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Web content analysis of beekeeping website companies: Communication and marketing strategies in the Italian context

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ABSTRACT

This study analysed the main aspects of the communication of local beekeepers on their websites, to identify the most popular elements and to check whether companies communicate differently. A Web Content Analysis of all textual material on Piedmontese beekeeping websites was carried out, taking into consideration all variables such as domain authority, monthly organic traffic, backlinks and the presence (or absence) of the company on social media. The main findings highlighted a low differentiation between communication strategies related to honey organoleptic and sensorial characteristics. Claims concerning the Gastronomic pairings, Quality and certification, Links to territory and Organic honey categories were the most widespread current on beekeeping websites, while there was slight information related to health aspects and ethical/social sustainability. This research has identified a trend in the communication strategies of beekeeping companies that deviates from classic agribusiness strategies in terms of innovation, value creation and product and brand differentiation.

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Web-communication; small business; content analysis; honey; marketing

1. Introduction

Typically, agri-food producers view web-based communication channels as one of the main ways to promote their products, reaching a rather passive and heterogeneous audience (Dearlove et al. 2021). In recent decades, with the arrival of search engines and social networks, B2C communication has been transformed. Consumers can actively respond to advertising through social networks and conduct online research on produce, as well as product information and characteristics (Schiro et al. 2020). Furthermore, the COVID-19 pandemic, in all the world as well in Italy, increased the e-commerce phenomenon, also in terms of consumer goods, and communication investments (Din et al. 2022). For producers, websites are one of the most important tools to guarantee transparency and communication between companies and customers (Qalati et al. 2021). To build the competitiveness of a website and information attractiveness, it is important to focus on site development strategies based on eye-catching and user-friendly design (Ashraf et al.

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2019), type, quality and variety of information – such as the story telling of family companies (Canziani et al. 2020; Qalati et al. 2021) – presentation of all production, presence of blog or recipes, and sponsoring of company events.

Small enterprises, such as beekeeping companies, often find it hard to compete with big competitors by means of the traditional marketing communication tools. In fact, generally large enterprises use defined and clear marketing strategies and communication plans (Martinho 2020). The application of digital marketing for a company, even a small one, is an easy and cost-effective means of reaching the target audience with a better service guarantee (Bala and Verma 2018). This kind of communication increases performance and efficiency, improving growth and competitiveness (Taiminen and Karjaluoto 2015). If this is true from a theoretical point of view, in practice, small company are viewed as disorganized and unplanned (Ritz, Wolf, and McQuitty 2019) due to limited resources. Although access to online marketing is free and open, big companies use the specialized service industry, while small businesses typically use experiential or 'DIY' methods, resulting in differences in efficiency (Ritz, Wolf, and McQuitty 2019). Beekeeping companies often have a low production volume, operate within a territorial operational context and are family-run; furthermore, they mostly refer to a niche market, selling in small stores and on local markets (Girgenti et al. 2016; Pippinato et al. 2020). On the one side, there are large companies with high turnover and production volumes, whose distribution is entrusted to large retail chains with more structured communication strategies; on the other, there are many small companies with limited organizational and financial capacity to invest in marketing.

Several studies have investigated agri-food companies' communication strategies based on product quality (Qalati et al. 2021), supply chain sustainability (Serra et al. 2021; Pippinato et al. 2020), product health and nutritional characteristics (Šedik et al. 2018; Martinovski et al. 2019), and communication. The six communication categories are generally sensory characteristics, health aspects, origin, quality, sustainability, and nutritional characteristics; these are common on websites by beekeeping companies, are wide-ranging and include multiple items investigated in this study. For example, in the literature, researchers emphasized the positive environmental implications of beekeeping in terms of strengthening greater biodiversity (Fontana et al. 2018), pollinating services, product replacement and ecosystem services (Sillman et al. 2021). The ethical value, social utility and biodiversity of honey is incomparable to other foods (Fedoriak et al. 2021; Zoccali et al. 2017); in addition, it promotes innovative trends, such as sustainable experiences for tourists and scholars (Zhang, Chen, and Baoliang 2019). The origin of honey relates to the territory of production (Fontana et al. 2018) and, from a cultural point of view, hive products play an important role in preserving traditional culture (Zhang, Chen, and Baoliang 2019). Honey produced by small companies has less probability of being adulterated by cheaply imported honey of very low quality. In the last few decades, with Regulation (EU) No 178/2002 (2002), food quality in Europe has been prioritised and companies are more interested in promoting it. To guide the promotion and to help consumers to recognize product quality, as well as production process and origin, several certifications, together with the EU quality marks, could be used by producers; however, these acknowledgments, however, are scarcely present in the honey production system, especially in the Italian context. No less important in communication and promotion are the benefits of honey to human health, and its nutritional characteristics (Pasupuleti et al.

2017; Cianciosi et al. 2018; Arawwawala and Hewageegana 2017). In addition to the mandatory nutritional information requests by the Regulation (EU) No 1169/2011 (2011), often the websites report additional information to describe the product for its properties and for the functional characteristics of the hive product (Nilova and Malyutenkova 2020). Sensory characteristics are often described for agri-food products, especially in online marketing where the consumer does not touch the product but only sees an image from his device. The description of attributes such as aroma and taste, texture and flavour are summarized in the organoleptic characteristics, and it is essential to offer a clear idea to the consumer of the product and to push them to make a purchase (Haase et al. 2018).

Italy is the 4th country in Europe for volume of honey. The national Institute of Services for the Agricultural Food Market (ISMEA) showed that, in the last few years, interest in bees in Italy has been growing: in 2020, there were over 63,000 beekeepers (+53% vs. 2016) and over 153,000 beehives (+80% vs 2016) with nearly 1.7 million hives (ISMEA 2021). In Piedmont (an Italian region in the north-west area), there are more than 5,000 honey producers, both corporate and for self-consumption. At the end of 2020, the number of beekeepers in Piedmont was the highest in Italy, compared to the other regions, with 12.5% of hives and 20.7% of swarms overall (National Livestock Registry 2022), gaining leadership on a national scale.

Literature research have previously investigated the importance of online marketing strategies on behalf of small companies, and other studies have focused on certain aspects of hive product communication such as sustainability and benefits. However, no study published to date has investigated the key communication aspects of local beekeeping company websites. The aim of this study is to understand the models of communication of beekeepers of online marketing in order to introduce interesting insights for operators and find margin of improvement. Given this context, Piedmont can represent an excellent area in which to carry out this research, considering how interesting the geographical area is in terms of volume of production and number of beekeepers. In this regard, our research hypothesis is that, in a nationally important honey production context, companies have developed differentiated online advertising strategies in terms of communication orientations. For these reasons, in this research we wanted to explore the communication strategies adopted by beekeeping companies on their websites and social networks by answering the following research questions: Q1) What are the most used combined words to communicate the beekeeping identity on websites in north-west Italy? Q2) Do companies present on the main social platforms adopt a different way of communicating than companies with websites only? Q3) What are the most relevant elements or arguments that beekeeping companies use to communicate the value of their products?

The methods most used to evaluate websites are usually based on surveys, experimental evaluation, and Content Analysis (Chiou, Lin, and Perng 2011; Cristobal-Fransi et al. 2020). Current work focuses on content while neglecting design, technical and commercial aspects.

2. Methodology

To achieve the aims of this research, we investigated the written website communication of beekeeping companies from Piedmont using the web scraping method; a web content

analysis procedure was adopted for more detail. The different steps of the analytical approach are described in more detail below

2.1 Data collection and preparation of sample

In March–April 2022, web searches were conducted using the terms ‘Piedmontese bee-keeping companies’ (= *Aziende apistiche piemontesi*) via the Google search engine. In addition, the words ‘Beekeeping province *name of province* ..’ (= *apicoltura province*) were used, followed by the names of the provinces in the Piedmont region, i. e.: Alessandria, Asti, Biella, Cuneo, Novara, Turin, Verbano-Cusio-Ossola, and Vercelli. The company websites were reviewed identifying the primary purpose of the site, type of products sold, and the origin of company website.

Website visibility plays an important role in measuring the effectiveness of the marketing strategies applied by a company and is also a decisive differentiating factor on company performance (Melo, Rosa, and Pablo 2017). For this reason, we previously conducted an investigation considering the selected websites, detecting three indicators (using a dedicated ranking monitoring site: nailpatel.com): the ‘domain authority’ (DA) (moz.com, 2022), i.e., a search engine ranking score that ranges from 1 to 100 and calculates a Web site’s ability to appear on search engine results pages; the ‘organic monthly traffic’ (OMT) (Patel, 2022), i.e., the number of visits per month on the website that comes from search engines (Baye, De Los Santos, and Wildenbeest 2016); and, finally, the ‘backlinks’, i.e., the hyperlink that appears on other sites.

Of the 87 websites retrieved, only 66 met all inclusion criteria. At the time of the final analysis, three sites were defunct, leaving 63 sites in the final sample. Inclusion criteria were as follows: single companies’ websites were considered (excluding cooperative and association websites); in relation to territoriality, the website has to belong to a company from Piedmont; the website has to have a single primary brand identity; the website should not be a multi-item portal for multiple brands of honey and other bee products; the website is not an exclusive beehive seller or does not sell other industry equipment; the website must have at least one of the three indices (organic monthly traffic, DA and Backlinks) higher than zero.

In order to remove possible interference on content from platforms, only website companies were included. All the websites of the territorial brands (i.e., with the web address based in Piedmont) were selected, limiting the analysis to the websites that promote only honey, other bee products (royal jelly, pollen..) and honey products (liquor, candies..).

2.2 Website description

All sites were reviewed and recorded before the analysis. We organised all the information about the site on excel (Appendix A) with the name of the company, URL of the home page and presence on the main social networks (Facebook and Instagram), anonymously. The content of the sites was transcribed in Word documents, making each document corresponding to a beekeeping company maintain the correspondence between the content and company site. To guarantee a more accurate analysis, only the text of the site relating to hive products such as honey, royal jelly, beeswax, liqueurs, and candies was

selected. Considering that some of the selected companies were agricultural and not exclusively linked to beekeeping, it was necessary to select the content.

2.3 Data analysis

After detailing the general characteristics of beekeeping websites (presence on Instagram and Facebook, DA, OMT and Backlinks), each text of all 63 sites was aggregated and analysed through content analysis. Content analysis had been defined as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Hauck, Szolnoki, and Pabst 2021). We quantified and analysed the presence, the meanings, and the relationships of the words and concepts they express. A content analysis approach was implemented, mainly building on the methodological recommendations by Mayring et al. (2015) and Kuckartz and Rädiker (2019). Traditional content analysis was manual and provides systematic rigour and contextual sensitivity (Mayring et al. 2015) but many studies emphasised the importance of combining automatic and manual techniques. Instead, with the introduction of computational analysis, the algorithmic accuracy of computational methods to yield more favourable results (Kuckartz and Rädiker 2019) was key. This system provides the strengths of traditional content analysis and the innovative large-scale capacity of big data analysis (Chang et al. 2021; Lewis, Zamith, and Hermida 2013). Therefore, an approach of combining computational and manual methods throughout the data analysis process was used. The research was performed by modern software: MAXQDA (Version 2022). In the first part, the software identifies the most used combinations of words that represent typical words used to describe brand identity and honey products. Meaningless words such as prepositions and verbs of being, known as the 'stop list', were excluded. Words like 'honey' were excluded from the main file. This made the analysis focus more on important concepts. All variables (presence/absence of companies on Instagram and Facebook) were considered to see if there were any differences in relation to the top 10 words or combinations of words. In the last part, the coding system (explained in more detail in the 'Data Coding' section) was applied to the collected data and the topics and type of communication adopted by the company sites were investigated.

The relationship map was performed to determine how variables relate to each other by providing a visual representation of the connections and influences that each node and link has over each other. In our case, the relationship map was applied considering as variables the items communicated into the examined websites and the defined superior code categories. This statistical analysis was performed using IBM SPSS Statistics software 28.0 for Windows (IBM Corp, Armonk, NY, USA). Finally, Spearman's coefficient was calculated to examine the degree of correlation between the first two codes belonging to the 6 categories (12 items) employed in website communication, together with social media presence. All the tests were two-tailed and p -values $\leq .05$ were considered statistically significant. This last statistical analysis was performed using MAXQDA software, version 2022.

2.4 Data coding

The codebook was built in two steps: the first one was a deductive approach and follows Mayring et al. (2015) scheme, it is based on previous theoretical knowledges to find the

main categories, 'thematic codes' or 'superior codes', of honey communication. In a second step, the text sample of beekeeping website companies were analysed and studied in deep examined following an inductive approach. The repetitive topic present in the texts were categorize building 'sub-codes', like sub-categories inside superior code.

In order to increase reliability, the sub-codes were built by use key words in the section of Autocode on MAXQDA in witch author use terms and synonymies of them to be sure to include as much information as possible. This mixed method, deductive and inductive, regarding the elaboration of the coding system was supported by Kuckartz and Rädiker (2019) and is presented in numerous research (Kratschmann and Dütschke 2021; Bing, MacLaurin, and Crotts 2007; Chen et al. 2021). Following the previous published studies, the authors chose to perform several coding steps by assigning the creation of sub-codes to two different researchers with high but different knowledge: one was expert of honey and beekeeping context, and the other one was expert of communication in agrifood sector. This differentiation represents own added value and guarantee an high reliability and accuracy of codebook and reduce the risk of leaving out potentially significant topic or parts of text. At the end of the process, the two code systems were compared and the information were integrated in the codebook used for the analysis. Figure 1 depicts the complete procedure for the construction of data coding.

As a result, we obtained a coding scheme which comprised 6 distinct and exhaustive superior codes and 36 sub-codes with detailed definitions described in Table 1. These 36 items formed a one-dimensional scale with high internal consistency (Cronbach's $\alpha = 0.88$) performed by MAXQDA. This ensures that the coding system fits the material required to give content analysis. All material revealed has been carefully revised and rearranged.

3. Results

3.1 The sample

In Table 2, the variables collected from websites sampling are described. The sampling corresponds to 87 websites, but only 63 websites were considered suitable for analysis. The websites that were excluded (24) did not satisfy the inclusion criteria described in 'Method – Data collection': 21 of these had DA, OTM and backlinks indicators equal to 0, while 3 were defunct at the time of analysis.

Indicators such as DA, OMT and Backlinks make it possible to characterise data. Many of these indicators are equal to zero (DA = 30%; Backlinks = 28%; OMT = 43%), and only feature low percentages with high scores (DA [>16] = 7%; Backlinks [>500] = 6%; OMT [>100] = 9%). Furthermore, the distribution of the selected companies on social platforms is different between Instagram and Facebook: while just over half of the companies have a page on Instagram, 76% have a Facebook page, earning Facebook the position of most popular social network for beekeeping companies.

3.2 Word or combinations of words

The test of the most used 'word or combinations of words' (WoCW) for communicating beekeeping identity on websites in Piedmont was carried out on the whole sample and

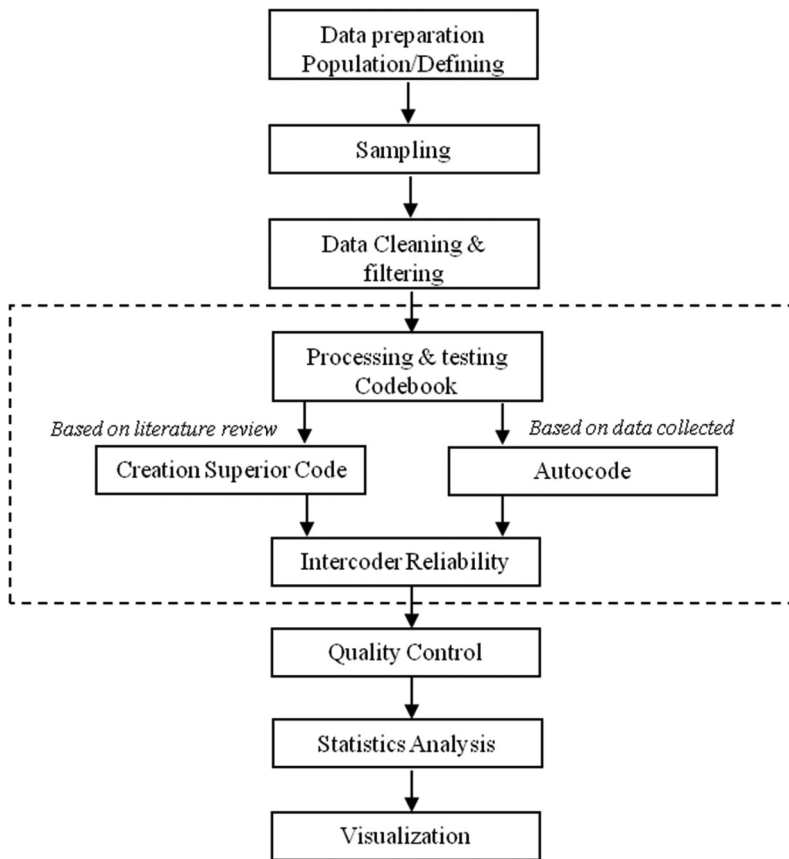


Figure 1. Coding procedure for Content analysis on beekeeping company websites.

introduced the variables of the presence/absence of the company profile on the main social networks, Instagram and Facebook. The combinations of words most present on websites are reported in [Table 3](#), where ‘high mountain’ (29), ‘royal jelly’ (25) and ‘amber colour’ (24) take first place.

3.3 Items of beekeeping companies and relationship maps

To answer to the third RQ, the recurrence of the items and argumentations communicated on beekeeping companies’ websites was explored using a Relationships map (RM) ([Figure 2](#)). The RM represents the connection and influence through nodes (Superior code and Sub-code) recorded into the websites. As reported in [Figure 2](#), nodes represent the variables/claims (in green) and categories of variables (in blue). Links represent the strength of influences between nodes given by the frequency of appearance of the individual claim on the website; the thickness of the link lines is a function of the strength of the connections (defined by the frequency of apparition), from weak, to normal and strong.

With the code analysis, six Superior codes – ‘Quality’, ‘Origin’, ‘Health Aspects’, ‘Nutritional Aspects’, ‘Sustainability’, and ‘Sensory Characteristics’ – were previously

Table 1. Schematization, description and reference of code system (Codebook) apply on all websites retrieval.

Superior codes	Sub-codes	Description	Reference
Health aspects	Regulates kidney function	It regulates kidney function and promotes diuresis.	(Arawwawala and Hewageegana 2017; Cianciosi et al. 2018; Kumar, Bhowmik, and Chandira 2010; Damen, Verkerk, and Steenbekkers 2022)
	Repairs tissues	It has healing power, promotes skin elasticity, and helps the production of collagen.	
	Regulates intestinal and digestive functions	It enriches the intestinal flora and has a strong digestive power, and protects the stomach.	
	Produces positive health effects	It is good for the organism.	
	Effective for respiratory tract problems	It has antiseptic properties, relieves sore throats and coughs, opens the respiratory tract, and fights flu-like conditions.	
	Strengthens immune defences	It naturally possesses antibiotic, antibacterial and antiviral functions; it strengthens the immune defences and fights disease.	
Nutritional characteristics	High nutritional value	It is characterized by a biological value often linked to its nutritional and functional power.	(Rylova and Zholinsky 2020; Bogdanov 2010; Cianciosi et al. 2018)
	Pollen as a protein source	Pollen protein source.	
Sensory characteristics	Source of vitamins	Contains water-soluble vitamins.	(Haase et al. 2018; Saludin, Kamarulzaman, and Ismail 2019; Melo, Maria André Bolini, and Efraim 2009; Zanchini et al. 2022)
	Source of minerals	Contains several mineral salts.	
	Source of sugars	Source of simple sugars, such as glucose and fructose, and complex sugars.	
	Fruity Flavour	Scent and aroma reminiscent of fresh fruit.	
	Fresh Aroma	Fresh scent and aroma.	
	Rapid crystallization, creamy honey	Crystallizes quickly giving it a creamy, spreadable texture.	
	Does not crystallize, liquid honey	Crystallizes slowly or does not crystallize, presenting a rather liquid consistency.	
Strong taste	Intense and persistent taste and flavour.		
Mild taste	Light, sweet, and delicate taste and flavour.		

(Continued)

Table 1. (Continued).

Superior codes	Sub-codes	Description	Reference
Origin	Produced in high mountain	Production of high mountains or linked to them because of flowers. The area of interest, i.e., Piedmont, is characterized by numerous mountains, mainly because of the Alps; therefore, productions are often in mountainous areas. The production or the methods adopted are still artisan ones.	(Zhang, Chen, and Baoliang 2019; Vapa-Tankosić et al. 2020; Cosmina et al. 2016; Vita et al. 2021; Hjaltdóttir and Hild 2021; Serra et al. 2021; Blanc et al. 2021)
	Produced with artisanal methods	Recalling history and traditions. Often companies are family owned.	
	Respect for traditions	The territory, the place where the company is born and the honey is produced, is also understood as protection and respect for it, almost as something familiar, local productions often locally-sourced.	
	Link with the territory	This means the association of honey with other foods. Whether it is acacia, honeydew, chestnut or other, honey in the Italian gastronomic culture is associated with other typical territorial products: fresh cheeses, aged or semi-aged cheeses, cured meats, especially lard and bread. As these are gastronomic combinations, the use of honey as a sweetener, e.g., in tea and herbal teas, is excluded from this codification.	
Quality	Gastronomic pairing	Relates to safety in the sense of food safety of the product and good production practices.	(Zhang, Chen, and Baoliang 2019; Chen et al. 2021; Nandi et al. 2014; Vita et al. 2021; Cosmina et al. 2016; Silva et al. 2017; Panseri et al. 2020; Jia et al. 2022; Kazimierczak et al. 2022)
	Safety	Explicit reference to traceability of products.	
	Traceability	By added substances we mean preservatives, additives, colorants. But also, various chemical substances, pesticides, drugs and pollutants.	
	No added substances	The advice is expressed both for its healthy characteristics and for its delicate and not bitter taste, suitable for children. The needs of sportspeople are very specific; they prefer products with simple sugars immediately absorbable by the human body and they need many mineral salts. For this reason, honey is an excellent ally for sports.	
	Recommended for children and sportive	Organic production often represents an added value in term of food safety and usually communicated on the website.	
	Organic	The term quality, if not contextualized, takes on an ambiguous meaning. In this case, quality is meant as good quality, high quality, excellent quality mainly referred to the product in a generic way. It also includes the presence of other certifications or the desire to be certified: including bee industry certifications and awards, production certifications such as ISO 22,000, international certifications such as IFS and product certification like PDO	
	Quality and certifications	100% natural is a frequent wording referring to both the product and the pollen. Included in the coding is a reference to the natural crystallization process of honey.	
	Natural product	Purity is associated with the product honey and other products of the hive and excludes the purity of the territory and the difficulties of producing the honey of a specific flower in purity. It implies an original and authentic product.	
	Genuineness and purity of honey		

(Continued)

Table 1. (Continued).

Superior codes	Sub-codes	Description	Reference
Sustainability	Adopt a hive	Possibility of adopting a hive in a symbolic and practical way to support bees and their life on Earth.	(Damen, Verkerk, and Steenbekkers 2022; Dade and Hassenzahl 2013; Sharpe and Barling 2019; Pippinato et al. 2020; Sillman et al. 2021; Serra et al. 2021; Fedoriak et al. 2021)
	Biodynamic Animal Welfare Environmental Sustainability	Biodynamic. Referring to the welfare of bees and their respect. Safeguarding the environment and biodiversity.	
	Sustainable tourism	Guided tours of the farm for groups of children, schools or adults. Often with hiking and activities related to the theme of sustainability.	
	Ethical sustainability	Respect for ethical and social principles.	

Table 2. Characteristic of websites (number = 87).

Variable	Characteristics	Number of website (percentage)
Domain Authority (DA)	=0	26 (30)
	1 – 5	21 (24)
	6 – 10	20 (23)
	11 – 15	14 (16)
	>16	6 (7)
Backlinks	=0	24 (28)
	1 – 10	19 (22)
	11 – 50	12 (14)
	51 – 100	12 (14)
	101 – 500	15 (17)
	>500	5 (6)
Organic monthly traffic (OMT)	=0	37 (43)
	1 – 10	24 (28)
	11 – 30	10 (11)
	30 – 100	8 (9)
	>100	8 (9)
<i>Presence on social Network</i>		
Facebook	Presence	66 (76)
	Absence	21 (24)
Instagram	Presence	45 (52)
	Absence	42 (48)

identified. The map shows that the most frequently occurring node-variables were code belong to the Origin of the product or company, and to the Quality. Looking at the links, which show the degree of influence between nodes, the thickest link lines, illustrating greater co-occurrence, were those related to items 'Gastronomic pairing' (n. 258) and 'Link with the territory' (n. 151) whose Superior code was Origin and 'Certifications and quality' (n. 164), 'Organic' (n. 161) and 'Genuineness and purity of honey' (n. 128) whose Superior code was Quality. On the other hand, the thinnest link lines were 'Traceability' (n. 4) which was part of the Quality, 'Ethical sustainability' (n. 14), 'Sustainable tourism' (n. 12) and 'Adopt a hive' (n. 20), which was part of Superior codes Sustainability, and 'Regulates kidney function' (n. 22), which was part of the Health aspects.

The correlation matrix resulting by considering the different items and the presence of social media on the website is reported in [Table 4](#).

The analysis showed that the presence of Instagram was significantly correlated only with Gastronomic Pairing, but that the even more positive relationship was with Facebook. In addition, Facebook presence was positively correlated also with Link with the Territory claim. The latter has a significant correlation with both items of Sustainability (Animal welfare and Sustainability environment).

There were some items that presented a high correlation with other items, and some other with low correlation. Gastronomic Pairing, e.g., has positive correlation with Origin (Link with the Territory), Quality (Organic Properties, Quality and Certifications), Nutritional Characteristics (Source of sugars, Source of minerals) and a stronger correlation with Sensorial product characteristics (Mild taste, Fresh Aroma). In general, Sensorial characteristics and Nutritional characteristics had a strong positive significant correlation, and part of this last one (Source of minerals) had Health aspects (it strengthens immune defences and improves respiratory tract problems). Indeed, Source of Sugars has a positive correlation with Strengthened Immune Defences and no correlation with Effective for Respiratory Tract Problems.

Table 3. Ranking of the Top 10 most frequent words or combinations of words (WoCW) on beekeeping company websites.

WoCW	Number Frequency	Number website where WoCW are present	Presence of WoCW on website on IG	Absence of WoCW on website on IG	Presence of WoCW on website on FB	Absence of WoCW on website on FB
High mountain	69	29	43	26	62	7
Royal jelly	72	25	53	19	61	11
Amber colour	58	24	32	26	50	8
Yellow colour	49	23	23	26	41	8
Minerals	48	23	22	26	42	6
Farm	88	22	82	6	76	12
Straw yellow	50	22	34	16	43	7
Light colour	35	17	26	9	33	2
Middle intensity	22	16	13	9	19	3
Alpine flora	37	15	17	20	31	6

IG= Instagram; FB=Facebook.

In the superior code of Quality, two items for correlation were considered: Organic and Quality and certification. Although they belong to same category, they behave completely differently: Organic has a positive correlation only with Animal welfare while Quality and Certifications, such as Gastronomic Pairing, present correlations with high numbers of items (Nutritional characteristics, Sustainability, Sensitive characteristics), but less with Link to territory. Internal, significant, and positive correlations were found in the communication of items that belong to the same Superior code (Organoleptic characteristics, Origin, Health aspects and Nutritional characteristics).

4. Discussion

Contrary to previous studies (Petrlák, Janšto, and Horská 2020; Schiro et al. 2020) that highlighted the importance of communicating with consumers through websites and the essentiality of online presence in today's marketplace for small businesses, our analysis does not demonstrate a real interest to build competitiveness online. It is possible that small businesses such the sample considered does not believe in the potential of internet, so it does not use keywords or payment systems for sponsorship or to appear in the first search pages. Instead, the traffic data collected suggests that producers apply no systematic communication, even if beekeeping companies are present online; as a result, their websites are poorly visited by consumers.

With regard to the difference on beekeeping communications pertaining to companies with or without a social profile, this general trend emerged: beekeeping companies present on social media tend to use many items and create more content, communicating the value of honey or their brand and using many more arguments than companies without a social profile. Producers with Instagram and Facebook believe in interactions with consumers and believe in digital marketing, Instead, a positive and significant correlation was found between gastronomic pairings and both Instagram and Facebook. The communication of information pertaining to Gastronomic pairings, such as cheese pairings, fit well with formats available on Instagram (photos or short videos) or on Facebook; it is quite expendable on social media with a more positive impact on consumer's mind. According to the literature, producers are aware of the different impact

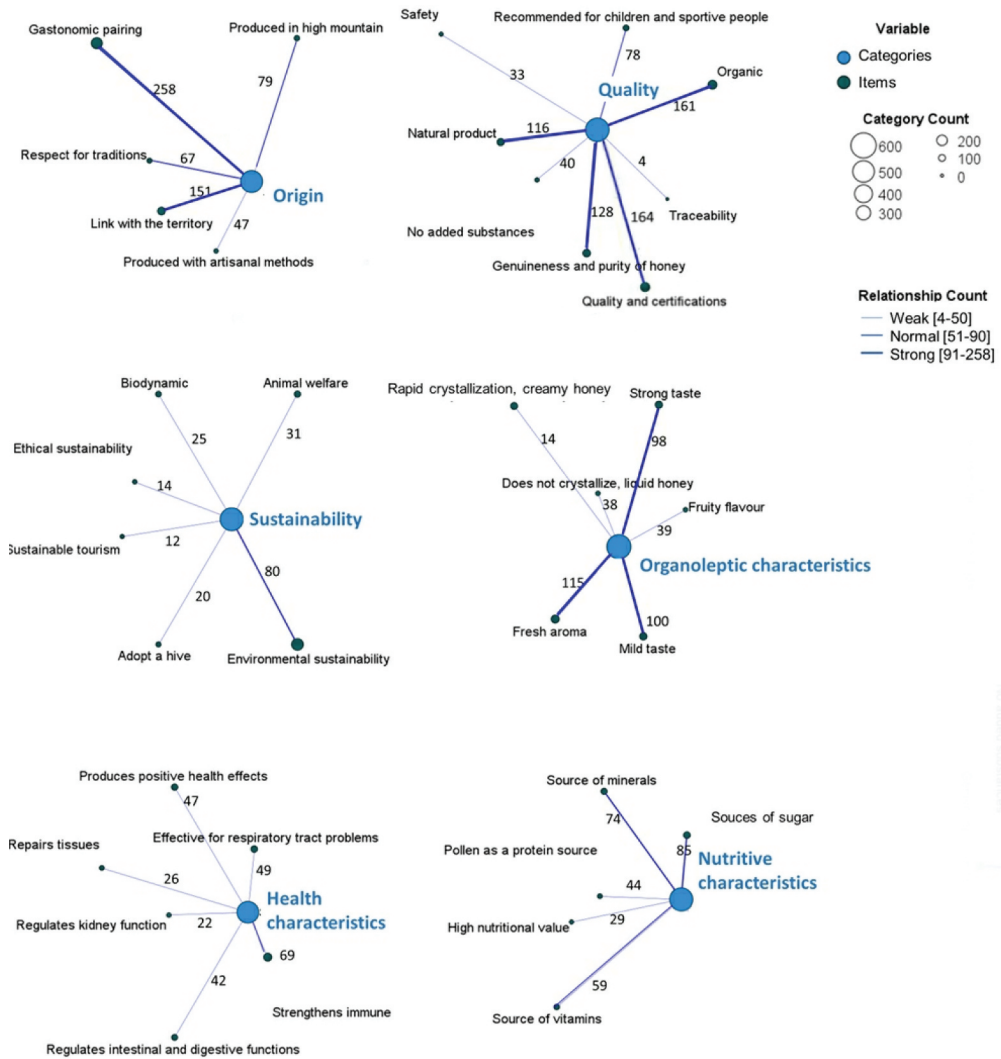


Figure 2. Relationship map between the category’s variables and the claims (single words and word combinations) collected on the websites taken into consideration.

of words and images: indeed, images are more highly evocative than words and they tend to be more immediate (Yost, Zhang, and Ruoxi 2021). In addition, Facebook has a significant correlation with Link to Territory; this result is in line with previous findings (Fonte 2008; Sweney 2018): Facebook is a social network popular among the over-55s and this consumer looks for a local connection when it comes to food and prefers to consume local products. Generally, producers who do not have an Instagram or Facebook page reduce the possibility of communicating all kinds of information to their customers and find it harder to attract them to the company website or in store.

Marketing strategies for honey are peculiar because, unlike the marketing strategies adopted for other products of animal origin that are focused on the production or the final product, beekeeping communication is focused on breeding, on the territory and on



Table 4. Correlation matrix.

	Origin		Quality		Nutritive characteristics		Sustainability		Sensorial characteristics		Health aspects			
	FB	IG	Gastronomic pairing	Link with the territory	Organic certifications	Quality and certifications	Source of sugars	Source of minerals	Environmental Sustainability	Animal Welfare	Mild taste	Fresh Aroma	Strengthen immune defences	Effective for respiratory tract problems
FB	0.017*		0.005**	0.011*										
IG		0.037*	0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Gastronomic pairing			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Link with the territory			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Organic certifications			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Source of sugars			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Source of minerals			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Environmental Sustainability			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Animal Welfare			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Mild taste			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Fresh Aroma			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Strengthen immune defences			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*
Effective for respiratory tract problems			0.015*	0.016*	0.016*	0.015*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*	0.016*

FB=websites with Facebook Page; IG= websites with Instagram page. Significance level: p-value <0.01*; <0.05**; <0.001***.

animal welfare. According to literature (Sillman et al. 2021), the function of bees on the Earth's ecosystem is unmatched, so the communication uses a lot of terms which reference nature or simple characteristics of the products and their origin. Many combinations of words or single words related to the territory (like high mountain and alpine flora) imply the natural aspect of honey production. The results confirm that beekeeping communication is based on the colour, taste and perfume of honey; indeed, for food marketing, the description of sensorial and organoleptic features, such as aroma, texture and flavour, are useful to drive consumers towards an 'imaginary taste' (Merlino et al. 2020). With regard to the communication with items found on beekeeping website companies, there are some categories that are more common, such as Origin and Quality, and other less widespread, such as ethical or social Sustainability and Health aspects. Gastronomic pairing plays an important role on websites and follows the trend of making honey known for culinary aspects. The goal of widespread marketing is to increase consumer interest by giving honey a new gastronomic identity. Honey is elevated from its classic role of sweetener and energy source and has become a real 'culinary vice'. According to the literature (Cosmina et al. 2016; Blanc et al. 2021), the association is usually between a different type of honey with fresh or seasoned cheeses, cured meats, especially lard, and bread; all these foods have a strong regional connotation. From a statistical point of view, pairing with other food has a significantly strong correlation with Sensory Characteristics and Source of Minerals. This result is easily understandable because a crucial part of the gastronomical narration of honey is linked with the description of organoleptic features and – as the bibliographic studies show – minerals give specific sensorial characteristics to the honey (Chinedum et al. 2013). In addition, providing information regarding minerals is frequent because it attracts sports people or parents aiming to enhance their children's nutrition (Rylova and Zholinsky 2020).

The results have shown the great importance of territory when it comes to beekeeping communication. Other Authors (Blanc and Brun 2019) confirm that honey is naturally linked to the territory and its flora; for this reason, many brands give importance to identifying with a location and belonging to a place. From a cultural point of view, honey is considered to be a local food by consumers; this means the product is linked to an area relatively close to where it is purchased (Fontana et al. 2018). The correlation between territory and Sustainability, and more specifically Animal welfare, confirms the uniqueness of the link between territory and fauna in terms of preserving it and promoting local economy. If beekeeping companies enhance and support local areas, there will be positive effects on local environmental sustainability and on B2C relationship (Schifani et al. 2016; Zhang, Chen, and Baoliang 2019). On the same level, Certification and Quality demonstrate how important it is for production systems to pay attention to food safety in terms of quality certifications and standards (Pippinato et al. 2020). The adoption of quality parameters and standards drive producers to enter in international arena. The concept of quality 'intended', suggests to readers that products have excellent quality; this is widespread on beekeeping websites. Our findings are in accordance with Zhang, Chen, and Baoliang (2019), expressing that the communication of product quality characteristics is crucial for local products such as honey, and reflects the concept of authenticity, genuineness, and tradition that consumers want. Quality and certification items were significantly correlated with Sustainability, Nutritional and Sensorial items: this link confirms that quality has transversal importance in the agri-food sector. Also, the Link to

the territory highlighted in this study is demonstrated in the literature for local honey as often perceived by consumers as being the guarantee of a safe product of superior quality (Sundbo 2013). As found in other studies (Pippinato et al. 2020), many of companies analysed produced organic honey; this means that their production respected the parameters of certification, such as soil health, human health, and environmental health with the use of bio-techniques; this ensures that organic beekeepers gain a better recognition of their product. According to ISMEA data (ISMEA 2021), the production of organic honey in Piedmont is growing steadily; however, there is a lack of communication pertaining to Health aspects or Sustainability; this indicates that the description of organic food on the company websites is partial, as confirmed in several studies (Ghosh, Datta, and Barai 2016; Kastberg 2015; Septianto, Kemper, and Paramita 2019). Consumers do not know the real meaning of 'organic', or are partial conscious or sceptical; as a result, this leads to a low level of organic food purchase.

Less common are topics concerning sustainability, particularly ethical and social. Among these, we find Adopt a beehive, Ethical sustainability, and Sustainable tourism. These results are in agreement with the literature (Toussaint, Cabanelas, and Gonzalez Alvarado 2020) because, even though issues related to respect for workers and work ethics are increasingly important topics in the agri-food industry, their impact is not yet strong enough and the communication of these items is not transparent, especially in small local companies producing honey. Other uncommon items are related to Health aspects such as Regulates Kidney Function. Although there are many benefits to hive products other than honey (e.g., royal jelly and propolis) and these are recognized by the scientific community (Keskin et al. 2021; Kumar, Bhowmik, and Chandira 2010; Cianciosi et al. 2018), honey is the main hive product consumed by humans. Communication for honey is more focused on attractive features such as organoleptic and gastronomic characteristics, thus penalizing the Health aspects. Finally, Traceability was the less communicated item on websites' beekeeping companies showing how the small companies that sell mainly directly on the market, and only in a few cases online, probably choose to neglect the communication of traceability by emphasising the direct relationship between producer and consumer. Consumers trust local producers, regardless of product parameters, and question products whose origin is far away (Sundbo 2013), especially if it is honey.

5. Conclusion

This research showed that beekeeping communication does not follow the general trend of being active online to build competitiveness. The websites analysed have minimal information on the general characteristics of honey as a sensorial and organoleptic compound. The only distinguishing feature between companies is the origin with Gastronomic pairing and the Link of the territory. In today's competitive market, this depth of differentiation is not enough. In fact, every year the number of beekeeping companies entering the market increases; product differentiation and value creation can no longer be based on product quality alone, but must also consider ethical justifications, storytelling and image value.

This study provides an important tool to understand the actual local marketing communication for beekeeping and to highlight which topics honey industries could focus their communication on in order to improve marketing strategies.

The limitations of the study can be attributed to the composition of the sample, which is limited to a relatively small area, and the chosen method of analysis, which requires human coding of the text and leads to potential errors, such as the failure to identify topics. To reduce this last limitation, the coding system was conducted separately by two researchers with high expertise in food and honey communication strategies. Future research could focus on communication on social networks, or on a comparison between the communication strategies of small beekeeping companies and large honey companies also in different national and supranational contexts.

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