. We also thank EBA and the Slovenian beekeepers for their engagement. As EU Commissioner Christophe Hansen briefly mentioned at the press conference in Slovenia, bee hives are now mentioned in his proposal for a simplification package for the Common Agricultural Policy. This simplification package refers to the above-mentioned EU regulation. Article 48 states that "where support […] is granted to agri-environment-climate commitments or commitments to convert to or maintain organic farming practices and methods […] Member States shall establish a payment per hectare, or where appropriate, per beehive […]. We now have to see whether this proposal is accepted, and which effect it will have. As mentioned above, the Member States already had the option of using the aforementioned regulation for the payment of premiums for bee colonies under certain conditions.

Biljana Tomić

LLB

General Secretary of the European Beekeeping Association

Serbia

The introduction of EU subsidies for

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pollination by bees marks a historic milestone for the beekeeping sector and a major achievement for the European Beekeeping Association (EBA) in its very first year of existence.This recognition of pollination services goes beyond financial support — it is a statement that bees are not only producers of honey, but irreplaceable contributors to agriculture, biodiversity and food security. It is also a message to every beekeeper in Europe: your work matters, and it is finally being acknowledged at the highest level.We are especially grateful to Commissioner for Agriculture and Food Mr. Christophe Hansen for understanding the reality behind the numbers: behind every hive is a family. His commitment gives us hope that European institutions are ready to treat beekeepers as strategic partners in sustainable agriculture.This breakthrough would not have been possible without the persistent efforts of national organizations, particularly the Beekeeping Association of Slovenia and president of EBA Mr. Boštjan Noč. Their work, and our united voice through EBA, have led to this shift in EU agricultural policy.EBA remains committed to its founding mission, to fight honey fraud and to give beekeepers a strong and respected place . There is still much to do — but we now know that change is not only necessary, it is possible.

MD Rodoljub Živadinović

Member of the Assembly of the European Beekeeping Association

Vice president for promotion and international cooperation of the European Beekeeping Association

Member of the Executive Board of the European Beekeeping Association

President of the Serbian Federation of Beekeeping Organizations (SFBO — SPOS)

Serbia

The European Beekeeping Association (EBA) have once again demonstrated their unwavering commitment to the preservation and advancement of beekeeping practices across Europe. Their recent meeting with the European Commissioner for Agriculture and Food marks a significant milestone in their ongoing advocacy for policies that protect and promote the welfare of bees and beekeepers alike.

The EBA's efforts during the meeting were nothing short of exemplary. Through meticulous preparation and persuasive dialogue, they brought critical issues to the forefront, emphasizing the pivotal role of bees in ensuring food security and biodiversity. Their ability to articulate the challenges faced by beekeepers and present actionable solutions speaks volumes about their professionalism and dedication.

These outcomes represent tangible progress toward safeguarding the future of beekeeping in Europe and ensuring that this vital sector receives the support it deserves.

The achievements of the EBA reflect not only their own dedication but also the power of collaboration. Their ability to unite diverse stakeholders—beekeepers, scientists, policymakers, and environmentalists—under a shared vision for sustainable beekeeping exemplifies the spirit of solidarity that drives meaningful change.

As we celebrate the EBA's accomplishments, it is equally important to recognize that their work is far from over. The commitments secured at the meeting lay a strong foundation, but continued vigilance and advocacy will be required to transform promises into lasting change. The EBA's leadership gives us confidence that they are more than equal to this challenge.

To the European Beekeeping Association, we extend our heartfelt gratitude for their tireless

Opinions on the success of EBA

efforts and commendable achievements. Your work is an inspiration to all, reminding us of the importance of protecting our pollinators and the ecosystems they sustain. May your future endeavors continue to yield fruitful results for the betterment of beekeeping and agriculture across Europe.

Of course, all of us who are well-versed in the roots of the founding and the work process of the EBA are deeply aware that all fundamental ideas and the way they are resolved originated from the head of the conceptual creator and first president of the EBA, Boštjan Noč. That is why I congratulate him on this success, because his way of working has been confirmed in practice as correct and no one can find fault with him anymore. It is our common tragedy that we have allowed honey packers to have the main say in discussions with legislators for decades, and in this way they make laws for themselves, and not for beekeepers. I guess that is why beekeeping in Europe has been falling into an abyss for years, and is currently at its bottom because its support is really symbolic in relation to the benefits it provides to the citizens of Europe. In the last couple of years, honey counterfeiters have been stabbing it through the heart with a spear in bursts of fire, and it needs urgent help. That is why this huge initial success of the EBA, just one year after its establishment, is so significant and valuable for all of us.

Since I found it appropriate to attend this meeting as part of the EBA leadership and actively participate in its work, I would say that the greatest success of the EBA has actually gone under the radar for me. It is the joy of knowing that the Commissioner completely understood us. With tears in my eyes, I listened to the former Minister of Agriculture of Slovenia Dejan Židan while he was speaking at this meeting, that the former EU Commissioner for Agriculture and Food did not even want to hear about them, when they went to propose that he support the establishment of a World Bee Day. And support would not only not cost him a single euro, but would only require words of understanding and support. But there were no such words either. That best shows how much the authorities in the EU once did not understand beekeeping. This tectonic shift that has come about through the establishment of close contact between the EBA and the new European Commissioner for Agriculture and Food, which has dramatically accelerated the efforts of the current EU leadership to help beekeeping, will certainly very quickly lead to the fulfillment of the EBA's main goal, which is the complete elimination of counterfeits from the EU market, and therefore the entire Europe, because this achieved goal will be a shining example for all other European countries. If we all work together on this, there will be success, I have no doubt about it. It is necessary for those beekeeping associations that are not yet members of the EBA to understand this, even though membership is free, and the benefits for beekeeping are now more certain than ever.

Finally, I would like to express my personal admiration for Commissioner Hansen as a person. He has shown that he is a great man, a great worker, but also a great mind, concrete and clear, who has understood not only the value of beekeeping, but also the need to urgently help it. Thank you for your understanding and goodwill! I hope for further successful cooperation!

EBA LEADERSHIP MET WITH THE EU COMMISSIONER

for the Environment, Water Resilience and a Competitive Circular Economy

Jessika Roswall, Commissioner for the Environment, Water Resilience and a Competitive Circular Economy, received the EBA leadership on May 15, via video conference.

We presented the Commissioner with the importance of bees for the environment, especially that bees are an indispensable part of the environment, that they perform a pollination service, care for biodiversity and provide a third of the world's food through pollination

We presented a clear request that bees be considered as part of European environmental policy, not just as part of agriculture.

We proposed that financial resources be provided for indigenous honey plants for all European countries within the framework of environmental policy. We presented beekeepers' demands for urgent support for beekeeping, because we made it clear that, unfortunately, bees cannot survive without the help of beekeepers. We also highlighted the problem of the Asian hornet. The EU Commissioner was delighted to meet us and stressed that she is very aware of the importance of bees and pollinators and is very supportive of us. She agrees that bees are a very important part of the environment. She will advocate for a clean and healthy environment that will help preserve bees and pollinators. We agreed that at the professional level, the Cabinet of the EU Commissioner for the Environment, the Cabinet of the EU Commissioner for Agriculture and the European Beekeeping Association will connect and define concrete measures. The Commissioner stressed that working together is key, that there will be many discussions on the importance of pollinators and that only through cooperation can we succeed. She particularly highlighted the fight against counterfeit honey, mainly for the sake of consumer protection and the preservation of beekeeping.

We asked the EU Commissioner if she could make a public statement on 20 May, World Bee Day, on her view of the importance of bees and pollinators.

HAPPY BEE DAY FROM COMMISSIONER FOR THE ENVIRONMENT, WATER RESILIENCE AND A COMPETITIVE CIRCULAR ECONOMY

Jessika Roswall, Commissioner for the Environment, Water Resilience and a Competitive Circular Economy, recorded a short video to mark World Bee Day THERE.

"Did you know that over 80% of Europes wild plants and crops rely on pollinators like bees to bear fruits and seeds?

Bees offer their services for free. Yet we take them for granted.

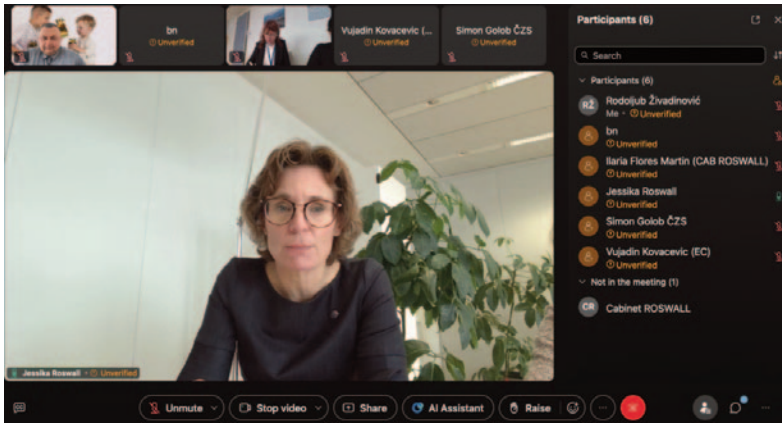
Their work is invaluable. We need them for food production, maintaining the nature that we cherish, so we really need them.

But heres the truth.

Bees are precious and vulnerable.

We need to protect them, not only for the environment, but for the food and biodiversity.

So lets work together to protect these heroes of our planet!"



MEETING WITH THE GREENS MEP's

During our visit to the European Parliament, we also met with the Greens MEPs, Mr Weitz and Mr Prebelič. Both are aware of the crucial importance of beekeeping for food security and nature conservation. They expressed their willingness to help establish contacts with the coordinators of the political groups responsible for the Committee on Agriculture and Rural Development (AGRI), as we want to present to them the challenges of the beekeeping sector with the long-term goal of creating a more beekeeper-friendly Common Agricultural Policy.

BEEKEEPERS' VOICES HEARD IN THE EU PARLIAMENT

The linden tree is one of the symbols of Slovenia, in Slovenia beekeeping is a way of life and that is why on World Bee Day, which was declared by the UN on 20 December 2017 at the initiative of the Slovenian Beekeepers' Association, we distributed a jar of linden honey to all EU members of parliament. With the help of Slovenian MEP Zala Tomašič, they received real honey, mainly so that EU members would know what real honey is, because nowadays real honey is already difficult to find in many places.

The EU members began the day we celebrate World Bee Day with a traditional Slovenian breakfast.

At breakfast, the president of the Slovenian Beekeepers' Association and the European Beekeeping Association Boštjan Noč asked everyone present to do everything they could to immediately remove counterfeit honey from the market and thus protect consumers.

He emphasized that just a spoonful of real honey improves health, while counterfeit honey can even harm health!

He also asked those present to finally support beekeepers for beekeeping, as bees are primarily pollinators. A third of the world's food depends on pollination, not to mention its importance for biodiversity.

Therefore, it is imperative to introduce direct payments for each bee colony as compensation for pollination services! Let us be aware that pollination cannot be imported!

At the end, he asked everyone to support the proposal of the European Beekeeping Associaton for Europe to launch a unified campaign, Europeans buy local food – origin Europe!

We were particularly impressed by the presence of the President of the EU Parliament, Mrs.

Roberta Metsola, who was enthusiastic about the event. She knows the beekeeping topic very well, and in addition to the problem of counterfeit honey, she highlighted the importance of bee health care and the protection of local bees. In the President of the EU Parliament, beekeepers have an ally!

In the breakfast debate, the MEPs responded with positive views and promised cooperation and support. We would like to thank EU MEP Zala Tomašič for all the organization.

SECOND MEETING OF THE HONEY PLATFORM

The European Commission convened the second meeting of the Honey Platform. EBA representatives, Prof. Dr. Andreas Thrasyvoulou and Dr. Urška Ratajc, attended the online meeting on 7 May 2025. The meeting focused on three main topics: (1) enzymatic activity in honey; (2) criteria for pollen content in honey; and (3) the establishment of efficient traceability systems.

Once again, the EBA Scientific Committee on Safety and Quality of Bee Products put considerable effort into preparing a proposal addressing the European Commission's specific questions. This proposal was adopted and confirmed by the Executive Board, submitted to the Commission, and presented during the meeting, which took place from 9:30 a.m. to 5:00 p.m.

A lengthy discussion was held on honey filtration and the minimum mesh size of filters/strainers to preserve the pollen spectrum in honey. There appeared to be general agreement that any filtration altering the primary natural components of honey should not be permitted, and the resulting product should not be called "honey." However, consensus on certain details has yet to be reached before final decisions can be made. Likewise, differing views were expressed regarding updates to composition parameters and traceability.

The next meeting is scheduled for mid-November 2025. I would like to thank the members of the Scientific Committee on Safety and Quality of Bee Products for their tremendous efforts in preparing our detailed proposal, Prof. Dr. Andreas Thrasyvoulou for representing our position at the meeting, and the Executive Board members for their continued support.

Dr. Urška Ratajc
Head of the Scientific Committees, EBA

THE EIGHTH WORLD BEE DAY – UNFAIR COMPETITION FROM FAKE HONEY THREATENS BEEKEEPING AND, ABOVE ALL, MISLEADS CONSUMERS!

World Bee Day was declared by the United Nations in New York on December 20, 2017, following a 2014 initiative by the Slovenian Beekeepers' Association and with great effort from the whole of Slovenia, receiving unanimous support from the global political community. The first celebration was held on May 20, 2018, in Žirovnica, the birthplace of Anton Janša—May 20 is his birthday and the date on which we celebrate World Bee Day. The goal of World Bee Day is to protect bees and other pollinators.

As the initiator of World Bee Day, am I satisfied?

In terms of promotional efforts, I am more than satisfied — beyond expectations. But when it comes to supporting beekeepers and protecting consumers, I am definitely not!

Unfortunately, the world is barely—if at all—aware that bees can no longer survive without the help of beekeepers. Without bees and other pollinators, there would be even more HUNGRY people in the world!

That is why it is high time to support beekeepers. Beekeepers are losing the motivation to continue, and if they begin to abandon beekeeping, we are facing a catastrophe in the very near future. There will simply be fewer bees each year, and as a result, the free pollination service they provide will disappear—something that will have a serious impact on food production… So, Europe—it's now or never! This is about bees, beekeepers, and consumers!

First and foremost, fake, counterfeit honey must be immediately removed from the market. It is essential that Europe adopts concrete measures to support beekeepers and protect consumers in this matter before the year is out. Until concrete long-term measures are adopted, Europe should, in the meantime, ban the import of honey from those countries that are most problematic in terms of counterfeit honey. Control over honey must be GUARANTEED at entry points into Europe, as this honey can under no circumstances reach store shelves. This must be done to protect consumers so they can still enjoy real honey—honey that strengthens their health—and not "fake" honey, which can even be harmful to our health.

Europe must also urgently and immediately ensure direct payments for each beehive through agricultural and environmental measures as compensation for the free pollination service provided by bees. This year alone, approximately 50% of bee colonies in Europe died over the winter, and without immediate financial support to beekeepers for hive management, we face a catastrophe both in food production and in preserving biodiversity! Importing honey is possible (fake

honey), but pollination simply cannot be imported!

On this year's World Bee Day, I wish for clear and definite protection of consumers and support for beekeepers. Europeans do not deserve to enjoy honey that isn't really honey and therefore should not be labeled as honey at all. Let's not forget: "A spoonful of real honey a day keeps the doctor away!" There is no food security in Europe without bees! Immediate support for beekeepers is essential to preserve the bees and, with them, the pollination service they provide!

I thank all beekeepers for continuing to engage in beekeeping during these difficult times, for caring for the production of high-quality bee products, for maintaining the pollination service of bees, and consequently for supporting the production of more than one-third of the world's food.

Special thanks go to everyone who helps beekeepers preserve bees by planting nectar-producing plants, by using harmful FFS products only when absolutely necessary and correctly, and by deciding to buy bee products from local beekeepers, thereby ensuring the best bee products that strengthen your health!

Let us be aware that the one playing the leading role in everything is the bee — the bee, we say — and once again, we say it: the bee! Without the bee, there are no bee products; without the bee, there is no pollination; without the bee, there is no food production — and also, UNFORTUNATELY, without beekeepers, there will be no bees.

Boštjan Noč

President of the
European Beekeeping Association
President of the
Slovenian Beekeepers' Association

ASSEMBLY OF THE EUROPEAN BEEKEEPING ASSOCIATION IN ONLINE FORMAT

The EBA Assembly was held on April 14, 2025 in online format. The assembly was attended by 30 delegates, who participated and unanimously adopted the EBA plan and program for 2025.

The EBA President, Mr. Boštjan Noč, welcomed the attendees, presented the report on the work of the EBA for 2024. and Dr. Urška Ratajc – Head of the EBA Scientific Committees, together with the Biljana Tomić – Secretary General, presented the work of the EBA Scientific Committees.

The report on the publication of the EBA Magazine was presented by Mr. Rodoljub Živadinović – Vice President of the EBA and Editor of the EBA Magazine.The report on the work of the Supervisory Board EBA was submitted by president SB EBA Mr. Mende Trajkovski.

The delegates had no objections to the work of the EBA so far,supported the EBA leadership in all activities, expressed support for the President to continue with the successful management of the EBA and thanked for all the activities carried out.

In the coming period, the EBA will continue with the work and activities presented in the EBA Work plan 2025.

AGENDA

1. Greetings from the President EBA Mr. Boštjan Noč;
2. Overview of the participation (Mrs.Biljana Tomić -Secretary General) of EBA members;
3. Report on the work of EBA 2024 (President EBA Mr.Boštjan Noč);
4. Report on the work of the Scientific Committees EBA (Ms.Urška Ratajc - Head of the Scientific Committees EBA and Mrs.Biljana Tomić-Secretary General);
5. Report on the publication of EBA Magazine (Mr. Rodoljub Živadinović – vice president EBA and editor of EBA Magazine);
6. Financial report (President EBA Mr. Boštjan Noč);
7. Plan EBA 2025;
8. Proposals for amendments to the Statute;
9. Report – Mr. Mende Trajkovski- President of the EBA Supervisory Board;
10. Conclusion;

EBA WORK PROGRAM FOR 2025

1. 100% fight against fake honey (urgent meetings in the first three months of 2025 with all key decision-makers in Europe);
2. Organization of a round table on the topic of fake honey in the EU Parliament;
3. Demand support for all bee colonies in the European Parliament as a compensation for the pollination service of bees;
4. EBA Day at Apimondia in Denmark;
5. Inclusion of new members in the EBA, meeting with the leadership of beekeeping associations in Austria, the Czech Republic, France, Italy,

6. Participation of the EBA leadership at the beekeeping festival on May 20 in Slovenia, where we will invite the EU Commissioner for Agriculture;

7. Achieve a special session of the AGRI committee in Brussels on the topic of beekeeping;

8. Signing of a partnership with EPBA, BEE-LIFE and Apimondia;

9. Prepare a promotional campaign on Facebook (paid) Europeans choose European honey;

10. Active work of all EBA scientific committees, if necessary, establish new committees, if there is energy, will and readiness for work;

11. Meeting and meeting of the Scientific Committee for Bee Products and Bee Health in March in Celje;

12. Acquire new EBA sponsors;

13. Organization of EBA webinar lectures;

14. Organization of a round table on the topic of European beekeeping via video conference;

15. Participation of EBA management in international events, events of EBA members, organization of events by EBA (3 events in 2025);

16. Regularly include proposals from all EBA scientific committees in the program;

17. Include proposals from EBA members in the program, but also concretely by appointing members responsible for implementation;

18. EBA will publish EBA Magazine.

European Beekeeping Associations

FREE WEBINAR EBA SCIENTIFIC COMMITTEE ON BEE HEALTH

On April 30, the first free EBA webinar was held under the auspices of the SCIENTIFIC COMMITTEE ON BEE HEALTH.

Topic: Maintaining bee health and sustainable beekeeping relies on effective colony management.

The lecturers at the first EBA webinar were:Prof. Dr. Aslı Özkırım, Prof. Dr. Ivana Tlak Gajger and Dr. Giovanni Formato. The introductory speech at the webinar was given by Dr. Urška Ratajc – Head of the EBA Scientific Committees.

The webinar lecturers covered the following topics:

1. “Best Beekeeping Practices in Europe: the B-THENET platform” –Dr. Giovanni Formato;

2. “How to properly use medicines to treat bees” – Prof.Dr. Ivana Tlak Gajger;

3. “Integrated Varroa destructor Control – Prof.Dr. Asli Ozkirim.

After the presentations, the leactures answered questions from the webinar participants.

This webinar provided a comprehensive overview of European Best Beekeeping Practices, regulatory guidelines for colony treatments, and integrated Varroa destructor control. By integratin preventive measures, organic and medical treatments, and biotechnical strategies, beekeepers can improve colony resilience and productivity.Standardized Best Beekeeping Practices and responsible medicine use, in accordance with national regulations, promote healthier bee populations and sustainable apiculture.

Objective: To provide EU beekeepers, researchers, and policymakers with insights into sustainable colony management practices that enhance bee health, focusing on best practices, regulatory compliance and integrated pest management.

Subtopics: To inform participants on B-THENET as a tool where they can exchange best beekeeping practices; provide participants with an overview of national and EU regulations on hive treatments and responsible medicine use; propose information on winter colony losses and IPM strategies against varroa mite; strategies to enhance colony resilience and reduce disease incidence.

EBA would like to thank all the participants in the webinar. The lectures, the head of the EBA scientific committees and everyone who contributed to making this webinar successful and educational in these challenging times for beekeeping.

PROPOSALS FOR THE EU COMMISSIONER:

A CONTRIBUTION TO THE EBA'S STRUGGLE FOR A BETTER STATUS OF EUROPEAN BEEKEEPING

First opinion

ACUTE, CHRONIC TOXICITY AND SYNERGISTIC EFFECTS OF PLANT PROTECTION PRODUCTS (PPPS)

According to Regulation (EC) No 1107/2009 (Annex II, 3.8.3), an active substance shall only be approved if it results in negligible exposure to honeybees or has no unacceptable acute or chronic effects on colony survival and development. However, this provision applies only when an appropriate risk assessment has been established, based on test guidelines agreed at the Community or international level.

In 2002, the European Commission adopted guidance for applicants on how to conduct honeybee risk assessments related to the use of active substances and PPPs. However, this guidance—still in effect today—does not adequately address the chronic or synergistic effects of PPPs on honeybees, despite this being explicitly required by Regulation 1107/2009.

In 2013, EFSA published an updated guidance document for the risk assessment of PPPs on honeybees, bumblebees, and solitary bees. This document was aligned with Regulation 1107/2009 and introduced more comprehensive testing requirements, including chronic toxicity, effects on bee development and larvae, sublethal effects, and higher-tier testing (e.g., cage, tunnel, and field studies). EFSA also recommended the development and validation of new methods to cover these areas.

Despite the scientific robustness of EFSA's proposal, the 2013 guidance was not endorsed at the EU level. Only 12 Member States supported it. The Standing Committee on Plants, Animals, Food and Feed (ScoPAFF) rejected the guidance due to concerns over the lack of internationally validated methods, the stringency of specific protection goals, and the practicality of higher-tier field testing, which required large numbers of field plots and bee colonies.

The Commission subsequently proposed a phased implementation of the 2013 EFSA guidance, yet this was also rejected by the majority of Member States. As a result, honeybee risk assessments in the EU continue to rely on outdated methodologies that do not reflect the current scientific understanding of chronic and synergistic effects of PPPs.

Opinion

The Commission must intensify its efforts to persuade Member States to adopt the EFSA

2013 guidance document in full. In addition, the EU should provide targeted funding for Member States to participate actively in the OECD test guideline program to help develop, validate, and agree upon the necessary testing methods at the international level. Without this coordinated effort, the chronic toxicity and synergistic effects of PPPs will continue to be overlooked, and pollinators will remain insufficiently protected.

Further Suggestions

To strengthen the EU's protection of pollinators, the following measures could also be proposed:

1. Establish a Timeline for Adoption

Set a fixed timeline for revising the current risk assessment framework based on EFSA's guidance, with mandatory deadlines for gradual implementation of validated methods.

2. Create an EU Bee Health Observatory

Develop a centralized observatory to monitor colony losses across the EU, with a focus on chronic and sub-lethal pesticide effects, acting as an early-warning system and research hub.

3. Promote Research on Synergistic Effects

Fund targeted research on the synergistic effects between multiple PPPs, nutritional stress, diseases, and other environmental stressors—factors that are currently ignored in pesticide risk assessments.

4. Introduce a Precautionary Evaluation Mechanism

Require additional precautionary evaluation for PPPs shown to pose a high risk under real-world field conditions—even in the absence of internationally agreed test methods.

5. Public Transparency

Make the results of all bee risk assessments (including chronic and sub-lethal testing) publicly available, increasing transparency and encouraging scientific scrutiny and public engagement.

6. Pollinator Protection Certification

Introduce a pollinator-safety certification system for PPPs that undergo the full range of chronic, sub-lethal, and synergistic testing, to promote safer alternatives in the marketplace.

References:

EFSA (2013) Revised guidance on the risk assessment of plant protection products on bees (Apis mellifera, Bombus spp. and solitary bees). Efsa journal doi: 10.2903/j.efsa.2023.7989

European Commission (2002) Guidance Document on terrestrial Ecotoxicology under Council Directive 91/414/EEC, SANCO/10329/2002.

Regulation (EC) No 1107/2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC, L309/1

Second opinion

RECOGNITION AND SUPPORT FOR BEEKEEPERS PROVIDING POLLINATION SERVICES

Despite experiencing significant annual losses, honey bee (Apis mellifera) colonies have continued to increase in number in Europe, with an average annual growth rate of 1.9%. This increase is not a natural trend but rather the result of the continuous and determined efforts of beekeepers, who act as frontline stewards of pollinators and biodiversity.

Beekeepers mitigate the impact of pesticide exposure by relocating colonies away from contaminated areas, often at short notice and personal cost. They also play a critical role in public education, raising awareness of the environmental risks posed by chemical substances and intensive agricultural practices. Crucially, they offset losses in bee populations by creating new colonies through hive division—a labor-intensive process that comes at the expense of honey production, as it weakens the strongest and most productive hives. This ongoing, unpaid effort by beekeepers is not only essential for preserving honey bee populations, but also for safeguarding pollination services that underpin food security, biodiversity, and ecosystem stability. Yet, this vital contribution remains largely unrecognized and unsupported by policy frameworks.

Opinion

The European Commission should formally recognize the indispensable role of beekeepers in maintaining and restoring bee populations, especially in the face of environmental degradation and pesticide-related losses. It is also imperative to establish dedicated mechanisms to compensate beekeepers who, at their own expense, replace lost colonies and sustain pollination services. Such support would not only promote the long-term viability of beekeeping but also strengthen the resilience of Europe's agricultural and ecological systems.

Andreas Thrasyvoulou

Emeritus Professor
Aristotle University of Thessaloniki, Greece

WHAT'S ALL THE BUZZ ABOUT INVERTASE?

Beekeepers would like to differentiate the quality of their own honey from honey that has been heated and/or imported and transported over long distances. One possibility is to use the so-called invertase activity as a quality parameter. Its introduction is also currently being discussed at EU level on the so-called Honey Platform.

Honey is regarded as a natural product in Europe. Consumers therefore expect the honey they buy to be as natural as possible. They are not even aware that a bigger part of honeys found in supermarkets have been pasteurised.

In order to protect honey as a natural product, the EU Honey Directive states that honey "must not […] have been heated in such a way that the natural enzymes have been either destroyed or significantly inactivated." To verify this, the introduction of invertase activity as a quality parameter was already called for by honey experts during the discussion on the first EU Honey Directive. However, this was blocked by the imported honey trade. Instead, only the diastase activity and the HMF value were introduced as quality parameters. However, the diastase enzyme is relatively heat-resistant and the HMF value only forms slowly when exposed to heat or during storage. A lot has to happen to a honey to exceed the limits of the EU Honey Directive.

The new Honey Directive: A new chance to introduce also invertase activity

Now the demand from the beekeeping community to introduce invertase activity as a quality parameter is back on the table. According to the new Honey Directive the EU commission is empowered to adopt delegated acts to make sure that honey has not been heated or treated in such a way that the natural enzymes have been either destroyed or significantly deactivated. For this, the Commission has to take the invertase activity into account. The Directive states that the aim is to ensure fair commercial practices and as well protecting consumer interests.

Label of the German Beekeepers Association (Deutscher Imkerbund, D.I.B.)

Water content: maximum 18 % (exception for heather honey (Calluna): max. 21.4 %)

Invertase value: at least 64 U/kg (exception for naturally low-enzyme honeys: 45 U/kg, but then HMF value max. 5 mg/kg)

Diastase value: not applicable

HMF value: max. 15 mg/kg

The introduction of the invertase activity should help to protect domestic, carefully handled honey from products that do not respect honey as a natural product. However, the beekeeping sector in many member states lacks experience with invertase activity as a quality parameter, as it is not measured by their national laboratories. This might be the reason why some misinterpretations about this quality parameter are circulating. As a result, there is a certain fear of its official introduction.

Good experience in Germany

In Germany, we have introduced invertase activity several decades ago as a quality parameter for honey sold under the German Beekeepers' Association brand in order to emphasise the good quality of local honey (see box). The major organic associations have also set corresponding invertase limits for their honeys. We have good experience with this quality parameter. The limit can well be observed by local beekeepers and makes the difference to poor import honey obviously.

Invertase activity is also anchored in the so-called German Leitsätze für Honig. This is a collection of guidelines for the production, quality, presentation and labelling of honey. According to these recommendations the honey can be specially labelled, for example as "premium" or "selection" if the invertase value is above certain thresholds (see box).

We would like to answer a few questions here to share more information about invertase activity.

What exactly are invertase and diastase?

Invertase and diastase are both enzymes that are secreted from the hypopharynx glands of the bees during the conversion of nectar/honeydew into honey. Invertase breaks down the sucrose (household sugar) in the nectar/honeydew into glucose and fructose. Diastase, on the other

German "Leitsätze für Honig"

If the indication "Selection" is used, the honey must have the following characteristics:

- **HMF value:** max.15 mg/kg. For honey types with a low natural enzyme activity max. 10 mg/kg.

- **Invertase activity:** min. 60 U/kg. For honey types with a low natural enzyme activity invertase activity is not taken into account.

Water content: maximum 18 %

If indications such as "fine or finest selection" or "Premium" are used, the honey must have the following characteristics

- **HMF value:** max.10 mg/kg. For honey types with a low natural enzyme activity max. 5 mg/kg.

- **Invertase activity:** min. 85 U/kg. For honey types with a low natural enzyme activity invertase activity is not taken into account.

Water content: maximum 18 %

hand, breaks down starch into maltose and glucose. The activity of invertase decreases significantly faster than that of diastase when the honey is heated (>40°C).

The invertase activity can be regarded as an indicator for numerous other heat sensitive honey constituents – both of plant origin and also those produced by bees. A standardised, reliable method of analysis exists. It is therefore very suitable as a measure of ripeness and the natural character of honey.

Would the inclusion of an additional parameter make it more difficult to test and market pure, unprocessed honey?

On the contrary. Measuring invertase activity does not make testing more complicated. First of all, you don't need to test for diastase activity anymore, and if the honey has satisfying, typical invertase activity, you don't even need to test for HMF.

As mentioned above, diastase is not very sensitive to heat and HMF builds up very slowly. A test for diastase or HMF cannot detect short-term, strong heating, for example. To ensure that honey is "pure and unprocessed" you need other parameters such as invertase activity. Without such a parameter you cannot distinguish between low quality and fresh honey. Especially as the harmonised analysis methods for determining diastase activity at low enzyme levels are very imprecise.

Is there a lack of knowledge about the invertase activity of different monofloral honeys?

The invertase activity of the main European honeys is well known and defined (see e.g. Oddo et al. 2004). Nevertheless, it would be good to extend the existing data with data from the different Member States and also from non-EU countries, to prove that bees worldwide produce ripe honey of high quality, with a respective invertase activity. Therefore, we believe that an international data collection campaign would be very helpful. However, the samples would also have to be precisely defined, e.g. variety, age and location of the sampling.

Does the invertase activity vary significantly between different types of honey, with the botanical origin playing a minor role?

Invertase activity varies from one type of honey to another, but there is a clear correlation between enzyme activity and botanical origin. This is also known for diastase activity and the variation is within certain limits. This is already reflected in the previous Honey Directive, which includes a lower threshold for honeys with naturally low diastase activity.

Is the invertase activity affected by numerous factors, including climatic conditions, nectar secretion rates, bee colony health, bee age, season, beekeeping practices, and other known and unknown variables?

As mentioned above, botanical origin – e.g. sugar spectrum of nectar - is the main influence. There are other factors, but some of them do not really play a big role in practice. If the colony is not healthy, you will not get much honey from it. The handling of the honey by the beekeepers as well as the transport and storage of the honey in conditions that are not recommended have a far greater influence.

Does the invertase activity decline rapidly with prolonged storage and can this limit the shelf life of unprocessed honey to just a few months?

Invertase activity is quite stable when honey is stored in cool (<18°C) and dark conditions (see

e.g. Radtke & Lichtenberg-Kraag 2018). This is the general recommendation for honey storage. If honey is stored too warm, invertase activity will decrease. That's why proper storage is one of the beekeeper's tasks in order to sell "fresh" and natural honey.

Can industrial invertase be added to the honey by fraudsters to artificially increase the invertase activity?

Yes, but a test can also distinguish between the natural and industrial versions of invertase. This problem is also known with diastase. Unfortunately, there are substances that artificially increase diastase activity or lower HMF levels. There are methods to detect both types of fraud.

Can industrial invertase that is used in bee feed be found in honey and then become a problem for beekeepers?

If your honey is found to have higher levels of industrial invertase from bee feed, then you have other problems because in this case your honey is highly contaminated with syrup. It will also not pass an authenticity test.

What is the invertase activity of German honey?

As mentioned above, the invertase activity depends on the botanical origin, but the average value of several thousand tested honeys is >150 μm/kg. This includes honeys with naturally low enzyme activity, such as Robinia honey, as well as honeys with very high values, such as honeydew honeys. The honeys tested were from the same year the honey was harvested and had already been filled into jars by the beekeepers to sell them to the customers.

Summary

In conclusion, we support the introduction of invertase activity as a quality parameter to promote the marketing of fresh and carefully handled honey. Invertase activity is an appropriate parameter. And for honeys with a naturally low invertase activity, correspondingly lower minimum values should apply, as is already the case for diastase activity.

There are different possibilities:

1. Definition of an invertase/diastase ratio: More data is needed to be sure that there really is a strong correlation between the two. So far in the German data we see a greater variability in this correlation.

2. The definition of a minimum value as it is done for diastase: Those who do not sell "fresh" honey will be against it. The question remains as to the level of the minimum values for honeys with high and low natural enzyme activity. It would be good to collect data from different countries. One point should be clear: if the value is set too low (as is already the case for diastase), it will make no sense. The values should be able to distinguish between carefully treated honey and other "honeys".

3. Labelling of heat damaged honey: "Honey" with unnaturally low enzyme activity due to heat or storage damage could be clearly labelled. This could be the case with some imported honeys, for example.

4. Special labelling: A legal definition of certain thresholds could be introduced for special labelling of honey, e.g. "premium honey" (see the German guidelines). However, first of all, this will not remove from the shelves "honey" that does not respect honey as a natural product. Furthermore, it is very important that we do not introduce terms such as "raw honey" or "virgin honey", as this would be counterproductive. Honey is by definition a raw product. The introduction of this term will only cause problems if some beekeepers use this term and others do not, as customers will be confused. We have already seen this in some cases in Germany, although the use of the term "raw honey" is not allowed.

Dr. Sebastian Spiewok
Deutscher Imkerbund

EUROPEAN SURVEY FOR BEEKEEPERS ON BEST BEEKEEPING PRACTICES

B-THENET (bthenet.eu) is the first EU-wide network for sustainable beekeeping, providing EU beekeepers and advisors with practical beekeeping solutions and training, co-developed with practising beekeepers and tailored to the respective country.

The network includes 18 entities from the apiculture sector, including beekeepers' associations, research institutes, and universities.

There are 13 National B-THENET Centres across Europe (Austria, Belgium, Croatia, Denmark, Germany, Greece, Hungary, Italy, Latvia, Poland, Slovakia, Spain, and Sweden) and 3 International Centres to foster the improvement of the beekeeping sector both at national and transnational levels.

The project's goal is to collect good beekeeping practices and innovations and discuss them among beekeepers, advisors, and other stakeholders in their national languages through our digital platform (www.bthenet.eu/platform/).

Each year, different beekeeping themes are targeted. For Survey Round 4, Routine (preventive) hygiene practices, Nosemosis, Small Hive Beetle, Invasive Vespid management, and in addition a group of Miscellaneous practices will be in the focus of the project.

As with every round, a short online survey was created and is available until the 15th of June 2025 and the project partners would be grateful for your input. To complete it, please follow this link EUSurvey – Survey (europa.eu).

The survey is available in 15 different languages (see links below).

Let's build the B-THENET Community further for a more thriving apiculture sector!

LANGUAGES AND SURVEY LINKS:

EN: English (English)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183

DE: German (Deutsch)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=DE

DA: Danish (Dansk)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=DA

FR: French (Français)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=FR

EL: Greek (Ελληνικά)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=EL

ES: Spanish (Español)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=ES

HR: Croatian (Hrvatski)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=HR

HU: Hungarian (Magyar)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=HU

IT: Italian (Italiano)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=IT

LV: Latvian (Latviešu)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=LV

NL: Dutch (Nederlands)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=NL

PL: Polish (Polski)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=PL

SK: Slovak (Slovenčina)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=SK

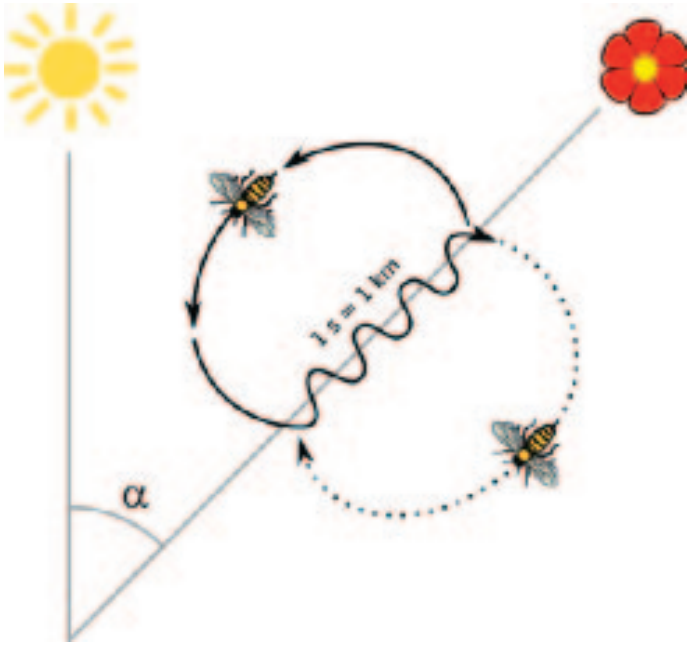
SL: Slovenian (Slovenščina)
https://ec.europa.eu/eusurvey/runner/faf4d01d-c805-3ed3-a405-b66e0c9c7183?surveylanguage=SL

Urška Ratajc

SCIENCE UNCAPPED: DANCING BEES

It is one of the basic interesting facts about bees that they communicate directions via the waggle dance. I assume you know this but to embed a bit of foundation here for this article let us recall that bees perform a circular dance to communicate directions to nestmates for destinations less than 100m away, and a waggle-run ("the waggle dance") for greater distances, wherein the run time approximately communicates 1km of travel per second of directional running on the comb. Herein and generally "waggle dance" will usually refer to either the waggle dance proper or the round dance. These dances are performed by the forager bees to communicate directions to resources, as well as by nest-site scouts during swarming.

How exactly do bees know how great a distance they've traveled? We take for granted our car's odometer but without it, if you drove for ten minutes at unknown speed in an unfamiliar location, how well would you be able to estimate how

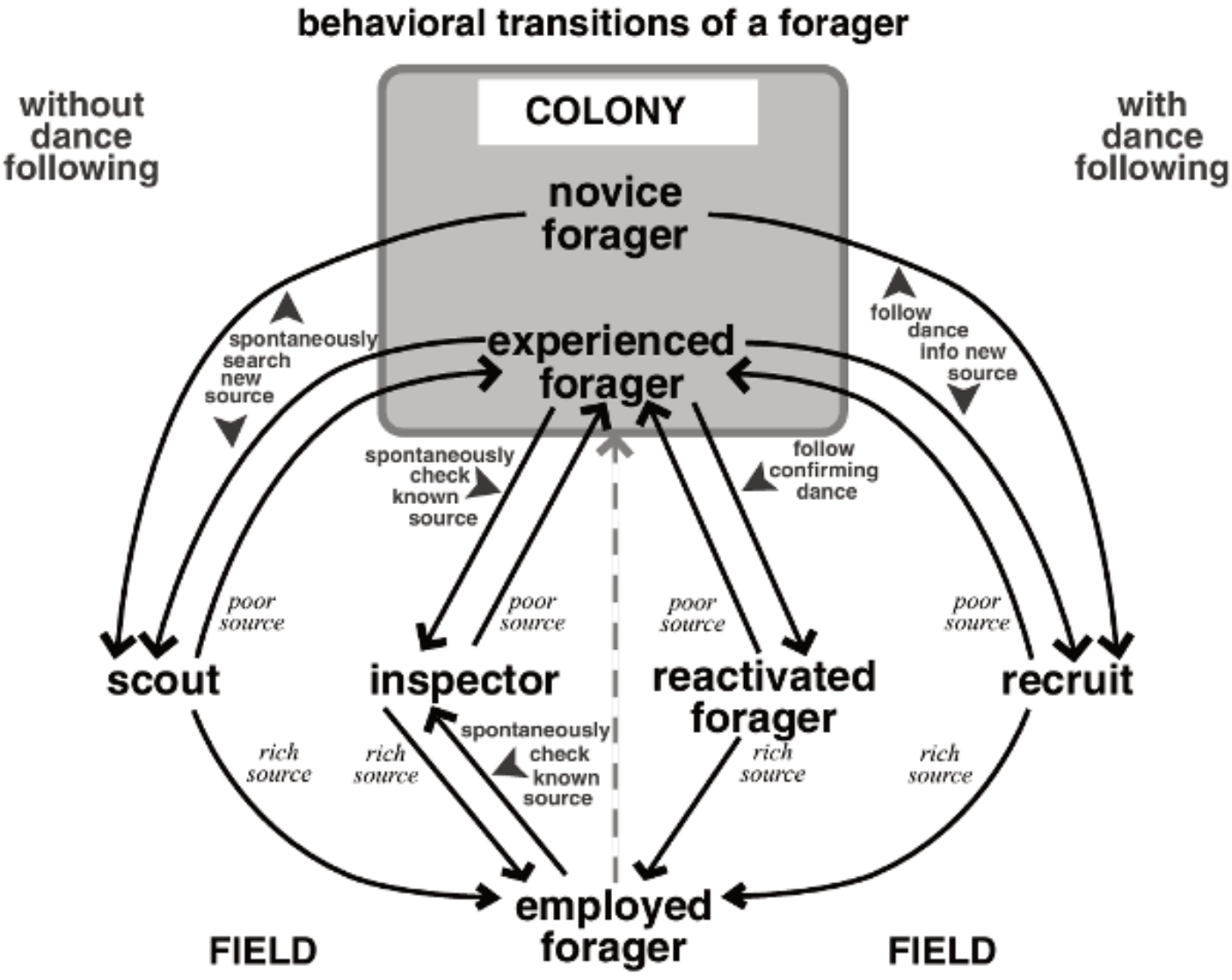


Bee Dance, May 18, 2011. Photo Credit: Emmanuel Boutet & Kilom 691/CC BY-SA 2.5.

far you went? Maybe walking would be easier, you'd know how tired you felt. That was the earlier guess at how bees calculate distance, but it's not it. Various experiments finally found that it's "optical flow," the number of visual cues they see passing them. Forced to fly down an unmarked tube they'll be unable to estimate the distance but with regular horizontal lines they'll do quite well.

To what degree do foragers look for new food versus going directly to food indicated by previous forager's waggle dances? A study published in 2005 monitored bees from their first orientation flights to their death. It found that 60% of the time bees on their first foraging flight followed directions from a waggle dance. If an experienced forager was interrupted, upon resuming only 37% of the time they'd follow a waggle dance. Experienced bees initiating foraging only followed waggle dances 17% of the time, and this was often only because their prior search had been unsuccessful. Successful foragers often briefly followed waggle dances, leading one to wonder if they realized "I've seen this one." Overall following waggle dances to learn of new locations only accounted for 12-25% of the follows, whereas 26% of the follows were for bees resuming foraging and 59-62% confirming food sources. As Biesmeijer and Seeley conclude, these results "conclude that foragers make extensive use of the waggle dance not only to start work at new, unfamiliar food sources, but also to resume work at old, familiar food sources."

And of course you'll recall from last month's Science Uncapped on individual bee personalities, that only 5-25% of foraging bees ever en-



Forager / recruit / scout / inspector potential careers of field bees, from Biesmeijer and Seeley, (2005).4

gage in scouting for new locations versus following waggle dance directions. How this fact fits in with the figures in the above paragraph is a bit confusing, feel free to email me your thoughts.

A 2013 study found some bee dance following behaviors that I feel are very "human," or at least show they're not mindless automatons. As you'll know, a longer bee dance corresponds to a longer flight distance to the food source. The greater the distance to the food source, the less profitable it is to the bees as they use energy to get there of course. So it may be no surprise that the longer the dance is, the fewer followers it will have – that is, potential followers are essentially saying "ah forget this it's not worth my time" as they see it going on for far too long. And those that do follow longer dances will attend more circuits of the dance – which one can easily imagine the reasons for, if you're going on a long trip to get something the last thing you want to do is get lost. If you can only study the directions before you set off, you're going to scrutinize them carefully now aren't you.

The dancers themselves are also making judgements about the relative profitability of the source they found. A study in 1993 looked at the round dance of bees who were visiting syrup feeders in which the researchers could vary the sucrose content. They found that when the foragers visited a feeder that had higher concentrations (therefore more profitable) that the last feeder they had visited, they had "higher rates of directional reversal, circuit rates and speeds," than foragers to the same feeder who had previously been visiting a feeder with equal or greater concentrations. Clearly they were taking past experience into account in their assessment of the value of a resource.

There's a lot of choices here, for the prospective forager to follow or not follow any given dancer, for the returning forager to dance or not. As should be becoming apparent, nearly nothing is random in the hive. A study in 2000 looked at correlations between trophallaxis (oral nectar transfer) and waggle dances. They found returning foragers who danced before attempting to make trophallaxis transfers had more recipients lining up than those that did not dance first. It worked the other way too, the higher number of bees eager for trophallaxis the more likely the returned forager was to dance (possibly again) after the transfers. The researchers conclude "returning foragers could receive information during a trophallactic contact with their hive mates that modifies thresholds for dancing. Dance maneuvers and trophallactic contacts performed by foraging bees seem to be 'mutually' affected."

In one of the most recent thorough scientific round-ups of waggle dance information, Ai and Farina (I swear that's Dr Hiroyuki Ai, and not "AI") summarize "In addition to [directional information], hive mates receive chemosensory cues of food collected through social interactions, such as body contacts between individuals (Balbuena et al., 2012), mouth-to-mouth food transfers (Farina et al., 2005, 2007: Martínez and Farina, 2008), and the waggle dance itself (von Frisch, 1967; Dyer, 2002; Grüter and Farina, 2009)"

As to the dance followers themselves, are they just watching the dance, snapping their fingers to time? In the dark of the hive? Apparently not. A 2003 study looked at dancer-follower interactions and concluded "the transfer of specific information about direction and distance probably involves more than one sensory modality." The dancers must remain in a 60° arc behind the dancer through at least one waggle run in order to perceive the information. Up to 1mm distant from the tip of the dancer's abdomen the follower's antenna receives steady air flow indications of the dance movement. But what's really interesting is that the dancer can generate narrow and broad jets of air, which are not the natural by-product of the movement but can be switched on and off by adjusting the wing position. These jets of air no doubt convey information to the followers.

So among forager bees, we have scouts looking for new sources, inspectors checking old sources and recruits simply following directions. So, too, can what's going on with the dancers be further subdivided beyond just dancers and followers. It turns out there's dancers, followers, and "attendants" simply observing on the sidelines. A 1991 study noted that while the attendants surrounded the dance area with their antennae stretched toward the dancer, they only occasionally moved with the dancer. Followers on the other hand ran with her, of which 81% was a single bee at a time, ran with her and intermittently touched her.

What's more, the waggle/circle navigational information dance is not the only dance bees perform. Returned foragers who find they've become a bit dirty from their travels may perform the "grooming invitation dance." To perform this dance "A worker bee producing the grooming invitation dance stands stationary and vibrates her whole body from side-to-side at a frequency of 4.2 ± 0.2 Hz for 9.3 ± 1.0 seconds. … Sometimes the bee mixes bouts of body vibration with brief bouts of self-grooming (average = 1.4 seconds)." There is a very high probably that the bee performing this dance will then be groomed by a nestmate. The nature of this dance was tested by puffing bees with either only air or fine chalk dust, and those that received the puff of dust were significantly more likely to then perform the dance.

The dance floor itself also matters. You've got to have the right atmosphere after all. In this case, dancing over open empty cells recruits three times as many followers as dancing over capped brood.

And so you see, while you may have already known about the general fact of the waggle dance, there's a fascinatingly endless amount of detail about just exactly how bees do things. While many of these details might not change anything about how you do beekeeping, I trust that knowing them will make you look a bit closer next time you see a bee doing the waggle dance and think about how much more you now know about that individual bee's likely circumstances and immediate past and future actions.

Kris Fricke
Editor of the Australasian Beekeepe

THE AUSTRALASIAN Beekeeper

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USING SAFE MATERIALS TO CONTROL VARROA MITES WITH STUDYING GROOMING BEHAVIOR OF HONEY BEES AND MORPHOLOGY OF VARROA OVER WINTER

Abstract

Extracts of drone larvae and propolis as safe materials are anticipated to boost the grooming behavior of honey bees against Varroa mites. It is also expected that grooming behavior of bees and morphology of Varroa are stable during the least active period of the year to bee colonies (i.e winter). Sugar syrup alone or mixed with drone larvae extract or propolis extract were examined as potential Varroa control materials to test these hypothesizes. Moreover, percentages of groomed mites along with body lengths and widths of Varroa were studied on weekly basis during winter. The results showed that propolis extract was able to increase the number of fallen mites under field conditions but with lethal impacts on bee workers in the laboratory than extract of drone larvae or sugar syrup. All the treatments were not able to boost the grooming behavior of bees. The results proved that grooming behavior was stable during winter. Therefore, it is better to select colonies with grooming potential against Varroa during winter in selection programs. December was significantly the minimal month in percentage of groomed mites based on the overall means. Means of measured characteristics of Varroa declined significantly over the study period. For beekeepers, using sugar syrup as spray on bees during regularly colony inspection can help managing Varroa populations without harming the bees.

Introduction

Honey bees, Apis mellifera, are very valuable to the agricultural sector. They are the main pollinators to various plants and beekeeping is considered as source of income to many people (Morse and Calderone, 2000; Chazovachii et al., 2013; Qaiser et al., 2013). Honey bees are the main target to many pests and parasites including Varroa mites. These mites can cause severe damages to the bees. Honey bees can protect their colonies from Varroa mites using specific behaviors including grooming behavior (GB). Causing damages to Varroa mites (i.e. GB) is a heritable character in A. mellifera (Pritchard, 2016). Phoretic Varroa mites; foundress, gravid or daughter mites are exposed to grooming by

bees especially daughter mites (Kirrane et al., 2012). The GB includes self-grooming and social grooming which compasses of groomers and recipient bees (Bozic and Valentincic, 1995).

The GB can be stimulated using some safe aterials including inert sugar (Stevanovic et al., 2012). Other safe method to control Varroa includes sprinkling bees with sugar syrup (Pileckas et al., 2012). Using sugar syrup as a spray over bees has been found to be less harmful to bees than sugar dusting (Abou-Shaara et al., 2016).

Varroa mites attract to nurse bees, forager bees or even larvae at certain ages based on various factors including the reproductive stage of the mites (Kraus, 1994), and distance from open brood cells (Goetz and Koeniger, 1993). It is known that Varroa mites attract to drone cells more than worker cells (Fuchs, 1990).

Thus, it is hypothesized that using drone larvae extract mixed with sugar syrup as a spray over bees can disturb Varroa mites and enhance the GB. Propolis extract is another material that can be mixed with sugar syrup to control Varroa. Propolis extracts have shown narcotic and lethal effects on Varroa mites (Garedew et al., 2002a, 2002b; Damiani et al., 2010a, 2010b).

The GB is differed among bee species, subspecies and hybrids (Balhareth et al., 2012; Bąk and Wilde, 2015; Pritchard, 2016). GB can be valuated under filed conditions by calculating the percentage of damaged mites from the total number of fallen mites (Stanimirovic et al., 2010). A laboratory assay has been developed by Aumeier (2001) to assess the GB of honey bees artificially infested with Varroa mites.

Fluctuations have been found in Varroa populations over months (Narendra et al., 2016). In fact, the stability degree of the GB within the same bee colonies in the course of time especially during winter period has not been fully studied. It is known that brood rearing activity is very low during autumn and winter (e.g. Allen and Jeffree, 1956; El-Sarrag 1993).

Also, the longevity of winter bees is high (Sakagami and Fukuda, 1986; Amdam and Omholt, 2002). Thus, it is expected that adult bee populations in the colonies are greatly stable during winter.

Therefore, studying the GB of the same group of bees is possible.

There are various species of Varroa mites but Varroa destructor is the one causing damages to

A. mellifera. This particular species is common in various parts of the world including Egypt (Awad et al., 2011; Abou-Shaara and Tabikha, 2016). This species can be differentiated than other Varroa species by measuring body length and width to calculate ratio of body size (Dietemann et al., 2013).

There are approximately 15 haplotypes of V. destructor (Zhou et al., 2004). It is possible to identify four morphotypes of Varroa mites using morphometric characterization (Aude et al., 2016). So far, it is not completely known if the body morphology can be fluctuated (i.e. increased or decreased) within the same population of Varroa over time. A study in Ukraine has shown variations between morphological characteristics of summer and winter Varroa mites (Akimov et al., 2004). Still, the fluctuations in morphological characteristics, mainly body length and width, need more investigations specially during winter. During this season foraging activity of honey bees is very low due to low air temperature and rains (Abou-Shaara, 2014).

Thus, the transportation of new Varroa mites by forager bees to their colonies is not highly expected. Also, it is anticipated that Varroa population are stable during winter. In this study, sugar syrup was used alone or as mixture with drone larvae extract or propolis extract to control Varroa mites and to evaluate their impacts on GB and honey bees. Moreover, fluctuations in GB and Varroa morphology were studied during winter.

Fluctuations in the grooming behavior

This experiment and the next one were done using 6 colonies. Number of Varroa mites collected from these colonies was counted weekly from November 2016 until February 2017. The mites were classified as normal or deformed (groomed) using a light microscope. The mites with body malformations (i.e. incomplete chelicera, legs and/or shield) were considered as deformed. Then, percentage of groomed Varroa was calculated by dividing the number of groomed Varroa on the total number of Varroa X 100. The percentages of groomed Varroa were then compared over the experimental period.

Fluctuations in Varroa morphology

The fallen Varroa mites were collected from the six colonies over the period from November 2016 until February 2017. The lengths and widths of Varroa were measured weekly. Only Varroa mites with complete bodies were considered to obtain correct widths and lengths while those with deformed body shields were not. The mites were scanned using scanner (Canon, k10352, LiDE 110, Vietnam) at a high resolution of 1200 dpi to obtain clear images. The lengths and widths were subsequently measured using computer program (ScanPhoto method, Abou-Shaara and Al-Ghamdi, 2012). The measurements were compared over the study period to detect any morphological fluctuations. Also, the body ration (=body width/body length) was calculated.

Statistical analysis

The comparison between groups was done using ANOVA followed by Post Hoc using Duncan's Multiple Range test. Also, t-test was used to compare percentage of groomed Varroa mites

before and after the treatments. Each of degree of freedom (DF), F value and P value were presented. The variations were considered significant when P ≤ .05. The percentages were transferred using arcsine transformation before the analysis. For percentage of dead bees, Kaplan-Meier test was used to calculate the estimated survival means of the groups. Then, the significant differences between groups were determined using Log Rank

(Mantel-Cox test). The data were analyzed using SAS v. 9.1.3 and SPSS v. 16.

Results

Effects of sugar syrup (SS), extracts of drone larvae (EDL) and propolis (EP) on Varroa mites and honey bees

The mean number of fallen mites as difference between after and before the treatments was high to EP with 10.50 ± 2.06 mites, followed by EDL with 8.50 ± 3.71 mites and finally SS alone with 5.25 ± 2.21 mites. However, neither EP nor EDL were significantly different than SS (DF = 2, F = 0.92, P = .43 > .05). The mean percentage of groomed mites before treatments was 0.33 ± 0.04, 0.38 ± 0.06, 0.39 ± 0.06 mites to SS, EDL, and EP, respectively. The mean percentage of groomed mites after treatments was 0.64 ± 0.12, 0.43 ± 0.04, and 0.36 ± 0.03 mites to SS, EDL, and EP, respectively (Fig. 1).

No significant differences were found in percentage of groomed mites before and after the treatments (t statistic = 1.92, 0.86, and 0.34, and P = .15, .44, and .75 for SS, EDL, and EP, respectively). The percentage of groomed Varroa after the end of the treatment period were insignificantly higher to SS than the treatments with EP and EDL (DF = 2, F = 3.27, P = .08 > .05).

The percentage of dead bees increased from 0.00 ± 0.00, 3.00 ± 0.01, and 4.00 ± 0.03% at day 2 to 16.00 ± 0.02, 29 ± 0.04, and 54 ± 0.07% at day 7 for SS, EDL, and EP, respectively (Fig. 2). The highest percentages of dead bees from day 2 to day 7 were to EP followed by EDL and finally SS. The percentages of dead bees from day 2 to 7 were significantly higher to EP than EDL and SS (DF = 2, F = 7.87, P = .0008 < .05). Similarly, at day 7 alone EP differed significantly than EDL and SS (DF = 2, F = 15.28, P = .0013 < .05).

The estimated survival means were 6.68 ± 0.11, 6.33 ± 0.15, and 5.90 ± 0.20 days for SS, EDL and EP, respectively. EP had the lowest survival than SS and EDL (Fig. 3) and differed significantly less than SS (Mantel-Cox test = 18.89, P = .000 < .05) and EDL (Mantel-Cox test = 7.06, P = .008 < .05) while no significant differences were found between SS and EDL (Mantel-Cox test = 2.94, P = .086 > .05).

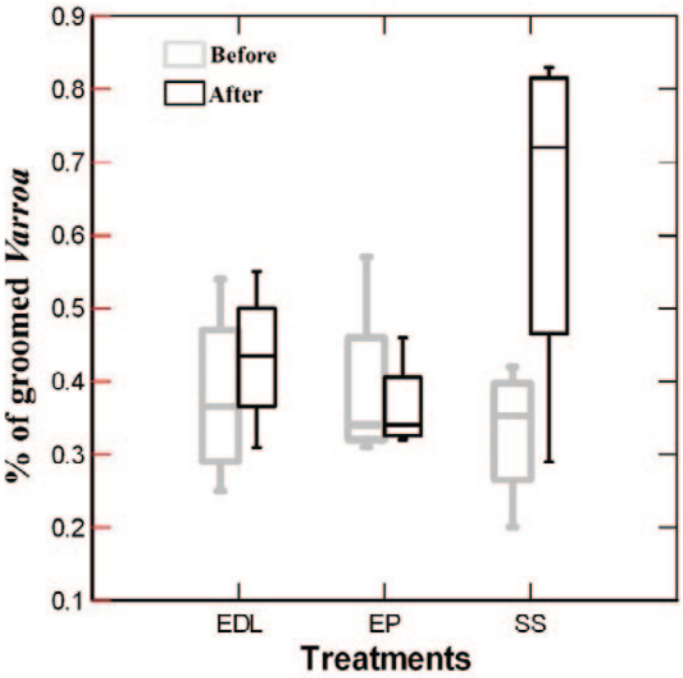

Fig. 1. Variations in percentage of groomed Varroa after and before the treatment. SS: control group, EDL: drone larvae extract, EP: propolis extract. Median and interquartile are shown

Fluctuations in the grooming behavior

Number of counted Varroa mites dropped from 318 in November to 119 in February. The 2nd week of November had the highest number of counted Varroa (94 mites) while 2nd and 4th weeks of February had the lowest numbers (23 mites) as in Table 1. The weekly variations in the

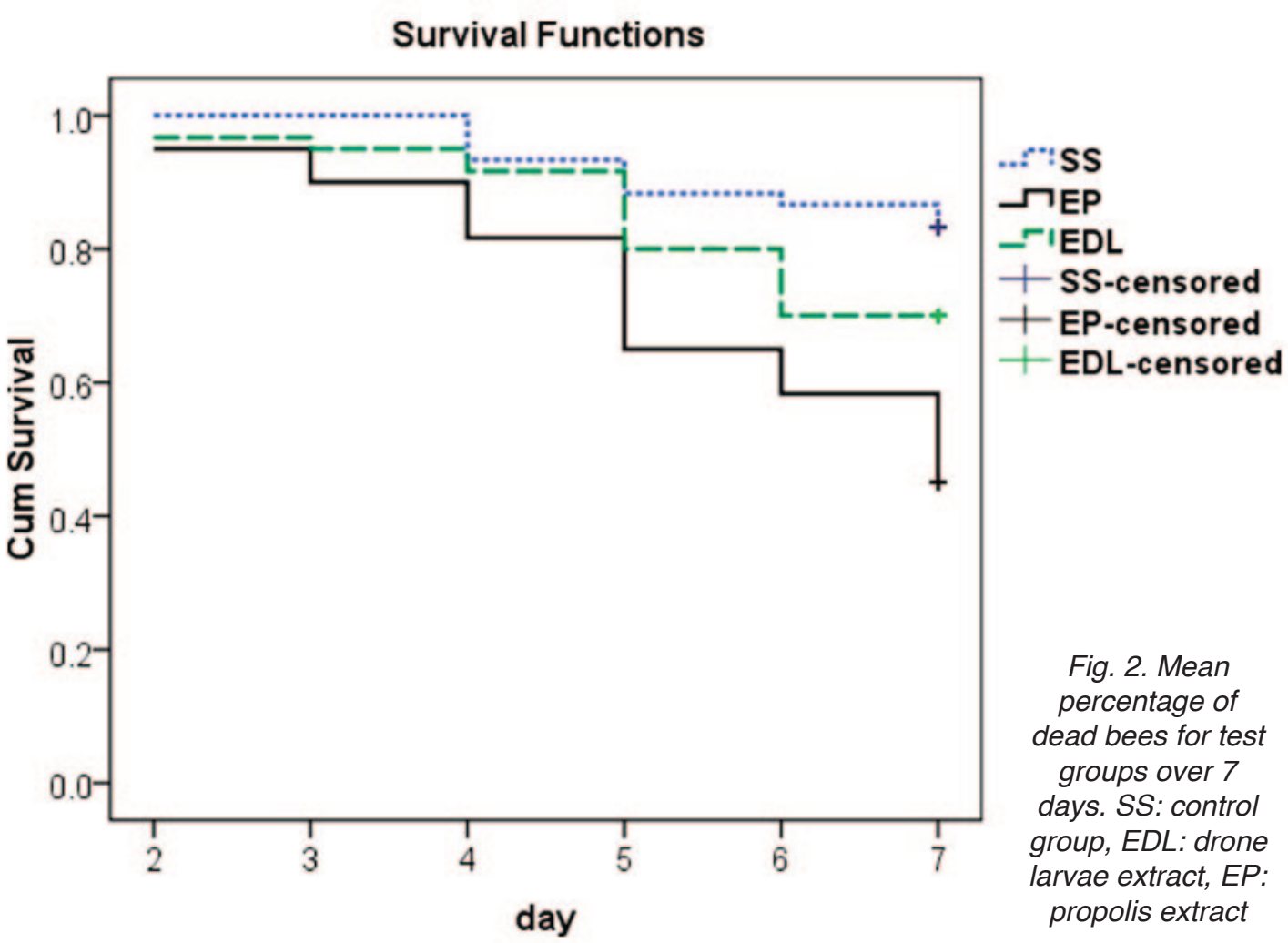

Fig. 2. Mean percentage of dead bees for test groups over 7 days. SS: control group, EDL: drone larvae extract, EP: propolis extract

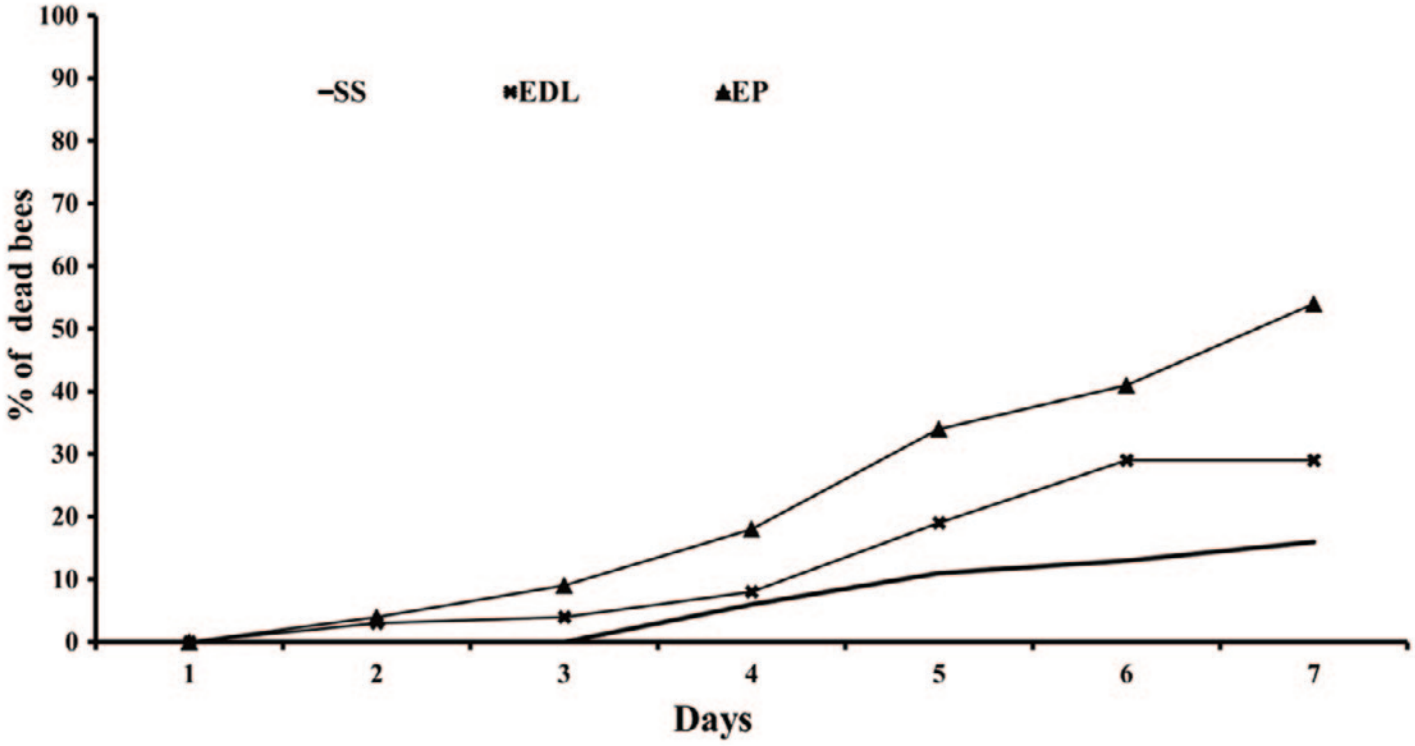

Fig. 3. Cumulative survival over 7 days for test groups. SS: control group, EDL: drone larvae extract, EP: propolis extract

Month	Week	Total *Varroa* Number	Normal *Varroa*	Groomed *Varroa*	Percentage of groomed *Varroa*
November	1	66	3.71 ± 4.34a	5.71 ± 5.99a	51.12 ± 29.79a
	2	94	9.71 ± 9.65a	3.71 ± 3.35ab	31.02 ± 33.97a
	3	89	9.28 ± 8.75a	3.42 ± 3.20ab	36.53 ± 33.11a
	4	69	6.71 ± 10.01a	3.14 ± 4.05ab	41.94 ± 16.20a
Overall mean		**318**	**7.35 ± 8.37a**	**4.00 ± 4.18a**	**39.20 ± 28.61a**
December	1	82	10.00 ± 12.22a	1.71 ± 1.79ab	17.03 ± 13.53a
	2	79	9.71 ± 12.90a	1.57 ± 2.07ab	11.95 ± 16.76a
	3	55	7.83 ± 8.77a	1.33 ± 1.50b	14.89 ± 15.00a
	4	37	4.16 ± 3.81a	2.00 ± 2.75ab	25.00 ± 21.51a
Overall mean		**253**	**8.07 ± 9.97a**	**1.65 ± 1.95b**	**16.59 ± 15.87b**
January	1	33	3.66 ± 6.65a	1.83 ± 2.13ab	45.47 ± 28.48a
	2	45	4.16 ± 3.65a	3.33 ± 4.50ab	34.32 ± 41.33a
	3	63	6.50 ± 5.61a	4.00 ± 4.14ab	32.36 ± 18.84a
	4	54	6.00 ± 6.29a	3.00 ± 3.63ab	29.46 ± 18.58a
Overall mean		**195**	**5.08 ± 5.42ab**	**3.04 ± 3.55ab**	**33.96 ± 26.64ab**
February	1	32	4.00 ± 3.94a	1.33 ± 1.96b	17.22 ± 21.12a
	2	23	2.83 ± 3.18a	1.00 ± 1.26b	26.46 ± 20.48a
	3	41	3.33 ± 2.65a	3.50 ± 3.39ab	41.97 ± 24.64a
	4	23	1.66 ± 1.03a	0.50 ± 0.83b	16.66 ± 23.56a
Overall mean		**119**	**7.35 ± 8.37b**	**4.00 ± 4.18b**	**25.11 ± 23.28ab**

Table 1

Weekly and monthly variations (Means ± SD) in numbers of normal and groomed Varroa mites and percentage of groomed mites. Means with the same letters are not significantly different according to Duncan Multiple Range test

Month	Week	Number	Body length (mm)	Body width (mm)	Body ratio
November	1	37	1.11 ± 0.04a	1.69 ± 0.06a	1.51 ± 0.06bc
	2	40	1.09 ± 0.03abc	1.67 ± 0.04abc	1.52 ± 0.06abc
	3	54	1.07 ± 0.04bc	1.63 ± 0.05de	1.51 ± 0.07bc
	4	36	1.06 ± 0.05c	1.64 ± 0.06cde	1.54 ± 0.08abc
Overall mean		**167**	**1.08 ± 0.04a**	**1.66 ± 0.06a**	**1.52 ± 0.07a**
December	1	66	1.07 ± 0.04bc	1.65 ± 0.05bcde	1.53 ± 0.07abc
	2	57	1.09 ± 0.04abc	1.64 ± 0.05cde	1.49 ± 0.07c
	3	39	1.08 ± 0.04bc	1.65 ± 0.04bcde	1.52 ± 0.06abc
	4	13	1.08 ± 0.05bc	1.68 ± 0.06ab	1.55 ± 0.08ab
Overall mean		**175**	**1.08 ± 0.04a**	**1.65 ± 0.05a**	**1.52 ± 0.07a**
January	1	11	1.03 ± 0.06d	1.62 ± 0.04e	1.57 ± 0.09a
	2	25	1.09 ± 0.02abc	1.67 ± 0.05abc	1.53 ± 0.05abc
	3	29	1.09 ± 0.02abc	1.67 ± 0.05abcd	1.52 ± 0.05bc
	4	38	1.08 ± 0.04bc	1.64 ± 0.06cde	1.51 ± 0.06bc
Overall mean		**103**	**1.08 ± 0.04a**	**1.65 ± 0.06a**	**1.52 ± 0.06a**
February	1	19	1.09 ± 0.02abc	1.66 ± 0.04abcde	1.51 ± 0.04bc
	2	19	1.07 ± 0.04bc	1.66 ± 0.04abcde	1.53 ± 0.06abc
	3	23	1.09 ± 0.02abc	1.63 ± 0.05cde	1.49 ± 0.04c
	4	10	1.10 ± 0.04ab	1.65 ± 0.07bcde	1.49 ± 0.07c
Overall mean		**71**	**1.09 ± 0.03a**	**1.65 ± 0.05a**	**1.51 ± 0.05a**

Table 2

Weekly and monthly variations (Means ± SD) in body length, width and body ratio (body width/body length) of Varroa mites. Means with the same letters are not significantly different according to Duncan Multiple Range test according to Duncan Multiple Range test

numbers of normal and groomed Varroa were not significant (DF = 15, F = 0.88, P = .58) and (DF = 15, F = 1.17, P = .31), in respect. Also, weekly variations in percentages of groomed Varroa were insignificant (DF = 15, F = 0.93, P = .53). The monthly variations were insignificant in case of normal Varroa mites (DF = 3, F = 2.53, P = .06) while in case of groomed Varroa and percentage of groomed Varroa were significant (DF = 3, F = 3.59, P = .016) and (DF = 3, F = 3.15, P = .029), respectively. February had significantly the least number of normal Varroa mites while December and February had significantly the least number of groomed Varroa mites. It is clear from the percentage of groomed Varroa mites that grooming behavior of the colonies was stable during the

study period (i.e. no significant weekly variations were detected). Only December was significantly the least month in percentage of groomed Varroa based on the overall mean (Table 1).

Fluctuations in Varroa morphology

The body length ranged from 1.03 mm at 1st week of January to 1.11 mm at 1st week of November with difference of 0.08 mm. Body width ranged from 1.62 mm at 1st week of January to 1.69 mm at 1st week of November with difference of 0.07 mm. Body ratio ranged from 1.49 at 2nd week of December, 3rd and 4th weeks of February to 1.53 at 1st week of December, 2nd week of January and February with difference 0.04. It is clear that means of measured body characteristics declined significantly from 1st week of November to January/February (Table 2). The variations in body length, body width and body ratio were significant on the weekly basis (DF = 15: F = 3.50, P ~ .0001; F = 3.66, P ~ .0001 and F = 2.11, P = .008, respectively) and were not significant on the monthly basis (DF = 3: F = 0.59, P = .62; F = 0.49, P = .69 and F = 0.72, P = .53, respectively) as in Table 2.

Discussion

Effects of sugar syrup (SS), extracts of drone larvae (EDL) and propolis (EP) on Varroa mites and honey bees

The EP showed slight efficacy over SS or EDL in regard to increase the number of fallen mites. This can be attributed to the lethal effect of EP on Varroa mites especially that the narcotic and lethal effects of propolis on Varroa mites were found (Garedew et al., 2002a). At low concentrations of propolis (e.g. 5%) heat production rate of mites was passively impacted (Garedew et al., 2002b). Also, treatment with 5% propolis caused 100% inactive mites after 30 s (Mezgabu et al., 2016).

Using 4% propolis was able to impact metabolic activity of Varroa and cause death to the treated mites (Garedew et al., 2003). Propolis was able to kill from 60.5% to 90% of mites after 30 s of exposure (Damiani et al., 2010a). The ability of all treatments including SS alone in dropping mites can be explained by the active action of bees to clean their bodies from the syrup and hence dropping the mites. These findings are in line with Pileckas et al. (2012), they recoded increase in mite drop after sprinkling bees with sugar syrup. All treatments did not significantly increase the percentage of groomed mites after the treatment period than before it. May be the bees did not tend to bite the mites during cleaning their bodies from the treatment materials. The results showed that EP was more fatal to bees than EDL or SS over the 7 days. Under field conditions, it is expected that the bees will not be exposed continuously to large amounts of the treatment materials either EP or EDL as done in the laboratory experiment.

Accordingly, 78% of mites were killed without any negative impacts on the bees when 10% propolis solution was used as spray over infested bees with Varroa (Damiani et al., 2010b). However, it is better to apply SS only under field conditions to avoid any potential adverse impacts on the bees. Moreover, EP and EDL did not greatly impact Varroa than SS. Also, intensive spraying is not recommended.

Especially that Abou Shaara et al. (2016) found passive impacts on workers and drones exposed intensively to some materials including sugar syrup.

Fluctuations in the grooming behavior

The number of counted Varroa mites dropped from 318 in November to 119 in February. Accordingly, Narendra et al. (2016) found the lowest mean of mite population was in January and February. This can be attributed to the low activities of bee colonies in regard to brood rearing during the study period especially from December to February.

The low brood rearing activity had a negative impact on Varroa reproduction and hence the number of detected mites towards the end of the study period.

According to Narendra et al. (2016),asignificant positive correlation of 0.853

and 0.887 was found between mean of Varroa population and maximum and mean temperature, respectively. Therefore, the low temperature towards the end of the study period (from autumn to winter) could impact the Varroa population passively than the beginning of the study. No significant weekly variations in percentages of groomed mites were detected, suggesting that grooming behavior of the colonies did not change during the study period. This reflects that the same group of bees (i.e. winter bees) had pproximately the same grooming level during the winter time. The colonies had a little chance to renew heir bee population due to the low brood rearing activity in the winter.

Fluctuations in Varroa morphology

Body length, body width and body ratio of Varroa mites declined significantly from November until January/February on the weekly basis. This reflects that the morphology of Varroa is not stable in the course of time. The negative changes in the morphology of Varroa perhaps were due to the low feeding and activities of Varroa as a result of the low brood rearing activity of honey bees during winter. The variations in Varroa characteristics over time are supported by the study of Akimov et al. (2004). They found high similarity between morphology of winter and spring Varroa mites while summer samples differed significantly than the other seasons in some characteristics. The monthly variations for measured characteristics were not significant because the monthly means merged the weekly high and low values. The means of body ratio ranged from 1.49 to 1.53. These values are over 1.4, confirming the investigated mite species is Varroa destructor (Dietemann et al., 2013). This point is supported by the study of Abou-Shaara and Tabikha (2016). They presented a confirmation that V. destructor is the species infesting honey bees at El-Behera governorate. The measurements presented in the present study are close to the findings of other studies: means of body length and width, respectively were 1.15 and 1.70 mm for Varroa from Newzealand (Zhang, 2000), 1.16 and 1.70 mm for V. destructor (Anderson and Trueman, 2000), 1.16 and 1.75 mm for central parts of Tunisia Boudagga et al., 2003), about 1.17 and 1.71 mm to Varroa from Nigeria (Akinwande et al., 2013).

Conclusion

Spraying bees with sugar syrup can help controlling Varroa mites with less passive impacts on bees than propolis extract and extract of drone larvae. It is expected that spraying bees with sugar syrup on regular basis during colony inspection can help reducing the population of Varroa mites within colonies. Winter can be considered as a perfect time to assess the grooming behavior of honey bees due to the relative stability of this parameter during this specific season. Bee breeders can select the colonies with high grooming potential during winter to rear queen from them to obtain bee colonies with a natural ability to fight Varroa. It is better to assess the morphological characteristics of Varroa ites at different time points due to their fluctuation over time.

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USE OF A MEDICINAL REGISTERED IN ANOTHER COUNTRY

According to Regulation (EU) 2019/6 on veterinary medicinal products, a Member State may authorize the use of a veterinary medicinal product that is not approved in its territory only under the following conditions:

There is an emergency situation concerning animal or public health; and

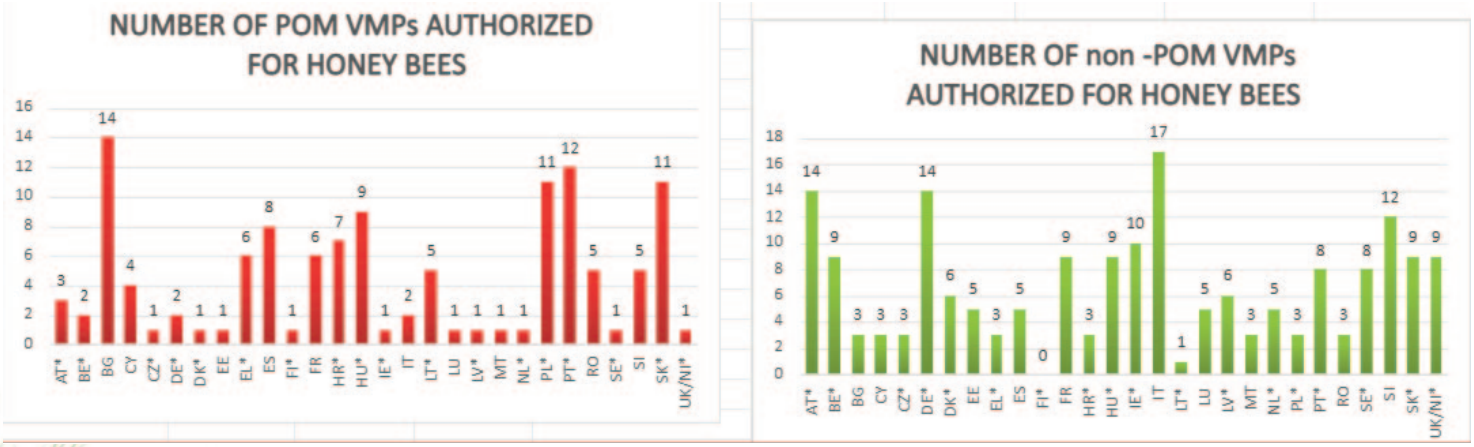
There is no product already registered in that country for the treatment of the disease in question.

As you can see from the attached file, all EU countries currently have authorized products for the treatment of Varroa.

While it is true that the EU is facing several health emergencies in the beekeeping sector — including the spread of invasive species such as Aethina tumida, Tropilaelaps spp., Vespa velutina, and Vespa orientalis, as well as the impacts of climate change — it remains extremely challenging to reach a coordinated, EU-wide decision on such matters.

Therefore, only individual Member States can invoke Article 116 on a case-by-case basis, to temporarily authorize a product approved in another EU country. However, this is allowed only if no other authorized product is available nationally for that disease, and such authorization is typically limited in duration and strictly linked to a specific emergency.

Giovanni Formato
B-THENET I Project Coordinator



Number of products against varroa registered in different EU countries

AUTHORISED BEE PRODUCTS: SITUATION IN EUROPE (based on the Excel sheet from EMA July 2023

Member State	Product name	Marketing Authorisation Holder	Active substance	Indication
All MSs: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK(NI)	VarroMed 5 mg/ml + 44 mg/ml bee-hive dispersion for honey bees	BeeVital GmbH, Austria	Formic acid, Oxalic acid	Treatment of varroosis (Varroa destructor) in honey bee colonies with and without brood.
All MSs: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK(NI)	VarroMed 75 mg + 660 mg bee-hive dispersion for honey bees	BeeVital GmbH, Austria	Formic acid, Oxalic acid	Treatment of varroosis (Varroa destructor) in honey bee colonies with and without brood.
All MSs: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK(NI)	Dany's BienenWohl powder and solution for 39.4 mg/ml bee-hive dispersion for honey bees	Dany Bienenwohl GmbH, Germany	Oxalic acid	Treatment of varroosis (Varroa destructor) of honey bees (Apis mellifera) in brood-free colonies.
All MSs: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal	Oxybee powder and solution for 39.4 mg/ml bee-hive dispersion for honey bees	Dany Bienenwohl GmbH, Germany	Oxalic acid	Treatment of varroosis (Varroa destructor) of honey bees (Apis mellifera) in brood-free colonies.
Austria	Apitraz 500 mg	Laboratorios Calier S.A.,	Amitraz	Treatment of external
Austria	Apivar 500 mg Amitraz-Imprägnierter Streifen für den Bienenstock für Honigbienen	Veto Pharma SAS, France	Amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees.
Austria	PolyVar Yellow 275 mg imprägnierter Streifen für	Bayer Animal Health GmbH, Germany	Flumethrin	For the treatment of varroosis in honey bees caused by

Austria	AMO Varroxal 85% Ameisensäure-Lösung zum Verdunsten im Bienenstock für Honigbienen	Drogerie Resch GesmbH, Austria	Formic acid	Treatment of varroosis caused by Varroa destructor in honeybees.
Austria	Formicpro 68,2 g imprägnierte Streifen für den Bienenstock für Honigbienen	NOD Apiary Ireland Ltd., Ireland	Formic acid	Treatment of varroosis caused by Varroa destructor in honey bees.
Austria	Formivar 60, 60 g Ameisensäure/100 g Lösung für den Bienenstock für Honigbienen	Andermatt Bio Vet GmbH, Germany	Formic acid	Treatment of varroosis (Varroa destructor) and/or tracheal mites (Acarapis woodi) on honey bees (Apis mellifera).
Austria	Formivar 85, 85 g Ameisensäure/100 g Lösung für den Bienenstock für Honigbienen	Andermatt Bio Vet GmbH, Germany	Formic acid	Treatment of varroosis (Varroa destructor) and/or tracheal mites (Acarapis woodi) on honey bees (Apis mellifera).
Austria	API-Bioxal 62 mg/ml Lösung zur Anwendung im Bienenstock	Chemicals Laif SpA., Italy	Oxalic acid	Treatment of varroosis caused by Varroa destructor in honeybees.
Austria	API-Bioxal 886 mg/g Pulver zur Anwendung im Bienenstock	Chemicals Laif SpA., Italy	Oxalic acid	Treatment of varroosis caused by Varroa destructor in honeybees.
Austria	Oxuvar 5,7%, 41,0 mg/ml Konzentrat zur Herstellung	Andermatt BioVet GmbH, Germany	Oxalic acid	Treatment of varroosis on honey bees (Apis mellifera) due
Austria	Apiguard 25% Gel zur Anwendung im Bienenstock	Vita Bee Health Ltd., Ireland	Thymol	Treatment of varroosis caused by Varroa destructor in honeybees.
Austria	THYMOVAR 15 g Streifen für den Bienenstock für Honigbienen	Andermatt BioVet GmbH, Germany	Thymol	Treatment of varroosis caused by Varroa destructor in honeybees.
Austria	APILIFEVAR Imprägnierte Streifen für den Bienenstock für Honigbienen	Chemicals Laif SpA., Italy	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis caused by Varroa destructor.
Belgium	Apivar 500 mg Amitraz	Veto Pharma, France	Amitraz	For the treatment of varroosis in honey bees caused by amitraz sensitive Varroa destructor mites.
Belgium	PolyVar Yellow 275 mg bee-hive strip	Bayer NV Animal Health GmbH, Germany	Flumethrin	For the treatment of varroosis in honey bees caused by
Belgium	Formicpro 68.2 g Beehive Strips for Honey Bees	NOD Apiary Ireland Ltd., Ireland	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Belgium	Oxuvar 5.7 % concentrate for solution	Andermatt Biovet GmbH, Germany	Oxalic acid dihydrate	Treatment of varroosis on honey bees (Apis mellifera) due
Belgium	Thymovar 15 g bee-hive strip	Andermatt BioVet GmbH, Germany	Thymol	Treatment of varroosis on honeybee (Apis mellifera) due to Varroa mite (Varroa destructor).
Belgium	Apiguard 12,5 g gel	Vita Bee Health Ltd., Ireland	Thymol	Treatment of varroosis due to Varroa destructor.
Belgium	ApilifeVar bee-hive strip	Chemicals Laif S.P.A., Italy	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis caused by Varroa destructor.
Bulgaria	Apitraz 500 mg bee-hive strips for honey bees	LABORATORIOS CALIER, S.A.; Barcelonès, 26 – Pla del Ramassà, Les Franqueses del Vallès, (Barcelona), Spain	Amitraz	Treatment of external parasitosis caused by Varroa destructor.
Bulgaria	Apivar 500 mg Amitraz Bee-hive strips for honey bees	VETO PHARMA SAS, 12-14 Rue de la Croix Martre, 91120 Palaiseau France	Amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees.

Bulgaria	Checkmite plus	Bayer Animal Health GmbH, D-51368, Leverkusen, Germany	Coumaphos 1.36 g/strip	Varroasis
Bulgaria	AB VAR C	SPECTROMED EOOD 7330, Zavet, 5, Kiril & Metodii, Bulgaria	Coumaphos 400 mg/tablet	Varroasis
Bulgaria	PolyVar yellow 275 mg bee-hive strip	Bayer Animal Health GmbH, 51368	Flumethrin	For the treatment of varroosis in honey bees caused by
Bulgaria	Bayvarol strips	Bayer Animal Health GmbH, D-51368, Leverkusen, Germany	Flumethrin 3.6 mg/strip	Varroasis
Bulgaria	Varostop-strips	"Primavet- Sofia" OOD, Sofia, Bulgaria	Flumethrin 3.6 mg/strip	Varroasis
Bulgaria	Formicpro 68.2 Beehive Strips for Honey Bees	NOD Apiary Ireland Ltd., 5 George's Dock, IFSC Dublin 1, D01 X8N7,	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Bulgaria	Furmitom	"Evrotom" EOOD, Sofia, Bulgaria	Formic acid 25 ml, 60%	Varroasis, Wax moths, Braula caeca
Bulgaria	Nosestat- solution	"Primavet- Sofia" OOD, Sofia, Bulgaria	Iodine 4.0 g/100 ml and Formic acid and 5.0 g/100 ml	Nosematosis
Bulgaria	Ecostop - lamellae	"Primavet- Sofia" OOD, Sofia, Bulgaria	Ol. Menthae Piperithae, Thymolum insert in PE/ AL/ PE folio	Varroasis
Bulgaria	Api-Bioxal, 886 mg/g powder for in-hive use	CHEMICALS LAIF S.P.A., V.le dell'Artigianato n° 13, 35010 Vigonza (PD),	Oxalic acid dihydrate	Treatment of varroosis
Bulgaria	API-Bioxal 62 mg/ml bee-hive solution	CHEMICALS LAIF S.P.A., Viale dell'Artigianato 13, 35010 Vigonza (PD), Italy	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Bulgaria	Varotom	"Evrotom" EOOD, Sofia, Bulgaria	tau-Fluvalinate 80 mg/strip	Varroasis
Bulgaria	Apiguard Gel	Vita Bee Health Limited, 1Castlewood Avenue, Rathmines, Dublin 6, D06 H685, Ireland	Thymol 12.5 g/50.0 g	Varroasis
Bulgaria	Apilife Var bee-hive strip for honey bees	CHEMICALS LAIF S.P.A. ; Via Roma n° 69, 36020 Castegnero (VI), Italy	Thymol 8,00 g/strip, Eucalyptus oil 1,72 g/strip, Camphor racemic 0,39 g/strip, Levomenthol 0,39 g/strip	Varroasis
Croatia	Apitraz 500 mg traka za košnicu za pčele medarice	Laboratorios Calier, S.A., Spain	Amitraz	Treatment of external parasitosis caused by Varroa
Croatia	Apivar 500 mg traka za košnicu za pčele medarice	VETO PHARMA SAS, France	Amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees.
Croatia	CheckMite+, 100 mg/g, traka za košnicu, za pčele medarice	Bayer Animal Health GmbH, Germany	Coumaphos	Treatment of infestations caused with V. destructor sensitive to coumaphos.
Croatia	BAYVAROL, 3,6 mg/traka, traka za košnicu, pčela	Bayer Animal Health GmbH, Germany	Flumethrin	Diagnosis and control of V. destructor sensitive to flumethrin in honey bees.
Croatia	PolyVar Yellow traka za košnicu	Bayer Animal Health GmbH, Germany	Flumethrin	For the treatment of varroosis in honey bees caused by flumethrin sensitive Varroa destructor mites.
Croatia	Formicpro, 68,2 g, traka za košnicu, za pčele medarice	NOD Apiary Ireland Ltd., Ireland	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Croatia	API-Bioxal, 886 mg/g, prašak za primjenu u košnici	CHEMICALS LAIF S.p.A, Italy	Oxalic acid dihydrate	Treatment of varroosis in honey bee (Apis mellifera) caused by Varroa destructor.

Croatia	API-Bioxal, 62 mg/mL, otopina za primjenu u košnici	CHEMICALS LAIF S.p.A, Italy	Oxalic acid dihydrate	Treatment of varroosis in honey bee (Apis mellifera) caused by Varroa destructor.
Croatia	Oxuvar 5.7% koncentrat za otopinu	Andermatt BioVet GmbH, Germany	Oxalic acid dihydrate	Treatment of varroosis on honey bees (Apis mellifera) due to varroa mites (Varroa destructor).
Croatia	APIGUARD, 25%, gel, za primjenu u košnici, za pčele	Vita Bee Health Limited, Ireland	Thymol	Treatment of varroosis caused by V. destructor.
Croatia	THYMOVAR, 15 g trake za košnicu za pčele	Andermatt BioVet GmbH, Germany	Thymol	Treatment of varroosis in honey bee (Apis mellifera) caused by Varroa mite (V. destructor).
Croatia	APILIFE VAR, traka za košnice za pčele	CHEMICALS LAIF S.p.A., Italia	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Varroosis of honey bee (Apis mellifera) caused by Varroa destructor.
Cyprus	APIVAR Anti-parasite strips for external use containing 500 mg of amitraz per strip.	WYJOLAB SA	Amitraz	Treatment of varroosis in bees due to Varroa destructor (in amitraz-sensitive parasites).
Cyprus	CHECKMITE+10%, ΕΝΔΟΚΥΨΕΛΙΚΗ ΤΑΙΝΙΑ	KVP PHARMA GERMANY	Coumaphos	Treatment of varroosis caused by Varroa destructor.
Cyprus	PolyVar Yellow 275 mg bee-hive strip	N/A	Flumetrins	N/A
Cyprus	MAQS 68.2G ταινίες κυψέλης με μυρμηκικό οξύ για μέλλισσες	NOD APIARY PRODUCTS LTD	Formic acid	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Cyprus	APISTAN 10.3% w/w Ενδοκυψελιδικές ταινίες για μέλισσες,Tau-fluvalinate 10,3% w/w ανά ταινία 8 g	VITA EUROPE LIMITED	tau-Fluvalinate	Treatment of varroosis caused by Varroa destructor.
Cyprus	THYMOVAR 15G ΘΥΜΟΛΗ ΑΝΑ ΤΑΙΝΙΑ ΚΥΨΕΛΗΣ ΜΕΛΙΣΣΩΝ ΓΙΑ ΜΕΛΙΣΣΕΣ	Andermatt Bio Vet AG	Thymol	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Czech Republic	Varidol 125 mg/ml	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ/ Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ	Amitraz	Varroosis - Varroa destructor
Czech Republic	Apitraz 500 mg	Laboratorios CALIER, S.A., Barcelones, 26 – Pla del Ramassa, Les Franqueses del Valles (Barcelona), Spain	Amitraz	Varroosis - Varroa destructor
Czech Republic	Apivar 500 mg	VETO PHARMA, 12-14 Avenue du Québec – ZA Courtboeuf, 91140 Villebon-sur-Yvette, France	Amitraz	Varroosis – Varroa destructor
Czech Republic	PolyVar Yellow 275 mg	Bayer s r. o., Siemensova 2717/4, 155	Flumethrin	Varroosis - Varroa destructor

Czech Republic	Gabon Flum 4 mg	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ/ Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ	Flumethrin	Varroosis – Varroa destructor
Czech Republic	Formidol 41 g	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ/ Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ	Formic acid	Varroosis - Varroa destructor
Czech Republic	Formidol 81 g	Bee Research Institute, Ltd., Máslovice – Dol, 94252 66 Libčice n. Vlt.,CZ/ Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ	Formic acid	Varroosis – Varroa destructor
Czech Republic	Formicpro 68.2g Beehive Strips for Honey Bees	N//A	Formic acid	N/A
Czech Republic	Oxuvar 5,7%	Andermatt BioVet GmbH; Weiler Strasse 19	Oxalic acid	Varroosis - Varroa destructor
Czech Republic	Gabon PF 90 mg	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ/ Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ	tau-Fluvalinate	Varroosis - Varroa destructor
Czech Republic	MP 10 FUM 24 mg/ml	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ/ Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ	tau-Fluvalinate 24 mg/ml	Varroosis - Varroa destructor
Czech Republic	M-1 AER 240 mg/ml	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ/ Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libcice n. Vlt.,CZ	tau-Fluvalinate 240 mg/ml	Varroosis - Varroa destructor
Czech Republic	THYMOVAR 15 g	Andermatt BioVet GmbH; Weiler Strasse 19 – 21, 79540 Lörrach, Germany / Andermatt BioVet GmbH; Weiler Strasse 19 – 21, 79540 Lörrach, Germany	Thymol 15 g	Varroosis - Varroa destructor
Czech Republic	APIGUARD	Vita (Europe) Limited, Hampshire, UK/Lalehamhealth and Beauty Limited Sycamore Park – Mill Lane Alton Hampshire GU34 2PR,UK	Thymol 12.5 g	Varroosis - Varroa destructor

Denmark	Apivar	Veto Pharma SAS, 12-14 rue de la Croix Martre, 91120 Palaiseau, France	Amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees.
Denmark	Maqsplus Vet.	NOD Apiary Ireland Ltd., 5 George's Dock, IFSC Dublin 1, D01 X8N7, Irland	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Denmark	Formicpro 68.2g Beehive Strips for Honey Bees	N/A	Formic acid	N/A
Denmark	Apiguard Vet.	Vita Bee Health Ltd, 1 Castlewood Avenue, D06 H685 Dublin, Ireland	Thymol	Treatment of varroatosis caused by Varroa destructor.
Estonia	Bayvarol	Bayer Animal Health GmbH	Flumethrin	For the diagnosis and control of flumethrin-sensitive Varroa jacobsoni mites in bees.
Estonia	PolyVar Yellow	Bayer Animal Health GmbH	Flumethrin	For the treatment of varroosis in honey bees caused by
Estonia	Apistan	Vita Bee Health Ltd.	tau-Fluvalinate	Against Varroa destructor in honeybee colonies.
Estonia	Apiguard	Vita Bee Health Ltd.	Thymol	For the treatment of varroosis due to Varroa destructor in honeybees (Apis mellifera).
Finland	Apivar 500 mg Bee-hive Strips for honey bees	Veto Pharma	Amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees.
France	APIVAR LANIERE POUR RUCHES A 500 MG D'AMITRAZ	VETO PHARMA WYJOLAB, FR	Amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz.
France	APITRAZ 500 MG LANIERE POUR ABEILLES	LABORATORIOS CALIER, ES	Amitraz	Treatment of external parasitic diseases due to Varroa
France	BAYVAROL 3,6 MG LANIERE	ELANCO, DE	Flumethrin	Diagnosis and treatment of varroosis due to Varroa destructor sensitive to flumethrin.
France	POLYVAR YELLOW 275 LANIERE POUR RUCHE	ELANCO, DE	Flumethrin	Treatment of varroosis due to Varroa destructor sensitive to
France	FORMICPRO 68.2 G RUBAN POUR RUCHES POUR ABEILLES	NOD Apiary Ireland Ltd	Formic acid	Treatment of varroosis due to Varroa destructor.
France	API-BIOXAL POUDRE POUR TRAITEMENT DANS LA RUCHE	CHEMICALS LAIF, IT	Oxalic acid	Treatment of varroosis caused by Varroa destructor (parasite of Apis mellifera).
France	APISTAN	VITA BEE HEALTH, IE	tau-Fluvalinate	Treatment of varroosis due to Varroa destructor.
France	APIGUARD	VITA BEE HEALTH, IE	Thymol	Treatment of varroosis due to Varroa destructor.
France	APIGUARD MULTIDOSE 0.25 G/G GEL POUR RUCHE	VITA BEE HEALTH, IE	Thymol	Treatment of varroosis due to Varroa destructor.
France	THYMOVAR 15 G PLAQUETTE POUR RUCHE POUR ABEILLES	ANDERMATT BIOVET, DE	Thymol	Treatment of varroosis of the bees (Apis mellifera) due to Varroa destructor.
France	APILIFE VAR	CHEMICALS LAIF, IT	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis caused by Varroa destructor.
Germany	Apitraz 500 mg Imprägnierter Streifen für	Laboratorios Calier S.A.	Amitraz	Treatment of external parasitosis caused by Varroa

Germany	APIVAR 500 mg	Veto Pharm	Amitraz	For the treatment of varroosis in honey bees caused by apitraz sensitive Varroa destructor mites.
Germany	Bayvarol	Elanco GmbH	Flumethrin	Control (therapy) of varroa mites in honeybees.
Germany	PolyVar Yellow	Elanco GmbH	Flumethrin	For the treatment of varroosis in honey bees caused by
Germany	Formicpro 68,2 g imprägnierte Streifen für den Bienenstock für Honigbienen	NOD Apiary Ireland Limited	Formic acid	Treatment of varroosis caused by Varroa destructor in honey bees.
Germany	Ameisensäure 60 Bernburg	Serumwerk Bernburg AG	Formic acid	Treatment of varroosis (Varroa destructor) in honey bees (Apis mellifera).
Germany	Milchsäure Bernburg 150 mg/g Lösung zur Sprühanwendung für Bienen	Serumwerk Bernburg AG	Lactic acid	Treatment of varroosis (Varroa destructor) in honey bees (Apis mellifera).
Germany	Oxuvar 5,7%	Andermatt BioVet GmbH	Oxalic acid	Treatment of varroosis ion honey bees (Apis mellifera) due
Germany	Oxalsäure Bernburg 40 mg/ml	Serumwerk Bernburg AG	Oxalic acid	Treatment of varroosis (Varroa destructor) in honey bees (Apis mellifera).
Germany	Apiguard	Vita Bee Health Limited	Thymol	Treatment of varroosis caused by Varroa destructor.
Germany	Thymovar 15 g	Andermatt BioVet GmbH	Thymol	Treatment varroosis in honeybees (Apis mellifera) caused by varroa mite (Varroa destructor).
Germany	Api Life Var	Chemicals Laif S.R.L.	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis caused by Varroa destructor.
Greece	APITRAZ	Laboratorios Calier S.A., Spain	Amitraz	Treatment of varroosis caused by Varroa destructor
Greece	APIVAR HIVE STRIP	Veto Pharma SAS, France	Amitraz	Treatment of varroosis caused by Varroa destructor
Greece	CHECK MITE HIVE STRIP	Bayer Animal Health GMBH, Germany	Coumaphos	Treatment of varroosis caused by Varroa destructor
Greece	BAYVAROL HIVE STRIP	Bayer Animal Health GMBH, Germany	Flumethrin	Treatment of varroosis caused of Varroa jacobsoni
Greece	POLYVAR YELLOW	Bayer Animal Health GMBH, Germany	Flumethrin	Treatment of varroosis caused by Varroa destructor
Greece	FORMICPRO	NOD Apiary Ireland Ltd, Ireland	Formic acid	Treatment of varroosis caused by Varroa destructor
Greece	APISTAN HIVE STRIP	Vita Bee Health Ltd, Ireland	tau-Fluvalinate	Treatment of varroosis caused by Varroa destructor
Greece	APIGUARD GEL	Vita Bee Health Ltd, Ireland	Thymol	Treatment of varroosis caused by Varroa destructor
Greece	THYMOVAR HIVE STRIP	Andermatt Biovet GMBH, Lorrach, Germany	Thymol	Treatment of varroosis caused by Varroa destructor
Greece	API-LIFEVAR	Chemicals Laif SpA, Italy	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis caused by Varroa destructor
Hungary	APITRAZ 500 mg impregnált csík mézelő méhek részére	LABORATORIOS CALIER, S.A	Amitraz	For the treatment of Varroa destructor infestation in honey-

	A.U.V.	Barcelones, 26 (Pla del ramassar), Les Franqueses del Valles, 08520 Barcelona, Spain		bee
Hungary	Tik-Tak 125 mg/ml külsőleges oldat mézelő méheknek A.U.V.	United Pharma Állatgyógyászati Kft., 1108 Budapest, Gumigyár u. 5-7., Hungary	Amitraz	For treatment and diagnosis of Varroa destructor infestation in honey-bee
Hungary	Apivar 500 mg amitráz impregnált csík mézelő méhek részére A.U.V.	WYJOLAB Zone artisanale de Champrue, 36310 Chaillac, France	Amitraz	For the treatment of Varroa destructor infestation in honey-bee
Hungary	Apifosz 3,2 % koncentrátum mézelő méheknek A.U.V.	N/A	Coumaphos	N/A
Hungary	Destruktor 3,2 % koncentrátum mézelő méheknek A.U.V.	United Pharma Állatgyógyászati Kft., 1108 Budapest, Gumigyár u. 5-7., Hungary	Coumaphos	For treatment and diagnosis of Varroa destructor infestation in honey-bee
Hungary	CheckMite+ 1,360 g / impregnált csík méhkaptárban való alkalmazásra A.U.V	KVP Pharma + Veterinär Produkte GmbH, Projensdorfer Strasse 324, Kiel, 24106, Germany	Coumaphos	For the treatment of Varroa destructor infestation in honey-bee
Hungary	Bayvarol csík A.U.V.	KVP Pharma + Veterinär Produkte GmbH, Projensdorfer Strasse 324, Kiel, 24106, Germany	Flumethrin	For the treatment and diagnosis of Varroa jacobsoni infestation in honey-bee
Hungary	PolyVar Yellow 275 mg impregnált csík méhkaptárban való alkalmazásra A.U.V.	KVP Pharma + Veterinär Produkte GmbH, Projensdorfer Strasse 324, Kiel, 24106, Germany	Flumethrin	For the treatment of Varroa destructor infestation in honey-bee
Hungary	Apifor 684 mg/ml oldat méhkaptárban való alkalmazásra A.U.V.	Chemicals Laif S.p.A. Via Roma 69, Castegnero (VI), 36020, Italy	Formic acid	For the treatment of Varroa destructor infestation in honey-bee
Hungary	Formicpro 68.2g Beehive Strips for Honey Bees	N/A	Formic acid	N/A
Hungary	MAQS Formic Acid 68.2g Beehive Strips for Honey Bees	N/A	Formic acid	N/A
Hungary	FORMIVAR 60, 60 g hangyasav / 100 g oldat méhkaptárban való alkalmazásra, mézelő méhek részére A.U.V.	Andermatt BioVet GmbH, Weiler Strasse 19 – 21, D-79540 Lörrach, Germany	Formic acid	For the treatment of Varroa destructor and Acarapis woodi infestation in honey-bee
Hungary	FORMIVAR 85, 85 g hangyasav / 100 g oldat méhkaptárban való alkalmazásra, mézelő méhek részére A.U.V.	Andermatt BioVet GmbH, Weiler Strasse 19 – 21, D-79540 Lörrach, Germany	Formic acid	For the treatment of Varroa destructor and Acarapis woodi infestation in honey-bee
Hungary	API-Bioxal 88,6% atkaölő por mézelő méhek számára A.U.V.	Chemifarma S.p.A., Via don Eugenio Servadei, 16, 47100 Forlì (FC), Italy	Oxalic acid	For treatment and diagnosis of Varroa destructor infestation in honey-bee
Hungary	OXUVAR 5,7%, 41,0 mg/ml koncentrátum külsőleges	Andermatt BioVet GmbH, Weiler Strasse 19	Oxalic acid	For the treatment of Varroa destructor infestation in honey-

Hungary	Apiguard gél mézelő méheknek A.U.V.	Laleham Health and Beauty Ltd., Sycamore park, Alton, Hampshire, GU34 2PR, UK	Thymol	Decrease of Varroa jacobsoni infestation in honey-bee
Hungary	THYMOVAR 15 g impregnált csík mézelő méhek számára A.U.V.	Andermatt BioVet GmbH, Weiler Strasse 19 – 21, D-79540 Lörrach, Germany	Thymol	For the treatment of Varroa destructor infestation in honey-bee
Hungary	Ecostop impregnált csík mézelő méhek kezelésére A.U.V.	Primavet - Sofia Ltd., Herakovo, Bojuriste, Sofia, 2211, Bulgaria	Thymol and Peppermint oil	For the treatment of Varroa destructor infestation in honey-bee
Hungary	Api Life Var impregnált csík	Chemicals Laif S.r.l., Via	Thymol, Eucalyptus oil,	For the treatment and
Ireland	Apivar 500 mg Bee-hive strips for honey bees	Duggan Veterinary Supplies Ltd.	Amitraz	As per VPA 22827/001/001
Ireland	Formicpro 68.2 g Beehive Strips for Honey Bees	NOD Apiary Ireland Ltd.	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Ireland	MAQS Formic Acid 68.2 g Beehive Strips for Honey Bees	NOD Apiary Ireland Ltd.	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Ireland	API-Bioxal 62 mg/ml bee-hive solution	Chemicals Laif S.P.A	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Ireland	API-Bioxal, 886 mg/g Powder for In-hive Use	Chemicals Laif S.P.A	Oxalic acid dihydrate	Treatment of varroosis (Varroa destructor, parasite of Apis mellifera).
Ireland	APIGUARD gel (25% thymol) for beehive use	Vita Bee Health Limited	Thymol	Treatment of varroosis due to Varroa destructor
Ireland	APIGUARD MULTIDOSE 0.25 g/g bee-hive gel	Vita Bee Health Limited	Thymol	Treatment of varroosis due to Varroa destructor
Italy	APIVAR	LABORATORIES BIOVE'	Amitraz	Treatment of varroosis on honey bee due to Varroa mite
Italy	APITRAZ	LABORATORIOS CALIER	Amitraz	External parasite treatment of Varroa destructor sensitive
Italy	POLYVAR YELLOW	ELANCO ITALIA SpA	Flumethrin	Treatment of varroosis on honey bee due to Varroa
Italy	APISTAN	VITA EUROPE LIMITED	Fluvalinate	Treatment of varroosis on honey bee due to Varroa destructor
Italy	APIFOR 60	CHEMICALS LAIF	Formic acid	Treatment of varroosis on honey bee due to Varroa
Italy	MAQS	NOD EUROPE LTD	Formic acid	Treatment of varroosis on honey bee due to Varroa destructor
Italy	VARTERMINATOR	IZO S.r.l. a socio unico	Formic acid	Treatment of varroosis on honey bee due to Varroa destructor
Italy	FORMICPRO	NOD Apiary Ireland Ltd	Formic acid	Treatment of varroosis on honey bee due to Varroa destructor
Italy	APIGUARD MULTIDOSE 0.25 G/G BEE-HIVE GEL	N/A	Thymol	N/A
Italy	API-BIOXAL 886 mg/g polvere per alveare	CHEMICALS LAIF	Oxalic acid	Treatment of varroosis on honey bee due to Varroa mite
Italy	API-BIOXAL 62 mg/ml soluzione per alveare	CHEMICALS LAIF	Oxalic acid	Treatment of varroosis on honey bee due to Varroa mite
Italy	OXUVAR	ANDERMATT BIOVET GMBH	Oxalic acid	Treatment of varroosis on honey bee due to Varroa
Italy	APILIFE VAR	CHEMICALS LAIF	Thymol	Treatment of varroosis on honey bee due to Varroa mite (Varroa jacobsoni)

Italy	APIGUARD	VITA EUROPE LIMITED	Thymol	Treatment of varroosis on honey bee due to Varroa mite
Italy	THYMOVAR	ANDERMATT BIOVET GMBH	Thymol	Treatment of varroosis on honey bee due to Varroa mite
Latvia	Bayvarol	Bayer Animal Health, Germany	Flumethrin	For the treatment and the diagnosis of varroatosis caused by Varroa jacobsoni on bees.
Latvia	Varostop	Bičiu Austeja, Lithuania	Flumethrin	For the treatment and the diagnosis of varroatosis.
Latvia	Api-Bioxal 886 mg/g powder for in-hive use	Chemicals Laif S.p.A., Italy	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Latvia	API-Bioxal 62 mg/ml bee-hive solution	Chemicals Laif S.p.A., Italy	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Latvia	Apistan	Vita Bee Health Limited, Ireland	tau-Fluvalinate	For the control of varroatosis caused by Varroa jacobsoni on bees.
Latvia	Apiguard	Vita Bee Health Limited, Ireland	Thymol	For the treatment of varroatosis caused by Varroa destructor.
Liechtenstein	For information, please contact Office of Health / Medicinal Products Control Agency Email: pharminfo@llv.li	N/A	N/A	N/A
Lithuania	Apivar, 500 mg amitrazo avilio juostelės medunešėms bitėms	Veto Pharma SAS (France)	Amitraz	Treatment of varroosis (Varroa destructor).
Lithuania	BAYVAROL, 3,6 mg avilio juostelės bitėms	Bayer Animal Health GmbH (Germany)	Flumethrin	Diagnosis and treatment of varroosis (Varroa jacobsoni).
Lithuania	VAROSTOP, avilio juostelės	"Primavet-Sofia" OOD (Bulgaria)	Flumethrin	Diagnosis, treatment and prophylaxis of varroosis (Varroa jacobsoni).
Lithuania	Formicpro 68,2 g, avilio juostelės naminėms bitėms	NOD Apiary Ireland Ltd. (Airija)	Formic acid	Treatment of varroosis (Varroa destructor).
Lithuania	APISTAN, avilio juostelės	Vita Bee Health Ltd (Ireland)	tau-Fluvalinate	Treatment of varroosis (Varroa destructor).
Lithuania	APIGUARD 12,5 g avilio gelis naminėms bitėms	Vita Bee Health Ltd (Ireland)	Thymol	Treatment of varroosis (Varroa destructor).
Luxembourg	PolyVar Yellow 275 mg bee-hive strip	N/A	Flumetrīns	N/A
Luxembourg	APIGUARD	VITA EUROPE Ltd UK	Thymol	Control of varroosis due to Varroa destructor.
Malta	Biowar 500	Biowet Pulawy Sp.a Ul. Arciucha 2 24-100 Pulawy Poland	Amitraz 0.5 g/strip	Varroatosis
Malta	MAQS	NOD Europe Ltd, 5, St Paul s square. Old Hall street, Liverpool, L3 9AE UK	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).

Malta	Apistan	VITA (Europe) Limited 21/23 Wote street, Basingstroke, Hampshire RG2 7NE, UK	tau-Fluvalinate 11.84 %	Varroa destructor
Malta	Apiguard	VITA (Europe) Limited 21/23 Wote street, Basingstroke, Hampshire RG2 7NE, UK	Thymol 12.5 g	Varroosis
Poland	Bayvarol 3,6 mg/strip	Bayer Animal Health GmbH, 51368 Leverkusen, Germany	flumethrin	Detection and treatment of varroosis (Varroa destructor) in honey bee colonies.
Poland	Apiwarol 12,5 mg tablets	Biowet Pulawy Sp. z o.o, ul. Arciucha 2, 24-100 Pulawy, Poland	amitraz	Detection and treatment of varroosis (Varroa destructor) in honey bee colonies.
Poland	Biowar	Biowet Pulawy Sp. z o.o, ul. Arciucha 2, 24-100 Pulawy, Poland	amitraz	Treatment of varroosis in honey bee colonies.
Poland	Apivar	VETO PHARMA SAS, 12-14 rue de la Croix Martre, 91120 Palaiseau, France	amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees.
Poland	Apistrip	Biowet Puławy Sp. z o.o., ul. H. Arciucha 2, 24-100 Puławy, Polska	Amitraz	Treatment of varroosis due to Varroa destructor in honey bee.
Poland	PolyVarYellow	Bayer Animal Health GmbH, 51368 Leverkusen, Germany	Flumethrin	For the treatment of varroosis in honey bees caused by flumethrin sensitive Varroa destructor mites.
Poland	Formicprotect	NOD Apiary Ireland Ltd., 5 George's Dock, IFSC Dublin 1, D01 X8N7,	Formic acid	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Poland	Api-Bioxal	CHEMICALS LAIF S.p.A., Viale dell' Artigianato 13, 35010 Vigonza (PD), Italy	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Poland	Thymovar 15 g strips bee-hive strips for honey bees	Andermatt BioVet GmbH, Franz-Ehret-Str.18, 79540 Lörrach, Germany	Thymol	Treatment of varroosis (Varroa destructor) in honey bee colonies.
Poland	Apiguard	Vita Bee Health Limited, 1 Castlewood Avenue, Rathmines, Dublin 6, D06 H685, Ireland	Thymol	Treatment of varroosis (Varroa destructor).
Poland	Apiquard Multidose	Vita Bee Health Limited, 1 Castlewood Avenue,	Thymol	Treatment of varroosis due to Varroa destructor.
Poland	Api Life Var	Chemicals LAIF S.P.A., Viale dell' Artigianto, 13, 35 010 Vigonza (PD), Italy	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis (Varroa destructor) in honey bee colonies.
Portugal	Apivar 500 Mg, Bandas Antiparasitárias Para Abelhas Melíferas	Qalian Portugal	Amitraz	Ectoparasiticide against varroa
Portugal	Apitraz 500 Mg Tiras Para Colmeias De Abelhas	Calier Portugal, S.A.	Amitraz	Treatment of varroa
Portugal	Amicel Varroa Solução Para Tiras Para Colmeia	Laboratorios Maymó, S.A.	Amitraz	Treatment of varroosis (Varroa destructor)
Portugal	Polyvar 275 Mg Tira Para Colmeia	Bayer Portugal, Lda	Flumethrin	Treatment of varroosis in honey bees caused by Varroa
Portugal	Apistan 0,8 G / Tira Antiparasitária Para Colmeias	Hifarmax, Lda	Fluvalinate	Bees acaricid
Portugal	Maqs Ácido Fórmico 68,2 G Tiras Para Colmeia Para	Nod Europe Ltd	Formic acid	Treatment of varroa

	Abelhas Melíferas			
Portugal	Apifor Solução Para Colmeias	Chemicals Laif	Formic acid	Treatment of varroosis (Varroa destructor) of honey bees (Apis
Portugal	Formivar 60, 60 G Ácido Fórmico / 100 G De Solução - Para Colónias De Abelhas Do Mel	Andermatt Biovet Gmbh	Formic acid	Treatment of varroa (Varroa destructor) and / or tracheal mites (Acarapis woodi).
Portugal	Formivar 85, 85 G Ácido Fórmico / 100 G De Solução - Para Colónias De Abelhas Do Mel	Andermatt Biovet Gmbh	Formic acid	Treatment of varroa (Varroa destructor) and / or tracheal mites (Acarapis woodi).
Portugal	Formicpro 68,2 g tiras para colmeia de abelhas melíferas	NOD Apiary Ireland Ltd.	Formic acid	Treatment of varrosis caused by Varroa destructor in honey bees (Apis mellifera).
Portugal	Oxuvar 5,7%, 41,0 Mg/Ml Concentrado Para Solução	Andermatt Biovet Gmbh	Oxalic acid	Treatment of varroosis in bees (Apis mellifera) due to varroa
Portugal	Api-bioxal 62 mg/ml solução para uso em colmeias	Chemicals Laif S.P.A.	Oxalic acid	Treatment of varroosis (Varroa destructor, parasite of apis mellifera)
Portugal	Api-Bioxal, 886 Mg/G Pó Para Uso Em Colmeias	Chemicals Laif S.P.A.	Oxalic acid dihydrate	Treatment of varroosis (Varroa destructor, parasite of apis mellifera)
Portugal	Thymovar	Andermatt Biovet Gmbh	Thymol	Varroa treatment
Portugal	Apilife Var Tira Para Colmeias De Abelhas	Chemicals Laif S.R.L.	Thymol	Control of varroa in colonies of honey bees
Romania	Varatraz	PASTEUR - FILIALA FILIPEŞTI, Romania	Amitraz	Treatment of varroosis caused by Varroa destructor in honey bees
Romania	APIVAR 500 mg	VETO PHARMA SAS, France	Amitraz	Treatment of varroosis caused by Varroa destructor sensitive to amitraz in honey bees.
Romania	Varachet forte	INSTITUTUL DE CERCETARE - DEZVOLTARE PENTRU APICULTURA S.A., Romania	Amitraz, tau-Fluvalinate	Treatment of varroosis caused by Varroa destructor in honey bees
Romania	Checkmite+	BAYER ANIMAL HEALTH GmbH, Germany	Coumaphos	Treatment of varroosis caused by Varroa destructor in honey bees
Romania	Bayvarol 3,6 mg/ strip	BAYER ANIMAL HEALTH GmbH, Germany	Flumethrin	For the diagnosis and therapy of Varroadestructor in honeybees.
Romania	PolyVar Yellow 275 mg	BAYER ANIMAL HEALTHGmbH, Germany	Flumethrin	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Romania	Formicpro 68.2 g	NOD Apiary Ireland Ltd.	Formic acid	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera)
Romania	API-Bioxal	CHEMICALS LAIF SpA, Italy	Oxalic acid	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera)
Romania	Api-Bioxal 62 mg/ml	CHEMICALS LAIF S.p.A, Italy	Oxalic acid	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera)

Romania	Mavrirol	INSTITUTUL DE CERCETARE - DEZVOLTARE PENTRU APICULTURA S.A., Romania	tau-Fluvalinate	Treatment of varroosis caused by Varroa destructor and braulosis caused by Braula coeca in honey bees.
Romania	Apiguard gel 25%	VITA BEE HEALTH LTD., Ireland	Thymol	Treatment of varroosis caused by Varroa destructor in honey bees.
Romania	Thymovar (authorised through MRP)	ANDERMATT BIOVET GmbH, Germany	Thymol	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Romania	Api life Var	CHEMICALS LAIF S.p.A, Italy	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis caused by Varroa destructor Anderson and Trueman, Acarapis woodi Rennie in honey bees
Romania	Protofil	INSTITUTUL DE CERCETARE - DEZVOLTARE PENTRU APICULTURA S.A, Romania	Volatile oils (derived from Herba Traxaci (dandelion dry plant), Herba Thymi (dried thyme plant), Flores Millefolii (dry flower of the queen), Herba Basilici (plant)	Treatment of nosemosis, the parasitic disease produced by the protozoa Nosema spp, in honey bees, for stimulate the development of bee families, as well as in their chronic intoxication states
Slovakia	APIVAR 500 mg Amitraz, pásy do úľov pre včely medonosné	VETO PHARMA, 12-14 avenue du Québec-ZA Courtaboeuf,91140 Villebon-sur-Yvette, France	Amitraz	Varroosis - Varroa destructor
Slovakia	APIVARTIN fumigačný prúžok do úľa	PHARMAGAL s.r.o., Murgašova 5, 949 01 Nitra, Slovak Republic	Amitraz	Varroosis - Varroa destructor
Slovakia	AVARTIN 01-B90	BARES Nitra, MVDr. Ľubomír Bahelka, M.S. Trnavského 9, 949 01 Nitra, Slovak Republic	Amitraz	Varroosis - Varroa destructor
Slovakia	VARIDOL 125 mg/ml roztok na liečebné ošetrenie včiel	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libčice n. Vltavou, CZ	Amitraz	Varroosis - Varroa destructor
Slovakia	BAYVAROL 3,6 mg/prúžok pre včely	KVP Pharma und Veterinärprodukte GmbH, Projensdorfer Str. 324, 24106 Kiel, Germany	Flumethrin	Varroosis - Varroa destructor
Slovakia	PolyVar Yellow 275 mg prúžok do včelieho úľa	Bayer s r. o., Siemensova 2717/4, 155 00 Praha 5, Czech	Flumethrin	Varroosis - Varroa destructor
Slovakia	Formicpro 68,2 g prúžky do úľa včely medonosnej	NOD Apiary Ireland Ltd., 5 George's Dock, IFSC Dublin 1, D01 X8N7,	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Slovakia	FORMIDOL 40 ml prúžky do úľa	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libčice n. Vltavou, CZ	Formic acid 85%	Varroosis – Varroa destructor, Nosemosis – Nosema sp., Ascosferosis – Ascosphaera apis
Slovakia	API-Bioxal 886 mg/g, prášok na použitie v úli	CHEMICALS LAIF S.p.A., Viale dell'Artigianato 13, 35010 Vigonza (PD), Italy	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Slovakia	API-Bioxal 62 mg/ml, roztok na použitie v úli	CHEMICALS LAIF S.p.A., Viale dell'Artigianato 13, 35010 Vigonza (PD), Italy	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).

Slovakia	GABON PF 90 mg prúžky do úľa	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libčice n. Vltavou, CZ	tau-Fluvalinate	Varroosis - Varroa destructor
Slovakia	M-1 AER 240 mg/ml koncentrát na prípravu roztoku na liečebné ošetrenie včiel	Bee Research Institute, Ltd. Máslovice – Dol 94252 66 Libčice n. Vltavou, CZ	tau-Fluvalinate	Varroosis - Varroa destructor
Slovakia	APIGUARD gél (25 % tymol) na použitie vo včeľom úli	Laleham Health and Beauty Limited, Sycamore Park – Mill Lane Alton Hampshire GU34 2PR, UK	Thymol	Varroosis - Varroa destructor
Slovakia	THYMOVAR, 15 g tymolu v jednom pásiku do úľa pre včely	Andermatt BioVet GmbH, Weiler Strasse 19 – 21, 79540 Lörrach, Germany	Thymol	Varroosis - Varroa destructor
Slovakia	APILIFE Var - pásiky do včelích úľov pre včely medonosné	CHEMICALS LAIF S.P.A.,Via Roma 69,360 20 Castegnero (VI), Italy	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Varroosis - Varroa destructor
Slovenia	Apivar 500 mg trak za čebeljo družino za medonosne čebele	VETO PHARMA SAS, Zone artisanale de Champrue, 36310 Chaillac, France	Amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees.
Slovenia	Bayvarol 3,6 mg trak za čebeljo družino	BAYER ANIMAL HEALTH GmbH, 51368 Leverkusen, Germany	Flumethrin	Treatment of varroosis
Slovenia	PolyVar Yellow 275 mg trak za čebeljo družino	KVP Pharma + Veterinär Produkte GmbH,	Flumethrin	For the treatment of varroosis caused by flumethrin sensitive
Slovenia	APIFOR raztopina za čebeljo družino	CHEMICALS LAIF S.P.A., Viale dell'Artigianato 13, 35010 Vigonza (PD), Italy	Formic acid	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Slovenia	FORMIVAR 60, 60 g mravljična kislina / 100 g raztopina za čebeljo družino za medonosne čebele	Andermatt BioVet GmbH, Franz-Ehret-Strasse 18, 79541 Lörrach, Germany	Formic acid	Treatment of varroosis (Varroa destructor) and/or tracheal mites (Acarapis woodi) on honey bees (Apis mellifera).
Slovenia	FORMIVAR 85, 85 g mravljična kislina / 100 g raztopina za čebeljo družino za medonosne čebele	Andermatt BioVet GmbH, Franz-Ehret-Strasse 18, 79541 Lörrach, Germany	Formic acid	Treatment of varroosis (Varroa destructor) and/or tracheal mites (Acarapis woodi) on honey bees (Apis mellifera).
Slovenia	Formicpro 68,2 g, trakovi za čebeljo družino za medonosne čebele	Lohmann Pharma Herstellung GmbH, Heinz-Lohmann-Strasse 5, D-27472 Cuxhaven	Formic acid	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Slovenia	MAQS Formic Acid 68.2g Beehive Strips for Honey Bees	N/A	Formic acid	N/A
Slovenia	API-Bioxal 886 mg/g prah za uporabo v panju	CHEMICALS LAIF S.P.A., V.le dell'Artigianato n° 13, 35010 Vigonza (PD), Italy	Oxalic acid dihydrate	Treatment of varroosis (Varroa destructor, parasite of Apis mellifera).
Slovenia	API-Bioxal 62 mg/ml raztopina za čebeljo družino	CHEMIFARMA SPA, Via Don Eugenio Servadei, 16, 47122 Forlì (FC), Italy	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
Slovenia	THYMOVAR 15 g timola na traku za čebeljo družino za medonosne čebele	Andermatt BioVet GmbH, Franz-Ehret-Strasse 18, 79541 Lörrach, Germany	Thymol	Treatment of varroosis (Varroa destructor)

Slovenia	APILIFE VAR trak za čebeljo družino za medonosne čebele	CHEMICALS LAIF s.r.l., V.le dell'Artigianato n° 13, 35010, Vigonza (PD), Italy	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis (Varroa destructor)
Spain	APIVAR	VETO PHARMA S.A.S.	Amitraz	For the treatment of Varroa jacobsoni infestation sensitive to amitraz in honey-bee
Spain	APITRAZ 500 mg tiras para colmenas para abejas	LABORATORIOS CALIER S.A	Amitraz	Treatment of external parasitosis due to Varroa
Spain	AMICEL VARROA	LABORATORIOS MAYMO, SA	Amitraz	Treatment of external parasitosis due to Varroa
Spain	BAYVAROL 3,6 MG TIRAS PARA COLMENAS	BAYER ANIMAL HEALTH GMBH	Flumethrin	For the diagnosis and control of flumethrin sensitive Varroa
Spain	PolyVar 275 mg	BAYER ANIMAL HEALTH GMBH	Flumethrin	Treatment of varroosis in honey bees caused by flumethrin sensitive Varroa destructor mites.
Spain	MAQS ACIDO FORMICO	Nod Apiary Ireland Ltd	Formic acid	Treatment of varroosis on honey bee (Apis mellifera) due to Varroa destructor.
Spain	FORMICPRO 68,2 g tiras para colmenas para abejas	Nod Apiary Ireland Ltd	Formic acid	Treatment of varroosis due to Varroa destructor in honey-bees (Apis mellifera)
Spain	ECOXAL	CEVA SALUD ANIMAL, S.A	Oxalic acid	For the treatment of varroosis due to Varroa destructor in honey-bee
Spain	API-Bioxal 886 mg/g polvo para uso en colmenas	CHEMICALS LAIF S.P.A.	Oxalic acid	Treatment of varroosis in honey bees (Apis mellifera) caused by Varroa destructor.
Spain	API-BIOXAL 62 mg/ml solucion para colmenas	Chemicals Laif S.P.A.	Oxalic acid dihidrate	Treatment of varroosis due to Varroa destructor in honey-bees (Apis mellifera
Spain	APISTAN tira para colmenas	Vita Bee Health Limited	tau-Fluvalinate	Honey-bee: Control of varroasis caused by Varroa destructor
Spain	APIGUARD	Vita Bee Health Limited	Thymol	For the treatment of varroosis due to Varroa destructor in honey-bee
Spain	THYMOVAR	ANDERMATT BIO VET GMBH	Thymol	Treatment of varroosis on honey bee (Apis mellifera) due to Varroa mite (Varroa destructor).
Spain	APIGUARD MULTIDOSIS 0,25 g/g gel para colmenas	Vita Bee Health Ltd.	Thymol	Treatment of varroosis due to Varroa destructor.
Sweden	Apivar vet 500 mg Bee hive strip	Veto Pharma	amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees
Sweden	Formic acid NOD 68,2 g Bee hive strip	NOD Apiary Ireland Limited	Formic acid	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera)
Sweden	Apistan vet 10.3% w/w Bee hive strip	Vita(Europe) Ltd	tau-Fluvalinate	Control of varroosis (Varroa destructor (formerly known as Varroa jacobsoni) in honey bee colonies
Sweden	Apiguard vet 12,5 g gel	VITA EUROPE Gel	Thymol	Treatment of varroosis due to Varroa destructor.
Sweden	Apiguard vet 12,5 g/dose Bee hive gel	Vita Bee Health Limited	Thymol	Treatment of varroosis due to Varroa destructor.
The Netherlands	PolyVar Yellow 275b mg bijenkorfstrip	Bayer B.V	Flumethrin	Treatment of varroosis due to Varroa destructor.
The Netherlands	Formicpro 68.2g Beehive	N/A	Formic acid	N/A

	Strips for Honey Bees			
The Netherlands	FORMIVAR 60, 60 g mierenzuur /100 g bijenkast-oplossing voor honingbijen	Andermatt BioVet GmbH	Formic acid	Treatment of varroosis (Varroa destructor) and/or tracheal mites (Acarapis woodi) on honey bees (Apis mellifera).
The Netherlands	FORMIVAR 85, 85 g mierenzuur /100 g bijenkast-oplossing voor honingbijen	Andermatt BioVet GmbH	Formic acid	Treatment of varroosis (Varroa destructor) and/or tracheal mites (Acarapis woodi) on honey bees (Apis mellifera).
The Netherlands	Oxuvar 5,7 % (m/v) oplossing voor bijen	Andermatt Biovet GmbH	Oxalic acid	Treatment of varroosis on honey bee (Apis mellifera) due
The Netherlands	Varroxal, 2 mg oxaalzuurdihydraat poeder voor honingbijen	Andermatt Biovet GmbH	Oxalic acid	Treatment of varroosis on honey bee (Apis mellifera) due to Varroa mite (Varroa destructor).
The Netherlands	Apistan	Vita (Europe) Limited	tau-Fluvalinate	Treatment of varroosis on honey bee (Apis mellifera) due to Varroa mite (Varroa jacobsoni).
The Netherlands	Apiguard	Vita (Europe) Limited	Thymol	Treatment of varroosis on honey bee due to Varroa mite (Varroa destructor).
The Netherlands	Thymovar	Andermatt Biovet GmbH	Thymol	Treatment of varroosis on honey bee (Apis mellifera) due to Varroa mite (Varroa destructor).
UK(NI)	Apitraz 500 mg Bee-hive Strips for Honey Bees	Laboratorios Calier, SA	Amitraz	Treatment of external parasitosis in honey bees
UK(NI)	Apivar 500 mg Bee-hive Strips for Honey Bees	Veto Pharma	Amitraz	Treatment of varroosis due to Varroa destructor sensitive to amitraz in honey bees.
UK(NI)	Formicpro 68.2g Beehive Strips for Honey Bees	NOD Apiary Ireland Ltd	Formic acid 95% w/w	Treatment of Varroosis caused by Varroa destructor in honey bees (Apis mellifera).
UK(NI)	MAQS Formic Acid 68.2g Beehive Strips for Honey Bees	NOD Apiary Ireland Ltd	Formic acid 95% w/w	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
UK(NI)	API-Bioxal, 886 mg/g Powder for In-hive Use	Chemicals Laif S.P.A	Oxalic acid dihydrate	Treatment of varroosis caused by Varroa destructor in honey bees (Apis mellifera).
UK(NI)	Oxuvar 5.7%, 41.0 mg/ml Concentrate for Solution for	Andermatt BioVet GmbH	Oxalic acid dihydrate	Treatment of varroosis on honey bees (Apis mellifera) due
UK(NI)	Apistan 10.3% w/w Bee Hive Strip	Vita (Europe) Ltd	tau-Fluvalinate	Control of varroosis (Varroa destructor (formerly known as Varroa jacobsoni)) in honeybee colonies.
UK(NI)	Apiguard Gel (25% Thymol) for Beehive Use	Vita (Europe) Ltd	Thymol	Treatment of varroosis due to Varroa destructor.
UK(NI)	Thymovar 15 g Bee-hive Strips for Honey Bees	Andermatt BioVet GmbH	Thymol	Treatment of varroosis on honey bee (Apis mellifera) due to Varroa mite (Varroa destructor).
UK(NI)	Apilife Var Bee Hive Strip for Honey Bees	Chemicals Laif S.P.A	Thymol, Eucalyptus oil, Camphor racemic, Levomenthol	Treatment of varroosis caused by Varroa destructor.

PREVENTING BEE STING AND POLLEN ALLERGIES

To be allergic means to have a different reaction to a certain substance than other people. Allergic reactions can be mild, but also deadly. The oldest known victim of an allergy was Pharaoh Menes who died of a sting from an insect 3000 years BC.

Approximately 1% of people have a hypersensitivity to bee venom. In other words—after a bee sting, most people only develop a local reaction which is not dangerous to them. According to certain scientific predictions, half of the Earth's population will develop an allergy to something by 2020, probably because our environment is more and more polluted. Thus, the percentage of people with a hypersensitivity to bee venom will probably grow slightly as well. We also cannot overlook the hygiene hypothesis: according to it, small children are less and less exposed to allergens from the environment due to increased hygiene. In early childhood, their immune systems therefore do not have the possibility to research the world around them and accept it as a normal environment. This is why people nowadays develop allergies more often than they used to in the past. This hypothesis is confirmed by the fact that developing countries are the ones with the lowest allergy rate, whereas allergies are a lot more common in the most developed countries; however, this is certainly not the only factor.

There is a 70% probability that children whose parents are allergic will also develop an allergy. If one parent is allergic, such probability lowers to less than 30%; if the parents are not allergic, the probability is of less than 10%. Women and children are more sensitive to bee venom than men.

The risk of developing an allergy to bee products is from 2 to 10 times higher with people who already have an allergy to certain types of food (milk, eggs, fish, seafood …) or to other allergens (medicinal products, dust in the air …).

Due to its positive effects which have been scientifically proven, bee venom is legally used in numerous countries for treating different conditions; however, it cannot be used to treat allergic people.

The best way to prevent an allergy is definitely to avoid getting stung by a bee. Hypersensitive people should avoid all situations where a bee could possibly sting them. It is important to know that bees are especially irritable when the weather changes, during the dearth period, during a period of intense heat, when the air is extremely humid, when we stand in the way of their flight path, when we excite them by hitting their hives, when they sense strong odour emitted by human beings (sweat, pesticides, perfume, shampoo, hairspray, sun cream, freshly laundered clothes that smell like detergent powder) or unpleasant odours that are also unpleasant for humans, or in the occurrence of any sudden movements, which should be avoided at all costs. We should also take care to hold our breath when a bee is nearby; bees, much like mosquitoes, can namely follow the trail of carbon dioxide in our breath that is invisible to us. It is good to know that because of the lustre in our eyes, bees often sting us near or even in the eye, which can be dangerous purely because of the toxic impact of

the venom, even when we are not allergic to it. Whenever we approach bees, it is recommended to wear light-coloured clothes, preferably white ones, since white is the colour that irritates bees the least. We also have to wear a beekeeping mask and, if possible, gloves and high-reaching shoes (boots or the like). A bee sting provokes the release of a pheromone that irritates and attracts other bees that, in turn, often sting again on the spot of the previous sting. Pheromone also gets released when bees are irritated; before flying, bees lift their abdomen. Whether they really fly or not depends on the degree of irritation, stress, or movement.

A Bee Sting

During a bee sting, around 50 micrograms of poison get injected in the human body. The first thing to do right after the sting is removing the stinger, which is not an easy task; since a bee stinger is serrated, it is extremely difficult to remove from the skin of a mammal. The bee stinger breaks off, usually leaving a part of it in the body, which does not represent an issue. Along with the stinger, the poison sack also gets torn from the body of the bee; even after the bee is removed, the sack continues to shrink, releasing bee venom into the organism. In order to diminish the quantity of the injected poison, the stinger needs to be removed as soon as possible. However, it should never be done with our fingers; doing so might perforate the poison sack, injecting all of the poison in the skin. Instead, it is wise to use a penknife or another similar object to scrape the stinger and the poison sack off of the skin. The best option is to use accurate tweezers which allow us to hold the stinger under the poison sack. We can then apply 70% ethyl alcohol to the site of the sting. If needed, we can start treating the sting after removing the stinger. It is wise to put cold compresses or ice on the sting, which alleviates the local reaction of the organism. Since bee venom contains biogenic amines and peptides, a bee sting can be slightly painful. The reaction of an organism to a bee sting is unpredictable: in certain cases, bee sting allergy can also appear suddenly, after decades of beekeeping, probably due to a weakened immune system or when the body is particularly exhausted. Especially dangerous bee stings are

those appearing in critical spots (the tongue, the throat, the neck …). Possible symptoms of a bee sting allergy can appear in the form of skin lesions (hives, urticaria), sickness, stomach cramps, skin swelling (angioderma), itchiness, feelings of scratchy throat, sudden coughing, headache, conjunctivitis and eye tearing related to it, rhinitis and nose discharge related to it, fever, dizziness, increased heart rate, respiratory problems, but also total loss of consciousness and death which can, in the worst of cases, happen in several tens of seconds. Death most often occurs after a sting in the neck, or as the worst form of bodily reaction in most vulnerable people, which is called an anaphylactic shock (drastic drop in blood pressure, difficulties in functioning of the heart and lungs …). In anaphylactic shock, death rate is up to 10%.

Belated allergic reactions are also possible; they appear after 10 to 14 days. With people who have already had an allergic reaction in the past, there is a 60% possibility that a systemic allergic reaction will repeat itself; there is a certain probability that this second reaction will be deadly, but the same or less expressed symptoms are more probable. With people who only experienced a general skin reaction after the first sting, symptoms usually do not appear in their respiratory tract nor in their bloodstream the next time they are stung; with children, we can mostly observe skin lesions. If a person gets stung a second time, the reaction of their body in the following two to three weeks is usually less strong than the reaction after the first bite. If a person does not get stung again for several years, hypersensitivity to bee venom sometimes disappears in certain cases. A systemic reaction of the organism usually appears from a couple of minutes up to an hour after the sting.

After the bee venom enters the skin, lymphocytes start secreting certain antibodies (immunoglobulin E–igE) that bind to mast cells and blood basophiles, which makes them hypersensitive. After a second sting, the cells thusly sensitised easily secrete mediators—substances that cause the symptoms to appear, i.e. the clinical picture. The latter depends on the number of the mast cells and their disposition, but also on the amount of mediators released.

Systemic allergic reactions are usually separated into four categories:

1) the first category comprises skin lesions, i.e. urticaria;

2) the second category comprises skin lesions, but also mouth swelling, sickness, vomiting, and diarrhoea;

3) besides symptoms from the first two categories, the third category also comprises breathing difficulties;

4) the fourth category comprises fainting, collapse, drop in blood pressure, loss of consciousness.

When the reaction of hypersensitive people appears in its worst form, meaning an anaphylactic shock, several signs and symptoms can occur: itchiness, redness, urticaria, swollen skin, suffocating, cough, nose discharge, wheezing, difficulties in swallowing, vomiting, sickness, stomach cramps and pains, diarrhoea, bloating, increased heart rate, drop in blood pressure, arrhythmia, shock, feeling of cold, fainting, dilated pupils, feeling agitated, fear, trembling, loss of consciousness, dizziness, fainting, coma ...

Bee venom doses can be divided into three categories: healing amounts, poisonous amounts, and deadly amounts. As far as healing amounts are concerned, it is important to know that the smallest amount of bee venom can have an important impact on the organism; it is therefore important to only receive bee venom under the supervision of a doctor in countries where bee venom therapy is permitted by law. A poisonous amount of bee venom is delivered to a person after 200–300 stings.

Over 500 stings are normally necessary for the amount of bee venom to be deadly; however, due to their hypersensitivity, people who experience anaphylactic shock can die from only one sting, long before they manage to see a doctor.

Bee stings cannot be treated in a simple manner. Before seeing a doctor, people who have already experienced a systemic reaction have to arm themselves with knowledge and means of self-help in case they ever get stung again, since it is impossible to foretell the strength of the next reaction. It is therefore highly recommended to always carry a fast-acting antihistamine; the best possibility is desloratadine that starts acting after just ten minutes, and has to be taken one tablet per day until symptoms disappear. Other antihistamines can also be used, but even though their effect is virtually the same, their action time is longer. Many people use them before exposing themselves to a possibility of being stung (to give the medicine the time to start acting), especially people who experience strong systemic allergic reactions. Certain corticosteroids (for example methylprednisolone) can also be used. Certain sources recommend calcium preparations, even though scientifically, their actual effect has not been objectively confirmed. More serious reactions require the use of adrenaline from the self-help kit.

Obviously, using adrenaline is never without serious risks, especially with people suffering from chronic illnesses. In such cases, hypersensitive people should always consult a medical specialist; sometimes, it is too late for the doctor to intervene, especially if a person is suffocating, which always requires a timely reaction. Administering adrenaline to persons over 60 years of age is basically contraindicated; it is therefore necessary to discuss all possible risks with doctors, in order to prepare oneself before the sting occurs. In general, before using any medication whatsoever, it is necessary to read the instructions and discuss its possible side effects, as a consequence of unprofessional use or simultaneous use with other medications, with a doctor or a pharmacist.

The healing process happens according to the aforementioned order; however, it is important to see the doctor as soon as possible! It is not easy to make a good differential diagnosis in the field, since loss of consciousness is not always a consequence of a bee sting; it can also be related to heat stroke, sunstroke, diabetes, heart conditions, or other conditions. In case the person with hypersensitivity knows about their condition, it is important they try to communicate it as fast as possible to people in their vicinity, since there is a probability they could soon lose consciousness.

An interesting fact: amongst Russians, ethyl alcohol is considered a universal antidote for bee stings. They recommend from 30 to 50 ml of a strong alcoholic drink, which should, in their opinion, alleviate the symptoms (even though it is believed that alcohol increases the calibre of our blood vessels). In other available literature, such procedure is not recommended. However, it is good to know that any negative effects of alcohol are not believed to be reinforced by desloratadine.

Since treating an anaphylactic shock demands a thorough professional approach, it is a very complex procedure. Firstly, we have to place the patient in a supine position, lift their legs, and administer oxygen. If the patient is suffocating due to a swollen throat, we have to insert a tube into his respiratory tract (into the trachea), or make a small cut on the lower side of the throat (cricothyrotomy), which is by no means an easy task for a doctor. Next, the patient should be administered an infusion. The remainder of the procedure is similar to a procedure to undertake when a classical minor systemic allergic reaction occurs. In any case, the patient has to be taken to a hospital.

In more serious cases of systemic allergic reactions, and on a proposal from an immunologist or a practitioner specialised in allergies, it is sometimes necessary to undertake a procedure

called ‘desensitisation’ that is carried out in medical institutions. The procedure comprises a systemic, long-term administration of larger and larger doses of venom to the patient, where doses increase from the most to the least diluted, in order to achieve a permanent desensitisation of the organism.

It is interesting that bee venom in dry form remains active for several years. Heating it up to 90–100^{0}C or freezing it does not change its composition.

Pollen Allergies

As far as pollen allergies are concerned, it is important to note that, in addition to their similarities to bee sting allergies, allergic people need to avoid walking and working outdoors when the plants are blooming, especially when the weather is sunny and windy. Otherwise, it is extremely rare to develop an allergy to pollen collected by bees. Usually, these allergies appear with people that already have serious allergy issues, and they are extremely common with people allergic to eight or even nine types of food.

It is interesting that pollen allergies are not more common than allergies to other types of food. If a person is suspected of suffering from pollen allergies, the suspicion can be verified in the presence of a doctor in the following way: we put two or three granules of pollen, taken from the bees by means of a pollen trap at the entry into the hive, in our mouth, and keep them there for one minute. If any swelling and/or inflammation of our oral cavity occur, it means that an allergic reaction has begun, which indicates that we should not be eating pollen. Otherwise, sensitive people can even have an asthma attack when inhaling the pollen of the problematic plant.

People with allergies to pollen in the air generally have no problem ingesting pollen collected by bees on the same botanic species, even though there are some exceptions. The reason for this is the composition of pollen in the hive, since it is not the same as the composition of pollen in the air. Bees, for example, almost never collect pollen from cypress trees or cocksfoot; however, when pollen from these plants finds itself in the air, it can quickly provoke an allergic reaction. Besides, bees add honey and enzymes to the pollen they collect, which changes it to a

certain point, considerably neutralising the allergens it contains. This is why at the beginning, pollen should only be ingested in smaller quantities. If no issues are detected, we can continue using pollen according to recommendations from apitherapy specialists. (Apitherapy represents an important branch of complementary medicine, using bee products in preventing and treating numerous diseases. It is authorised in numerous countries. It achieves extraordinary results in treating certain conditions; the results are often even better than those achieved by conventional medicine). Based on epidemiological data, and a low number of medical reports on allergies to pollen that we ingest, we can conclude that pollen is not a strong allergen when ingested as food. A research study, conducted by 722 doctors in the USA in 1989, studied foodstuffs that most often cause allergies, anaphylactic reactions, and death; not one example of death connected to ingesting bee pollen was discovered.

Bee pollen intolerance, however, is not an allergy, but is much more common and needs to be differentiated from an allergy. Sometimes, it only occurs when dealing with pollen from a single botanic species, which is one of the other reasons why pollen from different plant species, collected in a hive, has to be stored separately whenever possible. Intolerance to pollen ingested as food usually causes stomachache, and sometimes sickness. As far as pollen is concerned, we should be more worried about gastrointestinal changes that can occur after ingesting it, instead of worrying about allergies. According to research conducted in 1982 and 1989, gastrointestinal difficulties appeared in 12% to 33% pollen users; their typical symptoms were stomachaches, diarrhoea, irritation, itchiness, and sometimes headaches, general exhaustion, and tiredness. However, none of these symptoms were related to allergies. According to certain information, using the honey of a plant whose pollen causes

difficulties to certain people can have a desensitisating effect; however, this procedure should never be carried out without the surveillance of an appropriate medical expert in countries where apitherapy is permitted. In such cases, honey should only be taken in very small quantities, from one to two grams to begin with, held under one's tongue for 2 to 6 minutes, and then swallowed. Generally, it is believed that different ways of intake of the same allergen material can cause the creation of different antibodies which, in turn, prevent allergic reactions to develop.

Numerous English experts warn us that chewing honey in honeycombs can prevent the occurrence of an allergic reaction to pollen from the air. Practitioners specialised in allergies and immunologists have managed to prove this statement in their research. According to the opinion of one of them, it is so because wax also contains small amounts of pollen that does not reach the organism by breathing but in a different way, which leads to desensitisation.

It is interesting that nowadays, so-called cross allergies are a very common occurrence: a person who is allergic to a certain allergen reacts in the same way to another one. Linden, alder, hazelnut, beech, and oak tree allergens are, for example, almost the same, and therefore cause cross allergies. Similarly, alder and linden pollen are botanically related to pollens of stone fruits (cherries, apricots, peaches), and to those of apples and hazelnuts, which means they contain similar proteins, and that is the reason for the occurrence of cross allergies.

People who suffer from allergic rhinitis due to pollen also often suffer from oral allergic syndrome. People that are allergic to linden pollen develop this syndrome after eating cherries, apples, peaches, pears, nectarines, carrots, kiwi, celery, walnuts, leguminous plants, and spices (anis, paprika, pepper). With people that are allergic to Senecio vulgaris pollen, the aforementioned syndrome appears after eating watermelons, melons, and bananas. 80% of inhabitants of central and northern Europe that are allergic to linden pollen also have a food allergy.

The presence of an allergy can be verified in several ways. We can only confirm the presence of a food allergy by excluding the conceivable foodstuff at issue from our diet, by following the medical condition of a patient, and by carrying out skin tests. We gather more accurate information by performing the FastCheckPOC allergy test which checks the 24 allergens responsible for 90% of all known allergies in northern and central Europe.

In the end, we have to mention that, in addition to scientific proof that royal jelly can cause and/or prompt an asthma attack in certain people, there is also scientific proof (Okamoto, 2003) that the same bee product can diminish the risk of allergies to other bee products, since certain proteins found in royal jelly (apalbumine) can inhibit allergic reactions.

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DEVELOPING FLAVONOID HONEY CONSCIOUSNESS: A BEEKEEPER MANIFESTO

What Are Flavonoids—And Why Do They Matter for Honey?

Flavonoids are natural compounds found in plants, particularly in flowers, fruits, and pollen. They are powerful antioxidants with anti-inflammatory, immune-modulating, and neuroprotective properties. However, in their raw form, many flavonoids are poorly absorbed by the human body.

This is where the honeybee and its microbial allies come in. Through the activity of lactic acid bacteria (LAB) in the bee's crop, these flavonoids are biotransformed into bioavailable forms—forms that the human body can absorb and utilize. In this way, honey becomes more than just sugar: it becomes a delivery system for one of nature's most potent classes of medicinal molecules.

A Letter to the Beekeepers of the World

Dear Beekeeper,

We write to every beekeeper on Earth—every tireless artisan, scientist, and steward of the hive—who, in partnership with the 100-million-year-old honeybee, brings honey into the

human food chain. Your work has never been more important.

Honey is not only a food—it is fuel for the brain and a potent, ancient medicine. In producing authentic honey, the beekeeper becomes the world's most important food-modulated medical entrepreneur.

The Hidden Struggles of the Beekeeper

Do beekeepers truly benefit from the immense effort they pour into their work—physically demanding, seasonally risky, and knowledge-intensive?

Despite the high skill and environmental literacy required, beekeepers remain underappreciated. Honey is economically underestimated. Prices are dictated by corporations that routinely adulterate this sacred substance and dismiss its unique metabolic benefits.

And while rigorous studies from Asia, Africa, and South America have shown that honey is metabolized differently from refined sugars, these findings have been ignored by Western food and medical authorities.

The Cost of Replacing Honey With Refined Sugars

In the 1970s, fat was wrongly blamed for heart disease. Fats were removed from food and replaced with refined sugars.

The result?

- A global explosion in obesity, type 2 diabetes, Alzheimer's disease, and autism.
- Half the world is now overweight.
- Since 2000, studies have shown that honey—rich in bioavailable flavonoids—could have drastically reduced these disease rates had it been used in place of refined sugars.

Honey Is Not Just Food—It Is Brain Fuel and Medicine

Honey is a unique fusion of fuel and therapeutic agent. Its suppression is not scientific—it is economic. And it must end.

We now invite you to awaken to Flavonoid Honey Consciousness—a deep awareness of honey's role as protector and enhancer of human cognition and metabolic health.

Flavonoids, Brain Health, and the Glutamate/ Glutamine Cycle

At the core of brain energy regulation is a key enzyme: glutamine synthetase. This enzyme, present in glial cells, transforms neurotoxic glutamate into glutamine, making it safe and useful for the brain. Each turn of this cycle brings glucose into the brain. In this sense, glutamine synthetase is the brain's fuel pump.

But refined sugars break this pump:

- They overwhelm the system.
- The brain is starved of energy.
- Hunger hormones are triggered—leading to more sugar intake.
- Toxic glutamate builds up—causing inflammation and neuron death.

The result is brain shrinkage, in utero neurodevelopmental damage (e.g., autism), and late-life neurodegeneration (e.g., Alzheimer's, also called Type 3 diabetes).

Honey's flavonoids protect this vital enzyme, keeping the brain's energy system functional.

Scientific Support for Honey's Preventive Role

- Obesity & Diabetes:

Honey reduces body fat, improves insulin sensitivity, and regulates blood glucose (Rahman et al., 2022; Ali et al., 2018; Devasundaram et al., 2020).

- Alzheimer's Disease:

Honey flavonoids are antioxidant, anti-inflammatory, and enhance memory (Ahmed et al., 2023; Smith et al., 2022; Wang et al., 2023).

- Autism Spectrum Disorder (ASD):

Flavonoids reduce oxidative stress and modulate immune responses related to ASD (Brown et al., 2023; Jones et al., 2019; Miller et al., 2020).

The narrative that ASD's rise is due only to improved diagnostics is misleading. No other

condition is treated with such diagnostic inflation. It merely masks the real increase—and lets the sugar industry off the hook.

A Call to Action: Become a Flavonoid Honey Advocate

The world needs informed beekeepers now more than ever. You are not just producers—you are educators, healers, and defenders of metabolic health.

Study the glutamate/glutamine cycle. Learn how honey and flavonoids protect it. Share this knowledge with consumers. Help the world rediscover the true value of honey—not as candy, but as cognition.

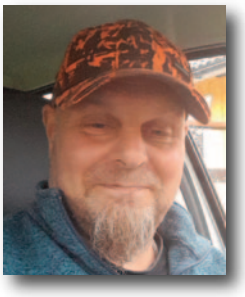
In future writings, we will explore flavonoid honey's role in detail across obesity, type 2 diabetes, Alzheimer's, and autism.

To the Gatekeepers of Global Honey Science

We must also hold accountable the international honey leadership that, for decades, aligned itself with a Western scientific paradigm that reduced honey to simple sugar. This alliance enabled corporate adulteration and robbed the public of a medicine hidden in plain sight.

Honey is not just food.

It is fuel, medicine, and a protector of the human brain.



Fabian Lindhe
Mike McInnes

A new book

EKRAMS APITHERAPEUTIC ADVENTURE

A New Digital Book from Kočevje Blends Apitherapy, Education, and Imagination – Co-authored by a 12-Year-Old Student

On Friday, May 9, 2025, the APIS RETIS Network of API Kindergartens and Schools from Kočevje, Slovenia, celebrated the release of an innovative digital book titled Ekrams Apitherapeutic Adventure. This imaginative and educational work is the result of a collaborative effort by four Slovenian authors: a beekeeper Miran Kumer (Dobrna), an educator and beekeeper, Nika Drev (Velenje), and apitherapist Nina Ilič, together with her 12-year-old daughter Eneja Ilič. 7th grade student at the Zbora odposlancev Primary School in Kočevje, Eneja, played a key role

in shaping conceptual foundations in an interactive story.

In Ekrams Apitherapeutic Adventure, children and young readers embark on a captivating journey through the world of apitherapy and beekeeping. By actively participating in the narrative, they explore essential themes such as environmental protection, biodiversity, and the importance of cooperation. The story is adaptable to various age groups, making it an accessible tool for educators.

Rooted in the principles of Apipedagogy—a teaching approach that integrates apitherapy into educational practice—the book fosters curiosity, ecological awareness, and empathy for nature. It offers an engaging experience where the reader becomes the main character in a richly imaginative, yet educational, adventure.

This resource is particularly well-suited for use in classrooms, interdisciplinary lessons, and special activities commemorating World Bee Day, providing both playful and pedagogically valuable content for teachers and pupils alike.

The book is freely accessible via QR code and is fully compatible with digital learning tools.

Anyone who wants a book in their mother tongue, write to apisretis@gmail.com to make an arrangement. The translation into English and Croatian is expected to be published by the end of August 2025.

Nina Ilič

Coordinator of APIS RETIS Network of API kindergartens and Schools and

Coordinator of Apitherapy for the Children's Education Commission, International Federation of Apitherapy

White door leads to Api-culinary and green door leads to the forrest

STOP GUNS

LET'S GIVE BEES A CHANCE!

We are establishing an apitherapy centre for those who suffer from the psychological and physical effects of war and other forms of violence

There are well-documented examples in human history where people, in the past, threw beehives over city walls to defend themselves against invaders. Simultaneously, bees also helped people stay alive during long sieges, as honey, with its nutritional value, contributed to survival. Through coexisting with bees, humans also discovered their healing powers and developed apitherapy — the practice of healing with bees and bee products.

Slovenia is a land of bees and beekeeping. Beekeeping is a way of life for Slovenians, which is why it is no coincidence that Slovenia proposed May 20th as World Bee Day, a day celebrated every year on the birthday of Slovenian, Anton Janša.

Slovenia is also the land of apitherapy, as Dr. Filip Terč, a Czech native and pioneer of modern apitherapy, was practicing apitherapy in Maribor from 1876 to 1917. March 30th, his birthday, has been declared World Apitherapy Day by apitherapists worldwide.

In addition, Slovenia is the only country in Europe with an official NVQ Apitherapist certificate, which we use to assess and verify an individual's qualifications to practice apitherapy. The certificate is valid throughout the European Community.

Here in Slovenia, bees are also known as 'winged pharmacists', contributing to the well-being and improved health of human beings.

The Slovenian Beekeepers' Association proposes to the Ministry of Defence of the Republic of Slovenia the establishment of a modern apitherapy centre for victims of war suffering from the psychological and physical consequences of their experiences. At this centre, victims of war and their families would be reintegrated into everyday life with the help of bees and bee products. A modern apitherapy centre should be established, with branches at existing api-centres across Slovenia, incorporating api-tourism, rural tourism, and local food. In short, this would be a unique pilot project focused on sustainability, self-sufficiency, and, above all, living 'naturally' in every aspect.

How bees can help:

1. Mental relaxation and stress management

• Sensorial experience in the apiary — anti-stress therapy with bees

It calms the nervous system, while helping with anxiety and mild forms of insomnia.

• Therapies for post-traumatic stress disorder

Bees calm the nervous system, apitherapy to relieve stress, anxiety, fatigue...

2. Physical rehabilitation

• Bee venom as a painkiller

In a controlled environment to alleviate chronic pain, arthritis, and muscle regeneration — under the supervision of a doctor and an apitherapist.

• Healing wounds

Honey and propolis have been proven to accelerate healing in cases of chronic wounds.

• Bee wax wraps for inflammation

Relief from chronic pain, muscle cramps, and tension.

• Anti-stress and detoxifying honey massages

Detoxifying the body and reducing fatigue, stimulating circulation...

3. Enhancing vitality

• Relaxing in saunas with propolis and honey

Detoxifying the body.

• Honey baths

Detoxification and relaxation of muscle cramps.

• Meditation in the apiary

Inhaling hive air can reduce tension and encourage a sense of security. Relaxing in a space with aerosols, the sound of buzzing bees, and a pleasant temperature has a positive effect on mood.

4. Support for the immune system

• Bee products

Planning the consumption of bee products to improve an individual's mental and physical health, such as: royal jelly for energy restoration and mood improvement, honey with pollen for boosting immunity, aiding recovery after physical exertion, and regulating body weight...

5. Connecting with nature and social inclusion

• Beekeeping training for war veterans and individuals disabled in war

Involving soldiers in the care of bees as a therapeutic activity.

• Strengthening and reinforcing family bonds, following the example of bees

• Workshops and group therapies in nature

Beekeeping days, meditation in nature, group bonding.

Service providers would be certified apitherapists (NVQs), while in certain areas (such as bee sting therapy and chronic wound treatment), doctors and other medical personnel would be involved. These healthcare providers would operate complementarily and in collaboration with conventional medicine, offering eco-friendly and scientifically proven methods for treating the effects of active involvement in military missions. In cases of post-traumatic stress disorder and in-

juries, war veterans would experience a less stressful, smoother, and faster reintegration into society upon their return home. The programmes would also include other victims of war.

Establishing the world's first apitherapy centre of this kind would be an excellent opportunity for all war veterans, all victims of the horrors of war, and for those suffering from the psychological and physical consequences of war... The apitherapy centre would also meticulously document all cases that are part of its work, allowing for in-depth research on the effects and effectiveness of the centre.

With a well-documented and managed project, such a centre would become an innovative and unique initiative, one that Slovenia could help establish in other countries in the future, making a distinctive and meaningful contribution to the care of veterans — an essential aspect of reintegration programmes into civilian life.

At the same time, the centre would not be intended solely for war victims. In Slovenia and around the world, many people struggle with mental health issues, and such a centre would benefit for them as well. Accordingly, this would be a project with added value, which is also completely unobtrusive to its immediate environment.

If armed forces were to collaborate with apitherapy centres, it could offer soldiers and veterans a safe, natural, and highly effective complementary rehabilitation programme, free from the side effects often associated with medications. The project would be designed as complementary rehabilitation and psychosocial support for soldiers returning from missions or demanding service, as well as for their families and other vulnerable groups.

Some examples of good practices in treatment and rehabilitation through apitherapy and beekeeping:

https://www.youtube.com/watch?v=fq-ILAB-cII0

https://www.youtube.com/watch?v=VZeBHjXuuYU

https://www.youtube.com/watch?v=4TS_7MxUItU

https://www.youtube.com/watch?v=l5BZVRmyKak

Boštjan Noč

President of the Slovenian Beekeepers' Association and President of the European Beekeeping Association

(*Professional assistance and explanations provided by the apitherapists: Nika Pengal and Žiga Jenko*)

WORLD BEE DAY 2025

AT THE ROMANIAN BEEKEEPERS ASSOCIATION

World Bee Day, proclaimed by the United Nations in 2017, is celebrated on May 20 to highlight the importance of bees for both the global ecosystem and human well-being. Bees have existed for more than 100 million years and, although they are often associated with honey, their primary role is the pollination of plants. Their contribution is essential for global food security and the health of terrestrial ecosystems.

As in previous years, the Romanian Beekeepers Association marked World Bee Day by organizing a meeting at the Institute for Research and Development for Beekeeping. The event brought together beekeepers, collaborators, government and local officials, and enthusiasts of nature and bees alike.

The celebration served as a tribute to bees and a recognition of the critical role they and other pollinators play in maintaining biodiversity and ecological balance. The decline in bee populations is driven by factors such as climate change, excessive pesticide used in agriculture,

the reduction of nectar-producing habitats, urbanization, disease, and pollution.

We were honored to participate in the event organized on May 20 by the Romanian Beekeepers Association, the Research and Development Institute for Beekeeping, the Veceslav Harnaj Beekeeping Complex, and the Ilfov-Bucharest Branch of the Romanian Beekeepers Association. Distinguished guests included representatives from the National Sanitary Veterinary and Food Safety Authority, the Ilfov County Agriculture Department, Bucharest City Hall, "Vyacheslav Harnaj" Technological College, the Sectoral Committee for Agriculture, Fish Farming, and Fisheries in Romania, as well as numerous beekeepers and members of the media.

During the discussions, a range of issues affecting the beekeeping sector were brought to light. Proposed actions included regulatory measures regarding the Occupational Standard for the beekeeping profession, initiatives to increase domestic honey consumption, reduce honey imports, and protect local production. Other key topics included urban beekeeping, the use of artificial intelligence in beekeeping, the promotion of beekeeping products, and direct financial support for beekeeping operations during times of crisis.

Additional concerns were raised about beekeeping pathology and treatments, combating fraud in the honey market, attracting young people to the profession, and ensuring funding for beekeeping research. All of these are essential measures for improving both the sustainability and efficiency of the sector.

We were especially pleased by the active participation of students in the beekeeping-themed workshops organized for the occasion. A large group of students engaged in hands-on activities, reflecting a growing interest among young people in this vital field.

First-grade students from Bucharest's Gymnasium School No. 7 took part in an interactive workshop where they learned to make beeswax

candles—an activity filled with color and the natural scent of wax. Meanwhile, students from the "Vyacheslav Harnaj" Agricultural College prepared a refreshing honey-based soft drink, much to the delight of participants.

Equally important was the strong presence of beekeepers, who carry forward this traditional craft despite the significant financial challenges it often entails. Their contribution remains at the heart of this celebration.

Another event dedicated to World Bee Day took place at the "Ion Creangă" Technical College in Târgu Neamț, which also offers specialized classes in beekeeping. On this occasion, the President of the Romanian Beekeepers Association, Mr. Răzvan Coman, together with the local leadership of the Neamț County Branch, gave a presentation on the importance of bees in agri-


Rada
Mara
Naomi
Yana

culture and the role of youth in preserving and advancing this valuable tradition.

As a tangible gesture of support, students were gifted tools and materials essential for practicing beekeeping—an appreciated initiative that fosters experiential learning and hands-on involvement.

We extend our heartfelt thanks to Director Apetrei Gheorghe for his efforts in organizing this event and for his commitment to establishing beekeeping programs in the school. We also thank all those who contribute to educating the next generation of beekeepers and promoting the sustainable values of Romanian apiculture. As we look ahead with hope to a productive beekeeping year, we remain committed to celebrating and protecting this remarkable insect.

Bees are not only essential to biodiversity and food security but also powerful symbols of harmony between nature and human activity.

Through continued collaboration, education, and meaningful action, we can safeguard their future and strengthen the beekeeping sector for generations to come. Let us honor the bee not just on World Bee Day, but through every step we take toward a more sustainable and pollinator-friendly world.

Marius Marinescu

Technical Supervisor
Romanian Beekeepers Association

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, bee-keepers 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.

ADVERTISING IN THE MAGAZINE:

1. Through sponsorship packages;
2. It is possible to pay for an ad only for 1/4 page (100 euros), for a larger area by agreement. The entire page cannot be obtained, it belongs only to the General Sponsor.

IT CONTINUES

EBA
sponsorship packages

GOLD sponsor - 5.000 euros:
Advertisement on the EBA website
Presentation at all EBA events, logo on all EBA correspondence
12 advertisements in the EBA monthly e-magazine in A4 page size

SILVER sponsor - 3.000 euros:
Advertisement on the EBA website
Presentation at all EBA events, logo on all EBA correspondence
12 advertisements in the EBA monthly e-magazine in half A4 page size

BRONZE sponsor - 2.000 euros:
Advertisement on the EBA website
12 advertisements in the EBA monthly e-magazine in the size of 1/4 A4 page

EBA SUPPORTER - 1.000 euros:
Advertisement on the EBA website
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

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