Summary report for Multi-actor Forum workshops 2021

Deliverable D8.3

30 November 2021

James Henty Williams (AU)
José Paulo Sousa (UCOI) and Jeroen Peters (WR)

1 Aarhus University (AU), 2 Coimbra University (UCOI), 3 Wageningen research (WR)

B-GOOD

Giving Beekeeping Guidance by cOmputatiOnal-assisted Decision making

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817622.

Prepared under contract from the European Commission

Grant agreement No. 817622
EU Horizon 2020 Research and Innovation action

Project acronym:	**B-GOOD**
Project full title:	**Giving beekeeping guidance by computational-assisted decision making**
Start of the project:	June 2019
Duration:	48 months
Project coordinator:	Prof. Dirk de Graaf Ghent University www.b-good-project.eu

Deliverable title:	Summary report for Multi-actor Forum workshops 2021
Deliverable n°:	D8.3
Nature of the deliverable:	Other
Dissemination level:	Public

WP responsible:	WP8
Lead beneficiary:	Aarhus University

Citation:	Williams, J.H., J.P. Sousa and J. Peters (2021). Summary report of Multi-actor Forum workshops 2021. Deliverable D8.3 EU Horizon 2020 B-GOOD Project, Grant agreement No. 817622.

Due date of deliverable:	Month 30
Actual submission date:	Month 30

Deliverable status:

Version	Status	Date	Author(s)
0.1	Draft	22 Nov. 2021	Williams AU
0.2	Review	24 Nov. 2021	Williams, Sousa, Peters AU, UCOI , WR
1.0	Final	26 Nov. 2021	Williams, Sousa, Peters AU, UCOI , WR

Table of contents

Preface

This report is the third of four deliverables from work package eight (WP8) 'Multi-Actor Co-development'. This report describes the methodology, implementation and outputs from a first phase of workshops, held in 2021, for the Multi-actor Forum held as part Task 8.3 'Creation of a learning platform for knowledge exchange and feedback'. Set-up of multi-actor groups, networks and knowledge exchange'. This task was conducted in collaboration with several project partners, particularly those involved in work packages 2 and 3.

Summary

As part of B-GOOD's multi-actor approach (MAA) a 'Multi-Actor Forum' (MAF) was established in early 2020. This platform for dialog was set-up to enable key actors, representing varied sectoral interests related to beekeeping, to interact directly with B-GOOD partners. The MAF has been convened three times since its foundation, occurring as part of consortium meetings held in July 2020, December 2020 and June 2021. During the June 2021 consortium, two special workshop sessions were organised for the MAF.

The workshops were organised and structured for MAF members to learn about two particular areas of B-GOOD research and development, as well as give their feedback.

- B-GOOD lateral flow device (LFD)
- B-GOOD mapping and assessing of floral resources in Europe

Both workshops were held on 30th June 2021, and took place on-line using video-conferencing and interactive digital tools (Mentimeter). The workshops were originally proposed as physical meetings, but due to continued disruptions caused by Covid-19 the format for the workshops was altered so they could be integrated into the consortium meeting (CM5), which was held as a virtual meeting as a result of Covid-19.

Despite the challenges and disruption caused by Covid-19, the workshops were a success, bringing together a variety of actors represent varied interests related to the beekeeping sector. In total thirteen MAF members participated, including representatives for beekeeping (hobby and professional), farmers and agricultural business, authorities (environmental / health) and NGOs (environmental / wildlife / pollinators). Both sessions were informative and interactive and generated useful comment, feedback and discussions between MAF members and project partners. This report provides a summary of the organisation, format and outputs of these workshops. These workshops were carried out as part of task 8.3.

1.1. Task scope and aim

The overall aim of task 8.3 is to create a dynamic learning platform for knowledge exchange and feedback. Integral to this task has been the establishment and convening of the MAF. MAF members have participated as guests in several consortium meetings prior to 2021, in July 2020 (CM3) and December 2020 (CM4). These meetings provided opportunities for MAF members to hear about project developments and ask questions. To boost interaction and knowledge exchange with MAF members two physical workshops were originally planned, one to take place mid-way and another towards the end of the project. However, due to continued disruptions caused by Covid-19 the format of the mid-term workshop was adjusted as described below.

1.2. Adjustment of task and outputs

Responding to difficulties and uncertainties in organising physical meetings the mid-term workshop was redesigned to take place on-line and coincide with the fifth consortium meeting (CM5) held in June 2021. As part of this redesign, two virtual workshops were planned. They were designed to last only 2 hours, to maintain participant interest and engagement. These workshops were focused on two particular areas of B-GOOD research and development. They were structured as dissemination and engagement sessions to:

1. Disseminate latest project developments and results for the two topics of interest for MAF members
2. Gain feedback from MAF members to guide future project research activities and developments

The workshops were developed to make effective use of internet-enabled tools and structured activities for presenting (e.g. Zoom, videos and Mentimeter), as well as using facilitators to encourage dialog and feedback. They were developed in collaboration with project partners from WP2 and 3 working on the selected the topics areas. The aim was to maximise content of interest for participants, gain beneficial outputs (for all participants) and mitigate the limitations of virtual workshops (e.g. lack of interactivity).

The following sections of this document detail the format and outputs of the workshops, which proved to be effective mechanisms for knowledge exchange and feedback, as well as fulfilling task objectives.

2. Multi-actor Forum workshops: phase one

2.1. Fifth consortium meeting and workshops

To promote interactions with MAF members and stimulate knowledge exchange and feedback a number of events were organised as part of CM5. It was a three-day meeting held between 28 and 30 June 2021. The consortium meeting was organised and hosted by Aarhus University.

MAF members were invited to join the first day of the consortium meeting (28 June). On this day, there were a series of short presentations (10-15 minutes) outlining the latest project developments and achievements. After each presentation, time was allocated for questions and answers. ‘Young’ and ‘hands-on’ researchers among project partners predominantly gave these talks. The second day was planned purely for work package meetings amongst consortium partners.

The third day (30 June) was designed to encourage interactions between consortium partners and MAF members. Two events were planned, not only to provide information and gain feedback but also to encourage social interactions. The agenda sent to MAF members is included in Appendix 1.

2.1.1. Photo competition and social event

A photographic competition was organised for project partners to participate in prior to CM5. To start the third day of the consortium meeting, a social event was then held to showcase all entries. The event was held in GatherTown. It was open to all project partners and MAF members. During this event participants could view photo challenge entries as well as meet in a novel setting to chat. GatherTown was used to create a virtual gallery and meeting space (the B-Good Orchard), which allowed MAF members to mix freely (using avatars) with consortium and other MAF members.

During this event there was a short presentation announcing the winners. A judging panel, that included two MAF members, selected three category winners and an overall winning entry.

Figure 1. Winning photo competition entries courtesy of and copy right to Marten Schoonman & Marc Schäfer (top). Screenshot of GatherTown B-GOOD Orchard gallery and social meeting space (bottom).

2.1.2. Topical workshops

For the second part of the third day, two interactive workshops were organised. They were allotted two hours each and were structured into two parts. The first part of each workshop was an informative talk about a pre-selected topic, considered to be of topical interest and of benefit for MAF members, as well as the honey beekeeping sector in general. The second part was an interactive and facilitated session to encourage comment, feedback and discussion about each topic. Both workshops were recorded and are available on the B-GOOD YouTube channel. A summary for each workshop is provide below.

2.1.3. B-GOOD lateral flow device (LFD) workshop

The first workshop was hosted by Mang Xu and Jeroen Peters from Wageningen Food Safety Research, The Netherlands.

They presented their work on developing lateral flow devices (LFDs) for on-site rapid testing of pesticides. They gave an overview of the technology for neonicotinoid detection using a dual-channel lateral flow device, as well as an interesting historical story about their work to develop, apply and validated the technology in collaboration with partners in the Netherlands (Waterdrinker Aasmeer) and China (IPET, Zhejiang University). This was complemented with a video demonstration of LFD prototypes for detecting the presence of different neonicotinoids in various materials (e.g. tap water, rapeseed flower, pollen and honey). Further details about this technology can be found on the B-GOOD website.

Other than their work with LFD's, they described the development of other anti-body based assays, using multiplex technology, for the screening and detection of pesticides harmful to bees. They emphasised it is impractical to screen for all pesticides since there are a few thousands of pesticides registered in the pesticide database. Their work to date focused on screening for all eight neonicotinoids with good sensitivity for their detection in various mediums e.g. tap water, pollen, and honey. In addition, applying the multiplex technology, they developed methods to detect over 27 different pesticides, from several groups e.g. neonicotinoids, pyrethroids, organophosphorus etc. They noted the versatility of the technology for use outside of labs, since portable analysis machines are available. The second part of the workshop was a question and discussion session.

Questions and discussions

The talks were well received by participants posting comments congratulating the hosts for their "fantastic work". Their talks generated a number of questions and discussion points and the mains topics of discussion are outlined below. In addition, interactive polling questions (using Mentimeter) were used to generate feedback and discussion (questions listed below). A recording of the workshop is also available on the B-GOOD YouTube channel.

- Possibilities to extend the technology to detect other topical active substances currently used (e.g. glyphosate) and new substances coming on to the market. It was stressed that the technology used for detection of existing and new substances depends on the availability of specific antibodies needed for detection of desired targets. Assay quality (higher sensitivity) depends on the quality of available antibodies. In addition, another point of discussion was if this technology could be applied for the detection of pesticides in other matrices and it was noted that this could be possible, but this needs to be tested for each new matrix.
- There was discussion about the focus on neonicotinoids, with the point raised "there is no clear evidence that they [neonicotinoids] are the cause of widespread declines in bee populations, although recognised as posing a risk for bees". It was commented that although neonicotinoids can be positively detected, this "doesn't necessarily equate to an impact on a bee population as there are multitude of factors around exposure and scaling". There was agreement that neonicotinoids are somewhat controversial, but the rational for

the B-GOOD project is to take a holistic approach and assess all factors and neonicotinoids are one of a number of multiple stressors.

- There was also discussion about the use of this technology to test for 'uncertified substances' for the detection of illicit use of certain pesticides not available in Europe, as well as the use of LFDs to detect pesticides other than neonicotinoids. Participants were given the opportunity to vote for pesticides of interest using Mentimeter (results in Appendix 2). It was commented that the detection list could be endless for pesticides of interest, but perhaps the selection of pesticides to test for should be based on the question "what would the information be used or useful for."
- The use, potential costs and user of LFD technology was discussed. Again, participants could vote on possible users and costs. Participants indicated LFDs could be most beneficial for bee keepers and officials (in-field inspectors), but this generated discussion about the 'reliability' of LFDs. For example, it was commended that "if tests are used in official capacity, they should always be confirmed with a lab test, when the LFD is positive". It was noted that lower pricing would "make more frequent use more likely, which is perhaps very important", and this could benefit bee keepers. However, it was noted there are still challenges related to in-field sampling and sample preparation (e.g. what to sample homogenizing bees, beebread or collecting pollen), the costs of production and pricing in different countries. It was explained, 'pesticide LFDs' developed as part of the B-GOOD project are prototypes and currently hand produced but could be mass-produced in specialized factories. A final comment summed up the discussions reflecting that "the direction of travel" for this technology was that it likely to be "widely available" and could be beneficial for bee keepers and even consumers (testing food for substance), so long as their limitations are recognized.

The LFD polling questions were divided in to four sections with 2 questions for each section as provided below. The responses from workshop participants are provided in Appendix 2.

LFD General knowledge (1)	**LFD Application and other needs (2)**
Q1. How much do you know about lateral flow devices? A. Never heard of it. B. I heard of 1 or 2 examples. C. I have applied lateral flow rapid tests D. I am an expert too. Q2. What do you think about the presented neonicotinoid LFD? A. Very easy to use. B. I might need more instructions. C. Too complicated to use.	Q1. How many neonicotinoids would you like to detect with one device? A. None. B. The EU legislated ones. C. All 8 commercially available neonicotinoids. Q2. What pesticide LFD do you think needs to be urgently developed except neonicotinoids? (Participants could choose multiple options) A. Pyrethroids (cypermethrin, fenpropathrin etc.) B. Avermectins (abamectin, moxidectin etc.) C. Fipronil D. Organophosphates (chlorpyrifos etc.) E. Sulfoxaflor F. Others (Open discussion)

LFD Fields of application (3)	**LFD pricing and commercialization (4)**
Q1. Who do you think needs this type of rapid tests the most? (Participants could choose multiple options) A. Beekeepers B. Farmers C. Wholesalers D. Governmental bodies E. (Official) inspectors in the field F. Consumers Q2. In your opinion, what are the most relevant matrices to test? (Participants could choose multiple options) A. Plants (flowers) B. Waterbodies C. Bees D. Bee products (e.g. honey) E. Others (open discussion)	Q1. What do you think is a reasonable maximum price for the presented neonicotinoid LFD? (Pie chart) A. <€10 B. €10-15 C. €15-20 D. €20-25 E. >€25 Q2. Where should these tests be available? (Participants could choose multiple options) A. Supermarkets B. Beekeepers' specialist stores C. Diagnostic companies D. Pharmacies or pharmacy markets E. Other (Open discussion)?

2.1.4. B-GOOD mapping floral resources in Europe: creating the tools for end-users workshop

The second workshop was hosted by José Paulo Sousa and António Silva of the University of Coimbra, Portugal.

They gave a brief overview of their work to map floral resources for bees in Europe and developing tools that end-users can assess these resources to benefit beekeeping. The scope of this work includes the ability to represent and predict the spatial and temporal dynamics of floral resources at regional and national scales. These predictions were considered of benefit not only for beekeepers, but also for decision makers. They described the process and data requirements for developing '*landscape suitability maps*' for both the spatial and temporal representation of floral resources. They then explained their aim to advance the concept to create '*beekeeping suitability maps*' that would take in to account other factors that influence hive location and honey bee management e.g. value of honey production, hive accessibility, bee mortality etc. This could provide a tool to assess hive locations that benefit bees and beekeepers. They envisaged such a tool could aid decision making at national and EU levels, help identify hotspots and cold spots for beekeeping, and highlight habitats suitable for bees and beekeepers linking environmental, economic and social factors.

Questions and discussions

Their talk was followed by an interactive session using polling questions (again using Mentimeter) to stimulate feedback, comment and discussion (questions listed below). This generated lively discussions on a number of topic areas as outlined below. A complete recording of the workshop is also available on the B-GOOD YouTube channel.

- There was general agreement that it was important to map floral resources. It was commented that assessing floral sources is not purely of benefit for honey bees. In a number of countries accessing quality / availability of floral resources for "other bees and pollinators is also important" and the scientific evidence and debates about resource competition is a "hot topic". An example was given that due to competition concerns, some beekeepers (in France) have been directly impacted by being excluded from protected areas. Participants indicated that mapping flora resources at a local scale was preferred since at "regional level it could be too broad". There was discussion about the need to access local resources, as these vary in space and time in the landscape (for all pollinators). It was commented that "this is the reason why it

is important to have precise [localised] evaluations", of bees and wild bees distributions as well as floral resources in order to know "how rich local landscapes" are for all pollinators.

- It was commented that publishing floral resources could "pose a risk" and encourage "beekeepers to pile up in a specific areas". This generated discussion about the use and users of flora resource maps. It was suggested, by the hosts, that decision makers could use maps to impose maximum limits of aperies depending on local contexts, defining carrying capacities to regulate hive densities. This promoted a response that by giving bureaucrats regional maps who then "define how many aperies are where" would for some beekeepers be "somewhat worrying". Any limitations of maps would need to be clearly identified and communicated for correct interpretation.
- This was followed by questions and discussions about the methods and ways for validating models used for developing floral resource maps. The importance of different flower resources was also discussed, after a polling question, with a number of comments made about how 'importance' is dependent of various aspects e.g. "variability across the season", "on local / country contexts".
- A poll was used to gain words to describe the drivers of habitat suitability. This gave rise to interesting responses with key words used including *"climate, resources, diversity, water availability, diseases, competition*" etc. This was flowed by a ranking of drivers of habitat suitability, with flower resources ranked highest. It was commented that the relative importance of different resources (floral, water, temperature etc.) is again dependant on the context.
- Two polls, using word clouds, were used to start discussions about factors affecting bee mortality. Words to describe the main 'abiotic' factors included; "*pesticides, climate, weather, lack resources*" etc. Although the word 'pesticides' was dominant, it was noted that this could be a catch-all for other harmful chemicals found in bee habitats. Words to describe the main 'biotic' factors included; "*varroa, viruses, parasites and pathogens, poor beekeeping / management*". This last point generated some discussion about beekeeping practices and their impact on honey bee mortality.
- The last poll asked for words to describe (using word cloud) factors limit beekeeping the most. Words to used included; "*time, money, knowledge, money, economic sustainability etc.*" This promoted a comment about the knowledge gap between science and practice. Lastly, factors important for the suitability of beekeeping was assessed with a poll, and habitat suitability was considered the most important.

The bee resources polling questions were divided in to five sections with questions for each section as provided below. The responses from workshop participants are provided in Appendix 3.

Ice breaker (1)	**Mapping flower resources (2)**
Q1. What is your role? • Generate a 'word cloud' using e.g. Scientist, Beekeeper, Beekeeping advisor, NGO, Authority, Veterinary, Industry. Q2. And where are you from? • Put a pin in your country in the Map.	Q1. Do you consider important to know and map the floral resources available for honey bees? [Multiple Choice] A. Yes B. No C. Not sure Q2. At what scale do you think these resources should be mapped? [Multiple Choice] A. Local scale B. Regional scale C. National scale D. Not sure

Importance of flower resources (3) Q1. Rank each type of flower resource in term of importance for honey bees? [Scales] Low importance/High importance value: 0, 5 A. Pollen B. Nectar C. Honeydew	**Habitat suitability (4)** Q1. In your opinion, which are the key drivers conditioning habitat suitability for honey bees? • [Word Cloud]
Bee mortality (5) Q1. What are the main ABIOTIC factors inducing mortality in honey bees? • [Word Cloud] (3 answers) Q2. What are the main BIOTIC factors inducing mortality in honey bees? • [Word Cloud] (3 answers)	**Beekeeping suitability (6)** Q1. What are the most limiting factors for beekeeping? • [Word Cloud] (3 answers) Q2. Rank the following key drivers in terms of importance for the beekeeping suitability for honey bees? [Scales] Low importance/High importance; value: 0, 5 A. Habitat suitability B. Bee mortality C. Accessibility D. Honey economic value

2.2. Workshop participants

The two workshops held as part of the fifth consortium meeting were open to project partners, Multi-actor Forum members and beekeepers actively engaged in the project as part of Field Study A (Tier 2 bee keepers). The MAF has over 50 people (including Tier 2 beekeepers) who follow the project and all were invited to attend the consortium meeting and participate in the workshops. Thirteen MAF and beekeeper guests who actively participated (responding to polling questions etc.) and contributed to discussions attended the workshops. This was a reasonable attendance, particularly as the consortium was held during the busy summer period for beekeepers and other stakeholder groups. The table below indicates attendance by broad categories of stakeholder interest.

Stakeholder interest groups	Attendees
Beekeeping (hobby and professional)	3
Farmers and agricultural business	3
Authorities (environmental / health)	5
NGO (environmental / wildlife / pollinators)	2

3. Acknowledgements

I am very grateful to the project partners who collaborated and devoted their time to develop the workshops. I am especially grateful to all the participants who willingly gave their time and valued contributions to these workshops.

4. Appendix 1: CM5 agenda for Multi-actor forum guests

Consortium Meeting 28 and 30 June 2021

Please note the times given below are for **Central European Summer Time (CEST)**. If joining from the UK, Portugal, or Greece the time given is one hour ahead of British Summer Time (BST) and Western European Summer Time (WEST) and one hour behind Eastern European Summer Time (EEST), respectively.

Agenda

Day 1 - Consortium and MAF guests

Monday 28th June 2021 meeting in ZOOM		Host / presenter
08:50 CEST	**Joining and meeting welcome** Participants join the meeting in **ZOOM**. • Joining instructions and meeting guide provided below.	Chris Topping, James Williams, Aarhus University, DK.
	Day 1 – predominately pre-recorded talks	
09:00-9:30	**Review of B-GOOD project activities to date –** 30 min. talk by B-GOOD Project Coordinator	Dirk de Graaf, Ghent University, BE.
09:30-09:45	**Results of disease monitoring of B-GOOD aperies in 2020** (laboratory analysis) **–** 15 min. talk **-** work package 1 (WP1)	Marc Schäfer, Friedrich-Loeffler-Institut, DE.
09:45-09:55	Questions / discussions (10 mins.)	Marc Schäfer
09:55-10:15	**Optimisation and application of on-site rapid testing (LFDs) for bee harming pesticides –** 20 min. talk - WP2	Mang Xu, Stichting Wageningen Research, NL.
10:15-10:25	Questions / discussions (10 mins.)	Mang Xu
5 min. buffer		
10:30-11:00	Break	
11:00-11:10	**Detecting changes in honey bee frame content using an accelerometer** – 10 min. talk - WP2	Adam McVeigh, Nottingham Trent University, UK.
11:10-11:20	Questions / discussions (10 mins.)	Adam McVeigh
11.20-11:30	**Analysing the relationship between hive temperature variation at the brood level and the strength of the colony** – 10 min. talk **-** WP5	Ugoline Godeau INRAE, FR.
11:30-11:40	Questions / discussions (10 mins.)	Ugoline Godeau
11:40-12:00	**Mapping relevant floral resources for honey bees in Europe** – 20 min. talk - WP3	António Silva, University of Coimbra, PT.
12:00-12:10	Questions / discussions (10 mins.)	António Silva, José Paulo Sousa, University of Coimbra, PT.
12:10-12:20	**Overview on field work and results on flower resources –** 10 min. talk - WP3	Sara Lopes, University of Coimbra, PT.

12:20-12:30	Questions / discussions (10 mins.)	Sara Lopes, José Paulo Sousa, University of Coimbra, PT.
12:30-12:45	**Results of beekeeper intake survey. Insights into beekeeper managerial characteristics** – 15 min. talk - WP4	Dana Freshley, Ghent University, BE.
12:45-12:55	Questions / discussions (10 mins.)	Wim Verbeke, Ghent University, BE.
5 min. buffer		
13:00-14:00	Lunch	
14:00-14:15	**B-GOOD communication and dissemination actives** – 15 min. talk - WP6	Teodor Metodiev, Pensoft, BG.
14:15-14:25	Questions / discussions (10 mins.)	Teodor Metodiev, Pensoft, BG.
14:25-14:40	**Preliminary results of stakeholder survey. Relative importance of sustainability objectives for the EU beekeeping sector** – 15 min. talk - WP4	Dana Freshley, Ghent University, BE Joao Bica, Coimbra University, PT.
14:40-14:50	Questions / discussions (10 mins.)	Wim Verbeke, Ghent University, BE.
14:50-15:10	**B-GOOD Data Portal and BEEP platform developments** – 20 min. talk - WP6	Marten Schoonman, BEEP, NL.
15:10-15:25	Questions / discussions (15 mins.)	Marten Schoonman, Pim van Gennip, BEEP, NL.
15:25-15:30	Day 1 wrap-up	Dirk de Graaf
15:30 CEST	**END Day 1 – MAF guests are requested to leave the meeting**	

Day 2 – Consortium and MAF guests

Wednesday 30th June 2021 meeting in Gather Town and ZOOM		Host / presenter
08:50 CEST	**Joining and welcome in Gather Town**	
09:00-09:30	Gather in **Gather Town B-GOOD Orchard (link to be provided)**: • **Viewing of photo challenge submissions** • Announcement of winners • Rooms / gather spaces to chat between colleagues and guests	Moderators: James Williams, Luna Kondrup Marcussen, Alexandra Korcheva, Teodor Metodiev.
09:30-09:45	15 min. buffer **Move to meeting in ZOOM**	
09:45-11:45	**B-GOOD lateral flow device (LFD) workshop** – on-site rapid testing for bee health Two parts: 1. Presentation of technology and on-site testing procedure 2. Interactive question and discussion session	Mang Xu, Jeroen Peters, Stichting Wageningen Research, NL. Moderators: James Williams, Luna Kondrup Marcussen
11:45-12:00	15 min. buffer	
12:00-13:00	Lunch	
13:00-15:00	**B-GOOD mapping and assessing of floral resources in Europe** – creating the tools for end-users Two parts: 1. Presentation of research, procedures and technology 2. Interactive question and discussion session	José Paulo Sousa, António Silva, University of Coimbra, PT. Moderators: James Williams, Luna Kondrup Marcussen
15:00 CEST	**MAF guests are requested to leave the meeting**	

Joining instructions and guidance for CM5

Using Zoom

To participate in CM5 we will be using ZOOM. We suggest using the Zoom desktop client or mobile app. Please download the desktop client or mobile app in advance of the meeting.

You can gain access to the meeting using this **Zoom link**. The same link can be used for each day of the meeting.

B-GOOD CM5: join Zoom meeting
https://aarhusuniversity.zoom.us/j/95850466419

Meeting ID: 958 5046 6419

Join by SIP
95850466419@109.105.112.236
95850466419@109.105.112.235

Join by H.323
109.105.112.236
109.105.112.235
Meeting ID: 958 5046 6419

Zoom provides a number of guides and supporting **video tutorials** including how to 'Join a meeting'.

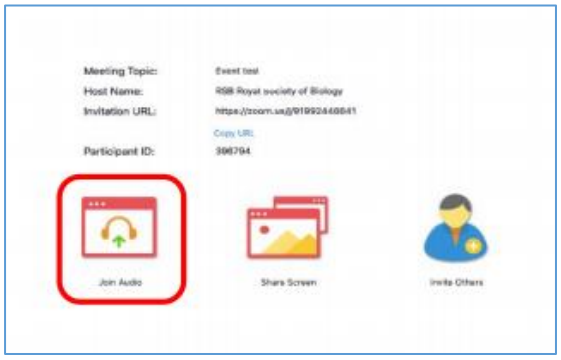
The meeting talks and presentations, as well as questions and answers, will be recorded. These recordings will be made available for later viewing by interested parties that could not attend. By entering the Zoom meeting, you agree to the meeting being recorded and these recordings made available for later viewing.

Joining CM5 each day

When you use the 'Join Zoom Meeting link' you will first be admitted to a waiting room. Only known meeting participants will be admitted to the meeting by the hosts.

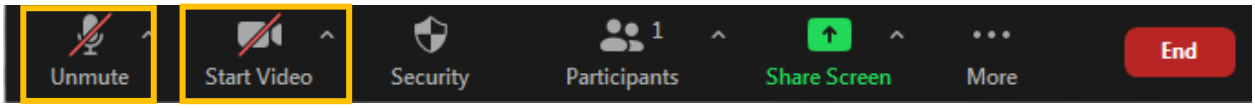
Once admitted by the hosts, your audio will automatically be off and your video will be on.

If you cannot hear the host, click 'Join Audio', then 'join with Computer Audio'



Please keep your microphones muted and cameras turned off during talks and presentations. If you would like to ask a question or have the floor, please turn your camera on. See section below about questions.

The bottom of your Zoom window will look like this (when the microphone is muted and video is off). To turn your video / microphone on / off, use the two icons highlighted.

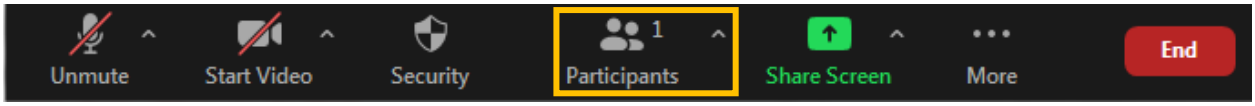


If possible, please use a head-set and avoid using an external microphone to ensure clear sound when speaking.

Zoom display name

For your Zoom display name, please write your full name and organisation, e.g. 'Teodor Metodiev, Pensoft.

To do this within Zoom, click the 'Participants' icon, hover over your name in the participants list, click 'more' then click 'rename'



We encourage you to upload a profile photo to Zoom so we can see a face when your video is turned off. Here's how to upload your profile photo.

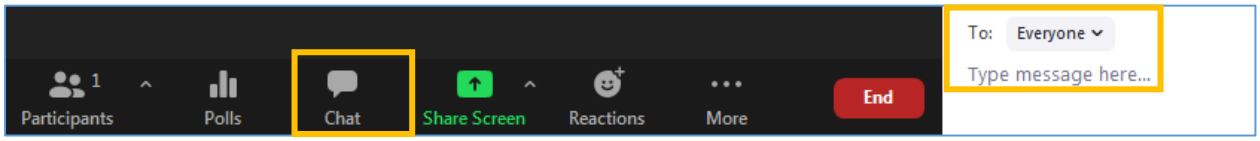
General queries

For minor queries during the meeting in Zoom, you can send a message using Zoom 'chat'. Use the drop-down menu in the chat window to send your queries to Teodor Metodiev (see image in the Questions sessions section below).

Questions

During talks and presentations, you can ask questions using the chat function in Zoom. This will open the chat window on the right side of the window.

In Zoom chat, address the question to 'everyone', but please indicate who your question is for, e.g. "Question for James, can you explain the timings of your experiments?" If you prefer to ask a named moderator or specific person a question, you can do so by using the chat drop-down box to select their name.



Questions can be asked in Zoom chat at any time during talks and presentations. At the end of most talks / presentations, there are dedicated time slots for questions and answers. The time for questions is short, so the speaker / moderator will select questions in order they were sent and try to fit in as many as possible.

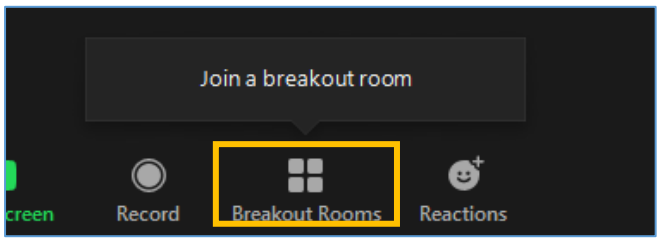
Be ready during the Question sessions:

- ✓ The speaker or moderator will read out questions posted in the chat, and state who the question is from.
- ✓ If you have asked question, **be ready** to turn on your microphone and video to clarify your question if requested.

Break-out meetings

We may use break-out rooms for smaller meetings at certain points of the meeting, depending on demand. To familiarize yourself with Zoom break-out rooms please read the following.

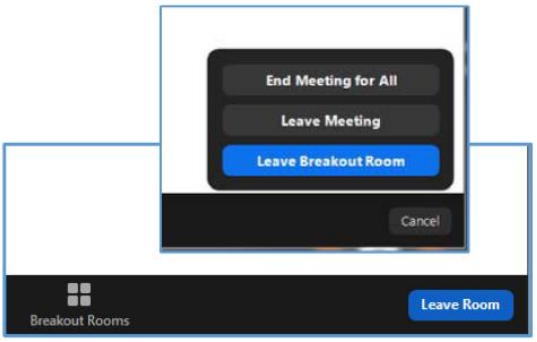
You will be told when a break-out meeting will take place by the hosts. At the start of each break-out meeting session, the option to join a break-out room will become visible in your Zoom panel.



Click the Breakout Rooms option. This will display the list of open breakout rooms, organised by the hosts.

Click '**Join**' next to the Breakout Room you wish to participant in, then confirm by clicking Join again.

To leave a break-out meeting before the end of the session time, click 'Leave Room', then 'Leave breakout Room' to return to the main session.



When the breakout session is due to end, you will be notified and given a 60 seconds countdown.

At the end of your meeting, Zoom will automatically bring you back to the main ZOOM meeting room.

Social event in Gather Town

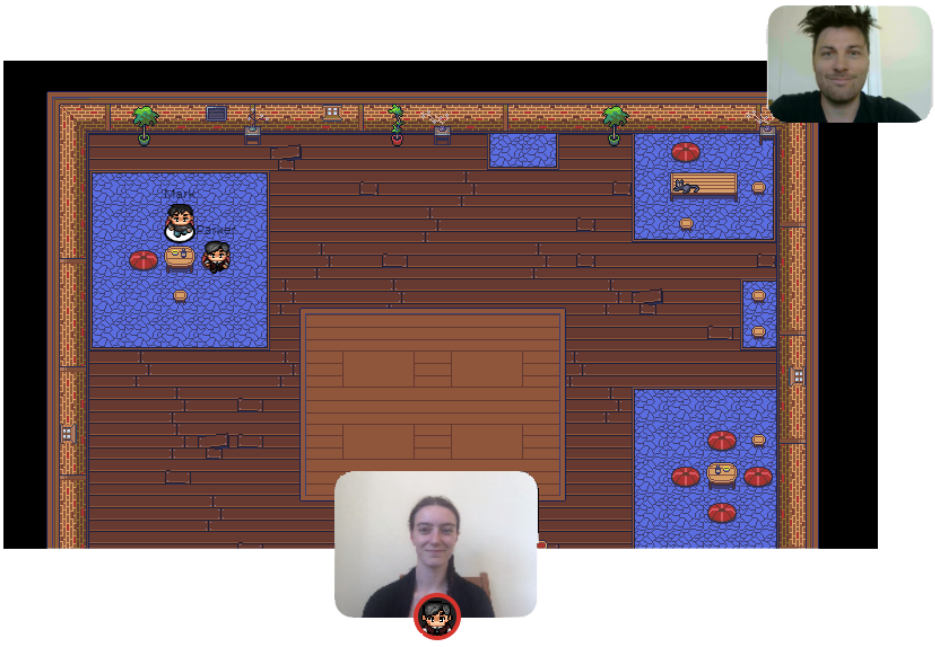
There will be social event day 2 (30th June 09.00-09:45) were we will use GatherTown. During this session, you will be able to view images submitted as part of a consortium photo challenge. Several category winners will be announced during this session and there will be places to chat with consortium members and guests.

You can use this link to enter GatherTown: https://gather.town/app/XBVg8xwnXiVCby1i/B-GOOD%20CM5

We will provide further details about this event and using Gather Town on day 1 of the meeting.

*Gather is a wonderful new tool for getting to both explore and chat with other people. It is also a very new tool and has a few quirks. The following will help you with the **basics** so you can discover it your own.*

What you need:



- A **desktop/laptop** with a **mic** and **camera**.
- A web browser (Chrome or Firefox recommended).
- We strongly recommend using **headphones** to help prevent feedback.
- That's it! There's nothing to install, no software to download.

How it works:

- Gather is a video chat platform that has avatars move around a map. As you get close to other avatars, your video's will pop up and you will be able to chat.
- Move around the space using the **arrow keys**.
- By moving your avatar around you can have spontaneous conversations with those around you. These can be either one-on-one or small groups depending on how many people are around you and what you set your interaction distance to be.
- When your avatar moves closer to an interactable object, there will be a notification that shows up saying 'Press x to interact with -object-'. This can range from informational flyers, playable arcade games, integrated Zoom meetings, and more!

Icon explanation:

 **Screen sharing** ability

 Change your **avatar** character and clothing

 **Mini map** to preview the space you're in

 **Raise hand** feature (though for questions use the chat feature)

 Opens the **settings** menu:

- Change Name
- Change Audio/Video Devices
- Respawn button to return to start
- Click for Mod Settings: Change room password, change mod message, toggle force mute whole space

Not-So-Obvious Features:

Here are some things you might find useful but aren't immediately obvious.

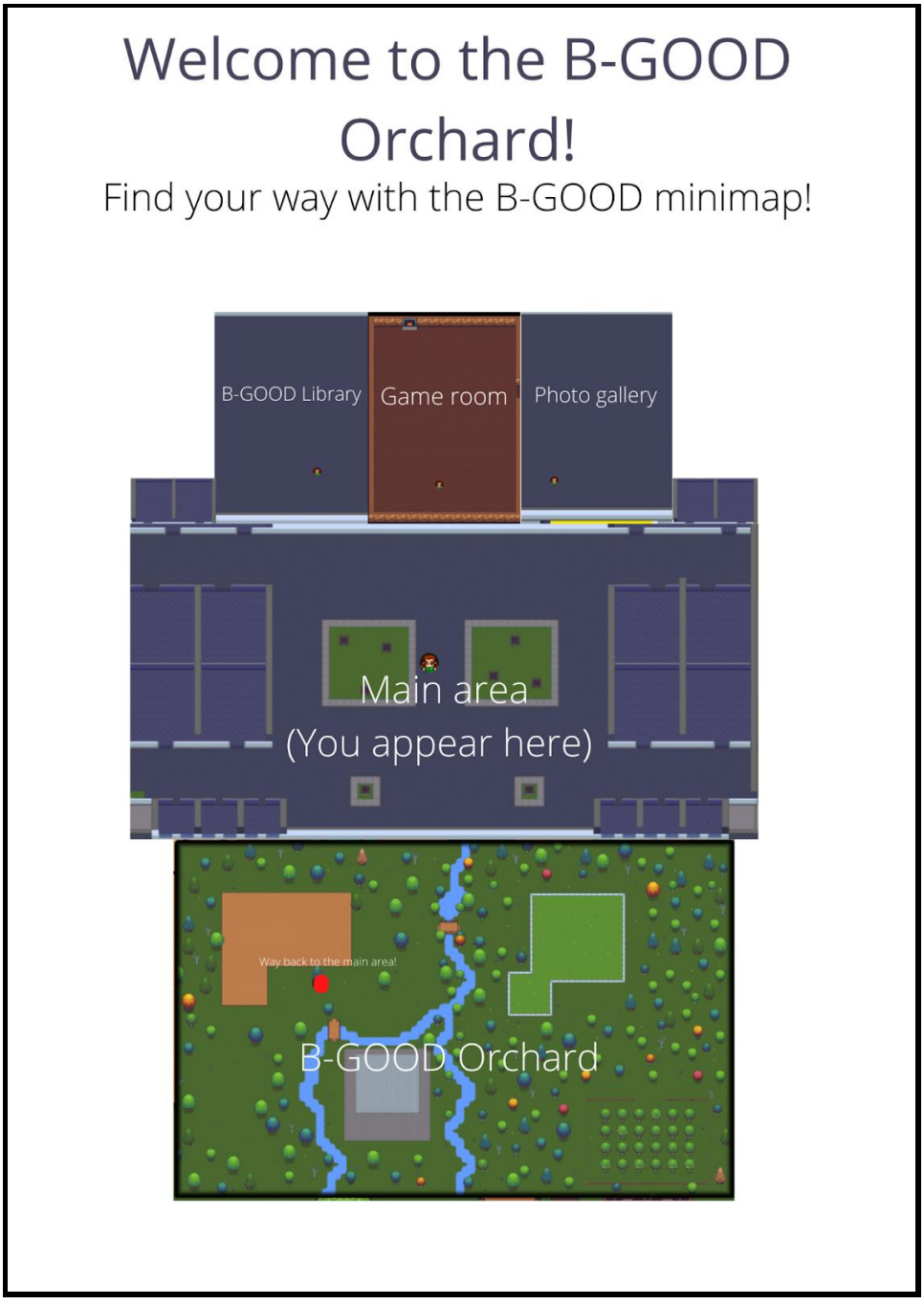
- There is a **messaging feature** that allows you to message people in four ways:
    1. *individually* by clicking on their name in the participant panel,
    2. *locally* to the people you are video chatting with,
    3. *room chat (must be requested)* with all the people in the current room you are in,
    4. *globally* to all the people in your map.
- There is a **locate feature** to find others by clicking their name in the participant panel.
- Want to **full screen someone else's video**? Just click on their video.

- Talking to a group of people? Click the down arrows centered below the videos to shift into **grid view**.

Technical difficulties:

- Refreshing the page will fix most things!
  - If that doesn't work, try muting and unmuting your mic and camera in Gather.
  - Check if your browser permitted camera and mic access
  - Additional troubleshooting at https://gather.town/video-issues

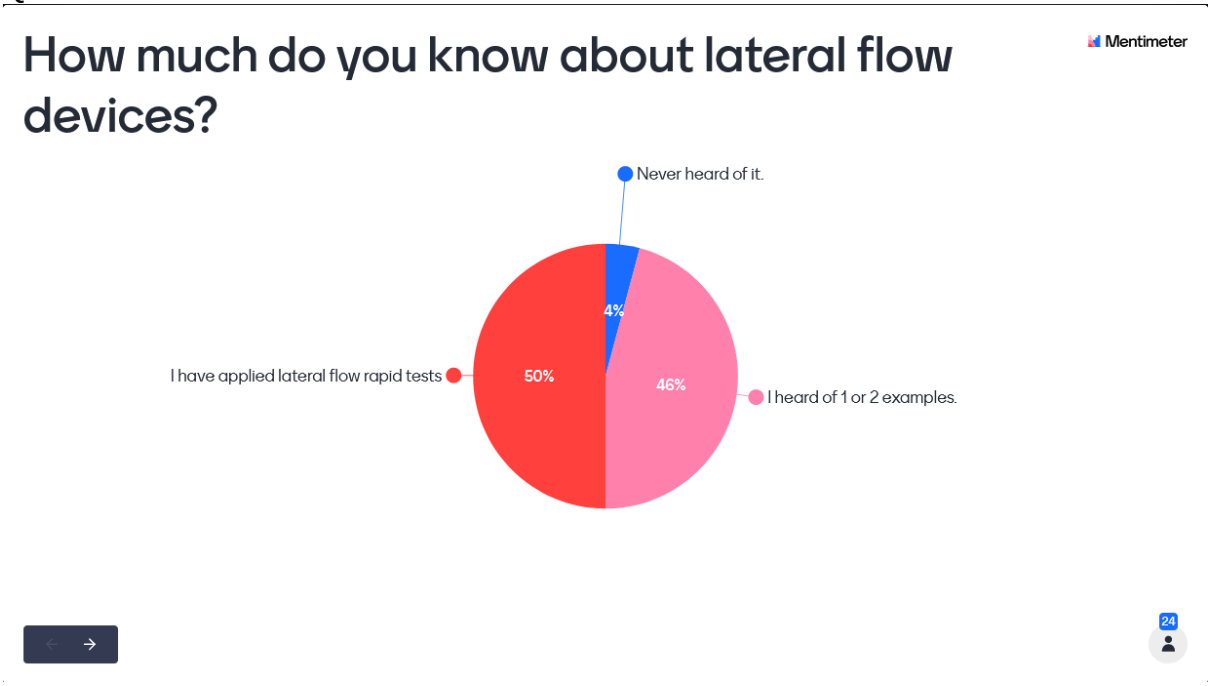
B-GOOD Orchard minimap:



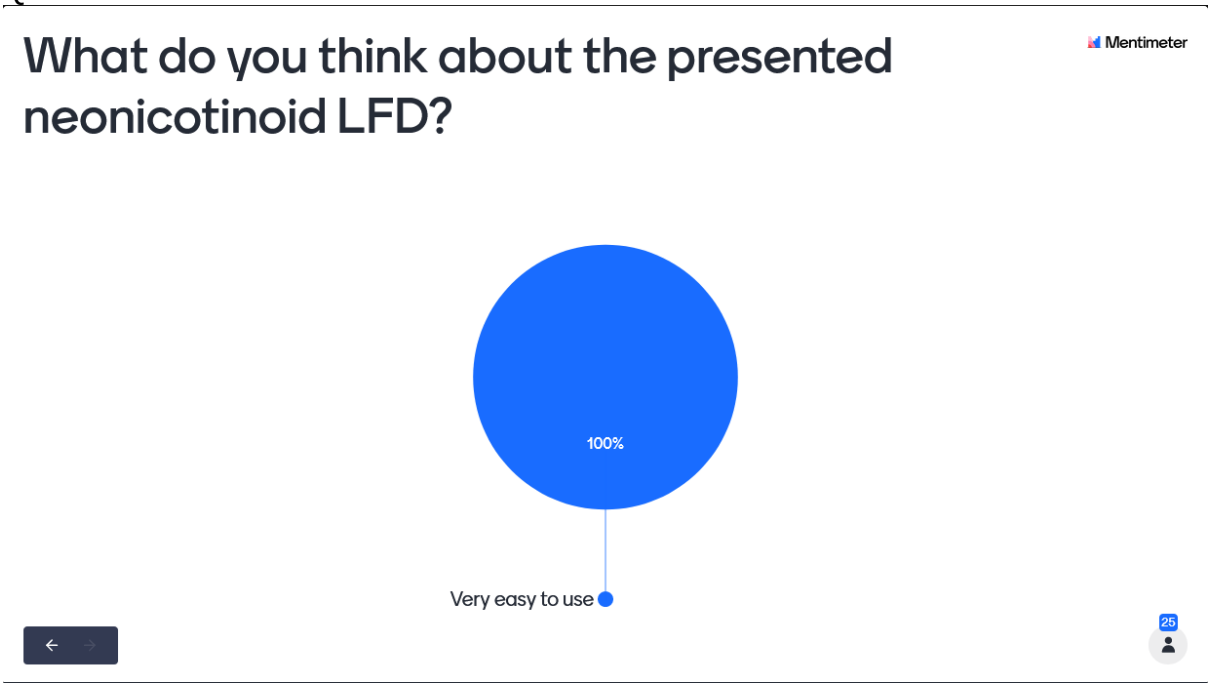
5. Appendix 2: LFD workshop poll questions and responses

5.1. LFD General Knowledge (1)

Q1.

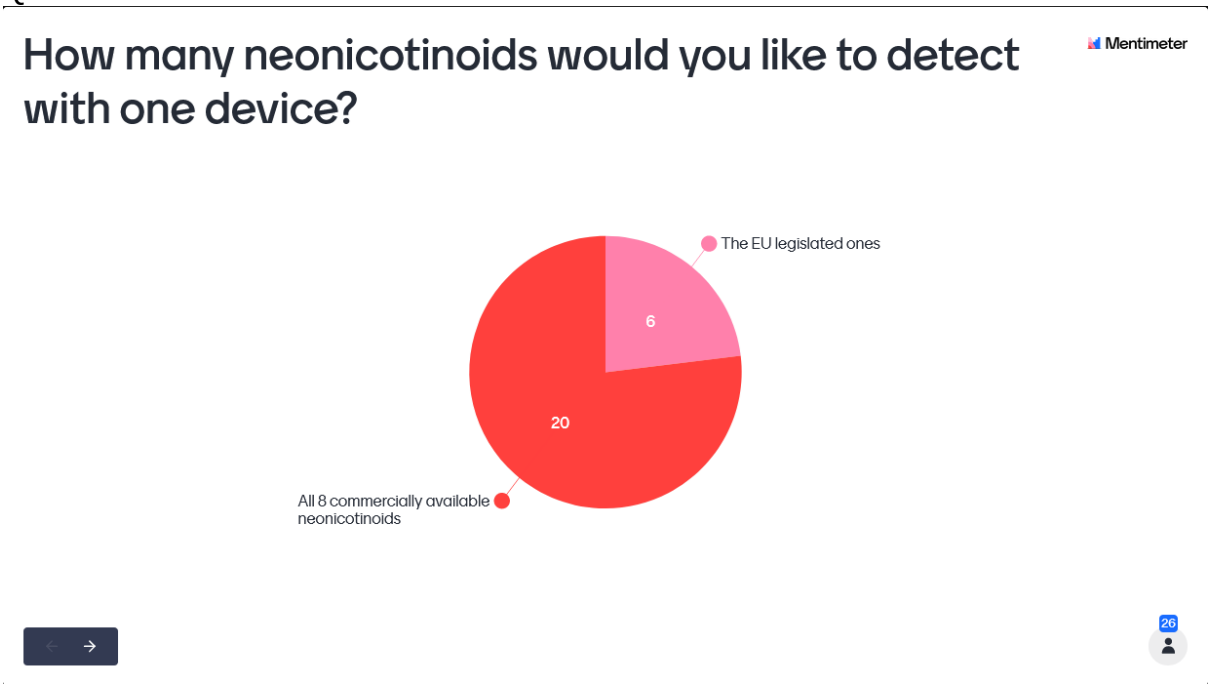


Q2.

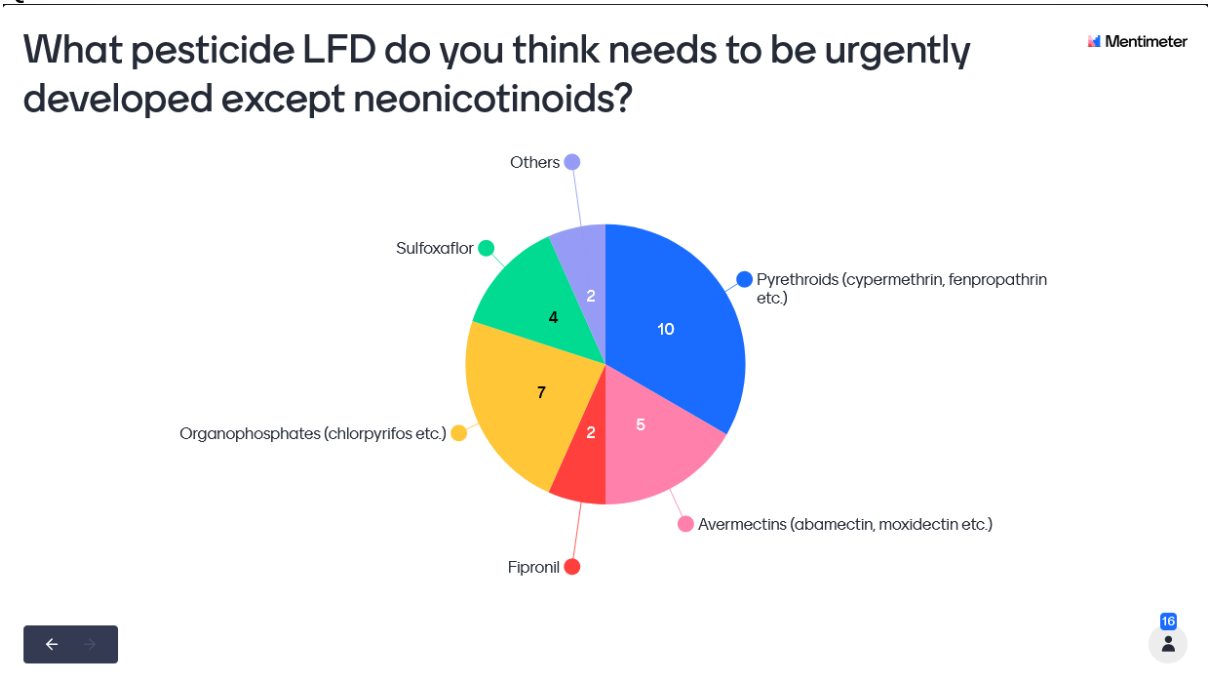


5.2. LFD Application and other needs (2)

Q1.

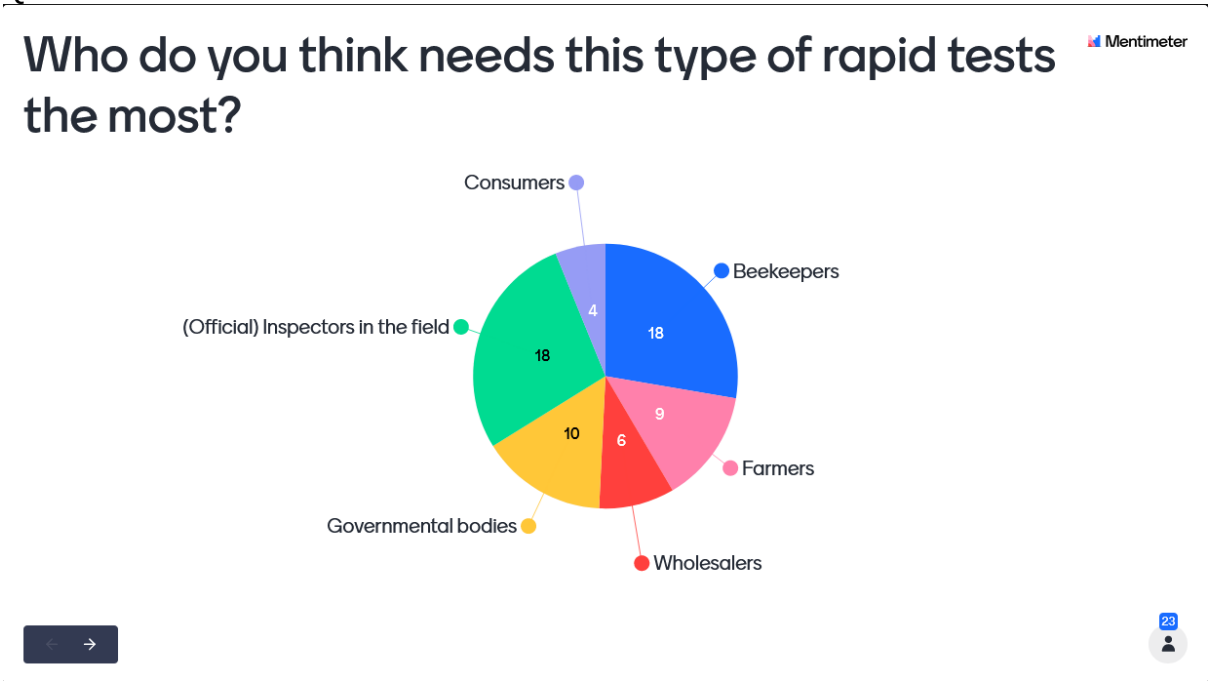


Q2.

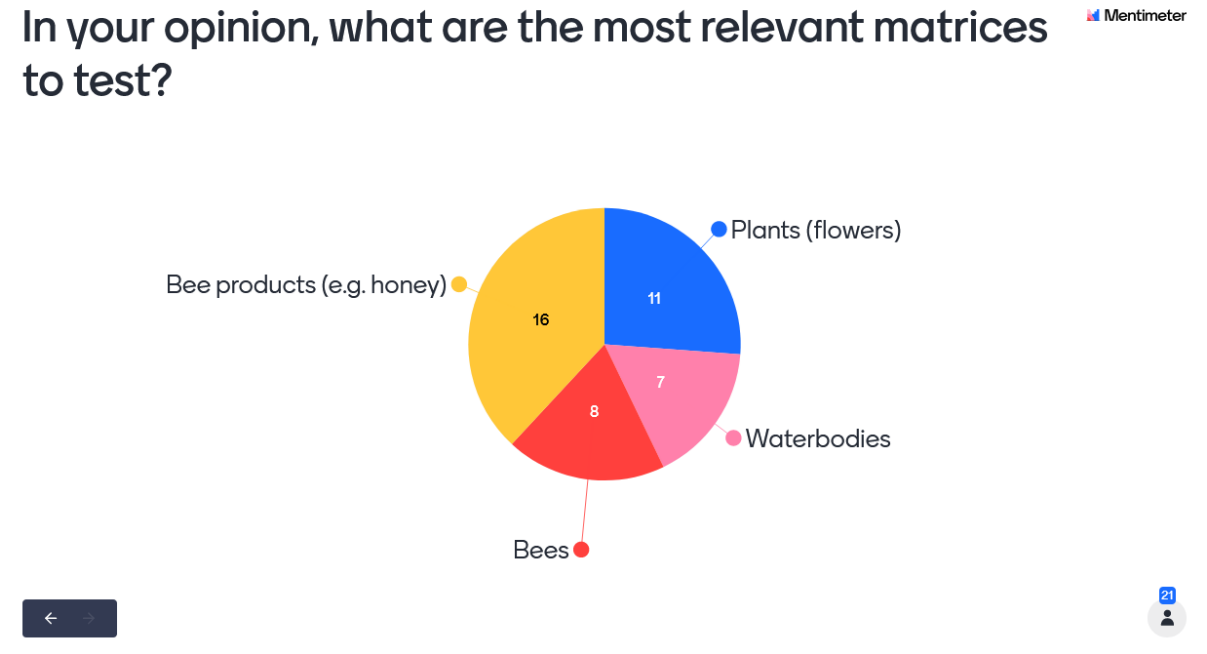


5.3. LFD Fields of application (3)

Q1.

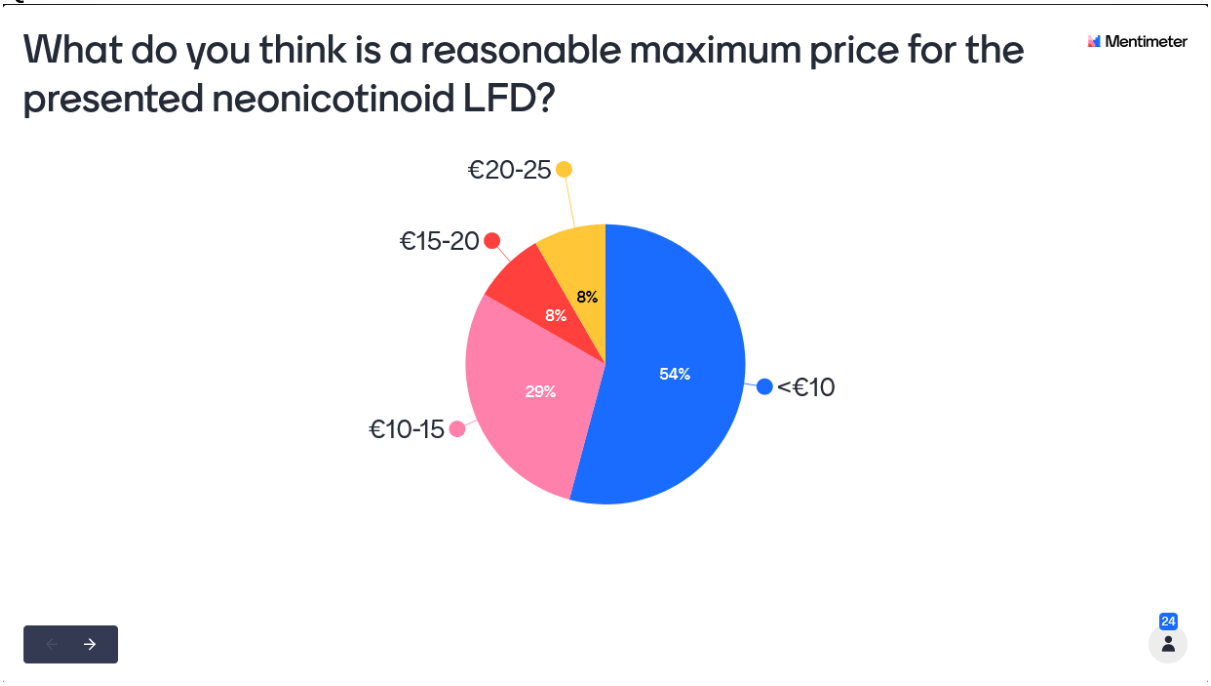


Q2.

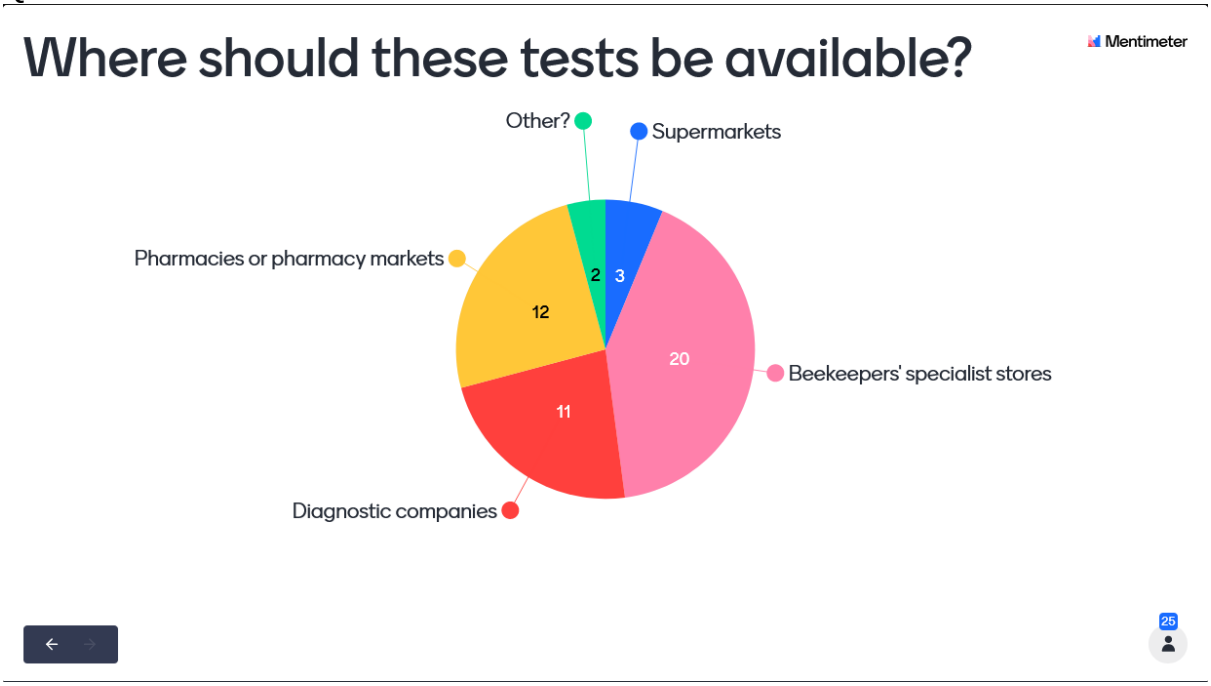


5.4. LFD pricing and commercialization (4)

Q1.



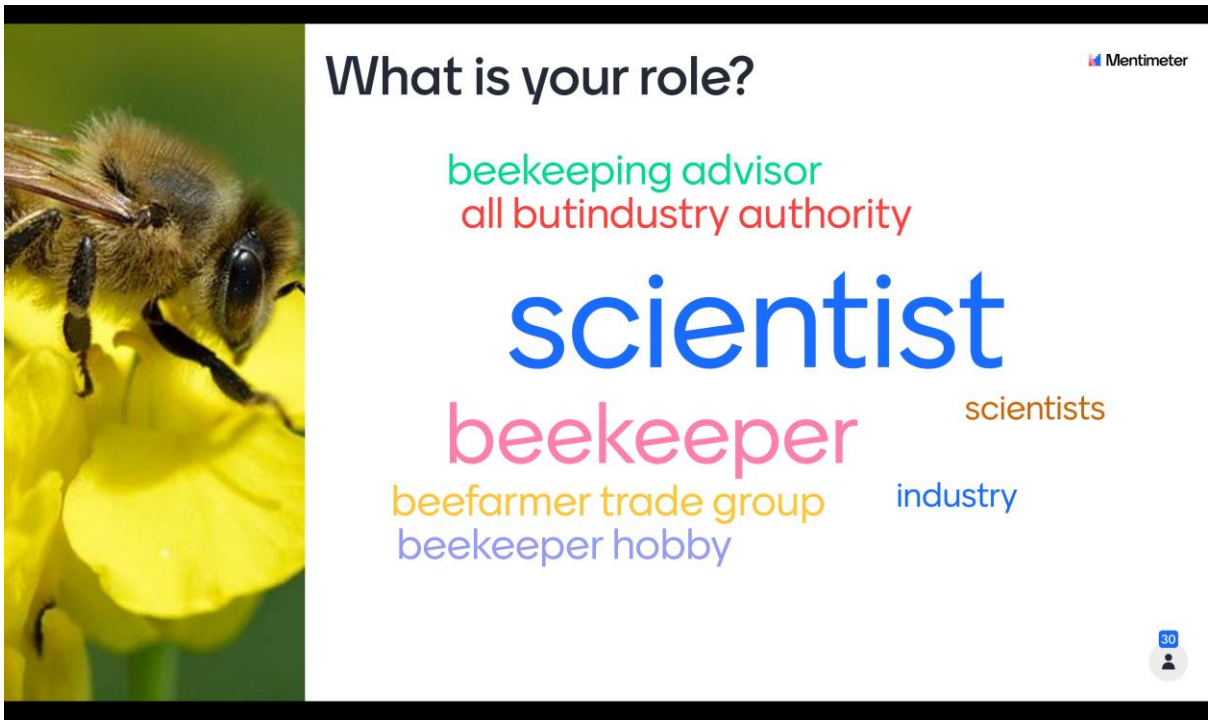
Q2.



6. Appendix 3: Bee resources workshop poll questions and responses

6.1. Ice breakers (1)

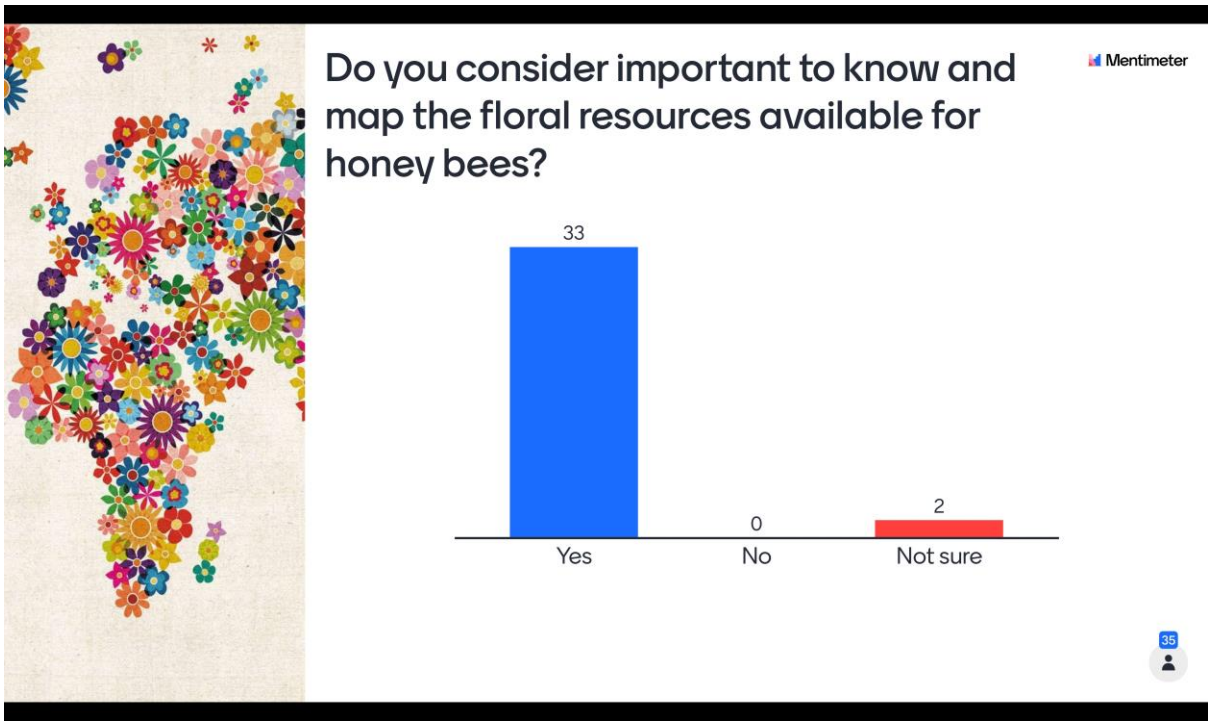
Q1.



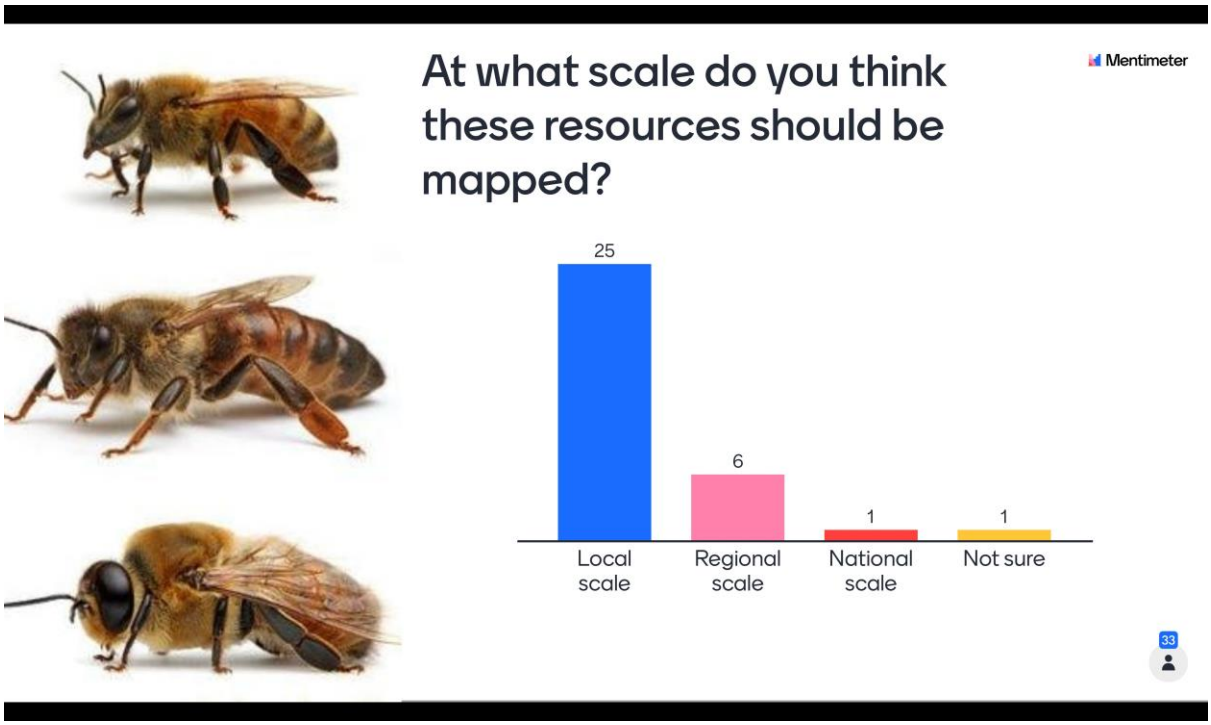
Q2.

6.2. Mapping flower resources (2)

Q1.

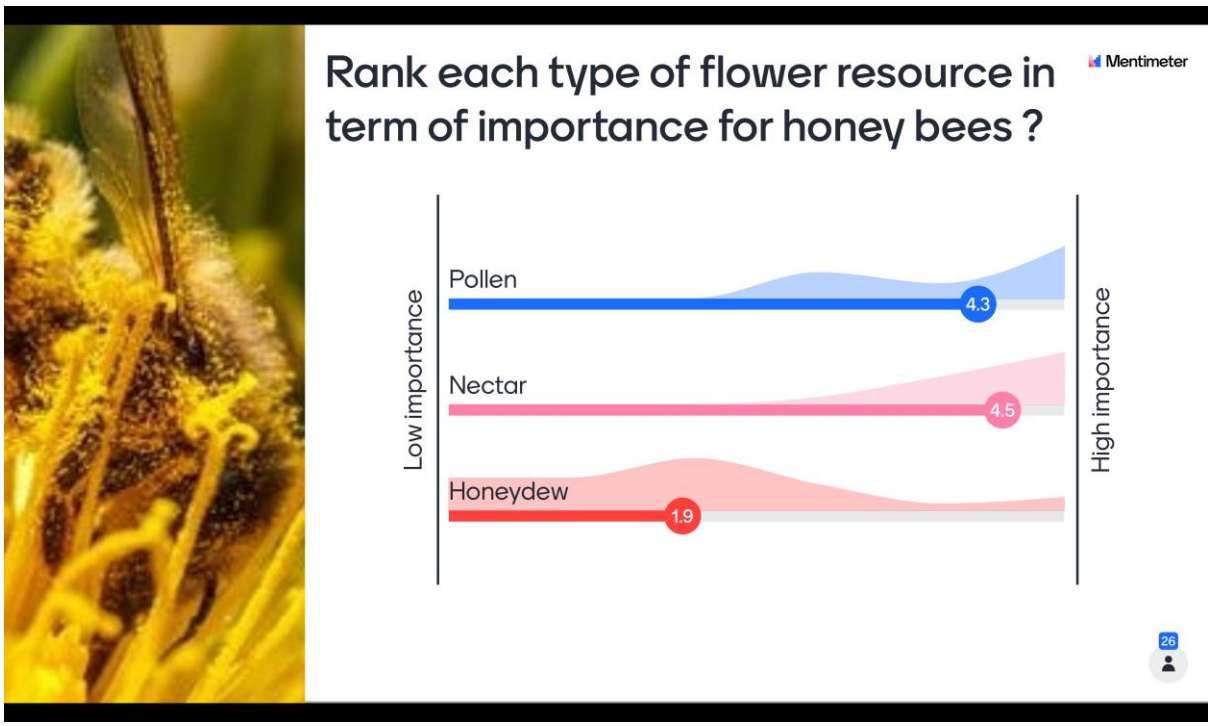


Q2.



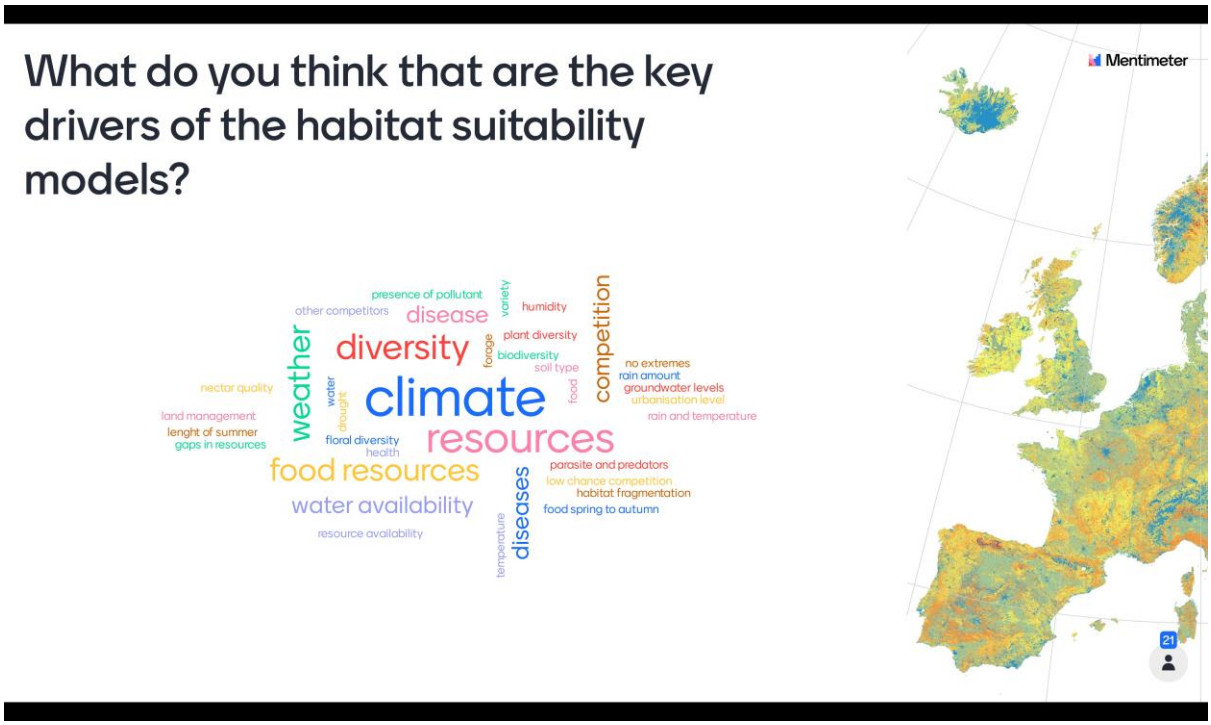
6.3. Importance of flower resources (3)

Q1.

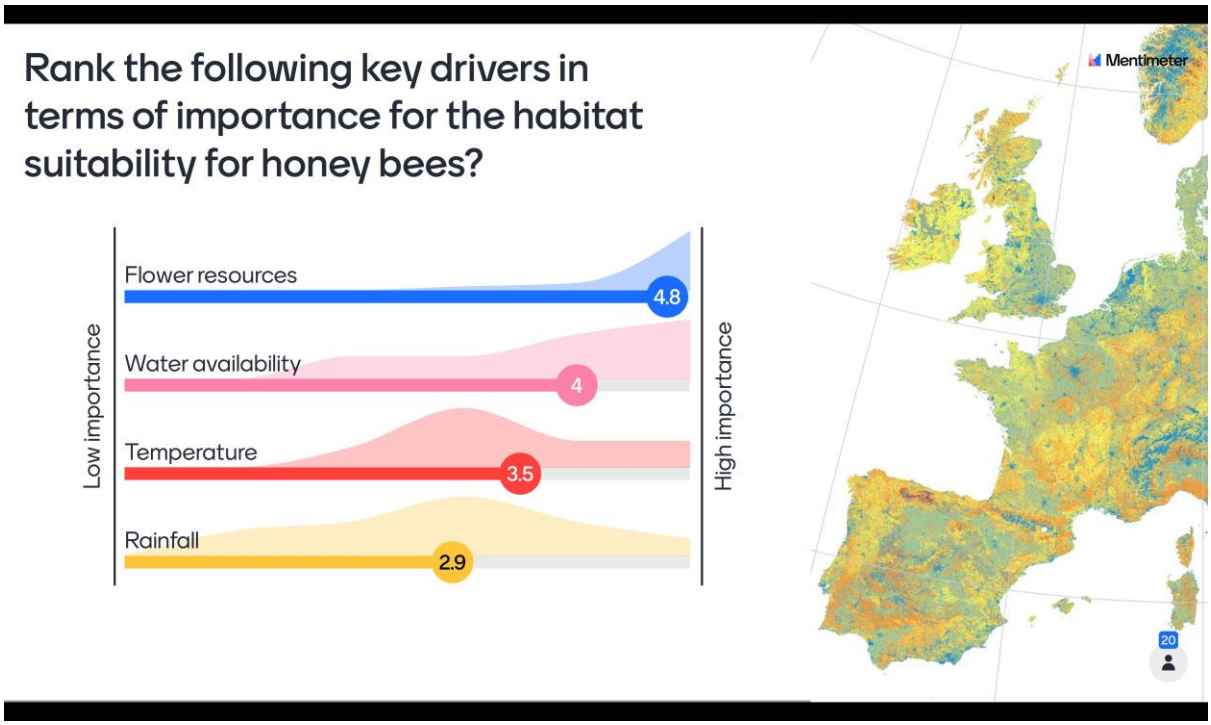


6.4. Habitat suitability (4)

Q1.

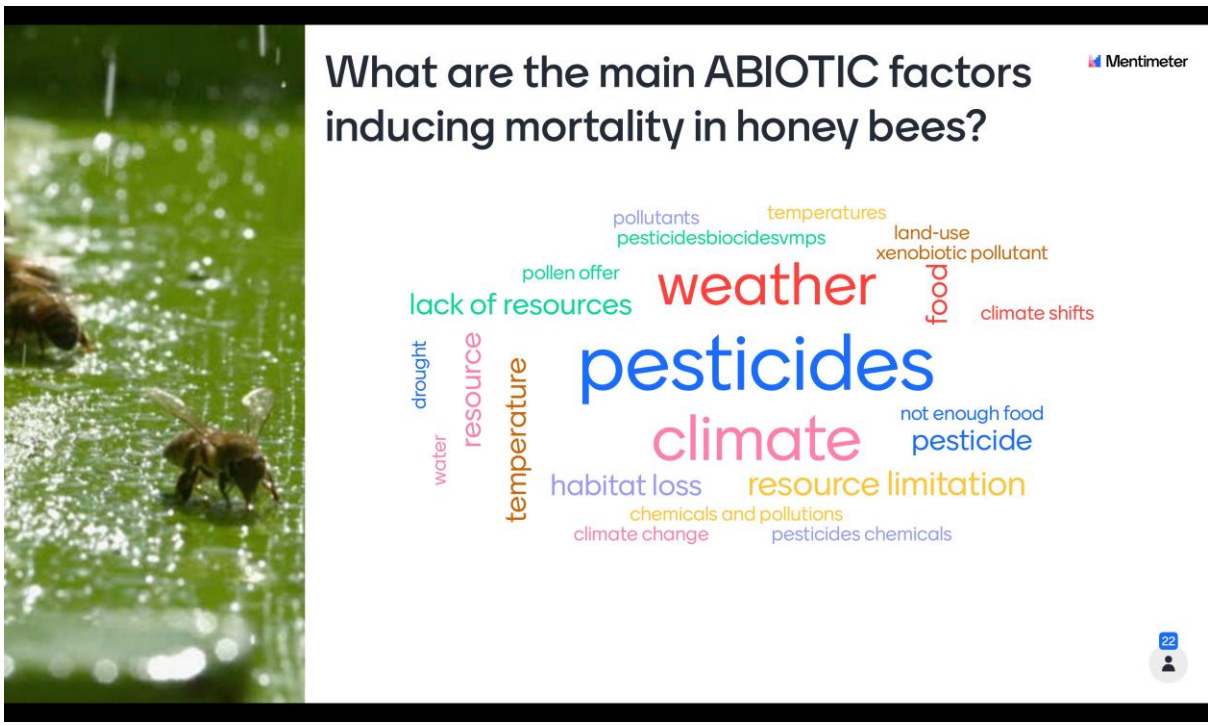


Q2.

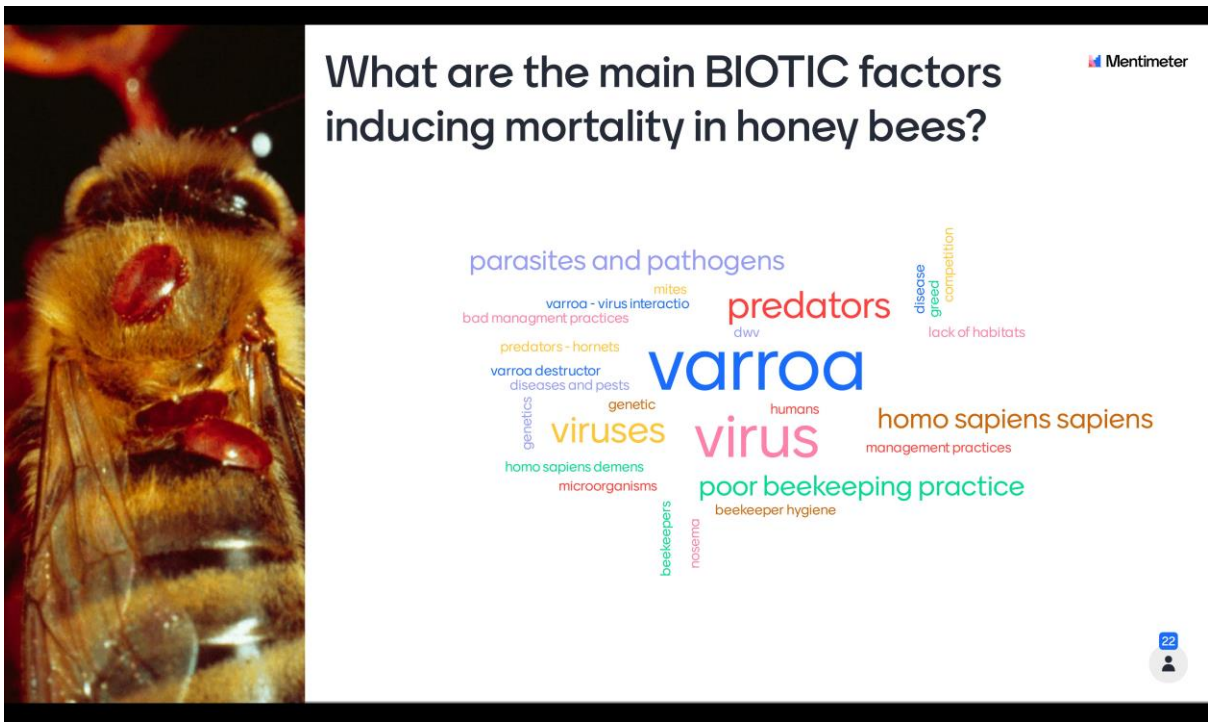


6.5. Bee mortality (5)

Q1.

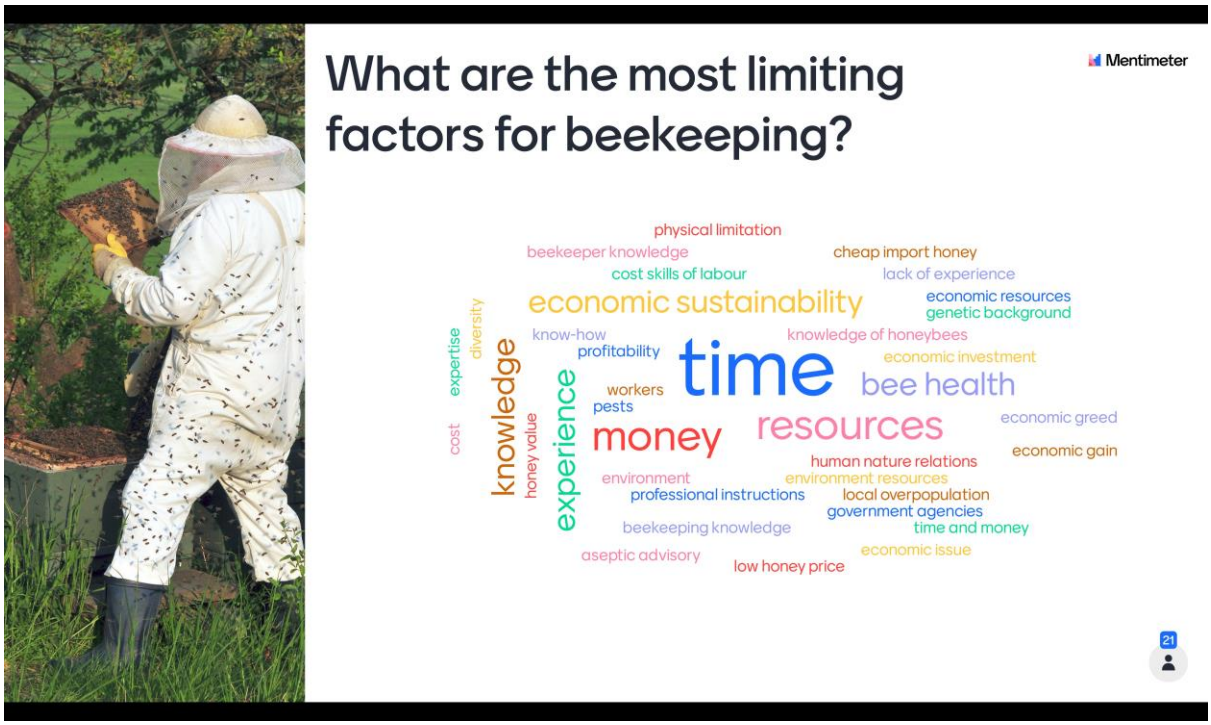


Q2.



6.6. Beekeeping suitability (6)

Q1.



Q2.