Markets for Bitter and Strong Tasting vegetables and the New Nordic Kitchen

An integral production and consumption analysis

Jesper Manniche/manniche@crt.dk

Center for Regional- og Turismeforskning

CENTER for REGIONAL- & TURISMEFORSKNING

Markets for Bitter and Strong Tasting vegetables and the New Nordic Kitchen

An integral production and consumption analysis

Forfattere:

Jesper Manniche

Center for Regional- og Turismeforskning (CRT)

Stenbrudsvej 55

3730 Nexø

Telefon +45 5644 1144

e-mail: crt@crt.dk

www.crt.dk

ISBN Nummer: 978-87-916-7742-7 (PDF)

Center for Regional- og Turismeforskning er et center for anvendt forskning, der løfter analyse- og udviklingsopgaver samt forskningsprojekter med særligt fokus på yderområder. Centrets primære fokus er regionaludvikling med fokus på yderområder, turisme i et destinationsperspektiv samt modeløkonomisk analyse. CRT er beliggende på Bornholm og har eksisteret siden 1994.

1 Introduction

This working report is part of the MAXVEG research project[1] which aims at increasing consumers' intake of a group of cabbages and root vegetables such as carrots, beetroots and celeriac which contain important bioactive phytochemicals[2]. A high content of phytochemicals gives vegetables, besides positive health effects, a bitter and strong taste (thus the group of vegetables are phrased with the abbreviation BST) that many consumers dislike and thus, the intake among Danish consumers is below the level of public health recommendations. The MAXVEG project aims at developing new tools and strategies to increase consumers' preferences and intake of BST vegetables, for instance through new growing, storage and distribution methods, masking or modifying the bitter taste, and new forms of marketing, branding and storytelling, emphasizing the positive health effects of coarse vegetables as well as their potentials in a 'New Nordic Kitchen' perspective[3] in which the distinct territorial, local and regional qualities of food products are praised.

The paper is part of the latter aim of the MAXVEG project about the marketing and branding implications of BST vegetables and the potentials of the New Nordic Kitchen (NNK) concept as a possible framework for marketing and product development of such. However, the analyses are brought out of a narrow context of marketing and branding research and investigate and discuss the broader market implications of BST vegetables and the NNK concept.

A culture historical study (Strand 2013), made as part of the MAXVEG project, on the gastronomic role of bitter and strong tasting (BST) vegetables in Denmark shows that these sorts of vegetables, though to a varying degree, have had a natural position in ordinary households for the last couples of centuries, however mainly due to their affordability and accessibility during the winter months rather than due to their attractiveness for ordinary people (Strand 2013). In a Northern European food culture, vegetables traditionally have been considered a 'necessary evil' and compulsory accessories to the more appreciated meat.

The report (Strand 2013) also concludes that BST vegetables in more recent years have been set into new consumption contexts and have been given new more positive meanings and broader applications in recipes and menus for mundane as well as festive consumption. This development probably has many causes such as the general restructuring of food markets in multiple 'alternative' quality directions, the increasing awareness of the health effects of food among the population, and more specifically, the introduction of the New Nordic Kitchen (NNK) manifest[4].

---

[1] The MAXVEG project, *Maximising the taste and health value of plant food products' impact on vegetable consumption, consumer preferences and human health factors* Welfare, is supported by the Danish Council for Strategic Research (Call: Health, Food and Welfare), led by University of Aarhus, Department of Food Science, and includes as partners University of Southern Denmark (by whom CRT was engaged for accomplishing the here presented study), Aarhus University Hospital, and Institut National de la Recherche Agronomique, Dijon/France (http://www.sdu.dk/om_sdu/institutter_centre/c_clf_centerlanddistriktsforskning/forskning/forskningsprojekter/igangvaerende+projekter/maxveg).

[2] The group of vegetables include: carrot, parsnip, root parsley, beetroot, celeriac, white cabbage, savoy cabbage, curly kale, broccoli, Brussels sprouts, turnip, German turnip, Jerusalem artichoke, red cabbage, cauliflower, artichoke and endive.

[3] See http://www.clausmeyer.dk/en/the_new_nordic_cuisine_.html.

[4] See http://www.clausmeyer.dk/en/the_new_nordic_cuisine_.html.

The internationally successful and trendsetting NNK manifest represents an initiative of a group of esteemed Nordic restaurant chefs and gastronomic entrepreneurs to change the Nordic food culture, and has framed and instigated an enhanced public interest in the connection between territory and culinary traditions (i.e. *terroir* qualities of food). At its very core, the NNK manifest aims at developing a new way of cooking based on "ingredients and produce whose characteristics are particularly excellent in our climates, landscapes and waters"[5]. Other keywords mentioned for the development of new produces are purity, freshness, simplicity, ethical, seasonality, health and well-being, animal welfare, and local self-sufficiency.

The NNK manifest is basically a framework for product development and marketing of the Danish restaurant sector but with the clear ambition of being applied on a much wider scale in the Danish food sector, as implicated in the naming, New Nordic Kitchen. BST vegetables are not explicitly emphasized in the manifest but form a natural point of interest due to the long-standing Nordic traditions of growing and consuming them and due to their tasteful but un-sophisticated characteristics that seem to fit well with the NNK dogma.

Yet, as consumption of foods and drinks is deeply rooted in the cultural and social settings of people, changing the patterns of consumptions is extremely complex and does not follow automatically from the development and market introduction of 'healthy' or 'authentic' products and from providing consumers information about the positive health effects of distinct commodities and cooking methods. The issue of health has various dimensions (e.g. physiological, mental and social) and is differently addressed in different food cultures and consumption contexts. For instance, Rozin and colleagues (1999) have shown substantial country (and gender) differences among consumers in France, Flemish Belgium, Japan and USA regarding issues such as worries about health effects of food, the degree of consumption of foods modified to be 'healthier' (e.g. reduced in salt or fat), the importance of food as a positive force in life, the tendency to associate foods with nutritional vs. culinary contexts, and satisfaction with the healthiness of one's own diet (Rozin et al. 1999). Other research contributions indicate that consumers' perception of health changes in different stages of life (Backett and Davison 1992).

Yet, despite the fact that consumption and production of food are tightly interwoven and interdependent, the two phenomena are often studied and addressed separately both in research and in public health and food related policy initiatives. In recent years, a call for more integrative production/consumption perspectives can be observed within several research fields including research on food and rural development (see e.g. Goodman 2002; Green and Foster 2005; Holloway et al. 2007) and regional studies and industrial sociology (see e.g. Crevoisier and Jeannerat 2009; Grabher et al. 2008).

This paper responds to such a call by suggesting a conceptual framework which allows for integrated analyses of the production and consumption of food and takes into account the different market contexts through which food commodities and services are distributed and sold. Defining different demands, supplies and markets of food would allow for a more fine-grained and integral analysis across the often separated perspectives of production and consumption and for exceeding the generic, one-size-fits-all approaches that often characterise public health campaigns and debates.

[5] See http://www.clausmeyer.dk/en/the_new_nordic_cuisine_.html.

Using the group of BST vegetables such as carrot, cabbage, beetroot, celeriac, curly kale etc. as a study case, the goal of this paper is to

1. to conceptualize the main markets for food prevailing and emerging in a Danish (Western) context in terms of varying types of consumer demands, supply and value chains and producer/consumer relations;

2. to empirically investigate the overall economic development trends on these food markets especially regarding the sale and consumption of BST vegetables;

3. to investigate and discuss the implications of the NNK concept as a possible framework for marketing and product development on the identified markets.

The analyses are made by drawing on diverse research literatures and on the basis of collected empirical data such as statistical data on food industries and consumption, materials from diverse web pages of food-related businesses and institutions, and seven semi-structured interviews with the owner of a gourmet restaurant, two specialized farmers, two managing representatives of two large supermarket chains, and two agricultural consultants. Also some of the results of other MAXVEG studies are used.

The structure of the paper is as follows: the following section two conceptualizes upon varying dimensions of consumer demands of food that define the main food markets in Denmark. In section three, the production and consumption sides of the identified food markets and the recent trends of these (including the consumption of BST vegetables) are empirically explored by use of data provided via Statistics Denmark. Section four discusses the possible implications of the NNK concept on the identified food markets as a possible framework for marketing and development of food products in general and BST vegetables in particular.

2 Conceptualizing food consumer markets

The recent decades have witnessed dramatic changes and innovations on the markets for foods and drinks in Western societies. The changes often have been phrased as 'quality turns' (see e.g. Harvey et al. 2004; Murdoch et al. 2000; Goodman 2003), referring to the numerous different understandings or conventions of quality that characterize the new 'alternative' products and productions, such as 'gourmet/artisanal' related to sensorial aspects, 'local/geographical origin' related to the culinary resources and traditions of distinct places, 'fair trade' connected with social justice of involved economic relations, and 'organic' underlining health effects of products and environmental effects of production methods. The changes also have been studied by use of concepts such as territorially embedded 'alternative food networks' and 'short food supply chains' (see e.g. Goodman 2004; Ilbery et al. 2005; Marsden et al. 2000; Murdoch 2000; Renting et al. 2003; Watts and Goodman 1997; Watts et al. 2005; Winter 2003).

Moreover, contemporary changes concern not just emergence of new types of tangible products or production methods but to a large extent also the ways products are marketed, distributed, sold and consumed. New marketing, distribution and sales channels have emerged such as farm shops, local farmers markets, box schemes, consumer cooperatives etc., relying on new forms of producer-consumer

configurations and interaction that allow for the building of trust and common understandings among producers and consumers about, for instance, how to define good and bad qualities (Ilbery and Kneafsey 2000; Ilbery and Maye 2006).

At the same time, however, we see continued if not intensified processes of up-scaling, standardization, job-losses, economic concentration, and de-territorialisation of the commodity supply chains of conventional agricultural, processing and retailing industries, supplying the demands of ever more discount orientated consumers (Manniche 2008). In sum, food demands are increasingly complex and diversified and markets segmented along multiple trails underlining differing if not clashing qualities and priorities of consumer.

In order to explore the varying implications of BST vegetables and the NNK concept in the Danish food economy we need a categorization of the distinct but interacting types of markets through which consumers purchase food. This market categorization should be made on the basis of demand and supply indicators that at least to some extent correspond with the data indicators for consumption and production used in public statistical data sets (such as Statistics Denmark) and thus can be (partly) empirically evidenced and described.

Such a conceptual framework for defining distinct but interacting types of food markets characterized by corresponding demand and supply structures is outlined below. The framework is inspired by the convention theoretical *Worlds of Production* model of Storper and Salais (1997) which often has been applied in research to explain and describe processes of diversification on food markets (e.g. Amilien et al. 2007; Murdoch and Miele 1999 and 2004; Murdoch et al. 2000; Manniche 2007; Manniche and Testa 2010; Morgan et al. 2006; Lindkvist & Sánchez 2008; Stræte 2008). However, while the WOP model has a basic producer perspective, the point of departure for the below suggested framework is the basic demand structures, defining food consumption. The model has two dimensions which, when combined, provide a matrix outlining four distinct types of food demands and consumption which most consumers (to a varying degree) engage in and each defining a distinct market and production and supply system. One dimension regards the object of purchasing while the second dimension regards the social purpose of consumption.

<u>Dimension 1: The object of purchasing</u>

In the first dimension, two basic objects of food purchasing can be distinguished that also define the supplying actors in terms of statistical industry categories:

1. Purchasing of commodities (retailing markets): Consumers select and purchase raw or only partly processed commodities via diverse types of retailers and distributors (such as supermarkets and specialty shops) and on the basis of these prepare and consume their own meals (usually at home).

2. Purchasing of ready-meals (restaurant/catering markets): Consumers order and purchase ready-meals prepared by others such as restaurants, caterers, to-the-door-delivery services, canteens etc. and consume them immediately (at the location of the caterer or another place).

In the first option of purchasing commodities for home-made meals, consumers control the selection of specific commodities as well as the methods of preparing these for consumption, while in the second

option of purchasing/ordering ready-meals consumers only control the ordering of meals among a prescribed list of supplies but have no - or only limited - control over the selection of the applied ingredients and cooking methods.

As a special sub-category of the option of home-made meals, we can include situations where consumers grow/produce food commodities via gardening and on the basis of these cook/prepare their meals. In this case, consumers control almost the entire supply chain and thus, it has limited commercial implications except related to supplies of seeds, plants, chemicals, gardening tools etc. According to data collected through the MAXVEG project, 4% of Danish consumers grow more than half of their supplies of BST vegetables themselves (Kjeldsen et al., forthcoming).

Also a special sub-category of the second option can be included, namely consumption of ready-meals through public food provision (hospitals, schools, elder care institutions, kindergartens, prisons etc.) where consumers in most cases are passive consumers with little and mainly indirect influence regarding selection of ingredients, meals and preparation methods.

In the option of home-cooked food, the engagement and role of consumers is relatively big and health effects of products largely rely on consumers' capabilities in making the right choices regarding purchasing items and cooking methods. This takes far-ranging knowledge and skills about a variety of commodities and sorts, shopping possibilities, recipes, storage, preparation, and cooking methods, access to kitchen equipment, etc. Such knowledge requirements are not least considerable when we talk about BST vegetables that generally, even when consumed raw, need a relatively high degree of processing and commonly are used in combination with other commodity types.

Contrary, in the option of purchasing ready-meals, the consumer plays no role in the processing and the health effects of food mainly rely on the caterer's choices regarding, for instance, supplies of ingredients, processing methods, quantity of the meal, and add-on services such as provision of information about health assets of products.

The distinction at consumption side between purchasing commodities for own cooking and purchasing ready-meals is translatable to the distinction at production side between 'generic' and 'dedicated' product qualities, made in the WOP model of Storper and Salais (1997). The agricultural, manufacturing, distributing and retailing actors supplying the commodities used for home-made meals rely - just like producers of 'generic' products - on the principles of stock production where production is carried out on the basis of expected future demands. In contrast, the caterers of ready-meals rely - as producers of 'dedicated' products - on the principles of customized production where production is realised only (or at least mainly) on the basis of expressed and specified demands of individual (groups of) customers.

Dimension 2: The social purpose of consumption

The second dimension in conceptualizing varying consumer demands and markets of food regards the overall social purpose and goal of consumption. Given the fact that a considerable part of food consumption is performed within the social and budgetary frameworks of households, businesses, and public institutions, it seems reasonable to define one (ideal-)type of demands related to ordinary, everyday situations such as the intake of daily breakfasts, lunches, suppers, i.e. 'functional' demands targeted satisfaction of mundane, physical needs of nutrition within the restricted financial framework

of a household. This type of consumer demands is suggested to centre on product qualities such as affordability, availability, and convenience. Phrasing this sort of demands as 'functional' rather than 'standardized' takes into account that 'standard' does not always equals 'affordable' and the role of financially restricted conditions for much mundane consumption.

A second contrasted category of 'symbolic' food consumption can be identified, inspired by research on alternative food networks and by theories on 'consumer cultures' and 'experience economy' more generally (see e.g. Arnoud and Thomsen 2005; Lash and Urry 1994; Power and Scott 2004; Pine and Gilmore 1999; 2007; Lorentzen and Jeannerat 2013; Miele 2006; Murdoch and Miele 2004; Murdoch 2006; Perkins 2006). This category emphasizes that consumption of food and other tangible products not solely relates to satisfaction of functional needs (such as gaining nutrition effects of food and knowing the time by having a watch) but also can be related to 'symbolic' purposes, to the consumer's processes of forming and signalling a distinct identity and lifestyle and his/her searches for authentic, memorable experiences (Pine and Gilmore, 2007).

When consumption is driven by symbolic and experience-related demands, the emphasis on price supposedly tends to be lower and premium-prices more widespread as consumers search for high-profile products that somehow are differentiated from mainstream ones either in terms of tangible qualities (ingredients, taste, processing methods, etc.) or in terms of intangible aspects such as particular social, cultural and narrative values embodied in or provided in relation to the products.

Obviously, in Western countries with abundance of food supplies, the defined ideal-types of functional and symbolic consumption are closely intertwined and rarely seen in pure form at the level of individuals. It should be stressed, that the targets for product innovation widely recognized as central by conventional food and drinks manufacturing corporations (CIAA 2006; EMCC 2006) are qualities like 'pleasure', 'taste', 'sophistication', 'exotism', 'fun' and 'convenience', i.e. sensory and/or social factors that might be categorized as 'symbolic'. Accordingly, functional and symbolic consumption are defined as two ideal-typical extremes in a continuum. In reality, most consumers' pursue both types, maybe prioritizing functional needs during ordinary working days and putting higher priority to symbolic aspects during weekends or at festive occasions[6].

The topic of health effects of food can be approached both as a functional, standardized quality, embodied in the tangible commodities, and as a symbolic quality related to a specific 'healthy' way of living.

The distinction of functional and symbolic consumption has far-reaching implications for the structuring and functioning of the supplying systems. The functional demands of 'three daily meals' are suggested to be supplied through the mainstream model of standardized food production and distribution, characterized by competition on prices and volume, application of widespread technologies, large-scale corporations, and de-territorialized supply chains with formalised and transactional types of interaction between actors (see e.g. Green and Foster 2005; Murdoch 2000; Morgan and Murdoch 2006).

In contrast, 'symbolic' demands are supplied through specialized and more varied production and distribution systems relying on application of restricted types of technologies and know-how among

[6] See e.g. http://politiken.dk/mad/ECE2499389/madtendenser-2015-bliver-groen-glutenfri-og-gaeret/

producers, processors and distributors, competition connected less to prices and more to the delivery of certain special (tangible or intangible) qualities, and shorter, territorialized supply and value chains characterized by rich interaction and knowledge exchange between actors regarding, for instance, the specific qualities of products, how to store, process and consume them etc. (Ilbery and Maye, 2006; Ilbery and Kneafsey 2000; Murdoch et al. 2000; Renting et al. 2003).

The distinction between functional and symbolic demands cannot be defined in clear-cut statistical terms like the distinction between home-made meals and ready-meals. However, considering the ideal-typical status of these analytical categories, it seems reasonable to relate the industrial classifications of Merchants shop, Supermarkets, Discount Supermarket, Pizzerias (Fast-food Caterers), Other Restaurant/catering services, and Public food providers to functional demands, and the industrial classifications of varying specialty shop sectors (such as Fruit and Vegetables shops and Butcher shops), Restaurants, Event Catering and Cafes to symbolic demands.

It should be stressed, though, that the functional/symbolic distinction in reality cross-cuts such statistical industrial classifications which hence only should be used as proxies. Furthermore, there is a growing debate in research on the interaction and convergence rather than incompatibility and divergence of the functional/conventional and symbolic/alternative food models (see e.g. Goodman 2004; Sonnino & Marsden 2006; Watts et al 2005; Winter 2003). For instance, supermarket chains are increasingly aware of the sales potentials of more standardized types of 'alternative' products such as organic dairy, meat and vegetables products. As noted by Murdoch and colleagues (2000), although high-profile food and drinks producers often are able to take premium-prices for their products due to certain attractive quality factors they also have to take efficiency and volume factors into account in order to survive in the market in the longer run.

By combining the two described dimensions, as shown in Table 1, we can divide consumer demands of food into four distinct ideal-types which supposedly constitute the basis for four interacting and highly dynamic markets supplied through distinct and only partly overlapping supply and value chains (see also Figure 1.I-IV).

In the upper-left cell (se also Figure 1.I), we have the market for 'Household Food', i.e. retailing markets for standardised commodities. This market is used by consumers to satisfy needs for affordable everyday breakfasts, lunches, suppers, and other meals within the (social and budgetary) context of a household which entails an organized process of purchasing, storing, preparing, and cooking before consumption. Supermarkets form consumers' all-dominating point of access to and purchasing of food for this type of consumption.

The contrasted second form of home-made food, 'Lifestyle Food', shown in the lower-left cell (see also Figure 1.II), encapsulates the above described overall trends in modern societies and cultures in which consumption in general and food in particular increasingly are parts of processes of identity formation and social positioning (either at an individual level or related to specific social groups) and where purchasing, cooking, dining, and searching for knowledge on food all are integral activities of forming and signalling a specific lifestyle and identity (Arnoud and Thomsen 2005; Perkins 2006; Pine and Gilmore 2007).

Consumers of Lifestyle Food supposedly purchase the commodities used for their home-cooking in a variety of ways including supermarkets but to a large extent also through specialty and delicatessen

shops, farmers markets, home-delivery-services, box schemes and other small-scale sales channels for specialty foods, characterized by (face-to-face or intermediated) personal interaction with the supplier. Paradoxically, due to the abundance of affordable food in Western countries today, home-growing of vegetables for own cooking and consumption in most cases can be categorised not as functional 'Household Food' but as symbolic 'Lifestyle Food' that is part of cultural identity processes as much as a strategy of basic self-sustenance.

In the right side of Table 1 (see also Figure 1.III), we have at the upper level 'Ready-Made Food' which refers to restaurant/catering markets for ready-meals targeted immediate mundane nutritional needs. This market is supplied by commercial and non-commercial actors providing standard, inexpensive ready-meals such as fast-food and take-away caterers and pizzerias, canteens at working places, public kitchens in hospitals, schools, elder care institutions, kindergartens, prisons etc.

Purchasing of Ready-Made Food is the convenient, time-saving, and affordable alternative to preparing your own meals. Except for the different purchasing points of consumers in supermarkets respectively catering sectors, the supply and value chains feeding this form of consumption are similar to those of Household Food, i.e. they are characterised by standardised commodities, price-competition, large-scale international actors, formalised/transactional relations and limited informal interaction and knowledge exchange between actors. However, an important difference is the need in Ready-Made Food of some sort of inter-personal communication (face-to-face or intermediated) between the consumer and the supplier related to ordering and delivery of the customised ready-meal (depicted by overlapping symbols of the consumer and the caterer in Figure 1.III).

Finally, we have the fourth market for 'Experience Food' (Table 1 and Figure 2.IV). Experience Food can be exemplified with the consumption in up-market restaurants run by specialised chefs and professional staffs and relying on the ability to create "memorable authentic experiences" for their guests (Pine and Gilmore, 2007). This type of consumption connects to what has been phrased as 'The Experience Economy' (Pine and Gilmore, 1999). In the experience economy, consumers are 'co-producers' of the products, i.e. experience products are 'staged' and not 'produced' in traditional terms (see e.g. Boswijk et al. 2007; Lorenzen and Jeannerat 2013; Pine and Gilmore 1999; 2007; Manniche and Larsen 2013). Accordingly, the relations between actors in the supply and value chain of Experience Food, including the upstream network relations of the high-end restaurants to farmers, processors, wholesalers and other commodity suppliers, are characterized by dedicated engagement and close inter-personal face-to-face interaction and rich informal exchange of knowledge.

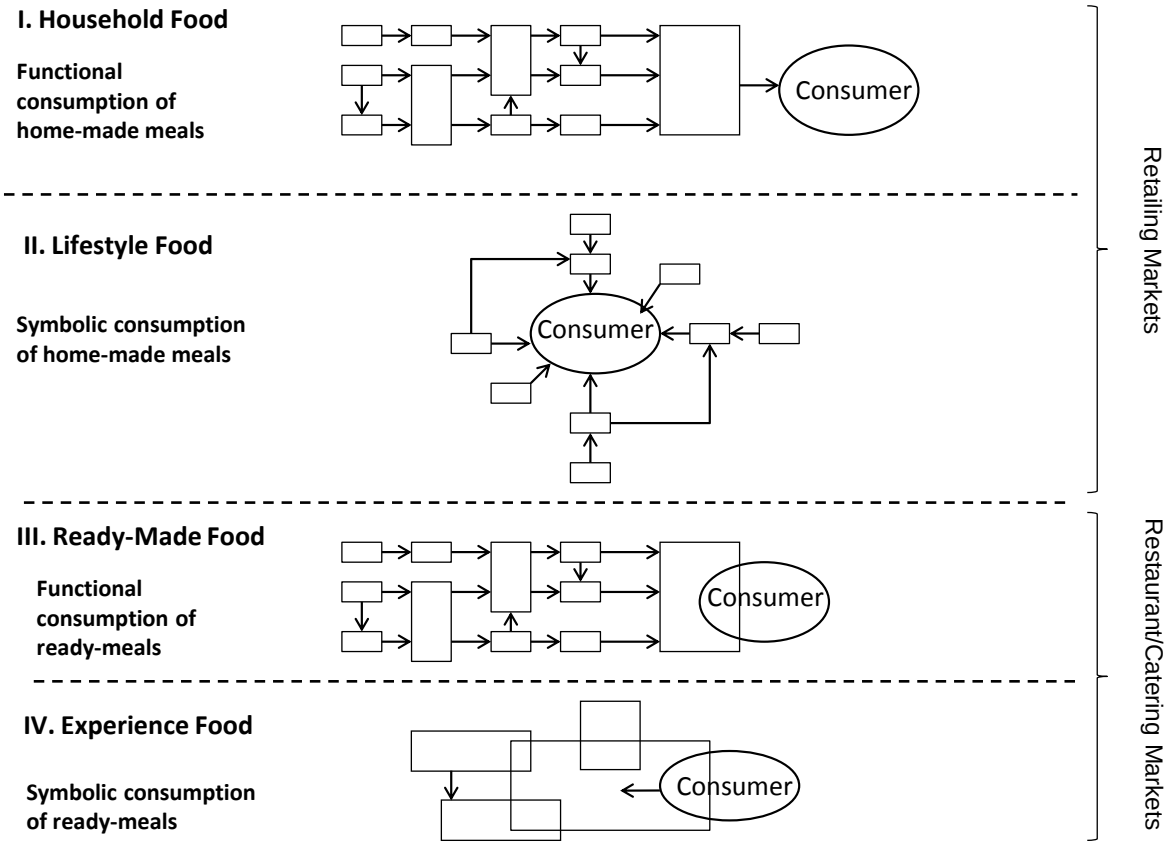
This picture of supply and value chain interaction in the experience economy, largely drawn on the basis of diverse research literatures, was confirmed by interviews with respectively Rasmus Kofoed, owner of Michelin-star restaurant Kadeau, and two farmers on Zealand, Søren Wiuff from Brogaard (https://wiuff.wordpress.com/) and Ask Rasmussen from Kiselgaarden (http://kiselgaarden.dk/). As described in more detail later, both farmers grow, develop and supply specialized vegetables to Kadeau, NoMa, Geranium and other high-profile Danish restaurants through mutual processes of knowledge exchange. As an indication of the integral supply and value chains that characterize Experience Food, gourmet restaurants often mention the names and use the brand of the suppliers of raw materials in their marketing and customer information materials (menu cards, homepage etc.)[7]

[7] Interview of Rasmus Kofoed, Restaurant Kadeau, July 7 2014.

Table 1. Four distinct food markets defined by varying consumer demands

		Object of purchasing	
		Commodities Retailing food markets	Ready-meals Restaurant/Catering markets
Purpose of consumption	**Functional** demands of daily nutrition Standardized markets Economics of Scale – Competition of Price	***Household Food*** **Item of purchasing**: Standardized food commodities. **Channel of purchasing:** Supermarkets. **Consumer-supplier relation**: Anonymous, informal, transactional interaction	***Ready-Made Food*** **Item of purchasing:** Standardized ready-meals. **Channel of purchasing/delivery:** Fast-food restaurants, meals-on-wheels, catering services, canteens, public kitchens/institutions. **Consumer-supplier relation:** Inter-personal (face-to-face or intermediated) interaction between consumer and supplier related to ordering
	Symbolic demands related to identity-formation and festive occasions Specialized Markets Economics of Scope – Competition on quality	***Lifestyle Food*** **Item of purchasing:** Specialized, high-profile food commodities **Channel of purchasing/provision:** Diverse small-scale sales and distribution channels (specialty shops, farmer shops/markets, box schemes, fairs, consumer purchasing cooperatives etc.), home growing, community farming **Consumer-supplier relation:** Rich inter-personal communication and knowledge exchange	***Experience Food*** **Item of purchasing:** Memorable food experiences **Channel of purchasing:** (Gourmet/High-end) Restaurants **Consumer-supplier relation:** Dedicated engagement and inter-personal face-to-face communication of consumers and suppliers - Consumers are 'co-producers' of value

Figure 1.I-IV. Models of supply/value chains of different types of food consumption



3 Empirical description of food markets in Denmark

In this section, the production and consumption sides of the four identified food markets will be analyzed by use of data provided via Statistics Denmark. First, the overall economic structures and trends are outlined, followed by a description of the consumption of BST vegetables.

3.1 Overall structures and trends

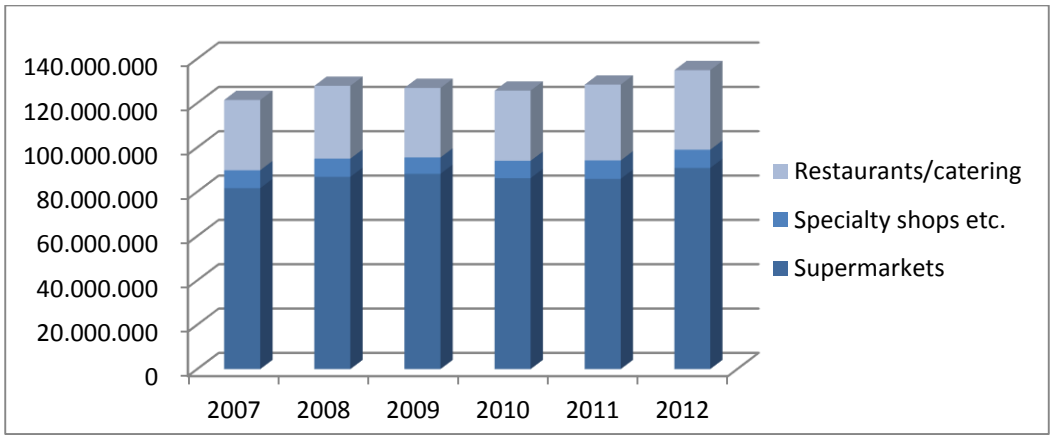
Statistical data about the turn-over in the years 2007-12 in the varying commercial industries/sectors that sell foods and drinks to end-consumers have been provided through Statistics Denmark. Data for food provision through public kitchens and canteens have not been available (but see figure 7 about the use/processing of BST vegetables in public kitchens). It should be stressed that these data regards the economic value (turn-over) and not the quantities of consumed products.

The predominant part of food consumption relates not surprisingly to retailing markets (home-cooking). In 2012, Supermarkets stood for 67% of the value of all purchased foods and drinks, the sales

through Specialty shops and stalls for 6%, while Restaurants and catering companies stood for the remaining 27% (Figure 2). These shares of retailing and catering markets are more or less steady in the measured years. This clearly indicates the predominance of 'functional' consumption in Denmark, at least when consumption is measured in terms of the sectors in which purchasing take place.

At an overall national level, the value of consumed food increased by 11% 2007-12. Interestingly, industries categorized as 'functional' and industries categorized as 'symbolic' (see note of Table 2) have contributed equally to this growth. However, in many respects the trends seem rather different in the Copenhagen region and in the rest of the country. First of all, consumers' overall spending on food grew with 17% in the Copenhagen region and only by 8% in the provinces. This probably to a large extent mirrors the different effects on the employment and private household incomes of the financial crisis in Copenhagen and in the provincial parts of Denmark.

Figure 2. Total turn-over (DKK) of economic sectors based on sale of food and drinks to end-consumers 2007-2012



Source: Statistics Denmark.
Note: Included in the category of "Restaurants/catering" are: Restaurants, Pizzerias, Event catering, Cafes, and Other restaurants/catering. Included in the category of "specialty shops" are Fruit and vegetables shops, Butcher shops, Fish shops, Bakeries, Wine shops, Other food specialty shops, and Stalls. Included in the category of "Supermarkets are: Merchants shops, Supermarkets, and Discount markets.

The food retailing sectors experience dramatic structural change and certain regionalised differences between the Copenhagen region and the provinces (Table 2). The very high growth rates of Discount Markets (statistically categorised on the basis of square meter shop floor) on the expense of smaller Merchants shops and medium-sized 'Supermarkets' that can be observed in all parts of the country only support and further consolidate the position of functionally orientated consumption. Contrary, very different trends can be seen in Copenhagen and in the provinces regarding the specialty shop sectors. For instance, the specialty shop sectors as a whole had a positive growth rate 2007-12 of 12% in the Copenhagen area while the total turn-over in the rest of Denmark dropped by 4%. Fish shops and Bakery shops experienced considerable growth all over Denmark but especially in the Copenhagen region where also 'Other food specialty shops' boomed with an increase in turn-over of 143%, while Butcher shops had a smaller decline in both Copenhagen region and in the provincial regions. Especially interesting in this paper are the similar trends in all parts of Denmark of Fruit and vegetables shops

almost halving their turn-over 2007-12. We will return to this later, specifically in relation to the sale of BST vegetables.

Moreover, clear regional differences can be observed regarding the developments in the catering sectors. The disaggregated numbers in Table 2 show that while the turn-over in pizzerias (and other fast-food suppliers) overall decreased by 2%, restaurants had an increase of 16% and event caterers of 8% which suggests a general trend towards up-markets and symbolic consumption. However, the increase in the restaurant and event catering sectors to a large extent stem from the capital region of Copenhagen in which Restaurants had a 21% growth in turn-over 2007-12 and Event catering grew by 14% while the similar sectors in the provincial parts of Denmark only increased by 12% and 3%. Also Pizzerias had different trends in Copenhagen (a small increase) and in the rest of Denmark (a similar small decrease) while Cafes increased by 12% in both Copenhagen and the provinces (Statistics Denmark).

These observations witness that consumer markets today experience dramatic structural processes of change but not always in the same directions for all segments of consumers and in all parts of the country.

Table 2. Growth rates (pct.) in turn-over of different food sectors 2007-12

	Copenhagen region	Rest of DK	Total
Merchants shops	56,6	-8,9	4,7
Supermarkets	-30,0	-6,2	-13,1
Discount markets	40,6	43,7	42,7
Fruit and vegetables shops	-48,0	-49,6	-48,9
Butcher shops	-3,9	-8,9	-7,6
Fish shops	46,8	18,3	25,7
Bakeries	31,9	5,8	14,7
Wine shops	-21,2	16,2	-2,7
Other food specialty shops	142,9	3,9	58,5
Stalls	-27,0	-5,9	-16,8
Restaurants	21,4	12,0	16,3
Pizzerias	2,6	-3,8	-1,5
Event catering	13,6	3,2	7,9
Other rest./catering	72,8	-22,6	26,6
Cafes	12,1	12,7	12,4
'Functional sector', total	17,5	8,4	11,1
'Symbolic sector', total	17,0	6,6	11,0
Total, all industries	17,3	8,0	11,1

Source: Statistics Denmark.

Note: 'Functional' sectors: Merchants shops, Supermarkets, Discount markets, Pizzerias, Other rest./catering. 'Symbolic' sectors: Fruit and vegetables shops, Butcher shops, Fish shops, Bakeries, Wine shops, Other food specialty shops, Stalls, Restaurants, Event catering, Cafes.

3.2 Consumption of BST vegetables

Unfortunately, there are no available data from Statistics Denmark on the consumption of BST vegetables for the recent years since 2009, and data do not always cover exactly the sorts of vegetables, categorized as BST (see above). However, data are broken down in statistical industries and sectors which in this dataset also include public social institutions (public kitchens). This allows for distinguishing between retailing markets and restaurant/catering markets and to some extent between 'functional' and 'symbolic' consumption (cf. above).

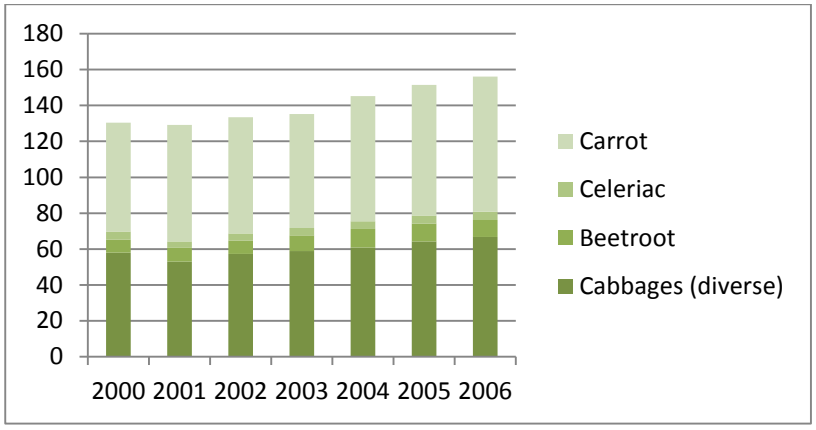
The collected data show a relatively big increase in Danish consumers' consumption of BST vegetables from 2000 to 2009. In quantitative terms (Figure 3 and 4), the overall increase is around 20% due to growth rates of the volume of consumed beetroots on 27%, carrots 24%, cabbages 15% and celeriac only 5%. In terms of economic value (Figure 5), which do not show figures for the individual vegetable categories, the increase in total private/household consumption amounts 36% while the increase of the value of BST vegetables used (processed) in the business sector (i.e. industries such as manufacturing and catering) is only 13%. Interestingly, most of the increase of the values of private consumption stem from a 54% rise in the value of carrots and beetroots, while cabbages only have realized an increase on 8%.

Hence, Danish consumers seem to consume not only more and more volumes of but also more and more valuable BST vegetables, especially regarding carrots and beetroots. This may indicate a bigger sale of organic or otherwise specialized and more expensive products, i.e. commodities for 'symbolic' consumption. On the other hand, when added to the above observation of a considerable drop in the turn-over of Fruit and vegetable specialty shops 2007-12 (Table 2), the overall increase in the consumption of BST vegetables in Denmark seems to indicate that vegetables to a bigger and bigger degree are sold via supermarkets, suggesting a higher demand for 'functional' consumption. This question will be further discussed later.

Despite the obvious differences in the market conditions of private and public caterers, the use of cabbages, carrots and beetroots show more or less similar trends in the two sectors (Figure 6 and Figure 7). In both sectors, the use of (or rather, the value of processed) carrots and beetroots increased dramatically by more than 100% in the period of 2000-09 while the value of processed cabbages in the restaurant sector (which here includes also catering, pizzerias etc.) decreased by 33% and in public institutions by 10%. As a result, the overall value of the processed BST vegetables increased by 26% in restaurants and by 52% in public institutions. There are unfortunately no data available regarding the volume of processed BST vegetables so it is not possible to determine the extent to which these trends express actual changes in the supplied meals or the effects of simple price factors (i.e. carrots and beetroots becoming more expensive and cabbages cheaper).

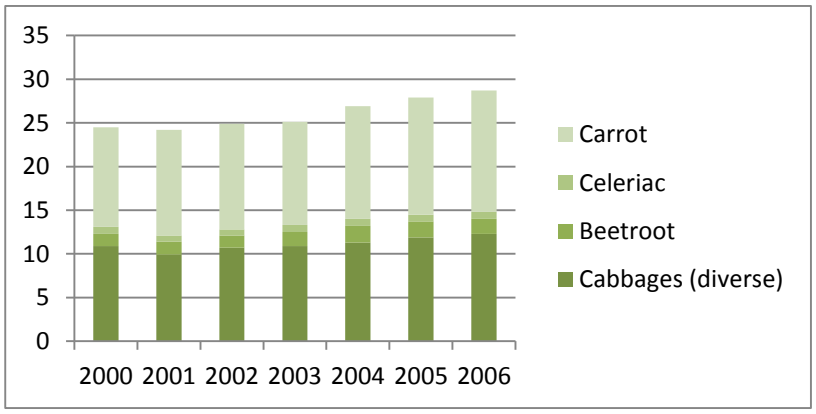
All in all, despite (or maybe because of) the ongoing public debates and criticism about the low qualities and bad health effects of private and public ready-meal provision, there are indications of positive trends regarding the use of BST vegetables in both sectors.

Figur 3. Total consumption of selected BST vegetables in Denmark (mio. kg), 2000-06



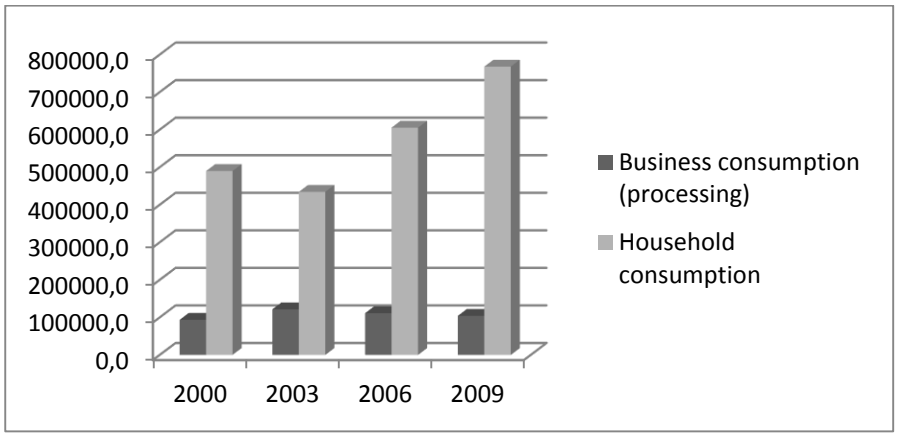
Source: Statistics Denmark. The included 'cabbage' vegetables are: Cabbage, Red cabbage, Cauliflower, Curly kale, Spring cabbage, Brussels sprouts, Broccoli.

Figur 4. Annual consumption of selected BST vegetables (kg) per person, 2000-06



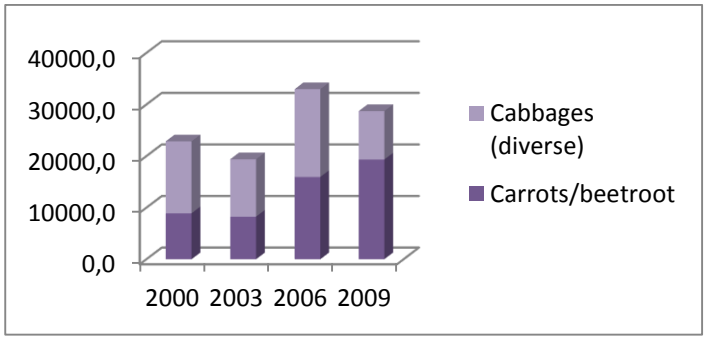
Source: Statistics Denmark. The included 'cabbage' vegetables are: Cabbage, Red cabbage, Cauliflower, Curly kale, Spring cabbage, Brussels sprouts, Broccoli.

Figure 5. The value (1000 DKK) of selected BST vegetables, used/consumed in processing and service industries and in private households, 2000-06



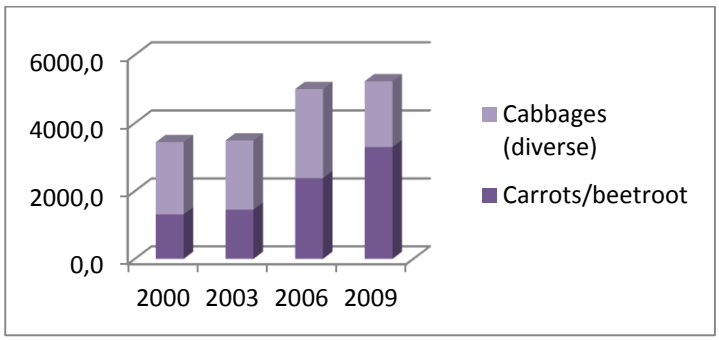
Source: Figures are provided via the SAM-K/LINE Section NatMakeUse® (CRT) by June 25 2014 and indexed (2000=100) by use of Statistics Denmark's annual price index for the group "Fresh vegetables", accessed 26 June 6 2014. The included vegetables are: Cabbage, cauliflower, curly kale, carrots, turnips, beetroots, celeriac and other root vegetables.

Figure 6. Value (1000 DKK) of selected BST vegetables, used/consumed in the hotel and restaurant sector, 2000-09



Source: Figures are provided via the SAM-K/LINE Section NatMakeUse® (CRT) by June 25 2014 and indexed (2000=100) by use of Statistics Denmark's annual price index for the group "Fresh vegetables", accessed 26 June 6 2014.

Figure 7. Value (1000 DKK) of selected BST vegetables, used/consumed in the public institutions/kitchens, 2000-09



Source: Figures are provided via the SAM-K/LINE Section NatMakeUse® (CRT) by June 25 2014 and indexed (2000=100) by use of Statistics Denmark's annual price index for the group "Fresh vegetables", accessed 26 June 6 2014.

Having now conceptualized the main food consumer markets and statistically described the main trends in the consumption and production/provision of food in general and BST vegetables in particular, the topic for analysis in the following section is the possible implications of the NNK concept on the four identified food markets as a possible framework for marketing and development of food products. The analysis starts with the market for Experience Food, since the NNK manifest is introduced as a framework for product development and marketing of the Danish gourmet restaurant sector, i.e. for what here is phrased as Experience Food.

4 The implications of the NNK concept on the four food markets

4.1 Experience Food

An interview study among the trainee chefs at a Danish school for cooks made for the MAXVEG project (Simmelsgaard, 2014), generally concludes that both the NNK concept and BST vegetables hold many potentials for the Danish restaurant sector. Internationally, the NNK is one of the most prestigious and successful cooking trends and has been represented at Bocuse d'Or, winning in 2011 (Rasmus Kofoed) and realizing second place, the so-called Bocuse d'Argent, in 2013 (Jeppe Foldager). Moreover, six of the latest nine finalists since 2009 are from Scandinavia (The Bocuse d'Or Winners' Academy, 2014). In a Danish context, the well-known Michelin-stars winning Restaurant NoMa, and winner of the British Restaurant Magazine's price as the world's best restaurant 2010-12 and again 2014, is the lighthouse of NNK in the shaping of a new Nordic, Scandinavian and Danish food identity (Simmelsgaard, 2014).

However, the study also identifies a number of barriers such as the combination of seasonality of local vegetable supplies and the economic interests of restaurant owners of running on a full-year basis which could necessitate use of imported vegetables and thereby violations of the NNK principles (Simmelsgaard, 2014). Besides, as chefs and restaurant owners obviously have many differing approaches to cooking it would be difficult to imagine that one particular definition of gastronomic quality is agreed upon for the entire restaurant and catering sector. In addition, as fashions change new approaches may emerge in future.

Rasmus Kofoed, co-owner of Restaurant Kadeau[8], another Michelin-star winning restaurant run on the basis of NNK principles and located on the Baltic Sea island of Bornholm but with an all-season affiliation in Copenhagen, expresses his view on BST vegetables and the supplies of gourmet quality versions of such this way:

"*All these old, traditional Danish sorts of cabbages and root vegetables are on our menu all the year around. We use them mainly due to their fantastic tastes, but the health aspect is also important. Besides, they are easy to store. There are so many ways to process them in order to fit into different courses. For instance, celeriac comes smoked, salt baked, fried, as puree and as snacks, all tasting absolutely wonderful. We get so many comments and questions from our guests about the tastes and preparation techniques of our courses. I am chocked about the actual difference in taste of the standard vegetables sold in supermarkets*

[8] http://www.kadeau.dk/

and those gourmet vegetables that we serve. But high quality vegetables are not always easy to provide, especially on a local scale, so we are doing a lot of efforts in helping local farmers and entrepreneurs in building up new interesting productions." (Rasmus Kofoed, interview July 7, 2014).

As also documented in the interesting study of Petruzzelli and Savino (2012), the fundamental interest of NNK-inspired gourmet restaurants in the terroir qualities of produces from different regions of Scandinavia and their specialized demands regarding terroir products have an important demand-pull role for the innovation of new commodities, for instance regarding BST and other categories of vegetables. The gourmet restaurants have provided a part of the market basis for a number of innovative Danish farmers and food entrepreneurs among which two have been visited and interviewed August 29 2014, Søren Wiuff from Brogaard (https://wiuff.wordpress.com/) and Ask Rasmussen from Kiselgaarden (http://kiselgaarden.dk/).

Both farmers carry out highly creative agricultural innovation activities, both on their own and in close collaboration with gourmet restaurants such as NoMa and Kadeau, in developing new special vegetable produces. One demand regarding special produces and products that often is in focus of the gourmet restaurants, is miniature or virginal/premature gourmet versions of vegetables or vegetables with abnormal shapes such as two- or three-fingered carrots. Developing, growing, harvesting and delivering of such produces on a running, all-summer basis involves highly innovative and entrepreneurial agricultural learning activities regarding, for instance, how to exploit local *terroir* conditions such as the micro-topological and climatic variety on individual fields. Thus, the farms are run on the basis of agricultural and economic principles totally different from the price, volume and efficiency orientated principles of conventional farming. As an illustration, Kiselgaarden harvest and delivers premature, germ leaf versions of red salad plants to a number of restaurants and are paid multiple times higher than the prices for normal, full-grown salad plants.

One could say that such types of gourmet-orientated farming, commodities and cooking represent a kind of indulgency and extravagance that has little to do with health and taking care of natural resources. However, food consumption in gourmet restaurants, the storytelling and narrative elements and the inter-personal interaction of the consumer and the caterer connected to this, may provide consumers not only the authentic memorable experiences of eating/drinking that probably form their main demand but also important knowledge and inspiration for their private cooking related to the topic of health.

Moreover, together with multiple colleagues throughout Denmark both interviewed farmers sell their specialized gourmet versions of BST and other categories of vegetables to end-consumers on a broader scale but primarily via specialized distribution and retailing channels (direct sale, farmers' markets, specialty shops, box schemes, delivery services etc.) Thus, this group of farmers plays an important role for the innovation of new Danish food productions and commodities and forms parts of the supply basis for not only the gourmet restaurant sector (Experience Food) but also for the market of Identity Food, i.e. cooking and eating of own meals for symbolic purposes.

4.2 Lifestyle Food

Considering the recent years' immense coverage and hype around the NNK concept in Danish Medias, it seems to have hit a major source of broad interest and inspiration. Indeed, the NNK manifest may not be the explicit guiding principles for the 'symbolically orientated' consumers that lively participate in

the media debates on food nor for the numerous small-scale specialized farmers, processing firms, wholesalers, distributors, restaurants, delicatessen shops etc. that have emerged in all parts of Denmark supplying 'local/regional food'. On the other hand, the territorially embedded, localized approaches to developing food production and distribution systems that characterize many of the new businesses as well as the many food producer network associations, together organized under the umbrella organization *Smagen af Danmark*[9], is an indication that the restaurant-led approach of the NNK concept is complemented with entrepreneurial agricultural and manufacturing bottom-up processes.

Having said this, these entrepreneurial agricultural and manufacturing bottom-up processes in many cases started a decade or two before the NNK manifest was formulated in 2005 (Manniche and Larsen 2009; Manniche et al. 2009). In this way, the NNK concept should be considered reflections upon already ongoing activities in the Scandinavian food sector rather than the pioneering, path-breaking innovation as such.

Moreover, in-depth studies of the knowledge dynamics behind the innovations of regional culinary products from the island of Bornholm (Manniche and Larsen 2009; Manniche et al. 2009) document the actual variety of business models and product development approaches and the importance of interaction not only at a local scale but at national and international levels that lie behind the development and success of the new Danish business sector for 'local/regional' food. The NNK concept surely is an inspiration for many business entrepreneurs but usually only one of several inspirational sources and certainly not always in the pure and ideal form proposed in the NNK manifest.

It also remains an open questions to what extent the purchasing patterns of Danish consumers is influenced explicitly by the NNK concept, and specifically which precise aspects of it (geographical origin, health, taste, aesthetical elements etc.) that symbolically or experience driven consumers in particular appreciate. As described before, data from Statistics Denmark for the economic development in differing retailing sectors (Table 2) draw a rather regionalized picture of the trends in both retailing and catering industries, indicating that Lifestyle Food consumption is highly growing in the Copenhagen region but decreasing or at least not growing in the provincial parts of the country. The generally well-educated and younger population in the Copenhagen region with relatively high incomes and big purchasing power undoubtedly plays a significant role for here.

Of special interest in this study are the three empirical findings of a considerable decline in the Fruit and vegetables specialty shop sector of almost 50% 2007-12 in all parts of Denmark, a relatively big increase in the amounts and value of BST vegetable consumed in households, and of Discount supermarkets gaining market shares from smaller supermarkets (Table 2). Together these findings indicate that fruits and vegetables (including BST) increasingly are sold via the biggest and most well-assorted (discount) supermarkets which may suggest that consumer demands of vegetables have become more standardized and price-orientated. However, as we shall see below, interviews with supermarket representatives provide possible explanations of their rising BST vegetable sales that instead seem to suggest that supermarkets increasingly adopt the sales methods of specialty shops.

[9] See http://www.smagenafdanmark.dk/.

4.3 Household Food

The 'productivist' food model based on industrial, standardized, scale-orientated farming, processing, distribution, marketing, and sales systems that gained dominance in Western countries after Worlds War II has been subject for severe criticism in the agri-food research and in public debates as responsible for a number of food-related health problems like obesity, life-style related heart deceases, safety and hygiene scandals, environmental degradation, low animal welfare standards, effects of gene modified organisms on nature and humans, erosion of regional culinary traditions and rural economies (see e.g. Fonte 2002; Marsden et al. 2000; Morgan and Murdoch 2006; Murdoch et al. 2000; Renting et al. 2003; Watts and Goodman 1997; Winter 2003).

Indeed, modern societies today face serious public health problems connected with obesity and life style illnesses such as diabetes. But even if the conventional food model is to blame for this development, it is still a key to important parts of the solutions. Since the overall health effects of food depend on the *quantities* as much as on the qualities of the typical, daily intake of food and drinks, changes of the food consumption patterns of the population inevitably involve the mainstream farming-industry-supermarket model, simply due to its position as the all-dominating food provision system.

The NNK principles for production and preparation of food, striving for uniqueness rather than for generic, well-known qualities of food, seem almost incompatible with the principles of economics of scale and efficiency that rule on standard commodity markets such as markets for Household Food and Ready-Made Food. Paradoxically, however, some degree of technological advances and maturing and diffusion of ideas, products and technologies (i.e. standardization in essence) will be an important factor for the long-term success of the NNK concept.

What is 'special' today may be 'standard' tomorrow. Since the NNK-induced development project aims at the creation and diffusion of a new food *culture* rather than a temporary fashion, it should be an overall goal to standardize the developed NNK products and methods and democratize consumers' access to them rather than keeping them on exclusive markets for connoisseurs and well-off elites. In fact, such kinds of considerations seem to have played a central role for the owners of the two high-profiled and NNK-related food companies, Løgismose[10] and Meyer's Madhus[11], which recently were sold to an international hedge fund in order to secure a broadening of the customer basis and continued innovation of products and distribution systems[12].

As already illustrated, the supermarket sector undergoes radical changes in these years in respond to new consumer demands. According to interview with vegetable category manager in the supermarket chain COOP, Lars Bo Hansen, October 3 2014, the demands of organic as well as convenience products are very observable in these years. He also told about growth rates above 50% during 2014 in the sale of spring cabbage and other types of cabbage as well as continued strong growth rates of carrots and beetroots.

One explanation to this, according to LBH, was the innovation and market introduction of more convenient vegetable product types such as washed, grated and packaged vegetables which saves important time in the cooking of meals. Another possible factor explaining the increase of sale of BST

[10] http://www.loegismose.dk/
[11] http://www.meyersmadhus.dk/
[12] See e.g. http://www.business.dk/foedevarer/madikonerne-meyer-og-loegismose-er-blevet-solgt

vegetables, mentioned not only by the interviewed COOP representative but also by Thomas Sørensen, vegetable purchasing manager of supermarket chain REMA1000, September 30 2014, regards the introduction of select-your-own-from-bulk concepts in the supermarket shops, which are well-known and traditional methods in the specialty shop sector and allow consumers to choose exactly the amounts, sizes and shapes that they prefer. These innovations of supermarkets in the field of vegetables may very well explain a major part of the above described ongoing dramatic decline in Fruit and vegetable specialty shops.

Furthermore, according to the two interviewed supermarket representatives, both supermarket chains in recent years have launched strategic marketing campaigns targeted the issue of health, involving new types of web-site information and dialogues with consumers, a broadening of the supplies of vegetable sorts, as well as the ways of physically placing and staging these inside the shops[13]. Moreover, COOP and REMA1000 (as well as other supermarket chains) recently have taken initiatives to offer shelve space for 'local/regional' specialties from the specific area in which the individual shops are located. Previously, the supermarkets only opened the shelves for producers with sufficient production volume to supply the chains at a national level, i.e. in every individual shop. Due to such initiatives, supermarkets increasingly become parts of the retailing systems for specialized food commodities, i.e. the markets for Identity Food.

Quite another strategy of improving the health effects of food consumption that fits very well into the standardized commodity model of supermarkets and goes hand-in-hand with the NNK concept would be to develop new versions of food products enriched with better health effects. For instance, a research project, carried out as part of the MAXVEG project and led by Per Bendix Jeppesen, Aarhus University Hospital, indicated that old sorts of BST vegetables such as carrots and kurly kale that are no longer used in commercial agriculture and thus in the project were provided by cultivating seeds obtained from the Nordic gene bank, contain more bioactive chemicals than the vegetable sorts that are grown commercially today, and have very positive health effects for patients with diabetes and certain heart diseases[14]. Realising such technological innovations would entail a few years of cultivating sufficiently amounts of seeds for commercial use as well as complex testing and learning processes connected with growing, storage, processing, distribution, documentation etc.

As already described, a number of small-scale farmers including those that supply and interact with gourmet restaurants are already engaged in such types of agricultural innovation activities. As a group the small-scale specialized farmers and producers play an extremely important role for the developing, testing and introducing of new product types and technologies that subsequently, in case of documented advantages, could be up-scaled and adopted in standard production, distribution and retailing systems.

4.4 Ready-Made Food

If we finally consider the implications of the NNK concept in the fourth food market of Ready-Made Food, i.e. inexpensive standard ready-meals, it is necessary to make a distinction between commercial fast-food suppliers and public kitchens. For public food providers who on a daily basis provide Ready-Made

[13] "Nudging" is one of these recently introduced methods for increasing the sales in supermarkets.

[14] See http://www.sundhedsguiden.dk/da/temaer/alle-temaer/diabetes-sukkersyge/nyttig-viden-om-sukkersyge-diabetes/diabetes---forbyggelse-og-sundhedsfremme/derfor-gamle-groentsagssorter-bedre-for-helbred/

Food to Danish citizens basically targeted functional demands of nutrition, the health effects of served meals are an explicit, politically prioritized concern. The NNK concept may be considered an applicable framework for public food provision systems in developing and serving healthier meals.

For instance, the NNK-related research project, OPUS, led by Copenhagen University, has carried out a study[15] on the health effects of school meals for kids, composed of Nordic ingredients including cabbage, fish, nuts and berries, documented that the kids got better insulin sensitivity, less fat in the blood stream and lower blood pressure than children who ate a typical home-packed lunch.

Such public food provision initiatives not only could be part of strategies for improving the taste and health qualities of served food but also could give an important demand-pull contribution to the development of commercial local supply systems for specialized, high-quality types of produces. However, the emphasis of public kitchens on the prices of purchased commodities that just like the health aspects of food is politically determined, reduces these possibilities of public kitchens and incites them to focus on standard commodity supplies.

In contrast, the NNK concept does not seem to have the same potentials for commercial suppliers of standard ready-meals. Their consumers mainly focus on price and taste and in general pay little attention to specific qualities of products such as where the raw materials come from, which sorts they are, and how they are processed, topics which are core in a NNK perspective. Since commercial Ready-Made meals in most cases are targeted satisfaction of immediate hunger and the consumer's choice of supplier and menu usually is taken on the basis of a spontaneous, often very short-sighted demand rather than on the basis of a rational needs analysis, the mediate and long-termed health effects of products are not necessarily in focus of attention of the consumer, nor the producer.

Nonetheless, due to their relatively low purchasing prices, simple storage demands, and documented positive health effects, BST vegetables represent an obvious element in achieving healthy meals for commercial ready-meals providers as well. Besides, they may have certain possibilities of exploiting the inter-personal interaction with customers connected with ordering, purchasing and delivery, for addressing the topic of health effects of varying menus. And in fact, as previously described, there are indications in the private restaurant/catering sector of certain structural changes from pizzerias and fast-food outlets towards more up-market restaurants, especially in the Copenhagen area, where also a number of cafes and restaurants with an explicit NNK profile in recent years have been established such as Meyer's Deli[16].

5 Summing up and concluding

This study is part of the MAXVEG project which as a whole aims at developing new tools and strategies to increase consumers' preferences and intake of bitter and strong tasting (BST) vegetables such as cabbage, carrots and celeriac, for instance through new growing, storage and distribution methods masking or modifying the bitter taste, and new forms of marketing, branding and storytelling, emphasizing the positive health effects of BST vegetables as well as their potentials in a "New Nordic

[15] http://foodoflife.ku.dk/opus/english/nyheder/2014/school-lunch.
[16] http://www.meyersdeli.dk/

Kitchen" (NNK) perspective, praising the distinct territorial, local and regional qualities of food products.

The purpose of this particular paper is connected to the latter part about the marketing aspects of BST vegetables and the potentials of applying the NNK concept as a framework for increasing the sale and intake of such but the analyses in this study are taken out of the narrow context of marketing and branding research and investigate and discuss from an integrated production/consumption perspective the sales of BST vegetables and the implications of the NNK concept on varying markets.

A core step in this is a conceptualization of varying types of food demands that the vast majority of modern consumers (though definitely to a varying degree) engage in. The conceptual model has two dimensions. In one dimension, concerning the object of consumption, there is, on the one hand, consumption of meals cooked and prepared within the context of households, and on the second hand, consumption of ready-meals prepared and served by private or public actors outside the household. In the first option, consumer demands are expressed on retailing markets for food commodities (such as supermarkets) and in the second, they are expressed on catering and restaurant markets, including food provision via public institutions.

The second dimension in the conceptualization regards the consumer's purpose of consumption and the specific product qualities that he/she search for. Here, there are, on the one hand, demands related to functional, physical, daily needs of nutrition, targeted qualities such as price and availability, and thus expressed on markets for standardized products such as supermarkets and fast-food restaurants. On the other hand, there are demands related to symbolic purposes and search for excessive, intrinsic, memorable experiences that (in addition to satisfaction of nutritional needs) are part of the consumers' formation of a distinct cultural identity and social status. This type of demands is expressed on markets for specialized, high-profile, premium-priced products such as specialty shops or (gourmet) restaurants.

The defined ideal-types of functional and symbolic consumption are closely intertwined and rarely seen in pure form at the level of individuals. The topic of health effects of food can be approached both as a functional, standardized quality, embodied in the tangible commodities, and as a symbolic quality related to a specific 'healthy' way of living.

In combination these two dimensions outline four distinct food consumer markets (Table 1) which are phrased 'Household Food' (retailing markets for standard food commodities, prepared), 'Lifestyle Food' (retailing markets for specialized, high-profile food commodities), Ready-Made Food (catering markets for standard ready-meals including public food provision), and Experience Food (catering markets for high-profile ready-meals).

The varying supply and value chains feeding these four markets are conceptualized (Figure 1.I-IV), mainly on the basis of diverse research literatures, and investigated empirically by use of data from Statistics Denmark and interviews. The analysis clearly indicates the predominance of 'functional' consumption in Denmark, at least when consumption is measured in terms of the sectors in which purchasing take place. The predominant part (67%) of the value of all purchased foods and drinks 2012 relates not surprisingly to supermarkets (Household Food), while the sales through Specialty shops and stalls (Lifestyle Food) stood for 6% and Restaurants and catering companies for the remaining 27%.

At an overall national level, the value of consumed food increased by 11% 2007-12 (Table 2). Interestingly, industries categorized as 'functional' and industries categorized as 'symbolic' (see note of Table 2) have contributed equally to this growth. However, in many respects the trends seem rather different in the Copenhagen region and in the rest of the country. First of all, consumers' overall spending on food grew with 17% in the Copenhagen region and only by 8% in the provinces. This probably to a large extent mirrors the different effects on the employment and private household incomes of the financial crisis in Copenhagen and in the provincial parts of Denmark.

The food retailing sectors experience dramatic structural change and certain regionalised differences between the Copenhagen region and the provinces. The very high growth rates in all parts of the country of Discount Markets on the expense of smaller Merchants shops and medium-sized Supermarkets support and further consolidate the position of functionally orientated consumption. Contrary, very different trends can be seen in Copenhagen and in the provinces regarding the specialty shop sectors. For instance, the specialty shop sectors as a whole had a positive growth rate 2007-12 of 12% in the Copenhagen area while the total turn-over in the rest of Denmark dropped by 4%. Fish shops and Bakery shops experienced considerable growth all over Denmark but especially in the Copenhagen region while Butcher shops had a smaller decline in both Copenhagen region and in the provincial regions. An especially interesting observation is the similar trends in all parts of Denmark of Fruit and vegetables shops almost halving their turn-over 2007-12.

Clear regional differences also can be observed regarding the developments in the restaurant and catering sectors. While the turn-over in pizzerias (fast-food restaurants) overall decreased by 2%, restaurants had an increase of 16% and event caterers of 8% which suggests a general trend towards up-markets and symbolic consumption. However, the increase in the restaurant and event catering sectors to a large extent stem from the capital region of Copenhagen in which Restaurants had a 21% growth in turn-over 2007-12 and Event catering grew by 14% while the similar sectors in the provincial parts of Denmark only increased by 12% and 3%.

All in all, these observations witness that consumer markets of food today experience dramatic structural processes of change but not in the same directions for all segments of consumers and in all parts of the country.

Collected data about the consumption/use of (selected sorts of) BST vegetables in households respectively industrial sectors in Denmark 2000-09 show a big increase in household consumption of BST vegetables from 2000 to 2009. In quantitative terms, the overall increase was around 20% due to growth rates of the volume of consumed beetroots on 27%, carrots 24%, cabbages 15% and celeriac only 5%. In terms of economic value of consumed BST vegetables, the increase in total private/household consumption amounted 36% while the increase of the value of BST vegetables used (processed) in the business sector was only 13%. Interestingly, most of the increase of the values of private consumption stem from a 54% rise in the value of carrots and beetroots, while cabbages only experienced an increase on 8%.

Hence, Danish consumers seem to consume not only more and more volumes of but also more and more valuable BST vegetables, especially regarding carrots and beetroots. This indicates a bigger sale of organic or otherwise specialized/expensive products, i.e. a growth in 'symbolic' consumption. Other empirical findings of a considerable decline in the Fruit and vegetables specialty shop sector of almost 50% 2007-12 in all parts of Denmark and of Discount supermarkets gaining market shares from smaller

supermarkets, on the other hand indicate that fruits and vegetables (including BST) increasingly are sold via the biggest and most well-assorted (discount) supermarkets, suggesting that consumer demands of vegetables have become more standardized and price-orientated and higher demands for 'functional' products.

Interviewed COOP and REMA1000 supermarket representatives confirmed a big and growing consumer interest in both organic and convenient BST vegetable products and informed about the successful market introduction of more convenient vegetable products such as washed, grated and packaged vegetables which saves important time in consumers' cooking of meals. But the supermarket representatives also explained their rising sales of BST vegetables by pointing to the introduction of select-your-own-from-bulk concepts, which are well-known and traditional methods in the specialty shop sector, allowing consumers to choose exactly the amounts, sizes and shapes that they prefer. Hence, the radical shift in the sale of BST vegetables from fruit and vegetable specialty shops to large supermarkets should not be seen as a trend towards more standardized and price-orientated commodities (higher demands for 'functional' products) but rather relates to supermarkets increasing adoption of the sales methods of the specialty shops sectors.

This is an illustration of the convergence rather than divergence of 'alternative/symbolic' and 'conventional/functional' food provision models. It also exemplifies that the four identified food markets and the supply and value chains that feed them, are highly dynamic, overlapping, and interacting.

Nonetheless, the four identified markets are ruled by different types of quality conventions, economic conditions and principles, social relations of actors etc. which make them differently suited for the NNK concept. The concept is introduced as a framework for product development and marketing of the Danish gourmet restaurant sector, i.e. for what here is phrased as Experience Food. However, its influence reaches much further though primarily to the second identified market for symbolic consumption of Lifestyle Food which is connected to identity formation rather than to functional nutritional needs.

Interviews with a chef and two farmers revealed that the highly specialized demands of gourmet restaurants form the direct market basis for innovative and entrepreneurial Danish farmers and food entrepreneurs who in close collaboration with the chefs develop and test new food commodities and farming methods, not least regarding BST and other categories of vegetables. Together with colleagues throughout Denmark, this group of agricultural entrepreneurs plays an important role for the innovation of Danish food productions and forms (parts of) the supply basis for not only the gourmet restaurant sector (Experience Food) but also for the market of Lifestyle Food (i.e. retailing markets of specialized commodities). Moreover, the results of their innovative activities of developing, testing and introducing of new product types and technologies may subsequently, in case of documented advantages, be up-scaled and adopted in standard production, distribution and retailing systems.

Considering the recent years' immense coverage and hype around the NNK concept in Danish Medias, the concept seems to have hit a major source of interest and inspiration among consumers. Also at production side, the territorially embedded, localized approaches to developing food production and distribution systems that characterize many of the farmers, processing firms, wholesalers, distributors, restaurants, delicatessen shops etc. supplying 'local/regional food' as well as the network associations organized under the umbrella organization *Smagen af Danmark* that have emerged in recent decades,

are indications that the restaurant-led approach of the NNK concept is complemented with entrepreneurial agricultural and manufacturing bottom-up processes.

The NNK principles for production and preparation of food, striving for uniqueness rather than for generic, well-known qualities of food, seem almost incompatible with the principles of economics of scale and efficiency that rule on standard commodity markets such as the retailing market for Household Food and the restaurant/catering market for Ready-Made Food. Paradoxically, however, some degree of technological advances and maturing and diffusion of ideas, products and technologies (i.e. standardization in essence) will be an important factor for the long-term success of the NNK concept. And certain possibilities of application in large-scale production and distribution systems surely exist. For instance, already today NNK-inspired approaches are applied in the development of healthier food in public institutions (schools, eldercare institutions, etc.)

In contrast, the NNK concept does not seem to have the same potentials for commercial suppliers of standard ready-meals. Their consumers mainly focus on price and taste and in general pay little attention to specific qualities of products such as where the raw materials come from, which sorts they are, and how they are processed, topics which are core in a NNK perspective. The question is, however, if this always will be the situation. In fact, there are indications in the private restaurant/catering sector of certain structural changes from pizzerias and fast-food outlets towards more up-market restaurants, especially in the Copenhagen area, where also a number of cafes and restaurants with an explicit NNK profile in recent years have been established such as Meyer's Deli. Besides, commercial ready-meal suppliers may have certain possibilities of exploiting the inter-personal interaction with customers connected with ordering, purchasing and delivery, for addressing the topic of health effects of varying menus.

There should be no doubt that the generally well-educated and relatively young Capital population with high incomes and big purchasing power plays a significant demand-pull role for the ongoing changes in the Danish food production, distribution and retailing sectors. Yet, it is an open question whether the NNK manifest as such is the enthusing and guiding framework for the majority of symbolically or experience driven consumers - or for that matter for the many new small-scale farmers and food producers. It seems more correct to conclude on this issue by returning to the previously mentioned thesis from the agri-food and rural research regarding the 'quality turns' on food markets, following multiple directions and targeted a variety of different 'alternative' quality conventions (health, environment, animal welfare, geographical origin, transparency, social fairness just to mention a few).

References

Amilien, V; Fort, F.; Ferras, N. (2007). Hyper-real territories and urban markets: changing conventions for local food – case studies from France and Norway. *Anthropology of food*, Special Issue March 2007. Available at http://aof.revues.org/index446.html (downloaded June 21 2010).

Arnould, E. J. and A Thompson, C. J. (2005). Consumer culture theory (CCT): Twenty Years of Research. *Journal of Consumer Research* 31 (4) 868–882.

Backett, Kathryn and Charlie Davison (1992). Rational or reasonable? Perceptions of health at different stages of life. *Health Education Journal,* June 1992, vol. 51 no. 2, pp. 55-59, doi: 10.1177/001789699205100202.

Boswijk A, Thijssen T, and Peelen E (2007). *The experience economy. A new perspective*. Pearson Education Benelux.

CIAA (2006). *Data and trends of the European food and drink industry*. Confederation of food and drink industries of the EU.

Crevoisier, Oliver and Jeannerat, Hugues (2009). Territorial Knowledge Dynamics: From the Proximity Paradigm to Multi-location Milieus. *European Planning Studies* Vol. 17, No. 8, August 2009, pp. 1223-1241.

EMCC (2006). *Trends and drivers of change in the food and beverage industry in Europe: Mapping report*. European Monitoring Centre on Change, European Foundation for the Improvement of Living and Working Conditions.

Fonte, Maria (2002). Food systems, consumption models and risk perception in late modernity. In *International Journal of Sociology of Agriculture and Food*, 10(1), pp.13-21

Goodman, David (2002). Rethinking food production-consumption: Integrative perspectives. *Sociologia Ruralis*, Vol 42, No 4, pp.271-277.

Goodman, David (2003). Editorial. The quality 'turn' and alternative food practices: reflections and agenda. In *Journal of Rural Studies* 19, 2003, pp. 1-7.

Goodman, David (2004). Rural Europe Redux? Reflections on alternative agro-food networks and paradigm change. *Sociologia Ruralis*, Vol. 44, No. 1, January 2004.

Grabher, G.; Ibert, O.; and Flohr, S. (2008). The neglected king: The customer in the new knowledge ecology of innovation. *Economic Geography*, 84(3), pp. 253-280.

Green, Ken & Foster, Chris (2005). Give peas a chance: Transformations in food consumption and production systems. *Technological Forecasting and Social Change*, vol. 72, issue 6, July 2005, pp. 663-679.

Harvey, Mark; Andrew McMeekin; Alan Warde (eds.) (2004). *Qualities of food*. Manchester University Press.

Holloway, Lewis; Moya Kneafsey; Laura Venn; Rosie Cox; Elizabeth Dowler; Helena Toumainen (2007). Possible Food Economies: A Methodological Framework for Exploring Food Production-Consumption Relationships. *Sociologia Ruralis*, Vol. 47(1), January 2007, pp.1-19.

Ilbery, B. & Kneafsey, M. (2000). Producer constructions of quality in regional specialty food production: a case study from south west England. *Journal of Rural Studies*, 16 (2000), pp. 217-230.

Ilbery, B. & Maye, D. (2006). Retailing local food in the Scottish-English borders: A supply chain perspective. In *Geoforum*, Vol. 37, pp. 352-367.

Ilbery, Brian; Morris, C; Buller, H; Maye, Damian; & Kneafsey, Moya (2005). Product, process and place. An examination of food marketing and labelling schemes in Europe and North America. In *European Urban and Regional Studies*, Vol. 12(2), pp. 116-132.

Lash, S. & Urry, J. (1994) *Economies of signs and space.* London, Sage.

Lindkvist, Knut B. & Sánchez, José L. (2008). Conventions and Innovation: A comparison of two localised natural ressource-based industries. *Regional Studies*, Vol. 42.3, pp. 343-354.

Lorentzen, A. & Jeannerat, H. (2013). Urban and regional studies in the experience economy: What kind of turn? *European Urban and Regional Studies*. 20(4), 363-369

Manniche, J. (2007) *Knowledge Dynamics and Quality Conventions in the Food and Drink Sector. EURODITE WP3 SECTOR STUDY*. June, 2007, Nexö: Denmark: Centre for Regional and Tourism Research, 2007.

Manniche, J. (2008). *Den rumlige fordeling og udvikling af fødevaresektoren i Danmark – Typer af landdistrikter og kommuner*. Rapport fra forskningsprojektet Virkemidler i landdistriktspolitikken – behov og effekter nu og i fremtiden. Centre for Regional and Tourism Research, October 2008.

Manniche, J. & Larsen, K. T. (2009) *Firm-level Knowledge Dynamics of Creating Bornholm Food*. EURODITE. WP6 FKD Report, June 2009. Nexö/Denmark: Centre for Regional and Tourism Research.

Manniche, J; Larsen, K. T. and Petersen, T. (2009). *Development and branding of 'regional food' of Bornholm. Final EURODITE WP5 report including WP6 synthetic reports*. Nexö/Denmark: Centre for Regional and Tourism Research, June 2009.

Manniche J, Testa S (2010) Knowledge bases in worlds of production: The case of the food industry. *Industry and Innovation* 17(3): 263-284.

Manniche, J. & Larsen, K. T. (2013). Experience staging and symbolic knowledge: The case of Bornholm culinary products. *European Urban and Regional Studies*, 20 (4), 401-416.

Marsden, Terry; Banks, Jo, and Bristow, Gillian (2000). Food supply chain approaches: Exploring their role in rural development. In *Sociologia Ruralis,* Vol 40, No 4, pp. 424-438.

Miele, Mara (2006). Consumption culture: the case of food. *The Handbook of Rural Studies.* Ed. Paul Cloke, Terry Marsden, and Patrick Mooney. Thousand Oaks, CA: SAGE, 2006. 345-55. *SAGE Reference Online*.

Morgan, Kevin; Marsden, Terry; Murdoch, Jonathan (2006). Networks, Conventions, and Regions: Theorizing 'Worlds of Food'. In *Place, Power, and Provenance in the Food Chain*. Oxford University Press, pp. 7-25.

Morgan, Kevin & Murdoch, Jonathan (2000). Organic vs. conventional agriculture: knowledge, power and innovation in the food chain. In *Geoforum,* Vol. 31 (2000), pp. 159-173.

Murdoch, J (2000). Networks – a new paradigm of rural development? *Journal of Rural Studies*, Vol. 16 (2000), pp. 407-419.

Murdoch, Jonathan (2006). Networking rurality: emergent complexity in the countryside. *The Handbook of Rural Studies*. Ed. Paul Cloke, Terry Marsden, and Patrick Mooney. Thousand Oaks, CA: SAGE, 2006. P. 172-85. SAGE Reference Online. Web. 17 Jul. 2012.

Murdoch, Jonathan & Mara Miele (1999). 'Back to Nature': Changing 'Worlds of Production' in the Food Sector. *Sociologia Ruralis*, European Society for Rural Sociology, Vol. 39, No. 4, 1999.

Murdoch, J; Marsden, T; Banks, J (2000). Quality, nature, and embeddedness: Some theoretical considerations in the context of the food sector. *Economic Geography*, Vol. 76 (2), pp.107-125.

Murdoch, Jonathan & Miele, Mara (2004). Culinary networks and cultural connections: a conventions perspective. In Hughes, Alex & Reimer, Suzanne (2004) *Geography of commodity chains*. Routledge studies in human geography.

Perkins, Harvey (2006). Commodification: re-resourcing rural areas. *The Handbook of Rural Studies.* Ed. Paul Cloke, Terry Marsden, and Patrick Mooney. Thousand Oaks, CA: SAGE, 2006. P. 244-58. *SAGE Reference Online*. Web. 17 Jul. 2012.

Petruzzelli A.M and Savino T. (2012). Search, Recombination, and Innovation: Lessons from Haute Cuisine. *Long Range Planning* (2012). http://dx.doi.org/10.1016/j.lrp.2012.09.001.

Pine II JB, Gilmore JH (1999) *The Experience Economy: Work is Theatre and Every Business a Stage.* Boston: Harvard Business School.

Pine II, JB and Gilmore JH (2007) *Authenticity: What consumers really want.* Boston, MA: Harvard Business School Press.

Power D and Scott AJ. (eds)(2004) *Cultural Industries and the Production of Culture*. London: Routledge.

Renting, Henk, Marsden, Terry K & Banks, Jo (2003). Understanding alternative food networks: exploring the role of short food supply chains in rural development. *Environment and Planning*, Vol. 35, pp. 393-411.

ROZIN, P; C. FISCHLER; S. IMADA; A. SARUBIN; A. WRZESNIEWSKI (1999). Attitudes to Food and the Role of Food in Life in the U.S.A., Japan, Flemish Belgium and France: Possible Implications for the Diet–Health Debate. *Appetite*, 1999, 33, pp. 163–180.

Simmelsgaard, Sonni H. (2014). *Attitudes towards Bitter and Strong Tasting root vegetables and cabbages and the New Nordic Cuisine - a study of trainee chefs in Denmark.* Report for the MAXVEG project, Danish Centre for Rural Research, University of Southern Denmark.

Sonnino, Roberta; Marsden, Terry (2006). Beyond the divide: rethinking relationships between alternative and conventional food networks in Europe. *Journal of Economic Geography*, Vol. 6 (2006), pp. 181-199.

Storper, M.; Salais, R. (1997). *Worlds of Production. The action frameworks of the economy*. Harvard University Press.

Strand, Mathias (2013). *Kulturhistorisk analyse af anvendelsen af grønkål, hvidkål, spidskål, rødkål, gulerødder, knoldselleri og rødbeder i Danmark 1793-2010*. Unpublished Working paper, the MAXVEG project, SDU.

Stræte, Egil Petter (2008). Modes of qualities in development of specialty food. *British Food Journal*, Vol. 110 No 1 (2008), pp. 62-75.

Watts, Michael & David Goodman (1997). Agrarian question. Global appetite, local metabolism: nature, culture and industry in fin-de-siècle agro-food systems. In Goodman, David & Michael Watts (eds). *Globalising food – Agrarian Questions and Global Restructuring*. Routledge, London.

Watts, D.C.H.; Ilbery B.; Maye, D (2005). Making reconnections in agro-food geography: alternative systems of food provision. In *Progress in Human Geography*, Vol. 29/1, pp. 22-40.

Winter, Michael (2003). Geographies of food: agro-food geographies – making reconnections. *Progress in Human Geography*, Vol. 27/4, pp. 505-13.