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SWEET AS HONEY: A CONTENT ANALYSIS OF HOW BEEKEEPING IS REFLECTED IN ROMANIAN MASS MEDIA[1]

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Abstract: *Apiculture is an activity with multiple ramifications, as it is approached from an economic, biologic, social or ecologic perspective in the attempt to tackle its contributions to biodiversity, a healthy eating style, the sustainable growth of agricultural production or community development. In this material we will study apiculture from a sociologic perspective, focusing on the way the field is reflected in mass media. The aim of the paper is to show the way in which the experts, the legislation and the institutions involved contribute to the construction of a particular image and to its traits. The exploratory research is based primarily on content analysis, but also on data mining and semantic network visualization. These methods are applied to a number of 2,248 articles published between 2010 and 2014 in digital format on the websites of news agencies and news aggregators such as Agerpres, Hotnews, Mediafax and Ziare.com. The results point to an image in which the dominant dimension is natural, ecologic, health and medicine oriented, with secondary aspects concerning the way in which the bees and their products connect the people and the environment.*

Keywords: *apiculture, content analysis, honey*

Introduction

The changes which occurred after 1989 in Romania brought about major changes in all domains of social life. Under the impulse of changing the property regime, of the extension of the right to free circulation, of association, of institutional construction specific for a democratic state, and of forming the local economic capital, many specific trends of Romanian society were abandoned, whilst others adapted themselves to the

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capitalist system. The phase generically known as "transition" developed through a series of "*institutional construction through human projects"* (Rughiniş, 1999: 115) processes, processes which were uncompleted and incoherent due to lack of continuity. The lack of logic which characterized the economic reconstruction measures caused Romanian to adopt a set of austerity policies recommended by international financial institutions, which generated economic decline or stagnation, without any perspectives of convergence towards strategic objectives, as well as an acute polarization of society. Nowadays, Romania is confronted with a series of uncertainties related to social evolution, and must revise economic growth forecasts, as well as reduce the gap between itself and the developed European Union countries, in the difficult context of the economic crises and the geopolitics challenges in the area.

A short analysis of the main relevant social inequality indicators shows that, although the GDP evolution in Romania is positive on the short term, this is the result of a favourable natural context. The evolution of the GDP in 2013 increased by 0.7% compared to 2012 (Ministerul Finanţelor, 2014). This positive evolution was not generated mainly by government policies, but by good agricultural harvests (the added value reaching 11.3%). Romania still has an employed agriculture workforce which is much superior to the EU average, and mostly unremunerated. This leads to a weak fiscal regulation of this domain, and to numerous rural households entering a subsistence economy.

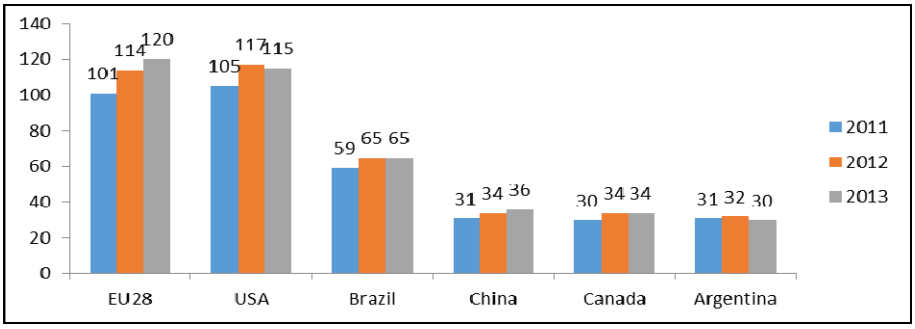
In this paper we shall approach the beekeeping activity, a domain which is hard to classify, situated at the border line between economic and social, rural and urban, hobby and recreation, a form of activity which maintained its relevance on the Romanian territory, regardless of the type of social organization existent at a specific point in time. The procedure's relevance is warranted by the changes which could occur in the beekeeping domain, changes caused by the national legal system through the Apiculture Law no. 383/2013, and by the EU-approved related regulations, implemented by the National Apiculture Programmes 2014-2016. These transformation could take up the form of "super-innovation", a process which could ignore the specifics of the existing reality (Chelcea, 2006: 129) and introduce in the system some variables which could destabilize it. Through a content analysis applied to articles from the four main Romanian news sites, combined with data mining and network analysis methods, and completed with secondary statistic data from published sources (FAO, Eurostat, MARD etc.), we shall proceed towards defining an exploratory profile of the beekeeping activity. The main directions of analysis will be the way apiarian products are presented in the local cuisine and culinary traditions, their role in defining certain lifestyles, the specific traits of the economic activity of beekeeping, the role of national and international regulations, as well as the perception of the authorized institutions in this field.

The current state of apicultural knowledge

The contemporary reality of the Romanian rural space is characterized by the balkanization of agricultural fields, the migration of active workforce, the lack of investments or networks for valuing agricultural products. The challenge to which

society must respond to is to adapt measures for basic economic and social development, maintaining the specific country-side landscape, „*the survival*", as Stahl calls it, „*elements of social organization, ethnographic facts, rituals, linguistic forms*" (Zamfir & Vlăsceanu, 1993: 46). The competition for food production and procurement has lately intensified on an international level, the food price index elaborated by the Food and Agriculture Organization having doubled in 2013 compared to 1990 (Food and Agriculture Organization, 2013). This reality puts pressure on the Romanian state policies to solve the problems generated by the property system and the lack of autonomy of large population segments, which depend on the individual exploitation of small land surfaces. Beyond emotional reactions which should not be neglected, the increasing and volatile nature of prices poses the question of the states' food sovereignty. When important agricultural resources can be oriented towards export, and EU subventions are maintained unequal amongst member states, Romania's capacity of procuring its necessary amount of food from internal resources is being questioned, and the preservation of the specific natural landscape which is favourable for beekeeping is under threat.

Figure 1*. Top 6 agricultural exporters worldwide (€ billion).*



Source COMEXT, GTA

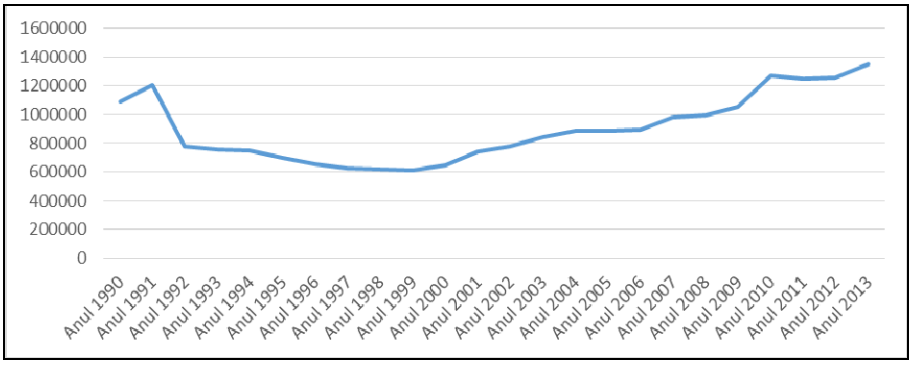
Food prices are increasing on a global level, in spite of the crisis which developed economies are facing, this growth being fuelled by climate change fears, changes is the nutrition habits in developing countries, or the perturbation of distribution channels following geopolitical decisions. The European Union is the most important food exporter worldwide, as agricultural policies are integrated and significant funds are allocated in this direction, the production being stimulated by the high requests from China and Middle East region. Forecasts indicate the necessity for a 70% growth of food production in order to feed the World's population, in the event of its number increasing by 40% until 2050. However, climate changes, decreases in water supply sources, degradation and limitation of fertile lands, make this objective hard to achieve. In this case, Romania is a contrasting country, having a very high potential to develop its production capacity, but also limitations imposed by degrading soils, as over 60% of the land surface being severely degraded following yearly cultivation, deforestations and overgrazing (Bot, Nachtergaele, & Young, 2000: 30). Plus, the decision capacity is

limited, European-level agricultural policies being the result of negotiations between European Union member states, Romania having weak performances in this context.

Probably, in this context, it is quite ironic that agriculture is the only domain in which Romania has contracted all the available European funds, through the National Rural Development Programme (PNDR). According to the Ministry of Agriculture data, the PNDR 2007-2013 absorption rate is 70%, and the payments towards beneficiaries rise up to over 6,3 billion Euros, European money which must be paid until 2015 (Reţeaua Naţională de Dezvoltare Rurală, 2014, p. 4). The funds that had been spent according to EU negotiations created structural unbalances, especially due to the fact that the large proportion of rural population existing in the early 1990s was not taken into consideration. The re-ruralisation process caused by the closing down of major industrial objectives on the city outskirts, as well as mono-industrial ones, such as the Valea Jiului coal basin, or the city of Călăraşi, together with a loss of workplaces, were completed by a disastrous property policy and disparities between the financing of rural communes, both through own funds or expenditures for the public projects allocated from central state budget (Mihalache, 2013). The hesitations regarding land retrocession and the solution of restitution on the old settlements have led to the fragmentation of the agricultural land and to the incrementing of subsistence agriculture. The main strategy for an economically-stagnant population, without a high educational level and lacking in perspectives, was temporary migration abroad in search for work.

Professional beekeeping is an important component of agriculture as part of the European and national economy, recognized as such by being included in the Common Agricultural Policy (CAP). Beekeeping is thus relevant to the general objectives of the CAP: to limit surplus (compensation payments included), to grant a decent living standard for farmers, to promote better environmental conditions, to preserve rural space and to ensure a reasonable price range for consumers.

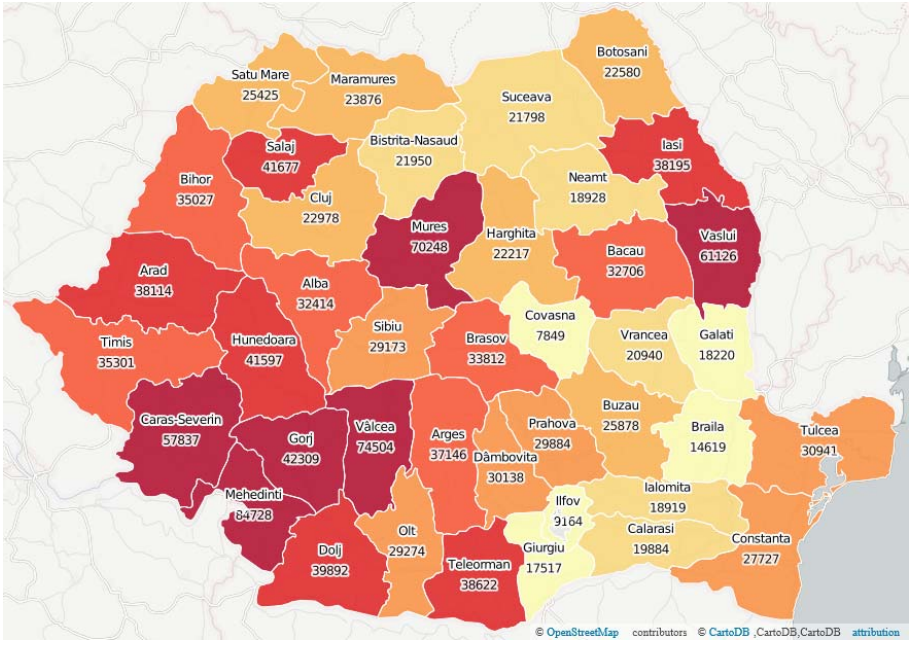
Figure 2*. The evolution of bee hives in Romania during 1990-2013*



Source: INS Tempo-Online

Specialized European programmes regarding beekeepers were introduced in 2007 and include measures related to technical assistance, disease control, transhumance rationalization, analysis of the properties of honey, the renewal of the bee families in case of mortality and research programmes (European Commission, 2013). The European Union does not set only the way in which funds are spent, it also creates legislation and defines bee products, as its policies are correlated with standards regarding imports and exports both within the EU, as well as foreign. Through the 2001/110/EC Directive, honey is defined as „*the natural sweet substance produced by Apis mellifera bees from the nectar of plants or from secretions of living parts of plants or excretions of plant-sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in honeycombs to ripen and mature*". Honey composition is the object of very strict EU regulations setting the maximum levels of residues of pesticides, antibiotics, heavy metals and sulphonamides in order for it to be considered safe for consumption. The requirements (set through the 2001/110/EC Directive) are grouped in according to sugar content, moisture, water-insoluble, electrical conductivity, free acid and distaste activity and HMF content after processing and blending (Deloitte, 2013: 28). The definitions agreed upon at intra-communitarian level are completed in Romania through the Apiculture Law no. 383/2013 which containing terms and expressions relevant to beekeeping activities and have the ability to shape its characteristics.

Map 1. The spatial distribution of bee families in Romania at county level



Source: INS Tempo-Online

The activity of beekeeping is influenced by fiscalization, environmental conditions, financial facilities, legal systems or international treaties, cultural aspects or technological innovations. In the past, honey consumption and implicitly the development of the beekeeping activity was influenced by the introduction of sugar beet, and the use of wax was reduced due to the apparition of public illumination, and particularly through petrol and electricity. At present, the colony collapse disorder (CCD) phenomenon makes it difficult to identify a cause for the decrease in the number of bee families, putting pressure, however, on the way apicultural products are used and valued.

Another aspect to be taken into consideration is the melliferous base available for melliferous bees in a given geographic area. In Romania, approximately five million hectares worth of land are covered in melliferous plants (around 60% being represented by forest species, and the rest by cultivated plants and spontaneous species), three million hectares being valued by production harvests and maintenance by melliferous bees. In the past one of the main causes for decline of beekeeping was generated by grubbing some extended natural meadows and pastures, and turning these into arable lands, aimed for monocultures. Currently, the risks are mainly generated by the decrease in forest areas and planting species which do not offer nectar or pollen, as well as cultivating genetically modified organisms which no longer need pollination, and implicitly, do not provide nectar. The local diversity of melliferous plants also reduces the risk of unintentional negative consequences which might appear within environmental preservation and development projects (Zimmerer, 2006: 69). Therefore, it is necessary for plants and trees with native flowers, specific to Romanian flora, to be given priority within these initiatives.

Romania is one of the European countries with a developed beekeeping sector; in 2013 it totals 1,354,218 bee families, which represents 7% of the EU total, and approximately 40,000 beekeepers, most of them amateurs. Another relevant indicator of the development of the sector is the funding level through the National Apiculture Programme: Romania receives 50% from the European Union for 2014-2020, the third largest sum among the European countries, amounting to EUR 20,045,340. These funds are awarded through an institutional system that proved its administrative capacity during the previous financial interval, Romania spending 100% in 2010 out of the available funds, 85% in 2011 and 98% in 2012. The main institutional responsibilities are:

- MARD: elaborates implementation regulations;
- APIA: elaborates the guides for financial support, financing documentation, manages requests, develops and implements payment control and management for funding programmes;
- NAIRZ: implements the common identification system and manages the statistical database for the beekeeping sector.

The distribution channels for apicultural products include producers, rural assemblers, transporters, wholesalers, retailers and consumers, and their structure is influenced by request and offer. The number and sizes of companies, and the number of producers

and consumers in a given area at a given moment in time, as indicators of the apicultural products market structure, regulated by entry barriers, pricing policies, can indicate the system's performances. One of the characteristics of the beekeeping field in Romania is the dominance of the direct, producer-to-consumer distribution channel, a type of economic interaction which favours that brings prices down but raises difficulties in the way of expansion or entering new markets. This is the reason that contexts and structures that enable interaction are important; we are talking about beekeeping fairs, promotional and informative materials, origin or quality certificate, obtainable through the analysis of honey which can be done using funding from the National Apiculture Programme.

The beekeeping activity left its imprint on Romanian culture, the presence of bees and apicultural products references being attested in folklore, legends, songs, people's names, riddles or proverbs. The cultural symbol of the bee has been used on the coats of arms of the counties of Mehedinţi, Vaslui and Romanaţi as a reference to hard work and prosperity. Just like any traditional activity, beekeeping demonstrates, through a specific terminology, its long period of existence and continuity in time:

- BEE (ALBINĂ), n.f. Present in all Romanian dialects (dr. albină; ar. alginǎ; megl. albină; ir. albire). The word comes from the Latin "alvina" („hive").
- HIVE (STUP), n.m. Comes from the Latin "stypus" ("hollow tree trunk, either by rotting, either caved by man")
- GOFER (FAGURE), n.m. The word derives from the Latin "favulus-um", a diminutive of "favus".
- HONEY (MIERE), n.f. Derives from the Latin "mel", "melem". It is present in all dialects (dr. miere; ar. ńare, megl. ńani; ir. ml'are) and it is encountered in all Romance languages (cf. it. miele; fr. miel; port. mel etc).
- WAX (CEARĂ), n.f. Derives from the Latin "cera, -am" (in ir. tsere and ar. ţeară). The word has been kept by all Romance populations: ital. cera; franc. cire; in prov. cat., span., port. cera.
- BEE BREAD (PĂSTURĂ), n.f. Floral pollen, gathered, processed and stored by bees in gofers' cells, an indispensable food for the normal development of bees and spawn. The word derives from the Latin "pasture" (from "pastus"- food).

Other few words which refer to beekeeping are of Slavic or unknown origin:

- APIARY (PRISACĂ), n.f. a place where hives are being placed, encountered dominantly in Moldova and Bucovina, it is assumed that it derives from the ancient Slavic "prěsěka". In Moldova, the word has evolved, generalizing itself with the sense of 'apiary', "where bees are being raised".
- QUEEN BEE (MATCĂ), n.f. Derives from the Bulgarian "matka" = mother, scr. matca, (often determined by the bee family, the hive). Generic term replacing, in the Romanian apicultural terminology, the Latin term "mama", derived from the Latin "mamma".

- DRONE (TRÂNTOR), n.m. Generic term, comes from the sl. trontŭ + agent suffix – tor. The male of the bee family, is born out of an unfertilized egg.

The importance of beekeeping in the Romanian geographic area is attested by the habit of National monarchs of offering "apiary space", tax exemption and commercial privileges to worthy citizens. For example, in 1388, monarch Mircea the Elder of Wallachia offers the Cozia Monastery honey and wax for religious activities, and in 1391 offers tax exemption to his faithful Stanciu, accepting "*especially not to pay tribute from bees"*. The oldest document attesting commercial activities associated with apicultural products is dated on the 20th of January 1368, when Vlaicu Vodă offers the city of Braşov the privilege to carry out commercial activities with wax from Wallachia, which wax producers from Braşov were transporting from Transylvania to Hungary. Beekeeping came across an increased development on monastery and church locations, being supported by tax exemption, as well as by the request for wax, used for candles production.

A few chronological references attesting publishing, educational, organizational and research activities in the field of beekeeping in Romania:

- The first Romanian publication which approaches the beekeeping activity is "The Economy of Hives" ("Economia stupilor"), a publication which was issued in Romanian, in Vienna, in 1785, written by Ioan Piuariu Molnar. This book is written from an economic perspective and is divided in two sections: *Theoretical Content* and *Practical Content*. The author shows how beekeeping practices can be improved, encouraging beekeepers to give up on inefficient medieval practices. In 1880 the Beekeepers Society of Transylvania was created in the city of Cluj-Napoca, the first professional beekeepers' association in Romania. In Moldavia, in the year 1829, in Iasi, Gh. Asachi types the magazine *The Romanian Bee* (*Albina Românească)*, a general knowledge magazine which systematically approaches apiculture-specific themes as well.
- In 1906, on the occasion of an apicultural exhibition, Remus Begnescu presented a systematic hive, for the first time in Romania.
- In 1907, the work "The Hive Guide" („Călăuza stupului") is published, written in Romanian by N. Nicolaescu and I. Stoenescu, a Romanian Academy award-winning work, which was republished in 11 editions and represented a fundamental point of reference in the beekeeping field, being also permanently updated with recent information.
- On the 21st of December 1915, the first National Apiculture Congress is organized, and also the National Apiculture Society was created (which was renamed the Romanian Central Apicultural Society in 1925), taking the decision to publish what would become the "Apicultural Romania" („România Apicolă") magazine in 1916, and which has been published continuously from that period of time to the present day.
- Starting with 1930, Remus Begnescu organizes beekeeping courses throughout the year, each cycle lasting 15 days. As he was named professor by the Ministry of Agriculture, this period attests the beginning of apicultural education in Romania.
- Since 1930, the organization of apicultural research has been institutionalized under the apiculture section within the National Zootechnic Institute of Romania, which became in 1947 the Institute for Zootechnic Research.

- On the 30th of December 1957 the Romanian Beekeepers Association was created, as a working class beekeepers' civic organization. Veceslav Harnaj was its first president, and declared: „*I am a Hydraulics professor at the Romanian Institute of Petrol, Gas and Geology. Apiculture has been and will remain my hobby, my invincible passion*" (Gheorghe, 2012) as an indicator of the way beekeeping represents an open domain of activity both economically and culturally.
- The development level of the prestige of Romanian apiculture is confirmed in 1965 by the election of Prof. Harnaj as President of APIMONDIA, the most important international apicultural forum, a role which he has maintained for 20 years, between 1965-1985 (Asociaţia Crescătorilor de Albine, 2006).

After 1989 the organizational structure has been maintained, however, a strong decrease in the number of bee families has been registered, from 1,400,000 to 600,000 in 2000, following the dissolution of state sectors and rural cooperatives. Nowadays, the bee families regenerated on the national level, registering an increase of the hives profitability through professionalization and a broader coverage in terms of the types of the apiarists involved in beekeeping.

The studies approaching beekeeping from a social perspective emphasize the importance of social capital in carrying out the specific activities. The resource investment for lucrative purposes is facilitated by small entrance costs, an atypical knowledge distribution simultaneously derived from experience and standardized scientific research, a seasonal programme which can be adjusted according to availability, as well as scalable and predictable profits, which depend on involvement. Workplace precariousness in the Romanian rural space is a reality which could be improved through involvement in beekeeping activities, and the National Apiculture Programmes of 2011-2013 derived its worth from having financed mainly small exploitations, facilitating hives creation and development for beneficiaries with limited financial capital.

The Romanian beekeepers community is organized at the local and National level through associations, which have the role of certification, knowledge transfer, logistic support, consultancy, etc. Their importance derives from legal regulations (only members can "*benefit from financial support for hives' creation, development and modernization, through access to the measures contained in national or European programmes destined for this domain*" – the Law of Apiculture). Besides, these associations represent the institutional response to the need for social inclusion (Cace, 2008), promoted on the European level as a response to community under-development and an important source for negotiation capacity in the context of the elaboration of legislation in this domain. Therefore, the Romanian Beekeepers Association and other associations have been actively involved in defining the stipulations of the Apiculture Law no. 383/2013, acting as a mobilization source (Rammelt, 2011: 130) connecting and energizing its beekeeper members in order to effectively participate in the legal elaboration process.

The data generated by the modern communication devices and digital social media networks, which can be accessed by specialists, can create new, interdisciplinary research domains, which can answer questions related to social dynamics in border-line disciplines such as computational gastronomy (Ahnert, 2013). As historical documents are being digitalized, and textual information becomes available, research on the way beekeeping has been perceived throughout the years can be carried out.

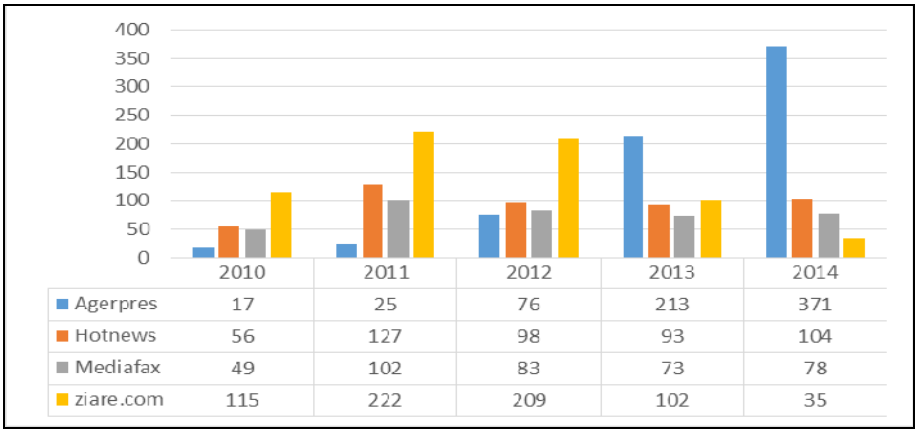
The way that the online environment presents types of food and beverages according to certain standards represents the subject of institutional and organizational regulations, giving the volatile and dynamic nature of the internet. Among the self-regulating initiatives promoting food and beverages we can find Children's Food and Beverage Advertising Initiative (CFBAI). Through this procedure, the Canadian member organizations are making the commitment, since 2007, to present messages about healthier food and beverage items or healthy lifestyle habits in at least 50% of their marketing communications (Brady, Mendelson, Farrell, & Wong, 2010: 167).

Methods and Materials

Researching the way in which the image of beekeeping is built in Romanian media is based on a series of articles selected from some of the main websites producing and gathering information in a digital format:

- Agerpres (www.agerpres.ro) is the Romanian national news agency and also the oldest. Its website was launched in 1999 and with its 2013 reorganization came its focus on online news.
- Hotnews (www.hotnews.ro) is an online news portal with articles and analysis generated by its in-house news room, but also with a daily press rundown and other information coming from third parties.
- Mediafax (www.mediafax.ro) is a news independent agency established in 1995 in Romania providing news and information feeds in real time. In addition, Mediafax is information aggregator from print and broadcast media across the country.
- Ziare.com (www.ziare.com) is a politically independent news aggregator which publishes informative and opinion texts.

Figure 3. *The distribution of selected the articles for analysis*



	2010	2011	2012	2013	2014
Agerpres	17	25	76	213	371
Hotnews	56	127	98	93	104
Mediafax	49	102	83	73	78
ziare.com	115	222	209	102	35

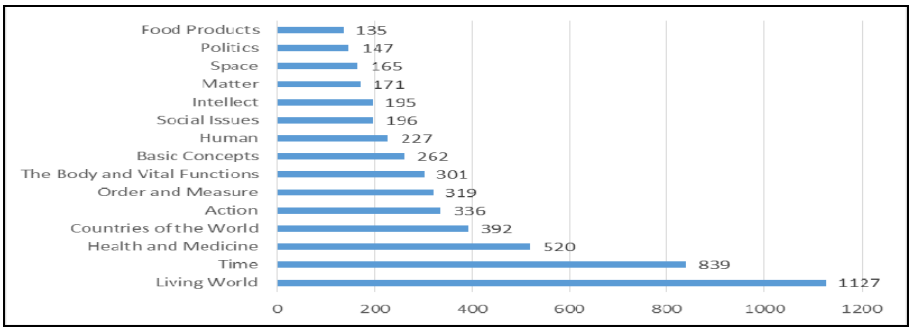
Source: personal database

The distribution of the selected articles is presented in Table 1. The preliminary data analysis is necessary because its sheer number requires an approach suited to extracting relevant information. The recommended necessary steps (Kitchin, 2014: 101-102) cover the requirement that the data be structured for data mining and pattern recognition and that the analysis for data visualization and visual analytics be possible:

- *Data selection*: the subset of variables that can be included in the exploratory model must provide as much relevant information as possible. In the article we selected we chose to discard, for example, the number of times they were viewed because, in addition to the fact that the information was incomplete, there were major audience differences between the websites, making any comparison useless.
- *Data pre-processing*: cleaning databases is necessary in order to eliminate errors, biases, inconsistencies or missing fields. In this context taking out diacritics and tokenizing the text become increasingly relevant. The databases selected for the analysis do not provide text with diacritics in the case of Hotnews.ro and Ziare.com, while Agerpres and Mediafax include diacritics. This limitation makes taking them out of the entire database a necessity, while also generating some loss of information. The topical pre-processing procedures done through the Sci² Tool application and presented in the design stage of the research are also used at this moment.
- *Data reduction and projection*: the size reduction of data through its aggregation, normalization and ranking seeks to make visualization more efficient. Because we chose a visual, descriptive method this stage combines the syntactic and semantic dimensions of the text through software applications and programmes.

The content analysis consists of classifying the symbolic material on behalf of scientifically-qualified observers, who would observe which part of the textual material enters a research scheme category, with the aid of explicit classifications and procedural rules (Titscher, Meyer, Wodak, & Vetter, 2000: 58). Alex Mucchielli frames the content analysis as quasi-qualitative research, as it focuses on measuring objectives, whilst qualitative methods focus on "reading" objectives, understood as "discourse comprehension" (Mucchielli, 2002: 34).

Figure 4. *The principal semantic categories that emerges from analysis (direct link from title and database name*



Source: personal database

The theories at the basis of the content analysis procedure generally derive from communication theories such as the *mass communication model* (Laswell), which answers the following questions: *who? what do they say? on which communication channel? to whom? with what effect*?, *the contingency analysis* (Osgood – e.g. the semantic differentiator*), the interaction processes' analysis* (Bales – the purpose is to identify and register the nature, and not the content, of each separate interaction of a group), *semiotics* (Morris – communication is not only possible on the basis of stimuli, but also on the sense which they are given, and which cannot be accessed through the concrete form of the stimuli). Similar research methods and techniques are represented by *latent semantic analysis* or LSA, (Landauer *et al,* 1998), pLSA (Hofmann, 1999), Pachinco allocation (Li & McCallum, 2006), latent dirichlet allocation or LDA (Blei *et al,* 2003) or *relational topic models*, (Chang & Blei, 2010).

The suggested level of analysis is syntactic and semantic, following the identification of words, and structuring these in sentences within the analysed text, the word representing the analysis unit, and the sentence being the context unit. The procedure has two levels, summarizing in order to reduce and simplify the material, and its structuring for pattern identification and scheme building (Titscher et al., 2000: 62-64).

Exploratory *text network analysis* of data, which is used in this material, turns words into nodes, and the relationship between them in network edges. The purpose is to identify the most influential way to produce meaning within the analysed text. For a better understanding of the narrative structure, the information is presented in graphic form.

Table 1. A typology of content analysis procedures (selection).

Semiotic levels	**Object**	**Examples of procedure**	**Research question**						
			Who?	**What?**	**How?**	**To whom?**	**Why?**	**What situation?**	**What effect?**
Syntactic	Syntactic characteristics of message	Author analysis (style analysis)	x		x				
Semantic	Meanings of words, sentences	Theme analysis	x	x				x	
Semantic-pragmatic	Meaning and effect of message	Attribution analysis	x	x	x		x	x	
Pragmatic	Effect of message	Interview analysis	x	x		x	x	x	X

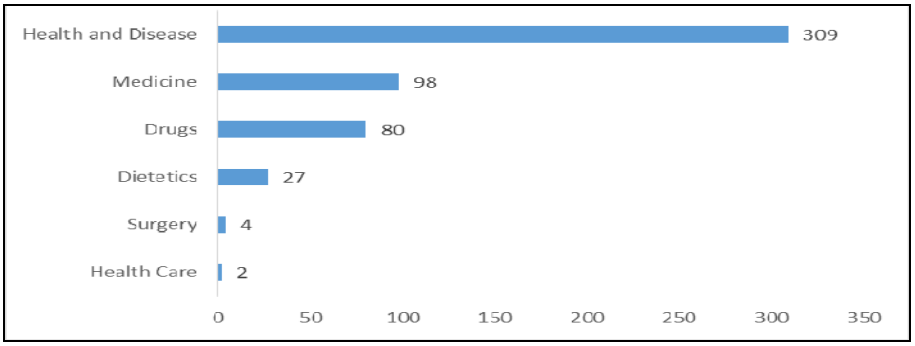
Source: Titscher et al., 2000: 63

Results and discussion

The first step of the analysis is represented by the textual analysis of the selected articles, according to a pre-established scenario, in order to identify the semantic structure using

the Tropes[1] application. In order to achieve the analysis, the software undergoes a complex process focusing on: attributing all significant words to a category, the analysis of their distribution into sub-categories (word categories, equivalent classes); examining the order of appearance, within sentences (relations, actants and acted), as well as throughout the text (distribution graphs, packs, episodes and the most characteristic textual parts) (ACETIC & CYBERLEX, 2014)[2].

Figure 5. *The "Health and Medicine" semantic categories that emerges from analysis (direct link from title and database name.*



Source: personal database

The second step consists of drafting graphics based on the data supplied by Tropes through the Gephi[3] application. This is a software specialized in the visual analysis of network-type information, with the objective to identify patterns, elaborate hypotheses, isolate structures and facilitate rationalizations and argumentations (Bastian, Heymann, & Jacomy, 2009). The graphic construction follows these stages:

- *The chosen layout* is „Atlas Force-based". The mutually associated nodes (words) are attracted and the unlinked ones are pushed aside;
- *The hierarchy* is achieved according to the nodes' grade, calculating the length for all possible pairs of words and offering information on nodes' proximity (we used the Avg. Path Length option and modularity);
- *The centrality hierarchy* between words (the most frequent pairs are placed towards the middle of the graph), each node being adjusted according to size. The main interpretations of the centrality hierarchy are:
  - A: degree centrality = local connectivity => nodes having many edges are central

[1] http://www.semantic-knowledge.com/tropes.htm

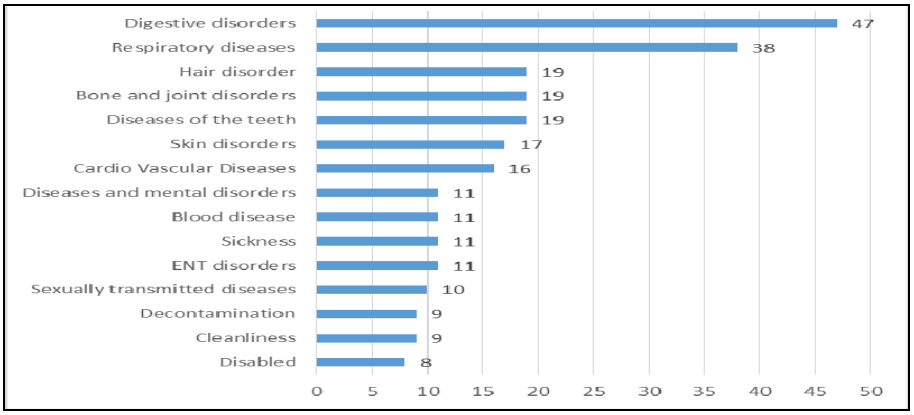
[2] Tropes Help Index

[3] https://gephi.github.io/

  - B: closeness centrality = "geographic" middle => nodes that are close to all other nodes are central
  - C: *betweenness* centrality = connectivity => nodes that lay on many shortest paths are central (a shortest path is the quickest way to go from one node to another)
  - D: Eigenvector centrality = authority => nodes that are connected to highly ranked nodes are central (recursive approach).
- *Nodes' labelling* (Show Labels) is achieved in such way as the text is proportional with these;
- *Communities' identification* (the capacity to identify and study communities is central to network analysis), is achieved through the Louvain modularity method. Similar clusters are identified with a pre-defined scheme through different colouring. This procedure allows the (in)validation, at least generally, of the inferences operated by the article's authors, recognizing the existence of alternative methods of observation and rationalization of the argumentative procedure (Krippendorff, 2004: 413);
- *Partitioning* the clusters identified in classes;

Finally, we created a *filter* in order to hide the network's nodes and edges which have few commonalities. As the print version of the material cannot visually present the complex networks built with Gephi we make referrals in the appropriate areas to the existing interactive online versions[1].

Figure 5. *From within semantic category „Health and Medicine" the principal subcategories that emerge from the content analysis (direct link from title and database name)*



Source: personal database

[1] For example www.sociologic.ro/images/visual/bee-title-database-network/ which show the networked concepts formed between the title and the website that published the article.

The style of the articles is rather argumentative, as it uses discussion, comparison and critique. The articles are anchored in reality, not fiction, expressing concepts related to being and possession. The five main categories of meaning built through the Tropes scenario that can be identified in the articles are the world, time, health and medicine, countries and action. Within the „Health and medicine" (composed out of 520 subcategories), the „Health and disease" subcategory is dominant, with 309 entries. Within this category we can identify rare illnesses of the digestive system, of the lungs, teeth, bones, hair, skin or cardiovascular problems. This framing of meaning allow us to put forward the premise that one of the most important dimensions of the texts we analysed is the consumption of beekeeping products and their positive effects. An example that perfectly illustrates this premise is: „ … Romania keeps alive the tradition of apitherapy by using the venom of the bee to treat sclerosis, pollen for indigestion and honey to cure wounds" (Toea, 2014). Nevertheless, the sensationalism oriented style of the mass media is going strong, as many references in this category are closer to words such as „sting", „allergy", „edema", describing cases in which bees have attacked people or domestic animals.

Generally speaking, the approaches characteristic to each news agency or news aggregator are not that much different. Towards the end of the interval we studied the number of articles published by Agerpres went up, confirming the fact that the national news agency increased its digital focus. Beekeeping is presented as an economic activity mainly through references to EU funded projects and to taxes. The temporal framing suggests order and particular periods, while the geographical one confirms the connections with the world trends and its relevance for the EU discourse. The most frequent conceptual reference encountered in the articles we analysed is „honey". Mentioned 2,595 times, it forms a semantic field together with other terms such as „spoon", „jar", „sweets", „sugar" or „bio", building an image of daily use and healthy food.

Conclusions

From a EU2020 Agenda perspective, beekeeping can be considered a fundamental form of smart growth based on innovation and knowledge, of sustainable growth through an environmentally friendly economy, of inclusive growth in order to act against unemployment and strengthen social cohesion. In addition to the estimated added value of a billion euros annually, maintaining biodiversity, the estimated contribution of EUR 22 billion through polenization (Deloitte, 2013: 11) and the well-being of the bees as an environmental health indicator are just three of the crucial roles of beekeeping in the EU agriculture.

With a developed beekeeping sector and a relatively small internal consumption of apiary products (in 2007 honey consumption was registered at 0.42 kg per capita – CBI Market Survey, 2009: 5), Romania is one of the self-sufficient countries as far as consumption is concerned. This reality puts pressure on export distribution networks, on how producers develop de capacity to meet EU standards and how they respect the parameters for products with high added value. For example, EU honey has a higher distribution price, while honey coming from China is considered low quality and,

therefore, has a lower price. Consequently, domestic producers must, through personal example of that of professional associations that represent them, develop the capacity to influence internal consumption and/or export products as advantageously as possible in order to generate profit.

The beekeeping products consumption is part of culinary practices, and is influenced by history, culture, geography, climate and institutional quality standards. The local food production being regulated within the EU, and the cultural norms being influenced by the free circulation of people and ideas, it is important to notice the way these changes can bring added value to a field of activity which is traditional, as well as modern, developed, but also fragile in front of contemporary challenges.

Abbreviation List

APIA – Agency for Payments and Intervention in Agriculture

CAP – Common Agricultural Policy

MARD – Ministry of Agriculture and Rural Development

PNDR – National Rural Development Programme

FAO – Food and Agriculture Organization

NAIRZ – The National Agency for Improvement and Reproduction in Zootechnics „Prof. Dr. G. K. Constantinescu"

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