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## Bee tourism: apiculture and sustainable development in rural areas

Francesc Fusté-Forné<sup>a</sup>, Ester Noguer-Juncà<sup>b</sup> and Montserrat Crespi-Vallbona<sup>c</sup>

<sup>a</sup>Department of Business, University of Girona, Girona, Spain; <sup>b</sup>Economics and Business Department, Universitat de Lleida, Lleida, Spain; <sup>c</sup>Business Department, Faculty of Economics and Business, University of Barcelona, Barcelona, Spain

### ABSTRACT

This paper examines the emerging phenomenon of bee tourism and its potential for fostering sustainable development in rural areas. Bee tourism, based on the process of attributing tourism value to apiculture and beekeeping, offers unique experiences for visitors while promoting local businesses. Drawing on a qualitative study which includes both the supply and demand sides, interviews with nine honey producers and six special interest tourists were made in the context of rural Catalonia. The article emphasizes the opportunities and challenges of bee tourism in rural communities, leveraging their cultural and natural resources to create tourist experiences. In addition, it explores the role of creativity and entrepreneurship in crafting engaging bee tourism offerings and highlights the need for collaboration and sustainable practices to ensure short and long-term success. This research encourages further exploration of bee tourism as a viable strategy for the sustainable development of tourism practices in rural areas.

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### KEYWORDS

Apitourism; Catalonia; governance; rural areas; sustainable tourism

## Introduction

In recent years, the concept of beekeeping as a tool for sustainable rural development (Prodanović et al., 2024) and the planning and development of sustainable practices for the beekeeping sector (Vapa-Tankosić et al., 2020) have gained increasing importance. In this sense, apitourism has also emerged as a new niche form of tourism (Novelli et al., 2022) that awards tourism value to bees and honey which plays a relevant role in biodiversity conservation (Parreño et al., 2022), human health (Sokhai & Mardy, 2024) and diversification economic opportunities for rural communities (Izquierdo-Gascón & Rubio-Gil, 2023).

We argue that apitourism allows to create and develop authentic experiences in rural areas as other products such as wine or cheese do. In this sense, apitourism “deals with culture and traditions of rural communities [and] could be considered as one of the most sustainable ways of development” (Woś, 2014, p. 66). Apitourism as an economic and social activity relies on the role of beekeeping as a traditional practice and on bee-based products which include for example gastronomic and medicinal products. In line with the understanding of food tourism attractions (Dixit, 2021; Ellis et al., 2018; Hall & Sharples, 2003), bee tourism includes visits to areas of production and consumption, and activities that allow the discovery of “beekeeper’s work, a

method of making honey, its properties and specifics, to find out about other bee products, to watch how bee colony live, [and] to recognize ecological correlation between a man and bees” (Woś, 2014, p. 66).

With this paper, we contribute to the understanding of the challenges and opportunities of bee tourism in rural areas as a field “only in the initial stages of development” (Šuligoj, 2021, p. 369). Apitourism is a source of unique sustainable experiences that protect and promote the culture and nature of rural areas through dedicated entrepreneurs who take care of the landscapes and lifestyles of local communities. Based on a qualitative design, we have interviewed nine honey producers and six bee-based food tourists to understand the situation of bee tourism in rural areas. While the results show the potentialities of awarding tourism value to apiculture for territorial development and to what extent “people’s tradition, food culture, and healthy lifestyle attract society’s attention (Topal et al., 2021, p. 1), we also discuss the future of this rural activity in connection with (food) tourism management and marketing. Drawing on the slow production and consumption of agricultural products we also pay attention to the effects of climate change on the shaping of bee tourism.

## Apiculture and entrepreneurship in rural tourism

While previous literature about entrepreneurship is vast, we draw our understanding on the role of entrepreneurship in rural tourism (Thirumalesh Madanaguli et al., 2021), where local landscapes and lifestyles are a source of sustainable practices (Cunha et al., 2020). The Organisation for Economic Co-operation and Development defines entrepreneurs as people (business owners) who seek to generate value in the economy through the creation and development of innovative ideas (Blanchflower & Oswald, 1998). Their business success largely influences the consequent economic development of regions (Green et al., 1996; Sopo et al., 2017). Previous research (see, for example, Landström et al., 2012; Shane & Venkataraman, 2000) analysed the relationship between entrepreneurship and family business, especially focused on the relevance of family business to create products and services, and to find new opportunities which require doses of creativity and innovation (Carlsson et al., 2013; Peng & Lin, 2016).

Previous research on the characteristics of entrepreneurs has focused on their role as economic stakeholders, people who are creative (Baumol, 1990; Velasco, 2012) and engage others in different sectors to be creative, for example, in food (Rachão et al., 2019). Through the relationships between knowledge and innovation, entrepreneurs create new products and services that impact the well-being of local communities, not only in economic terms. Rural entrepreneurship is often conformed by small and family businesses (Fusté-Forné & Mundet I Cerdan, 2021) that proactively work to increase family, and territorial, wealth through the creation of value (Cruz & Nordqvist, 2012; Uhlaner et al., 2012; Zahra, 2012)—for example, tourism value.

When it comes to the food sector, entrepreneurship is considered fundamental to face the challenges that recently emerged (Kwil et al., 2020; Gellynck et al., 2015; McElwee, 2006), such as for example climate change. Furthermore, entrepreneurs are constantly working to diversify products and services (Alsos et al., 2011; Jafari-Sadegh et al., 2022). This is observed in apitourism. Wos (2014) defines apitourism as a form of tourism that allows visitors to connect with beekeeping and bee products as a manifestation of tradition in rural areas. Pantoja et al. (2017) added that apitourism allows visitors to experience hive products through bee-based routes—routes also emerging as a driver for sustainable rural development (Izquierdo-Gascón & Rubio-Gil, 2023).

In this sense, apiculture contributes significantly to the sustainable development of a region and

informs a green economy which relies on the traditions of the host community (Arih & Korošec, 2015), attached to both culture (lifestyles) and nature (landscapes). The relationships between apiculture and tourism create awareness about the importance of protecting bees and diversifying the tourism products of a region (Cesur, 2021), based on the historical heritage embedded in honey (Topal et al., 2021). The Food and Agriculture Organization of the United Nations (FAO) positions small-scale beekeeping in the development discourse as a “sustainable livelihoods approach,” contributing to livelihood security, especially in rural communities where access to income is limited (Bradbear, 2009).

Apitourism is a socially, environmentally and economically responsible tourist activity that also satisfies the motivations of slow tourists (Fusté-Forné & Jamal, 2020). Different countries, including developed countries, are developing initiatives linked to apitourism, such as the beekeeping open-air museum in Poland (Cesur, 2021), apitourism routes in Slovenia (Arih & Korošec, 2015) and cultural tours for beekeepers in the Italian island of Sicily and New Zealand (Shiffler, 2014). This connects the production and consumption of slow food experiences that prioritise the environmental, cultural and economic sustainability of the destination, including activities such as tasting local food (Çokal & Demirel, 2022). Local food singularizes and symbolizes destinations through their traditional culture (Zhang et al., 2019), protecting and promoting the authenticity of the region (Kastenholz et al., 2016) and increasing the satisfaction of tourists (Raina et al., 2020).

Previous studies also highlight that local products play an important role in the sustainable development of food tourism (see Fusté-Forné & Wolf, 2023), due to its economic, environmental and social impacts. Food tourism also improves the attractiveness of the destination (see for example Ellis et al., 2018; Noguer-Juncà et al., 2021; Vargas-Cárdenas et al., 2020) and its competitiveness (Knollenberg et al., 2021). We analyse whether or not apiculture also contributes to achieving a sustainable development of tourism in rural areas based on local-based entrepreneurship and the perception of bee-based food tourists.

However, previous research also warned of the threat of climate change to the survival of honey bees and their pollination networks, due to the fragility of the environment because of the rising temperatures and decrease in precipitation, the use of pesticides and the emergence of new diseases (Le Conte & Navajas, 2008; Soroye et al., 2020). As a result of this global warming, many local species have not been able to adapt and have already disappeared (Dew et al., 2019; Kerr et al., 2015; Pyke et al.,

2016), which decreases bee diversity and honey production. In light of the challenges posed by climate change, the apiculture sector should also prioritize the conservation of bee biodiversity, with a particular emphasis on family businesses (regarding the exploitation of honey) and the promotion of local sales in fairs and shops that contribute to the regional development in rural areas (Virgil & Simona, 2020). In addition, cooperative efforts among beekeepers and training programs on how to adapt to climate change are highly recommended as part of the global response to the warming trend (Decourtye et al., 2019; Gallardo-López et al., 2021; Guiné et al., 2023).

## Materials and methods

### Study design

The purpose of this research is to analyse the relationships between apiculture and tourism drawing on a qualitative design that is focused on the perspectives of producers and consumers. The qualitative analysis was based on semi-structured interviews. The qualitative approach was chosen due to its appropriateness to capture in-depth details about phenomena that cannot be conveyed in quantitative data (Bryman, 2015), the possibility to study things in their natural settings and understand how and why people view a particular issue (Walsh, 2003). This allows the researchers to understand the situation from a local perspective (Bartunek & Seo, 2002). The study combines interviews with producers and consumers to provide a more robust picture of the relationships between apiculture and tourism.

### Data collection

Data collection is divided into two samples which include producers and tourists. First, to identify the producers, we contacted the association Associated Ecological Beekeepers, an organisation founded in 2010 to promote ecological apiculture in Catalonia, north-eastern Spain. The association helps the beekeepers to register as certified organic beekeepers and to obtain beekeeping insurance. Also, they provide information on regulations and current events about organic beekeeping, they offer a veterinary service which advises and helps the producers, and they organize workshops. From a producer perspective, we focus on the understanding of how and why entrepreneurship informs apitourism, highlighting the role of innovation, and considering how apitourism initiatives can contribute to the sustainable development of the territories and diversify the touristic offer of the region. Using a non-probabilistic sample, nine interviews were conducted with producers who are

members of the aforementioned association. The interviews, which were conducted by the second and third researchers, consisted of open questions about topics that emerged from the literature about the role of apiculture in tourism, and the sustainable development of the businesses and their local region. The interviews were conducted between November 2022 and January 2023. Three of the interviews were carried out using video conference online platforms and five interviews were carried out in person at the producers' facilities. Interviews lasted between 30 and 40 min and were carried out in Catalan. Table 1 shows the profile of the producers.

Second, to identify the consumers, the researchers visited the Honey Fair which takes place in the town of Crespia, in the county of Pla de l'Estany, in Girona, Catalonia. This fair is the most popular bee-based fair in Catalonia (see Gironella I Garañana, 1982) and this year, 2023, the 42nd edition was celebrated (Ajuntament de Crespia, 2023). The fair aims to protect and promote the understanding of apiculture and bee-based products, with the presence of stands that sell food and non-food products, exhibitions and tastings, and workshops, during two days in the last weekend of February. The first researcher visited the fair and using a non-probabilistic sample, six interviews were conducted with visitors. The interviews consisted of open questions about the motivations and experiences in relation to the visit and the overall context of apiculture in tourism. The interviews were conducted in February 2023, lasted between 10 and 20 min and were carried out in Catalan because all the visitors that participated were Catalan. Table 1 shows the profile of the visitors.

### Data analysis

After data collection, all the interviews with producers and visitors were transcribed and analysed. As part of the analysis of the responses of the interviewees, a process of categorization into thematic topics was conducted and agreed upon by the researchers. While the interviews were conducted in Catalan, the quotations presented in this paper have been translated from the original language into English. As a result of data analysis, four themes were identified. In consequence, results presented in the next section are divided into four subsections with the main topics identified: (a) tradition and innovation in local entrepreneurship; (b) experiences and products towards sustainable apitourism; (c) public-private collaboration for the protection and promotion of bee-based knowledge; and (d) future of apiculture. These dimensions are further described below and illustrated with quotes from the interviews.

**Table 1.** Producers' (P) and visitors' (V) profile (own source).

N	Gender	Age	Place of origin	Academic background	Years of experience	Name of organization
P1	Male	+40	Garriguella	Vocational training (transports and logistics)	8 years	Abellaires
P2	Female	40	Sales de Llierca	Bachelor's degree (nursing and agricultural technical engineer)	7 years	La Calma
P3	Female	+50	Seva	Bachelor's degree (nursing)	13 years	Llàgrimes de RA
P4	Female	41	Aitona	High School Diploma	7 years	Mel del Oest
P5	Female	50	Ribes de Freser	Basic Education	+20 years	Mel de Ribes
P6	Female	50	Casavells	Basic Education	+30 years	Entresserra
P7	Male	39	Cabanes	Bachelor's degree (tourism and labour sciences)	+20 years	Albera
P8	Male and female	30	Crespià	Professional training	13 years	Dolça Abella
P9	Male	50	Alcover	Professional training	+30 years	El Remei
V1	Male	40	Girona			
V2	Female	62	Figueres			
V3	Male	61	Figueres			
V4	Female	36	Barcelona			
V5	Female	52	Barcelona			
V6	Male	41	Barcelona			

## Results

### *Tradition and innovation in local entrepreneurship*

The interviews with the producers evidenced that apiculture exists because of family tradition, and some producers explain that previous generations in their families had bees and produced honey, as P5 mentions "My husband had an uncle who had 3 boxes of bees and he died. And someone had to take care of them" or P7 "I am the sixth generation. My great grandfather's great grandfather started it." It is worth mentioning that the ancestors of current beekeepers were males. However, as in other agricultural sectors, females have gained relevance as beekeepers in recent years, as is also observed in Table 1.

In addition, apiculture is an economic activity for new rural entrepreneurs as P2 stated that "there is no family tradition. It was an idea of my couple and mine that we got 7 years ago" and P6 explains "When my husband was 18 years old, he set up some boxes with a colleague." In the same line, P4 stated that in the agricultural sector, all producers help each other. This is the reason she mentioned starting the beekeeping activity as her husband needed the bees to pollinate his flowering plants. The discovery of local initiatives is one of the main reasons for visitors to explore apitourism. As one of the visitors to the Honey Fair mentions, "We come here every year to buy honey from local producers who prepare the products themselves and explain how they do it" (V4). Also, another consumer explains that "this is a fair that is not only about honey, is about the producers and the processes that make honey possible" (V2). The interviews with the visitors reveal that they are drawn to honey fairs as they provide an authentic glimpse into the local culture and traditions associated with apiculture and beekeeping. The fair also features demonstrations that showcase traditional beekeeping techniques, as

well as cultural performances, exhibitions, and storytelling sessions related to bees and honey (see Figure 1).

However, the majority of the producers, regardless of whether they work in a family business or a new one, explained that they had to do training to get knowledge about the life cycle of bees and the production of honey. "I did courses in two different agricultural professional schools" (P6) and "we did courses with beekeepers with many years of experience" (P8), they stated. In this sense, the process of creating awareness among people is crucial to allow visitors to know the cultural and environmental values attached to beekeeping. Education is also part of the tourists' experiences, as for example the seminar delivered at the Honey Fair about the impacts of climate change on bees and honey, where the visitors acknowledge that "they have emphasized that apiculture is at risk because the extreme weather situations are challenging the survival of the bees..." (V3) and "we are a bit scared... it seems the progressive increase of the temperatures and the scarcity of precipitation, especially here, will reduce the production of honey" (V1). Results show that tourists visit honey fairs to gain knowledge about apiculture, beekeeping practices, and the importance of bees in honey production. In this sense, visitors concerned about environmental issues are particularly attracted to honey fairs as they provide a platform to understand the role of bees in ecosystem sustainability and the need for the protection of bee habitats.

Also, it is important to mention that, for the majority of the producers, apiculture is their main source of income as P1 explains "We started in 1983 but in 2005, we made a huge investment to generate photovoltaic solar energy and we decided to bet for beekeeping as our *modus vivendi*". Also, P8 states that "the business kept growing and in 2010 Laura and I became self-employed and we decided to dedicate ourselves only to this" and P9 mentions "we are a small family business, nowadays, I have 2-





**Figure 1.** An exhibition of beekeeping at the Honey Fair in Crespia (source: F. Fusté-Forné).

3 employees, depending on the season.” However, P2 mentions that she decided to combine her work as a nurse with beekeeping but, 2 years ago, she decided to give up beekeeping because the costs were higher than the benefits. This anticipates some of the challenges of this economic activity, which also needs to cope with the climate change impacts on agricultural activities.

### ***Experiences and products towards sustainable apitourism***

The producers mentioned that their customers are very loyal. Their target refers to local middle-aged people who live in the surroundings of the production areas and look for quality and healthy products, but also people who have a second home in the area or French people, because the north of Catalonia borders France. This is also observed in the profile of the visitors we interviewed at the fair, with an average age of 48’6 years. In this sense, in relation to his own profile of customers, P1 explains “40% of our customers are French and also we have customers from Barcelona who have a second home and spend between 100 and 300 euros because the honey does not expire, and they have honey for one year.” As well, P8 added that “people from the area or French people between 45-70years old who are families or couples with older children who are looking for a local product because they are aware of the issue of consuming quality products.”

At the same time, the interviewees explain that the Moroccan people are a very interesting target because they have a lot of knowledge about honey and they recognise the quality of local-based products. P2 says “We have many customers who are Moroccan migrant people who know the product and appreciate the quality” and P5 states that “our target is families who look for quality honey and also Moroccan people, but they are always looking

for price and it is annoying”. It is important to mention that all the producers, and most of the visitors, agree that the young public consumes less honey. In addition, the interviews with the visitors to the Honey Fair also revealed that quality is important as a motivation factor, as V2 states, “When you buy a product directly from the producer, you can learn about how they do it, and you know, the honey from these artisanal beekeepers taste much better than commercial products”. Also, some of the visitors mentioned that honey consumption is not cheap, and this may prevent its consumption by younger generations, as V6 states, “we do not consume much honey, but we always like to have it at home... these jars are quite expensive. Our children (they are in their twenties) also like honey but they usually buy it from supermarket chains which are more impersonal... and cheaper.” While prices of artisanal honey are higher, visitors appreciate the focus on conservation efforts, sustainable beekeeping practices, and the promotion of organic and eco-friendly honey production.

In this sense, the loyalty of the customers allows the producers to sell directly their products from farm to table or through short supply chains. P3 explains that “we sell to ecologic shops and cooperatives” and P6 “We have a shop here in Casavells... we have a distributor in our area of Empordà that sells to a few restaurants and agrifood shops... we go to fairs in Barcelona and Girona.” Also, P9 states “We sell to shops and cooperatives and now we have our own shop that we open 2 h per day.” It is worth mentioning that the producers do not often use social networks but some of them sell through their online store P5 explains that “through the web that we sell a lot” and P7 says that “we sell directly online through our webpage and also through Telegram and WhatsApp messages.” They highlight they have many repeat customers and the engagement of visitors with the product is crucial to create



**Figure 2.** An offer of varieties of honey at the Honey Fair in Crespà (source: F. Fusté-Forné).

awareness about the values of the product, in relation to “the health benefits of honey consumption” (V1) and “the culinary possibilities of honey are large. I like cooking with honey and every year when I come here I ask the producers for new recipes that can later be done at home” (V5). In this sense, honey fairs also offer visitors the chance to explore a diverse range of honey varieties, sourced from different floral sources (see [Figure 2](#)).

While the main product of beekeeping is pollination and honey is the main byproduct of the pollination process, the majority of the producers also offer complementary creative products from honey wax, as P5 explains, “We do flowers, orange, madrone honey... but also we do honey with cream, honey with carob flour and hazelnut, honey with ginger... sweets, candles, soaps, creams, body lotions, balms.” Also, P6 states that “we have our own laboratory and we do face cream, body lotions, lip cream... the formula is ours... we do solid soaps, candles and chocolate with our honey”. It is worth mentioning that P2 and P3 only produce honey. P2 explains that “we are a mixed operation: Mel La Calma, the ecologic one for younger and more conscientious people, and Mel Picot, the traditional one for people who usually eat honey” and P3 points that “I did ecological beekeeping but it is too hard for me and right now I only do rosemary honey for me and my loyal customers”. The diversity of the products is also valorised by visitors, who think that the innovation is crucial to attract new consumers to buy a wide range of honey-based products (see [Figure 3](#)). “We have known these producers for a long time, and we come because of the honey but also because of the cosmetics they make, which are free of pesticides” (V3). Also, the products available symbolize the cultural significance of beekeeping in rural areas. “The fair is also useful to offer a space of knowledge about the traditional beekeeping, with professional exhibition and talks that allow you to



**Figure 3.** Honey-based products at the Honey Fair in Crespà (source: F. Fusté-Forné).

get immersed into the product” (V5), where not only the honey is the center of the conversation, but also the dynamics of production and consumption are explained, in the context of Catalan heritage and traditions. Honey also contributes to the unique cultural identity of the destination.

At the same time, beekeepers do different activities to promote their products. P1 explains that “we do guided visits of 2,5-3 h. We met here at home, we went to the apiary in private cars that is 5 min away from here, we did an explanation of the environment and honey flora, we opened the hive and saw the different tasks of each bee, and finally, we visit the workshop and the shop.” Also, P5 points that “from May to August we do the *apitourism experience*, that is a guided tour that allows people to know the life cycle of the bees, the evolution of the moth, they can dress the beekeeper dress and taste our different honeys.” P7 adds that “we have the project *sponsor a beehive*, that is you pay 150€/per year, that money allows us to take care of the bee colony; in exchange, as ‘godfather’ of the hive, you can name it with the name of your choice and you will receive 3 kilos of honey per year

throughout the life of the hive.” The experiences are crucial to value the culinary and cultural aspects of these events while appreciating the environmental and socio-economic significance of apiculture in tourism, as observed by the quotes from the visitors.

### ***Public-private collaboration for the protection and promotion of bee-based knowledge***

According to the producers, there is little cooperation between the public and the private sector. All the interviewees demanded greater collaboration from the public administration. Firstly, to know what are the needs of the producers, and to carry out actions that are in line with the sector because the actions developed by the public administration are often not linked to the situation of the beekeepers. P2 reports that “they say that there are a lot of development programs but then they do not apply them ... there is a gap between public administration and the active agricultural sector ... sometimes they launch ideas that do not respond to our real needs ... from my point of view there is a basic problem on the agricultural model of our country.”

Additionally, some producers ask for stronger cooperation with the public administration to promote the profession of beekeepers and the different issues linked to apiculture, such as the process of making honey or the life cycle of the bees. P4 explains that “beekeeping is a very small sector and there is a lack of knowledge of the product, of the work that is done ... it is necessary to promote this profession, the product, the honey, its processes, etc.” This is particularly observed in the Honey Fair, where visitors develop a greater appreciation for the natural world and its delicate balance through their interactions with bees and beekeepers through apiculture. “We need to gain awareness of the relationships between bees, plants, and the environment” (V4), which leads to a deeper understanding of the need for environmental conservation and these local-based fairs are also a platform to support local beekeepers and rural communities. “Buying the honey directly from the producers we contribute to the local economy and the preservation of honey production” (V6), mentioned a couple who was visiting the fair who also explained that they used to grow apples in the Empordà region.

Also, the producers mentioned that bureaucracy is another problem they face in their daily activities. They reported that they spend a lot of time doing administrative processes because the public administration does not consider the dimension of the businesses and all of them have to do the same formal documents. P6 explains that “they [the public administration] make it more and more difficult for us

because they ask us a lot of official and technical documents. For this reason, a lot of beekeepers have given up ... everything is a problem.” Also, P3 states that “we have a lot of bureaucracy like a big company and we lost a lot of time ... they do not make it easy at all.”

In addition, the producers ask for more public investment in research to have more knowledge about several aspects of beekeeping, such as organic beekeeping, as P1 mentions. Also, P8 states that “the public administration does not think about beekeeping as an economic sector. For example, we also need research about the Asian hornet.” While research primarily directs its efforts towards natural sciences, it is also important to investigate beekeeping from social sciences, as we do with this paper, which contributes to the understanding of opportunities and challenges of the relationships between bees and tourism in rural areas as a field of research which is still underexplored.

While generally there is little cooperation between the public and private sectors, festivals and markets are the exception to this rule, and all the interviewees point out the need to be present in food events, such as festivals and markets, which are the best places to promote their homemade products. In this sense, the public and private collaboration works in an active and satisfactory way for both agents, as is observed in the Honey Fair that takes place in Crespia. In relation to the visitor experience, the most important aspect highlighted by the visitors is that they can taste and purchase a wide array of honey products, including artisanal honey, flavored honey, honey-based sweets, and honey-based beverages.

### ***Future of apiculture***

In relation to the future of apiculture, most of the producers mentioned that they are afraid the production will not be maintained for a long time, not because there is not a consumption market but, firstly, because of climate change. Climate change is seriously affecting the production cycles because bees need water and not long dry seasons. Secondly, because of invasive species. P2 explains that “a huge number of bees are dying due to the changes on the life cycle of bees produced by climate change, which also forced us to produce honey only during spring, while earlier we could produce in autumn, spring and summer. Also, the invasion of the Asian wasp has supposed the reduction of 40% of the annual production.” In this sense, P4 states that “the future is very complicated, climate change does not favor us at all ... we work in the land and



we are extremely dependent on the weather ... and of course, this is really difficult to manage."

Also, some interviewees consider that globalization and unfair competition are important challenges. P9 explains that "some of our present and future problems are the imported honey (China is the main world producer) and the synthetic honeys as the vegan honey." Finally, some producers point out that, as it also happens in other activities in the primary sector, there is no generational shift. "It is a poorly paid labor and it could be considered more a passion than a business to earn money" (P4) and "there are no people who want to dedicate themselves to it because now there is the same work as 50 years ago and the benefits have been reduced by more than half" (P7). This remains a challenge in rural areas which have witnessed a progressive decline in population and face major problems in planning and developing local-based initiatives which are sustainable in economic, environmental and social terms when they access the tourism system. In this sense, the additional income provided by bee tourism could help beekeepers enhance their resilience and mitigate some of the challenges, especially those referring to the economic viability of the business and to reduce the dependence on single crops of the agricultural sector.

## Discussion

Drawing from the concept of apitourism as a new niche form of tourism (see Woś, 2014), this paper contributes to recent conversations about the valorisation of beekeeping as an avenue for sustainable tourism development in rural areas. In line with recent research, this study also reveals that the future of apitourism is highly uncertain (see Fathi et al., 2022). As the interviews with the producers show, the impact of climate change on agricultural production (see also Sgroi et al., 2023) and the potential lack of generational turnover represent the biggest challenges of the sector. This is also observed in other agricultural and livestock sectors (Crespi-Vallbona & Farran-Plana, 2023; Noguer-Junca & Fusté-Forné, 2023).

This paper shows that the relationships between knowledge (for example, previous generations of beekeepers) and innovation (for example, tourist experiences), can increase the tourism value of rural areas through bee tourism. The trajectory of the Honey Fair in the town of Crespià is an example. Through the participation of producers in events, they engage visitors with apiculture, and its relation to both culture and nature. In this sense, motivations for honey-based experiences and products embrace different factors, such as the education and culinary

experiences, but also the discovery of local identity through people, places and practices. The protection of local identity by local stakeholders fosters the promotion of cultural and environmental conservation. There are different avenues to develop creative and innovative experiences and products in apitourism, such as for example fairs, but also routes, which emerge as a source of sustainable tourism development (Izquierdo-Gascón & Rubio-Gil, 2023). Through sustainable beekeeping practices, the sector increases the environmental and socio-economic significance of apiculture in tourism. The environmental impacts of bee tourism activities are also crucial for ensuring sustainable practices. The socio-cultural impacts of bee tourism are also important and the understanding of the social and cultural dimensions of bee tourism can foster the preservation of local traditions and the development of community interactions, for example, among producers, with the combination of honey with wine or cheese (Fusté-Forné, 2015).

We argue that the relationships between apiculture and tourism increase the competitiveness of destinations (Knollenberg et al., 2021) and, at the same time, they develop awareness among visitors (see Topal et al., 2021). This is also manifested in a previous study that analyses the visitors' experiences in a beekeeping museum (Akyürek, 2022). The study of the two sides of the same coin, from the perspectives of the producers (their passion and fears) and the consumers (their motivation and experiences), is one of the most relevant theoretical contributions of the paper, which is one of the first to provide a picture of the challenges and opportunities of bee tourism in rural areas in the context of food tourism. In this sense, apitourism provides a wide range of elements that foster the protection and promotion of the honey value chain, and include the "beekeeper's work, a method of making honey, its properties and specifics, to find out about other bee products, to watch how bee colony live, [and] to recognize the ecological correlation between a man and bees" (Woś, 2014, p. 66).

This is a practical implication of the paper, which is a call for action for bee-based stakeholders, both public and private, to strengthen the relevance of honey as an identity and heritage (Timothy, 2016) product that conveys a sense of place through food (Smith, 2015) and inform sustainable development of tourism (Sims, 2009). The planning and development of honey-based tourism experiences can help to valorise the lifestyles of local people and the practices associated with agricultural activities, but also the landscapes where these activities take place, and their vulnerability to issues such as climate change which anticipate an uncertain future that, according

to Zapata-Hernández et al. (2024), will negatively impacting pollinators, but it is still unclear how it could affect honey bee population. The impacts of climate change have been identified to negatively affect beekeeping activity, such as shifting geographic distributions (Hickling et al., 2006) and enhancing host-parasite interactions (Manlik et al., 2023), among others.

Despite the number of consumers who value local food and the quality of products, which are exemplified in recent trends around slow food tourism (Huang et al., 2023), such as the organization of workshops to promote the local production and consumption of jams and marmalades (Ginés-Ariza et al., 2022), they are only a single element in the survival of the apiculture sector. The future of bee tourism depends on the solid bet of society to stop climate change. Moreover, public policies are required to reinforce and support agricultural sectors.

## Conclusions

Based on the perspectives of local-based entrepreneurs and bee-based food tourists, this paper analyzes the perspectives from the supply and demand sides towards sustainable development in rural areas through bee tourism. This research opens new opportunities for future research to enhance bee tourism in (food) tourism management and marketing. Future research can focus on assessing the economic impact of bee tourism on local communities. This also involves analyzing the revenue generated by bee tourism activities, employment opportunities created, and the overall contribution of bee tourism to the local economy. In this sense, as honey is a byproduct of the pollination process, and pollination itself is one of the most critical services provided by bees, the relations between producers and consumers should also be informed by the significance of beekeeping beyond just honey production, as pollination plays a vital role in the reproduction of many flowering plants, including crops that humans rely on for food production. This perspective will contribute to the understanding of apitourism based on the connections to ecosystem services and food security.

The understanding of the economic benefits and identifying factors that contribute to the sustainability of bee tourism entrepreneurs can provide valuable insights for policymakers and stakeholders. Future research can explore the effects of increased visitor activity on local bee populations, natural habitats, and biodiversity. It can also assess the effectiveness of conservation initiatives associated with bee tourism and identify strategies to mitigate negative impacts and face the effects of climate change, such as the project Smart Green Bees (promoted by the

technology company LG with the collaboration of artisanal beekeepers from different regions of Spain) or BeeMotion Tech (a spin-off that aims to develop of environmental control systems for hives to optimize production, honey quality, and bee care). In this sense, the apiculture sector should focus its efforts on bee biodiversity conservation, such as expanding the involvement and work with other species of native bees which could be supported by the public administration through conservation policies to ensure bee biodiversity. The sector should also define short supply chains to sell bee products, avoid the use of commercial intermediaries, and contribute to the economic and environmental impacts of the relation between bee production and consumption. Collaboration among public and private bee stakeholders and training on how to cope with climate change are also measures to face the global warming challenge.

Also, there is a need to expand the analysis of the profiles and motivations of visitors to bee tourism experiences and products. Future research can explore the demographic and psychographic behavior of tourists who engage in bee tourism activities to understand the differences and similarities between target audiences and also to design segmentation strategies targeted to the preferences of the consumers. At the same time, the evaluation of visitor experiences and satisfaction levels, also with quantitative methodologies, can provide information to enhance the quality of bee tourism offerings and their impact on destination wellbeing which will advance the understanding of bee tourism, contribute to its sustainable development, and inform decision-making processes in this emerging field.

## Disclosure statement

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