

Report on the 1st National Varroaresistenz Polska 2033 Conference: “The path to chemical-free apiaries – Varroa-resistant bees by 2033”



On 18–19 April 2026, the 1st National Varroaresistenz 2033 – Poland Conference took place, entitled “The path to chemical-free apiaries – Varroa-resistant bees by 2033”.

The conference was organised by: the Varroaresistenz 2033 – Poland Association, the Association of Old Polish Beekeepers, the Apikultura Foundation and the National Institute of Rural Culture and Heritage

Honorary patronage of the conference was provided by:

the Ministry of Agriculture and Rural Development

Apimondia

the Polish Beekeepers’ Association

the University of Life Sciences in Lublin

Media patronage was provided by: Pasieka Publishing House and Pszczelarz Polski

The conference took place in the Lecture Hall of the National Institute of Rural Culture and Heritage.

There were 300 participants.

The conference was chaired by Katarzyna Pietrzak-Kubiak, representing the Varroaresistenz 2033 – Poland Association, and Mariusz Chachuła, MSc, a professional beekeeper and teacher at the state beekeeping technical college in Pszczela Wola.

The main aim of the conference was not only to share knowledge on breeding for varroa resistance, biotechnological methods and opportunities for educating the beekeeping community, but also to identify individuals who would carry this idea and knowledge forward – to their own regions, associations and groups.

Course of the event

DAY ONE

1. Official opening of the conference by the hosts and guests of honour

- Representative of the Ministry of Agriculture and Rural Development – Jacek Parszewski
- President of the World Beekeeping Federation – APIMONDIA FEDERATION – Peter Kozmus, and Apimondia’s correspondent in Poland – Tomasz Łysoń,
- President of the Polish Beekeepers’ Association – Krzysztof Witwicki
- Chairman of the Association of Professional Beekeepers – Piotr Mrówka

- Torsten Ellmann – President of the German Beekeepers' Association (Deutscher Imkerbund e.V.)
- Thorsten Wilkens – President of the Association of Professional and Commercial Beekeepers in Germany (Deutscher Berufs- und Erwerbsimkerbund e.V.)

2. Marie Förster (Germany) – Varroaresistenz 2033 and Katarzyna Pietrzak-Kubiak – Varroaresistenz 2033 Poland presented the origins of the Varroaresistenz 2033 association.

This movement is based on four pillars: education, pre-selection, biotechnological methods and breeding. Marie Förster emphasised that the key to success lies in cooperation between scientists and beekeepers, regardless of the breed of bees kept or the size of the apiary.

3. Dr Ralph Büchler (Germany) – What we have learnt over the last 40 years – a modern approach to combating varroa

In his presentation, Dr Ralph Büchler assessed the methods used to date to combat *Varroa destructor*. In his view, the standard system based on autumn–winter chemical treatment has ceased to be effective.

The speaker highlighted three key problems: the parasites' resistance to drugs, the accumulation of active substances in the wax, and the fact that chemical treatment does not eliminate the viruses that are the direct cause of bee deaths. The breakthrough he proposed is the biotechnological interruption of brood rearing in summer. Dr Büchler's research has shown that a 2–3-week break in brood rearing not only reduces the *Varroa* population, but also ensures that overwintering bees are significantly better nourished and stronger in spring. Contrary to fears, the break in brood rearing does not harm colonies at all; on the contrary, they overwinter better.

He emphasised that resistant populations exist in Africa and South America, where bees have been managing without treatment for years, which proves that evolutionary adaptation to the parasite is possible.

The results of European research projects, such as EurBeST, confirm that resistance is not determined by a specific bee breed, but by a long-term and consistent selection method carried out under specific environmental conditions. Dr Ralph Büchler encourages the formation of local breeding groups as part of the Varroaresistenz 2033 project. The aim is to select stock that combines high honey yield with low parasite infestation.

4. Prof. Aneta Strachecka, PhD – University of Life Sciences in Lublin Factors influencing the level of bee resistance

The presentation analysed the factors determining the health of bee colonies, with particular emphasis on diet, the evolution of parasites and mistakes made by beekeepers. The foundation of bees' resistance lies in their digestive system and an appropriately varied diet. Unfortunately, modern climate change and a monodiet mean that bees suffer from nutritional deficiencies, which directly leaves them vulnerable to external threats.

Another key theme was the dramatic evolution of the *Varroa destructor* mite. Nearly half a century of intensive use of harsh chemicals has led to the development of powerful adaptive mechanisms in these parasites. Today's mites are capable of neutralising treatments and even altering their survival strategies.

A shocking aspect of the lecture was the description of how the mite's saliva causes weakness, dehydration and a drastic decline in resistance to other pathogens and pesticides.

The problems of hive environment contamination were also discussed, including the accumulation of chemicals in beeswax – such as amitraz derivatives – which can persist in an apiary for several decades.

The main conclusion drawn from the lecture was the need for a radical reduction in the use of synthetic chemicals in favour of biotechnological and integrated methods. Only a return to caring for the natural physiology of the bee and the purity of the wax offers hope for the survival of bee colonies in the face of increasingly virulent parasites that are resistant to an ever-growing number of active substances.

5. Prof. Krzysztof Olszewski, PhD – University of Life Sciences in Lublin Effectively combating Varroa mites – the greatest challenge facing modern beekeeping

Prof. Krzysztof Olszewski's lecture offered a stark assessment of the current state of beekeeping, pointing out that the battle against Varroa mites, which has been ongoing for over 40 years, has reached a dead end. The speaker emphasised that the constant increase in the number of chemical treatments and the use of ever-stronger acaricides had led to a situation in which we were unwittingly breeding the parasite rather than the bees. Varroa destructor remains the main cause of winter losses, and existing methods are failing because they do not take into account the evolution of the parasite or the climate change that favours the continuous brood-rearing of queen bees.

The key to reversing this dangerous trend is to move away from harsh chemicals in favour of biotechnical methods, which rely on the use of the bee colony's natural biological mechanisms. The professor pointed out that the most effective tool at a beekeeper's disposal is the controlled interruption of brood rearing. This approach allows the colony to be brought to a broodless state, in which combating the parasite using organic acids becomes extremely effective.

Contemporary challenges, such as a severe re-infestation of mites in the second half of the season and the looming threat posed by the Tropilaelaps parasite, make biotechnical methods indispensable. Although isolating queen bees involves a certain amount of work, the validity of these measures is demonstrated by the fact that they are increasingly being adopted by professional beekeepers, for whom economic considerations are a priority.

6. Dr Peter Kozmus (Slovenia), President of the World Federation – Apimondia lecture – The approach to the problem of varroasis in Slovenia and other regions of the world

The lecture provided a comprehensive overview of the beekeeping sector in Slovenia, a country with an exceptionally rich tradition and the homeland of the Carnica bee. The strength of the Slovenian model lies in its excellent organisational structure, centred on the Slovenian Beekeepers' Association together with a specialised veterinary service.

The greatest challenge, on which the substantive part of the lecture focused, remains the fight against the *Varroa destructor* mite. Although a wide range of registered treatments is available in Slovenia – from oxalic acid and formic acid-based preparations to synthetic substances – the problem of losses in bee colonies persists. The speaker pointed out that the effectiveness of treatments is limited by inconsistent actions on the part of beekeepers, which leads to re-infestation, as well as the parasites' growing resistance to the chemicals used. The conclusion of the presentation suggests that the future of the sector depends on better coordination of efforts and the development of long-term, sustainable solutions that will allow bees to coexist with the parasite without the need for constant chemical intervention.

7. Prof. Jerzy Demetraki-Paleolog, PhD Varroa resistance 2033: the social aspect

Prof. Jerzy Demetraki-Paleolog's presentation provided an in-depth analysis of the psychological and sociological barriers that may hinder progress in modern beekeeping. The professor began by drawing attention to the widespread modern-day need for immediate results, which he described as the 'instant' culture. He noted that beekeepers, like the rest of society, often expect miracle cures or quick fixes, whilst breeding Varroa-resistant bees is a long-term, painstaking process fraught with the risk of failure. The speaker emphasised that, to avoid frustration, it is important to speak openly about the fact that the fight against the parasite does not involve its complete eradication, but rather the establishment of a biological balance in which bees will be able to coexist with the parasite with minimal human intervention.

A key point of the lecture was a discussion of the difficulties involved in changing the paradigm – that is, widely accepted achievements and methods. Referring to Thomas Kuhn's concepts, the professor explained that every new idea encounters natural resistance, as people are by nature afraid of change and value their 'peace and quiet'.

Professor Demetraki-Paleolog also devoted part of his talk to the growing crisis of trust in experts and science. He pointed out that in the age of information chaos and social media, scientific authority is sometimes undermined by the opinions of laypeople or aggressive marketing by chemical manufacturers.

In concluding his speech, the professor called for acceptance of the fact that breeding resistant bees is a constant race "up a moving escalator" (the escalator is moving downwards) – to stay in place or move forward, one must constantly exert effort. The paradigm shift from chemical treatment to supporting natural

selection is a never-ending process, requiring not only biological knowledge but, above all, a change in the mindset of the beekeepers themselves.

8. Panel discussion: Educational opportunities and effective ways of improving beekeepers' skills in the biotechnological control of Varroa mites, based on models developed in Europe"

Prof. Krzysztof Olszewski – moderator

Participants:

- Tino Lorz – Varroaresistenz 2033,
- President of the Polish Beekeepers' Association – Krzysztof Witwicki,
- Thorsten Wilkens – President of the Association of Professional Beekeepers in Germany,
- Mariusz Chachuła, MSc – professional beekeeper and vocational teacher at the State Beekeeping Technical College in Pszczela Wola,
- Tomasz Łysoń – Apikultura Foundation,
- Adrian Bukowski – Association of Old Polish Beekeepers,
- Eddy Nowicki – Chair of the Antwerp Beekeepers' Association (Promoting biotechnological methods within the association)



DAY TWO

1. Paul Jungels (Luxembourg) A breeding programme to achieve and maintain Varroa-resistant bees

During his presentation, Paul Jungels, a renowned beekeeper from Luxembourg, outlined a radical change in approach to apiary management, declaring a complete abandonment of chemical Varroa control. The speaker emphasised that his aim is to eliminate acaricides, which destroy not only the mites but the entire natural microbiome of the bee colony. Paul Jungels bases his method on rigorous selection and emulating nature. The fundamental principle is to breed queens exclusively from colonies exhibiting the highest resistance and to systematically replace the queens in the weakest colonies with them. In this way, the so-called 'genetic death' of unfit colonies occurs within the apiary.

On a scientific level, the speaker highlighted the immense genetic complexity of the bee colony. Although science does not yet understand all the mechanisms, traits such as VSH and SMR, as well as epigenetic phenomena—involving the activation or silencing of genes under environmental influence—appear to be key.

In concluding his presentation, Jungels encouraged the audience to focus on reinforcing the traits present in the genome, rather than clinging desperately to racial purity, which is not a paramount value in nature. He noted that inbreeding for selection purposes, whilst sometimes controversial, allows for the discovery of new and surprising genetic combinations. Although resistance genetics is a priority, this need not be at the expense of honey production or docility – he dismissed as nonsense the claim that resistant bees do not

produce honey. Proof of the effectiveness of this strategy is the fact that for many years his colonies have not received any medication and he has had no winter losses, whilst the breeder's sole aim remains the continuous replacement of non-resistant colonies with those capable of fighting the parasite on their own.

2. Dr Stefan Mandl (Austria) A breeding programme to achieve and maintain Varroa-resistant bees in Europe's largest apiary

Dr Stefan Mandl, who runs an apiary in Austria comprising as many as 15,000 colonies, has demonstrated that selection for resistance is possible even on an industrial scale. The key to success is not the complete eradication of the mite, but the development of mechanisms for coexistence within the ecosystem. As his key argument, he cited the case of Cuba in 1996, where a lack of access to medication following the emergence of Varroa mites led to an initial catastrophe, but ultimately resulted in the spontaneous recovery of the population within eight years thanks to the survival of the fittest.

A modern Austrian company is implementing these solutions, based on natural mechanisms, in a controlled manner. The research programme covers 2,000 colonies, from which, following rigorous selection, just 60 queens with the highest potential were chosen. This process was based on four pillars: performance assessment, breeding value estimation, selection and controlled mating at mating stations.

The selection practice is based on moving away from the routine treatment of all hives, which allows natural resistance – or the lack thereof – to be revealed. Currently, 37 per cent of these 2,000 colonies selected for the study enter winter without any chemical treatments, maintaining the infestation rate below 2 per cent. Needle tests and powdered sugar tests are used to monitor health status.

3. Paweł Budzyński – 'Nasza Pszczółka' Apiary Biotechnical methods used in a large commercial apiary

Many beekeepers fear that biotechnical methods are too labour-intensive. Paweł Budzyński from the 'Nasza Pszczółka' apiary has proven this to be a misconception. He implemented a system of queen isolation (summer and autumn) in his commercial apiary, which allowed him to completely stop using amitraz.

Paweł Budzyński described his working method: isolation in June allows him to harvest honey without the risk of contamination by medicines and to replace old brood, whilst isolation in September prepares the colonies for ideal overwintering. Thanks to the sublimation of oxalic acid in a broodless state, his winter losses have fallen to 5 per cent. Following isolation, the bees successfully utilise late nectar sources such as goldenrod and heather.

Summing up three seasons of work using this method, Paweł Budzyński highlighted tangible benefits in the form of excellent overwintering and very low natural losses. As for queen losses – which are a common concern when using isolators – last season only 15 out of 500 colonies suffered this fate. The apiary owner also places great emphasis on genetics, utilising isolated mating stations in Germany and conducting rigorous selection by removing the weakest individuals.

4. Eddy Nowicki, President of the Antwerp Beekeepers' Federation (Belgium) The validity of biotechnological varroa control in Belgium

The President of the Antwerp Association, Eddy Nowicki, captivated his audience with his references to 'common sense' and his vast practical knowledge. The speaker pointed out that measuring infestation levels on worker bees often gives a false picture, as the mites concentrate on the drones.

He presented a concept whereby the brood-free period must be sufficiently long (more than 15–20 days). Why? Because mites on adult bees become more infectious with DWV type B. Only a sufficiently long brood-free phase ensures that old, infected mites die a natural death, without being able to enter a new brood cycle. Nowicki also presented a type of hybrid isolator that minimises stress on the queen and makes the beekeeper's work easier.

After the conference, participants completed questionnaires evaluating the individual lectures as well as the organisation itself.

The event was received extremely positively. It was also featured in numerous industry publications in Poland. Suggestions were also made to continue exploring this topic at the next edition of the conference. And although the topic of varroa mites is not a new one, what is new is the force with which it has now come to public attention. With this conference, things have really started to move forward. Thus, the conference was a success not only because of the approximately 300 participants and the broad presence of unions, associations and the academic community, but also strategically: it generated momentum. Varroaresistenz 2033 Poland needs educators who, at a local level, will explain the issues, bring people together, organise activities and facilitate the transition from an individual with an interest to a group capable of taking action. Following the event, many people came forward who were ready to get actively involved and take on this responsibility. A training session for 70 educators from various regions of Poland is already being organised for 18 July 2026.

