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Overcoming Barriers to Scaling Up Sustainable Alternative Food Systems: A Comparative Case Study of Two Ontario-Based Wholesale Produce Auctions

Rylea Johnson, Evan D. G. Fraser * and Roberta Hawkins

Department of Geography, University of Guelph, 50 Stone Road East, Guelph, ON N1G 2W1, Canada; ryleajhnsn@gmail.com (R.J.); rhawkins@uoguelph.ca (R.H.)

* Correspondence: frasere@uoguelph.ca; Tel.: +1-519-824-4120 (ext. 53011)

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Abstract: Conventional food systems are viewed by the literature as unsustainable in that they provide consumers with convenience while disconnecting them from producers thus leading to environmental and social problems. By contrast, sustainable or “alternative” food systems are viewed as correcting such problems. Wholesale produce auctions, which are well established in the Old Order Mennonite community, are physical sites where large quantities of produce are sold through a competitive bidding process to local buyers. These are seen as a way of better connecting producers and consumers and thus realizing a more sustainable food system. However, this potential has not been tested. Therefore, this paper explores two produce auctions in southwestern Ontario, Canada, using an interview based methodology (N = 48) and demonstrates that despite wholesale produce auctions offering many opportunities to promote the benefits of alternative food systems, produce auctions are limited in that they fail to provide a practical and functional way of distributing food to individual consumers. Overall, this research highlights what appears to be a tension in the alternative food systems literature: producers and consumers may be simultaneously looking for the sustainability benefits associated with “alternative food systems” without wanting to sacrifice any of the convenience found in conventional food systems.

Keywords: sustainable and alternative food systems; produce auctions; sustainable agriculture; local food; convenience; conventional farming

1. Introduction

The environmental and social problems caused by conventional food production systems have led many to conclude that mainstream food production today is unsustainable and this has given rise to a range of new institutional models such as farmers markets and community supported agriculture [1–3]. These “alternative” institutions are supposed to be more sustainable in that they should offer environmental and social benefits [4] by better connecting producers with consumers (*i.e.*, “re-socializing”) and by bringing production and consumption into the same geographic region (*i.e.*, “re-spatialization”). Ideally, re-socializing and re-spatializing the food system will bring benefits such as improved food quality, the use of more sustainable farming practices, greater resilience and more equitable rural development [4–14]. However, problems persist; while some “alternative” institutional models, such as farmers markets and community supported agriculture schemes, have been studied and evaluated in terms of their potential to create a more sustainable food system, many proposed institutional arrangements have not. There is a need to determine the ability of different alternative models to truly deliver the benefits associated with this movement [15–17].

The purpose of this paper is to explore the extent to which “wholesale produce auctions,” which are a well-established way for Old Order Mennonites and Amish farmers to sell their produce, has

the potential to act as an institutional model that can support the values and promote the benefits of alternative food systems (AFSs). We do this by exploring the perceptions of the participants of two specific produce auctions currently operating in southern Ontario, Canada. In this way, this paper tries to contribute to a growing body of work that explores the way that things like cooperative alternative food networks may become powerful “tools for community development and important vehicles for cultivating democratically controlled food systems” [18] (p. 3).

2. Background

2.1. Literature on Alternative Food Systems

There is an extensive literature on AFSs that critiques “mainstream” food production systems as creating serious social and environmental problems and explores the ways in which institutions such as community supported agricultural programs, farmers markets, and farm tours promote sustainability by better linking producers and consumers. The core logic here is that if consumers and producers are better connected then there will be stronger incentives to produce and distribute food in a way that better protects both workers and environment [1,4,8,10,16,19,20]. Sometimes the literature describes these producer–consumer links as the “re-socialization” and “re-spatialization” of the food system, and these elements have been analyzed in terms of the extent to which they provide both environmental and socio-economic benefits [16]. However, tensions remain, and one area that is unresolved is the extent to which alternative food institutions can provide both the benefits of re-socialization and re-spatialization while also meeting consumer expectation in terms of cost and convenience [21–24]. For instance, a study conducted by Carrigan and Attalla [25] demonstrated that for many consumers hectic lifestyles played a strong part in the decision to purchase produce from mainstream supermarkets.

Furthermore, extensive research demonstrates that when alternative food institutions “scale up” as a way of trying to offer consumers greater convenience and affordability, they may lose those characteristics that define them as “alternative” in the first place [26,27]. This represents a major tension in the literature with Bellows and Hamm [28] arguing if AFSs fail to grow larger, they will only have niche impacts within small regions while work done on organic farming suggests that large-scale alternative food institutions are indistinguishable from mainstream food operations [29]. Such arguments lead Mount [26] to posit that if an alternative food enterprise scales-up, it may risk losing qualities associated with re-socializing and re-spatializing food systems. This highlights a conflict in the literature in that “sustainable” and “alternative” food systems are predicated on there being a strong relationship between producers and consumers, whereas scaling up an alternative food enterprise often requires wholesaling food that creates a “middleman” and that removes the direct relationship between farmer and consumer.

One way that is proposed to address this conundrum is to develop alternative food institutions that focus on wholesaling food to institutional buyers rather than retailing food to individual consumers. The literature on this topic is most advanced when it comes to “food hubs” [30–33]. Food hubs are centers where small and mid-sized farmers can drop off their produce to be lightly processed, stored, marketed and distributed. In this way, food hubs allow individual farmers the opportunity to sell to larger volume consumers, such as schools, universities or hospitals that require consistent and high-volume product. Typically organized by community members, food hubs are often based at centrally located warehouses and staffed by a small number of paid employees who are funded by membership fees. Increasingly, food hubs have well-developed online marketplaces where consumers can place orders. One of the best Canadian examples of a food hub is the Ottawa Valley Food Co-op [34]. The Ottawa Valley Food Co-op is based on the Oklahoma Food Cooperative, which is where many of the ideas about cooperative food hubs were pioneered.

Another model that would allow the AFS to grow in scale is the “produce auction mart” that brings together farmers with institutional buyers who bid at weekly auctions. However, outside of

the studies already referred to on food hubs, much remains unknown about how such organizations actually work and the extent to which ideas and practices from one organization may be transferred to the sector more generally. For instance, can such an organization overcome the conflict mentioned above: namely that once an AFS grows to a sufficient scale that wholesaling becomes necessary can it even be considered alternative or sustainable? Consequently, the purpose of this paper is to explore the perceptions of both the vendors and the customers at two well-established wholesale produce auctions.

2.2. Produce Auctions

As just noted, wholesale produce auctions are physical sites where large quantities of produce are sold to local buyers [35]. At such an auction, produce grown within a given region is brought to a centralized location where consumers are able to evaluate the quality of produce and determine a price through a process of competitive bidding [36]. Theoretically, this should allow farmers the opportunity to obtain the highest possible price and to sell a much larger volume than they would at a traditional farmers market. The minimum amount of produce sold at the auction depends on the availability of products—if there are large quantities of produce available, minimum purchases are enforced (e.g., a lower limit of 10 flats of strawberries during strawberry season). However, when less produce is available, smaller minimums are applied.

Originally this model was intended to spur economic activity in rural communities [37] and became popular with Amish and Mennonite communities as it allowed them to reinforce their beliefs and bonds while gaining access to a larger market [38]. It is possible, however, that this model could extend beyond this one cultural group and apply more generally as a way of promoting more sustainable AFSs. Presently, this literature is limited to a few empirical studies that focus on auctions and their ability to promote community involvement within the local economy while creating a new market [35,36,38–40]. Therefore, the potential of produce auctions to re-socialize has not yet been the subject of rigorous evaluation.

As a consequence, the focus of this paper is to determine whether the wholesale produce auction model that would allow larger quantities of locally grown produce to move within regions. We are looking to determine whether it may represent a means of scaling-up AFSs without losing the characteristics associated that mark alternative food systems as distinct from conventional ones. A wholesale produce auction may also present a way of maintaining the environmental and social values that are strived for within AFSs [39]. However, since these claims are presently untested, this paper will take a preliminary qualitative and inductive approach to explore both the barriers and opportunities faced by participants of two Ontario produce auctions. It is hoped that by presenting these two case studies, this paper may advance the literature that seeks to understand how the wholesale produce auction may, or may not, promote the creation of more sustainable food systems.

3. Methods

3.1. Study Locations

A case study based approach [41] was used to develop a more complete understanding of the functioning of two auctions: the Elmira Produce Auction Cooperative (EPAC) and the Bruce-Huron Produce Auction (BHPA) (see Figure 1). EPAC is located within Waterloo region, near Elmira, Ontario, which has a population of 9931 [41]. The auction itself is located half an hour from both the City of Waterloo and the City of Guelph. Both these cities have large populations of 98,780 and 114,940, respectively [42]. The EPAC auction was established in 2004 with the intention of supporting local farmers through the creation of a new localized market [43]. This auction represents the first wholesale produce auction to operate in Ontario, Canada. Participants at EPAC represent a large range of buyers, such as university representatives, farm stand owners, independent grocers and individuals looking to source locally grown produce. Figure 1 below demonstrates the location of EPAC and BHPA as well as the radius' from which they source produce.

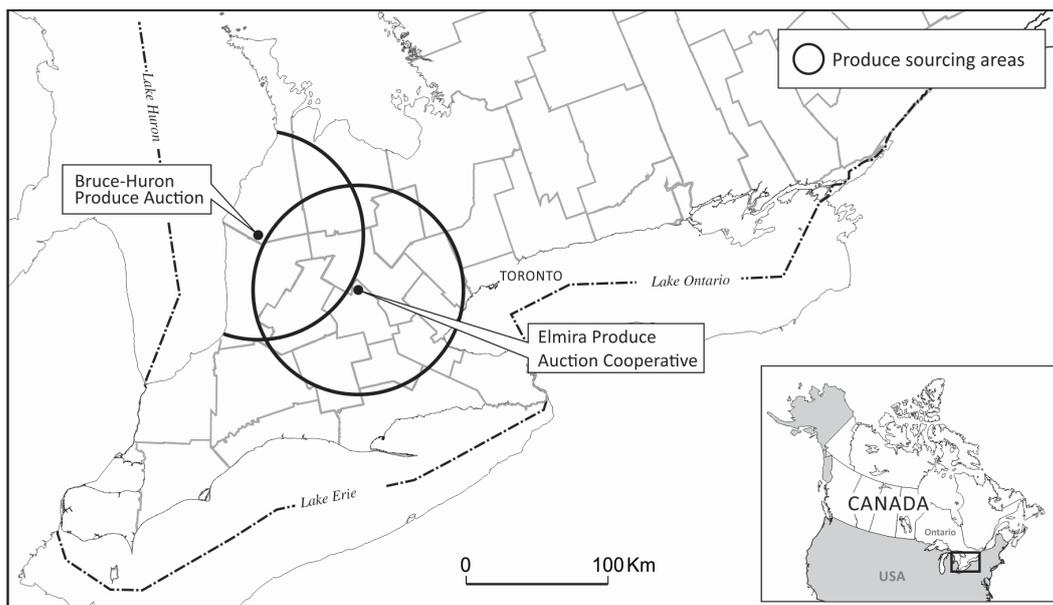


Figure 1. Map of Auction Locations and Produce Sourcing Areas.

The second case study, the BHPA, is located in Holyrood, Ontario, which is a small rural hamlet (exact population was not accessible). The auction is located approximately 30 min from denser populations, such as Goderich and Kincardine with populations of 7521 and 11,174, respectively [42]. This auction was developed in 2010 and modeled on the same structure as EPAC. The auction was created with the intention of providing a localized market for buyers who normally purchase their produce from the Toronto Food Terminal. (The Toronto Food Terminal is a wholesale food distribution outlet in the city of Toronto. Produce comes from a wide range of locations and price is determined by supply and demand, changing daily [44].)

Both auctions are organized and run by the Old Order Mennonite community within their respective regions. This is relevant as their ideals and values play an essential role in auction development. Old Order Mennonites immigrated to this region between 1710 and 1756, stemming from the Swiss Mennonites and the Amish communities from Pennsylvania. They can be identified through their simple dress, agrarian lifestyles, limited (if any) use of technology, and the forbidding of motorized vehicles. However, it is important to acknowledge that a spectrum of these beliefs and values exist between locations. Thus, despite similar organizational structure, there are some distinct differences between the auctions. For example, EPAC is located closer to dense populations, as Guelph and Waterloo are only 30 km away, and opts to use some forms of technology, e.g. it allows telephones to be used (at the auction and within family homes). BHPA is much more rural and does not use electricity or telephones. Figures 2 and 3 help to illustrate some of more visual differences.



Figure 2. Elmira Produce Auction Cooperative.



Figure 3. Bruce-Huron Produce Auction.

3.2. Data Collection

This project focused solely on strawberry growers and buyers as participants (although they frequently were purchasing or growing other types of produce). Strawberries are commonly grown and one of the highest value berry crops grown in Ontario (where the total value of all berry crops is estimated at \$30 Million annually [45]). Furthermore, it is only produced during only one season even though consumers have come to expect a year-round supply via imports from elsewhere in North America. Hence, strawberries share many characteristics with other horticultural crops and provided our research an obvious focus that grounded our interviews.

Once an initial group of strawberry growers were identified at each auction, a snowballing technique was implemented in order to locate other interviewees. Identifying initial participants was achieved by attending each auction and keeping track of who was selling and who was purchasing the produce. In the end, there were 48 interviews conducted. Participants were both buyers and growers: Participants who utilized the auction as both a buyer and a grower were categorized as the position in which they were interviewed. For example, if initial contact was made with the participant because they purchased strawberries, they were slotted as a buyer even if they also use the auction as a grower for their own produce. Furthermore, participants fell into two other categories as well—male or female and Old Order Mennonite or non-Old Order Mennonite. The breakdown of these interviews can be seen in Table 1. Close-ended interview questions were used, such as “what outlets a grower uses to sell their produce?” and “what is the percentage of the strawberries you sell through the auction?” Open-ended questions, such as “why do respondents sell through the auctions?” were also used. With the open-ended questions, once the interviewee was finished responding, they were prompted for themes that frequently arise in AFS literature. These prompts included questions such as; “did selling through the auctions allow you to feel more connected to your community?” Once interviews were completed, a thematic content analysis was used to analyze participant responses and determine what common themes existed and with what frequency they were discussed.

Table 1. Participant Breakdown.

	Buyer	Grower	Old Order Mennonite	Non-Old Order Mennonite	Male	Female
EPAC	13	13	16	10	20	6
BHPA	11	11	12	10	10	12
Total	24	24	28	20	30	18

4. Results

4.1. Perceived Benefits of Wholesale Produce Auctions

Overall, when both buyer and grower interviews were included from both case studies, the interviews revealed four broad themes representing key ways that respondents perceive that produce auctions may help promote more sustainable food systems. These are:

- Increased food quality;
- The development of a buyer-grower relationship;
- Supports for rural communities; and
- Economic opportunities.

These themes are summarized in Table 2, with a breakdown of the percentage of total respondents at each auction studied.

Table 2. Number and percent of respondents who mentioned different benefits of the produce auctions.

	Ways the Auction Supports More Sustainable Food Systems:			
	Food Quality	Development of Relationships	Support the Community	Economic Opportunities
EPAC (<i>n</i> = 26)				
Buyers (#)	6	6	4	8
Growers (#)	0	8	6	11
Total (%)	23%	54%	39%	73%
BHPA (<i>n</i> = 22)				
Buyers (#)	7	6	6	6
Growers (#)	0	6	6	9
Total (%)	32%	55%	55%	68%

4.1.1. Increased Food Quality

As can be seen in Table 2, of the 23% EPAC participants mentioned better food quality as one way that the auction promotes more sustainable food systems. Comparatively, at BHPA, 32% of participants also discussed this benefit. However, in both locations this benefit was only discussed by buyers and not mentioned by the vendors. Responses generally mirrored the following quote:

Sometimes we pay more than we would normally have to, but we're willing to do that because we want to support the producer and we want high quality produce (Buyer, EPAC).

Despite saying that they are obtaining better quality produce, the majority of participants did not expand on why they felt this produce from the auction was better. There was only one individual that expanded on why they felt these strawberries were of higher quality than others. This interviewee stated that:

We only buy at the auction because we wanted to support the auction, and because the berries are of higher quality. They're not small and seedy like at a lot of other places (Buyer, BHPA).

The lack of further explanation pertaining to food quality could potentially indicate an assumption about locally grown food and higher quality produce. Much like the academic literature suggests, there is an association between local and perceived freshness/higher quality. According to many academics, the presence of higher quality produce represents one of the distinct characteristics correlated with the presence of AFSs [16,46]. This could explain why many participants mentioned food quality as a benefit, but did not expand on the point, as they perhaps assumed higher quality was self-apparent. As such, this may reflect the notion that produce auction buyers inherently believe that by shifting away from conventional food systems, they are shifting away from produce grown with an array

of pesticides or herbicides, which have unknown health effects [4,16]. Nevertheless, buyers at the auction feel they are receiving higher quality food, demonstrating that these produce auctions offer this associated AFSs benefit.

4.1.2. Development of a Buyer-Grower Relationship

The development of relationships between buyers and growers was identified by both vendors and buyers at both locations as a second way that produce auctions can support more sustainable food systems. At EPAC, for instance, 54% of participants discussed this with comments such as:

You get a closer connection between buyers and growers than you would if you were buying from a wholesaler. I think that the growers and the buyers can talk to each other more so than they could at any other place where people bring their produce (Grower, EPAC).

Similarly, 55% of participants at BHPA mentioned this benefit. The divide between buyers and growers at both locations for this particular benefit was relatively even, as can be seen in Table 2. Both parties appear to feel as though the use of these auctions enabled them to foster relationships between these two groups. Through this relationship, a certain level of friendship and loyalty develops. The system allows buyers to perceive a feeling of accountability towards the growers. This was articulated well when one interviewee stated that:

They [the produce auction] have their own regulatory system and it just happens to be the buyers. You take your cues from them, they have been stung before, they know who to buy from (Buyer, BHPA).

On the other hand, the growers expressed the belief that if they have a strong relationship with the buyer, they believe they will be able to achieve consistently good prices for their produce. This was expressed on several occasions in a similar fashion to this quote:

If I went to the auction every week, they [the buyers] would get to know me, and I would get more money for my produce. The more consistent sellers get higher prices for their produce (Grower, EPAC).

As the AFSs literature explores, the development of this relationship allows the food system to become “grounded” once again, resulting in a price premium offered for produce [10]. We believe that the structure of produce auctions allows for this type of relationship to develop. The growers (or a close family member) bring the produce to the auction and remains until the auction closes, thus providing customers the chance to approach growers and ask questions. Such a re-socialization of the food system allows other factors to impact the price of food and allows the system to shift away from the “race to the bottom” (having the lowest priced produce, with little regard for production impacts) that is a hallmark of the conventional food system.

4.1.3. Supporting the Community

Participants also discussed that produce auctions offer a means of supporting the local community, which is a third important way that participants believe that produce auctions may promote more sustainable food systems. The idea of supporting the community was well represented by both buyers and growers, as Table 2 indicates. However, at EPAC 39% of participants mentioned this theme, which is slightly less than the 55% of the BHPA. When supporting the community was mentioned in interviews it was referenced with similar statements as made by this small restaurant owner:

The main reason I go to the auction is to support the community (Buyer, EPAC).

When participants explained further, they generally stated that the auction provided a means for the Old Order Mennonite community to generate income to maintain their lifestyle, as expressed in the following sentiments:

The auction helps us [the Old Order Mennonites] to preserve our lifestyle a bit better. We don't like to use the phone more than we have to, and we don't have to use it at all with the auction, but we do have to use it if we want to sell directly to the consumer (Grower, BHPA).

Similar to higher food quality, the idea of supporting the community rarely came with any further explanation by participants. Therefore, it is our belief that “supporting the community” may represent another theme that is inherently (and perhaps uncritically) associated with AFSs. When participants were prompted specifically about whether the auctions support the community, participants responded positively, indicating that they felt it was of importance. This likely reveals that the auctions' ability to support the community is not forefront in their minds, though participants still see the value auctions have in terms of community support. Nevertheless, our data suggest that interview participants believe that produce auctions help support the community, demonstrating that this institutional model may offer some benefits as compared with mainstream food systems.

4.1.4. Economic Benefits and Opportunities

The ability of auctions to offer economic benefits was, unsurprisingly, mentioned more by growers at both auctions. This theme was mentioned by 73% of participants at the EPAC and 68% at BHPA (see Table 2). This demonstrates that participants perceive that produce auctions have increased the availability of rural markets for the Old Order Mennonite community and other farmers. Prior to the development of produce auctions, many of these farmers were forced to sell produce directly off their land, either through a farm stand or hosting pick-your-own farms. As a result, many struggled to find potential buyers who would need produce on a reliable basis. Therefore, auctions create the opportunity for the community to generate income without having the public on their land. This can be seen as a benefit for two reasons: first, it allows them to regain some privacy in their own lives, and second, farmer, or hired persons, no longer must constantly be present on the farm. This form of benefit was best articulated when one participant stated:

Some of these growers couldn't move the volume direct to the consumer even if they wanted to and they are not necessarily interested in having the public in their yard every day, all day. So this [the auction] gives them the option of getting some of that extra revenue without the headache of opening a farm market or going direct to the consumer (Buyer, EPAC).

In addition, the auction also allows farmers to sell their excess produce before it goes bad, and provides farmers who only produce a few products the opportunity to buy from other farmers as a way of maintaining diversity at their own farm stand. This brings to light the fact that auctions provide a dual opportunity for farmers who also run farm stands of their own. For one strawberry grower this duality represents a key benefit,

The auction is a good place to go with your farm surplus, and it's a good place to go if you need a bit more produce when you don't have enough for your farm stand. The auction is really good because it means that you don't have to let your produce go to waste, rather, you can sell it (Grower, EPAC).

Lastly, it would appear that selling products to local distributors, such as farm markets that sell all types of produce but do not necessarily grow it all, provides a two-fold benefit. They are able to support the local farmers by purchasing their products while simultaneously achieving higher prices for their products when they re-sell them because buyers are looking for locally grown products. For example, a farm stand owner explained:

I always advertise where I get my produce from—customers like to know that it's local food (Buyer, EPAC).

People ask me (the vendor) questions, so I like to be able to tell them the truth that the food is either local, or very freshly picked. This is such a different system from the one in California where food has to travel for many days (Buyer, EPAC).

For these farmers, the auction is supplying their customers with the answers they want when it comes to the food they consume. For wholesale buyers, having the ability to boast locally grown produce is increasingly important in North America where AFSs have gained such momentum and value-added characteristics, such as how produce is grown, has become increasingly important to consumers [10].

4.2. Results: Perceived Barriers Limitations of Wholesale Produce Auctions

Further analysis of results revealed buyers and growers from both locations described four broad themes that represent key limitations of the produce auctions. These themes are:

- Consistency and availability of produce;
- Accessibility of the auction to customers;
- Costliness of the produce; and
- Minimal Returns to the participants.

4.2.1. Consistency

One of the key concerns identified by respondents was that a lack of consistent produce and a lack of consistent prices made the auctions less appealing than mainstream options such as the food that comes from the Toronto Food Terminal. As Table 3 indicates, buyers seemed to discuss this issue more often than vendors. This is a somewhat expected result as the buyers rely on the produce auction to supply their own operations (e.g., farm stands). Additionally, it may be important that respondents at EPAC identified consistency as important more often than at BHPA. This difference could be the result of higher expectations for consistent food supply resulting from the proximity of EPAC to large cities, compared to the rural location of the BHPA. This idea will be explored further later in the discussion section. For these participants' inconsistency referred to two areas: product availability, and price volatility. A small grocery store owner best articulated the issue of product availability and price volatility:

... you could never run your business only on ... [the auction] because of the volume. You need something and there is only two boxes of it here, that is what kills the thing. If you go to the food terminal there are all kinds of Ontario guys there too. You need something, the price is set, forget about the volume, it is always there (Buyer, EPAC).

Table 3. Perceived limitations of produce auctions.

	Barriers and Limitations			
	Consistency	Accessibility	Costliness	Minimal Returns
EPAC (#/26)				
Buyers	13	5	5	2
Growers	7	8	0	6
Total (%)	77%	50%	19%	31%
BHPA (#/22)				
Buyers	5	5	8	0
Growers	2	3	1	2
Total	32%	36%	41%	9%

For buyers at the auction, there are alternative options that offer regional produce, and the quantities they need and at a set price. It is important to note that in the summer of 2013, which is when this research was conducted, it was wetter and warmer than normal during strawberry season, resulting in early ripening strawberries that flooded the market at auction. Growers who face this challenge with their produce frequently discuss this dilemma:

... we sold 6 flats there, 36 quarts, because the heat on the Sunday just flipped them all to red. The market was flooded that week, and the price for the berries was very low because everyone had that problem (Grower, EPAC).

This problem is magnified since auctions operate as an overflow mechanism for some farmers. Therefore, when the weather turned and strawberry farmers were faced with high volumes of strawberries, they were unable to sell through their regular outlets and this led them to sell the excess through auction.

Price volatility represented an inconvenience for both buyers and growers at the auction. In order for the auction to be successful, prices must be fair for both parties. However, auction prices do not provide a consistently good range for either group, leading both groups to look for alternative arrangements. This trend undermines the stability of the auction—pulling the participants who are necessary for the existence of auctions away to other more conventional venue. Often, participants spoke of auction prices in similar ways to the following:

The market [farmers market] price is fairly steady, whereas the auction is very volatile (Grower, EPAC).

Overall, the auction was believed to have:

... the most inconsistent prices that you'll find anywhere (Buyer, EPAC).

4.2.2. Accessibility

The issue of accessibility was another barrier discussed by both types of participants at more or less equal levels (see Table 3). Concerns about accessibility relate to two key factors: time and location. In particular, if the auctions themselves take too long they become less accessible for certain types of participants. Similarly, some participants felt that the auction was too far from their farms and having more auctions spread throughout Southern Ontario would be useful. The issue of distance was particularly problematic for the OOM community who often rely on horses and buggies. These issues are summarized in the following quotations:

The auction is a little bit further away than I would like it to be. It takes a good chunk out of the day to get there and drop off the produce (Grower, EPAC).

In terms of time, it can already take too long to get through the auction. Not everyone can wait around all day for it to finish. The big buyers tend to get impatient, but it's fine for me (Grower, EPAC).

... no restaurant guy is going to spend three hours here hoping to get what he needs (Buyer, EPAC).

4.2.3. Costliness

The idea of costliness was a theme primarily discussed by buyers at both auctions (as Table 3 indicates). However, the frequency with which it was mentioned was higher at BHPA (41%) compared to EPAC (19%). Many respondents blamed the retail buyers (e.g., individuals buying for their own family rather than buying for a business) as they are purchasing for themselves and have no concern with resale value or whether they are able to make a profit. For these individuals, the auction attempts to tailor to two types of buyers (wholesale and retail), despite its reputation for being a wholesale outlet, which created a problem for some buyers:

The auction attracts both wholesalers and retailers, and it's very hard to compete with retailers because they'll pay anything to get the produce (Buyer, BHPA).

The individuals who were perceived as retail buyers were frequently looking for small lots sizes (e.g., usually three flats or less for strawberries). Wholesale buyers, on the other hand, are looking for larger quantities (e.g., as much as ten flats). It is the belief of wholesale buyers that retail buyers drive up overall produce price, as they are not concerned with profit generation:

City people [e.g., people willing to pay retail prices] will pay more for produce, so I have to compete with them when I'm buying at the auction, but my customers will get upset if I charge too much. This means I can't pay too much at the auction (Buyer, BHPA).

Since participants feel auctions are expensive, this limits the auctions' role as AFSs since community members are not able to benefit through this rural market. In this sense, the produce auctions are not successfully acting as AFSs. The high prices deter buyers from returning to the auctions regularly. High prices (as well as the inconsistent prices mentioned earlier) make it difficult for buyers to prepare their budgets beforehand. This is difficult for buyers who rely on this produce for their own businesses. However, high prices are most likely more concerning for wholesale buyers since higher prices directly translate to their potential customers. Customers could be dissuaded from purchasing produce from them in the future if their prices are too high. Retail buyers are already paying out of pocket, with no concern for prices afterwards, allowing more room in terms of how much they are willing to pay.

4.2.4. Minimal Returns

Lastly, growers at the auctions were the primary respondents who discussed the idea of minimal returns (see Table 3). This is unsurprising since they are on the received end of the auction, whereas the buyers may not consider this. Interestingly, participants from EPAC articulated this theme more frequently. Perhaps this is due to EPAC's proximity to various produce outlets, which may result in increased expectations for goods. This idea will be discussed further in the discussion section. Participants who mentioned this theme spoke similarly to the following quote:

If farmers were to rely on only the auction, it would not support them or the community (Buyer, EPAC).

For many of the growers who mentioned this theme, it was openly acknowledged that selling produce off their land was more profitable through "pick your own" venues or farm stands:

I tend to get lower prices for my strawberries at the auction than I would get at home (Grower, EPAC).

As was mentioned before, this is compounded by the fact that growers pay a portion of their profit to the auction:

I think it is a good tool [the auction], but it takes 4% commission off everything that is sold, so that takes away a fair profit from the growers (Grower, EPAC).

The reduction of profit through commission at the auction is compounded by the fact that the auction is a wholesale model. This means that the buyers who attend the auction are looking for cheaper produce in larger quantities—much like when people buy items in bulk in order to gain a discount. The target audience of wholesale buyers indicates prices will be lower, and this is what buyers are seeking.

5. Discussion: How to Overcome the Barriers to This Model?

Overall, we draw from our results four key barriers perceived by research participants as preventing the produce auction model from reaching its full potential. Each of these barriers is explained in Table 4.

Table 4. Barriers that limit the wholesale produce auction model.

Barrier	Summary	Illustrative Quote
Consistency	The auctions provide inconsistent supplies and varieties of produce.	<i>Consistency is key to the auction. The buyers won't come to the auction if they don't know what will be there (Grower, EPAC).</i>
Communication	Since produce availability is inconsistent, there needs to be more clear communication between the auction and buyers (e.g., through generating a website to post seasonality, or a flyer, etc.)	<i>... the website think I think would be a great change. It would really help, like I said for me, I pretty much have to count on them. If I want to continue buying my stuff there I pretty much have to know that it is going to be there because of the volume that we are selling (Buyer, EPAC).</i>
Participants	With an increase in buyers and grower, the auction would create a positive feedback relationship. If the first three barriers were overcome, the auction would be able to entice more participants.	<i>If the auction were bigger you would have more variety of produce. This would create all kinds of potential for suppliers and for buyers. The auction could become unlimited, both in terms of production and supply (Buyer, EPAC).</i>
Organization of Auctions	There is a great deal of displeasure in how the auctions operate on a day-to-day basis, with a particular need for more appropriate lot sizes and general organization of the auctions, specifically with regards to separating wholesale buyers from retail buyers.	<i>A barrier is the simple fact that we [the auction] are almost too big for small buyers, and too small for big buyers. We are not attractive to the real big players. Some days I wish there were more buyers on the floor but other days growers get what they want, as do the buyers — it all depends on the demand (Grower, EPAC).</i>

Firstly, despite buyers feeling they receive higher quality produce (a theme that was only mentioned by buyers) it is believed that the lack of consistent volumes and types of produce deters buyers from the auctions. It was frequently mentioned by participants that potentially larger and more regular buyers, such as chefs supplying their restaurants, are deterred from the auctions as more accessible outlets offer more consistent supplies. This barrier is also a theme discussed in other literature; for instance Guptill and Wilkins [47] show that consistency, in terms of quality and supply, was a barrier to grocery stores working with local producers. However, many growers noted that it would be helpful if buyers remember that farmers are dependent on a range of factors (e.g., the weather) and one limit of the local seasonal food system is that availability will be dependent on sun, wind and rain. Again, this highlights a key tension between consumer expectations and the degree to which it is even theoretically possible for so-called alternative food institutions, such as the produce auctions studies here, to ever meet the expectations of a buying public that has come to rely on year-round consistent products and a high degree of convenience.

Second, the data presented here demonstrate a lack of communication between buyers and growers, resulting in an inherent problem with the model. Past research has shown that solid communication process is essential to a strong AFS [48]. Without any obvious way for growers to communicate with buyers, consumers have no idea of what will be available on any given week. Without knowing what is available, many buyers run a risk by waiting to find out what is available and they may end up without the products they require. On one hand, this problem may be addressed with improvements in communications and information technologies and there are numerous start-up companies across North America that are currently developing platforms to link local buyers and growers [49]. However, given that auctions are so closely linked with the Old Order Mennonite community, it is likely that the auction organizers studied in this project will resist such innovations.

Thirdly, despite growers frequently mentioning that the auctions should be an engine of economic opportunity (which could be explained as a result of the auctions being designed to generate access to

a market for Old Order Mennonite producers), the contribution produce auctions studied here made to economic development seems limited, in part due to the way they are organized. In particular, the auctions studied for this paper tried to serve both retail and wholesale buyers, resulting in a sub-optimal experience for both groups of buyers and growers.

Fourth, each of the previous barriers contributes to a lack of both growers and buyers, which was perceived as a key problem faced by the auction in interviews. Through addressing each of these previous barriers, it was perceived that auctions would be able to expand and accumulate more buyers. However, currently this relationship is not flourishing, and economic limitations exist that contribute to a lack of participants. Critically, this discussion returns us to the tension mentioned at the beginning of this paper: namely, there seems to be an intrinsic trade-off between creating a large enough volume of sale for so-called “alternative” food enterprises to make a meaningful contribution to regional economies and the importance of maintaining a relationship between buyers and growers. The evidence presented in this paper suggests that the auction marts studied here may fail at both tasks and, as the fourth quotation in Table 4 suggests, the auctions are both too big for small buyers yet too small for big buyers. These results are similar to that found by Karg [50] in her study on a produce auction in Wisconsin and overall we conclude that such barriers have caused the auctions to become inconvenient, ultimately limiting the future of this model, as other AFSs exist that are more convenient for buyers and growers.

Overall, our data show that despite the promise of the auction mark as a vehicle for advancing the values of the AFS, scale remains the proverbial “elephant in the room” [26]. In the end, wholesale produce auctions are designed for wholesale growers and buyers. Small growers will be disappointed in the price, and commercial buyers will be frustrated by the price if the volumes and quality are not present. One way to address this is for auction policies to limit access to these two key parties, to registered growers and buyers who have demonstrated volume and shared interests. However, this would require a much greater—and more explicit—focus on behalf of the auction organizers who could make the decision to exclude small producers and commercial buyers but in many ways this would undermine the efficacy of the produce auctions as a vehicle to promote the values of AFSs. Of course, the results and conclusions presented here are difficult to generalize because the produce auctions studied are so embedded in the Old Order Mennonite tradition that these trends may not be observed in other cultural contexts. Nevertheless, none of the data collected for this study suggest that the results would be different if these auction marts belonged to other traditions and we have no evidence that this model provides significant strategies to address the challenge of allowing an AFS to scale up while remaining true to its “alternativeness.”

6. Conclusions and Recommendations

Acknowledging the conundrum between the desire to make our food systems more sustainable and the need to offer buyers a more convenient experience is essential to moving forward with the development of strong AFSs that become widely used by consumers. But the tension between maintaining the relationship between producers and consumers and the need for growers to be able to attract institutional buyers remains and nothing in our results suggest that as currently organized auction marts offer a solution to the problems associated with increasing the scale of the operation identified at the beginning of this paper. In order to begin addressing these tough and perhaps intractable issues, changes must be made to allow AFS of all sorts including the produce auctions studied in this paper to increase offered conveniences. In order to achieve this, we offer some potential modifications for the wholesale produce auction model that represent the start of a potential strategy.

Firstly, better partnering between produce auctions and large institutions (such as hospitals or universities) may help address some issues. In this case, positioning auctions adjacent to, or on the property of, these institutions may address convenience and re-socialization simultaneously and help auction marts attract a wider and more robust consumer base. Diminishing distance that buyers have to travel may increase participant utilization of this model of AFS and allow a greater volume of sale

without reducing the social connection between buyers and sellers. It may be also expected, though this would be difficult to substantiate in the absence of data, that a more convenient location that attracted a larger number of purchasers would create a virtuous feedback cycle that would then attract more sellers and with more sellers, the convenience and the reliability of the products for sale would increase as well.

A second opportunity involves integrating technology in order to increase the ease of communication between auctions and its participants. As mentioned previously, technological integration is not a viable option where the Old Order Mennonite community is concerned. However, should an auction develop outside of these communities, using technology could play an integral part. This could be in the form of an online auction allowing buyers to access information necessary to attain the produce they desire while still sourcing their products from a local grower.

Lastly, a solution could stem from working with supermarkets produce procurement departments to purchase food from auction marts. This could open up the number of large-institution buyers that are seeking wholesale volumes of produce. Encouraging supermarkets to obtain produce from auction marts may help to create more consistent participants at the auctions, ultimately strengthening this model from the perspective of the growers. However, this approach is unlikely to provide any benefits in terms of creating a connection between the final consumer and the producer.

Through implementing one, or a combination of these modifications, the wholesale produce auction model could increase its participants, and by extension, increase the amount of local food consumed, ultimately allowing AFSs to have a larger impact of food systems. Through addressing issues of convenience, produce auctions may be able to develop as an AFS, allowing the dispersal of locally grown food through a more conventional model [39].

In the end, it is apparent that wholesale produce auctions offer many values that AFSs are intended to deliver to buyers and growers. The two case studies used in this project demonstrate that buyers believe they are receiving a higher quality product than food purchased through more conventional routes. Secondly, produce auctions provide a means of reconnecting growers and buyers by creating the opportunity for a relationship to flourish. Additionally, auctions provide an economic opportunity for both parties, through the creation of a localized market for buying and selling produce. Lastly, they help to support the community where auctions are drawing produce from, allow for this model to function as a rural development component.

However, despite all of these benefits, there are significant limitations that participants regularly discussed. For both buyers and growers, the auctions often lacked convenience, which was a prominent limitation as the auctions were initially intended for wholesale businesses looking for a ready supply of produce. This limitation was augmented by the fact that the auctions were often found to be inaccessible. Lastly, despite participants mentioning that the auctions provide an economic opportunity for both buyers and growers, they also mentioned, contradictorily, that produce was too expensive and did not provide enough return to be a reliable business avenue for growers.

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