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Untangling the food web: farm-to-market distances in British Columbia, Canada

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One of the stated missions of many farmers' markets and their advocates is to bring consumers closer to their producers, providing enhanced social capital between the two groups, increased loyalty to local food producers and increased economic opportunity to those producers. Most markets also imply an environmental benefit from shopping locally through a reduction in food miles and thus a corresponding reduction in carbon emissions and resource use. To better understand this claim, farm-to-market distances need to be available in a clear, understandable and accessible way. This paper introduces food webs, a graphical representation of the distance travelled and the regional catchment for producers of urban farmers' markets, as demonstrated in British Columbia, Canada. The food webs show farm locations in an easily accessible manner, the degree to which farmers' markets are serving local food producers and the nature of those producers. The results show a large variation in distance travelled to markets and suggest that a critical examination of what "local" means in the context of farmers' market is needed.

Keywords: farmers' markets; local food; food security; geographic information systems mapping

Introduction

The project outlined in this paper was conducted to address the research question of what distance food is travelling from farm to market in the case of farmers' market in British Columbia, Canada. A visual representation of farm-to-market distance was developed to make the collected data more publicly accessible.

The industrial food system has been heavily critiqued on several fronts, including the environmental impact of large-scale global production chains (Patel 2007, for example, provides an extensive overview of this subject). As attention is focused on the impact of shipping goods around the globe, theorists are wondering whether local food systems promote more sustainable consumption that minimises environmental damage and encourages local economies to a greater degree than the industrial food system or mass-market organics (Pollan 2006, Seyfang 2007). Delind (2006, p. 121), for example, claims that "Local food and eating locally become both the symbol and substance for structural change from which flows enormous social and environmental benefit". There is also, however, a body of research that raises caution of relaying on local food to solve the problems inherent in the established food system (Born and Purcell 2006). Referred to as the local trap (Brown

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and Purcell 2005, Purcell and Brown 2005), it demonstrated that local is not always more sustainable or desirable, for example, inefficiencies in local transportation systems and farming methods actually increase carbon footprints rather than reduce them (Wallgren 2006). Indeed, this research suggests that in some contexts the local is not even always as local as it seems.

Farmers' markets are emerging as one suggested means of reconnecting to our food production and creating more liveable communities, where liveability negotiates anxieties about the environmental damage and social fragmentation as a consequence of industrial modernism (Hagerman 2007). Food is an interesting medium for understanding larger questions of sustainability and liveability we face; food provides a terrain, locating us in cultural space (Padolsky 2005), and is a microcosm of wider social realities (Lang 1999). We eat every day, and what we eat and how we eat reflect our economic status, geographical location and environmental pressures. As Lupton (1996, pp. 16–17) notes, food is a "liminal substance; it stands as a bridging substance between nature and culture, the human and the natural, the outside and the inside". It also serves as a test of assumptions that may be made about generic solutions to new realities of post-carbon economies – is the farmers' market approach to the food system part of the "local trap". As observed by Feagan and Morris (2009, p. 236), the whole notion of "local" can be "problematic".

Many advantages have been attributed to local food. It is viewed as superior to industrial food systems in terms of food safety (as food is handled more carefully), environmental effects (as less fossil fuels are used), fresher and tastier food (as varieties do not have to be chosen for durability over long distances) and regional development (as local farm economies are preserved) (Nichol 2003, Van Hauwermeiren *et al.* 2007). Delind (2006) echoes these advantages, arguing that local food boosts local rural economy, is healthier and better tasting, reduces energy needs and fosters a sense of place. Flavour and variety are often highlighted (Stagl 2002), and a link is often made with the preservation of biodiversity through the consumption of local cultivars (Shiva 2000), as local varieties being preserved are adapted to local conditions and need fewer pesticides and fewer fertilisers to thrive.

In addition to the above issues, there is a cited environmental advantage of locally produced food discussed in terms of the distance that the product must travel from field to table. This issue is of some concern as studies show that the industrial food system is transporting food products over larger and larger distances (Wallgren 2006); for example, between 1970 and 1990, the average distance that food travelled doubled in Germany (Borge 2001). Eleven per cent of food-related greenhouse gas emissions comes from transportation (Webber and Matthews 2008). An early theoretical study suggested that a 15-fold savings in carbon emissions could be achieved through local production (Halweil 2002); however, more recent studies suggest that energy and emission savings are dependent on the growing method and most importantly on the efficiency of the transport to market. A Swedish study showed that for a small-scale market and for farm-gate sales, there was no energy saving over the industrial food system except for some varieties of fresh fruits and vegetables sold during their growing season (Wallgren 2006). European examples confirmed this puzzling result, demonstrating that energy use in the current system of small rural markets studied was about the same as energy used in the industrial system (Van Hauwermeiren *et al.* 2007). It is generally thought that if larger markets become common and increase the volume of goods sold in this manner, significant energy savings could be realised as the amount of food being transported reaches levels at which transport efficiencies begin to take effect (Stagl 2002, Van Hauwermeiren *et al.* 2007).

Farmers' markets play a role in the renaissance of local food and are shown to be popular with consumers interested in interacting with food production pathways (Molz

2007), defined as "a market at which farmers, growers or producers from a defined local area are present in person to sell their own products directly to the public" (Archer *et al.* 2003). Farmers' markets are expanding to new areas; the number of farmers' markets doubled in the USA between 1980 and 2000 (Griffin and Frongillo 2003) and rose from 1755 to 6132 registered markets between 1994 and 2101 (United States Department of Agriculture-AMS-Marketing Services Division 2010). Markets bend a little to provide varieties and certain "foods of association" (Etkin 2009). These foods evoke certain emotions and build community. Market-baked goods, preserves and consumers seeking local food favour farmers' markets over traditional supermarkets primarily as the markets are seen as more "trustworthy", particularly in cases in which the farmer sells directly to the public (Winter 2003). However, to date, the term "local" has been applied in many ways: for example, referring to products coming within a certain radius or coming from within a (bio-)geographical or political region as with the Slow Food movement (Miele and Murdoch 2002).

The potential for a farmer's market to reduce carbon footprint relies on balancing two transportation impacts. Firstly, the market must draw upon farmers who are within a reasonable transport distance of the market site. Secondly, the market must provide enough varieties of food stuff that the consumer can at least pick up everything needed for a few meals; otherwise, a visit to the market remains a leisure activity rather than a realistic alternative to mainstream food system. In British Columbia, Canada, farmers' market has enjoyed a resurgence of interest with markets springing up around the province. Our motivation in this study is to better understand the topology of the province's markets; as noted by Ostry and Morrison (2008), before policy-makers can promote local food security, they need knowledge of the local geography of food resources. In their study of BC farms, they found that BC has proportionally the least amount of land devoted to farming; one-third of farms is in the lower mainland and 13% are on Vancouver Island (Ostry and Morrison 2008).

In this study, we examined eight farmers' markets in British Columbia. We studied the distance between each farm and the market and created a graphical representation of each market, creating what we call a "food web". We also studied what was available at each market and gave qualitative comments on the scope of each market. The idea of understanding where food comes from through graphical representation is not new; the term "foodshed", which is in common usage today, was coined in 1929 by Walter Hedder, chief of the Bureau of Commerce of the Port of New York Authority (Pothukuchi and Kaufman 1999). It was revived into popularity by Kloppenburg *et al.* (1996), defined as the area around a community that provides food. Foodsheds are hybrid: social and natural constructs useful for emplacing our food systems (Feagan 2007). However, modern mapping technologies allow us to gather a much better understanding of where our food is coming from.

We hoped that the study would reflect on earlier findings in the literature. It has been argued that local food only works in belts around big cities (Stagl 2002), and yet the areas surrounding cities are becoming "post-agrarian" (Salamon 2003). A study in the Niagara region showed that people liked the social interaction, the freshness and supporting farms, but that the surrounding land base was shrinking (Feagan *et al.* 2004). In particular, we were interested in comparing the results of farmers' market in British Columbia to the results of a comprehensive study of government-supported farmers' markets in Norway (Asebo *et al.* 2007). In this study, surveys showed that customers were more worried about how food is grown than anywhere. In the Norwegian context, the average producer distance travelled was 79 km in the nine markets that were started in 2003, and individual distances varied between 28 and 181 km. In general, however, the notion that farmers'

markets support local farmers and enable access to those markets for consumers is an assumption – there is little research examining the locality of markets in a quantitative geospatial way.

The question therefore is: are farmers' markets in British Columbia part of a local food system that provides consumers access to local food and the produce of local farmers? We will examine this question by mapping the origin of vendors at the selection of farmers' markets in British Columbia and exploring the patterns of those maps and what they say about the average farm to market distance in the region.

Methodology

Combining qualitative place-based research and quantitative geospatial technologies is a powerful research tool (Manson and O'Sullivan 2006). Through spatial representation, patterns can be observed and a greater understanding can be achieved, such as the location of the producers contributing to any given farmer's market. Consequently, the production of maps of vendors and farmers' markets allows for the spatial distribution of vendors around markets to be determined.

This research project will be conducted using a case study research method similar to that described by Yin (2003). It has been argued that the case study research is an appropriate methodology when a holistic, in-depth investigation is needed (Feagin *et al.* 1991); thus, it is a fitting approach for this research, given the complex and dynamic nature of the topic. The case study methodology to be used is that of the collective case study identified by Stake (1995) in which a group of cases are studied to allow for comparison. This approach of utilising multiple farmers' market settings will allow for data source triangulation explained by Denzin (1989). In this research, the primary method of triangulation is "data triangulation", in which the nature of "food webs" is studied in different place contexts, also involving different organisations and communities (Denzin 1989, chapter 29).

Information from the BC Farmers' Market Association and through supplementary internet searches indicates that there are 123 farmers' markets in British Columbia. These are illustrated in Figure 1. Most of these markets are members of the BC Farmers' Market

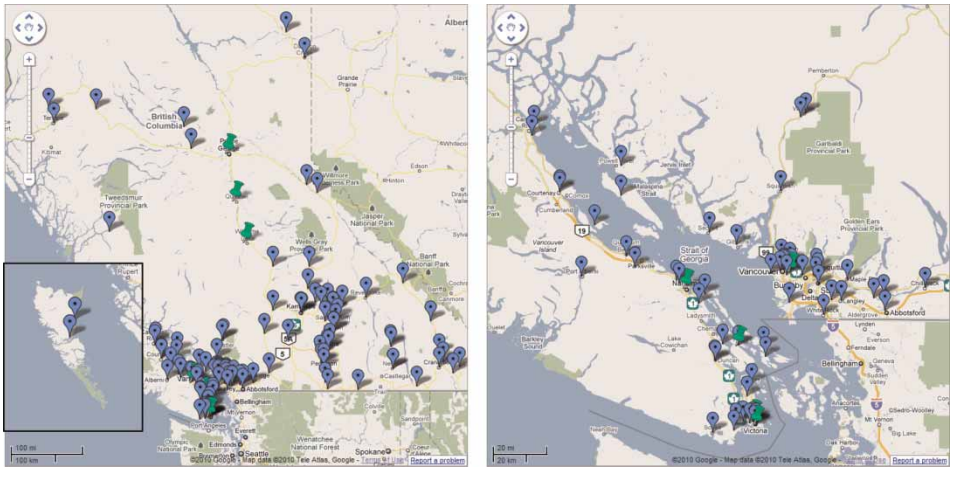

Figure 1. Location of farmers' markets in British Columbia. Pin icons show case study markets. Haida Gwaii in inset is at the same scale, and detail is of South Western BC.

Association; others are independent or members of other smaller associations. All markets are seasonal and held in outdoor locations not more than once or twice a week. Permanent and indoor markets were not considered partly because in British Columbia these are extremely rare and also do not, in general, have a farmer focus and thereby have a very different character from that of the temporary seasonal farmers' markets which form the focus of this study. The province was then divided into four regions – partly based on bioregions and on apparent spatial breaks in the data. The regions chosen were:

(1) Vancouver Island, the Gulf Islands and the Sunshine Coast,
(2) Metro Vancouver, the Coast Mountains and the Fraser Valley,
(3) Thompson/Okanagan, the Rockies and the Cariboo,
(4) Northern, Western BC and Haida Gwaii.

From these regions, a selection of farmers' markets was made, aside from the focus on urban rather than on rural markets; the markets were chosen to reflect a variety of urban contexts (small to metro, northern and southern) and market types (small and large, open or restricted in some way, new and established). From this process, nine markets were chosen, including a deliberate cluster within the Southern Vancouver Island and Gulf Island area to provide some comparison of markets serving similar populations. Finally, three examples were chosen from remote cities that might be expected to have a limited spatial spread of vendors and identifiable catchments. Data triangulation is, therefore, the regional context of Vancouver Island, a large metropolitan area (Vancouver) and a group of remote cities. The markets selected are highlighted in Figure 1, and their characteristics are summarised in Table 1.

Mapping vendors

Data for vendor mapping were obtained mainly from online information about the markets. This was supplemented to obtain actual location information by techniques such as reverse look-up for phone numbers, direct correspondence with market managers and personal visits to some of the markets (East Vancouver, Mayfair Mall, Salt Spring Island, Moss Street and Nanaimo) by the researchers to verify online data and the data sourced from market managers. It should be noted that at each market, there were some vendors that were not possible to map, either because their addresses were PO Box locations or

Table 1. Case study markets, selection criteria and size.

Market	Selection criteria	Food vendors	Mapped vendors
Nanaimo Downtown	Vancouver Island	17	17
Moss Street Market	Large, established Vancouver Island	22	25
East Vancouver (Trout Lake)	Large, established lower mainland	69	71
Cariboo Direct Farm Market Association (Williams Lake)	Small, remote (Cariboo region)	17	16
Quesnel	Remote (Northern BC)	22	20
Mayfair Mall	New, small, Vancouver Island	12	12
Prince George	Large, remote (Northern BC)	27	18
Salt Spring	Small, restrictive rules	8	8

because they were ex-directory and no information was available in other forms; the numbers of these are noted in Table 1. It was also not possible to fully map the networks of some vendors in two main categories, where the origin of produce was not immediately apparent.

- *Processed food such as sauces, preserves, baked goods and similar items*. In most cases, it was not possible to determine the origin of all the ingredients for these goods. Vendors were therefore mapped based on the location of production. If a specific farm was named by a vendor as being the source of ingredients, this was mapped either instead (if the sole provider of the majority of ingredients such as a fruit farm contributing to jams and jellies) or in addition to the location of production.
- *Collectives*. Some stalls at farmers' markets were run by small collectives of farmers and/or farms. In most cases, the individual farms that make up the cooperative were mapped; where it was not possible to determine the origin, then the lead organisation (sometimes a coordinating farm and sometimes a non-profit organisation) was mapped.

In both cases, the lack of information in some circumstances means that true distances would be under-estimated rather than over-estimated. Vendors selling craft-type merchandise were not included as this study concerns the impact of these markets of food production and food availability.

The vendors were then plotted on a Google map with the address obtained, and road distances between the vendor location and the market studies were calculated using the travel direction facility embedded within Google maps. Google maps is a web-based mapping service that uses a JavaScript programming interface to provide road maps and route planning and data plotting functionality. The travel direction tool provides the best route between two points on the map and the distance between the points.

Results and discussion

There are two extremes of markets that are illustrated in Figures 2 and 3. The first, East Vancouver Farmers' Market at Trout Lake in Vancouver, is an example of a very large market with a significant geographical reach to such an extent that one may question the degree to which such a market could truly be described as local, and the strands of the food web, represented by lines on the map linking the market with the vendors, stretch from the market location in Vancouver to vendors as far a field as Kamloops and Kelowna to the east and central Vancouver Island to the west up to 400 km away – an area of roughly 80,000 km^2. Indeed, 15 of the 71 vendors (21%) are over the arbitrary 100 mile limit suggested by Smith and MacKinnon (2007) for local eating. The second, that of Salt Spring Island, is one that is restricted both intentionally and by geography to a very small spread (approximately 40 km^2) of vendor locations. It is not possible to sell at the market unless the vendor resides and produces on the island. Consequently, the diversity and the number of food vendors are limited, and no vendor is more than 15 km away.

These two examples illustrate some limitations to the frequently perceived notion of the farmers' market being a source of locally produced food (aside from the issues identified by Feagan and Morris (2009) around defining what local is). The Trout Lake market is very popular with consumers and consequently very popular with merchants. However, this map seems to suggest that, locally, the number of farms that could contribute to the market is too limited. Either there are no sufficient farms able to sell at a farmer's market, or too many markets competing for a limited pool of vendors. The Salt Spring

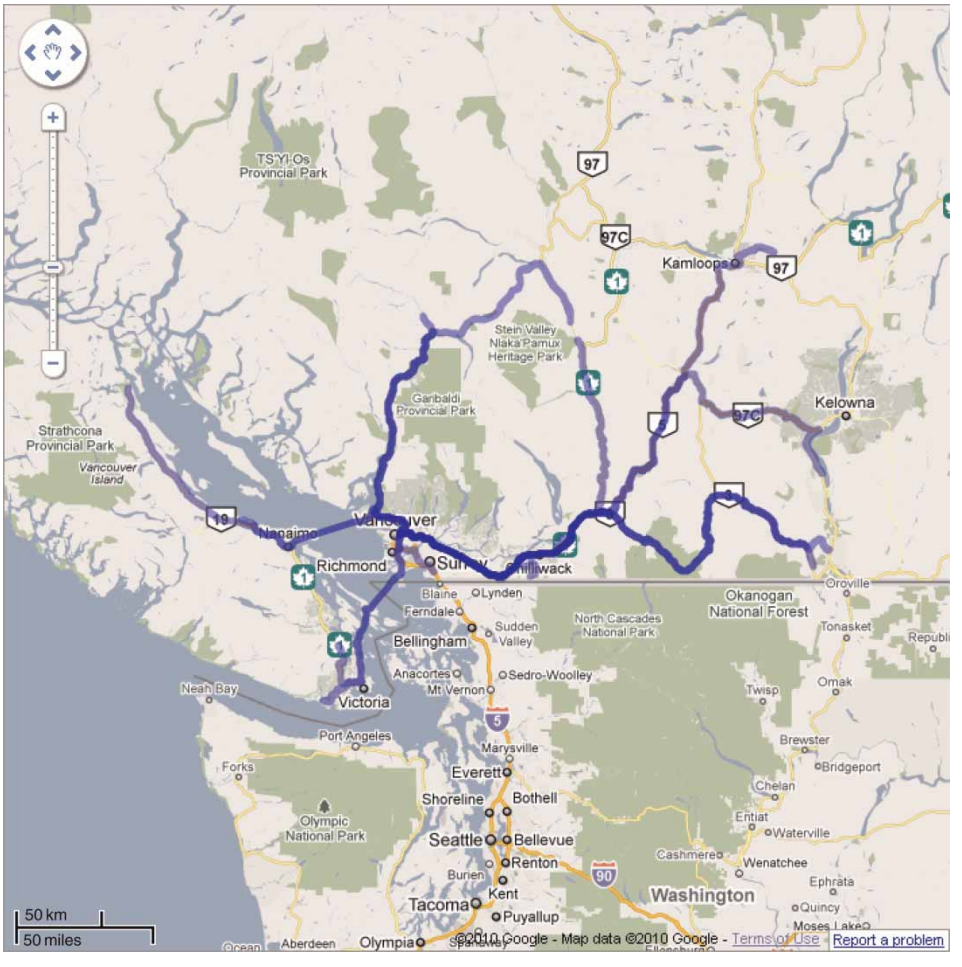

Figure 2. Food web for East Vancouver market (Trout Lake) and details from Metro Vancouver not included for clarity.

Island market is by any measure atypical; there are restrictions on both where vendors can come from by policy and the island location. Also, given that each market day there are 5000 visitors (Ecoplan International 2008) and the population of the island is only 10,000 (Statistics Canada 2007), it seems likely that it has a clientele dominated by visitors rather than residents (although farmers' markets are often marketed as tourist attractions). However, the limited geography does not support a sufficient number of farmers or potential customers to create a food-oriented market.

Markets in more isolated cities such as those held in Quesnel (Figure 4), Williams Lake (Figure 5) and Prince George (Figure 6) perhaps demonstrate the value of limited competition in terms of both other markets and other communities. These three markets are neighbours (Quesnel is roughly 120 km north of Williams Lake and south of Prince George). The pattern of their food webs (bar a small number of outliers) is focused on the close vicinity of the markets themselves, there is little overlap (none at all from Prince George) and the diversity of vendors is sufficient to allow for real grocery shopping. That overlap occurs between the smaller communities of Quesnel and Williams Lake could suggest that

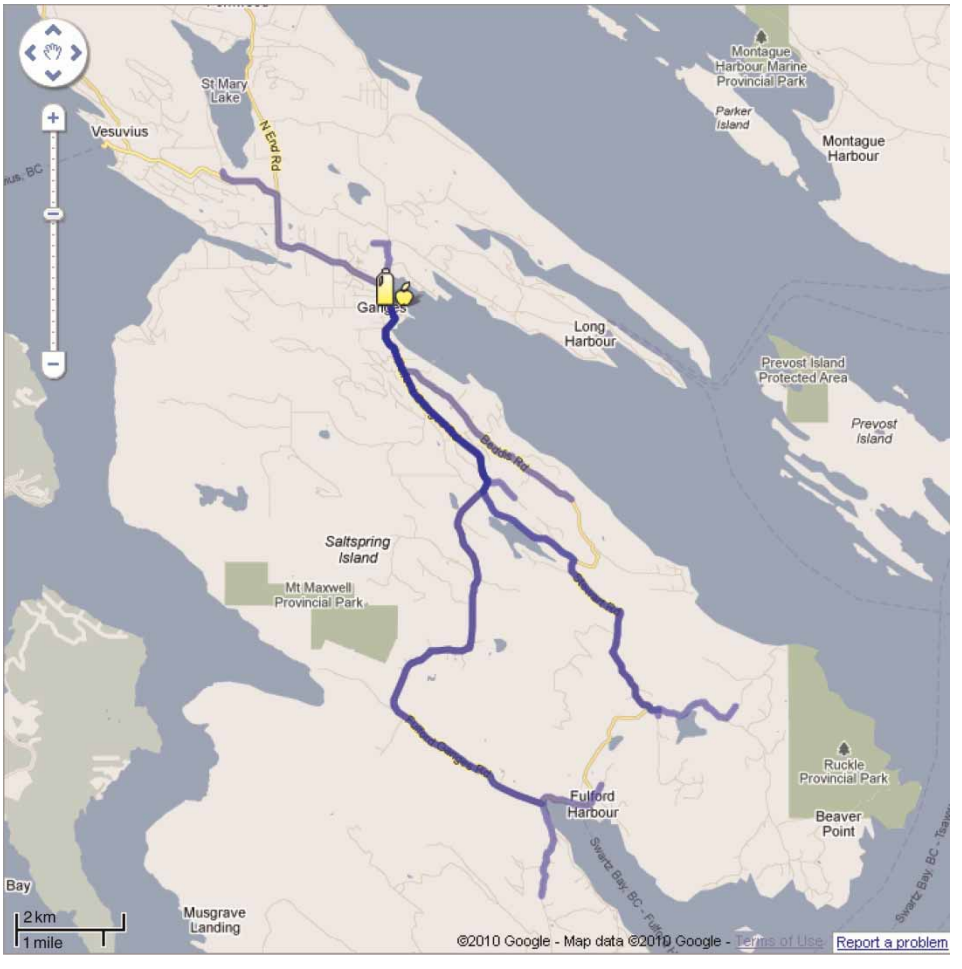

Figure 3. Food web for Salt Spring Island Market.

neither community is really large enough in potential vendors supporting the anecdotal evidence from the USA that there are too few farmers in North America to support the demand for farmers' markets.

The three markets examined on Vancouver Island (Figure 7) exhibited characteristics common to those described above. The food webs for all three are shown together; the overlap between the three markets is significant in terms of areas covered, but not in terms of vendors represented. There is a limiting factor represented by the island geography – only three vendors are located off Vancouver Island (two on Gulf Islands and one from the mainland), and the overlap between Victoria and Nanaimo markets suggests that the size of population in Victoria can attract vendors from the hinterland of other markets some distance away; the bigger the market, the less local it becomes.

Looking at food web distances in more detail, a summary of the market data containing vendor numbers and distances from market being illustrated in Table 2 shows an overall mean vendor travel distance of 65 km. The outlier for the Williams Lake market is a produce vendor from the Okanagan Valley – it is not known why this vendor travels such a large distance (there are a number of nearer markets).

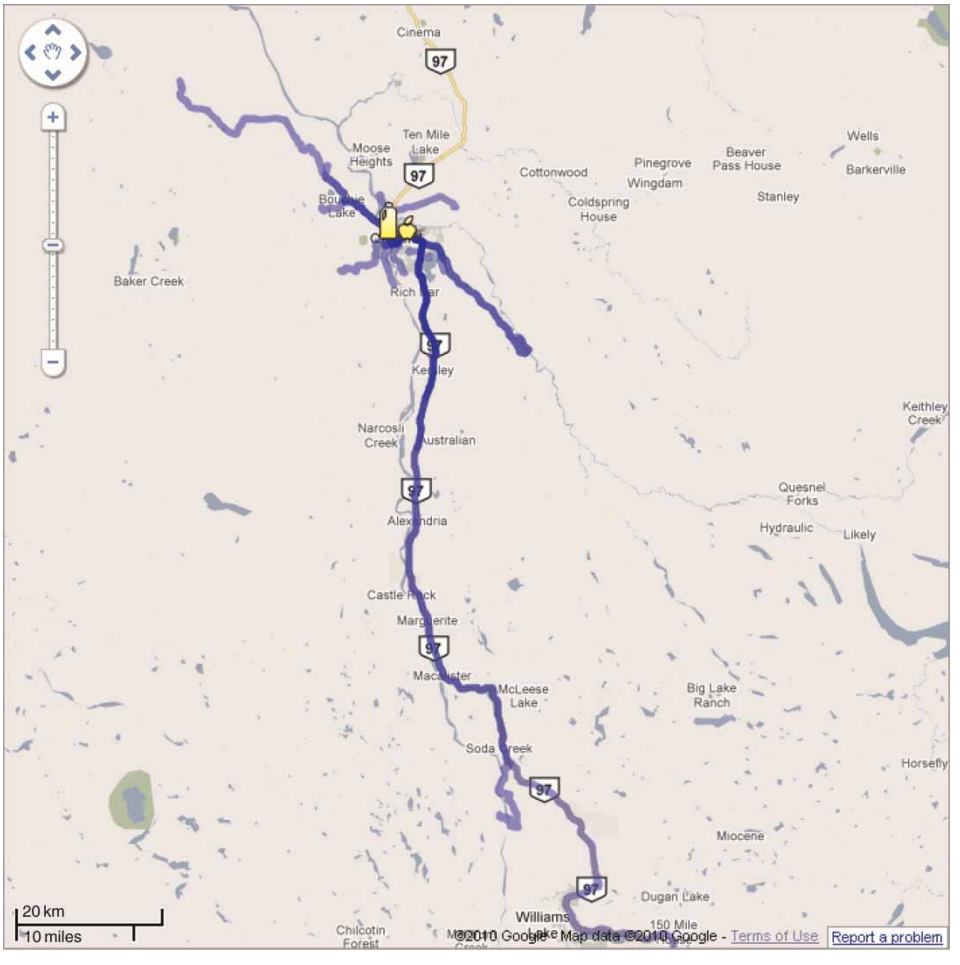

Figure 4. Food web for Quesnel Farmers' Market (outlier 250 km distance away from map boundaries).

The data suggest that there is a complex relationship between population, the number of nearby markets and the distance vendors travel. Other than Vancouver where a much larger population seems to result in a much larger catchment, there is little relationship between population and distance. Without knowing the consumer catchment and market visitor data, it is not possible to determine exactly what that relationship is. The market in East Vancouver does have a substantially larger population in the vicinity of the market and the distance of travel is also substantially greater, and this may suggest a relationship between distance and population, but also could reflect the lack of farmers within the vicinity of the market (which of course is partly linked to population). This also increases the carbon footprint due to the number of individual vendors transporting produce to the market, as Wallgren (2006) discovered that the transportation energy use for farmers' markets in Sweden is often not significantly different from that of the global food system due to inefficient transportation modes used in local systems – given that the distance travelled by vendors to markets in British Columbia is comparable to that in the Scandinavian (Norwegian) context (Asebo *et al.* 2007). It is reasonable to assume that the energy costs are

Figure 5. Food web for Cariboo Direct Farm Market (Williams Lake).

similar. Even though for the most part the distances would please the proponents of local food, ideas of local are stretched in the larger markets. Particularly in the case of East Vancouver market, the draw of a large consumer base may actually be depriving consumers in smaller communities in the Fraser Valley and Okanagan from access to these sources of local produce in their regions not to mention the food miles generated which makes the environmental credentials of the market not significantly better than that often marketed as "local" in large chain supermarkets. What the threshold of the number of markets would be for a farmer to attend is an interesting question.

Table 3 and Figure 8 show the vendor composition of the markets – note that many vendors sell more than one type of produce (i.e. fresh produce and honey) and the total number of vendors by type therefore exceeds the total number of vendors. For the most parts, the markets have a diversity of vendor types, although it should be noted that not all vendors attend markets every week, or throughout the market season, depending on the seasonality and diversity of their products. In the smaller markets, such as Salt Spring Island and Mayfair Mall, this seems to limit the variety of food available and to limit the market as an alternative to mainstream stores. It could be argued that the solution to this is to attract

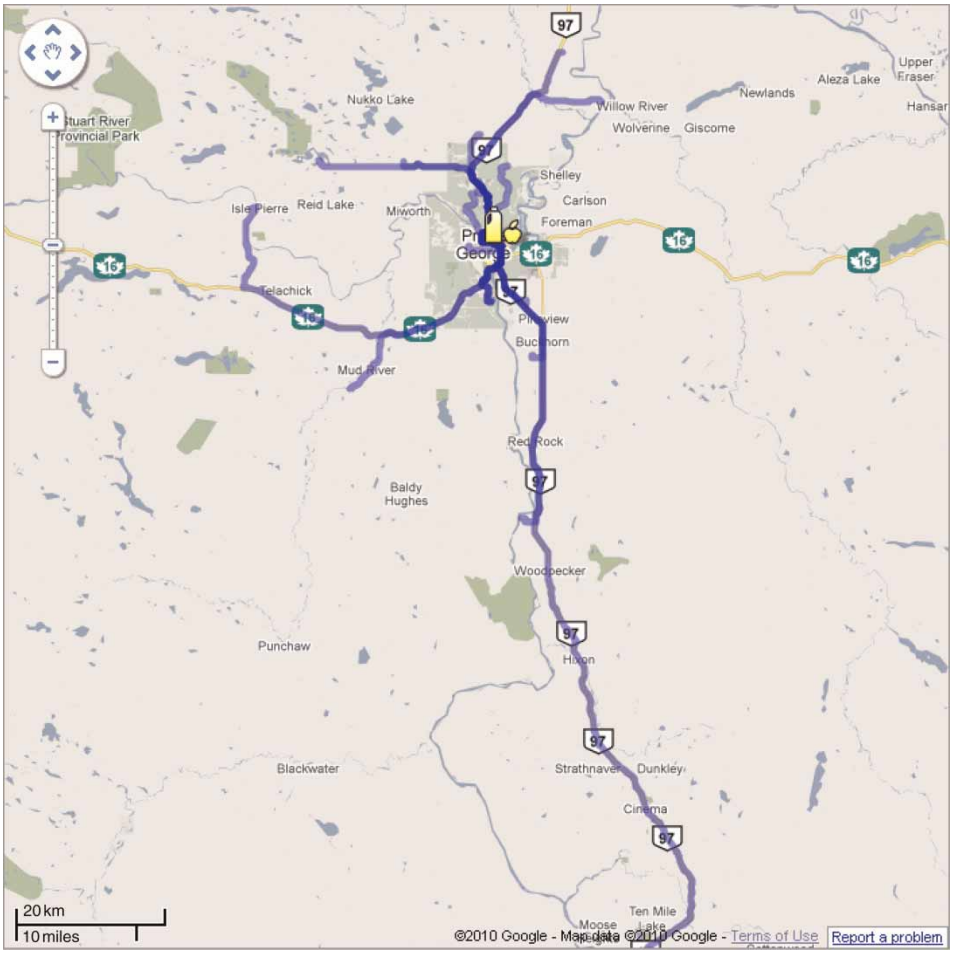

Figure 6. Food web for Prince George Farmers' Market.

more farmers to the market, and yet the pool of farmers is limited. The food webs indicate that there are also limits resulting from competition from other markets and the evidence that even in average-sized markets, some vendors come from a substantial distance away, and in the largest market in East Vancouver, a large number do. It has been found in Australia that marketing meat in this way is very challenging due to the costs of slaughtering, butchering and storage (Andrée *et al.* 2010). It is often found at farmers' markets in the USA that there simply are not sufficient farmers to meet consumer demands at markets, and anecdotal reasons given range from "not wanting to leave the farm" to markets being poorly run and not profitable (Winnie 2002) – however, more academic work needs to be done in this area.

In most of the markets, a number of stalls were operated by cooperatives or other types of vendors which represented. These cooperatives often also have other outlets such as pocket markets, box programmes or selling through more locally focused supermarket chains, bringing the markets into competition with these programmes. The resellers, such as Food Roots in Victoria that sells at both the Mayfair and Moss Street Markets, offer services for farmers who do not wish or cannot invest the time to sell at farmers' markets themselves. Cooperatives also serve to spread the marketing/administrative

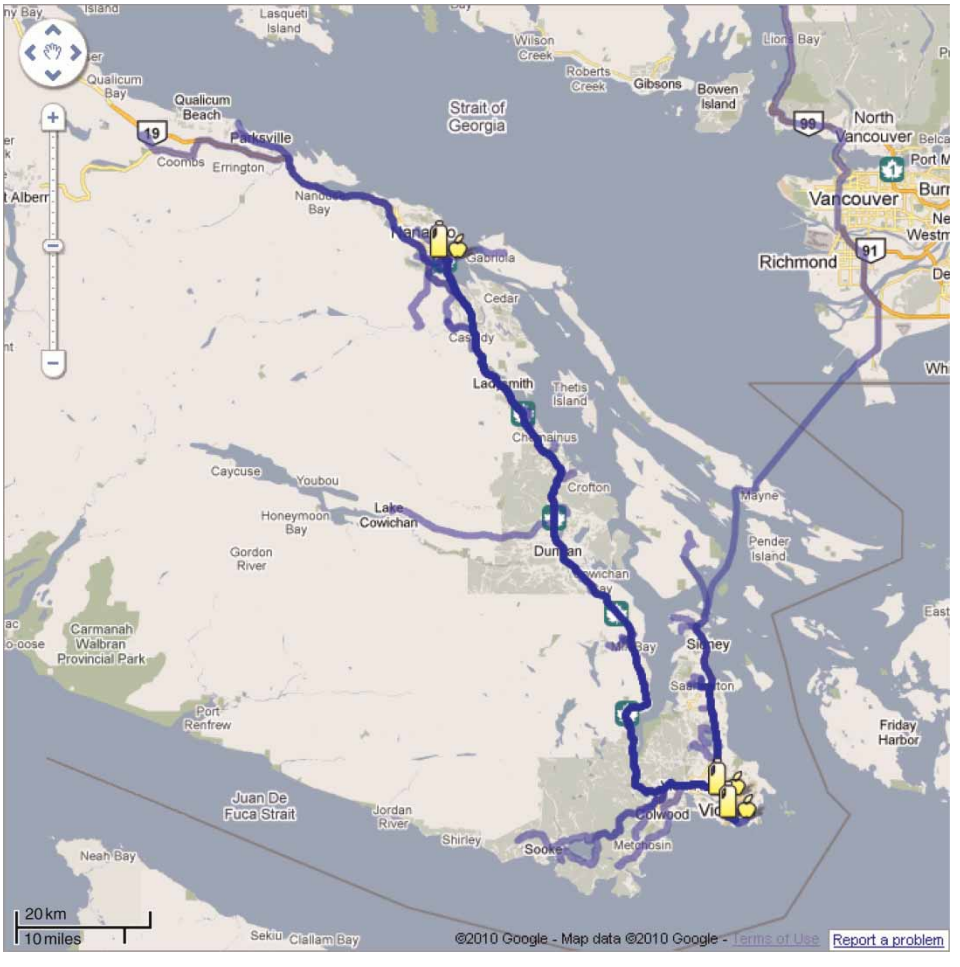

Figure 7. Food webs for (from north to south) Nanaimo, Mayfair Mall and Moss Street markets.

load. These bring into question the authenticity of such vendors in the context of a farmer's market (Smithers and Joseph 2010).

As such not only are the markets limited by the number of people available to shop in them, but also by the number of farmers available to sell in them. This then makes the large number of individual markets found in the urban centres and Victoria and Vancouver, and to a lesser extent in regions such as the Okanagan, non-sensical and reduces the effectiveness of individual concerns and the benefits of those outlets to both farmers and consumers alike. This research seems to support the findings of studies and anecdotal media-reported evidence that the limit to the number (and/or size) of farmers' markets that any place can support is farmers and not customers. This suggests that having an abundance of markets in any one region can limit the effectiveness of each one as it dilutes the diversity and scope of each. In larger urban areas, the draw of the large number of consumers makes keeping to a local identity within a market difficult. Any attempt to effectively utilise farmers' markets as part of a policy platform to open up the links between local communities and food producers would need to recognise these limitations and work to improve access to local markets for farmers.

Table 2. Farm-to-market distances: road distance was calculated using Google maps travel directions tool.

Market	Population[a]	Vendors	Mean road distance (km)	Maximum road distance (km)
Nanaimo	92,361[b]	17	33	68
Moss Street Market	330,088[c]	22	68	157
East Vancouver	2,116,581[c]	69	110	545
Williams Lake	18,760[b]	*17*	*67*	*510*
Williams Lake outlier removed		16	38	77
Quesnel	22,449[b]	22	31	250
Mayfair Mall	330,088[c]	12	42	152
Prince George	83,225[b]	27	26	204
Salt Spring	9640[d]	8	8.5	15

Source: Statistics Canada (2007).
Note: The italic values indicate that we calculated the distance, and then again with the outlier removed.
[a]Taken as the 2006 population of the host community.
[b]Census agglomeration.
[c]Census metropolitan area.
[d]Regional district electoral area.

Table 3. Vendor diversity, excluding crafts and non-food items.

Market	Fruits and vegetables	Single produce-type vendors (i.e. mushrooms or garlic)	Preserves, syrups, sauces and spices	Honey	Baked goods	Meat, fish, cheese and eggs	Others
Nanaimo	9	2	6	3	3	2	0
Moss Street	11	3	4	3	2	2	1
East Vancouver	33	5	10	3	8	7	4
Cariboo	8	0	4	1	5	6	0
Quesnel	10	1	3	3	4	5	1
Mayfair Mall	4	1	3	1	2	3	1
Prince George	10	1	7	2	12	3	5
Salt Spring	2	1	1	1	1	2	1

Conclusion

The visual representation of a farmer's market foodshed proved to represent local food systems in an easily accessible way. Our sample mappings showed that farm-to-market distances vary widely in British Columbia, but on the mean are similar to farm-to–market distances found in Norway.

There is no doubt that farmers' markets can be a valuable part of the urban food system; however, the evidence presented here suggests that such markets have limits. The food web for the East Vancouver market suggests that as markets increase in size, their ability to be considered "local" is reduced – either due to the attraction of large markets to vendors from further afield or due to the lack of potential vendors (for whatever reason) within a local radius. However, vendor restrictions on a market, such as those on Salt Spring Island, can reduce its effectiveness, which can provide adequate food-buying opportunity to consumers. There are also issues of competition on Vancouver Island, where there are many markets relative to the population, compared with more remote markets such as those in

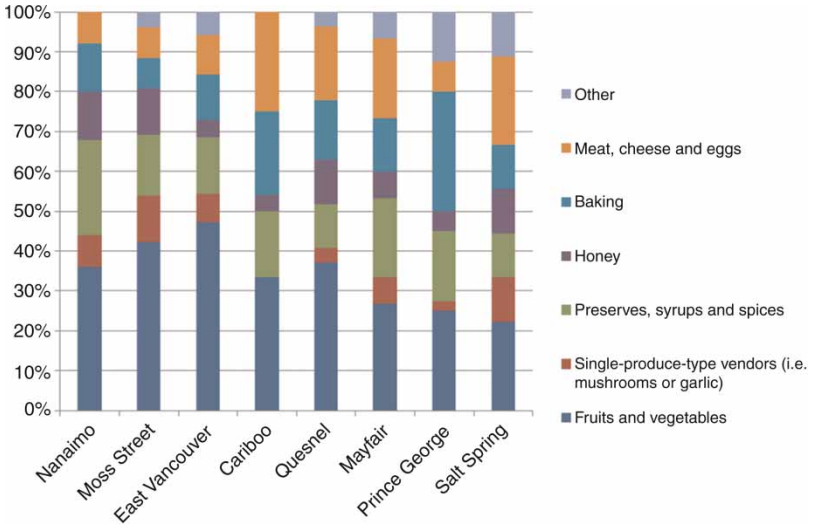

Figure 8. Vendor diversity comparison bar chart.

Prince George, and the vendor composition is low compared to the population served; more research is needed to determine the link between population, market competition, vendor number and travel distance. Alternatives to farmers' markets, such as pocket markets, permanent covered markets, box programmes and community-supported agriculture (CSA), do not necessarily provide such an immediate connection between consumers and farmers, which is one of the generally perceived tenets of farmers' markets.

The question is really what are farmers' markets for – and are they the best vehicle for delivering those benefits? As discussed at the start of this article, there are four main purposes:

(1) increase the availability of local food for consumers and local markets for farmers;
(2) provide an increase in the social fabric of communities;
(3) encourage more sustainable and environmentally benign food production methods;
(4) reconnect consumers with farmers.

Increased availability of local food is certainly achieved but within limits. Other mechanisms such as CSA and box programmes arguably do as good a job and can provide access to markets for farmers who are unwilling or unable to attend markets. Better food production methods would be just as well encouraged by policies of any food distribution process, and the carbon footprint of a farmer's market can be surprisingly high due to the efficient means of transport to the markets of many smaller vehicles. Where farmers' markets do win out is by providing increased connection between consumers and producers; one does wonder however of the value of this for the majority of people over and above the relationship between consumers and locally focused, market stall butcher or grocer of the type found in more permanent markets. Farmers' markets seem to be more effective in limited, mid-sized cities such as Prince George, where there is less competition from multiple markets and proximity to other sizeable urban areas and where in effect they take on the role of a more traditional central market in the absence of such.

Overall, the authors believe that while farmers' markets are undeniably fun and certainly provide many social, environmental and economic benefits compared with commodity-driven industrial food production and distribution, they should be questioned as the ideal model for a mass move from industrial distribution systems to more sustainable locally focused systems. Tools such as food web provide an easy method for markets to demonstrate their connection to local growers.

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