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FOOD AND BEER MATCHING TO PROMOTE DESTINATIONS: A CENTRAL AND EASTERN EUROPEAN PERSPECTIVE

Elizabeth M. INESON[a], Richard H. SMITH[b], Adrian T. BARSBY[c]

[a]Visiting Research Fellow [b]Senior Lecturer [c]Associate Lecturer Manchester Metropolitan University, All Saints Building, All Saints, Manchester M15 6HB, UK. e.ineson@mmu.ac.uk; richardhsmith1966@gmail.com; adrian@barsbyassociates.com

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Abstract

The purpose of the study is to determine and evaluate Central and Eastern European (CEE) consumers' food and beer matching preferences with a view to encouraging tourism stakeholders to promote local destinations. A literature review determined the characteristics of beer that interacted with different types of food and revealed issues for consideration when matching beer with food. A series of tasting sessions was conducted with 214 hospitality and tourism, food and beverage educators and industrialists from six CEE countries, comprising roughly equal numbers of males and females aged from 20 to 64. Seven foods (oily, acidic, salty, mild and spicy high protein, high fat, sweet) were offered alongside seven styles of beer. The tasters' preferred matches were recorded. The most popular match (67.3%) was dark chocolate with Belgian fruit beer followed by sausages with both Bohemian pilsner and Hefeweizen beer. Every beer was matched by some tasters with every food; the least popular match (7.5%) was spicy meatballs with Belgian fruit beer. Further research into food and beer matching is recommended to validate the findings and to benefit publicans and restaurateurs. As it focuses on food and beer matching, as opposed to pairing, is located in CEE and suggests ways in which microbreweries in CEE can promote health and sustainable tourism, the research is original. Recommendations are made for stakeholders including the managers of F&B outlets and destination managers, who are advised to operationalise sense of place by developing a unique, dedicated toolkit to inform destination branding, and for further research.

Keywords Beer; Food; Matching; Promotion; Tourism; Central and Eastern Europe

INTRODUCTION

'Beer most likely first came about by accident' noted Dulye and Herz (2018, 4), who surmise that Neolithic people in the middle east grew barley, ground it into gruel then experimented with additional ingredients including bitter herbs such as turmeric. They propose that this mixture became colonised with wild yeast and was then fermented to produce an early form of beer. Subsequently different styles of fermented beverages developed, influenced by variable climates and the availability and flavours of local ingredients; hence, regional and local styles of beer emerged. Additionally, the evolution of beer has been shaped by religious, political, economic and social factors (Dulye & Herz, 2018).

Traditionally beer has been consumed without food and has even been classified as a food (cf. Chemistry World, 1996), whereas wine has often been matched or paired with food. In most European countries, the drink/drive laws have had a powerful effect on the consumption of alcohol. In attempts to increase their sales, many public houses are offering food throughout the day to supplement their profits from alcohol sales. Recently, the focus on healthy eating is reflected in menu offerings via 'healthy options' and calorie counts. "Beer contains fewer calories measure-for-measure than wine, milk or fruit juice, with spirits having more than six times the calories of beer" (Clarke & Roux, 2007, 43) so it should be given serious consideration in this context. Also, in its favour, it has been mooted that because the ingredients and brewing processes in beer are wider ranging, beer offers more diverse flavours and is much less concentrated than wine in the key sensory components that react significantly with food flavours and textures, that is, alcohol, acid and tannin (Block, 2012) so it is argued that beer is a preferable choice for food matching. Based on these premises, using the findings from primary research in CEE, the present paper examines ways in which food and beer may be matched, taking account of possible cultural preferences and responds to five research questions. The response to the final (sixth) research questions puts the primary research into a tourism context, in particular with reference to destination management and marketing, 'sense of place' and Slow Food.

The initial purpose of the present study was to inspire publicans and restaurateurs, and in turn consumers, to move towards this potentially more palatable, more flexible and healthier option of food and beer matching. In turn, based on these findings, the aim of the present research is to put forward menu suggestions to promote local products so attracting local guests, as well as domestic and international tourists, to sample and enjoy the tasting experiences. Sparks, Bowen & Klag (2003) also stated the importance of the F&B experience in attracting tourists to destinations while Sims (2009) pointed out that food plays an important role in tourism and local food can provide a tourist with a bond to the area and to local culture and heritage, thereby improving the quality of the tourist experience. Therefore, in the context of the findings, recommendations are made for destination and local business managers and further research.

THEORETICAL BACKGROUND

Matching and pairing food and alcoholic beverages

For several decades, advisory textbooks (for example, Beckett, 2002; Bell-Johnson, 1999; Robinson, 1987; St Pierre, 2001) and numerous menu recommendations have been made for

matching and/or pairing food and wine. Researchers have reported 'ideal' food and wine pairings with, for example, 33 burgundy grand crus (Lecat, & Chapuis, 2017), so promoting food and wine tourism (cf. Croce, & Perri, 2010; Santeramo, Seccia, & Nardone, 2017). Pairing suggestions on the menu for food with wine by the glass were shown by Terrier and Jaquinet (2016) to increase the sales of wine by the glass significantly; they discuss practical applications of this strategy. Searches indicate that most of the food and beverage (F&B) pairing and matching literature and practice focusses on wine; there is only sparse research on food and beer pairing and matching.

Nevertheless, there are numerous articles in the trade press, with corresponding advice on food outlet websites, predominantly from the USA, claiming to guide diners regarding specific recommendations for food and beer pairings (for example, Cole, 2013; Kallas, 2011; Mather, 2014; The staff, 2011) but very few cover the broader spectrum of food and beer matching (for example, Block 2012; Foottit, 2011). Michel Roux Jr. (2006, 10) experimented by serving Liefman's Kriek cherry beer with a spicy seared tuna dish and it was so successful he decided to add beer to his menu in London: "In the past beer has often been neglected in top restaurants and perceived merely as a thirst-quencher. I believe that beer should be perceived as a sophisticated, gourmet drink … a sophisticated drink that goes wonderfully with food…beer is indeed beginning to rival wine's traditional standing as food's best friend" (Clarke, & Roux, 2007, 43). Subsequently, Mather (2014, 21) advised consumers to ask an expert, the beer sommelier, who is "a trained professional who specialises in the service and knowledge of beer".

Beer: composition and styles

The ingredients of beer, of which there are two main types - ale and lager, are water (over 90%), malted barley, hops and yeast; the latter determines whether the beer is an ale or a lager. The difference is that ale yeasts collect on the top during fermentation and ales ferment at warmer temperatures (60-75°F) than lager yeasts, which are "bottom fermenting" at cooler (40-60°F) temperatures (http://homebrewacademy.com/beer-ingredients/). In consequence, ales are 'heavier bodied' and more complex, for example stout and India pale ale (IPA), whereas lagers tend to be 'light' and 'crisp', such as pilsner style beers (http://homebrewacademy.com/beer-ingredients/). A less common yeast, weizen (wheat), is used in some German wheat beers such as Hefeweizen.

A by-product of fermentation is carbon dioxide gas (CO_2), which is sometimes introduced by force carbonation (measured in volumes of dissolved gas per volume of liquid, with 2.5 to 2.7 being the most common) as can nitrogen, which creates smaller bubbles and a softer mouth feel than CO_2 (Dulye & Herz, 2018). The pH score measures the alkalinity (>7) or acidity (<7) of a liquid with tap water having a pH of 7; sour beer styles, post-fermentation, are in line with red wine (pH 3.3-3.6); the pH of most beer styles post-fermentation is 4-4.5 (Dulye & Herz, 2018). The colour Standard Reference Method (SRM) for beer ranges from light yellow (1-1.5), straw (2-3), pale (4), gold (5-6), light amber (7), amber (8), medium amber (9), copper/garnet (10-12), saddle brown (16-17), dark brown (18-24), dark (25-39) to black (40+) (Dulye & Herz, 2018). Usually, colour is determined by the drying, or malting, of germinated barley grains; the longer and hotter the barley is kilned, the darker it becomes (Roberts, 2015).

Effects of beer on the sense of taste

"The sense of taste is activated when certain classes of chemicals contact specialised epithelial taste receptor cells in the tongue, palate, throat and, sometimes, near the epiglottis and the upper oesophagus" (Breslin & Spector, 2008, R148). They explain that taste is a function of touch, related to the sensation of F&Bs on our palates and comment that most researchers categorise taste perceptions into one or more combinations of sweet, umami, salt, sour and bitter; they recognise and attribute individual differences in taste to genetics and environmental factors (cf. Risso et al., 2017). "Most taste perceptions are composed also of distinct additional attributes: intensity; hedonic; oral localisation; and temporal features (rise and decay and aftertaste) (Breslin & Spector, 2008, R151).

The affective or hedonic component of a taste refers to whether the stimulus is liked or disliked... Without question, the hedonic domain of taste function can be characterised by its fundamental role in food selection and the control of intake in both humans and animals" (Breslin & Spector, 2008, R154). Prescott (1998), in making intercultural taste comparisons, suggested that familiarity with the products has an important influence on individual tastes and, in consequence, individual likes or dislikes; more recently, Arellano-Covarrubias, Gómez-Corona, Varela and Escalona-Buendía (2019) noted cultural differences in beer flavour pairings. Furthermore, cultural preferences may change when consumers move from one culture to another, suggesting that familiarity with taste can influence their choices so food and beer are best matched locally (Betancur, Motoki, Spence, & Velasco, 2020).

Additionally, although training has been shown to improve tasters' ability to identify, discriminate amongst and match beers, it appears that such benefits do not generalise to beers not experienced during training (Van Doorn, Watson, Timora, & Spence, 2020).

As the styles of beer continue to expand, personal preferences, which have been attributed to biological, psychological and socio-cultural factors, including national and regional ethnocentricity, may come to the fore (cf. Betancur et al., 2020). Furthermore, product-intrinsic attributes, i.e. the sensory aspects of the beer per se and product-extrinsic attributes, i.e. external sensory characteristics, for example packaging, in addition to contextual and environmental influences such as familiarity, habit, peer preferences, location, context, occasion and reason for drinking etc., have become evident in line with food preferences (for example, Betancur et al., 2020; Siemieniako, Kubacki, Glińska, & Krot, 2011). Therefore, to allow for personal preferences, and to accommodate the hedonic domain of the taste function in individuals, the present study focuses on food and beer matching as opposed to food and beer pairing.

Tasting beer

Prior to tasting beer, its visual and olfactory features should be noted; they include colour, clarity, head/lacing, carbonation and smell, for example, fruit, bread, sugar, spice etc. On tasting the beer, acidity, bitterness, sweetness, fruitiness, hops etc. accompany the mouth-feel which may be warming, effervescent, 'with body', smooth or balanced. The aftertaste follows (http://www.qblp.com/education/beer-tasting-101/). Taking the scientific perspective, Brányik, Vicente, Dostálek and Teixeira (2008) remark that certain flavour active compounds in continuous fermentation systems can control the flavour of beer so that characterising its taste only by the analytical determination of some of its components is too simplistic. They believe that, in practice, the flavour of some compounds is suppressed or accentuated by others and the final taste profile results from the interplay of various taste features. Furthermore, they state that beer flavour is influenced by beer type and circumstances, which depend on country of origin and fashion. In addition, numerous technological parameters affect flavour formation, for example, flavour may be controlled by applying "non-recombinant mutants and/or genetically manipulated recombinant brewing yeast strains'; 'the potential of metabolic engineering using genetic tools is enormous" (Brányik et al., 2008,10). Betancur et al. (2020) remarked on cultural preferences for visual appearance, in particular colour.

The present study relies on a relatively simplistic and practical impact of the ingredients of beer on its flavour, for example, water can add mineral and metallic flavours to the beer (Barlow, & Barlow, 2008). Malted barley may comprise a blend of the following malts depending on its style of beer: base malts; kilned or colour malts; crystal or caramel malt and/or roasted malt (Mosher, 2009). The sensory vocabulary associated with malt includes: grainy; bready; caramel; toffee; nutty; roasted; coffee; chocolate; espresso; burnt; raisins; prunes; and dried fruit (Mosher, 2009). Mosher (2009) links hops to bitterness and aroma, with a sensory vocabulary embracing: spicy; floral, lavender; pine; resin; citrus; blackcurrant leaf; and cat's pee, denoting yeast as a low aroma and flavour component, associated with vegetal, 'oxidised', buttery, ethyl acetate, clove, barnyard animal and banana.

Matching beer with food

The key characteristics of beer that interact with food are intensity of flavour, body, acidity, hop bitterness, maltiness, sweetness, fruitiness, carbonation and alcohol content (cf. Morais, 2017). Factors that might be considered when matching food with beer are heaviness, body (light dishes work well with delicate beers; heavier dishes need a heavier beer) and flavour intensity (the more intense the flavour of the food the more intense the flavour of the beer). Also, the cooking methods, such as roasting, frying, grilling and smoking, can increase flavour intensity; maltiness often complements different cooking methods; hop bitterness, roasted malt flavours, carbonisation or alcohol content can balance fattiness whilst and sweetness and maltiness may complement acidity in food (Brewers' Association, 2017).

With respect to sauces, other accompaniments and seasoning, hop bitterness, roasted malt, alcohol and carbonation balance creamy sauces, and sweetness, for example, a light herby beer could complement a herbal dish whereas a sweet malty beer could accompany a spicy sauce. Hop bitterness emphasises heat so malty or sweet beers moderate heat and spiciness. Additionally, sweetness and richness complement full flavoured beers; therefore, high alcohol beers and hop bitterness compliment sweetness, stout goes well with dark chocolate and the acidity in fruit beers matches fruit tarts and fruity/creamy desserts (cf. Brewers' Association, 2017; Dorenburg, & Page, 2006; Morais, 2017). It is easier for consumers to make decisions if there is an explanation for the match; ideally, the word 'balance' should accompany the recommendation says Block (2012), referring not only to the food and the beer but also to the contrasting flavours. Tab. 1 summarises Mosher's (2009) views on matching food with selected beers.

Table 1 Matching food with beer styles: examples

Beer	Flavour	Aroma	Balance	Food matching
Bohemian pilsner	Sweet malt, hints of caramel	Clean malt, plus spicy perfume of Saaz hops	Medium or high hops, clean finish	Wide range of lighter foods such as chicken, salad, salmon and bratwurst. Mild cheese and light desserts
Hefeweizen (German)	Light graininess with milky texture, low hops and high carbonation	Fruity, bananas, spicy, cloves	Dry, grainy, rich and creamy	Light foods, salads, seafood, white sausage, goat's cheese, herbed cheese spread. Light desserts
Witbier (Belgian)	Dry creaminess, soft acidic finish	Spicy, yeasty, notes of orange and coriander	Milky texture but slightly sour	Light foods such as fish, chicken and pork, light and herb cheese, citrus desserts and dark chocolate
Belgian fruit beer	Delicate fruitiness, underlying acidity, clean crisp finish	Fruitiness	Crisp, sweet with level of sweetness depending on the beer	Salads, light foods and desserts
IPA	Plenty of malt but dominated by hops	Spicy hops and nutty malt	Always hoppy but to varying degrees	Strong spicy food, blue cheese, bold sweet desserts such as carrot cake
Bitter	Fresh hops plus nutty maltiness, crisp finish	Hops with woody, malt, spice and fruit	Hop and malt balance, bitter finish.	Wide range of food, roast meat, fried fish and chips, spicy food such as curry and mild cheese
Stout	Roasted flavours, with caramel and hops	Roasted malt without hop aroma	Dry to very sweet	Hearty rich food, steak, meat pies, seafood including oysters, old cheddar style cheese and, often, chocolate or coffee desserts

Compiled from Mosher (2009)

Interestingly, more recent research into food-wine and food-beer pairing (Eschevins, Giboreau, Julien, & Dacremont, 2019) determined that French sommeliers tended to follow the conceptual associations and established norms as did the wine experts; however, the beer experts relied more on experiential discourse. Following a critical review of F&B pairing literature, Spence (2020a) concluded that there were two broad approaches to the pairing: cognitive/intellectual and perceptual and mooted cultural matches were a subset of the former, although they are influenced strongly by perceptually pleasing combinations. Spence (2020b) expands on these approaches to pairing.

Destination management, sense of place and the Slow Food Movement,

Taking account of the international and cultural dimensions, it became clear that the research findings would have implications not only for tourists and local consumers but also for local businesses in terms of destination management and sense of place. Leiper (1979) identified the elements of the tourism system as tourists, generating regions, transit routes and destination regions, which comprise the tourist industry (the heart of the system). He maintained that, within this 'open' system, these elements operated within physical, cultural, social, economic and political environments, all of which interacted with technology and had both spatial and functional connections. Hence he perceived a destination as a generating area or transit zone within the context of a wider tourism system in which each component is interrelated and has a strong functional reliance on the others. In terms of planning and development, the predominant focus here is on the tourists in terms of their origins (including home country) and the F&B outlets in the destination or region.

Applying these concepts to the present study, the notion of sense of place in the context of destination management is considered to be appropriate. Destination managers and local tourism stakeholders need to project a positive brand image to attract consumers (cf. Anholt, 2010; Pike, Gentle, Kelly & Beatson, 2018; UNWTO, 2009) and communicate this positive image and reputation to residents and visitors through 'the emotional power of a destination's tone' including not only its ambiance, physical fabric and character but also 'the attitude of its people, its heritage, and narratives', in short, a destination's 'sense of place' (Morgan, Pritchard & Pride, 2011, 12), which Anholt (2009, 30) denoted as those aspects that make a location distinctive and memorable and thus communicate its personality, including the physical and cultural environment, products with which the place is associated and the people; therefore destination branding strategies should begin by understanding what constitutes this sense of place (cf. Campelo, Aitken, Thyne & Gnoth, 2014). Jarratt, Phelan, Wain & Dale (2019) advocate stakeholders in destination management to operationalise sense of place by developing a unique, dedicated toolkit to inform destination branding.

Increasingly, as consumer demands are driven by environmental, ethical, social and health concerns, the Slow Food Movement has sought to educate consumers about traditional and local F&B, while also protecting food and agricultural heritage (cf. Jung, Ineson & Miller, 2014; Nosi & Zanni, 2004). Recognising that most tourism destination organisations tend to focus on marketing and promotion at the expense of resource conservation and planning with serious consequences for destination sustainability (cf. Jamal & Stronza, 2009), Jung, Ineson

& Miller (2014) examined the contribution of the Slow Food Movement to sustainable tourism development. They confirmed that public–private partnerships, involving close involvement of local stakeholders, were a key to success and could contribute strongly to promoting sustainable tourism development in rural areas; also a focus on local produce could make a substantial contribution to local economies as well as adding value to sustainable practices. A content and discourse analysis of consumers' responses, undertaken in Australia by Germov, Williams & Freij. (2010), revealed themes, metaphors and imagery pertaining to Slow Food including: conviviality (social pleasures of sharing "good food"); localism (social, health and environmental benefits of local produce); and romanticism (of idyllic rural lifestyles as an antidote to the time-poverty of urban life). Interestingly, in researching visitor experience and revisit intentions at a Slow Food festival, although Jung, Ineson, Kim & Yap (2015) found programmes, food and other amenities and entertainment all impacted directly the visitors' overall experience and satisfaction, only the food (quality and locally produced Slow F&B) and other amenities (local producers'exhibits, friendliness of the stall holders, sufficient places to sit and rest, cleanliness of festival site and the interactive foodie activities, workshops and tasting sessions for all the family), contributed directly to revisit intentions.

In conclusion, the following research questions are posed:

RQ1 What are the most popular food and beer matchings?

RQ2 Are there any cultural differences in terms of preferred food and beer matchings?

RQ3 On the basis of the findings from the taste panels, what general recommendations for matching food flavours with beer styles can be made?

RQ4 On the basis of the findings from the taste panels, what specific menu recommendations can be made?

RQ5 On the basis of the findings from the taste panels, what practical food flavour and beer style matching recommendations can be made to assist publicans and restaurateurs?

RQ6 What might be the impact of the primary research findings for local stakeholders and destination managers?

DATA AND METHODS

This practical qualitative study employed evaluative comparative taste testing to measure target consumers' likes and dislikes; it is time and cost efficient and useful for product positioning and competitive benchmarking and to determine interactions between products (AROXA, 2018) and also permits comparisons and can highlight other key performance

indicators of food or drink products (Kuhn, 2021). The target consumers may be referred to as the taste panel who, in this instance, have the collective duty to taste combinations of beer and selected food products in order to determine factors relating to their combined flavours and texture. In some instances, consumer preference taste panels are large and untrained; standards are not provided and decisions are based on preferences alone (Bradley, 1953). To be useful, panels should be representative of the consumer market of interest and, ideally, test procedures should be kept simple (cf. Bradley, 1953).

The taste panel comprised 214 invited seminar participants, all of whom were employed in the hospitality/tourism sector (industry-59%; education-41%), predominantly in F&B roles. The tasting sessions took place in eight locations across six CEE countries comprising: Bulgaria (n=40); Czech Republic (n=44); Poland (n=19); Romania (n=59); Serbia (n=21; and Slovenia (n=31). There was roughly an equal number of males and females aged from 20 to 64, with a modal age group of 30-39.

In each location, tasting sessions were set up, presented and conducted identically.

Following the recommended procedures, prior to each tasting session, everyone was expected to wash their hands. In each location, the test samples were purchased and tasted by the facilitator in advance the tasting session to ensure the quality, standard and authenticity of each of the products and to create a positive and safe taste-testing environment. The taste panels were instructed to wait to taste each of their samples until they had been given the background information and told to start tasting (cf. UCSD Centre for Community Health, 2022).

An introductory lecture was given to raise the participants' awareness of: factors that might: influence the character of beer; beer characteristics that interact with food; and issues for consideration when matching food with beer based on the literature. Seven generic, international and readily available and contrasting styles of beer (ale, lager and lambic), ranging from a light blonde to a heavy stout, were chosen for the present research. The beers selected were sufficiently different to elicit different matchings (cf. Eschevins et al., 2015). The range of beers provided in an identical sequence in each location. They included: Bohemian pilsner; German Hefeweizen beer; Belgian Witbier; Belgian fruit beer; IPA; Bitter; and Stout (cf. Barlow, & Barlow, 2008). In order that the taste buds would not be confused by flavour combinations, the foods on offer were simple, commonly available. They reflected various basic taste and texture sensations suggested by the literature, in which some of the food types on offer had been linked to the chosen beer styles whilst others had not. It was not only of interest to identify matches that 'worked' but also those that did not work. The foods

for tasting alongside the beers comprised: oily (fish); acidic (pickles); salty (hard strong-flavoured cheese); high protein (mild and spicy meatballs); high fat (sausage); and sweet (dark chocolate). The beers were introduced in sequence (light to dark) and small bite-sized portions of each of the accompanying foods were made available throughout the tasting session plus water and bread to clear the palate. The five steps in taste testing were followed: (recognise it, inspect it, smell it, taste it, score it) (cf. UCSD Centre for Community Health, 2022). Without consultation, each member of the taste panel was asked to record his/her individual food/beer preferences (matched pairs only) on a 6x7 grid. Following each tasting session, the number of matches in each square of the grid was calculated then the overall totals were cumulated and compared for analytical purposes.

RESULTS

RQ1 What are the most popular food and beer matchings?

The cumulated findings revealed 3002 out of 10,486 possible (28.6% of the total options) preferred food/beer matchings, indicating that there was no clear overall consensus. Based on these positive responses, 12 of the possible 49 matched dyads were voted for by over 40% of the tasters (Ref. Tab. 2), suggesting that two out of every five CEE consumers might enjoy matching beers of the style similar to those tasted, with menu items incorporating such flavours and textures as the foods sampled.

Table 2 The top 12 ranked food and beer matchings

Beer	Food	Ranking	% votes
Belgian fruit beer	Dark chocolate	1	67.3
Bohemian pilsner	Sausage	2	53.7
Hefeweizen	Sausage	3	53.3
IPA	Spicy meatballs	4-	48.6
Stout	Dark chocolate	4-	48.6
Witbier	Strong hard cheese	6	47.2
Hefeweizen	Oily fish	7	46.3
Bitter	Mild meatballs	8	44.9
Hefeweizen	Mild meatballs	9	43.5
Hefeweizen	Hard cheese	10	43.0
Witbier	Oily fish	11	42.1
Bohemian pilsner	Strong hard cheese	12	41.6

The top match was Belgian fruit beer and dark chocolate (63.7%), followed not very closely by Bohemian pilsner (53.7%) then Hefeweizen beer (53.3%), both with sausages. Strong hard cheese was matched with Witbier and Bohemian pilsner. It will be noted that, to some extent, the key findings confirm a number of general, and more specific, suggestions for pairing and

matching put forward by Dorenburg and Page (2006), Morais (2017) and Mosher (2009). Interestingly, Donadini, Fumi and Lambri (2013) found that although beer preference dominated cheese preference, cheese flavour dominance over beer flavour increased pair appreciation. Further, Donadini, Fumi and Newby-Clark (2015) maintained that familiarity with the beers enabled more profitable exploitation of the cheese and beer pairing in terms of liking and sensory properties.

By far the lowest overall percentages matched Belgian fruit beer with spicy meatballs (7.5%) and Bohemian pilsner with chocolate (7.9%). Although they may be served with sausages in Germany, cheese in Switzerland and in the United Kingdom and as a snack or side dish with beer in some CEE countries, pickles were generally not favoured as an accompaniment to beer; their best matches were with Belgian fruit beer (25.6%) and Hefeweizen (24.4%).

RQ2 Are there any cultural differences in terms of preferred food and beer matchings?

Turning to the cultural dimension, there is evidence of diversity across CEE. The strongest consensus in terms of the food/beer matchings was found in Poland (cf. Siemieniako et al., 2011) whilst the most disparate opinions emerged from Serbia. For example, Belgian fruit beer was matched with dark chocolate by over two-thirds of the tasters in every country except Serbia (only 23.8%); in stark contrast, every taster in Poland voter for this matching! Therefore, it is important to consider and evaluate the cultural dimension when tasting food and beer (cf. Arellano-Covarrubias et al., 2019; Prescott, 1998).

RQ3 On the basis of the findings from the taste panels, what general recommendations for matching food flavours and beer styles can be made?

Following the research findings, Tab. 3 offers some general recommendations for food and beer matches, ranked according to popularity.

Table 3 Recommendations for matching food flavours and beer styles

Food flavour → Beer style	Salty	High fat	Spicy high protein	Mild high protein	Sweet	Oily	Acidic
Hefeweizen Beer (German)	5	1	3	3		2	
Witbier (Belgian)	1	5		4	3	2	
Bohemian pilsner	2	1	4-	4-		3	
Stout	2		3-	3-	1		
Bitter	4	3	1-	1-			
Fruit beer	2				1		3
IPA		2	1-	1-			

The findings suggest that Hefeweizen beer is the most versatile in terms of food matching, followed closely by Bohemian pilsner and Witbier, with protein being the most versatile food. In contrast, pickles (sour taste) were only matched with Fruit beer at rank 3 and oily food only managed rank 2 with Witbier.

RQ4 On the basis of the findings from the taste panels, what specific menu recommendations can be made?

Interestingly, every beer was matched with every food by at least 7.5% of the tasters, indicating the versatility of the palate and the variability of individual taste sensations. A further development of this idea is illustrated in Tab. 3, which includes examples that relate to food/beer matchings made by at least 30% of the tasters overall. Column 2 in Tab. 4 indicates the percentage of the total sample making more than one food match with each of the beers tasted. These findings confirm the preference for referring to 'matching' as opposed to 'pairing' beer with food. In line with this premise, it is advocated that, perhaps, in their promotional advertising and menus, food outlets might consider recommending more than one beer to accompany each food item, possibly offering a small taste so that the consumer may make an informed decision according to his /her personal preference. To expand the findings beyond the simple foods tasted, a few examples of possible matches (consider offering options as or within tapas/nibbles, appetisers/starters, entrées and/or desserts) for publicans, restaurateurs and consumers are suggested in Tab.4.

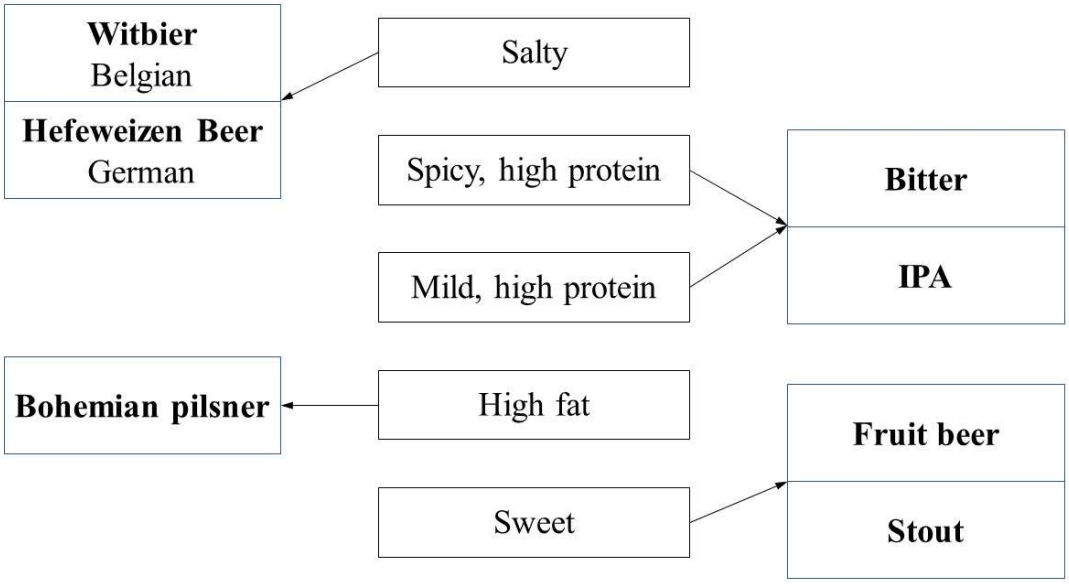
Finally, in order to take a practical perspective, the food flavours and beer styles were matched as shown in Fig. 1. Based on the research findings, it is concluded that consumer preferences are as follows: Witbier and/or Hefeweizen beer should be served with salty foods; Bitter and/or IPA with protein foods; Fruit beer and/or Stout with sweet foods; and Bohemian pilsner with high fat foods. Publicans and restaurateurs are advised to take heed of these findings in making recommendations to consumers, especially in CEE. Interestingly, the tasters did not appear to differentiate between the 'heavier bodied', more complex ales and the light, crisp lagers when matching the food flavours with the beer styles.

Table 4 Matching food with beer styles: examples based on the CEE findings (>30% matched overall)

Beer	% of total making > 1 match	Suggested snack foods for matching in descending order of preference
Hefeweizen Beer (German)	34.9	1. Sausages, salami 2. Oily fish (paté/mini fish cakes/bites from herring; kippers; mackerel; sardines; smoked salmon; whitebait etc.) 3-. Spicy or mild red meat snacks (meatballs, mini-burgers/sliders etc., all offered with optional mild, spicy or curry flavoured hot dipping sauce) 5. Assorted local cheese bites, hot cheese with bread
Witbier (Belgian)	33.3	1. Assorted local cheese bites, hot cheese with bread 2. Oily fish (paté/mini fish cakes/bites from herring; kippers; mackerel; sardines; smoked salmon; whitebait etc.) 3. Dark chocolate (bars; mousse; cake) 4. Non-spicy red meat snacks (meatballs, mini-burgers/sliders etc., all offered with hot dipping sauces) 5. Sausages, salami
Bohemian pilsner	29.6	1. Sausages, salami 2. Assorted local cheese bites, hot cheese with bread 3. Oily fish (paté/mini fish cakes/bites from herring; kippers; mackerel; sardines; smoked salmon; whitebait etc.) 4-. Spicy or mild red meat snacks (meatballs, mini-burgers/sliders etc., all offered with optional mild, spicy or curry flavoured hot dipping sauce)
Stout	28.2	1. Dark chocolate (bars; mousse; cake) 2. Assorted local cheese bites; hot cheese with bread 3-. Spicy or mild red meat snacks (meatballs, mini-burgers/sliders, etc. all offered with optional mild, spicy or curry flavoured hot dipping sauce)
Bitter	27.2	1-. Spicy or mild red meat snacks (meatballs, mini-burgers/sliders etc., all offered with optional spicy or curry flavoured hot sauce) 3. Sausages, salami 4. Assorted local cheese bites
Fruit beer	23.6	1. Dark chocolate (bars; mousse; cake) 2. Assorted local cheese bites 3. Pickles
IPA	23.5	1-. Spicy or mild red meat snacks (meatballs, mini-burgers etc., all offered with optional spice or curry flavoured hot sauce) 3. Sausages, salami

RQ5 On the basis of the findings from the taste panels, what practical food flavour and beer style matching recommendations can be made to assist publicans and restaurateurs?

Figure 1 Overview of food flavours matched with beer styles



RQ6 What might be the impact of the primary research findings for local stakeholders and destination managers?

Leiper (1979) suggested that his Tourism System could be used by managers to underpin and inform their operational plans. In order to promote local products, destination managers will be required to strengthen their stakeholder engagement and understanding. Therefore, the application of theoretical models, such as Leiper's (1979), with regard to supply and demand, i.e. developing an understanding of the motivations and desires of both local and international consumers (demand) and the ability of host community to deliver (supply) is recommended. Additionally, business managers are advised to employ a positive brand image to develop sense of place toolkits (cf. Jarratt et al., 2019) with stakeholders (supply) to encourage greater ownership of local culture, produce and identity, all of which could lead to enhanced and sustainable visitor and host community experiences. Subsequently, destination managers would then be in a position to inform local business owners in terms of future marketing and promotion.

Destination Management considerations include liaison with local stakeholders to develop a unique sense of place toolkit (See Jarratt et al., 2019) then employing the kit, in conjunction

with the above research findings, to inform targeted marketing messages that are aligned with consumer preferences so reinforcing the local heritage and vernacular through the promotion of local produce. The F&B offerings could be enhanced further by providing micro- and craft brewers opportunities to compete with conglomerate brands, so underpinning sense of place and helping to drive visitors to less well known areas that have capacity to relieve pressure on hotspots. In this way, current consumer demands for new authentic experiences can be met whilst addressing any unintended impacts of "Overtourism".

CONCLUSION

Practical recommendations

As noted at the outset, due to recent research into the impact of obesity and alcohol on health, plus the tightening of the drink drive laws in most European countries, many modern consumers do not want to drink beer alone. Based on the above findings, various options are open to publicans/restaurateurs, especially to attract both national and international tourists. If the consumer desires only to snack whilst drinking, suggested matches on a table or bar menu might be in the form of small bites or tapas. It is recommended that the styles of beer on offer are listed alongside the food offerings but with possible matches as opposed to direct pairings, or with suggestions of three to four options with appropriate taste and flavour descriptions. In this way, consumers' initial choices may be beers or dishes and, if necessary, verbal recommendations may be sought from the host/service provider/ beer sommelier. Robinson & Clifford (2012) purported that a focus on the quality of service provision could be separated from F&B as it can offer positive experiences which can enhance revisit intentions. They suggested that interactive F&B matching could be linked to historical and/or cultural contexts. In addition, interactive terminals and simulators can be available on-site to aid visitors' understanding of how local raw food materials were produced using sustainable methods (cf. Jung, Ineson, Kim & Yap, 2015).

One interesting possibility, which offers the guest flexibility and variability, is to set a fixed price for two, three, four or five beers and a corresponding number of dishes, served alongside one another on a suitable wood slice, tray or platter. The beer should be served in a choice of 250, 400 or 500 ml. measures, with the portion size and type of glass (See Fig. 2 for examples) being selected according to the style of beer, local tradition and the order of each consumer.

Figure 2 Examples of types of beer glass

Source: https://homebrewacademy.com/beer-glass-types/

In general, the variety of local CEE beers, especially from small producers, is increasing. Additionally, due to the need to reduce food and drink miles, so promoting sustainable tourism, local and in-town producers are offering Slow Food accompaniments to their beer products which also may be brewed locally.

It was pointed out that the LA County health regulations associated with COVID 19 have made tasting rooms unsustainable, leading possibly to the closure of some breweries (Madler, 2020). On the other side of the pond, a United Kingdom couple have found a novel solution to the problem of pub closures (Eastern Daily Press, 2020). They offer virtual brewery tours during which users visit from remote locations via the internet and the virtual visitors may ask live questions, followed by a beer tasting with the beers that have been delivered to the tasters' homes. These virtual tours may be bought as family gifts so that families and friends, often separated by COVID regulations and lockdown, may reunite to taste and drink beer together. Clearly, even after COVID restrictions are lifted, this innovative idea could be extended to include food and beer matching. In this context, another suggestion, that reflects not only the consumers' concerns about the drink-drive laws but also healthy eating, is associated with the recent growth in the consumption of non/low alcoholic beverages that can provide

microbrewers with opportunities to support food outlets or to offer beer and food matching on site.

Limitations and future research

This study has a few limitations worth noting; in particular the biased sampling (taste panels comprising educators and local industrialists as opposed to visitors) is likely to impact the external validity of the findings. In order to improve the representativeness of this study, future research should focus on discrete locations and ensure proportional representation from locals and tourists. As certain features may be associated with food and beer matching preferences, such as country of origin, gender and age, it would be interesting also to profile the consumers, including their contextual and environmental influences such as food and beer drinking habits and preferences via a brief survey prior to or during the F&B tasting. Although the present study has developed a simple model appropriate to the limited data, it lacks the qualitative depth to understand the reasons behind the matching preferences. Future researchers (and F&B managers) are advised to question consumers to determine the reasons behind their beer and food preferences. Furthermore, the validity of the developed here could be tested and extended within a different cultural context, for example, in a Western European country, America or Asia, using larger location specific sample size to confirm or refute the generalisability of the findings.

Research contribution

As the types of beer on offer increase, especially with the development of craft, local and low alcohol beers, and the fact that microbreweries are offering food accompaniments to their products, research into food and beer matching is of practical value in inspiring not only consumers but also producers and hospitality and tourism vendors to be even more sustainable. Furthermore, if we consider the trends related to enjoying alcohol with food, as opposed to alcohol per se, visitors should be encouraged to sample the matchings preferred by the local people (cf. Betancur et al., 2020) if they are to immerse themselves totally in a cultural, sustainable tourism experience.

With respect to the research implication for destination management, the study demonstrates that the Slow Food Movement can make a substantial contribution to local economies in addition to adding value to sustainable practices. The present study highlights the links between local produce and identity through sense of place. It stresses the need for

close and continued involvement of stakeholders led by destination management organisations. The involvement of local stakeholders in public–private partnerships can contribute to the success of rural tourism destinations when the Slow Food and Cittaslow Movements are considered as alternative approaches to sustainable tourism development.

The above data illustrate the cultural versatility of the palate and the variability of individual taste sensations and confirm the argument for referring to 'matching' as opposed to 'pairing' beer with food. The present study is original not only because it focuses on food and beer matching, as opposed to pairing but also because it is set in CEE. Further, the present study raises the awareness of the importance of stakeholder collaboration in promoting beer and food matching. A process, led by destination managers and fuelled by local business owners, should enable the promotion of innovative visitor experiences through high quality, locally sourced product offerings and a clean comfortable environment, accompanied by a friendly local welcome.

To conclude: further national and comparative studies within and outside CEE would be of substantial interest to verify or refute and consolidate or expand the present study, in particular with respect to national cultural preferences and products.

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