

How to Develop a Local and Regional Institutional Food Buying Program

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Introduction and Background

The impetus for this paper is that institutions purchase a large quantity of food, and while institutional demand for local food has grown greatly in the past few years, the amount of local food that institutions purchase is still a small percentage of their overall food purchasing (Becot, Conner, Nelson, Buckwalter, & Erickson, 2014; Buckley, Conner, Matts, & Hamm, 2013). This presents an array of opportunities for local farmers and service providers. The goal of this paper is to explore how a tiered buying approach could support the development of a local and regional institutional food buying program. The paper is structured as follow; first we will define local food and discuss its growth in recent years. We will then look at value-based buying by institutions, including their motivations, willingness to pay (WTP), the benefits and barriers to food services, the different types of institutions and what they value. We will also explore the capacity of Vermont and New England, our areas of study, to feed themselves in order to understand potentials and limits for a greater amount of local and regional food purchases. Next, we will discuss the potential benefits and challenges of regional sourcing; then we will introduce a “three-tiered” approach to purchasing and its potential usefulness. Finally, we will describe national organizations that are working towards increasing institutional local food procurement and their approaches.

There are no commonly accepted definitions of where local food comes from (Campbell, DiPietro, & Remar, 2014; Conner, Becot, Hoffer, Kahler, Sawyer & Berlin, 2013; Martinez, Hand, Da Pra et al., 2010; Timmons, 2006). An institution might choose to define local as coming from a certain radius while policy makers or researchers might choose state boundaries. Selfa and Qazi (2005) found that for some people “local food systems are defined by social relationships that may or may not be geographically proximate”, while for other people “local food systems are defined by a politically constructed boundary” (p.462). The USDA defines local as less “than 400 miles from its origin or within the state in which it is produced” (Martinez et al., 2010) and the Vermont Legislature has chosen the definition of the goods originating within state boundaries or from within 30 miles of where there are sold. As Timmons (2006) pointed out, the problem of the definition is unavoidable as it vastly relies on the interest of stakeholders choosing a definition. To further complicate the

matter, it should be noted that the definition of local tends to refer to easily traceable foods such as raw produce or meat but the definition gets even murkier when discussing processed products. Conner, et al. (2013) alluded to this challenge. An example could be of a local producer of salsa in a northern state which might source all of the ingredients locally during the growing season and might source from further away during the off season in order to maintain a year round activity and supply. In this case, would the product be identified as local for parts of the year and not for other parts of the year? Michigan's approach for processed food is 50% of local ingredients (Colasanti et al., 2010) while Vermont's is processed in Vermont with no mention of where the ingredients are from (Vermont Sustainable Jobs Fund, 2011).

Nationally, most local food is marketed directly to consumers through farmers markets and farm stands or through intermediated outlets such as grocers or regional distributors. Using 2008 data, it was found that small farms account for 81% of local sales and medium size farms account for 17%. The use of marketing outlets also varies based on farm size; small and median farms tend to market their food locally, mostly directly to consumers (78% and 70% respectively); while large farms that market food locally do it about evenly between direct-to-consumers outlets (55%) and through intermediate outlets (45%). In 2012, \$1.3 billion of agricultural products from 144,530 farms were sold directly to consumers representing an 8% increase in dollar amount and a 6% increase in the number of farms since 2007. In comparison 50,000 farms sold directly to retail outlets including restaurants, grocery stores, schools or hospitals (USDA, 2014). Benefits of selling food directly to consumers include a strong consumer demand for local food, the ability to capture a price premium, the ability to better communicate product attributes and values, and flexibility in terms of the quantity produced due to lack of contracts (Martinez et al., 2010; Sage & Goldberger, 2012) while the limitations include transaction costs, including marketing costs, a greater need for management and marketing skills (Martinez et al., 2010; Park, Mishra, & Wozniak, 2014) and that direct markets may be saturated in parts of the country. Low and Vogel (2011) argue, "for local foods production to grow, marketing channel and supply chain infrastructure must deepen" (p iii). It should be noted that this pertains to foods identified and marketed as "local" as a means for differentiation, rather than products like fluid milk which are commonly produced and consumed locally but not identified as such.

Value based supply chains (VBSC) offer a possible solution to the limitations of direct marketing and have the potential to increase both the volume and value of local food moving through the food system. VBSC have been viewed by scholars and practitioners as a way to more efficiently move food through a supply chain than direct to consumer sales while adding value for all of the actors along the chain including farmers, distributors and institutional buyers (Bloom & Hinrichs, 2011; Conner, Nowak, Berkenkamp, Feenstra, Van Soelen Kim, et al., 2011; Marshall, Feenstra, & Zajfen, 2012). Bloom and Hinrichs (2011) talk about the "embeddedness mechanisms to ensure social, environmental and economic benefits for supply chain participants" (p14). Embeddedness is "the degree to which economic actors operate in social networks, particularly the role of relationships among actors engaging in economic transactions" (Conner, Sevoian, Heiss, & Berlin, 2014, p. 697). For these embeddedness mechanisms to occur, open lines of communication as well as

clear communication among all actors need to be present and cultivated (Conner, Nowak, Berkenkamp, Feenstra, Solen-Kim, et al., 2011) as well as complementary partnerships (Joshi, Misako Azuma, & Feenstra, 2008). The cultivation necessary in VBSC is sometimes facilitated by outside actors of the supply chain, sometimes called supply chain facilitators, who take it upon themselves to understand and address the needs of actors. Nationally actors such as School Food FOCUS and Health Care Without Harm have played this role and in Vermont such actors include the Northeast Organic Farming Association of Vermont (NOFA-VT), Rutland Area and Farm and Food Link (RAFFL) and Farm to Institution New England (FINE).

Values Associated with Local Procurement

Looking across Farm to Institution (FTI) studies that have been conducted over the past 10-15 years, the overwhelming motivators for buying local are related to supporting the local economy; supporting local farmers and enhancing farm viability; procuring higher quality and healthier food; meeting customer demand for local foods in institutional meals; and higher sales or participation rates (Bloom & Hinrichs, 2011; Izumi, Wright, & Hamm, 2010; Vogt & Kaiser, 2008). Motivation for organic food, antibiotic free and foods with lower amounts of pesticides are mostly related to health concerns and environmental issues (Lockie, Lyons, Lawrence, & Mummery, 2002; Loureiro & Hine, 2002). These motivators appeared stronger in hospital and school settings; tighter cost constraints generally precludes use of organic foods in K-12 settings (Conner, Sevoian, et al., 2014; Izumi et al., 2010; Montague, Wilcox, & Harmon, 2014; Stanley, Colasanti, & Conner, 2012; Woodward-Lopez et al., 2014). Motivation for humane and fair trade seemed to be stronger in the university setting (Barlett, 2011; Howard & Allen, 2010). A couple of studies suggest that consumer demand had the most impact at the university level where food services feel more pressure to respond to the needs of their clients (Horovitz, 2006; Perez & Allen, 2007).

Local was an important motivator across all institutional settings, suggesting that institutions may conflate other values with local, such as humane, environmentally friendly, fairly traded or healthfulness (Delind, 2006; Peters, Bills, Wilkins, & Fick, 2008; Selfa & Qazi, 2005). Yet, purchasing local foods does not guarantee any of these values, just geographic proximity. Many studies discuss support of the local economy and farmers as a primary motivation of buying local; these issues also have broad political buy-in (Wright, Score, & Conner, 2008). Additional research looking at motivators of institutions beyond supporting the local economy might help understand the other values that institutions associate with local. As discussed above, the literature commonly cited support for local economy as a motivation; more research is needed to measure the preponderance of other motivations in larger samples.

Consumer Willingness to Pay

Price is one of the biggest barrier for institutions to buy local food (Becot et al., 2014). Consumer willingness to pay (WTP) measures the maximum amount consumers would be willing to pay for given products or attributes. There are numerous WTP studies for

individual consumers (e.g., for local, organic, pasture-raised, Fair Trade and other attributes) yet only one study specifically looks at institutions' WTP. In this study, Pinard et al. (2013) conducted pre and post assessment surveys of a local food purchasing program with 69 food service directors, local food processors and food distributors in Nebraska. They found that WTP for locally produced food slightly increased after participation in the local food purchasing program, yet gave no specific magnitude or percent premium. Motivation for participants in this study included supporting the local economy, increasing fruit and vegetable consumption, responding to public demand and higher food quality. Most school districts reported that they would buy local food in the coming year while none of them were before the local food purchasing program.

In a university setting, Perez and Allen (2007) found that local was the attribute chosen most often as a motivation for buying a product followed by humane, and one third of meal-plans holders were willing to pay more for food with humane attributes. In terms of individual WTP, researchers have found that consumers were willing to pay more for local than they were for organic (Loureiro & Hine, 2002; Wang, Sun, & Parsons, 2010). Consumers were less willing to pay for living wage, US grown and small scale than they were for locally grown.

Benefits and Barriers of Local and Regional Sourcing

The perceived benefits of FTI are broad and cover a vast array of stakeholders. As Feenstra and Ohmart (2012, p. 287) pointed out for farm to school (FTS) programs: "it appeals to multiple constituencies. It is more than just an obesity prevention or health maintenance strategy or market for family farmers. If farm to school is to survive and grow, we need to illuminate all of its aspects including contribution to farmland preservation, environment sustainability, and particularly jobs and boosting local economies". Students benefit through greater variety and fresher and healthier food, farmers benefit through additional markets, food service personnel benefit through playing a bigger role in the cooking of food and by playing an educational role, and institutions benefit from increased positive PR through supporting the local economy. Communities as a whole benefit through more money staying in the local economy (Becot et al., 2014; Conner, et al., 2011; Feenstra & Ohmart, 2012; Gregoire, Arendt, & Strohhahn, 2005; Harris, Lott, Lakins, Bowden, & Kimmons, 2012; Morgan, Matsuoka, & Shamasander, 2012). No study we have found specifically examines benefits of regional foods separately from local or how these benefits change as the definition of local or distance from the source changes.

Many barriers to increased institutional local sourcing exist. These include cost, which is often cited as a top concern, food safety and liability, quality, reliable and adequate supply, seasonality of supply, regulatory barriers and contradictory procurement policies, managing multiple vendors, communication among actors of the supply chain, low skills of food service workers, loss of original champion, and lack of infrastructure for aggregation, distribution and processing (Barlett, 2011; Conner, Estrin, & Becot, 2014; Conner et al., 2011; Feenstra & Ohmart, 2012; Harris et al., 2012; Marshall et al., 2012). Again, we found no studies looking specifically at barriers to regional food purchasing by institutions or how barriers change as the definition of local or distance from the source changes.

Differences across Institutions

To better understand the values of different institutional sectors, we should first understand the different parameters of their operations. Becot et al. (2014) highlighted the differences between several types of institutions. Schools operate under tight financial constraints and strict federal nutritional guidelines, and their operations also tend to be limited due to the school calendar. Hospitals serve patients with compromised immune systems and varied dietary needs. College food services are often operated by contracted food services companies, tend to be operated in more competitive environments and are often driven by students' demand. In their study of institutional food services, Becot et al. (2014) found that schools, colleges, nursing homes and hospitals attributed more importance to freshness while prisons attributed more importance to quality. Food safety was an important consideration for hospitals, nursing homes and colleges. Conner, et al. (2014) used key informant interviews (n=20) to examine supply chain actors' values and found that schools value food security, local produce, education and communication. Universities value price, quality and provenance, while hospitals value health, quality, building relationships and local food. Conner et al. (2014) concluded that for all institutions, "social values were tempered by financial considerations" (p 710). These two studies suggest that values and needs were directly connected with the missions of the institutions though it is important to note that these two studies were focused on Vermont and while they are starting to bring evidence to the question, studies with bigger samples across a greater geographical area are needed to validate or refute these results.

Capacity of Vermont and New England to feed itself

In light of FTI proponents' work to increase procurement of local food, limited supply is a key barrier and it is therefore important to consider Vermont's and New England's production capacity and land availability. Before industrialization and the introduction of long distance transportation and refrigeration, people's diets were almost exclusively local (Donahue et al., 2014; Timmons, 2006) and most people were involved in food production. Therefore Vermont and New England used to be able to feed themselves (Timmons, 2006) with the exception of the import of products that could not be locally grown such as coffee, chocolate or spices. With the decrease of transportation costs and the industrialization of agriculture, the local food system has been replaced by a global commodity system; therefore relocalization of the food system will require a tremendous effort to rebuild the infrastructures, production capacity, and aggregation and distribution channels. A notion often addressed along with the notion of relocalization and the ability of a region to feed itself is the notion of food resiliency. Fraser, Mabee, and Figge (2005) argue that the complexity of the modern food systems has increased its exposure to disturbances and shocks that could compromise the national and regional food systems. Examples of disturbances include terrorist attacks, changes in the cost of oil or weather events such as droughts. Fraser et al. (2005) further argue that the food system is the most vulnerable to disturbances when it is highly productive/biologically wealthy (meaning that the country relies heavily on one area for its food), non-diverse and tightly connected. Benefits of decentralized food system include increased protection from external shocks (Seyfang, 2007) leading to increased resiliency.

But the question of the capacity of the land to support its people remains. Some studies have focused on land currently and potentially in production to give estimates. Peters, Wilkins, and Fick (2007) found for instance that New York's land base could feed about 21% of its population while if the population were to switch to a diet that is less land intensive (i.e., less meat consumption under certain conditions) the land base could feed about five times the number of people. Griffin, Conrad, Peters, Ridberg, and Tyler (2014) found that about 8% of all land in the Northeast region was in food production and while there were more than 100 crops grown, nine crops accounted for 90% of the cropland area. They conclude that it would require the conversion of marginal land to cropland use in order to expand the agricultural land base. The New England Food Vision found that New England produces half of the dairy consumed, but less than half of the vegetables and one quarter of the fruits eaten in New England. Though the methods used for the study were not described, it concluded that New England could produce one half to more than two thirds of the food required depending on the amount of marginal land converted to agricultural usage (Donahue et al., 2014, p. 3). Barriers to produce all of the food include urban population centers, climate and seasonality, limited farmland (Donahue et al., 2014), asset fixity (knowledge, equipment), risk and labor availability. However, according to Timmons (2006), Vermont is capable of producing much of its' food based on historical records and land capability. Some studies have quantified Vermont's potential food self-efficiency to be between 27 and 123% (Timmons, 2006). Finally, it is important to mention that the studies looking at land use to feed its population mostly disregarded the economic aspects of the food system such as existing trade relationships (imports and exports), existing industries and available labor force.

Timmons (2006) and Conner, et al. (2013) looked at the question from an economic perspective. According to Timmons, Wang, and Lass (2008) due to data limitation it may never be possible to know exactly how much locally grown food is consumed locally. They found that of all the food that is purchased in Vermont, the maximum possible amount produced in Vermont is 37.8%, but the true amount is certainly less than this. Using different methods, Conner et al. (2013) found that at least 2.5% of Vermonters' food expenditure came from in-state in 2012. In any case, Vermont produces enough fruits and dairy to meet dietary guidelines but not enough vegetables and proteins. Conner et al. (2013) concluded that different states have different strengths, land characteristics and infrastructures and that therefore, it is not realistic to produce the full diet needed by people within each state, given current market realities and consumer preferences. Collaboration across the region would allow for a more localized and varied diet while playing on each state's strengths.

Surprisingly, no study addressed the availability of labor. Agriculture can be labor intensive, is typically not well paid, and the farmer population is aging (USDA, 2012). These issues will also be crucial to address when talking about re-localization of food systems.

Discussion of Other Models

Several organizations at the national level have been working with institutions wishing to change their food purchasing. Below is a description of organizations that work with different types of institutions, the products/technical assistance they offer and to what extent they advance local procurement.

The National Farm to School Network (NFSN) was launched in 2007 by over 30 organizations working around the FTS movement. It works with schools at all levels of involvement in FTS programs. As of 2014, over 40,000 schools in all 50 states are participating in the network. The network has six priorities and they are: 1. Policy development, 2. Training and technical assistance, 3. Information development and dissemination, 4. Networking, 5. Media and marketing and 6. Research and evaluation. The NFSN recently launched a FTS evaluation framework and schools have access to resources on their website including recipes, food service training and fundraising. The NFSN is most likely the biggest and most well-known organizations that supports FTS and has gone through tremendous growth since its launch.

The Real Food Challenge is working with universities across the country to “shift \$1 billion of existing university food budget away from industrial farms and junk food and towards local/community based, fair, ecologically sound and human food sources by 2020.” As of 2014, 157 universities have signed on representing \$78 million in food purchases. The program includes leadership training, conferences, awards and online resources for students, food service professionals and faculty. The real food-tracking calculator includes a baseline survey, assessment plan and tracking of “real food” purchases, which allows universities to track their progress. It is important to note that local is only one of four dimensions (sustainable humane and fair). Universities are the institutions that are the most sensitive to the demand of their consumers and the real food challenge is building momentum on campuses across the country.

School Food FOCUS is a national collaborative that leverages the knowledge and procurement power of large school districts to make school meals nationwide more healthful, regionally sourced and sustainably produced. School Food FOCUS has worked with 36 of the largest school districts in the country representing over 4.2 million students. The learning lab directly works with school districts to help them identify changes they want to make and help them work towards those changes. The learning lab has also worked with big actors in the food industry such as Tyson and Jennie-O to reformulate products towards desired specifications .

Health Care without Harm (HCWH) works with hospitals across the country who want to improve the sustainability of their food services. The Healthy Food in Health Care (HFHC) initiative was started in 2005 and provides education, tools and resources to support health care facilities. The Healthy Food Pledge has been signed by 548 hospitals and seven food service contractors who have committed to increase their purchase of local and sustainable food including fair trade and anti-biotic free. Resources and tools include purchasing guides for hospitals, group purchasing organizations and distributors, policy

statements, fact sheets and reports. HCWH also supports hospitals and health care facilities through regular meetings of regions across the country and one-on-one technical assistance.

Partnership for a Healthier America (PHA) works with the private sector to increase healthy food intake of children in order to solve the childhood obesity crisis. While not specifically working on local food purchasing it is actively working on increasing the quantity of fruits and vegetables eaten at participating organizations. These organizations include: Bright Horizons Family Solutions, New Horizon Academy, the YMCA, Kaiser Permanente, the Boys and Girls Club of America and Sodexo. PHA works with third parties to ensure that commitments made by organizations are kept. PHA also publically communicates commitments of organizations and offers opportunities for organizations to network.

While all of the initiatives vary in who they work with they all seem to focus on more than one food aspect such as local and various aspect of sustainable. All of these organizations provide support for the institutions to help them reach their goals though at this point evaluation of these organizations' impact is limited.

Analysis: what are the potential benefits and challenges of regional sourcing?

Nabhan (2002) argues that regional food systems are more sustainable than the conventional food system and that the "relocalization" of the food system has the potential to be an alternative to the conventional food system (Henderson, 2000). While relocalization of the food system is seen as an alternative to the current global commodity system, some observers believe a regional approach can enhance food systems sustainability even further. Research on regional food systems is fairly limited and has strictly looked at land use availability (Clancy & Ruhf, 2010; Griffin et al., 2014). Clancy and Ruhf (2010) argue that, "a regional food system includes "local" but operates in a larger, more comprehensive scale". For them, a regional food system framework must include: food supply, natural resource sustainability, economic development and diversity. It is important to note that local and regional approaches can strengthen and complement each other.

Due to limited empirical evidence on the topic, we have made assumptions and projections in order to be able to answer the question "what are the potential benefits and challenges of regional sourcing." A main assumption is that by looking more broadly at regional food systems instead of local (a state for instance), the number of potential food suppliers is greater and it allows access to a greater diversity of farms (in scale, products, production practices) and bigger regional players, an assumption in line with Clancy and Ruhf (2010). The other assumption is that there is a surplus of foods that are not consumed locally and therefore that are available for regional purchase. The potential downside is that regional trade increases the number of buyers and may divert local products to regional markets.

Based on these assumptions it seems that increased regional sourcing would complement some of the goals and benefits of local sourcing that were highlighted earlier.

- Food resilience: with a larger geographical area covered, the regional food system increases the ability of the populations to feed themselves increasing food resilience with foods consumed relatively close to the place of (Clancy & Ruhf, 2010). This would decrease exposure to the disturbances and shocks noted earlier by Fraser et al. (2005) and Seyfang (2007).
- Farm viability: within a regional approach, farms will have larger markets to serve, increasing demand for their products. In addition, each farm will have greater ability to specialize in crops for which they have competitive advantage and gain economies of scale.
- Farmland preservation: with bigger markets to serve and a focus on local and regional markets, more land would need to be farmed. Looking at land availability, there seems to be room for growth since about 5% of the land in the region is currently in food production (Donahue et al., 2014) with an estimated 15% that could potentially be used for food production.
- Humane, fair, healthful and environmentally friendly: it is likely that a regional approach will provide access to a greater number and diversity of vendors, and therefore increased availability to affordably and reliably source humanely raised, fairly traded, antibiotic-free, eco-friendly and other foods with attributes found important in previous studies.
- A regional approach may also facilitate more efficient and therefore less fuel-intensive aggregation and distribution systems, decreasing environmental impacts.
- Variety of products: the variety of products would most likely increase as buyers would be drawing from a bigger pool of food.

In all instances though, regional sourcing does not compliment local purchasing.

- Local sourcing highlights the benefit of economic development. A regional food system might feel less connected for institutional buyers and consumers. In this situation, the benefit of supporting the local economy might not be perceived as reinforced at the regional level.
- Food safety concerns and liability: these will most likely not decrease. Food safety and liability must be addressed by individual farms and the food safety barrier might actually be greater in the case of regional sourcing as the Food Safety Modernization Act (FSMA) exemption based on geographic location of consumers may no longer apply. Liability insurance requirements might also be greater for a regional distributor than they are for a smaller scale distributor or food hub.
- Regulatory barriers: these will most likely not decrease and might actually increase due to interstate commerce regulations that might not have been at play before.
- Competition for bigger markers in the region who are willing and able to pay more might diminish the local supply to local institutions.
- Freshness: with longer distances to travel, freshness of food might decrease unless efficient transportation networks and aggregations systems can be put in place.
- Education: this benefit, most notably in the FTS setting, has been strengthened by putting the “face of the farmer” on food and going on field trips. In the case of the regional food system this part might be lessened; however, educational foci could

shift to educate children on what their region is and the types of food that are grown.

Most likely, regional sourcing would be more helpful in terms of decreasing some of the barriers of local. We will also discuss these barriers one by one:

- Unreliable and inadequate supply: regional sourcing would most likely be the most helpful in decreasing this barrier by increasing the pool of available food.
- Seasonality: institutions might be able to benefit through a longer growing season, purchasing fresh produce from parts of the region that have a slightly a milder climate and longer growing season.
- Lack of infrastructure for aggregation, distribution and processing at the local level: drawing from a larger geographic area, access to infrastructure would be increased at the regional level.

In terms of price, it is difficult to predict the effect regional sourcing would have. Increased supply, greater specialization and economies of scale in production and distribution could decrease price yet increased demand could increase price.

We argue that each benefit would be slightly diminished *ceteris paribus*, where local achieves higher benefits than regional except for the additional market channels for farms, farmland preservation and variety of products, in which case these benefits would likely increase. On the other end, some of the barriers such as unreliable and inadequate supply, seasonality and lack of infrastructure are most likely going to be more relieved the wider the geographic scope of purchasing is.

As mentioned earlier, consumers and institutional buyers have conflated values in local such as environmental friendliness, fair, livable wage or safe: yet “local” does not mean that the other values are present. Moreover, regional foods do not have the same appeal as “local” and they might not be “sufficiently recognized or desired in the marketplace” (Clancy & Ruhf, 2010). Based on WTP studies, WTP was higher for local food than it was for other attributes such as organic or fair trade. When the supply of local food is exhausted, buyers might be interested in purchasing the next more valued attribute (Born & Purcell, 2006). For those who value provenance, food grown in the state or region would be valued compared to nationally or globally sourced. Therefore in order to take advantage of the additional values it is important to understand what the values are and how they can be individually identified. This is where a “three-tiered” approach might help institutional buyers make purchasing decisions.

The Three Tiered Buying Approach

The three tiered buying approach is a framework that could be used to help institutional buyers prioritize their purchases based on food attributes important to them. This approach has been designed to augment the continuum of buying local food to take into consideration the motivations of buying local including seasonality, food resilience, etc. A tiered approach has been used by a few institutions across the country. Yale University

developed a tiered approach with a combination of geographical preferences as well as other values such as organic or small scale. Yale used this approach to clarify their purchasing preferences, which included trade-offs in sustainability goals for local sourcing, production methods and scales of operation (Barlett, 2011). The Yale approach for vegetables can be seen in figure 1. The guidelines vary for vegetables, fruits or meat. The San Diego Unified School District used a tiered approach based solely on geography: tier 1 is 25 miles from county line, tier 2 is 250 miles from the distribution center and tier 3 is California grown (Marshall et al., 2012).

Yale Sustainable Food Project - Vegetable Guidelines

First Tier (ranked in order of preference)

- Connecticut organically – grown
- Connecticut ecologically –grown
- Regional organically – grown
- Regional ecologically – grown
- Connecticut conventionally – grown – small scale operation
- Regional conventionally – grown – small scale operation

Second Tier (ranked in order of preference)

- Connecticut conventionally – grown - medium scale operation
- Regional conventionally – grown - medium scale operation
- US organically – grown – small scale operation
- Connecticut conventionally – grown- large scale operation
- Regional conventionally – grown large scale operation
- US ecologically – grown - small scale operation

Third Tier (ranked in order of preference)

- US organically – grown medium/large scale operation
- North America organically – grown
- US ecologically – grown medium/large – scale operation
- International organically – grown
- US conventionally – grown – small scale operation

Fig 1. Yale Sustainable Food Project three-tiered approach

Each institution can work on developing a tiered approach which could be aligned with its priorities, goals, values and limitations, which could be included in the RFP language. Some institutions might limit their tiers to different geographical scale, which is what the San Diego Unified School District did, while others might add attributes related to values, which is what Yale University did.

Implications and conclusions

Research related to FTI is still at an exploratory level and none of the studies shared in this paper could claim to be representative of the populations studied. However, by comparing and contrasting the studies, some triangulation is possible and some common themes have appeared. Most of the research so far has focused on FTS and similar barriers and

motivators of other institutional sectors have been reported in various studies. The fact that so many institutions have reallocated some of their purchases to either more local or values based purchases shows that the interest is strong and will likely remain in the future. In support of these programs, the federal government and some states offer grants for FTS programs. Additionally, the new farm bill allocated funds to support the development of local food systems.

Our findings suggest a number of implications for FTI service providers.

- In order to support educational efforts to promote increased values based and tiered buying, materials marketing these ideas to institutional food service buyers must be developed in addition to marketing materials they can use to market this buying approach to their consumers.
- More efficient, transparent, and responsive supply chains need to be developed to maintain product affordability, reliability and quality. The VBSC model holds promise to ensure that the story and face of supplying farmers are communicated for educational purposes, and to ensure transparency and fairness for all actors. VBSC may also be valuable in communicating and verifying claims about ancillary values like environmental impacts, fairly traded, humanely raised, healthful, etc.
- Farmers may need assistance becoming wholesale ready, that is, able to meet the volume, reliability, packaging, and logistical requirements of meeting wholesale markets. Technical assistance in food safety may be particularly needed as farms lose FSMA exemptions, and as buyers and distributors demand third party food safety certifications.

While the barriers and motivations of institutions seem well understood, barriers and motivators for distributors and farmers are less understood. In order to understand and relieve some of the roadblocks a better understanding of these actors is necessary. When do farmers become wholesale ready? How does expanding markets to include regional markets impact farmers' local markets? Why should small and medium scale farmers sell to institutions when they can capture a price premium on direct markets (assuming direct markets are not saturated). Also little is known on how the new food safety law will impact farmers who have not gone through a food safety audit. Will available supply for institutions go down? Will the price go up?

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